Traffic Impact Study

# Claremont Filing 7

## El Paso County, Colorado

**PCD File NO. SKP222 & P223**

Prepared for:

**Rockwood Homes, LLC**

Kimley»Horn

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

Traffic Engineer's Statement

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

Jeffrey R. Planck

Jeffrey R. Planck, P.E., PE #53006 — May 18, 2022 Date

Developer's Statement

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

Mr. John Raptis
Rockwood Homes, LLC
5436 Carvel Grove
Colorado Springs, CO 80922

Date

# Claremont Filing 7

**PCD File No. SKP222 & P223**

El Paso County, Colorado

**Prepared for**
**Rockwood Homes, LLC**
5436 Carvel Grove
Colorado Springs, CO 80922

**Prepared by**
**Kimley-Horn and Associates, Inc.**
4582 South Ulster Street
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Denver, Colorado 80237
(303) 228-2300

May 2022

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## 1.0 EXECUTIVE SUMMARY

Claremont Filing 7 is a residential project proposed to be located on the southeast corner of the Meadowbrook Parkway and Marksheffel Road intersection in El Paso County, Colorado. For the purposes of this analysis, the project is anticipated to include approximately 150 multifamily dwelling units. It is expected that Claremont Filing 7 will be completed in the next the following year. Therefore, analysis was conducted for the 2023 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The intersections of Meadowbrook Parkway/Marksheffel Road and US-24/Marksheffel Road were incorporated into this traffic study in accordance with the El Paso County and State of Colorado Department of Transportation (CDOT) standards and requirements:

In addition, the proposed full movement access along Meadowbrook Parkway was evaluated.

Regional access to Claremont Filing 7 will be provided by Interstate 25 (I-25) and US-24. Primary access will be provided by Marksheffel Road. Direct access will be provided by a proposed full movement access located approximately 550 feet east of the Meadowbrook Parkway and Marksheffel Road intersection (measured right-of-way to centerline).

Claremont Filing 7 is expected to generate approximately 1,038 weekday daily trips, with 70 of these trips occurring during the morning peak hour and 86 of these trips occurring during the afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes Claremont Filing 7 will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

- With completion of the Claremont Filing 7 project, a full movement access is proposed along the south side of Meadowbrook Parkway. The access is proposed to be aligned with the Villas at Claremont Ranch access and is proposed to allow full turning movements. A R1-1 "STOP" sign is recommended to be installed on the exiting northbound approach. The median striping along Meadowbrook Parkway currently extends slightly past the location of the proposed access and will need to be modified to accommodate the proposed left in and left out movements at the access.

- Based on El Paso County standards, an eastbound right turn lane is warranted at the project access along Meadowbrook Parkway. According to Section 3.5: Auxiliary Turn Lanes of the CDOT Access Code, a right turn lane may be waived if the volume in the travel lane is predicted to be below 150 directional hourly volumes. Therefore, it is believed that the eastbound right turn lane at the project access along Meadowbrook Parkway can be waived since the directional hourly volume is less than 150 vehicles. Of note, El Paso County standards for implementation of right turn lanes is obtained from CDOT standards. Further, it should be noted that CDOT standards are only for arterial roadways or higher classifications. Typical engineering practice does not incorporate right turn lanes along collector roadways unless needed operationally. A deviation request will be provided for the right turn lane requirement at the project access along Meadowbrook Parkway and will be submitted with the subsequent preliminary plan application for consideration.

- If 2045 volumes are realized, Marksheffel Road and US-24 may need to widen from four-lane roadways to six-lane roadways with a ROW dedication of 160 feet. Therefore, the development may need to provide a preservation easement for future expansion of US-24. It is recommended that traffic volumes continue to be monitored by El Paso County and CDOT, as applicable, to determine if and when these regional improvements will be needed.

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

## 2.0 INTRODUCTION

Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study for the Claremont Filing 7 residential project proposed to be located on the southeast corner of the Meadowbrook Parkway and Marksheffel Road intersection in El Paso County, Colorado. A vicinity map illustrating the Claremont Filing 7 development location is shown in **Figure 1**. For the purposes of this study, Claremont Filing 7 is anticipated to include approximately 150 multifamily dwelling units. A conceptual site plan is attached in **Appendix F**. It is expected that Claremont Filing 7 will be completed in the following year; therefore, analysis was conducted for the 2023 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The intersections of Meadowbrook Parkway/Marksheffel Road and US-24/Marksheffel Road were incorporated into this traffic study in accordance with El Paso County and CDOT standards and requirements:

In addition, the proposed full movement access along Meadowbrook Parkway was evaluated.

Regional access to Claremont Filing 7 will be provided by Interstate 25 (I-25) and US-24. Primary access will be provided by Marksheffel Road. Direct access will be provided by a proposed full movement access located approximately 550 feet east of the Meadowbrook Parkway and Marksheffel Road intersection (measured right-of-way to centerline).

Kimley»Horn
NORTH
NTS 096726002


FIGURE 1
CLAREMONT FILING 7
EL PASO COUNTY, COLORADO
VICINITY MAP

Kimley»Horn

# 3.0 EXISTING AND FUTURE CONDITIONS

## 3.1 Existing Study Area

The existing site is comprised of vacant land. Surrounding the site to the east is vacant land and to the north are residential homes. West of the site are industrial uses with residential homes in the extended area to the west. Future developments of Crossroads North, Meadowbrook Park, Crossroads Mixed Use, and Reagan Ranch developments are proposed south of the site in the surrounding area.

## 3.2 Existing Roadway Network

US-24 is a CDOT Highway, categorized E-X: Expressway, Major Bypass that provides two through lanes of travel with a 65 mile per hour speed limit through the study area.

Marksheffel Road provides two through lanes of travel in each direction, northbound and southbound, with a 55 mile per hour speed limit through the study area. Marksheffel Road is classified as an El Paso County 4-Lane Urban Principal Arterial north of SH-94. It should be noted that this study and the Crossroads-Meadowbrook-Reagan Ranch Master Traffic determines that Marksheffel Road may need to provide three through lanes in each direction by 2040 which would categorize as an El Paso County 6-Lane Urban Principal Arterial. Likewise, the El Paso County Major Transportation Corridors Plan identifies Marksheffel within the preservation plan to be a 6-lane roadway in the long-term future.

Meadowbrook Parkway is an El Paso County Non-Residential Collector roadway that provides one lane of travel in each direction, with a 35 mile per hour speed limit through the study area.

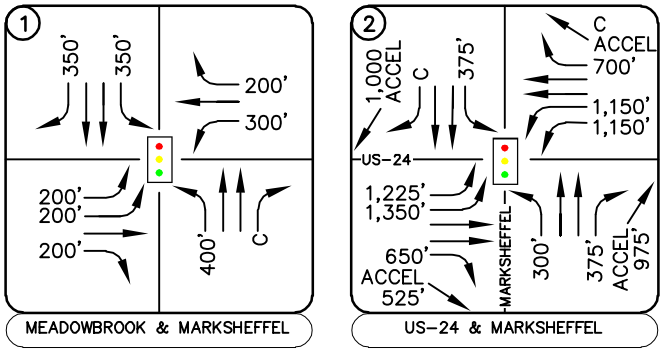
The signalized intersection of Meadowbrook Parkway and Marksheffel Road operates with protected-permitted left turn phasing on all four approaches. The eastbound Meadowbrook Parkway approach consists of dual left turn lanes, one through lane, and a right turn lane while the westbound approach consists of a left turn lane, a through lane, and one right turn lane. The northbound and southbound approaches of Marksheffel Road consist of one left turn lane, two through lanes, and a right turn lane. An aerial photo of the existing intersection configuration is below (north is up - typical).

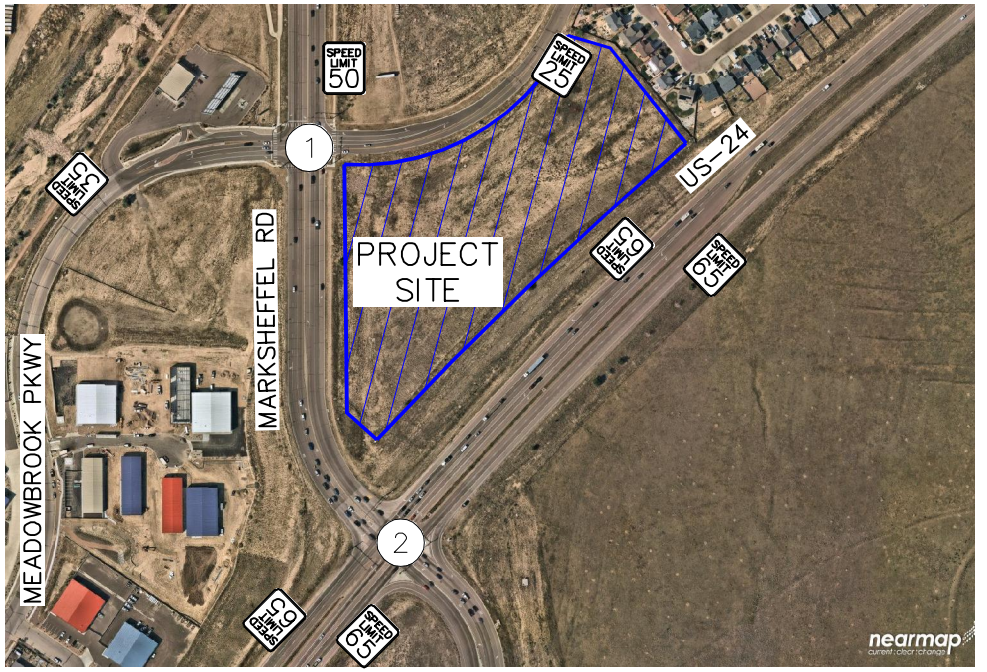
*Meadowbrook Parkway & Marksheffel Road*

The signalized intersection of US-24 and Marksheffel Road operates with protected-only left turn phasing on all four approaches. The southbound and northbound Marksheffel Road approaches consist of a left turn lane, two through lanes, and separate right turn lanes operating with free right turn movements. The eastbound and westbound US-24 approaches consist of dual left turn lanes, two through lanes, and a separate right turn lane with free right turn movements. An aerial photo of the existing intersection configuration is below.

*US-24 & Marksheffel Road*

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




LEGEND

- Study Area Key Intersection
- Signalized Intersection
- Stop Controlled Approach
- Roadway Speed Limit
- 100' Turn Lane Length (feet)

FIGURE 2
CLAREMONT FILING 7
EL PASO COUNTY, COLORADO
EXISTING GEOMETRY AND CONTROL

### 3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersections on Wednesday, January 12, 2022 during the morning and afternoon peak hours. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from 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 A**.

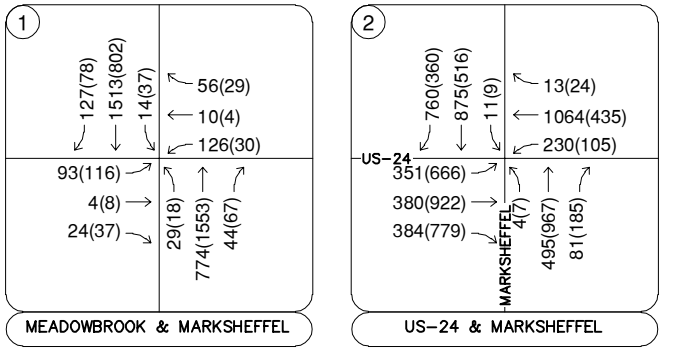
### 3.4 Unspecified Development Traffic Growth

According to information provided on the website for the Colorado Department of Transportation (CDOT), the 20-year growth factor along US-24 in the vicinity of the site is between 1.4 and 1.53. The 20-year growth factor equates to annual growth rate of 1.93 percent. To provide a conservative analysis, a two (2) percent annual growth rate was used to estimate the short-term 2023 traffic volume projections at the key intersections. In addition, the proposed access along Meadowbrook Parkway will be aligned with the Villas at Claremont Ranch development. Therefore, the driveway volumes associated with the Villas at Claremont Ranch were added to the study intersections. Traffic information from the CDOT Online Transportation Information System (OTIS) website and the Villas at Claremont Ranch traffic study are included in **Appendix B**.

The background 2045 traffic volumes were taken from the Crossroads-Meadowbrook-Raegan Ranch Traffic Impact Study prepared by Kimley-Horn & Associates in December 2021. The Crossroads-Meadowbrook-Raegan Ranch TIS long-term total traffic volumes at the study intersections were used as the 2045 background traffic volumes for the proposed Claremont Filing 7 development. The traffic volumes from the Crossroads-Meadowbrook-Raegan Ranch TIS are included in **Appendix B** for reference. Background traffic volumes for 2023 and 2045 are shown in **Figures 4** and **5**, respectively.

Kimley»Horn NORTH
NTS 096726002

Wednesday, January 12, 2022
7:00 to 8:00AM (4:00 to 5:00PM)



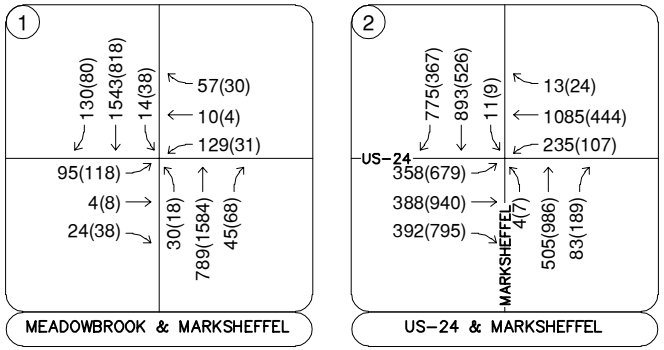

Wednesday, January 12, 2022
7:00 to 8:00AM (4:00 to 5:00PM)


LEGEND

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

# FIGURE 3
## CLAREMONT FILING 7
## EL PASO COUNTY, COLORADO
## 2022 EXISTING TRAFFIC VOLUMES

Kimley»Horn



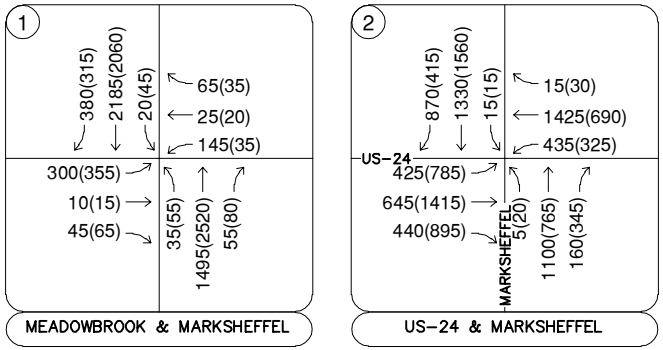


NTS 096726002

LEGEND

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

FIGURE 4
CLAREMONT FILING 7
EL PASO COUNTY, COLORADO
2023 BACKGROUND TRAFFIC VOLUMES





LEGEND

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

FIGURE 5
CLAREMONT FILING 7
EL PASO COUNTY, COLORADO
2045 BACKGROUND TRAFFIC VOLUMES

## 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 fitted curve equations that applies to Multifamily Low-Rise Housing (ITE Land Use Code 220), for traffic associated with the development.

Claremont Filing 7 is expected to generate approximately 1,038 weekday daily trips, with 70 of these trips occurring during the morning peak hour and 86 of these trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 11th Edition – Volume 1: User's Guide and Handbook*, 2021. **Table 1** summarizes the estimated trip generation for the Claremont Filing 7. The trip generation worksheets are included in **Appendix C**.

**Table 1 – Claremont Filing 7 Traffic Generation**

| Land Use and Size | Weekday Vehicle Trips | | | | | | |
|---|---|---|---|---|---|---|---|
| | Daily | AM Peak Hour | | | PM Peak Hour | | |
| | | In | Out | Total | In | Out | Total |
| Multifamily Low-Rise Housing (ITE 220) – 150 Dwelling Units | 1,038 | 17 | 53 | 70 | 54 | 32 | 86 |

### 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 difference of traffic making left turns versus right turns during the peak hour of the adjacent street creates the higher percentage of departures to

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

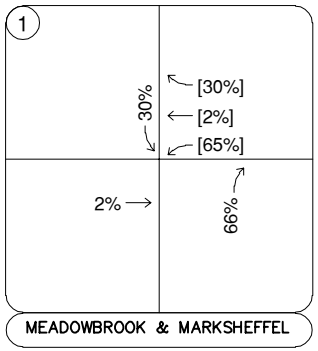
the east on Meadowbrook Parkway. Traveling to the site from the east is a direct US-24 with right turns at Marksheffel Road and a right turn at Meadowbrook Parkway. It was assumed when exiting the development with a destination to the east, more residents will make a right out of the development and make their way to US-24 at the signalized intersection at Constitution Avenue than returning with the same route. In addition, the school was not accounted for in order to conservatively analyze the external intersections. It is believed that most trips to the school would be utilized as pedestrian trips due to the proximity of the school. Further, the school is a private charter school which typically generates a higher percentage of trips from outside of the immediate surrounding area. The project trip distribution for the proposed development is illustrated in **Figure 6**.

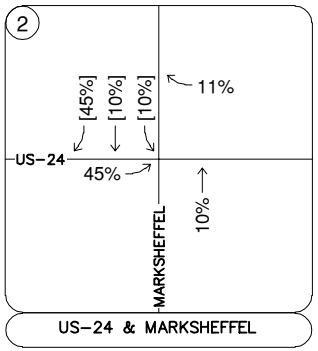
### 4.3 Traffic Assignment

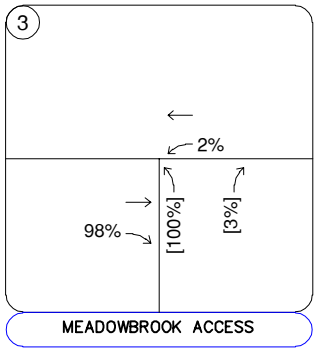
Claremont Filing 7 traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7.**

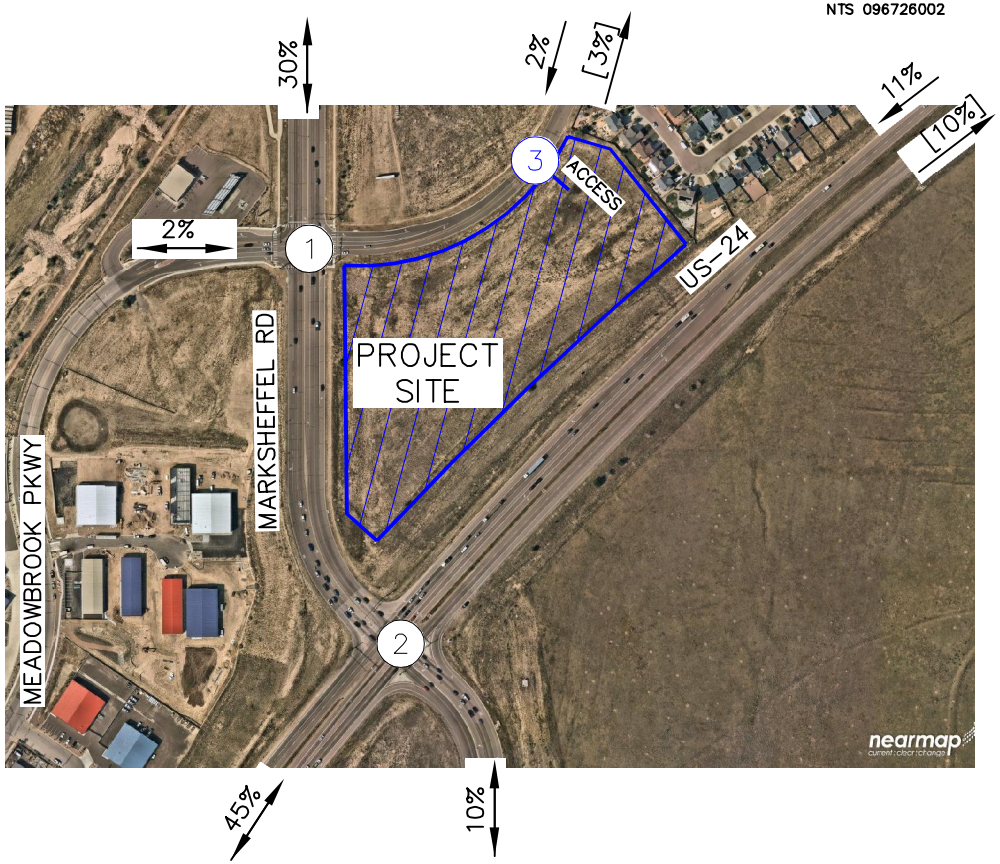
### 4.4 Total (Background Plus Project) Traffic

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




Kimley»Horn NORTH
NTS 096726002

LEGEND

(X) Study Area Key Intersection

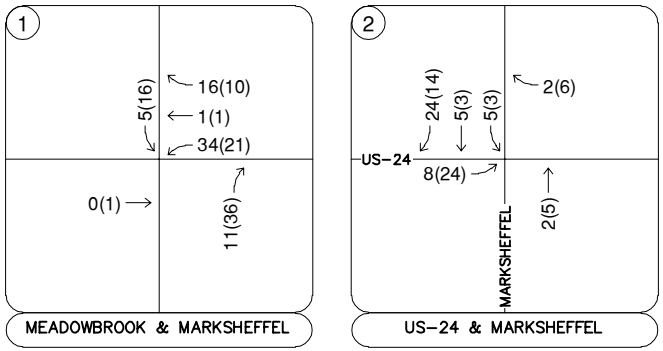
(X) Project Access Intersection

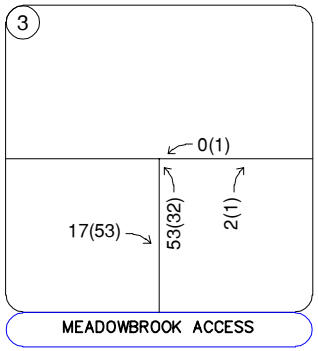
XX% External Trip Distribution Percentage

XX%[XX%] Entering[Exiting] Trip Distribution Percentage

# FIGURE 6
## CLAREMONT FILING 7
## EL PASO COUNTY, COLORADO
## PROJECT TRIP DISTRIBUTION

Kimley»Horn



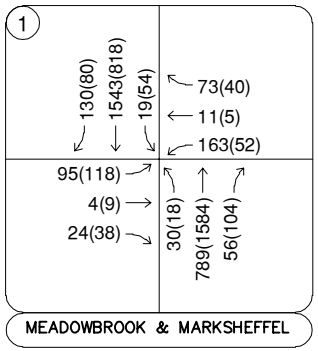



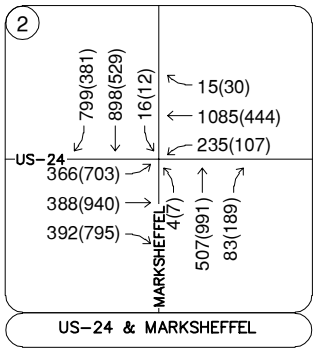


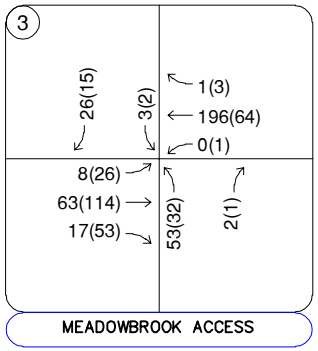
LEGEND

| | |
|---|---|
| (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
CLAREMONT FILING 7
EL PASO COUNTY, COLORADO
PROJECT TRAFFIC ASSIGNMENT



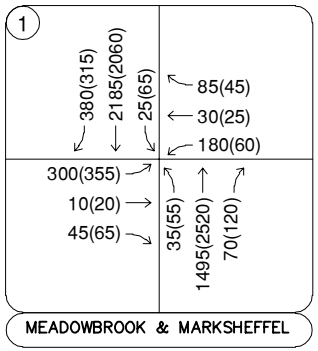



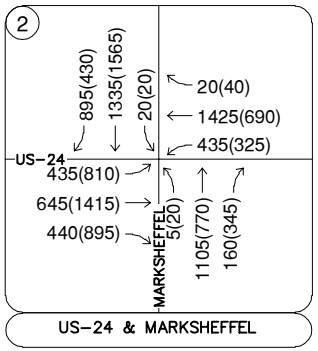


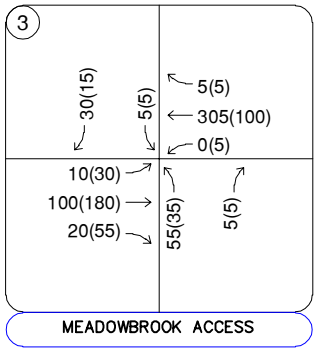
LEGEND

| | |
|---|---|
| (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
## CLAREMONT FILING 7
## EL PASO COUNTY, COLORADO
## 2023 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
## CLAREMONT FILING 7
## EL PASO COUNTY, COLORADO
## 2045 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 2023 and 2045 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual (HCM)*[2].

## 5.1 Analysis Methodology

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

**Table 2 – Level of Service Definitions**

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

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

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

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

### 5.2 Key Intersection Operational Analysis

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

**Meadowbrook Parkway and Marksheffel Road**

The signalized intersection of Meadowbrook Parkway and Marksheffel Road operates with protected-permitted left turn phasing on all four approaches. The intersection operates acceptably at LOS B during both peak hours under existing conditions. With project traffic, the intersection is expected to continue operating with LOS B during both peak hours.

By 2045, it is anticipated that the intersection will operate with longer delays during the afternoon peak hour without the addition of project traffic. To improve operations at this intersection, Marksheffel Road may need to provide three through lanes on all approaches. With this improvement, the intersection is anticipated to operate at LOS D during the peak hours in 2045. **Table 3** provides the results of the LOS analysis conducted at this intersection.

**Table 3 – Meadowbrook Parkway & Marksheffel Road LOS Results**

| Scenario | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|
| | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| **2021 Existing** | 15.3 | B | 12.8 | B |
| **2023 Background** | 15.6 | B | 13.0 | B |
| **2023 Background Plus Project** | 17.5 | B | 14.0 | B |
| **2045 Background** | 29.6 | C | 59.2 | E |
| **2045 Background Plus Project** # | 16.7 | B | 13.7 | B |

# = Three Through Lanes NB/SB

### US-24 and Marksheffel Road

The signalized intersection of US-24 and Marksheffel Road operates with protected-only left turn phasing on all four approaches. The intersection operates acceptably at LOS D during both peak hours under existing conditions. With the addition of project traffic, the intersection is expected to continue operating with LOS D during both peak hours.

By 2045, it is anticipated that the intersection will operate with long delays during the peak hours without the addition of project traffic. To improve operations at this intersection, both US-24 and Marksheffel Road may need to provide three through lanes on all approaches. In addition, the westbound right turn movement that operates as FREE will be converted to operate with permissive only right turn phasing. With these improvements, the intersection is anticipated to operate at LOS D during the peak hours in 2045.**Table 4** provides the results of the LOS analysis conducted at this intersection.

**Table 4 – US-24 & Marksheffel Road LOS Results**

| Scenario | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|
| | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| **2021 Existing** | 45.8 | D | 44.4 | D |
| **2023 Background** | 47.2 | D | 45.1 | D |
| **2023 Background Plus Project** | 45.8 | D | 45.7 | D |
| **2045 Background** | 120.0 | F | 149.2 | F |
| **2045 Background Plus Project** | 44.6 | D | 50.3 | D |

# = Three Through Lanes NB/SB and EB/WB

## Project Access

With completion of the Claremont Filing 7 project, a full movement access is proposed along the south side of Meadowbrook Parkway. The access is proposed to be aligned with the Villas at Claremont Ranch access and is proposed to allow full turning movements. A R1-1 "STOP" sign is recommended to be installed on the exiting northbound approach. The median striping along Meadowbrook Parkway currently extends slightly past the location of the proposed access and will need to be modified to accommodate the proposed left in and left out movements at the access. **Table 5** provides the results of the level of service for the proposed project access intersections. As shown in the table, the project access intersection along Meadowbrook Parkway is anticipated to have all movements operating with acceptable LOS B or better during the peak hours in both the buildout year 2023 and the 2045 long term horizons.

**Table 5 – Project Access Level of Service Results**

| Intersection | 2023 Total | | | | 2045 Total | | | |
|---|---|---|---|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | Delay (sec/ veh) | LOS | Delay (sec/ veh) | LOS | Delay (sec/ veh) | LOS | Delay (sec/ veh) | LOS |
| **Meadowbrook Pkwy Access** | | | | | | | | |
| Northbound Approach | 11.3 | B | 10.5 | B | 13.3 | B | 11.4 | B |
| Eastbound Left | 7.7 | A | 7.4 | A | 8.0 | A | 7.5 | A |
| Westbound Left | 0.0 | A | 7.6 | A | 0.0 | A | 7.7 | A |
| Southbound Approach | 9.7 | A | 8.9 | A | 10.7 | B | 9.5 | A |

### 5.3 CDOT Turn Bay Length Analysis

The threshold for requiring an access permit along Colorado Department of Transportation (CDOT) roadways occurs when project traffic is anticipated to increase the existing access traffic volumes by more than 20 percent. Based on traffic projections, the addition of project traffic on the north leg of Marksheffel Road at US-24 is not anticipated to increase existing access traffic volumes by more than 20 percent, with the maximum expected increase at 2.2 percent during the afternoon peak hour on the north leg (55 project / 2,542 existing). In addition, improvements are not recommended at the US-24 and Marksheffel Road intersection in the short-term horizon. Therefore, a CDOT access permit is not anticipated to be required in association with this project.

### 5.4 El Paso County Turn Lane Requirement Analysis

The El Paso County Engineering Criteria Manual (ECM) was used to determine if left and right turn lanes are warranted along Meadowbrook Parkway and Marksheffel Road. El Paso County classifies Marksheffel Road as a Principal Arterial roadway while Meadowbrook Parkway is categorized as a collector roadway. According to El Paso County ECM guidelines for Principal Arterials, a left turn lane is required for any access with a projected peak hour left turning volume of 10 vehicles per hour or greater, a right turn lane is required for any access with a projected peak hour right turning volume of 25 vehicles per hour or greater, and a right turn acceleration lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater when the posted speed on the roadway is greater than 40 miles per hour.

El Paso County classifies Meadowbrook Parkway as a Collector roadway. According to El Paso County ECM guidelines for Minor Arterials and Lower Classifications, a left turn lane is required for any access with a projected peak hour left turning volume of 25 vehicles per hour or greater, a right turn lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater, and a right turn acceleration lane is generally not required.

Based on Marksheffel Road providing a posted speed limit of 50 miles per hour and Meadowbrook Parkway providing a speed limit of 35 miles per hour on the west leg and 25 miles per hour on the east leg, the turn lane requirements that the project traffic contributes to are as follows:

Meadowbrook Parkway and Marksheffel Road:

- A southbound left turn lane exists and **is** warranted at this intersection based on projected 2023 total traffic volumes being 54 southbound left turns during the peak hour and the threshold being 10 vehicles per hour. The existing southbound left turn lane is 350 feet. Based on the 50-mile per hour speed limit, the required deceleration lane length is 235 feet with 100 feet in storage length, plus a 200-foot taper to meet El Paso County standards. Therefore, the required left turn lane length at this location is 335 feet plus a 200-foot taper. The current length of 350 feet meets the length requirement; therefore, no modifications are recommended to this left turn lane.

- A northbound right turn lane exists and **is** warranted at this intersection based on projected 2023 total traffic volumes being 104 northbound right turns during the peak hour and the threshold being 25 vehicles per hour. The existing northbound right turn lane is continuous from the northbound acceleration lane from the US-24/Marksheffel Road intersection to the south. There are not any modifications recommended to the existing continuous right turn lane. If 2045 volumes are realized and Marksheffel Road becomes a six-lane roadway, then this right turn lane would need to provide a deceleration lane length of 235 feet with 50 feet of storage, plus a 200-foot taper. Therefore, this left turn lane would need to provide a length of 285 feet plus a 200-foot taper if Marksheffel Road is converted to a 6-lane roadway.

- A westbound left turn lane exists and **is** warranted at this intersection based on projected 2023 total traffic volumes being 163 westbound left turns during the peak hour and the threshold being 25 vehicles per hour. The existing westbound left turn lane is 300 feet. Based on the 25-mile per hour speed limit, the deceleration lane length is 115 feet with 50 feet of storage, plus a 120-foot taper. Therefore, the existing left turn lane meets El Paso County turn lane requirements.

- A westbound right turn lane exists and **is** warranted at this intersection based on projected 2023 total traffic volumes being 73 westbound right turns during the peak hour and the threshold being 50 vehicles per hour. The deceleration lane length requirement is 115 feet plus 75 feet of storage and a 120-foot taper. However, a westbound right turn lane has

recently been constructed at this intersection that accommodates these lengths; therefore, mitigation is not recommended.

- A westbound right to northbound acceleration lane **is** warranted at this intersection based on projected 2023 total traffic volumes being 73 westbound right turns during the peak hour and the threshold being 50 vehicles per hour. An acceleration lane already exists and no modifications to this acceleration lane are recommended.

US-24 and Marksheffel Road:

- A southbound left turn lane exists and **is** warranted at this intersection based on projected 2023 total traffic volumes being 16 southbound left turns during the peak hour and the threshold being 10 vehicles per hour. The existing southbound left turn lane is 375 feet. Based on the 50-mile per hour speed limit, the deceleration lane length is 235 feet with 50 feet of storage, plus a 200-foot taper. Therefore, the existing left turn lane meets El Paso County turn lane requirements.

- A southbound right turn lane exists and **is** warranted at this intersection based on projected 2023 total traffic volumes being 799 southbound right turns during the peak hour and the threshold being 25 vehicles per hour. The existing southbound right turn lane is continuous from the southbound acceleration lane at the Meadowbrook Parkway/Marksheffel Road intersection to the north. There are not any modifications recommended to the existing continuous right turn lane.

- A westbound right to northbound acceleration lane exists but **is not** warranted at this intersection based on projected 2023 total traffic volumes being 30 westbound right turns during the peak hour and the threshold being 50 vehicles per hour. However, a right turn acceleration lane is currently provided at this location and mitigation is not recommended.

Meadowbrook Parkway Access:

- Based on El Paso County standards, an eastbound right turn lane is warranted at the project access along Meadowbrook Parkway. According to Section 3.5: Auxiliary Turn Lanes of the CDOT Access Code, a right turn lane may be waived if the volume in the travel lane is predicted to be below 150 directional hourly volumes. Therefore, it is believed that the eastbound right turn lane at the project access along Meadowbrook Parkway can

be waived since the directional hourly volume is less than 150 vehicles. Of note, El Paso County standards for implementation of right turn lanes is obtained from CDOT standards. Further, it should be noted that CDOT standards are only for arterial roadways or higher classifications. Typical engineering practice does not incorporate right turn lanes along collector roadways unless needed operationally. A deviation request will be provided for the right turn lane requirement at the project access along Meadowbrook Parkway and will be submitted with the subsequent preliminary plan application for consideration.

- A westbound left turn lane **is not** warranted at this intersection based on projected 2023 total traffic volumes being one (1) westbound left turn during the peak hour and the threshold being 25 vehicles per hour.

### 5.5 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 95$^{th}$ percentile queue lengths. Results are shown in the following **Table 6** with calculations provided within the level of service operational sheets of **Appendix D** for unsignalized intersections and **Appendix E** for signalized intersections.

**Table 6 – Turn Lane Queuing Analysis Results**

| Intersection Turn Lane | Existing Turn Lane Length (feet) | 2023 Calculated Queue (feet) | 2023 Recommended Length (feet) | 2045 Calculated Queue (feet) | 2045 Recommended Length (feet) |
|---|---|---|---|---|---|
| **Meadowbrook & Marksheffel** | | | | | |
| Eastbound Left | 200' DL | **231' DL** | 200' DL | 285' DL | 200' DL |
| Eastbound Right | 200' | 0' | 200' | 10' | 200' |
| Westbound Left | 300' | 269' | 300' | 250' | 300' |
| Westbound Right | 200' | 18' | 200' | 30' | 200' |
| Northbound Left | 400' | 22' | 400' | 40' | 400' |
| Northbound Right | C | 19' | C | 29' | **285'+200'T** |
| Southbound Left | 350' | 10' | 350' | 51' | 350' |
| Southbound Right | 350' | 88' | 350' | 46' | 350' |
| **US-24 & Marksheffel** | | | | | |
| Eastbound Left | 1225'/1350' | 254' DL | 1225'/1350' | 486' DL | 1225'/1350' |
| Eastbound Right | 650' | 0' | 650' | 0' | 650' |
| Westbound Left | 1150' DL | 413' DL | 1150' DL | 239' DL | 1150' DL |
| Westbound Right | 700' | 0' | 700' | 0' | 700' |
| Northbound Left | 300' | 18' | 300' | 44' | 300' |
| Northbound Right | 375' | 0' | 375' | 0' | 375' |
| Southbound Left | 375' | 18' | 375' | 24' | 375' |
| Southbound Right | C | 0' | C | 159' | C |

DL = Dual Left Turn Lanes; C = Continuous; **Red** Text = Storage Deficiency; **Blue** Text = Recommendation

All queues are anticipated to remain within the existing or recommended turn lane lengths through 2045 except the eastbound dual left turn queue at the intersection of Meadowbrook Parkway and Marksheffel Road. These dual eastbound left turn lanes cannot be extended due to the constraint with the existing back-to-back left turns. Of note, project traffic does not contribute to this movement or deficiency.

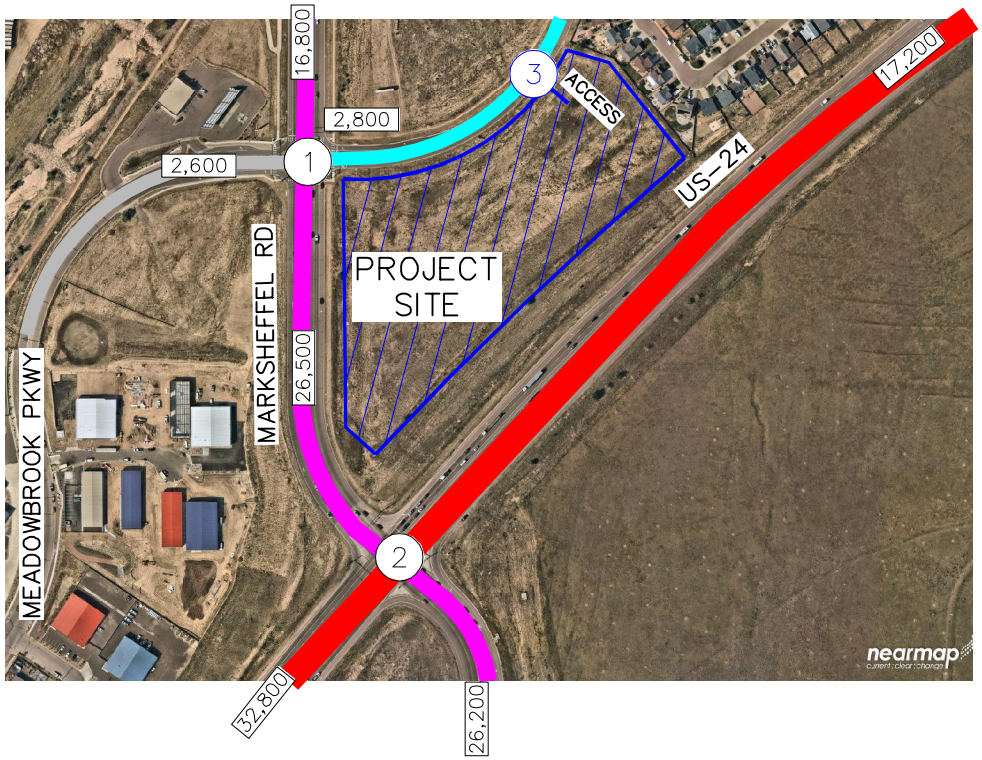
### 5.6 Access Spacing Requirements and Internal Roadway Classifications

According to El Paso County 2016 Major Transportation Corridors Plan Update, Meadowbrook Parkway is classified as a collector roadway. The following identifies the intersection spacing requirements for the access intersections associated with the project:

Meadowbrook Parkway Access (Full)

The proposed full movement Access is located approximately 550 feet east of the Meadowbrook Parkway/Marksheffel Road intersection (measured right-of-way line to centerline). According to the El Paso County Engineering Criteria Manual, spacing of intersections along urban collector roadways from an arterial roadway should be 330 feet from the right-of-way line of the arterial to the centerline of the access roadway. Therefore, the proposed Access meets ECM standards.

Meadowbrook Parkway meets El Paso County average daily traffic threshold standard of 3,000 vehicles per day for a local street; however, this segment of roadway is classified as an urban residential collector. The project accesses have been classified as local roadways, but it should be noted these will be private accesses. Marksheffel Road meets the El Paso County average daily threshold standard of 40,000 vehicles per day for an Urban 4-lane Principal Arterial roadway in 2023 but meets the ADT criteria for an Urban 4-lane Principal Arterial roadway in 2045. Of note, US-24 is categorized as Expressway by CDOT. Attached **Figure 10** illustrates the circulation plan and street classification map for roadways internal and external to the Claremont Filing 7 project.




LEGEND

- EXPRESSWAY
- URBAN PRINCIPAL ARTERIAL
- URBAN RESIDENTIAL COLLECTOR
- URBAN NON-RESIDENTIAL COLLECTOR
- URBAN LOCAL
- XX,X00 ESTIMATED 2023 DAILY TRAFFIC VOLUME

NOTE: EL PASO COUNTY STREET CLASSIFICATIONS

FIGURE 10
CLAREMONT FILING 7
EL PASO COUNTY, COLORADO
ROADWAY CLASSIFICATION MAP

### 5.7 Sight Distance Evaluation

It is recommended that sight triangles be provided at all site access points to give drivers exiting the site a clear view of oncoming traffic. Landscaping and objects within sight triangles must not obstruct drivers' views of the adjacent travel lanes. ECM design intersection sight distances for left turn from stop were evaluated at the accesses along Meadowbrook Parkway. The following identifies sight distance requirements for the access intersections associated with the project:

Meadowbrook Parkway Access (Full)

According to Table 2-35 from ECM and a posted speed of 25 miles per hour along Meadowbrook Parkway, the intersection sight distance for a left or right turning vehicles from the access to Meadowbrook Parkway is 250 feet for a passenger car, 325 feet for a single unit truck, and 425 feet for multi-unit trucks. Therefore, all obstructions for left and right turning vehicles should be clear from the opposing lanes with these distances.

### 5.8 Bicycle and Pedestrian Access

Sidewalks are not present on either side of the US-24 or Marksheffel Road intersection. Sidewalks are provided along the east and west side of Marksheffel Road, north of Meadowbrook Parkway, and along the north and south side of Meadowbrook Parkway fronting developed areas. Therefore, it is anticipated that sidewalks will be provided along the south side of Meadowbrook Parkway and the east side of Marksheffel Road along the frontage of the development.

### 5.9 Road Impact Fees

The project site is within the Central Marksheffel Metropolitan District. As such, based on Resolution 12-387 and intergovernmental agreement, the resolution noted no additional fees would need to be assessed by future development within the current boundaries of the District.

### 5.10 School Routes and Pedestrian Analysis

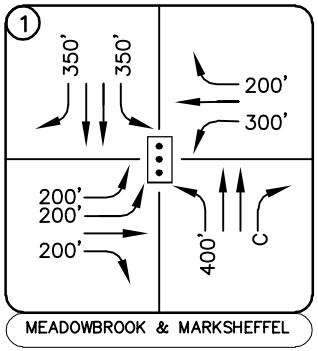
As identified in the El Paso County ECM Appendix B.4.1.C, school routing plans per the MUTCD between the project and all schools within two (2) miles of the project boundary should be evaluated. To establish a safer route to and from school for schoolchildren, the application of planning criterion for school walk routes might make it necessary for children to walk an indirect route to an established school crossing located where there is existing traffic control and to avoid the use of a direct crossing where there is no existing traffic control. Evans Elementary School,

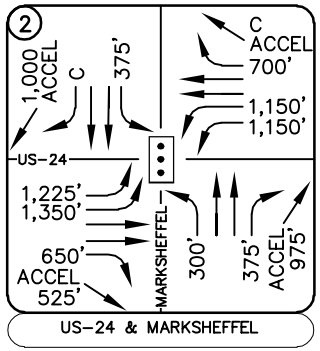
Horizon Middle School, and McAuliffe Elementary School are located within a two (2) mile radius of the project boundary but well outside of two miles in terms of roads and walking.

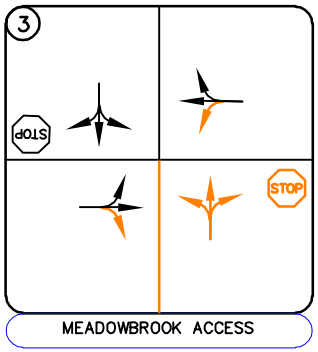
Mountain View Academy is located approximately a half mile from the project boundary; therefore, pedestrian routes were evaluated. Mountain View Academy is located on the southwest corner of the Meadowbrook Parkway and Pinyon Jay Drive intersection. Sidewalks, curb and gutter, and sidewalk ramps are provided on the north and south side of Meadowbrook Parkway, Hames Drive, and Pinyon Jay Drive. These three roadways provide direct access to the school. The project development will continue the sidewalk, curb and gutter, and sidewalk ramps fronting the project site. In addition, all the neighborhood roadways surrounding the school provides sidewalks, curb and gutters, and sidewalk ramps. There are pavement crossings along each leg of the Meadowbrook Parkway/Pinyon Jay Drive intersection. In addition, the R1-6 Yield to Pedestrians signs are placed on the major east-west approaches of Meadowbrook Parkway. Likewise, crosswalk pavement markings are provided at the Pinyon Jay Drive/Hames Drive intersection, and the Hames Drive/Lattern Court intersection. There is a school speed limit assembly of signs that include S4-3P “SCHOOL”, R2-1 Speed Limit, and S4-1P School Zone Timing posted along Pinyon Jay Drive.

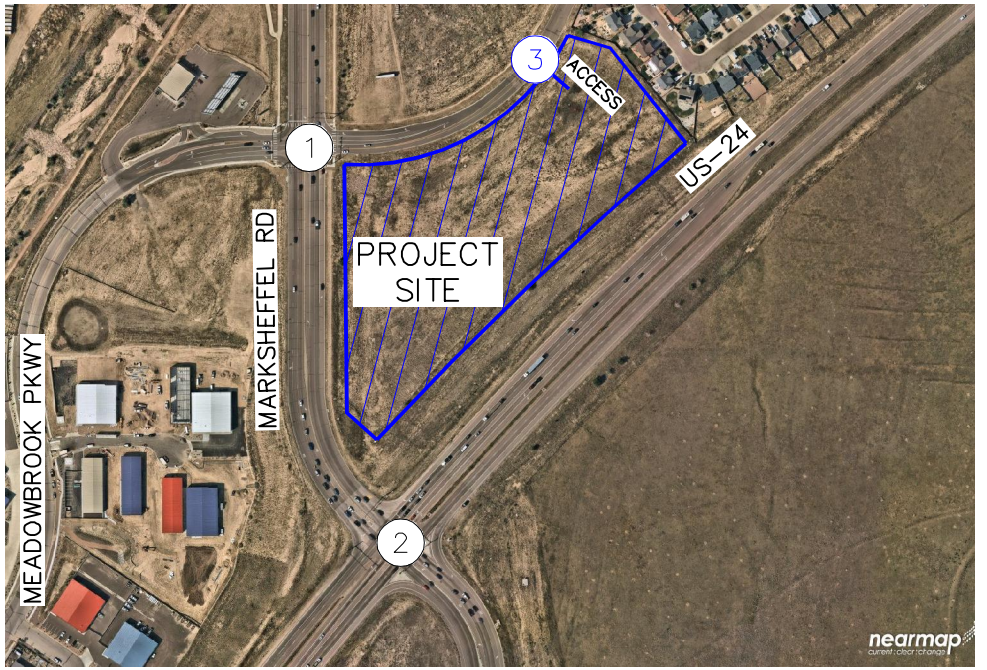
### 5.11 Improvement Summary

Based on the results of the intersection operational, turn lane evaluations, and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 11** for 2023 and **Figure 12** for 2045.



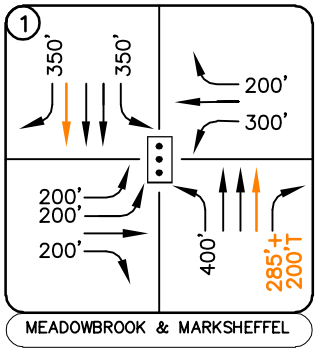



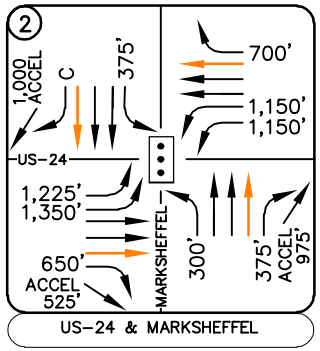



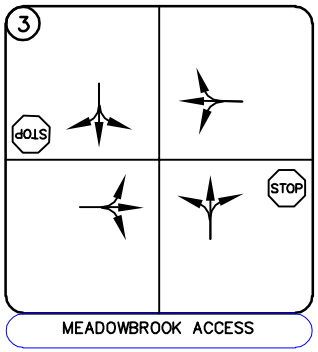

LEGEND

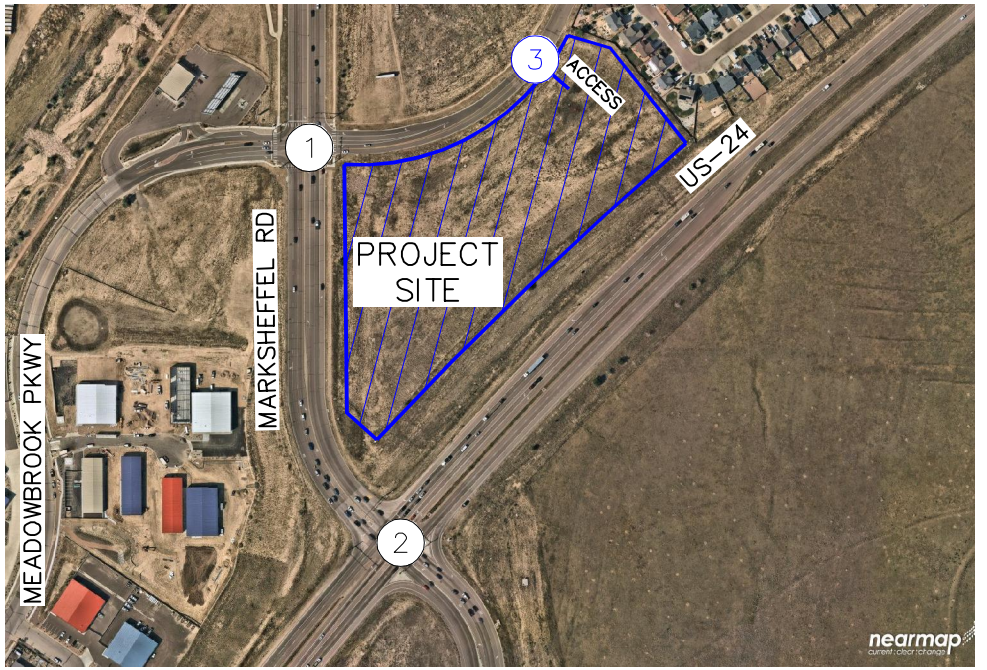
- Study Area Key Intersection
- Project Access Intersection
- Signalized Intersection
- Stop Controlled Approach
- Improvement
- 100' Turn Lane Length (feet)

FIGURE 11
CLAREMONT FILING 7
EL PASO COUNTY, COLORADO
2023 RECOMMENDED GEOMETRY AND CONTROL




LEGEND

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

FIGURE 12
CLAREMONT FILING 7
EL PASO COUNTY, COLORADO
2045 RECOMMENDED GEOMETRY AND CONTROL

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes Claremont Filing 7 will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

- With completion of the Claremont Filing 7 project, a full movement access is proposed along the south side of Meadowbrook Parkway. The access is proposed to be aligned with the Villas at Claremont Ranch access and is proposed to allow full turning movements. A R1-1 "STOP" sign is recommended to be installed on the exiting northbound approach. The median striping along Meadowbrook Parkway currently extends slightly past the location of the proposed access and will need to be modified to accommodate the proposed left in and left out movements at the access.

- Based on El Paso County standards, an eastbound right turn lane is warranted at the project access along Meadowbrook Parkway. According to Section 3.5: Auxiliary Turn Lanes of the CDOT Access Code, a right turn lane may be waived if the volume in the travel lane is predicted to be below 150 directional hourly volumes. Therefore, it is believed that the eastbound right turn lane at the project access along Meadowbrook Parkway can be waived since the directional hourly volume is less than 150 vehicles. Of note, El Paso County standards for implementation of right turn lanes is obtained from CDOT standards. Further, it should be noted that CDOT standards are only for arterial roadways or higher classifications. Typical engineering practice does not incorporate right turn lanes along collector roadways unless needed operationally. A deviation request will be provided for the right turn lane requirement at the project access along Meadowbrook Parkway and will be submitted with the subsequent preliminary plan application for consideration.

- If 2045 volumes are realized, Marksheffel Road and US-24 may need to widen from four-lane roadways to six-lane roadways with a ROW dedication of 160 feet. Therefore, the development may need to provide a preservation easement for future expansion of US-24. It is recommended that traffic volumes continue to be monitored by El Paso County and CDOT, as applicable, to determine if and when these regional improvements will be needed.

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

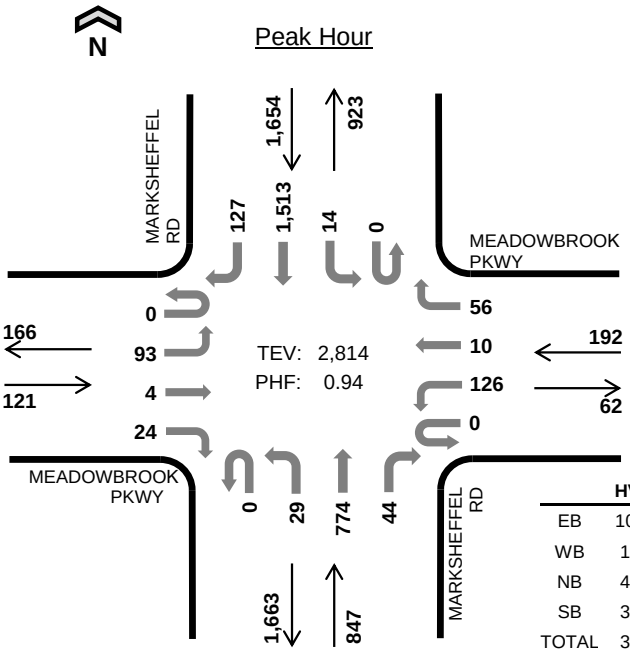
# APPENDICES

# APPENDIX A

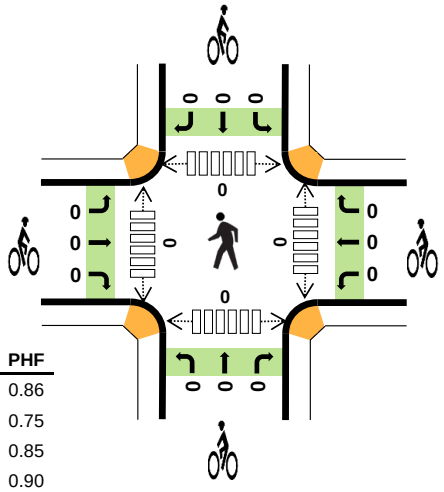
## Intersection Count Sheets

# MARKSHEFFEL RD
# MEADOWBROOK PKWY

**Date:** 01/12/2022
**Count Period:** 7:00 AM to 9:00 AM
**Peak Hour:** 7:00 AM to 8:00 AM




| | HV %: | PHF |
|---|---|---|
| EB | 10.7% | 0.86 |
| WB | 1.6% | 0.75 |
| NB | 4.8% | 0.85 |
| SB | 3.0% | 0.90 |
| TOTAL | 3.8% | 0.94 |



## Two-Hour Count Summaries

| Interval Start | | MEADOWBROOK PKWY Eastbound | | | | MEADOWBROOK PKWY Westbound | | | | MARKSHEFFEL RD Northbound | | | | MARKSHEFFEL RD Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **7:00 AM** | | **0** | **15** | **1** | **5** | **0** | **14** | **4** | **9** | **0** | **7** | **163** | **3** | **0** | **3** | **380** | **28** | **632** | 0 |
| **7:15 AM** | | **0** | **28** | **2** | **5** | **0** | **30** | **1** | **14** | **0** | **4** | **196** | **10** | **0** | **1** | **426** | **34** | **751** | 0 |
| **7:30 AM** | | **0** | **22** | **0** | **10** | **0** | **43** | **2** | **19** | **0** | **8** | **195** | **13** | **0** | **6** | **361** | **28** | **707** | 0 |
| **7:45 AM** | | **0** | **28** | **1** | **4** | **0** | **39** | **3** | **14** | **0** | **10** | **220** | **18** | **0** | **4** | **346** | **37** | **724** | **2,814** |
| 8:00 AM | | 0 | 21 | 1 | 11 | 0 | 20 | 1 | 9 | 0 | 6 | 145 | 3 | 1 | 3 | 333 | 31 | 585 | 2,767 |
| 8:15 AM | | 0 | 11 | 1 | 6 | 0 | 18 | 2 | 5 | 0 | 5 | 157 | 6 | 0 | 4 | 275 | 33 | 523 | 2,539 |
| 8:30 AM | | 0 | 20 | 2 | 7 | 0 | 12 | 2 | 4 | 0 | 4 | 157 | 7 | 0 | 5 | 260 | 23 | 503 | 2,335 |
| 8:45 AM | | 0 | 17 | 0 | 9 | 0 | 6 | 0 | 9 | 0 | 0 | 115 | 7 | 0 | 1 | 188 | 21 | 373 | 1,984 |
| Count Total | | 0 | 162 | 8 | 57 | 0 | 182 | 15 | 83 | 0 | 44 | 1,348 | 67 | 1 | 27 | 2,569 | 235 | 4,798 | 0 |
| **Peak Hour** | **All** | **0** | **93** | **4** | **24** | **0** | **126** | **10** | **56** | **0** | **29** | **774** | **44** | **0** | **14** | **1,513** | **127** | **2,814** | **0** |
| | **HV** | **0** | **12** | **0** | **1** | **0** | **1** | **0** | **2** | **0** | **2** | **38** | **1** | **0** | **0** | **44** | **6** | **107** | **0** |
| | **HV%** | **-** | **13%** | **0%** | **4%** | **-** | **1%** | **0%** | **4%** | **-** | **7%** | **5%** | **2%** | **-** | **0%** | **3%** | **5%** | **4%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| **7:00 AM** | **3** | **0** | **7** | **9** | ***19*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **7:15 AM** | **2** | **1** | **17** | **16** | ***36*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **7:30 AM** | **5** | **1** | **6** | **18** | ***30*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **7:45 AM** | **3** | **1** | **11** | **7** | ***22*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |
| 8:00 AM | 5 | 0 | 14 | 11 | *30* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 8:15 AM | 1 | 1 | 14 | 16 | *32* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 8:30 AM | 5 | 0 | 15 | 22 | *42* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 8:45 AM | 1 | 0 | 10 | 12 | *23* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| Count Total | 25 | 4 | 94 | 111 | *234* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| **Peak Hour** | **13** | **3** | **41** | **50** | ***107*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | MEADOWBROOK PKWY Eastbound | | | | MEADOWBROOK PKWY Westbound | | | | MARKSHEFFEL RD Northbound | | | | MARKSHEFFEL RD Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **7:00 AM** | **0** | **2** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **1** | **6** | **0** | **0** | **0** | **6** | **3** | **19** | 0 |
| **7:15 AM** | **0** | **2** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **17** | **0** | **0** | **0** | **15** | **1** | **36** | 0 |
| **7:30 AM** | **0** | **5** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **1** | **5** | **0** | **0** | **0** | **18** | **0** | **30** | 0 |
| **7:45 AM** | **0** | **3** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **10** | **1** | **0** | **0** | **5** | **2** | **22** | **107** |
| 8:00 AM | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 13 | 0 | 0 | 0 | 11 | 0 | 30 | 118 |
| 8:15 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13 | 1 | 0 | 0 | 15 | 1 | 32 | 114 |
| 8:30 AM | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 20 | 2 | 42 | 126 |
| 8:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 0 | 11 | 1 | 23 | 127 |
| Count Total | 0 | 22 | 0 | 3 | 0 | 1 | 0 | 3 | 0 | 3 | 87 | 4 | 0 | 0 | 101 | 10 | 234 | 0 |
| **Peak Hour** | **0** | **12** | **0** | **1** | **0** | **1** | **0** | **2** | **0** | **2** | **38** | **1** | **0** | **0** | **44** | **6** | **107** | **0** |

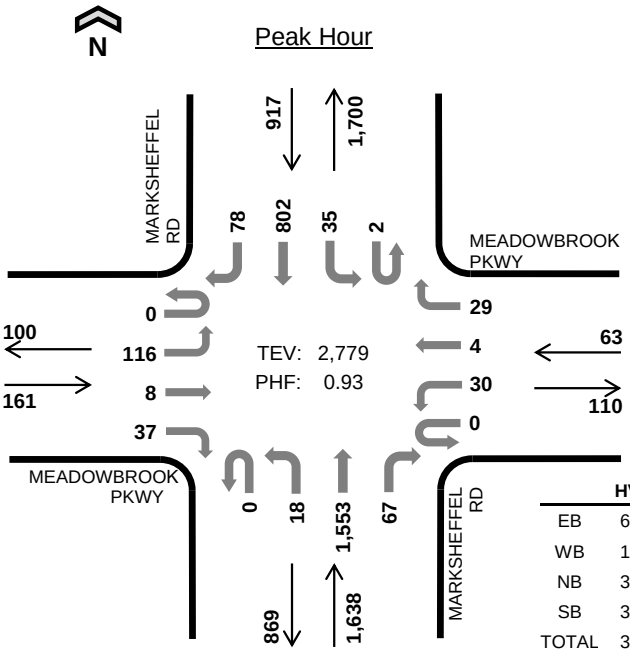
## Two-Hour Count Summaries - Bikes

| Interval Start | MEADOWBROOK PKWY Eastbound | | | MEADOWBROOK PKWY Westbound | | | MARKSHEFFEL RD Northbound | | | MARKSHEFFEL RD Southbound | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| **7:00 AM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **7:15 AM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **7:30 AM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **7:45 AM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

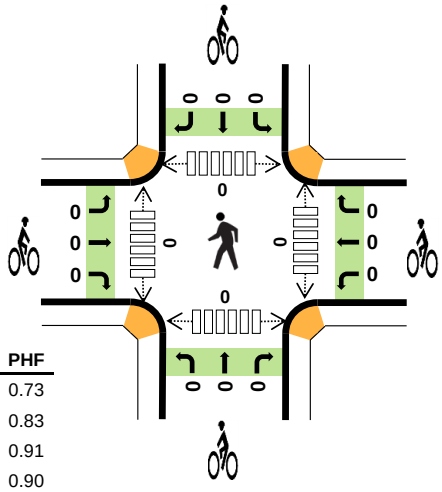
*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# MARKSHEFFEL RD
# MEADOWBROOK PKWY

**Date:** 01/12/2022
**Count Period:** 4:00 PM to 6:00 PM
**Peak Hour:** 4:00 PM to 5:00 PM




| | HV %: | PHF |
|---|---|---|
| EB | 6.2% | 0.73 |
| WB | 1.6% | 0.83 |
| NB | 3.1% | 0.91 |
| SB | 3.5% | 0.90 |
| TOTAL | 3.3% | 0.93 |



## Two-Hour Count Summaries

| Interval Start | | MEADOWBROOK PKWY Eastbound | | | | MEADOWBROOK PKWY Westbound | | | | MARKSHEFFEL RD Northbound | | | | MARKSHEFFEL RD Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | | **0** | **36** | **5** | **14** | **0** | **7** | **2** | **10** | **0** | **8** | **372** | **16** | **0** | **13** | **221** | **19** | **723** | 0 |
| **4:15 PM** | | **0** | **30** | **1** | **10** | **0** | **9** | **0** | **6** | **0** | **2** | **389** | **18** | **1** | **6** | **179** | **30** | **681** | 0 |
| **4:30 PM** | | **0** | **27** | **1** | **5** | **0** | **7** | **1** | **3** | **0** | **4** | **429** | **19** | **1** | **11** | **228** | **14** | **750** | 0 |
| **4:45 PM** | | **0** | **23** | **1** | **8** | **0** | **7** | **1** | **10** | **0** | **4** | **363** | **14** | **0** | **5** | **174** | **15** | **625** | **2,779** |
| 5:00 PM | | 0 | 37 | 4 | 9 | 0 | 4 | 5 | 8 | 0 | 2 | 354 | 19 | 0 | 13 | 234 | 23 | 712 | 2,768 |
| 5:15 PM | | 0 | 35 | 5 | 10 | 0 | 9 | 3 | 5 | 0 | 6 | 292 | 11 | 0 | 4 | 196 | 29 | 605 | 2,692 |
| 5:30 PM | | 0 | 18 | 2 | 6 | 0 | 7 | 1 | 2 | 0 | 6 | 286 | 14 | 0 | 13 | 217 | 18 | 590 | 2,532 |
| 5:45 PM | | 0 | 19 | 1 | 9 | 0 | 5 | 0 | 4 | 0 | 2 | 285 | 13 | 0 | 12 | 184 | 15 | 549 | 2,456 |
| Count Total | | 0 | 225 | 20 | 71 | 0 | 55 | 13 | 48 | 0 | 34 | 2,770 | 124 | 2 | 77 | 1,633 | 163 | 5,235 | 0 |
| **Peak Hour** | **All** | **0** | **116** | **8** | **37** | **0** | **30** | **4** | **29** | **0** | **18** | **1,553** | **67** | **2** | **35** | **802** | **78** | **2,779** | **0** |
| | **HV** | **0** | **9** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **2** | **47** | **1** | **0** | **0** | **27** | **5** | **93** | **0** |
| | **HV%** | **-** | **8%** | **0%** | **3%** | **-** | **0%** | **0%** | **3%** | **-** | **11%** | **3%** | **1%** | **0%** | **0%** | **3%** | **6%** | **3%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| **4:00 PM** | **4** | **0** | **18** | **9** | ***31*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:15 PM** | **2** | **1** | **16** | **11** | ***30*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:30 PM** | **4** | **0** | **12** | **5** | ***21*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:45 PM** | **0** | **0** | **4** | **7** | ***11*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |
| 5:00 PM | 0 | 0 | 2 | 7 | *9* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:15 PM | 1 | 0 | 0 | 6 | *7* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:30 PM | 0 | 0 | 1 | 9 | *10* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 1 | 0 | 1 | 8 | *10* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| Count Total | 12 | 1 | 54 | 62 | *129* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| **Peak Hour** | **10** | **1** | **50** | **32** | ***93*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | MEADOWBROOK PKWY Eastbound | | | | MEADOWBROOK PKWY Westbound | | | | MARKSHEFFEL RD Northbound | | | | MARKSHEFFEL RD Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | **0** | **4** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **16** | **0** | **0** | **0** | **9** | **0** | **31** | 0 |
| **4:15 PM** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **0** | **15** | **1** | **0** | **0** | **8** | **3** | **30** | 0 |
| **4:30 PM** | **0** | **4** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **12** | **0** | **0** | **0** | **4** | **1** | **21** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **4** | **0** | **0** | **0** | **6** | **1** | **11** | **93** |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 5 | 2 | 9 | 71 |
| 5:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 7 | 48 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 7 | 1 | 10 | 37 |
| 5:45 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 3 | 10 | 36 |
| Count Total | 0 | 10 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 51 | 1 | 0 | 1 | 50 | 11 | 129 | 0 |
| **Peak Hour** | **0** | **9** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **2** | **47** | **1** | **0** | **0** | **27** | **5** | **93** | **0** |

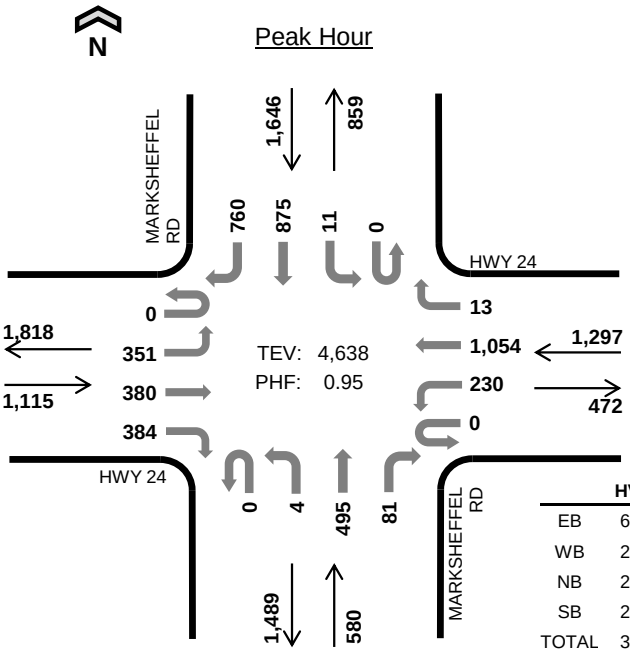
## Two-Hour Count Summaries - Bikes

| Interval Start | MEADOWBROOK PKWY Eastbound | | | MEADOWBROOK PKWY Westbound | | | MARKSHEFFEL RD Northbound | | | MARKSHEFFEL RD Southbound | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| **4:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

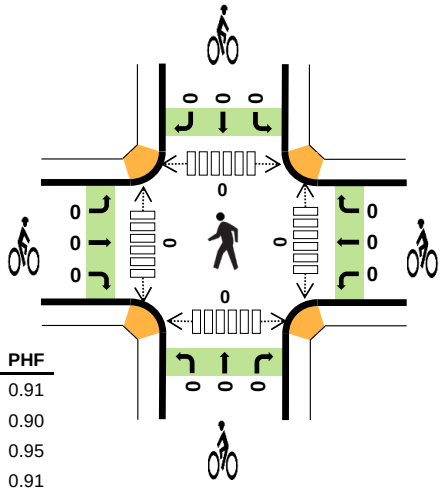
*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# MARKSHEFFEL RD
# HWY 24

**Date:** 01/12/2022
**Count Period:** 7:00 AM to 9:00 AM
**Peak Hour:** 7:00 AM to 8:00 AM




| | HV %: | PHF |
|---|---|---|
| EB | 6.5% | 0.91 |
| WB | 2.2% | 0.90 |
| NB | 2.4% | 0.95 |
| SB | 2.7% | 0.91 |
| TOTAL | 3.5% | 0.95 |



## Two-Hour Count Summaries

| Interval Start | HWY 24 Eastbound | | | | HWY 24 Westbound | | | | MARKSHEFFEL RD Northbound | | | | MARKSHEFFEL RD Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **7:00 AM** | **0** | **75** | **95** | **92** | **0** | **59** | **262** | **3** | **0** | **0** | **116** | **23** | **0** | **4** | **196** | **205** | **1,130** | 0 |
| **7:15 AM** | **0** | **79** | **81** | **102** | **0** | **72** | **285** | **5** | **0** | **0** | **127** | **18** | **0** | **1** | **223** | **229** | **1,222** | 0 |
| **7:30 AM** | **0** | **92** | **103** | **88** | **0** | **44** | **271** | **2** | **0** | **3** | **128** | **22** | **0** | **5** | **242** | **148** | **1,148** | 0 |
| **7:45 AM** | **0** | **105** | **101** | **102** | **0** | **55** | **236** | **3** | **0** | **1** | **124** | **18** | **0** | **1** | **214** | **178** | **1,138** | **4,638** |
| 8:00 AM | 0 | 58 | 89 | 75 | 0 | 33 | 140 | 6 | 0 | 1 | 91 | 13 | 0 | 5 | 195 | 177 | 883 | 4,391 |
| 8:15 AM | 0 | 69 | 83 | 88 | 0 | 40 | 158 | 6 | 0 | 2 | 86 | 8 | 0 | 0 | 134 | 156 | 830 | 3,999 |
| 8:30 AM | 0 | 74 | 97 | 69 | 0 | 38 | 137 | 4 | 0 | 0 | 88 | 10 | 0 | 2 | 148 | 132 | 799 | 3,650 |
| 8:45 AM | 0 | 55 | 80 | 75 | 0 | 36 | 131 | 0 | 0 | 0 | 71 | 17 | 0 | 7 | 119 | 82 | 673 | 3,185 |
| Count Total | 0 | 607 | 729 | 691 | 0 | 377 | 1,620 | 29 | 0 | 7 | 831 | 129 | 0 | 25 | 1,471 | 1,307 | 7,823 | 0 |
| **Peak Hour All** | **0** | **351** | **380** | **384** | **0** | **230** | **1,054** | **13** | **0** | **4** | **495** | **81** | **0** | **11** | **875** | **760** | **4,638** | **0** |
| **Peak Hour HV** | **0** | **28** | **38** | **7** | **0** | **2** | **27** | **0** | **0** | **0** | **11** | **3** | **0** | **1** | **23** | **21** | **161** | **0** |
| **Peak Hour HV%** | **-** | **8%** | **10%** | **2%** | **-** | **1%** | **3%** | **0%** | **-** | **0%** | **2%** | **4%** | **-** | **9%** | **3%** | **3%** | **3%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| **7:00 AM** | **14** | **5** | **2** | **7** | ***28*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **7:15 AM** | **22** | **4** | **6** | **14** | ***46*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **7:30 AM** | **15** | **11** | **2** | **19** | ***47*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **7:45 AM** | **22** | **9** | **4** | **5** | ***40*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |
| 8:00 AM | 20 | 7 | 3 | 12 | *42* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 8:15 AM | 19 | 12 | 6 | 15 | *52* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 8:30 AM | 21 | 12 | 4 | 21 | *58* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 8:45 AM | 16 | 16 | 2 | 14 | *48* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| Count Total | 149 | 76 | 29 | 107 | *361* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| **Peak Hour** | **73** | **29** | **14** | **45** | ***161*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | HWY 24 Eastbound | | | | HWY 24 Westbound | | | | MARKSHEFFEL RD Northbound | | | | MARKSHEFFEL RD Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **7:00 AM** | **0** | **4** | **10** | **0** | **0** | **0** | **5** | **0** | **0** | **0** | **1** | **1** | **0** | **1** | **3** | **3** | **28** | 0 |
| **7:15 AM** | **0** | **10** | **9** | **3** | **0** | **0** | **4** | **0** | **0** | **0** | **6** | **0** | **0** | **0** | **11** | **3** | **46** | 0 |
| **7:30 AM** | **0** | **5** | **9** | **1** | **0** | **1** | **10** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **7** | **12** | **47** | 0 |
| **7:45 AM** | **0** | **9** | **10** | **3** | **0** | **1** | **8** | **0** | **0** | **0** | **3** | **1** | **0** | **0** | **2** | **3** | **40** | **161** |
| 8:00 AM | 0 | 11 | 8 | 1 | 0 | 0 | 6 | 1 | 0 | 0 | 3 | 0 | 0 | 2 | 4 | 6 | 42 | 175 |
| 8:15 AM | 0 | 8 | 7 | 4 | 0 | 1 | 11 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 5 | 10 | 52 | 181 |
| 8:30 AM | 0 | 8 | 10 | 3 | 0 | 3 | 9 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 14 | 7 | 58 | 192 |
| 8:45 AM | 0 | 6 | 9 | 1 | 0 | 2 | 14 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 7 | 6 | 48 | 200 |
| Count Total | 0 | 61 | 72 | 16 | 0 | 8 | 67 | 1 | 0 | 0 | 23 | 6 | 0 | 4 | 53 | 50 | 361 | 0 |
| **Peak Hour** | **0** | **28** | **38** | **7** | **0** | **2** | **27** | **0** | **0** | **0** | **11** | **3** | **0** | **1** | **23** | **21** | **161** | **0** |

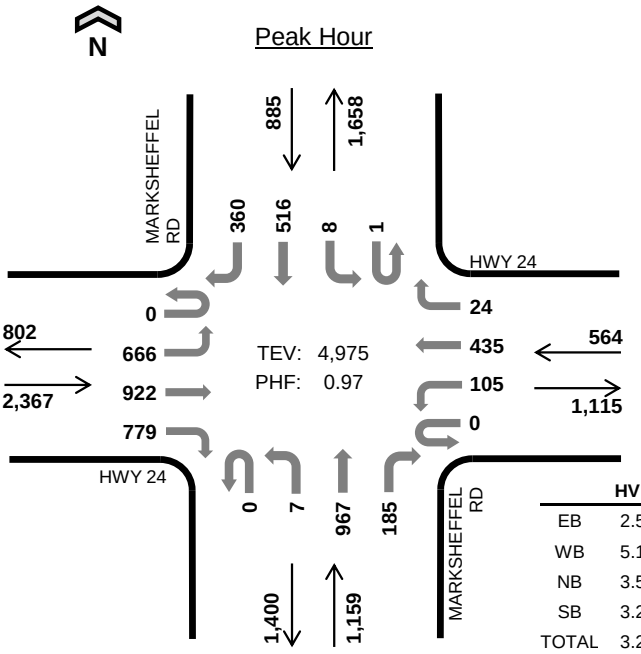
## Two-Hour Count Summaries - Bikes

| Interval Start | HWY 24 Eastbound | | | HWY 24 Westbound | | | MARKSHEFFEL RD Northbound | | | MARKSHEFFEL RD Southbound | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| **7:00 AM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **7:15 AM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **7:30 AM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **7:45 AM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

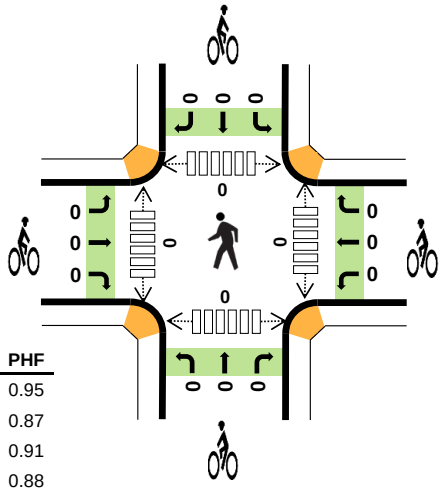
*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# MARKSHEFFEL RD
# HWY 24

**Date:** 01/12/2022
**Count Period:** 4:00 PM to 6:00 PM
**Peak Hour:** 4:00 PM to 5:00 PM




| | HV %: | PHF |
|---|---|---|
| EB | 2.5% | 0.95 |
| WB | 5.1% | 0.87 |
| NB | 3.5% | 0.91 |
| SB | 3.2% | 0.88 |
| TOTAL | 3.2% | 0.97 |



## Two-Hour Count Summaries

| Interval Start | | HWY 24 Eastbound | | | | HWY 24 Westbound | | | | MARKSHEFFEL RD Northbound | | | | MARKSHEFFEL RD Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | | **0** | **158** | **219** | **187** | **0** | **32** | **125** | **6** | **0** | **4** | **252** | **48** | **0** | **4** | **156** | **91** | **1,282** | 0 |
| **4:15 PM** | | **0** | **186** | **233** | **203** | **0** | **29** | **113** | **7** | **0** | **1** | **226** | **47** | **0** | **3** | **115** | **90** | **1,253** | 0 |
| **4:30 PM** | | **0** | **162** | **224** | **183** | **0** | **22** | **94** | **6** | **0** | **2** | **273** | **44** | **0** | **1** | **136** | **101** | **1,248** | 0 |
| **4:45 PM** | | **0** | **160** | **246** | **206** | **0** | **22** | **103** | **5** | **0** | **0** | **216** | **46** | **1** | **0** | **109** | **78** | **1,192** | **4,975** |
| 5:00 PM | | 0 | 155 | 208 | 195 | 0 | 20 | 114 | 3 | 0 | 1 | 208 | 34 | 0 | 6 | 124 | 98 | 1,166 | 4,859 |
| 5:15 PM | | 0 | 149 | 233 | 172 | 0 | 32 | 96 | 8 | 0 | 4 | 147 | 31 | 0 | 4 | 112 | 102 | 1,090 | 4,696 |
| 5:30 PM | | 0 | 128 | 185 | 171 | 0 | 37 | 123 | 2 | 0 | 3 | 184 | 28 | 0 | 0 | 132 | 94 | 1,087 | 4,535 |
| 5:45 PM | | 0 | 134 | 150 | 157 | 0 | 26 | 107 | 4 | 0 | 1 | 135 | 34 | 0 | 2 | 113 | 85 | 948 | 4,291 |
| Count Total | | 0 | 1,232 | 1,698 | 1,474 | 0 | 220 | 875 | 41 | 0 | 16 | 1,641 | 312 | 1 | 20 | 997 | 739 | 9,266 | 0 |
| **Peak Hour** | **All** | **0** | **666** | **922** | **779** | **0** | **105** | **435** | **24** | **0** | **7** | **967** | **185** | **1** | **8** | **516** | **360** | **4,975** | **0** |
| | **HV** | **0** | **16** | **22** | **22** | **0** | **6** | **22** | **1** | **0** | **0** | **34** | **7** | **0** | **1** | **10** | **17** | **158** | **0** |
| | **HV%** | **-** | **2%** | **2%** | **3%** | **-** | **6%** | **5%** | **4%** | **-** | **0%** | **4%** | **4%** | **0%** | **13%** | **2%** | **5%** | **3%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| **4:00 PM** | **19** | **8** | **13** | **8** | ***48*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:15 PM** | **14** | **8** | **9** | **7** | ***38*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:30 PM** | **14** | **6** | **11** | **5** | ***36*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:45 PM** | **13** | **7** | **8** | **8** | ***36*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |
| 5:00 PM | 10 | 5 | 5 | 5 | *25* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:15 PM | 8 | 5 | 1 | 8 | *22* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:30 PM | 3 | 3 | 2 | 7 | *15* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 4 | 3 | 1 | 6 | *14* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| Count Total | 85 | 45 | 50 | 54 | *234* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| **Peak Hour** | **60** | **29** | **41** | **28** | ***158*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | HWY 24 Eastbound | | | | HWY 24 Westbound | | | | MARKSHEFFEL RD Northbound | | | | MARKSHEFFEL RD Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | **0** | **2** | **7** | **10** | **0** | **1** | **7** | **0** | **0** | **0** | **13** | **0** | **0** | **0** | **4** | **4** | **48** | 0 |
| **4:15 PM** | **0** | **6** | **3** | **5** | **0** | **2** | **6** | **0** | **0** | **0** | **9** | **0** | **0** | **1** | **1** | **5** | **38** | 0 |
| **4:30 PM** | **0** | **5** | **7** | **2** | **0** | **0** | **5** | **1** | **0** | **0** | **9** | **2** | **0** | **0** | **1** | **4** | **36** | 0 |
| **4:45 PM** | **0** | **3** | **5** | **5** | **0** | **3** | **4** | **0** | **0** | **0** | **3** | **5** | **0** | **0** | **4** | **4** | **36** | **158** |
| 5:00 PM | 0 | 2 | 3 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 1 | 4 | 25 | 135 |
| 5:15 PM | 0 | 1 | 2 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 5 | 22 | 119 |
| 5:30 PM | 0 | 1 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 7 | 15 | 98 |
| 5:45 PM | 0 | 1 | 3 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 4 | 14 | 76 |
| Count Total | 0 | 21 | 32 | 32 | 0 | 8 | 36 | 1 | 0 | 0 | 40 | 10 | 0 | 3 | 14 | 37 | 234 | 0 |
| **Peak Hour** | **0** | **16** | **22** | **22** | **0** | **6** | **22** | **1** | **0** | **0** | **34** | **7** | **0** | **1** | **10** | **17** | **158** | **0** |

## Two-Hour Count Summaries - Bikes

| Interval Start | HWY 24 Eastbound | | | HWY 24 Westbound | | | MARKSHEFFEL RD Northbound | | | MARKSHEFFEL RD Southbound | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| **4:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

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

# APPENDIX B

## Future Traffic Projections

CDOT OTIS Growth Projection: Claremont Filing 7

| ROUTE | REFPT | ENDREFPT | LENGTH | UPDATEYR | AADT | YR20FACTOR | Annual Growth Rate | DHV | DD | LOCATION |
|---|---|---|---|---|---|---|---|---|---|---|
| 024G | 312.43 | 313.178 | 0.799 | 2020 | 21000 | 1.53 | 2.15% | 12 | 75 | ON SH 24 NE/O SH 94 COLORADO SPRINGS |
| 024G | 313.178 | 314.592 | 1.278 | 2020 | 17000 | 1.4 | 1.70% | 10 | 70 | ON SH 24 NE/O MARKSHEFFEL RD COLORADO SPRINGS |
| | | | | | | 1.465 | 1.93% | | | |

# Villas at Claremont Ranch
# Traffic Impact Analysis

Prepared for:
Morley-Bentley Investments
20 Boulder Crescent, 1st Floor
Colorado Springs, CO  80903

Contact: Mr. Jim Morley



AUGUST 20, 2021

LSC Transportation Consultants
Project Manager: Jeffrey C. Hodsdon, P.E.

LSC #204130

**Table 5: Detailed Trip Generation Estimate**

| ITE | | Value | Units [2] | Trip Generation Rates [1] | | | | | Total Trips Generated | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Average | A.M. | | P.M. | | Average | A.M. | | P.M. | |
| Code | Description | | | Weekday | In | Out | In | Out | Weekday | In | Out | In | Out |
| | | | | | | | | | | | | | |
| 210 | Multi-Family Housing | 83 | DU | 7.32 | 0.11 | 0.35 | 0.35 | 0.21 | 608 | 9 | 29 | 29 | 17 |
| | | | | | | | | | | | | | |

[1] Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)

[2] DU = dwelling unit

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

Traffic Engineer's Statement

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

Curtis D. Rowe, P.E., PTOE, PE #36355

December 13, 2021
Date

Developer's Statement

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

Ms. Kelly Nelson
Pikes Peak Investments LLC
c/o The Equity Group
90 South Cascade Avenue, Suite 1500
Colorado Springs, Colorado 80903

Date

# Crossroads-Meadowbrook-Reagan Ranch

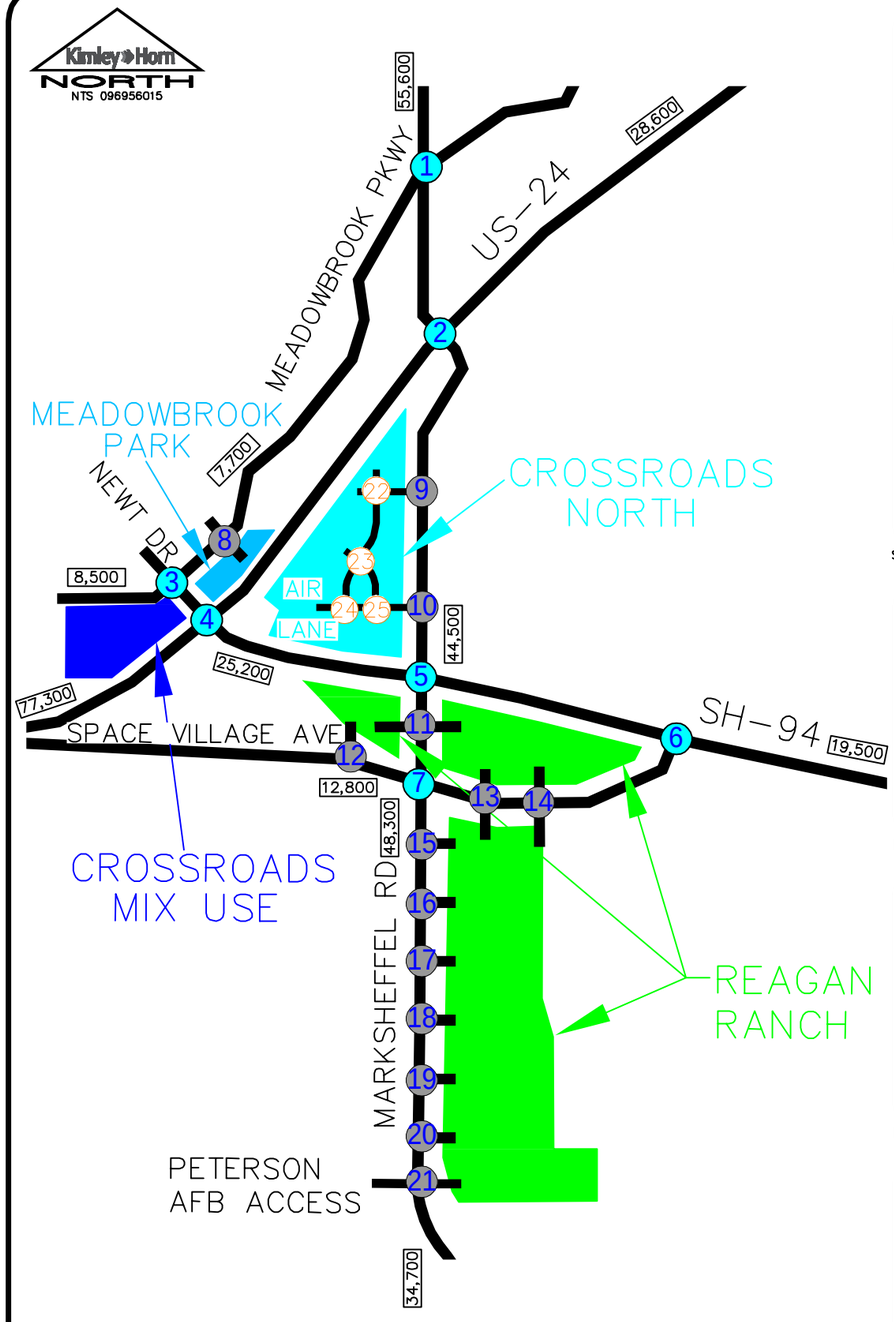
PCD File No. CR201 & SP207

Colorado Springs, Colorado
El Paso County, Colorado

**Prepared for**
**Pikes Peak Investments LLC**
**c/o The Equity Group**
90 South Cascade Avenue
Suite 1500
Colorado Springs, Colorado 80903

**Prepared by**
**Kimley-Horn and Associates, Inc.**
**Curtis D. Rowe, P.E., PTOE**
4582 South Ulster Street
Suite 1500
Denver, Colorado 80237
(303) 228-2300


December 2021




CROSSROADS–MEADOWBROOK & REAGAN RANCH
COLORADO SPRINGS, CO
2040 TOTAL TRAFFIC VOLUMES

**1** — MEADOWBROOK PWY/MARKSHEFFEL R
- 380(315) →
- 2185(2060) →
- 15(55) →
- ← 35(45)
- ← 25(20)
- ← 50(25)
- 300(355) →
- 10(15) →
- 45(65) →
- 35(55) ↑
- 1495(2520) ↑
- 25(95) ↑

**2** — US-24/MARKSHEFFEL ROAD (MARKSHEFFEL)
- 690(600) →
- 1330(1560) →
- 15(25) →
- ← 25(20)
- ← 1425(690)
- ← 435(325)
- 425(785) →
- 645(1415) →
- 140(205) →
- 5(20) ↑
- 1100(1765) ↑
- 160(345) ↑

**3** — NEWT DR/MEADOWBROOK PKWY (MEADOWBROOK)
- 5(15) →
- 160(135) →
- 285(355) →
- ← 165(150)
- ← 15(45)
- ← 370(315)
- 10(15) →
- 35(45) →
- 155(120) ↑
- 360(280) ↑

**4** — SH-94/US-24 (US-24; SH-94)
- 80(75) →
- 2190(1180) →
- 6(6) →
- ← 5(10)
- ← 105(80)
- ← 1155(1160)
- 55(65) →
- 95(95) →
- 555(535) →
- 480(470) ↑
- 1150(2325) ↑
- 855(1165) ↑

**5** — SH-94/MARKSHEFFEL RD
- 275(285) →
- 975(1480) →
- 355(230) →
- ← 135(480)
- ← 405(475)
- ← 40(50)
- 165(235) →
- 350(400) →
- 310(665) →
- 430(565) ↑
- 810(1735) ↑
- 30(50) ↑

**6** — SH-94/SPACE VILLAGE AVENUE
- ← 740(940)
- ← 85(180)
- 960(635) →
- 5(5) →
- 5(5) ↑
- 170(160) ↑

**7** — SPACE VILLAGE AVE/MARKSHEFFEL RD
- 150(30) →
- 1520(1735) →
- 105(250) →
- ← 70(50)
- ← 135(225)
- ← 75(180)
- 50(130) →
- 115(195) →
- 180(370) →
- 425(330) ↑
- 1335(2125) ↑
- 55(85) ↑

**8** — MEADOWBROOK PARKWAY ACCESS (MEADOWBROOK)
- 5(5) →
- 420(480) →
- 5(15) →
- ← 15(10)
- ACCESS
- ← 30(20)
- 5(5) →
- 10(10) →
- 5(10) ↑
- 315(255) ↑
- 10(30) ↑

**9** — MARKSHEFFEL RD NORTH ACCESS
- 220(310) →
- 1675(1760) →
- 100(100) →
- 100(100) →
- 55(80) ↑
- 1160(2025) ↑

**10** — MARKSHEFFEL RD/AIR LANE ACCESS
- 110(155) →
- 1665(1705) →
- 75(75) →
- 225(225) →
- 165(235) ↑
- 1145(2030) ↑

**11** — MARKSHEFFEL ROAD RIRO ACCESS
- 55(15) →
- 1770(1985) →
- ← 45(205)
- 10(25) →
- 1390(2150) ↑
- 60(150) ↑

**12** — SPACE VILLAGE AVE FULL ACCESS
- 15(50) →
- 15(50) →
- ← 30(10)
- ← 675(575)
- 35(10) →
- 325(640) →

**13** — SPACE VILLAGE AVE W FULL ACCESS
- 45(205) →
- 5(5) →
- ← 10(20)
- ← 170(180)
- ← 10(20)
- 80(210) →
- 160(240) →
- 30(85) →
- 55(70) ↑
- 15(15) ↑

**14** — SPACE VILLAGE AVE E FULL ACCESS
- 100(50) →
- 15(5) →
- ← 5(15)
- ← 65(140)
- ← 10(20)
- 35(95) →
- 125(125) →
- 15(35) →
- 25(30) ↑
- 15(15) ↑

**15** — MARKSHEFFEL ROAD RIRO ACCESS
- 1765(2275) →
- ← 70(85)
- 1745(2455) ↑
- 10(20) ↑

**16** — MARKSHEFFEL ROAD 3/4 ACCESS
- 1660(2010) →
- 105(275) →
- ← 105(135)
- 1650(2335) ↑
- 25(30) ↑

**17** — MARKSHEFFEL ROAD RIRO ACCESS
- 1660(2010) →
- ← 140(175)
- 1525(2200) ↑
- 25(50) ↑

**18** — MARKSHEFFEL ROAD FULL ACCESS
- 1550(1710) →
- 120(305) →
- ← 95(120)
- ← 95(120)
- 1450(2130) ↑
- 25(50) ↑

**19** — MARKSHEFFEL ROAD RIRO ACCESS
- 1640(1825) →
- ← 70(85)
- 1405(2095) ↑
- 25(50) ↑

**20** — MARKSHEFFEL ROAD 3/4 ACCESS
- 1530(1525) →
- 120(305) →
- ← 130(165)
- 1300(1985) ↑
- 15(35) ↑

**21** — MARKSHEFFEL RD FULL ACCESS
- 850(780) →
- 585(500) →
- 100(255) →
- ← 155(200)
- ← 85(110)
- ← 35(45)
- 680(1095) →
- 30(85) →
- 145(220) →
- 190(150) ↑
- 475(730) ↑
- 10(20) ↑

**22** — CROSSROADS NORTH INT #22
- 2(2) →
- 2(2) →
- 50(50) →
- ← 55(80)
- ← 55(80)
- ← 165(235)
- 2(2) →
- 50(50) →
- 2(2) →
- 2(2) ↑
- 2(2) ↑
- 100(100) ↑

**23** — CROSSROADS NORTH INT #23
- 55(80) →
- 80(90) →
- 30(40) →
- ← 25(25)
- ← 5(10)
- ← 2(2)
- 25(25) →
- 5(5) →
- 50(50) →
- 30(40) ↑
- 55(65) ↑
- 2(2) ↑

**24** — AIR LANE WEST INTERSECTION
- 2(2) →
- 125(125) →
- ← 110(155)
- ← 55(80)
- 2(2) →
- 50(50) →

**25** — AIR LANE EAST INTERSECTION
- 5(5) →
- 125(125) →
- ← 110(155)
- ← 165(235)
- 5(5) →
- 175(175) →

LEGEND
- X — Existing Key Intersection
- X — Proposed Access Intersection
- X — Proposed Internal Intersection
- XXX(XXX) — Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 — Estimated Daily Traffic Volume

FIGURE 12

Kimley»Horn

# APPENDIX C

## Trip Generation Worksheets

Kimley»Horn

| | | | | | |
|---|---|---|---|---|---|
| *Project* | Claremont Filing 7 | | | | |
| *Subject* | Trip Generation for Multifamily Housing (Low-Rise) | | | | |
| *Designed by* | MAG | *Date* | February 02, 2022 | *Job No.* | 096726002 |
| *Checked by* | | *Date* | | *Sheet No.* | of |

**TRIP GENERATION MANUAL TECHNIQUES**

ITE Trip Generation Manual 11th Edition, Fitted Curve Equations

Land Use Code - Multifamily Housing (Low-Rise) (220)

Independent Variable - Dwelling Units (X)

X = 150
T = Average Vehicle Trip Ends

**Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (200 Series Page 255)**

(T) = 0.31 (X) + 22.85
(T) = 0.31 * (150.0) + 22.85

Directional Distribution: 24% ent. 76% exit.
T = 70 Average Vehicle Trip Ends
17 entering 53 exiting

17 + 53 = 70

**Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (200 Series Page 256)**

(T) = 0.43 (X) + 20.55
(T) = 0.43 * (150.0) + 20.55

Directional Distribution: 63% ent. 37% exit.
T = 86 Average Vehicle Trip Ends
54 entering 32 exiting

54 + 32 = 86

**Weekday (200 Series Page 254)**

(T) = 6.41 (X) + 75.31
(T) = 6.41 * (150.0) + 75.31

Directional Distribution: 50% ent. 50% exit.
T = 1038 Average Vehicle Trip Ends
519 entering 519 exiting

519 + 519 = 1038

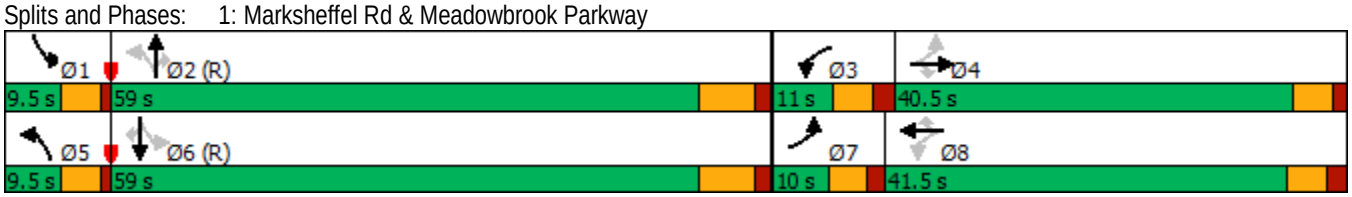
# APPENDIX D

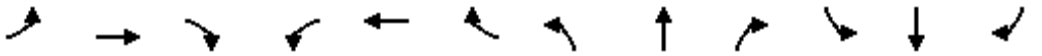
## Intersection Analysis Worksheets

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 93 | 4 | 24 | 126 | 10 | 56 | 29 | 774 | 44 | 14 | 1513 | 127 |
| Future Volume (vph) | 93 | 4 | 24 | 126 | 10 | 56 | 29 | 774 | 44 | 14 | 1513 | 127 |
| 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 40.5 | 40.5 | 11.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 33.8% | 33.8% | 9.2% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 9.0 | 6.0 | 6.0 | 11.6 | 6.3 | 6.3 | 94.0 | 89.5 | 89.5 | 92.8 | 87.2 | 87.2 |
| Actuated g/C Ratio | 0.08 | 0.05 | 0.05 | 0.10 | 0.05 | 0.05 | 0.78 | 0.75 | 0.75 | 0.77 | 0.73 | 0.73 |
| v/c Ratio | 0.41 | 0.05 | 0.14 | 0.88 | 0.11 | 0.31 | 0.14 | 0.33 | 0.04 | 0.03 | 0.65 | 0.12 |
| Control Delay | 53.1 | 55.0 | 1.6 | 98.4 | 56.2 | 4.1 | 10.8 | 16.2 | 5.8 | 3.3 | 11.6 | 1.6 |
| Queue Delay | 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 Delay | 53.1 | 55.0 | 1.6 | 98.4 | 56.2 | 4.1 | 10.8 | 16.2 | 5.8 | 3.3 | 11.6 | 1.6 |
| LOS | D | D | A | F | E | A | B | B | A | A | B | A |
| Approach Delay | | 42.8 | | | 68.5 | | | 15.5 | | | 10.7 | |
| Approach LOS | | D | | | E | | | B | | | B | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 120 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.88 | |
| Intersection Signal Delay: 17.5 | Intersection LOS: B |
| Intersection Capacity Utilization 67.1% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 93 | 4 | 24 | 126 | 10 | 56 | 29 | 774 | 44 | 14 | 1513 | 127 |
| Future Volume (veh/h) | 93 | 4 | 24 | 126 | 10 | 56 | 29 | 774 | 44 | 14 | 1513 | 127 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 99 | 4 | 26 | 134 | 11 | 60 | 31 | 823 | 47 | 15 | 1610 | 135 |
| 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, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 369 | 83 | 70 | 204 | 104 | 88 | 220 | 2414 | 1077 | 467 | 2398 | 1069 |
| Arrive On Green | 0.04 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.03 | 0.71 | 0.71 | 0.02 | 0.70 | 0.70 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 3413 | 1522 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 99 | 4 | 26 | 134 | 11 | 60 | 31 | 823 | 47 | 15 | 1610 | 135 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1706 | 1522 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 3.4 | 0.3 | 2.0 | 5.5 | 0.7 | 4.5 | 0.6 | 11.2 | 1.1 | 0.3 | 32.0 | 3.5 |
| Cycle Q Clear(g_c), s | 3.4 | 0.3 | 2.0 | 5.5 | 0.7 | 4.5 | 0.6 | 11.2 | 1.1 | 0.3 | 32.0 | 3.5 |
| 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 | 369 | 83 | 70 | 204 | 104 | 88 | 220 | 2414 | 1077 | 467 | 2398 | 1069 |
| V/C Ratio(X) | 0.27 | 0.05 | 0.37 | 0.66 | 0.11 | 0.68 | 0.14 | 0.34 | 0.04 | 0.03 | 0.67 | 0.13 |
| Avail Cap(c_a), veh/h | 369 | 518 | 439 | 204 | 561 | 476 | 245 | 2414 | 1077 | 510 | 2398 | 1069 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.61 | 0.61 | 0.61 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 51.4 | 54.6 | 55.4 | 53.7 | 53.8 | 55.6 | 9.5 | 6.8 | 5.3 | 5.4 | 10.4 | 6.0 |
| Incr Delay (d2), s/veh | 0.4 | 0.2 | 3.2 | 7.5 | 0.4 | 8.9 | 0.2 | 0.2 | 0.0 | 0.0 | 1.5 | 0.2 |
| 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 | 1.4 | 0.1 | 0.8 | 4.4 | 0.3 | 2.0 | 0.2 | 3.8 | 0.3 | 0.1 | 11.4 | 1.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 51.8 | 54.8 | 58.7 | 61.1 | 54.3 | 64.5 | 9.7 | 7.0 | 5.4 | 5.4 | 11.9 | 6.3 |
| LnGrp LOS | D | D | E | E | D | E | A | A | A | A | B | A |
| Approach Vol, veh/h | | 129 | | | 205 | | | 901 | | | 1760 | |
| Approach Delay, s/veh | | 53.3 | | | 61.8 | | | 7.0 | | | 11.4 | |
| Approach LOS | | D | | | E | | | A | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.5 | 91.4 | 11.0 | 11.2 | 7.7 | 90.1 | 10.0 | 12.2 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 5.5 | * 36 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 2.3 | 13.2 | 7.5 | 4.0 | 2.6 | 34.0 | 5.4 | 6.5 |
| Green Ext Time (p_c), s | 0.0 | 7.2 | 0.0 | 0.1 | 0.0 | 12.4 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 15.3 |
| HCM 6th LOS | B |

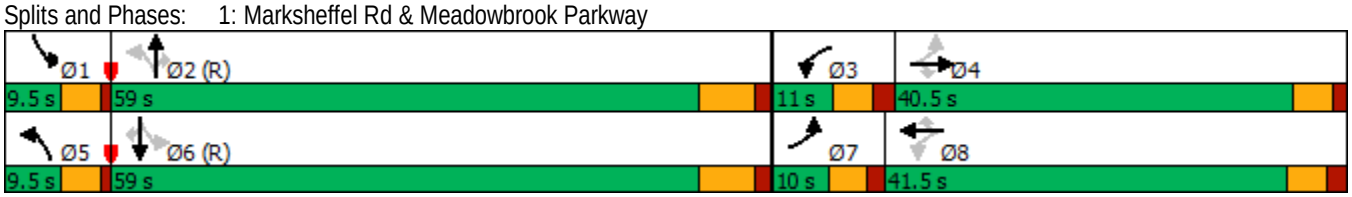
Notes

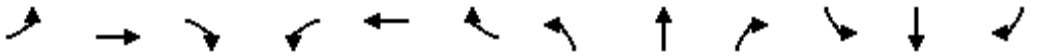
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 116 | 8 | 37 | 30 | 4 | 29 | 18 | 1553 | 67 | 37 | 802 | 78 |
| Future Volume (vph) | 116 | 8 | 37 | 30 | 4 | 29 | 18 | 1553 | 67 | 37 | 802 | 78 |
| 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 40.5 | 40.5 | 11.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 33.8% | 33.8% | 9.2% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 9.3 | 6.3 | 6.3 | 9.9 | 6.6 | 6.6 | 93.8 | 87.0 | 87.0 | 96.0 | 91.4 | 91.4 |
| Actuated g/C Ratio | 0.08 | 0.05 | 0.05 | 0.08 | 0.06 | 0.06 | 0.78 | 0.72 | 0.72 | 0.80 | 0.76 | 0.76 |
| v/c Ratio | 0.60 | 0.10 | 0.21 | 0.23 | 0.04 | 0.16 | 0.04 | 0.68 | 0.06 | 0.19 | 0.33 | 0.07 |
| Control Delay | 60.9 | 56.1 | 2.6 | 49.9 | 53.8 | 1.7 | 6.2 | 19.7 | 4.6 | 5.1 | 6.3 | 0.8 |
| Queue Delay | 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 Delay | 60.9 | 56.1 | 2.6 | 49.9 | 53.8 | 1.7 | 6.2 | 19.7 | 4.6 | 5.1 | 6.3 | 0.8 |
| LOS | E | E | A | D | D | A | A | B | A | A | A | A |
| Approach Delay | | 47.2 | | | 27.8 | | | 19.0 | | | 5.7 | |
| Approach LOS | | D | | | C | | | B | | | A | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 130 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.68 | |
| Intersection Signal Delay: 16.5 | Intersection LOS: B |
| Intersection Capacity Utilization 65.4% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 116 | 8 | 37 | 30 | 4 | 29 | 18 | 1553 | 67 | 37 | 802 | 78 |
| Future Volume (veh/h) | 116 | 8 | 37 | 30 | 4 | 29 | 18 | 1553 | 67 | 37 | 802 | 78 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 125 | 9 | 40 | 32 | 4 | 31 | 19 | 1670 | 72 | 40 | 862 | 84 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 352 | 89 | 76 | 164 | 76 | 65 | 449 | 2415 | 1077 | 228 | 2474 | 1103 |
| Arrive On Green | 0.04 | 0.05 | 0.05 | 0.03 | 0.04 | 0.04 | 0.02 | 0.71 | 0.71 | 0.03 | 0.72 | 0.72 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 3413 | 1522 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 125 | 9 | 40 | 32 | 4 | 31 | 19 | 1670 | 72 | 40 | 862 | 84 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1706 | 1522 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 4.4 | 0.6 | 3.2 | 2.0 | 0.2 | 2.3 | 0.4 | 33.6 | 1.7 | 0.7 | 11.3 | 2.0 |
| Cycle Q Clear(g_c), s | 4.4 | 0.6 | 3.2 | 2.0 | 0.2 | 2.3 | 0.4 | 33.6 | 1.7 | 0.7 | 11.3 | 2.0 |
| 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 | 352 | 89 | 76 | 164 | 76 | 65 | 449 | 2415 | 1077 | 228 | 2474 | 1103 |
| V/C Ratio(X) | 0.36 | 0.10 | 0.53 | 0.20 | 0.05 | 0.48 | 0.04 | 0.69 | 0.07 | 0.18 | 0.35 | 0.08 |
| Avail Cap(c_a), veh/h | 352 | 518 | 439 | 197 | 561 | 476 | 487 | 2415 | 1077 | 247 | 2474 | 1103 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.37 | 0.37 | 0.37 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.5 | 54.3 | 55.5 | 53.1 | 55.3 | 56.3 | 4.9 | 10.0 | 5.4 | 9.7 | 6.3 | 5.0 |
| Incr Delay (d2), s/veh | 0.6 | 0.5 | 5.6 | 0.6 | 0.3 | 5.4 | 0.0 | 0.6 | 0.0 | 0.4 | 0.4 | 0.1 |
| 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 | 1.8 | 0.3 | 1.3 | 0.9 | 0.1 | 1.0 | 0.1 | 11.4 | 0.5 | 0.3 | 3.9 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 53.2 | 54.8 | 61.2 | 53.6 | 55.6 | 61.7 | 5.0 | 10.7 | 5.4 | 10.1 | 6.7 | 5.2 |
| LnGrp LOS | D | D | E | D | E | E | A | B | A | B | A | A |
| Approach Vol, veh/h | | 174 | | | 67 | | | 1761 | | | 986 | |
| Approach Delay, s/veh | | 55.1 | | | 57.5 | | | 10.4 | | | 6.7 | |
| Approach LOS | | E | | | E | | | B | | | A | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.2 | 91.4 | 8.8 | 11.6 | 6.8 | 92.8 | 10.0 | 10.4 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 5.5 | * 36 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 2.7 | 35.6 | 4.0 | 5.2 | 2.4 | 13.3 | 6.4 | 4.3 |
| Green Ext Time (p_c), s | 0.0 | 11.8 | 0.0 | 0.1 | 0.0 | 7.8 | 0.0 | 0.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 12.8 |
| HCM 6th LOS | B |

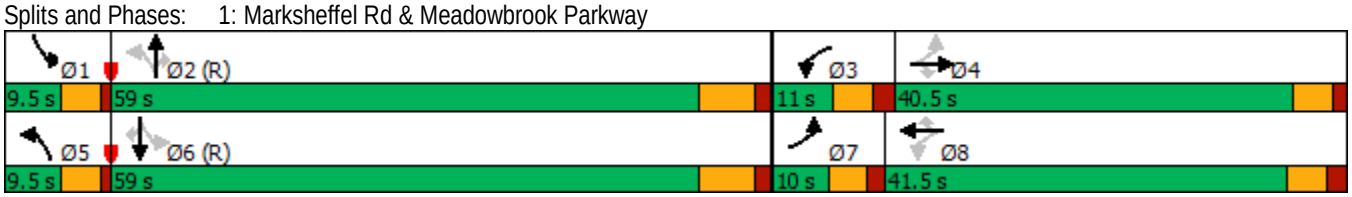
Notes

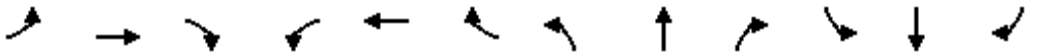
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 95 | 4 | 24 | 129 | 10 | 57 | 30 | 789 | 45 | 14 | 1543 | 130 |
| Future Volume (vph) | 95 | 4 | 24 | 129 | 10 | 57 | 30 | 789 | 45 | 14 | 1543 | 130 |
| 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 40.5 | 40.5 | 11.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 33.8% | 33.8% | 9.2% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 9.0 | 6.0 | 6.0 | 11.6 | 6.3 | 6.3 | 94.1 | 89.5 | 89.5 | 92.7 | 87.2 | 87.2 |
| Actuated g/C Ratio | 0.08 | 0.05 | 0.05 | 0.10 | 0.05 | 0.05 | 0.78 | 0.75 | 0.75 | 0.77 | 0.73 | 0.73 |
| v/c Ratio | 0.41 | 0.05 | 0.14 | 0.90 | 0.11 | 0.31 | 0.15 | 0.33 | 0.04 | 0.03 | 0.66 | 0.12 |
| Control Delay | 53.3 | 55.0 | 1.6 | 102.2 | 56.2 | 4.2 | 11.2 | 16.5 | 5.9 | 3.3 | 11.8 | 1.7 |
| Queue Delay | 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 Delay | 53.3 | 55.0 | 1.6 | 102.2 | 56.2 | 4.2 | 11.2 | 16.5 | 5.9 | 3.3 | 11.8 | 1.7 |
| LOS | D | D | A | F | E | A | B | B | A | A | B | A |
| Approach Delay | | 43.1 | | | 71.1 | | | 15.8 | | | 11.0 | |
| Approach LOS | | D | | | E | | | B | | | B | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 130 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.90 | |
| Intersection Signal Delay: 17.9 | Intersection LOS: B |
| Intersection Capacity Utilization 68.1% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 95 | 4 | 24 | 129 | 10 | 57 | 30 | 789 | 45 | 14 | 1543 | 130 |
| Future Volume (veh/h) | 95 | 4 | 24 | 129 | 10 | 57 | 30 | 789 | 45 | 14 | 1543 | 130 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 101 | 4 | 26 | 137 | 11 | 61 | 32 | 839 | 48 | 15 | 1641 | 138 |
| 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, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 370 | 84 | 71 | 205 | 105 | 89 | 214 | 2411 | 1076 | 459 | 2394 | 1068 |
| Arrive On Green | 0.04 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.03 | 0.71 | 0.71 | 0.02 | 0.70 | 0.70 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 3413 | 1522 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 101 | 4 | 26 | 137 | 11 | 61 | 32 | 839 | 48 | 15 | 1641 | 138 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1706 | 1522 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 3.5 | 0.3 | 2.0 | 5.5 | 0.7 | 4.5 | 0.6 | 11.5 | 1.1 | 0.3 | 33.3 | 3.6 |
| Cycle Q Clear(g_c), s | 3.5 | 0.3 | 2.0 | 5.5 | 0.7 | 4.5 | 0.6 | 11.5 | 1.1 | 0.3 | 33.3 | 3.6 |
| 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 | 370 | 84 | 71 | 205 | 105 | 89 | 214 | 2411 | 1076 | 459 | 2394 | 1068 |
| V/C Ratio(X) | 0.27 | 0.05 | 0.37 | 0.67 | 0.10 | 0.68 | 0.15 | 0.35 | 0.04 | 0.03 | 0.69 | 0.13 |
| Avail Cap(c_a), veh/h | 370 | 518 | 439 | 205 | 561 | 476 | 239 | 2411 | 1076 | 502 | 2394 | 1068 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.59 | 0.59 | 0.59 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 51.3 | 54.5 | 55.4 | 53.7 | 53.8 | 55.6 | 10.0 | 6.8 | 5.3 | 5.5 | 10.6 | 6.1 |
| Incr Delay (d2), s/veh | 0.4 | 0.2 | 3.1 | 8.1 | 0.4 | 8.9 | 0.2 | 0.2 | 0.0 | 0.0 | 1.6 | 0.3 |
| 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 | 1.4 | 0.1 | 0.8 | 4.6 | 0.3 | 2.0 | 0.2 | 3.9 | 0.4 | 0.1 | 11.9 | 1.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 51.7 | 54.8 | 58.5 | 61.8 | 54.2 | 64.5 | 10.2 | 7.1 | 5.4 | 5.5 | 12.2 | 6.4 |
| LnGrp LOS | D | D | E | E | D | E | B | A | A | A | B | A |
| Approach Vol, veh/h | | 131 | | | 209 | | | 919 | | | 1794 | |
| Approach Delay, s/veh | | 53.2 | | | 62.2 | | | 7.1 | | | 11.7 | |
| Approach LOS | | D | | | E | | | A | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.5 | 91.3 | 11.0 | 11.2 | 7.8 | 90.0 | 10.0 | 12.2 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 5.5 | * 36 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 2.3 | 13.5 | 7.5 | 4.0 | 2.6 | 35.3 | 5.5 | 6.5 |
| Green Ext Time (p_c), s | 0.0 | 7.4 | 0.0 | 0.1 | 0.0 | 11.9 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 15.6 |
| HCM 6th LOS | B |

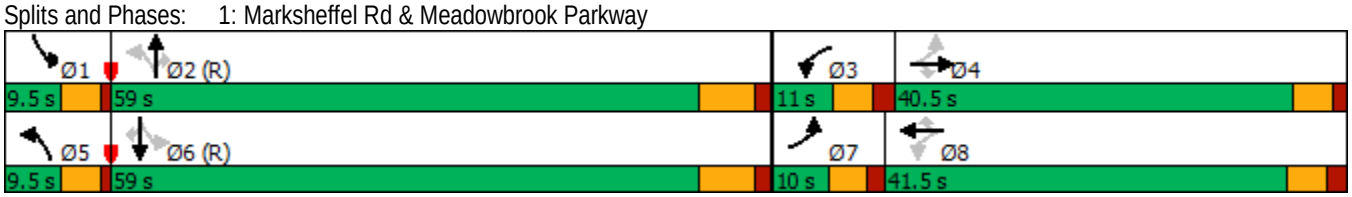
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 118 | 8 | 38 | 31 | 4 | 30 | 18 | 1584 | 68 | 38 | 818 | 80 |
| Future Volume (vph) | 118 | 8 | 38 | 31 | 4 | 30 | 18 | 1584 | 68 | 38 | 818 | 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 40.5 | 40.5 | 11.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 33.8% | 33.8% | 9.2% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 9.3 | 6.3 | 6.3 | 9.9 | 6.6 | 6.6 | 93.7 | 87.0 | 87.0 | 96.1 | 91.4 | 91.4 |
| Actuated g/C Ratio | 0.08 | 0.05 | 0.05 | 0.08 | 0.06 | 0.06 | 0.78 | 0.72 | 0.72 | 0.80 | 0.76 | 0.76 |
| v/c Ratio | 0.61 | 0.10 | 0.22 | 0.23 | 0.04 | 0.16 | 0.04 | 0.70 | 0.07 | 0.20 | 0.34 | 0.07 |
| Control Delay | 61.4 | 56.1 | 2.7 | 50.0 | 53.8 | 1.8 | 6.0 | 19.4 | 4.5 | 5.2 | 6.3 | 0.9 |
| Queue Delay | 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 Delay | 61.4 | 56.1 | 2.7 | 50.0 | 53.8 | 1.8 | 6.0 | 19.4 | 4.5 | 5.2 | 6.3 | 0.9 |
| LOS | E | E | A | D | D | A | A | B | A | A | A | A |
| Approach Delay | | 47.5 | | | 27.9 | | | 18.7 | | | 5.8 | |
| Approach LOS | | D | | | C | | | B | | | A | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 130 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.70 | |
| Intersection Signal Delay: 16.3 | Intersection LOS: B |
| Intersection Capacity Utilization 66.3% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 118 | 8 | 38 | 31 | 4 | 30 | 18 | 1584 | 68 | 38 | 818 | 80 |
| Future Volume (veh/h) | 118 | 8 | 38 | 31 | 4 | 30 | 18 | 1584 | 68 | 38 | 818 | 80 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 127 | 9 | 41 | 33 | 4 | 32 | 19 | 1703 | 73 | 41 | 880 | 86 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 352 | 89 | 75 | 165 | 76 | 65 | 441 | 2414 | 1077 | 221 | 2473 | 1103 |
| Arrive On Green | 0.04 | 0.05 | 0.05 | 0.03 | 0.04 | 0.04 | 0.02 | 0.71 | 0.71 | 0.03 | 0.72 | 0.72 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 3413 | 1522 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 127 | 9 | 41 | 33 | 4 | 32 | 19 | 1703 | 73 | 41 | 880 | 86 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1706 | 1522 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 4.5 | 0.6 | 3.2 | 2.1 | 0.2 | 2.4 | 0.4 | 35.0 | 1.8 | 0.8 | 11.6 | 2.0 |
| Cycle Q Clear(g_c), s | 4.5 | 0.6 | 3.2 | 2.1 | 0.2 | 2.4 | 0.4 | 35.0 | 1.8 | 0.8 | 11.6 | 2.0 |
| 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 | 352 | 89 | 75 | 165 | 76 | 65 | 441 | 2414 | 1077 | 221 | 2473 | 1103 |
| V/C Ratio(X) | 0.36 | 0.10 | 0.55 | 0.20 | 0.05 | 0.49 | 0.04 | 0.71 | 0.07 | 0.19 | 0.36 | 0.08 |
| Avail Cap(c_a), veh/h | 352 | 518 | 439 | 197 | 561 | 476 | 479 | 2414 | 1077 | 240 | 2473 | 1103 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.36 | 0.36 | 0.36 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.6 | 54.4 | 55.6 | 53.0 | 55.3 | 56.3 | 5.0 | 10.3 | 5.4 | 10.3 | 6.4 | 5.0 |
| Incr Delay (d2), s/veh | 0.6 | 0.5 | 6.0 | 0.6 | 0.3 | 5.7 | 0.0 | 0.6 | 0.0 | 0.4 | 0.4 | 0.1 |
| 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 | 1.9 | 0.3 | 1.3 | 1.0 | 0.1 | 1.1 | 0.1 | 11.9 | 0.5 | 0.4 | 4.0 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 53.2 | 54.9 | 61.7 | 53.6 | 55.6 | 62.0 | 5.0 | 10.9 | 5.4 | 10.7 | 6.8 | 5.2 |
| LnGrp LOS | D | D | E | D | E | E | A | B | A | B | A | A |
| Approach Vol, veh/h | | 177 | | | 69 | | | 1795 | | | 1007 | |
| Approach Delay, s/veh | | 55.2 | | | 57.6 | | | 10.6 | | | 6.8 | |
| Approach LOS | | E | | | E | | | B | | | A | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.2 | 91.4 | 8.8 | 11.6 | 6.8 | 92.7 | 10.0 | 10.4 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 5.5 | * 36 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 2.8 | 37.0 | 4.1 | 5.2 | 2.4 | 13.6 | 6.5 | 4.4 |
| Green Ext Time (p_c), s | 0.0 | 11.2 | 0.0 | 0.1 | 0.0 | 8.0 | 0.0 | 0.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 13.0 |
| HCM 6th LOS | B |

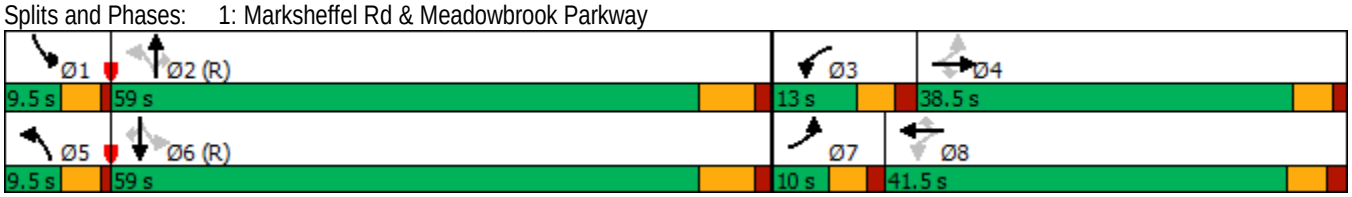
Notes

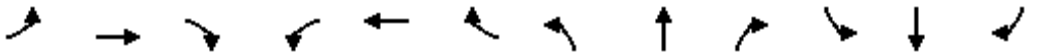
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 95 | 4 | 24 | 163 | 11 | 73 | 30 | 789 | 56 | 19 | 1543 | 130 |
| Future Volume (vph) | 95 | 4 | 24 | 163 | 11 | 73 | 30 | 789 | 56 | 19 | 1543 | 130 |
| 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 38.5 | 38.5 | 13.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 32.1% | 32.1% | 10.8% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 9.3 | 5.9 | 5.9 | 14.3 | 7.4 | 7.4 | 92.5 | 87.9 | 87.9 | 91.3 | 85.7 | 85.7 |
| Actuated g/C Ratio | 0.08 | 0.05 | 0.05 | 0.12 | 0.06 | 0.06 | 0.77 | 0.73 | 0.73 | 0.76 | 0.71 | 0.71 |
| v/c Ratio | 0.41 | 0.05 | 0.14 | 0.98 | 0.10 | 0.38 | 0.16 | 0.34 | 0.05 | 0.04 | 0.68 | 0.12 |
| Control Delay | 51.9 | 55.2 | 1.6 | 112.8 | 54.1 | 8.0 | 12.3 | 16.9 | 6.9 | 3.7 | 13.1 | 1.9 |
| Queue Delay | 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 Delay | 51.9 | 55.2 | 1.6 | 112.8 | 54.1 | 8.0 | 12.3 | 16.9 | 6.9 | 3.7 | 13.1 | 1.9 |
| LOS | D | E | A | F | D | A | B | B | A | A | B | A |
| Approach Delay | | 42.1 | | | 79.3 | | | 16.1 | | | 12.1 | |
| Approach LOS | | D | | | E | | | B | | | B | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 130 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.98 | |
| Intersection Signal Delay: 20.2 | Intersection LOS: C |
| Intersection Capacity Utilization 70.0% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 95 | 4 | 24 | 163 | 11 | 73 | 30 | 789 | 56 | 19 | 1543 | 130 |
| Future Volume (veh/h) | 95 | 4 | 24 | 163 | 11 | 73 | 30 | 789 | 56 | 19 | 1543 | 130 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 102 | 4 | 26 | 175 | 12 | 78 | 32 | 848 | 60 | 20 | 1659 | 140 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 355 | 74 | 63 | 227 | 126 | 107 | 205 | 2361 | 1053 | 446 | 2356 | 1051 |
| Arrive On Green | 0.04 | 0.04 | 0.04 | 0.06 | 0.07 | 0.07 | 0.03 | 0.69 | 0.69 | 0.02 | 0.68 | 0.68 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 3413 | 1522 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 102 | 4 | 26 | 175 | 12 | 78 | 32 | 848 | 60 | 20 | 1659 | 140 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1706 | 1522 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 3.6 | 0.3 | 2.0 | 7.5 | 0.7 | 5.8 | 0.7 | 12.2 | 1.5 | 0.4 | 35.2 | 3.8 |
| Cycle Q Clear(g_c), s | 3.6 | 0.3 | 2.0 | 7.5 | 0.7 | 5.8 | 0.7 | 12.2 | 1.5 | 0.4 | 35.2 | 3.8 |
| 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 | 355 | 74 | 63 | 227 | 126 | 107 | 205 | 2361 | 1053 | 446 | 2356 | 1051 |
| V/C Ratio(X) | 0.29 | 0.05 | 0.41 | 0.77 | 0.10 | 0.73 | 0.16 | 0.36 | 0.06 | 0.04 | 0.70 | 0.13 |
| Avail Cap(c_a), veh/h | 355 | 489 | 414 | 227 | 561 | 476 | 230 | 2361 | 1053 | 483 | 2356 | 1051 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.59 | 0.59 | 0.59 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.0 | 55.2 | 56.0 | 53.6 | 52.5 | 54.9 | 11.0 | 7.6 | 5.9 | 5.8 | 11.5 | 6.6 |
| Incr Delay (d2), s/veh | 0.4 | 0.3 | 4.3 | 15.1 | 0.3 | 9.3 | 0.2 | 0.3 | 0.1 | 0.0 | 1.8 | 0.3 |
| 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 | 1.5 | 0.1 | 0.8 | 6.2 | 0.4 | 0.3 | 0.3 | 4.2 | 0.5 | 0.1 | 12.8 | 1.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 52.4 | 55.5 | 60.4 | 68.8 | 52.9 | 64.2 | 11.2 | 7.8 | 6.0 | 5.9 | 13.3 | 6.8 |
| LnGrp LOS | D | E | E | E | D | E | B | A | A | A | B | A |
| Approach Vol, veh/h | | 132 | | | 265 | | | 940 | | | 1819 | |
| Approach Delay, s/veh | | 54.1 | | | 66.7 | | | 7.8 | | | 12.7 | |
| Approach LOS | | D | | | E | | | A | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.9 | 89.5 | 13.0 | 10.6 | 7.8 | 88.7 | 10.0 | 13.6 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 7.5 | * 34 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 14.2 | 9.5 | 4.0 | 2.7 | 37.2 | 5.6 | 7.8 |
| Green Ext Time (p_c), s | 0.0 | 7.5 | 0.0 | 0.1 | 0.0 | 11.0 | 0.0 | 0.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 17.5 |
| HCM 6th LOS | B |

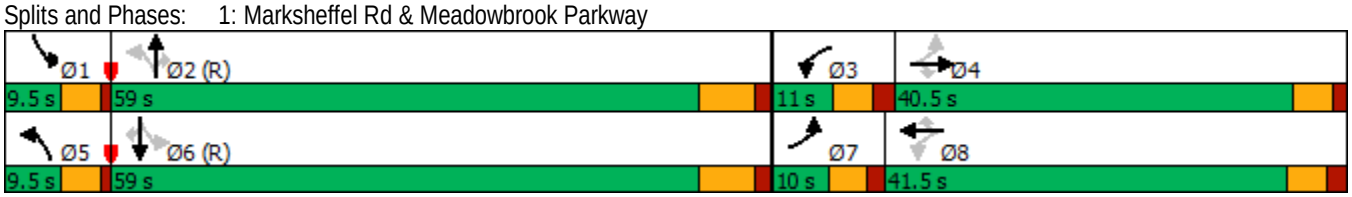
Notes

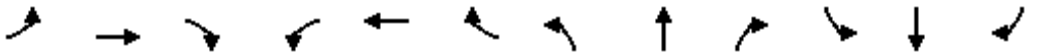
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 118 | 9 | 38 | 52 | 5 | 40 | 18 | 1584 | 104 | 54 | 818 | 80 |
| Future Volume (vph) | 118 | 9 | 38 | 52 | 5 | 40 | 18 | 1584 | 104 | 54 | 818 | 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 40.5 | 40.5 | 11.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 33.8% | 33.8% | 9.2% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 10.3 | 6.3 | 6.3 | 11.1 | 6.7 | 6.7 | 91.0 | 84.2 | 84.2 | 94.3 | 89.2 | 89.2 |
| Actuated g/C Ratio | 0.09 | 0.05 | 0.05 | 0.09 | 0.06 | 0.06 | 0.76 | 0.70 | 0.70 | 0.79 | 0.74 | 0.74 |
| v/c Ratio | 0.53 | 0.11 | 0.22 | 0.38 | 0.05 | 0.22 | 0.04 | 0.72 | 0.10 | 0.28 | 0.35 | 0.07 |
| Control Delay | 55.5 | 56.3 | 2.7 | 54.0 | 54.0 | 2.5 | 6.1 | 20.7 | 6.9 | 6.7 | 6.8 | 0.9 |
| Queue Delay | 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 Delay | 55.5 | 56.3 | 2.7 | 54.0 | 54.0 | 2.5 | 6.1 | 20.7 | 6.9 | 6.7 | 6.8 | 0.9 |
| LOS | E | E | A | D | D | A | A | C | A | A | A | A |
| Approach Delay | | 43.4 | | | 32.7 | | | 19.7 | | | 6.3 | |
| Approach LOS | | D | | | C | | | B | | | A | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 130 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.72 | |
| Intersection Signal Delay: 17.1 | Intersection LOS: B |
| Intersection Capacity Utilization 66.3% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 118 | 9 | 38 | 52 | 5 | 40 | 18 | 1584 | 104 | 54 | 818 | 80 |
| Future Volume (veh/h) | 118 | 9 | 38 | 52 | 5 | 40 | 18 | 1584 | 104 | 54 | 818 | 80 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 127 | 10 | 41 | 56 | 5 | 43 | 19 | 1703 | 112 | 58 | 880 | 86 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 364 | 79 | 67 | 183 | 87 | 74 | 437 | 2378 | 1061 | 220 | 2453 | 1094 |
| Arrive On Green | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.02 | 0.70 | 0.70 | 0.04 | 0.71 | 0.71 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 3413 | 1522 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 127 | 10 | 41 | 56 | 5 | 43 | 19 | 1703 | 112 | 58 | 880 | 86 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1706 | 1522 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 4.5 | 0.7 | 3.3 | 3.6 | 0.3 | 3.2 | 0.4 | 36.2 | 2.9 | 1.1 | 11.8 | 2.0 |
| Cycle Q Clear(g_c), s | 4.5 | 0.7 | 3.3 | 3.6 | 0.3 | 3.2 | 0.4 | 36.2 | 2.9 | 1.1 | 11.8 | 2.0 |
| 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 | 364 | 79 | 67 | 183 | 87 | 74 | 437 | 2378 | 1061 | 220 | 2453 | 1094 |
| V/C Ratio(X) | 0.35 | 0.13 | 0.61 | 0.31 | 0.06 | 0.58 | 0.04 | 0.72 | 0.11 | 0.26 | 0.36 | 0.08 |
| Avail Cap(c_a), veh/h | 364 | 518 | 439 | 195 | 561 | 476 | 474 | 2378 | 1061 | 231 | 2453 | 1094 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.36 | 0.36 | 0.36 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.1 | 55.0 | 56.3 | 52.0 | 54.7 | 56.1 | 5.3 | 11.0 | 6.0 | 11.6 | 6.6 | 5.2 |
| Incr Delay (d2), s/veh | 0.6 | 0.7 | 8.8 | 0.9 | 0.3 | 7.0 | 0.0 | 0.7 | 0.1 | 0.6 | 0.4 | 0.1 |
| 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 | 1.8 | 0.3 | 1.4 | 1.6 | 0.2 | 1.4 | 0.1 | 12.5 | 0.9 | 0.6 | 4.1 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 52.7 | 55.8 | 65.1 | 52.9 | 54.9 | 63.1 | 5.3 | 11.7 | 6.0 | 12.2 | 7.1 | 5.4 |
| LnGrp LOS | D | E | E | D | D | E | A | B | A | B | A | A |
| Approach Vol, veh/h | | 178 | | | 104 | | | 1834 | | | 1024 | |
| Approach Delay, s/veh | | 55.7 | | | 57.2 | | | 11.3 | | | 7.2 | |
| Approach LOS | | E | | | E | | | B | | | A | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.8 | 90.1 | 10.2 | 10.9 | 6.8 | 92.1 | 10.0 | 11.1 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 5.5 | * 36 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 3.1 | 38.2 | 5.6 | 5.3 | 2.4 | 13.8 | 6.5 | 5.2 |
| Green Ext Time (p_c), s | 0.0 | 10.6 | 0.0 | 0.1 | 0.0 | 8.0 | 0.0 | 0.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 14.0 |
| HCM 6th LOS | B |

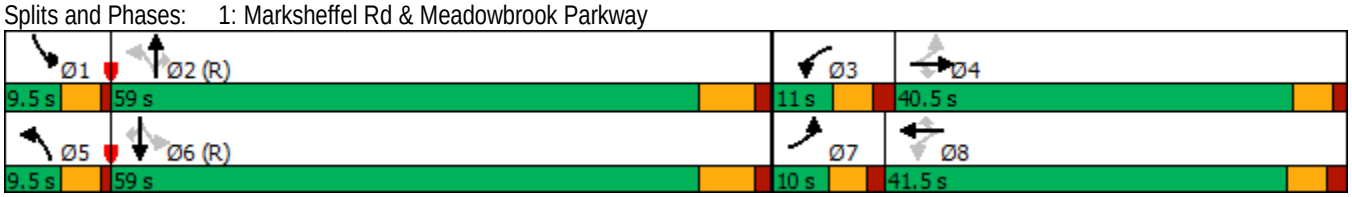
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 300 | 10 | 45 | 145 | 25 | 65 | 35 | 1495 | 55 | 20 | 2185 | 380 |
| Future Volume (vph) | 300 | 10 | 45 | 145 | 25 | 65 | 35 | 1495 | 55 | 20 | 2185 | 380 |
| 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 40.5 | 40.5 | 11.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 33.8% | 33.8% | 9.2% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 11.0 | 6.9 | 6.9 | 11.7 | 7.3 | 7.3 | 92.3 | 86.4 | 86.4 | 91.8 | 86.1 | 86.1 |
| Actuated g/C Ratio | 0.09 | 0.06 | 0.06 | 0.10 | 0.06 | 0.06 | 0.77 | 0.72 | 0.72 | 0.76 | 0.72 | 0.72 |
| v/c Ratio | 1.26 | 0.11 | 0.25 | 1.08 | 0.24 | 0.34 | 0.26 | 0.66 | 0.05 | 0.10 | 0.96 | 0.35 |
| Control Delay | 185.5 | 55.2 | 3.0 | 147.9 | 58.2 | 6.0 | 11.8 | 26.4 | 6.1 | 4.5 | 29.3 | 3.7 |
| Queue Delay | 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 Delay | 185.5 | 55.2 | 3.0 | 147.9 | 58.2 | 6.0 | 11.8 | 26.4 | 6.1 | 4.5 | 29.3 | 3.7 |
| LOS | F | E | A | F | E | A | B | C | A | A | C | A |
| Approach Delay | | 158.8 | | | 99.1 | | | 25.3 | | | 25.4 | |
| Approach LOS | | F | | | F | | | C | | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.26 | |
| Intersection Signal Delay: 39.0 | Intersection LOS: D |
| Intersection Capacity Utilization 86.8% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 300 | 10 | 45 | 145 | 25 | 65 | 35 | 1495 | 55 | 20 | 2185 | 380 |
| Future Volume (veh/h) | 300 | 10 | 45 | 145 | 25 | 65 | 35 | 1495 | 55 | 20 | 2185 | 380 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 323 | 11 | 48 | 156 | 27 | 70 | 38 | 1608 | 59 | 22 | 2349 | 409 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 370 | 95 | 81 | 207 | 117 | 99 | 112 | 2371 | 1058 | 219 | 2362 | 1054 |
| Arrive On Green | 0.04 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.03 | 0.69 | 0.69 | 0.02 | 0.69 | 0.69 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 3413 | 1522 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 323 | 11 | 48 | 156 | 27 | 70 | 38 | 1608 | 59 | 22 | 2349 | 409 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1706 | 1522 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 5.0 | 0.7 | 3.8 | 5.5 | 1.6 | 5.2 | 0.8 | 32.6 | 1.5 | 0.5 | 80.9 | 13.7 |
| Cycle Q Clear(g_c), s | 5.0 | 0.7 | 3.8 | 5.5 | 1.6 | 5.2 | 0.8 | 32.6 | 1.5 | 0.5 | 80.9 | 13.7 |
| 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 | 370 | 95 | 81 | 207 | 117 | 99 | 112 | 2371 | 1058 | 219 | 2362 | 1054 |
| V/C Ratio(X) | 0.87 | 0.12 | 0.59 | 0.75 | 0.23 | 0.70 | 0.34 | 0.68 | 0.06 | 0.10 | 0.99 | 0.39 |
| Avail Cap(c_a), veh/h | 370 | 518 | 439 | 207 | 561 | 476 | 132 | 2371 | 1058 | 254 | 2362 | 1054 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.09 | 0.09 | 0.09 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 55.2 | 54.0 | 55.4 | 53.9 | 53.5 | 55.1 | 33.2 | 10.6 | 5.8 | 9.7 | 18.6 | 8.0 |
| Incr Delay (d2), s/veh | 19.7 | 0.5 | 6.8 | 14.6 | 1.0 | 8.7 | 0.2 | 0.1 | 0.0 | 0.2 | 17.2 | 1.1 |
| 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 | 3.7 | 0.3 | 1.6 | 2.8 | 0.8 | 2.3 | 0.8 | 11.1 | 0.4 | 0.2 | 33.7 | 4.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 74.9 | 54.5 | 62.3 | 68.5 | 54.5 | 63.9 | 33.3 | 10.7 | 5.8 | 9.9 | 35.8 | 9.1 |
| LnGrp LOS | E | D | E | E | D | E | C | B | A | A | D | A |
| Approach Vol, veh/h | | 382 | | | 253 | | | 1705 | | | 2780 | |
| Approach Delay, s/veh | | 72.7 | | | 65.7 | | | 11.0 | | | 31.7 | |
| Approach LOS | | E | | | E | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.1 | 89.9 | 11.0 | 12.0 | 8.1 | 88.9 | 10.0 | 13.0 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 5.5 | * 36 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 34.6 | 7.5 | 5.8 | 2.8 | 82.9 | 7.0 | 7.2 |
| Green Ext Time (p_c), s | 0.0 | 11.8 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 29.6 |
| HCM 6th LOS | C |

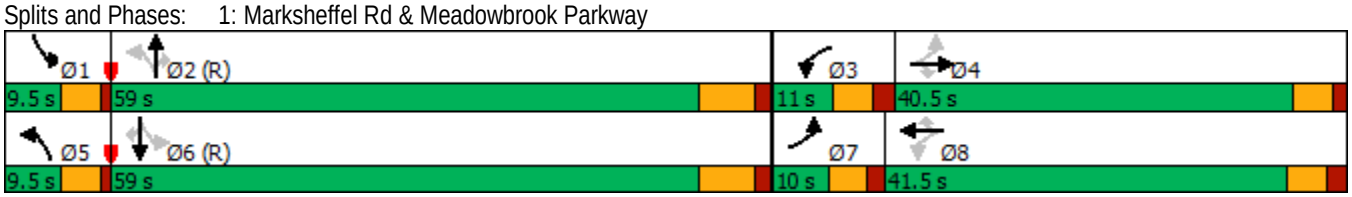
Notes

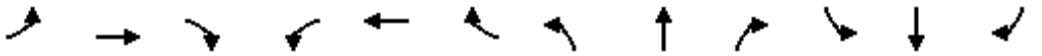
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 355 | 15 | 65 | 35 | 20 | 35 | 55 | 2520 | 80 | 45 | 2060 | 315 |
| Future Volume (vph) | 355 | 15 | 65 | 35 | 20 | 35 | 55 | 2520 | 80 | 45 | 2060 | 315 |
| 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 40.5 | 40.5 | 11.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 33.8% | 33.8% | 9.2% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 11.9 | 8.9 | 8.9 | 11.5 | 7.1 | 7.1 | 91.5 | 84.1 | 84.1 | 91.4 | 84.1 | 84.1 |
| Actuated g/C Ratio | 0.10 | 0.07 | 0.07 | 0.10 | 0.06 | 0.06 | 0.76 | 0.70 | 0.70 | 0.76 | 0.70 | 0.70 |
| v/c Ratio | 1.50 | 0.13 | 0.32 | 0.25 | 0.20 | 0.19 | 0.39 | 1.15 | 0.08 | 0.31 | 0.93 | 0.30 |
| Control Delay | 280.2 | 55.1 | 5.5 | 48.9 | 57.4 | 2.0 | 19.2 | 93.4 | 2.9 | 12.2 | 26.1 | 3.4 |
| Queue Delay | 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 Delay | 280.2 | 55.1 | 5.5 | 48.9 | 57.4 | 2.0 | 19.2 | 93.4 | 2.9 | 12.2 | 26.1 | 3.4 |
| LOS | F | E | A | D | E | A | B | F | A | B | C | A |
| Approach Delay | | 231.5 | | | 32.6 | | | 89.1 | | | 22.9 | |
| Approach LOS | | F | | | C | | | F | | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.50 | |
| Intersection Signal Delay: 70.7 | Intersection LOS: E |
| Intersection Capacity Utilization 98.1% | ICU Level of Service F |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 355 | 15 | 65 | 35 | 20 | 35 | 55 | 2520 | 80 | 45 | 2060 | 315 |
| Future Volume (veh/h) | 355 | 15 | 65 | 35 | 20 | 35 | 55 | 2520 | 80 | 45 | 2060 | 315 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 382 | 16 | 70 | 38 | 22 | 38 | 59 | 2710 | 86 | 48 | 2215 | 339 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 368 | 114 | 97 | 187 | 108 | 91 | 135 | 2349 | 1048 | 117 | 2360 | 1052 |
| Arrive On Green | 0.04 | 0.07 | 0.07 | 0.03 | 0.06 | 0.06 | 0.04 | 0.69 | 0.69 | 0.03 | 0.69 | 0.69 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 3413 | 1522 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 382 | 16 | 70 | 38 | 22 | 38 | 59 | 2710 | 86 | 48 | 2215 | 339 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1706 | 1522 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 5.0 | 1.0 | 5.6 | 2.4 | 1.3 | 2.8 | 1.2 | 82.6 | 2.2 | 1.0 | 68.1 | 10.7 |
| Cycle Q Clear(g_c), s | 5.0 | 1.0 | 5.6 | 2.4 | 1.3 | 2.8 | 1.2 | 82.6 | 2.2 | 1.0 | 68.1 | 10.7 |
| 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 | 368 | 114 | 97 | 187 | 108 | 91 | 135 | 2349 | 1048 | 117 | 2360 | 1052 |
| V/C Ratio(X) | 1.04 | 0.14 | 0.72 | 0.20 | 0.20 | 0.42 | 0.44 | 1.15 | 0.08 | 0.41 | 0.94 | 0.32 |
| Avail Cap(c_a), veh/h | 368 | 518 | 439 | 216 | 561 | 476 | 145 | 2349 | 1048 | 132 | 2360 | 1052 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.09 | 0.09 | 0.09 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 55.7 | 52.9 | 55.0 | 51.0 | 53.9 | 54.6 | 31.3 | 18.7 | 6.2 | 33.1 | 16.6 | 7.6 |
| Incr Delay (d2), s/veh | 57.1 | 0.6 | 9.8 | 0.5 | 0.9 | 3.0 | 0.2 | 69.6 | 0.0 | 2.3 | 8.8 | 0.8 |
| 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 | 6.3 | 0.5 | 2.3 | 1.1 | 0.7 | 1.2 | 1.2 | 51.1 | 0.7 | 1.0 | 26.6 | 3.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 112.8 | 53.5 | 64.8 | 51.6 | 54.8 | 57.6 | 31.5 | 88.3 | 6.2 | 35.4 | 25.5 | 8.4 |
| LnGrp LOS | F | D | E | D | D | E | C | F | A | D | C | A |
| Approach Vol, veh/h | | 468 | | | 98 | | | 2855 | | | 2602 | |
| Approach Delay, s/veh | | 103.6 | | | 54.6 | | | 84.7 | | | 23.4 | |
| Approach LOS | | F | | | D | | | F | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.5 | 89.1 | 9.1 | 13.3 | 8.8 | 88.8 | 10.0 | 12.4 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 5.5 | * 36 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 3.0 | 84.6 | 4.4 | 7.6 | 3.2 | 70.1 | 7.0 | 4.8 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 59.2 |
| HCM 6th LOS | E |

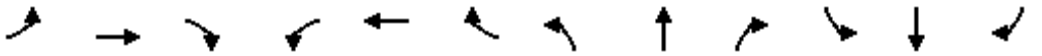
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 300 | 10 | 45 | 180 | 30 | 85 | 35 | 1495 | 70 | 25 | 2185 | 380 |
| Future Volume (vph) | 300 | 10 | 45 | 180 | 30 | 85 | 35 | 1495 | 70 | 25 | 2185 | 380 |
| 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 37.5 | 37.5 | 14.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 31.3% | 31.3% | 11.7% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 10.3 | 6.4 | 6.4 | 18.0 | 9.2 | 9.2 | 88.3 | 82.4 | 82.4 | 88.0 | 82.2 | 82.2 |
| Actuated g/C Ratio | 0.09 | 0.05 | 0.05 | 0.15 | 0.08 | 0.08 | 0.74 | 0.69 | 0.69 | 0.73 | 0.68 | 0.68 |
| v/c Ratio | 1.32 | 0.12 | 0.25 | 0.99 | 0.23 | 0.40 | 0.26 | 0.48 | 0.07 | 0.12 | 0.70 | 0.35 |
| Control Delay | 212.0 | 56.4 | 3.2 | 112.8 | 55.0 | 9.5 | 15.9 | 25.4 | 9.7 | 5.1 | 14.0 | 2.1 |
| Queue Delay | 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 Delay | 212.0 | 56.4 | 3.2 | 112.8 | 55.0 | 9.5 | 15.9 | 25.4 | 9.7 | 5.1 | 14.0 | 2.1 |
| LOS | F | E | A | F | D | A | B | C | A | A | B | A |
| Approach Delay | | 181.3 | | | 77.3 | | | 24.5 | | | 12.2 | |
| Approach LOS | | F | | | E | | | C | | | B | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 130 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.32 | |
| Intersection Signal Delay: 32.7 | Intersection LOS: C |
| Intersection Capacity Utilization 70.5% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 300 | 10 | 45 | 180 | 30 | 85 | 35 | 1495 | 70 | 25 | 2185 | 380 |
| Future Volume (veh/h) | 300 | 10 | 45 | 180 | 30 | 85 | 35 | 1495 | 70 | 25 | 2185 | 380 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 323 | 11 | 48 | 194 | 32 | 91 | 38 | 1608 | 75 | 27 | 2349 | 409 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 370 | 87 | 74 | 245 | 155 | 132 | 147 | 3292 | 1022 | 292 | 3294 | 1022 |
| Arrive On Green | 0.04 | 0.05 | 0.05 | 0.07 | 0.08 | 0.08 | 0.06 | 1.00 | 1.00 | 0.02 | 0.67 | 0.67 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 4904 | 1522 | 1725 | 4944 | 1535 |
| Grp Volume(v), veh/h | 323 | 11 | 48 | 194 | 32 | 91 | 38 | 1608 | 75 | 27 | 2349 | 409 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1635 | 1522 | 1725 | 1648 | 1535 |
| Q Serve(g_s), s | 5.0 | 0.7 | 3.8 | 8.5 | 1.9 | 6.7 | 0.8 | 0.0 | 0.0 | 0.6 | 36.3 | 14.6 |
| Cycle Q Clear(g_c), s | 5.0 | 0.7 | 3.8 | 8.5 | 1.9 | 6.7 | 0.8 | 0.0 | 0.0 | 0.6 | 36.3 | 14.6 |
| 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 | 370 | 87 | 74 | 245 | 155 | 132 | 147 | 3292 | 1022 | 292 | 3294 | 1022 |
| V/C Ratio(X) | 0.87 | 0.13 | 0.65 | 0.79 | 0.21 | 0.69 | 0.26 | 0.49 | 0.07 | 0.09 | 0.71 | 0.40 |
| Avail Cap(c_a), veh/h | 370 | 474 | 402 | 245 | 561 | 476 | 167 | 3292 | 1022 | 321 | 3294 | 1022 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.44 | 0.44 | 0.44 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 55.4 | 54.5 | 56.0 | 52.2 | 51.3 | 53.5 | 14.0 | 0.0 | 0.0 | 5.8 | 12.7 | 9.1 |
| Incr Delay (d2), s/veh | 20.0 | 0.6 | 9.2 | 16.1 | 0.6 | 6.3 | 0.4 | 0.2 | 0.1 | 0.1 | 1.3 | 1.2 |
| 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 | 3.7 | 0.3 | 1.6 | 2.8 | 0.9 | 2.9 | 0.4 | 0.1 | 0.0 | 0.2 | 12.7 | 4.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 75.5 | 55.2 | 65.2 | 68.3 | 52.0 | 59.8 | 14.4 | 0.2 | 0.1 | 6.0 | 14.1 | 10.3 |
| LnGrp LOS | E | E | E | E | D | E | B | A | A | A | B | B |
| Approach Vol, veh/h | | 382 | | | 317 | | | 1721 | | | 2785 | |
| Approach Delay, s/veh | | 73.6 | | | 64.2 | | | 0.5 | | | 13.4 | |
| Approach LOS | | E | | | E | | | A | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.5 | 87.1 | 14.0 | 11.5 | 8.1 | 86.4 | 10.0 | 15.5 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 8.5 | * 33 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 2.6 | 2.0 | 10.5 | 5.8 | 2.8 | 38.3 | 7.0 | 8.7 |
| Green Ext Time (p_c), s | 0.0 | 19.7 | 0.0 | 0.2 | 0.0 | 12.9 | 0.0 | 0.4 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 16.7 |
| HCM 6th LOS | B |

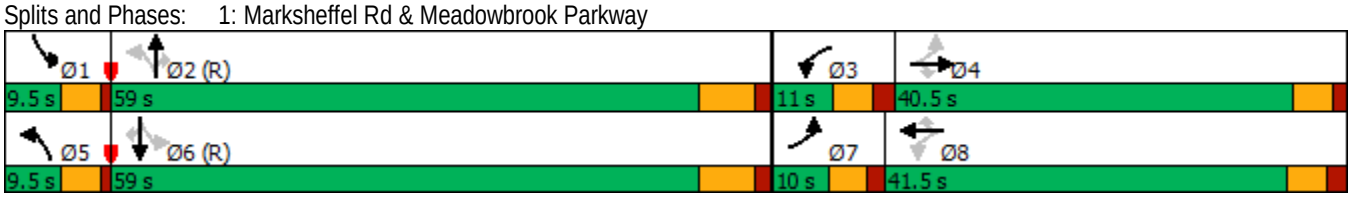
Notes

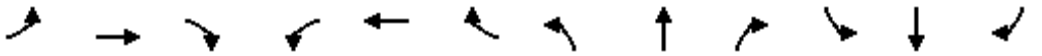
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 355 | 20 | 65 | 60 | 25 | 45 | 55 | 2520 | 120 | 65 | 2060 | 315 |
| Future Volume (vph) | 355 | 20 | 65 | 60 | 25 | 45 | 55 | 2520 | 120 | 65 | 2060 | 315 |
| 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) | 10.0 | 23.0 | 23.0 | 11.0 | 41.5 | 41.5 | 9.5 | 24.5 | 24.5 | 9.5 | 24.5 | 24.5 |
| Total Split (s) | 10.0 | 40.5 | 40.5 | 11.0 | 41.5 | 41.5 | 9.5 | 59.0 | 59.0 | 9.5 | 59.0 | 59.0 |
| Total Split (%) | 8.3% | 33.8% | 33.8% | 9.2% | 34.6% | 34.6% | 7.9% | 49.2% | 49.2% | 7.9% | 49.2% | 49.2% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 3.5 | 5.0 | 5.0 |
| All-Red Time (s) | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 1.0 | 1.5 | 1.5 | 1.0 | 1.5 | 1.5 |
| 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) | 5.0 | 5.0 | 5.0 | 5.5 | 5.5 | 5.5 | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| 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 |
| Act Effct Green (s) | 11.1 | 7.1 | 7.1 | 11.9 | 7.5 | 7.5 | 90.3 | 82.9 | 82.9 | 91.7 | 83.6 | 83.6 |
| Actuated g/C Ratio | 0.09 | 0.06 | 0.06 | 0.10 | 0.06 | 0.06 | 0.75 | 0.69 | 0.69 | 0.76 | 0.70 | 0.70 |
| v/c Ratio | 1.50 | 0.22 | 0.36 | 0.42 | 0.23 | 0.23 | 0.38 | 0.81 | 0.12 | 0.43 | 0.65 | 0.29 |
| Control Delay | 278.8 | 58.1 | 6.6 | 54.2 | 57.6 | 2.5 | 18.9 | 19.0 | 5.2 | 19.7 | 12.6 | 1.6 |
| Queue Delay | 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 Delay | 278.8 | 58.1 | 6.6 | 54.2 | 57.6 | 2.5 | 18.9 | 19.0 | 5.2 | 19.7 | 12.6 | 1.6 |
| LOS | F | E | A | D | E | A | B | B | A | B | B | A |
| Approach Delay | | 228.4 | | | 37.2 | | | 18.4 | | | 11.4 | |
| Approach LOS | | F | | | D | | | B | | | B | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.50 | |
| Intersection Signal Delay: 32.1 | Intersection LOS: C |
| Intersection Capacity Utilization 80.4% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Marksheffel Rd & Meadowbrook Parkway





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 355 | 20 | 65 | 60 | 25 | 45 | 55 | 2520 | 120 | 65 | 2060 | 315 |
| Future Volume (veh/h) | 355 | 20 | 65 | 60 | 25 | 45 | 55 | 2520 | 120 | 65 | 2060 | 315 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1752 | 1752 | 1752 | 1870 | 1870 | 1870 | 1796 | 1796 | 1796 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 382 | 22 | 70 | 65 | 27 | 48 | 59 | 2710 | 129 | 70 | 2215 | 339 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 2 | 2 | 2 | 7 | 7 | 7 | 6 | 6 | 6 |
| Cap, veh/h | 397 | 115 | 97 | 209 | 136 | 115 | 170 | 3281 | 1018 | 185 | 3317 | 1030 |
| Arrive On Green | 0.04 | 0.07 | 0.07 | 0.04 | 0.07 | 0.07 | 0.07 | 1.00 | 1.00 | 0.04 | 0.67 | 0.67 |
| Sat Flow, veh/h | 3237 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 4904 | 1522 | 1725 | 4944 | 1535 |
| Grp Volume(v), veh/h | 382 | 22 | 70 | 65 | 27 | 48 | 59 | 2710 | 129 | 70 | 2215 | 339 |
| Grp Sat Flow(s),veh/h/ln | 1618 | 1752 | 1485 | 1781 | 1870 | 1585 | 1711 | 1635 | 1522 | 1725 | 1648 | 1535 |
| Q Serve(g_s), s | 5.0 | 1.4 | 5.5 | 4.0 | 1.6 | 3.5 | 1.3 | 0.0 | 0.0 | 1.5 | 32.1 | 11.2 |
| Cycle Q Clear(g_c), s | 5.0 | 1.4 | 5.5 | 4.0 | 1.6 | 3.5 | 1.3 | 0.0 | 0.0 | 1.5 | 32.1 | 11.2 |
| 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 | 397 | 115 | 97 | 209 | 136 | 115 | 170 | 3281 | 1018 | 185 | 3317 | 1030 |
| V/C Ratio(X) | 0.96 | 0.19 | 0.72 | 0.31 | 0.20 | 0.42 | 0.35 | 0.83 | 0.13 | 0.38 | 0.67 | 0.33 |
| Avail Cap(c_a), veh/h | 397 | 518 | 439 | 211 | 561 | 476 | 179 | 3281 | 1018 | 192 | 3317 | 1030 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.53 | 0.53 | 0.53 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 55.0 | 53.1 | 55.0 | 49.3 | 52.4 | 53.2 | 13.0 | 0.0 | 0.0 | 5.4 | 11.8 | 8.3 |
| Incr Delay (d2), s/veh | 35.5 | 0.8 | 9.6 | 0.8 | 0.7 | 2.4 | 0.6 | 1.4 | 0.1 | 1.3 | 1.1 | 0.9 |
| 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 | 5.5 | 0.7 | 2.3 | 1.9 | 0.8 | 1.5 | 0.7 | 0.4 | 0.0 | 0.6 | 11.2 | 3.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 90.5 | 53.9 | 64.6 | 50.2 | 53.1 | 55.6 | 13.6 | 1.4 | 0.1 | 6.6 | 12.9 | 9.2 |
| LnGrp LOS | F | D | E | D | D | E | B | A | A | A | B | A |
| Approach Vol, veh/h | | 474 | | | 140 | | | 2898 | | | 2624 | |
| Approach Delay, s/veh | | 85.0 | | | 52.6 | | | 1.6 | | | 12.2 | |
| Approach LOS | | F | | | D | | | A | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 86.8 | 10.9 | 13.4 | 8.8 | 87.0 | 10.0 | 14.2 |
| Change Period (Y+Rc), s | 4.5 | 6.5 | 5.5 | * 5.5 | 4.5 | 6.5 | 5.0 | 5.5 |
| Max Green Setting (Gmax), s | 5.0 | 52.5 | 5.5 | * 36 | 5.0 | 52.5 | 5.0 | 36.0 |
| Max Q Clear Time (g_c+I1), s | 3.5 | 2.0 | 6.0 | 7.5 | 3.3 | 34.1 | 7.0 | 5.5 |
| Green Ext Time (p_c), s | 0.0 | 41.6 | 0.0 | 0.3 | 0.0 | 15.7 | 0.0 | 0.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 13.7 |
| HCM 6th LOS | B |

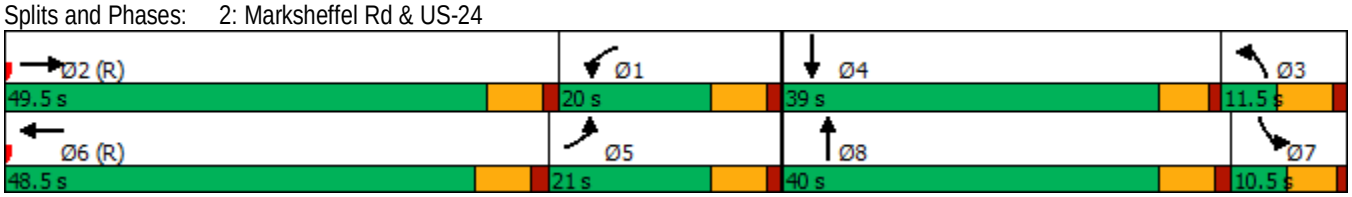
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 351 | 380 | 384 | 230 | 1064 | 13 | 4 | 495 | 81 | 11 | 875 | 760 |
| Future Volume (vph) | 351 | 380 | 384 | 230 | 1064 | 13 | 4 | 495 | 81 | 11 | 875 | 760 |
| Turn Type | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | Free | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 21.0 | 49.5 | | 20.0 | 48.5 | | 11.5 | 40.0 | | 10.5 | 39.0 | |
| Total Split (%) | 17.5% | 41.3% | | 16.7% | 40.4% | | 9.6% | 33.3% | | 8.8% | 32.5% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Act Effct Green (s) | 14.5 | 51.0 | 120.0 | 13.5 | 50.0 | 120.0 | 5.0 | 30.7 | 120.0 | 6.6 | 34.7 | 120.0 |
| Actuated g/C Ratio | 0.12 | 0.42 | 1.00 | 0.11 | 0.42 | 1.00 | 0.04 | 0.26 | 1.00 | 0.06 | 0.29 | 1.00 |
| v/c Ratio | 0.97 | 0.29 | 0.28 | 0.64 | 0.78 | 0.01 | 0.05 | 0.58 | 0.05 | 0.13 | 0.94 | 0.52 |
| Control Delay | 91.6 | 24.2 | 0.5 | 59.4 | 35.6 | 0.0 | 57.0 | 42.4 | 0.1 | 47.4 | 48.9 | 1.6 |
| Queue Delay | 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 Delay | 91.6 | 24.2 | 0.5 | 59.4 | 35.6 | 0.0 | 57.0 | 42.4 | 0.1 | 47.4 | 48.9 | 1.6 |
| LOS | F | C | A | E | D | A | E | D | A | D | D | A |
| Approach Delay | | 37.2 | | | 39.4 | | | 36.6 | | | 27.0 | |
| Approach LOS | | D | | | D | | | D | | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.97 | |
| Intersection Signal Delay: 34.1 | Intersection LOS: C |
| Intersection Capacity Utilization 79.0% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 351 | 380 | 384 | 230 | 1064 | 13 | 4 | 495 | 81 | 11 | 875 | 760 |
| Future Volume (veh/h) | 351 | 380 | 384 | 230 | 1064 | 13 | 4 | 495 | 81 | 11 | 875 | 760 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 369 | 400 | 0 | 242 | 1120 | 0 | 4 | 521 | 0 | 12 | 921 | 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, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 512 | 1183 | | 514 | 1224 | | 9 | 646 | | 156 | 953 | |
| Arrive On Green | 0.16 | 0.36 | 0.00 | 0.15 | 0.35 | 0.00 | 0.01 | 0.18 | 0.00 | 0.18 | 0.55 | 0.00 |
| Sat Flow, veh/h | 3209 | 3300 | 1472 | 3401 | 3497 | 1560 | 1767 | 3526 | 1572 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 369 | 400 | 0 | 242 | 1120 | 0 | 4 | 521 | 0 | 12 | 921 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1650 | 1472 | 1700 | 1749 | 1560 | 1767 | 1763 | 1572 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 13.1 | 10.6 | 0.0 | 7.8 | 36.7 | 0.0 | 0.3 | 17.0 | 0.0 | 0.7 | 30.8 | 0.0 |
| Cycle Q Clear(g_c), s | 13.1 | 10.6 | 0.0 | 7.8 | 36.7 | 0.0 | 0.3 | 17.0 | 0.0 | 0.7 | 30.8 | 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 | 512 | 1183 | | 514 | 1224 | | 9 | 646 | | 156 | 953 | |
| V/C Ratio(X) | 0.72 | 0.34 | | 0.47 | 0.91 | | 0.44 | 0.81 | | 0.08 | 0.97 | |
| Avail Cap(c_a), veh/h | 512 | 1183 | | 514 | 1224 | | 74 | 984 | | 156 | 961 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| 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 | 47.9 | 28.1 | 0.0 | 46.6 | 37.3 | 0.0 | 59.5 | 47.0 | 0.0 | 45.0 | 26.2 | 0.0 |
| Incr Delay (d2), s/veh | 4.9 | 0.8 | 0.0 | 0.7 | 12.0 | 0.0 | 29.2 | 2.9 | 0.0 | 0.1 | 16.8 | 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 | 5.6 | 4.3 | 0.0 | 3.4 | 17.5 | 0.0 | 0.2 | 7.7 | 0.0 | 0.3 | 11.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 52.8 | 28.9 | 0.0 | 47.2 | 49.3 | 0.0 | 88.7 | 49.9 | 0.0 | 45.1 | 43.0 | 0.0 |
| LnGrp LOS | D | C | | D | D | | F | D | | D | D | |
| Approach Vol, veh/h | | 769 | A | | 1362 | A | | 525 | A | | 933 | A |
| Approach Delay, s/veh | | 40.4 | | | 49.0 | | | 50.2 | | | 43.0 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 24.6 | 49.5 | 7.1 | 38.7 | 25.6 | 48.5 | 17.4 | 28.5 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 13.5 | 43.0 | 5.0 | 33.5 | 14.5 | 42.0 | 5.0 | * 34 |
| Max Q Clear Time (g_c+I1), s | 9.8 | 12.6 | 2.3 | 32.8 | 15.1 | 38.7 | 2.7 | 19.0 |
| Green Ext Time (p_c), s | 0.3 | 2.9 | 0.0 | 0.4 | 0.0 | 2.2 | 0.0 | 3.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 45.8 |
| HCM 6th LOS | D |

**Notes**

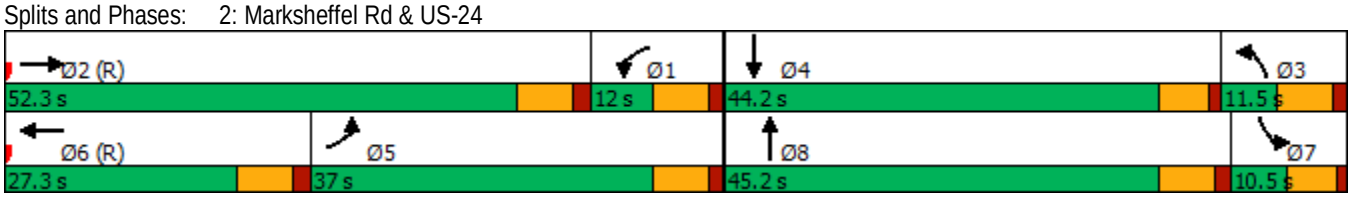
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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) | 666 | 922 | 779 | 105 | 435 | 24 | 7 | 967 | 185 | 9 | 516 | 360 |
| Future Volume (vph) | 666 | 922 | 779 | 105 | 435 | 24 | 7 | 967 | 185 | 9 | 516 | 360 |
| Turn Type | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | Free | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 37.0 | 52.3 | | 12.0 | 27.3 | | 11.5 | 45.2 | | 10.5 | 44.2 | |
| Total Split (%) | 30.8% | 43.6% | | 10.0% | 22.8% | | 9.6% | 37.7% | | 8.8% | 36.8% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Act Effct Green (s) | 30.5 | 55.0 | 120.0 | 5.5 | 30.0 | 120.0 | 7.1 | 37.9 | 120.0 | 5.1 | 37.3 | 120.0 |
| Actuated g/C Ratio | 0.25 | 0.46 | 1.00 | 0.05 | 0.25 | 1.00 | 0.06 | 0.32 | 1.00 | 0.04 | 0.31 | 1.00 |
| v/c Ratio | 0.86 | 0.64 | 0.55 | 0.70 | 0.52 | 0.02 | 0.07 | 0.90 | 0.12 | 0.12 | 0.50 | 0.24 |
| Control Delay | 54.6 | 28.2 | 1.5 | 80.2 | 42.4 | 0.0 | 52.7 | 51.1 | 0.2 | 54.1 | 31.6 | 0.4 |
| Queue Delay | 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 Delay | 54.6 | 28.2 | 1.5 | 80.2 | 42.4 | 0.0 | 52.7 | 51.1 | 0.2 | 54.1 | 31.6 | 0.4 |
| LOS | D | C | A | F | D | A | D | D | A | D | C | A |
| Approach Delay | | 26.9 | | | 47.6 | | | 43.0 | | | 19.1 | |
| Approach LOS | | C | | | D | | | D | | | B | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.90 | |
| Intersection Signal Delay: 31.6 | Intersection LOS: C |
| Intersection Capacity Utilization 74.0% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 666 | 922 | 779 | 105 | 435 | 24 | 7 | 967 | 185 | 9 | 516 | 360 |
| Future Volume (veh/h) | 666 | 922 | 779 | 105 | 435 | 24 | 7 | 967 | 185 | 9 | 516 | 360 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 687 | 951 | 0 | 108 | 448 | 0 | 7 | 997 | 0 | 9 | 532 | 0 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 932 | 1260 | | 279 | 606 | | 250 | 1089 | | 19 | 641 | |
| Arrive On Green | 0.29 | 0.38 | 0.00 | 0.08 | 0.17 | 0.00 | 0.14 | 0.31 | 0.00 | 0.02 | 0.37 | 0.00 |
| Sat Flow, veh/h | 3209 | 3300 | 1472 | 3401 | 3497 | 1560 | 1767 | 3526 | 1572 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 687 | 951 | 0 | 108 | 448 | 0 | 7 | 997 | 0 | 9 | 532 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1650 | 1472 | 1700 | 1749 | 1560 | 1767 | 1763 | 1572 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 23.2 | 30.0 | 0.0 | 3.6 | 14.6 | 0.0 | 0.4 | 32.7 | 0.0 | 0.6 | 16.8 | 0.0 |
| Cycle Q Clear(g_c), s | 23.2 | 30.0 | 0.0 | 3.6 | 14.6 | 0.0 | 0.4 | 32.7 | 0.0 | 0.6 | 16.8 | 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 | 932 | 1260 | | 279 | 606 | | 250 | 1089 | | 19 | 641 | |
| V/C Ratio(X) | 0.74 | 0.76 | | 0.39 | 0.74 | | 0.03 | 0.92 | | 0.48 | 0.83 | |
| Avail Cap(c_a), veh/h | 932 | 1260 | | 279 | 606 | | 250 | 1137 | | 72 | 1110 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.96 | 0.96 | 0.00 |
| Uniform Delay (d), s/veh | 38.5 | 32.2 | 0.0 | 52.2 | 47.0 | 0.0 | 44.4 | 40.0 | 0.0 | 58.4 | 35.9 | 0.0 |
| Incr Delay (d2), s/veh | 3.1 | 4.2 | 0.0 | 0.9 | 7.9 | 0.0 | 0.0 | 11.2 | 0.0 | 17.4 | 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 | 9.5 | 12.6 | 0.0 | 1.6 | 7.0 | 0.0 | 0.2 | 15.7 | 0.0 | 0.4 | 6.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 41.6 | 36.5 | 0.0 | 53.1 | 54.9 | 0.0 | 44.4 | 51.1 | 0.0 | 75.8 | 38.6 | 0.0 |
| LnGrp LOS | D | D | | D | D | | D | D | | E | D | |
| Approach Vol, veh/h | | 1638 | A | | 556 | A | | 1004 | A | | 541 | A |
| Approach Delay, s/veh | | 38.6 | | | 54.6 | | | 51.1 | | | 39.3 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 16.3 | 52.3 | 23.5 | 27.9 | 41.3 | 27.3 | 7.8 | 43.6 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 5.5 | 45.8 | 5.0 | 38.7 | 30.5 | 20.8 | 5.0 | * 39 |
| Max Q Clear Time (g_c+I1), s | 5.6 | 32.0 | 2.4 | 18.8 | 25.2 | 16.6 | 2.6 | 34.7 |
| Green Ext Time (p_c), s | 0.0 | 5.7 | 0.0 | 3.5 | 1.4 | 1.1 | 0.0 | 2.4 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 44.4 |
| HCM 6th LOS | D |

Notes

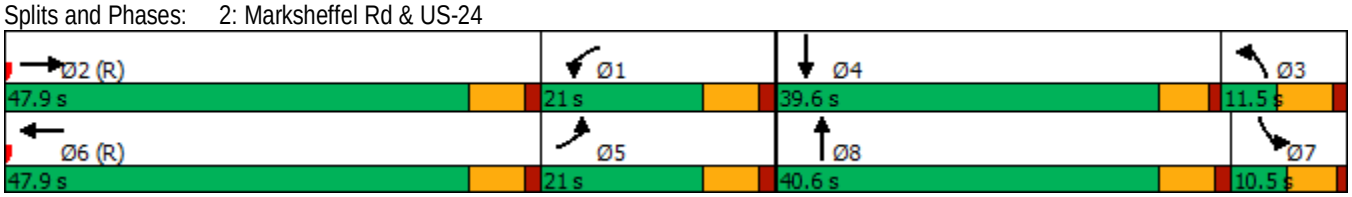
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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) | 358 | 388 | 392 | 235 | 1085 | 13 | 4 | 505 | 83 | 11 | 893 | 775 |
| Future Volume (vph) | 358 | 388 | 392 | 235 | 1085 | 13 | 4 | 505 | 83 | 11 | 893 | 775 |
| Turn Type | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | Free | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 21.0 | 47.9 | | 21.0 | 47.9 | | 11.5 | 40.6 | | 10.5 | 39.6 | |
| Total Split (%) | 17.5% | 39.9% | | 17.5% | 39.9% | | 9.6% | 33.8% | | 8.8% | 33.0% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Act Effct Green (s) | 14.5 | 49.4 | 120.0 | 14.5 | 49.4 | 120.0 | 5.0 | 31.3 | 120.0 | 6.6 | 35.3 | 120.0 |
| Actuated g/C Ratio | 0.12 | 0.41 | 1.00 | 0.12 | 0.41 | 1.00 | 0.04 | 0.26 | 1.00 | 0.06 | 0.29 | 1.00 |
| v/c Ratio | 0.99 | 0.30 | 0.28 | 0.61 | 0.80 | 0.01 | 0.05 | 0.58 | 0.06 | 0.13 | 0.94 | 0.54 |
| Control Delay | 96.5 | 25.4 | 0.5 | 57.1 | 36.9 | 0.0 | 57.0 | 42.1 | 0.1 | 47.0 | 48.6 | 1.6 |
| Queue Delay | 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 Delay | 96.5 | 25.4 | 0.5 | 57.1 | 36.9 | 0.0 | 57.0 | 42.1 | 0.1 | 47.0 | 48.6 | 1.6 |
| LOS | F | C | A | E | D | A | E | D | A | D | D | A |
| Approach Delay | | 39.2 | | | 40.1 | | | 36.3 | | | 26.9 | |
| Approach LOS | | D | | | D | | | D | | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 110 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.99 | |
| Intersection Signal Delay: 34.7 | Intersection LOS: C |
| Intersection Capacity Utilization 80.3% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 358 | 388 | 392 | 235 | 1085 | 13 | 4 | 505 | 83 | 11 | 893 | 775 |
| Future Volume (veh/h) | 358 | 388 | 392 | 235 | 1085 | 13 | 4 | 505 | 83 | 11 | 893 | 775 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 377 | 408 | 0 | 247 | 1142 | 0 | 4 | 532 | 0 | 12 | 940 | 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, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 511 | 1139 | | 541 | 1207 | | 9 | 659 | | 159 | 971 | |
| Arrive On Green | 0.16 | 0.34 | 0.00 | 0.16 | 0.34 | 0.00 | 0.01 | 0.19 | 0.00 | 0.18 | 0.56 | 0.00 |
| Sat Flow, veh/h | 3209 | 3300 | 1472 | 3401 | 3497 | 1560 | 1767 | 3526 | 1572 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 377 | 408 | 0 | 247 | 1142 | 0 | 4 | 532 | 0 | 12 | 940 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1650 | 1472 | 1700 | 1749 | 1560 | 1767 | 1763 | 1572 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 13.4 | 11.1 | 0.0 | 7.9 | 38.1 | 0.0 | 0.3 | 17.3 | 0.0 | 0.7 | 31.5 | 0.0 |
| Cycle Q Clear(g_c), s | 13.4 | 11.1 | 0.0 | 7.9 | 38.1 | 0.0 | 0.3 | 17.3 | 0.0 | 0.7 | 31.5 | 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 | 511 | 1139 | | 541 | 1207 | | 9 | 659 | | 159 | 971 | |
| V/C Ratio(X) | 0.74 | 0.36 | | 0.46 | 0.95 | | 0.44 | 0.81 | | 0.08 | 0.97 | |
| Avail Cap(c_a), veh/h | 511 | 1139 | | 541 | 1207 | | 74 | 1002 | | 159 | 978 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.68 | 0.68 | 0.00 |
| Uniform Delay (d), s/veh | 48.1 | 29.4 | 0.0 | 45.7 | 38.2 | 0.0 | 59.5 | 46.7 | 0.0 | 44.7 | 25.6 | 0.0 |
| Incr Delay (d2), s/veh | 5.6 | 0.9 | 0.0 | 0.6 | 15.9 | 0.0 | 29.2 | 2.9 | 0.0 | 0.1 | 16.6 | 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 | 5.8 | 4.5 | 0.0 | 3.4 | 18.7 | 0.0 | 0.2 | 7.8 | 0.0 | 0.3 | 11.3 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 53.6 | 30.3 | 0.0 | 46.3 | 54.1 | 0.0 | 88.8 | 49.6 | 0.0 | 44.9 | 42.2 | 0.0 |
| LnGrp LOS | D | C | | D | D | | F | D | | D | D | |
| Approach Vol, veh/h | | 785 | A | | 1389 | A | | 536 | A | | 952 | A |
| Approach Delay, s/veh | | 41.5 | | | 52.7 | | | 49.9 | | | 42.2 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 25.6 | 47.9 | 7.1 | 39.4 | 25.6 | 47.9 | 17.6 | 28.9 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 14.5 | 41.4 | 5.0 | 34.1 | 14.5 | 41.4 | 5.0 | * 34 |
| Max Q Clear Time (g_c+I1), s | 9.9 | 13.1 | 2.3 | 33.5 | 15.4 | 40.1 | 2.7 | 19.3 |
| Green Ext Time (p_c), s | 0.3 | 2.9 | 0.0 | 0.4 | 0.0 | 0.9 | 0.0 | 3.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 47.2 |
| HCM 6th LOS | D |

Notes

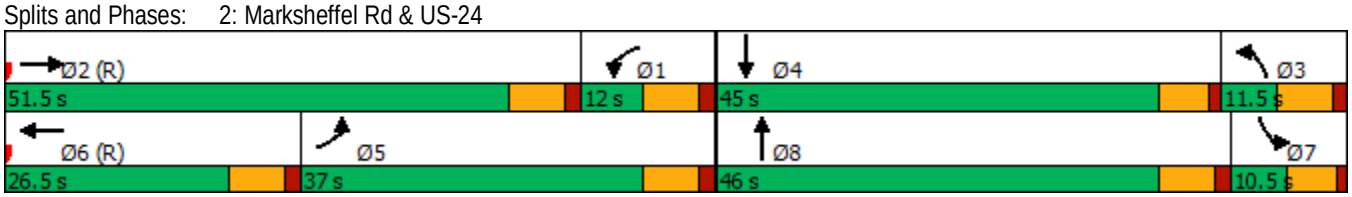
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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) | 679 | 940 | 795 | 107 | 444 | 24 | 7 | 986 | 189 | 9 | 526 | 367 |
| Future Volume (vph) | 679 | 940 | 795 | 107 | 444 | 24 | 7 | 986 | 189 | 9 | 526 | 367 |
| Turn Type | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | Free | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 37.0 | 51.5 | | 12.0 | 26.5 | | 11.5 | 46.0 | | 10.5 | 45.0 | |
| Total Split (%) | 30.8% | 42.9% | | 10.0% | 22.1% | | 9.6% | 38.3% | | 8.8% | 37.5% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Act Effct Green (s) | 30.5 | 54.2 | 120.0 | 5.5 | 29.2 | 120.0 | 7.2 | 38.7 | 120.0 | 5.1 | 37.9 | 120.0 |
| Actuated g/C Ratio | 0.25 | 0.45 | 1.00 | 0.05 | 0.24 | 1.00 | 0.06 | 0.32 | 1.00 | 0.04 | 0.32 | 1.00 |
| v/c Ratio | 0.87 | 0.66 | 0.56 | 0.71 | 0.54 | 0.02 | 0.07 | 0.90 | 0.12 | 0.12 | 0.50 | 0.25 |
| Control Delay | 56.1 | 29.3 | 1.6 | 81.4 | 43.5 | 0.0 | 52.4 | 50.5 | 0.2 | 54.1 | 31.1 | 0.4 |
| Queue Delay | 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 Delay | 56.1 | 29.3 | 1.6 | 81.4 | 43.5 | 0.0 | 52.4 | 50.5 | 0.2 | 54.1 | 31.1 | 0.4 |
| LOS | E | C | A | F | D | A | D | D | A | D | C | A |
| Approach Delay | | 27.7 | | | 48.7 | | | 42.4 | | | 18.8 | |
| Approach LOS | | C | | | D | | | D | | | B | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.90 | |
| Intersection Signal Delay: 31.9 | Intersection LOS: C |
| Intersection Capacity Utilization 75.1% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 679 | 940 | 795 | 107 | 444 | 24 | 7 | 986 | 189 | 9 | 526 | 367 |
| Future Volume (veh/h) | 679 | 940 | 795 | 107 | 444 | 24 | 7 | 986 | 189 | 9 | 526 | 367 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 700 | 969 | 0 | 110 | 458 | 0 | 7 | 1016 | 0 | 9 | 542 | 0 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 933 | 1238 | | 281 | 583 | | 255 | 1111 | | 19 | 653 | |
| Arrive On Green | 0.29 | 0.38 | 0.00 | 0.08 | 0.17 | 0.00 | 0.14 | 0.32 | 0.00 | 0.02 | 0.38 | 0.00 |
| Sat Flow, veh/h | 3209 | 3300 | 1472 | 3401 | 3497 | 1560 | 1767 | 3526 | 1572 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 700 | 969 | 0 | 110 | 458 | 0 | 7 | 1016 | 0 | 9 | 542 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1650 | 1472 | 1700 | 1749 | 1560 | 1767 | 1763 | 1572 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 23.7 | 31.2 | 0.0 | 3.7 | 15.1 | 0.0 | 0.4 | 33.3 | 0.0 | 0.6 | 17.1 | 0.0 |
| Cycle Q Clear(g_c), s | 23.7 | 31.2 | 0.0 | 3.7 | 15.1 | 0.0 | 0.4 | 33.3 | 0.0 | 0.6 | 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 | 933 | 1238 | | 281 | 583 | | 255 | 1111 | | 19 | 653 | |
| V/C Ratio(X) | 0.75 | 0.78 | | 0.39 | 0.79 | | 0.03 | 0.91 | | 0.48 | 0.83 | |
| Avail Cap(c_a), veh/h | 933 | 1238 | | 281 | 583 | | 255 | 1160 | | 72 | 1133 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.95 | 0.95 | 0.00 |
| Uniform Delay (d), s/veh | 38.6 | 33.2 | 0.0 | 52.2 | 47.9 | 0.0 | 44.1 | 39.5 | 0.0 | 58.4 | 35.5 | 0.0 |
| Incr Delay (d2), s/veh | 3.4 | 5.0 | 0.0 | 0.9 | 10.2 | 0.0 | 0.0 | 10.9 | 0.0 | 17.3 | 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 | 9.7 | 13.2 | 0.0 | 1.6 | 7.4 | 0.0 | 0.2 | 15.9 | 0.0 | 0.4 | 6.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 42.0 | 38.2 | 0.0 | 53.1 | 58.2 | 0.0 | 44.1 | 50.5 | 0.0 | 75.6 | 38.2 | 0.0 |
| LnGrp LOS | D | D | | D | E | | D | D | | E | D | |
| Approach Vol, veh/h | | 1669 | A | | 568 | A | | 1023 | A | | 551 | A |
| Approach Delay, s/veh | | 39.8 | | | 57.2 | | | 50.4 | | | 38.8 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 16.4 | 51.5 | 23.8 | 28.3 | 41.4 | 26.5 | 7.8 | 44.3 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 5.5 | 45.0 | 5.0 | 39.5 | 30.5 | 20.0 | 5.0 | * 40 |
| Max Q Clear Time (g_c+I1), s | 5.7 | 33.2 | 2.4 | 19.1 | 25.7 | 17.1 | 2.6 | 35.3 |
| Green Ext Time (p_c), s | 0.0 | 5.3 | 0.0 | 3.6 | 1.3 | 0.8 | 0.0 | 2.5 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 45.1 |
| HCM 6th LOS | D |

**Notes**

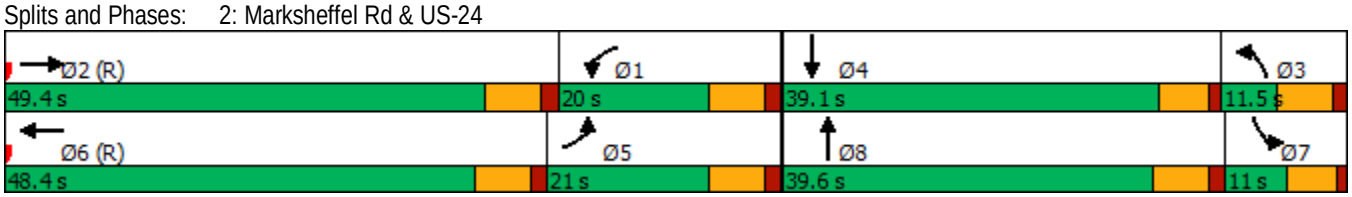
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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) | 366 | 388 | 392 | 235 | 1085 | 15 | 4 | 507 | 83 | 16 | 898 | 799 |
| Future Volume (vph) | 366 | 388 | 392 | 235 | 1085 | 15 | 4 | 507 | 83 | 16 | 898 | 799 |
| Turn Type | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | Free | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 21.0 | 49.4 | | 20.0 | 48.4 | | 11.5 | 39.6 | | 11.0 | 39.1 | |
| Total Split (%) | 17.5% | 41.2% | | 16.7% | 40.3% | | 9.6% | 33.0% | | 9.2% | 32.6% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Act Effct Green (s) | 14.5 | 50.8 | 120.0 | 13.5 | 49.8 | 120.0 | 5.0 | 30.8 | 120.0 | 6.7 | 34.9 | 120.0 |
| Actuated g/C Ratio | 0.12 | 0.42 | 1.00 | 0.11 | 0.42 | 1.00 | 0.04 | 0.26 | 1.00 | 0.06 | 0.29 | 1.00 |
| v/c Ratio | 0.99 | 0.29 | 0.28 | 0.64 | 0.78 | 0.01 | 0.05 | 0.58 | 0.05 | 0.17 | 0.94 | 0.54 |
| Control Delay | 96.5 | 24.4 | 0.5 | 59.4 | 35.8 | 0.0 | 57.0 | 42.4 | 0.1 | 47.1 | 47.8 | 1.4 |
| Queue Delay | 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 Delay | 96.5 | 24.4 | 0.5 | 59.4 | 35.8 | 0.0 | 57.0 | 42.4 | 0.1 | 47.1 | 47.8 | 1.4 |
| LOS | F | C | A | E | D | A | E | D | A | D | D | A |
| Approach Delay | | 39.2 | | | 39.5 | | | 36.5 | | | 26.1 | |
| Approach LOS | | D | | | D | | | D | | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.99 | |
| Intersection Signal Delay: 34.3 | Intersection LOS: C |
| Intersection Capacity Utilization 80.7% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 366 | 388 | 392 | 235 | 1085 | 15 | 4 | 507 | 83 | 16 | 898 | 799 |
| Future Volume (veh/h) | 366 | 388 | 392 | 235 | 1085 | 15 | 4 | 507 | 83 | 16 | 898 | 799 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 377 | 400 | 0 | 242 | 1119 | 0 | 4 | 523 | 0 | 16 | 926 | 0 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 511 | 1180 | | 513 | 1221 | | 9 | 647 | | 158 | 957 | |
| Arrive On Green | 0.16 | 0.36 | 0.00 | 0.15 | 0.35 | 0.00 | 0.01 | 0.18 | 0.00 | 0.18 | 0.56 | 0.00 |
| Sat Flow, veh/h | 3209 | 3300 | 1472 | 3401 | 3497 | 1560 | 1767 | 3526 | 1572 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 377 | 400 | 0 | 242 | 1119 | 0 | 4 | 523 | 0 | 16 | 926 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1650 | 1472 | 1700 | 1749 | 1560 | 1767 | 1763 | 1572 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 13.4 | 10.6 | 0.0 | 7.8 | 36.7 | 0.0 | 0.3 | 17.1 | 0.0 | 0.9 | 31.0 | 0.0 |
| Cycle Q Clear(g_c), s | 13.4 | 10.6 | 0.0 | 7.8 | 36.7 | 0.0 | 0.3 | 17.1 | 0.0 | 0.9 | 31.0 | 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 | 511 | 1180 | | 513 | 1221 | | 9 | 647 | | 158 | 957 | |
| V/C Ratio(X) | 0.74 | 0.34 | | 0.47 | 0.92 | | 0.44 | 0.81 | | 0.10 | 0.97 | |
| Avail Cap(c_a), veh/h | 511 | 1180 | | 513 | 1221 | | 74 | 972 | | 158 | 963 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.65 | 0.65 | 0.00 |
| Uniform Delay (d), s/veh | 48.1 | 28.2 | 0.0 | 46.6 | 37.4 | 0.0 | 59.5 | 47.0 | 0.0 | 44.9 | 26.1 | 0.0 |
| Incr Delay (d2), s/veh | 5.6 | 0.8 | 0.0 | 0.7 | 12.2 | 0.0 | 29.2 | 3.1 | 0.0 | 0.2 | 16.2 | 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 | 5.8 | 4.3 | 0.0 | 3.4 | 17.5 | 0.0 | 0.2 | 7.7 | 0.0 | 0.4 | 11.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 53.7 | 29.0 | 0.0 | 47.3 | 49.6 | 0.0 | 88.8 | 50.1 | 0.0 | 45.1 | 42.3 | 0.0 |
| LnGrp LOS | D | C | | D | D | | F | D | | D | D | |
| Approach Vol, veh/h | | 777 | A | | 1361 | A | | 527 | A | | 942 | A |
| Approach Delay, s/veh | | 41.0 | | | 49.2 | | | 50.3 | | | 42.3 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 24.6 | 49.4 | 7.1 | 38.9 | 25.6 | 48.4 | 17.5 | 28.5 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 13.5 | 42.9 | 5.0 | 33.6 | 14.5 | 41.9 | 5.5 | * 33 |
| Max Q Clear Time (g_c+I1), s | 9.8 | 12.6 | 2.3 | 33.0 | 15.4 | 38.7 | 2.9 | 19.1 |
| Green Ext Time (p_c), s | 0.3 | 2.9 | 0.0 | 0.4 | 0.0 | 2.1 | 0.0 | 3.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 45.8 |
| HCM 6th LOS | D |

Notes

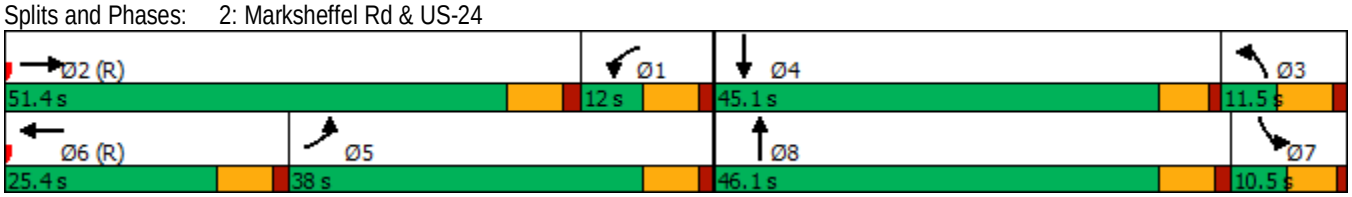
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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) | 703 | 940 | 795 | 107 | 444 | 30 | 7 | 991 | 189 | 12 | 529 | 381 |
| Future Volume (vph) | 703 | 940 | 795 | 107 | 444 | 30 | 7 | 991 | 189 | 12 | 529 | 381 |
| Turn Type | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | Free | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 38.0 | 51.4 | | 12.0 | 25.4 | | 11.5 | 46.1 | | 10.5 | 45.1 | |
| Total Split (%) | 31.7% | 42.8% | | 10.0% | 21.2% | | 9.6% | 38.4% | | 8.8% | 37.6% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Act Effct Green (s) | 31.5 | 52.0 | 120.0 | 5.5 | 26.0 | 120.0 | 7.2 | 38.8 | 120.0 | 5.1 | 40.2 | 120.0 |
| Actuated g/C Ratio | 0.26 | 0.43 | 1.00 | 0.05 | 0.22 | 1.00 | 0.06 | 0.32 | 1.00 | 0.04 | 0.34 | 1.00 |
| v/c Ratio | 0.88 | 0.69 | 0.56 | 0.71 | 0.61 | 0.02 | 0.07 | 0.90 | 0.12 | 0.17 | 0.48 | 0.26 |
| Control Delay | 55.3 | 31.8 | 1.6 | 81.4 | 47.9 | 0.0 | 52.6 | 50.6 | 0.2 | 56.5 | 29.9 | 0.4 |
| Queue Delay | 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 Delay | 55.3 | 31.8 | 1.6 | 81.4 | 47.9 | 0.0 | 52.6 | 50.6 | 0.2 | 56.5 | 29.9 | 0.4 |
| LOS | E | C | A | F | D | A | D | D | A | E | C | A |
| Approach Delay | | 28.7 | | | 51.5 | | | 42.6 | | | 18.0 | |
| Approach LOS | | C | | | D | | | D | | | B | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.90 | |
| Intersection Signal Delay: 32.6 | Intersection LOS: C |
| Intersection Capacity Utilization 76.0% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 703 | 940 | 795 | 107 | 444 | 30 | 7 | 991 | 189 | 12 | 529 | 381 |
| Future Volume (veh/h) | 703 | 940 | 795 | 107 | 444 | 30 | 7 | 991 | 189 | 12 | 529 | 381 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 725 | 969 | 0 | 110 | 458 | 0 | 7 | 1022 | 0 | 12 | 545 | 0 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 949 | 1235 | | 269 | 551 | | 261 | 1115 | | 24 | 656 | |
| Arrive On Green | 0.30 | 0.37 | 0.00 | 0.08 | 0.16 | 0.00 | 0.15 | 0.32 | 0.00 | 0.03 | 0.38 | 0.00 |
| Sat Flow, veh/h | 3209 | 3300 | 1472 | 3401 | 3497 | 1560 | 1767 | 3526 | 1572 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 725 | 969 | 0 | 110 | 458 | 0 | 7 | 1022 | 0 | 12 | 545 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1650 | 1472 | 1700 | 1749 | 1560 | 1767 | 1763 | 1572 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 24.7 | 31.2 | 0.0 | 3.7 | 15.2 | 0.0 | 0.4 | 33.5 | 0.0 | 0.8 | 17.2 | 0.0 |
| Cycle Q Clear(g_c), s | 24.7 | 31.2 | 0.0 | 3.7 | 15.2 | 0.0 | 0.4 | 33.5 | 0.0 | 0.8 | 17.2 | 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 | 949 | 1235 | | 269 | 551 | | 261 | 1115 | | 24 | 656 | |
| V/C Ratio(X) | 0.76 | 0.78 | | 0.41 | 0.83 | | 0.03 | 0.92 | | 0.51 | 0.83 | |
| Avail Cap(c_a), veh/h | 949 | 1235 | | 269 | 551 | | 261 | 1163 | | 72 | 1136 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.95 | 0.95 | 0.00 |
| Uniform Delay (d), s/veh | 38.4 | 33.3 | 0.0 | 52.6 | 49.0 | 0.0 | 43.7 | 39.5 | 0.0 | 58.0 | 35.4 | 0.0 |
| Incr Delay (d2), s/veh | 3.7 | 5.0 | 0.0 | 1.0 | 13.7 | 0.0 | 0.0 | 11.0 | 0.0 | 15.0 | 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 | 10.1 | 13.2 | 0.0 | 1.6 | 7.7 | 0.0 | 0.2 | 16.0 | 0.0 | 0.5 | 6.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 42.2 | 38.3 | 0.0 | 53.6 | 62.7 | 0.0 | 43.8 | 50.5 | 0.0 | 72.9 | 38.1 | 0.0 |
| LnGrp LOS | D | D | | D | E | | D | D | | E | D | |
| Approach Vol, veh/h | | 1694 | A | | 568 | A | | 1029 | A | | 557 | A |
| Approach Delay, s/veh | | 40.0 | | | 60.9 | | | 50.5 | | | 38.8 | |
| Approach LOS | | D | | | E | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 16.0 | 51.4 | 24.2 | 28.4 | 42.0 | 25.4 | 8.1 | 44.5 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 5.5 | 44.9 | 5.0 | 39.6 | 31.5 | 18.9 | 5.0 | * 40 |
| Max Q Clear Time (g_c+I1), s | 5.7 | 33.2 | 2.4 | 19.2 | 26.7 | 17.2 | 2.8 | 35.5 |
| Green Ext Time (p_c), s | 0.0 | 5.3 | 0.0 | 3.7 | 1.4 | 0.5 | 0.0 | 2.5 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 45.7 |
| HCM 6th LOS | D |

**Notes**

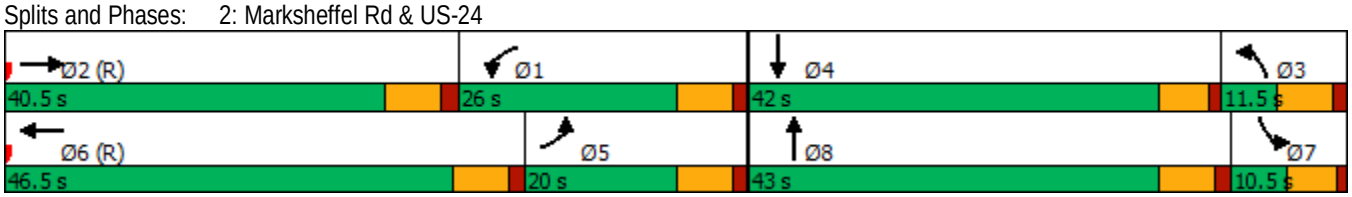
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

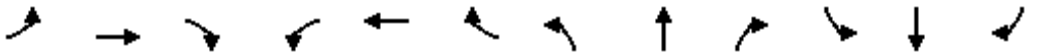
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 425 | 645 | 440 | 435 | 1425 | 15 | 5 | 1100 | 160 | 15 | 1330 | 870 |
| Future Volume (vph) | 425 | 645 | 440 | 435 | 1425 | 15 | 5 | 1100 | 160 | 15 | 1330 | 870 |
| Turn Type | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | Free | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 20.0 | 40.5 | | 26.0 | 46.5 | | 11.5 | 43.0 | | 10.5 | 42.0 | |
| Total Split (%) | 16.7% | 33.8% | | 21.7% | 38.8% | | 9.6% | 35.8% | | 8.8% | 35.0% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Act Effct Green (s) | 13.5 | 40.3 | 120.0 | 19.5 | 46.3 | 120.0 | 5.0 | 36.5 | 120.0 | 5.0 | 39.4 | 120.0 |
| Actuated g/C Ratio | 0.11 | 0.34 | 1.00 | 0.16 | 0.39 | 1.00 | 0.04 | 0.30 | 1.00 | 0.04 | 0.33 | 1.00 |
| v/c Ratio | 1.24 | 0.61 | 0.31 | 0.82 | 1.10 | 0.01 | 0.07 | 1.06 | 0.11 | 0.21 | 1.23 | 0.59 |
| Control Delay | 172.9 | 37.2 | 0.6 | 61.8 | 91.1 | 0.0 | 57.4 | 86.6 | 0.1 | 43.9 | 134.3 | 1.0 |
| Queue Delay | 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 Delay | 172.9 | 37.2 | 0.6 | 61.8 | 91.1 | 0.0 | 57.4 | 86.6 | 0.1 | 43.9 | 134.3 | 1.0 |
| LOS | F | D | A | E | F | A | E | F | A | D | F | A |
| Approach Delay | | 64.7 | | | 83.6 | | | 75.5 | | | 81.3 | |
| Approach LOS | | E | | | F | | | E | | | F | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.24 | |
| Intersection Signal Delay: 77.2 | Intersection LOS: E |
| Intersection Capacity Utilization 103.7% | ICU Level of Service G |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 425 | 645 | 440 | 435 | 1425 | 15 | 5 | 1100 | 160 | 15 | 1330 | 870 |
| Future Volume (veh/h) | 425 | 645 | 440 | 435 | 1425 | 15 | 5 | 1100 | 160 | 15 | 1330 | 870 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 438 | 665 | 0 | 448 | 1469 | 0 | 5 | 1134 | 0 | 15 | 1371 | 0 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 415 | 935 | | 610 | 1166 | | 44 | 1072 | | 28 | 1047 | |
| Arrive On Green | 0.13 | 0.28 | 0.00 | 0.18 | 0.33 | 0.00 | 0.02 | 0.30 | 0.00 | 0.03 | 0.61 | 0.00 |
| Sat Flow, veh/h | 3209 | 3300 | 1472 | 3401 | 3497 | 1560 | 1767 | 3526 | 1572 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 438 | 665 | 0 | 448 | 1469 | 0 | 5 | 1134 | 0 | 15 | 1371 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1650 | 1472 | 1700 | 1749 | 1560 | 1767 | 1763 | 1572 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 15.5 | 21.7 | 0.0 | 14.9 | 40.0 | 0.0 | 0.3 | 36.5 | 0.0 | 1.0 | 36.5 | 0.0 |
| Cycle Q Clear(g_c), s | 15.5 | 21.7 | 0.0 | 14.9 | 40.0 | 0.0 | 0.3 | 36.5 | 0.0 | 1.0 | 36.5 | 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 | 415 | 935 | | 610 | 1166 | | 44 | 1072 | | 28 | 1047 | |
| V/C Ratio(X) | 1.05 | 0.71 | | 0.73 | 1.26 | | 0.11 | 1.06 | | 0.53 | 1.31 | |
| Avail Cap(c_a), veh/h | 415 | 935 | | 610 | 1166 | | 74 | 1072 | | 72 | 1047 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.20 | 0.20 | 0.00 |
| Uniform Delay (d), s/veh | 52.2 | 38.6 | 0.0 | 46.5 | 40.0 | 0.0 | 57.2 | 41.7 | 0.0 | 57.6 | 23.5 | 0.0 |
| Incr Delay (d2), s/veh | 59.2 | 4.6 | 0.0 | 4.6 | 124.1 | 0.0 | 1.1 | 44.0 | 0.0 | 3.1 | 140.9 | 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 | 9.6 | 9.3 | 0.0 | 6.7 | 37.0 | 0.0 | 0.2 | 22.2 | 0.0 | 0.5 | 30.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 111.4 | 43.2 | 0.0 | 51.1 | 164.1 | 0.0 | 58.4 | 85.8 | 0.0 | 60.6 | 164.4 | 0.0 |
| LnGrp LOS | F | D | | D | F | | E | F | | E | F | |
| Approach Vol, veh/h | | 1103 | A | | 1917 | A | | 1139 | A | | 1386 | A |
| Approach Delay, s/veh | | 70.3 | | | 137.7 | | | 85.6 | | | 163.3 | |
| Approach LOS | | E | | | F | | | F | | | F | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 28.0 | 40.5 | 9.5 | 42.0 | 22.0 | 46.5 | 8.5 | 43.0 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 19.5 | 34.0 | 5.0 | 36.5 | 13.5 | 40.0 | 5.0 | * 37 |
| Max Q Clear Time (g_c+I1), s | 16.9 | 23.7 | 2.3 | 38.5 | 17.5 | 42.0 | 3.0 | 38.5 |
| Green Ext Time (p_c), s | 0.5 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | | 120.0 |
| HCM 6th LOS | | F |

**Notes**

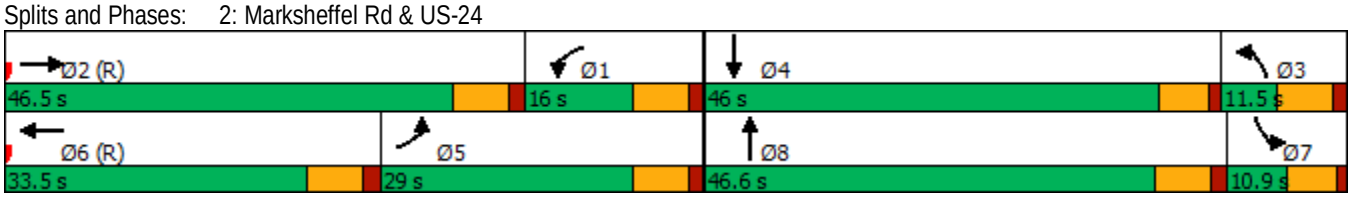
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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) | 785 | 1415 | 895 | 325 | 690 | 30 | 20 | 765 | 345 | 15 | 1560 | 415 |
| Future Volume (vph) | 785 | 1415 | 895 | 325 | 690 | 30 | 20 | 765 | 345 | 15 | 1560 | 415 |
| Turn Type | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | Free | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 29.0 | 46.5 | | 16.0 | 33.5 | | 11.5 | 46.6 | | 10.9 | 46.0 | |
| Total Split (%) | 24.2% | 38.8% | | 13.3% | 27.9% | | 9.6% | 38.8% | | 9.1% | 38.3% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.5 | 1.5 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Act Effct Green (s) | 22.5 | 46.9 | 120.0 | 9.5 | 33.9 | 120.0 | 5.0 | 39.1 | 120.0 | 6.3 | 40.5 | 120.0 |
| Actuated g/C Ratio | 0.19 | 0.39 | 1.00 | 0.08 | 0.28 | 1.00 | 0.04 | 0.33 | 1.00 | 0.05 | 0.34 | 1.00 |
| v/c Ratio | 1.37 | 1.15 | 0.63 | 1.26 | 0.73 | 0.02 | 0.29 | 0.69 | 0.23 | 0.17 | 1.40 | 0.28 |
| Control Delay | 214.4 | 110.7 | 2.1 | 188.1 | 45.0 | 0.0 | 66.0 | 39.0 | 0.3 | 39.6 | 209.0 | 0.2 |
| Queue Delay | 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 Delay | 214.4 | 110.7 | 2.1 | 188.1 | 45.0 | 0.0 | 66.0 | 39.0 | 0.3 | 39.6 | 209.0 | 0.2 |
| LOS | F | F | A | F | D | A | E | D | A | D | F | A |
| Approach Delay | | 105.6 | | | 88.2 | | | 27.7 | | | 164.2 | |
| Approach LOS | | F | | | F | | | C | | | F | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 150 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.40 | |
| Intersection Signal Delay: 107.0 | Intersection LOS: F |
| Intersection Capacity Utilization 106.9% | ICU Level of Service G |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 785 | 1415 | 895 | 325 | 690 | 30 | 20 | 765 | 345 | 15 | 1560 | 415 |
| Future Volume (veh/h) | 785 | 1415 | 895 | 325 | 690 | 30 | 20 | 765 | 345 | 15 | 1560 | 415 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 809 | 1459 | 0 | 335 | 711 | 0 | 21 | 789 | 0 | 15 | 1608 | 0 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 668 | 1100 | | 340 | 787 | | 37 | 936 | | 146 | 1161 | |
| Arrive On Green | 0.21 | 0.33 | 0.00 | 0.10 | 0.22 | 0.00 | 0.02 | 0.27 | 0.00 | 0.11 | 0.45 | 0.00 |
| Sat Flow, veh/h | 3209 | 3300 | 1472 | 3401 | 3497 | 1560 | 1767 | 3526 | 1572 | 1725 | 3441 | 1535 |
| Grp Volume(v), veh/h | 809 | 1459 | 0 | 335 | 711 | 0 | 21 | 789 | 0 | 15 | 1608 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1650 | 1472 | 1700 | 1749 | 1560 | 1767 | 1763 | 1572 | 1725 | 1721 | 1535 |
| Q Serve(g_s), s | 25.0 | 40.0 | 0.0 | 11.8 | 23.7 | 0.0 | 1.4 | 25.4 | 0.0 | 0.9 | 40.5 | 0.0 |
| Cycle Q Clear(g_c), s | 25.0 | 40.0 | 0.0 | 11.8 | 23.7 | 0.0 | 1.4 | 25.4 | 0.0 | 0.9 | 40.5 | 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 | 668 | 1100 | | 340 | 787 | | 37 | 936 | | 146 | 1161 | |
| V/C Ratio(X) | 1.21 | 1.33 | | 0.99 | 0.90 | | 0.57 | 0.84 | | 0.10 | 1.38 | |
| Avail Cap(c_a), veh/h | 668 | 1100 | | 340 | 787 | | 74 | 1178 | | 146 | 1161 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.33 | 1.33 | 1.33 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.32 | 0.32 | 0.00 |
| Uniform Delay (d), s/veh | 47.5 | 40.0 | 0.0 | 53.9 | 45.2 | 0.0 | 58.2 | 41.7 | 0.0 | 49.2 | 33.1 | 0.0 |
| Incr Delay (d2), s/veh | 108.4 | 153.2 | 0.0 | 45.0 | 15.7 | 0.0 | 12.9 | 4.7 | 0.0 | 0.1 | 174.8 | 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 | 20.0 | 39.3 | 0.0 | 7.2 | 11.9 | 0.0 | 0.8 | 11.6 | 0.0 | 0.4 | 43.5 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 155.9 | 193.2 | 0.0 | 99.0 | 61.0 | 0.0 | 71.1 | 46.4 | 0.0 | 49.3 | 207.9 | 0.0 |
| LnGrp LOS | F | F | | F | E | | E | D | | D | F | |
| Approach Vol, veh/h | | 2268 | A | | 1046 | A | | 810 | A | | 1623 | A |
| Approach Delay, s/veh | | 179.9 | | | 73.1 | | | 47.0 | | | 206.4 | |
| Approach LOS | | F | | | E | | | D | | | F | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 18.5 | 46.5 | 9.0 | 46.0 | 31.5 | 33.5 | 16.7 | 38.4 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 9.5 | 40.0 | 5.0 | 40.5 | 22.5 | 27.0 | 5.4 | * 40 |
| Max Q Clear Time (g_c+I1), s | 13.8 | 42.0 | 3.4 | 42.5 | 27.0 | 25.7 | 2.9 | 27.4 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 4.5 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 149.2 |
| HCM 6th LOS | F |

Notes

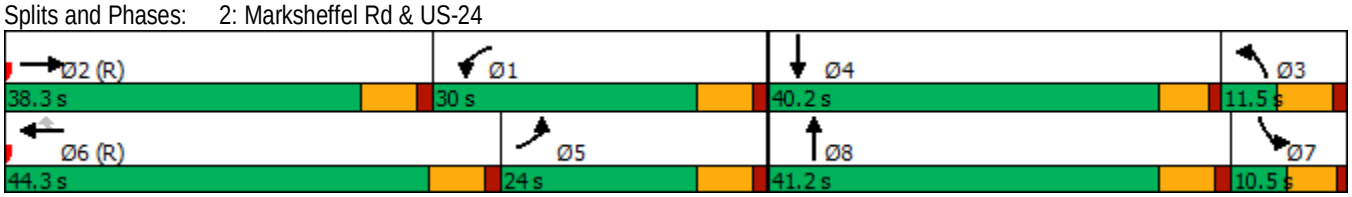
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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) | 435 | 645 | 440 | 435 | 1425 | 20 | 5 | 1105 | 160 | 20 | 1335 | 895 |
| Future Volume (vph) | 435 | 645 | 440 | 435 | 1425 | 20 | 5 | 1105 | 160 | 20 | 1335 | 895 |
| Turn Type | Prot | NA | Free | Prot | NA | Perm | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | 6 | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 24.0 | 38.3 | | 30.0 | 44.3 | 44.3 | 11.5 | 41.2 | | 10.5 | 40.2 | |
| Total Split (%) | 20.0% | 31.9% | | 25.0% | 36.9% | 36.9% | 9.6% | 34.3% | | 8.8% | 33.5% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 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 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | Lead | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | C-Max | None | None | | None | None | |
| Act Effct Green (s) | 17.5 | 38.5 | 120.0 | 23.5 | 44.5 | 44.5 | 5.0 | 34.3 | 120.0 | 5.3 | 37.2 | 120.0 |
| Actuated g/C Ratio | 0.15 | 0.32 | 1.00 | 0.20 | 0.37 | 0.37 | 0.04 | 0.29 | 1.00 | 0.04 | 0.31 | 1.00 |
| v/c Ratio | 0.97 | 0.44 | 0.31 | 0.68 | 0.79 | 0.03 | 0.07 | 0.79 | 0.11 | 0.28 | 0.91 | 0.61 |
| Control Delay | 87.2 | 34.4 | 0.6 | 50.7 | 38.5 | 0.1 | 57.4 | 44.3 | 0.1 | 52.3 | 38.2 | 4.3 |
| Queue Delay | 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 Delay | 87.2 | 34.4 | 0.6 | 50.7 | 38.5 | 0.1 | 57.4 | 44.3 | 0.1 | 52.3 | 38.2 | 4.3 |
| LOS | F | C | A | D | D | A | E | D | A | D | D | A |
| Approach Delay | | 39.7 | | | 40.9 | | | 38.8 | | | 24.8 | |
| Approach LOS | | D | | | D | | | D | | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.97 | |
| Intersection Signal Delay: 35.0 | Intersection LOS: D |
| Intersection Capacity Utilization 81.2% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 435 | 645 | 440 | 435 | 1425 | 20 | 5 | 1105 | 160 | 20 | 1335 | 895 |
| Future Volume (veh/h) | 435 | 645 | 440 | 435 | 1425 | 20 | 5 | 1105 | 160 | 20 | 1335 | 895 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 448 | 665 | 0 | 448 | 1469 | 0 | 5 | 1139 | 0 | 21 | 1376 | 0 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 585 | 1257 | | 790 | 1583 | | 11 | 1342 | | 36 | 1424 | |
| Arrive On Green | 0.18 | 0.26 | 0.00 | 0.23 | 0.31 | 0.00 | 0.01 | 0.26 | 0.00 | 0.04 | 0.58 | 0.00 |
| Sat Flow, veh/h | 3209 | 4742 | 1472 | 3401 | 5025 | 1560 | 1767 | 5066 | 1572 | 1725 | 4944 | 1535 |
| Grp Volume(v), veh/h | 448 | 665 | 0 | 448 | 1469 | 0 | 5 | 1139 | 0 | 21 | 1376 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1581 | 1472 | 1700 | 1675 | 1560 | 1767 | 1689 | 1572 | 1725 | 1648 | 1535 |
| Q Serve(g_s), s | 15.9 | 14.4 | 0.0 | 14.0 | 34.0 | 0.0 | 0.3 | 25.6 | 0.0 | 1.4 | 31.9 | 0.0 |
| Cycle Q Clear(g_c), s | 15.9 | 14.4 | 0.0 | 14.0 | 34.0 | 0.0 | 0.3 | 25.6 | 0.0 | 1.4 | 31.9 | 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 | 585 | 1257 | | 790 | 1583 | | 11 | 1342 | | 36 | 1424 | |
| V/C Ratio(X) | 0.77 | 0.53 | | 0.57 | 0.93 | | 0.44 | 0.85 | | 0.58 | 0.97 | |
| Avail Cap(c_a), veh/h | 585 | 1257 | | 790 | 1583 | | 74 | 1465 | | 72 | 1430 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.63 | 0.63 | 0.00 |
| Uniform Delay (d), s/veh | 46.6 | 37.7 | 0.0 | 40.7 | 39.8 | 0.0 | 59.4 | 41.8 | 0.0 | 57.0 | 24.9 | 0.0 |
| Incr Delay (d2), s/veh | 6.0 | 1.6 | 0.0 | 1.0 | 11.0 | 0.0 | 24.8 | 4.6 | 0.0 | 8.9 | 12.0 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 6.8 | 5.8 | 0.0 | 6.0 | 15.4 | 0.0 | 0.2 | 11.2 | 0.0 | 0.7 | 10.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 52.6 | 39.3 | 0.0 | 41.7 | 50.7 | 0.0 | 84.2 | 46.4 | 0.0 | 65.9 | 36.9 | 0.0 |
| LnGrp LOS | D | D | | D | D | | F | D | | E | D | |
| Approach Vol, veh/h | | 1113 | A | | 1917 | A | | 1144 | A | | 1397 | A |
| Approach Delay, s/veh | | 44.7 | | | 48.6 | | | 46.6 | | | 37.4 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 34.4 | 38.3 | 7.3 | 40.1 | 28.4 | 44.3 | 9.0 | 38.3 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 23.5 | 31.8 | 5.0 | 34.7 | 17.5 | 37.8 | 5.0 | * 35 |
| Max Q Clear Time (g_c+I1), s | 16.0 | 16.4 | 2.3 | 33.9 | 17.9 | 36.0 | 3.4 | 27.6 |
| Green Ext Time (p_c), s | 1.0 | 4.1 | 0.0 | 0.6 | 0.0 | 1.5 | 0.0 | 4.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 44.6 |
| HCM 6th LOS | D |

**Notes**

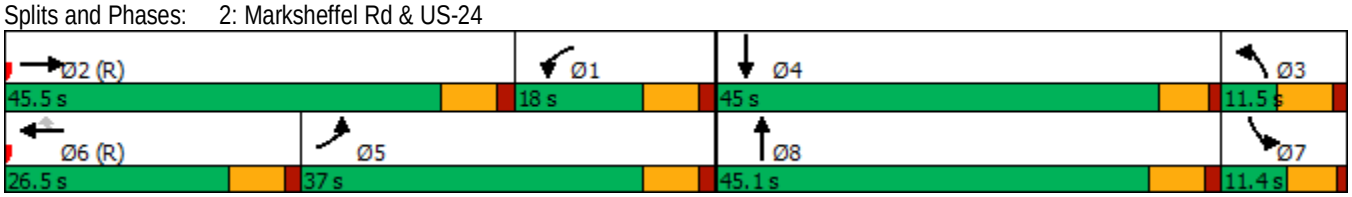
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

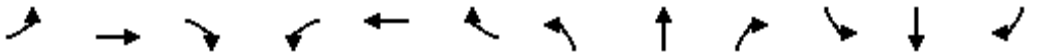
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 810 | 1415 | 895 | 325 | 690 | 40 | 20 | 770 | 345 | 20 | 1565 | 430 |
| Future Volume (vph) | 810 | 1415 | 895 | 325 | 690 | 40 | 20 | 770 | 345 | 20 | 1565 | 430 |
| Turn Type | Prot | NA | Free | Prot | NA | Perm | Prot | NA | Free | Prot | NA | Free |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | Free | | | 6 | | | Free | | | Free |
| Detector Phase | 5 | 2 | | 1 | 6 | 6 | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 12.0 | 12.0 | | 12.0 | 12.0 | 12.0 | 11.5 | 11.5 | | 10.5 | 10.5 | |
| Total Split (s) | 37.0 | 45.5 | | 18.0 | 26.5 | 26.5 | 11.5 | 45.1 | | 11.4 | 45.0 | |
| Total Split (%) | 30.8% | 37.9% | | 15.0% | 22.1% | 22.1% | 9.6% | 37.6% | | 9.5% | 37.5% | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.5 | 1.5 | | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | 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 | |
| Total Lost Time (s) | 6.5 | 6.5 | | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 5.5 | 5.5 | |
| Lead/Lag | Lag | Lead | | Lag | Lead | Lead | Lag | Lead | | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | | None | C-Max | C-Max | None | None | | None | None | |
| Act Effct Green (s) | 30.5 | 45.9 | 120.0 | 11.5 | 26.9 | 26.9 | 5.0 | 35.3 | 120.0 | 9.3 | 39.5 | 120.0 |
| Actuated g/C Ratio | 0.25 | 0.38 | 1.00 | 0.10 | 0.22 | 0.22 | 0.04 | 0.29 | 1.00 | 0.08 | 0.33 | 1.00 |
| v/c Ratio | 1.04 | 0.82 | 0.63 | 1.04 | 0.64 | 0.08 | 0.29 | 0.54 | 0.23 | 0.16 | 1.00 | 0.29 |
| Control Delay | 87.1 | 38.7 | 2.1 | 113.5 | 46.2 | 0.3 | 66.0 | 37.7 | 0.3 | 39.5 | 51.3 | 0.4 |
| Queue Delay | 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 Delay | 87.1 | 38.7 | 2.1 | 113.5 | 46.2 | 0.3 | 66.0 | 37.7 | 0.3 | 39.5 | 51.3 | 0.4 |
| LOS | F | D | A | F | D | A | E | D | A | D | D | A |
| Approach Delay | | 40.8 | | | 65.2 | | | 26.9 | | | 40.3 | |
| Approach LOS | | D | | | E | | | C | | | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green | |
| Natural Cycle: 120 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.04 | |
| Intersection Signal Delay: 42.0 | Intersection LOS: D |
| Intersection Capacity Utilization 82.3% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Marksheffel Rd & US-24





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 810 | 1415 | 895 | 325 | 690 | 40 | 20 | 770 | 345 | 20 | 1565 | 430 |
| Future Volume (veh/h) | 810 | 1415 | 895 | 325 | 690 | 40 | 20 | 770 | 345 | 20 | 1565 | 430 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1737 | 1737 | 1737 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1811 | 1811 | 1811 |
| Adj Flow Rate, veh/h | 835 | 1459 | 0 | 335 | 711 | 0 | 21 | 794 | 0 | 21 | 1613 | 0 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 11 | 11 | 11 | 4 | 4 | 4 | 3 | 3 | 3 | 6 | 6 | 6 |
| Cap, veh/h | 882 | 1541 | | 396 | 838 | | 37 | 1059 | | 229 | 1627 | |
| Arrive On Green | 0.27 | 0.32 | 0.00 | 0.12 | 0.17 | 0.00 | 0.02 | 0.21 | 0.00 | 0.27 | 0.66 | 0.00 |
| Sat Flow, veh/h | 3209 | 4742 | 1472 | 3401 | 5025 | 1560 | 1767 | 5066 | 1572 | 1725 | 4944 | 1535 |
| Grp Volume(v), veh/h | 835 | 1459 | 0 | 335 | 711 | 0 | 21 | 794 | 0 | 21 | 1613 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1605 | 1581 | 1472 | 1700 | 1675 | 1560 | 1767 | 1689 | 1572 | 1725 | 1648 | 1535 |
| Q Serve(g_s), s | 30.6 | 36.0 | 0.0 | 11.6 | 16.5 | 0.0 | 1.4 | 17.6 | 0.0 | 1.1 | 38.5 | 0.0 |
| Cycle Q Clear(g_c), s | 30.6 | 36.0 | 0.0 | 11.6 | 16.5 | 0.0 | 1.4 | 17.6 | 0.0 | 1.1 | 38.5 | 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 | 882 | 1541 | | 396 | 838 | | 37 | 1059 | | 229 | 1627 | |
| V/C Ratio(X) | 0.95 | 0.95 | | 0.85 | 0.85 | | 0.57 | 0.75 | | 0.09 | 0.99 | |
| Avail Cap(c_a), veh/h | 882 | 1541 | | 396 | 838 | | 74 | 1629 | | 229 | 1627 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.73 | 0.73 | 0.00 |
| Uniform Delay (d), s/veh | 42.6 | 39.5 | 0.0 | 51.9 | 48.5 | 0.0 | 58.2 | 44.5 | 0.0 | 38.6 | 20.3 | 0.0 |
| Incr Delay (d2), s/veh | 18.7 | 13.3 | 0.0 | 15.4 | 10.5 | 0.0 | 12.9 | 1.1 | 0.0 | 0.1 | 16.9 | 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 | 14.3 | 15.7 | 0.0 | 5.8 | 7.7 | 0.0 | 0.8 | 7.5 | 0.0 | 0.5 | 11.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 61.3 | 52.8 | 0.0 | 67.3 | 59.0 | 0.0 | 71.1 | 45.6 | 0.0 | 38.7 | 37.3 | 0.0 |
| LnGrp LOS | E | D | | E | E | | E | D | | D | D | |
| Approach Vol, veh/h | | 2294 | A | | 1046 | A | | 815 | A | | 1634 | A |
| Approach Delay, s/veh | | 55.9 | | | 61.7 | | | 46.3 | | | 37.3 | |
| Approach LOS | | E | | | E | | | D | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 20.5 | 45.5 | 9.0 | 45.0 | 39.5 | 26.5 | 22.4 | 31.6 |
| Change Period (Y+Rc), s | 6.5 | 6.5 | 6.5 | 5.5 | 6.5 | 6.5 | 6.5 | * 6.5 |
| Max Green Setting (Gmax), s | 11.5 | 39.0 | 5.0 | 39.5 | 30.5 | 20.0 | 5.9 | * 39 |
| Max Q Clear Time (g_c+I1), s | 13.6 | 38.0 | 3.4 | 40.5 | 32.6 | 18.5 | 3.1 | 19.6 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 5.4 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 50.3 |
| HCM 6th LOS | D |

**Notes**

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 8 | 63 | 17 | 0 | 196 | 1 | 53 | 0 | 2 | 3 | 0 | 26 |
| Future Vol, veh/h | 8 | 63 | 17 | 0 | 196 | 1 | 53 | 0 | 2 | 3 | 0 | 26 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 9 | 68 | 18 | 0 | 213 | 1 | 58 | 0 | 2 | 3 | 0 | 28 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 214 | 0 | 0 | 86 | 0 | 0 | 323 | 309 | 77 | 310 | 318 | 214 |
| Stage 1 | - | - | - | - | - | - | 95 | 95 | - | 214 | 214 | - |
| Stage 2 | - | - | - | - | - | - | 228 | 214 | - | 96 | 104 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1356 | - | - | 1520 | - | - | 646 | 616 | 1011 | 660 | 609 | 826 |
| Stage 1 | - | - | - | - | - | - | 933 | 827 | - | 788 | 725 | - |
| Stage 2 | - | - | - | - | - | - | 775 | 725 | - | 932 | 819 | - |
| Platoon blocked, % | | - | - | 1 | - | - | 1 | 1 | 1 | 1 | 1 | |
| Mov Cap-1 Maneuver | 1356 | - | - | 1520 | - | - | 621 | 612 | 1011 | 655 | 604 | 826 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 621 | 612 | - | 655 | 604 | - |
| Stage 1 | - | - | - | - | - | - | 927 | 821 | - | 782 | 725 | - |
| Stage 2 | - | - | - | - | - | - | 748 | 725 | - | 924 | 813 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.7 | 0 | 11.3 | 9.7 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 630 | 1356 | - | - | 1520 | - | - | 804 |
| HCM Lane V/C Ratio | 0.095 | 0.006 | - | - | - | - | - | 0.039 |
| HCM Control Delay (s) | 11.3 | 7.7 | 0 | - | 0 | - | - | 9.7 |
| HCM Lane LOS | B | A | A | - | A | - | - | A |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | 0 | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 26 | 114 | 53 | 1 | 64 | 3 | 32 | 0 | 1 | 2 | 0 | 15 |
| Future Vol, veh/h | 26 | 114 | 53 | 1 | 64 | 3 | 32 | 0 | 1 | 2 | 0 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 28 | 124 | 58 | 1 | 70 | 3 | 35 | 0 | 1 | 2 | 0 | 16 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 73 | 0 | 0 | 182 | 0 | 0 | 291 | 284 | 153 | 284 | 312 | 72 |
| Stage 1 | - | - | - | - | - | - | 209 | 209 | - | 74 | 74 | - |
| Stage 2 | - | - | - | - | - | - | 82 | 75 | - | 210 | 238 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1527 | - | - | 1411 | - | - | 712 | 658 | 953 | 720 | 633 | 990 |
| Stage 1 | - | - | - | - | - | - | 836 | 750 | - | 935 | 833 | - |
| Stage 2 | - | - | - | - | - | - | 926 | 833 | - | 835 | 727 | - |
| Platoon blocked, % | | - | - | 1 | - | - | 1 | 1 | 1 | 1 | 1 | |
| Mov Cap-1 Maneuver | 1527 | - | - | 1411 | - | - | 688 | 643 | 953 | 707 | 619 | 990 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 688 | 643 | - | 707 | 619 | - |
| Stage 1 | - | - | - | - | - | - | 819 | 734 | - | 915 | 832 | - |
| Stage 2 | - | - | - | - | - | - | 910 | 832 | - | 817 | 711 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1 | 0.1 | 10.5 | 8.9 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 694 | 1527 | - | - | 1411 | - | - | 945 |
| HCM Lane V/C Ratio | 0.052 | 0.019 | - | - | 0.001 | - | - | 0.02 |
| HCM Control Delay (s) | 10.5 | 7.4 | 0 | - | 7.6 | 0 | - | 8.9 |
| HCM Lane LOS | B | A | A | - | A | A | - | A |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | 0 | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 10 | 100 | 20 | 0 | 305 | 5 | 55 | 0 | 5 | 5 | 0 | 30 |
| Future Vol, veh/h | 10 | 100 | 20 | 0 | 305 | 5 | 55 | 0 | 5 | 5 | 0 | 30 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 109 | 22 | 0 | 332 | 5 | 60 | 0 | 5 | 5 | 0 | 33 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 337 | 0 | 0 | 131 | 0 | 0 | 493 | 479 | 120 | 480 | 488 | 335 |
| Stage 1 | - | - | - | - | - | - | 142 | 142 | - | 335 | 335 | - |
| Stage 2 | - | - | - | - | - | - | 351 | 337 | - | 145 | 153 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1222 | - | - | 1469 | - | - | 503 | 496 | 975 | 513 | 489 | 707 |
| Stage 1 | - | - | - | - | - | - | 896 | 797 | - | 679 | 643 | - |
| Stage 2 | - | - | - | - | - | - | 666 | 641 | - | 892 | 787 | - |
| Platoon blocked, % | | - | - | 1 | - | - | 1 | 1 | 1 | 1 | 1 | |
| Mov Cap-1 Maneuver | 1222 | - | - | 1469 | - | - | 476 | 491 | 975 | 506 | 485 | 707 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 476 | 491 | - | 506 | 485 | - |
| Stage 1 | - | - | - | - | - | - | 887 | 789 | - | 672 | 643 | - |
| Stage 2 | - | - | - | - | - | - | 635 | 641 | - | 878 | 779 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.6 | 0 | 13.3 | 10.7 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 497 | 1222 | - | - | 1469 | - | - | 669 |
| HCM Lane V/C Ratio | 0.131 | 0.009 | - | - | - | - | - | 0.057 |
| HCM Control Delay (s) | 13.3 | 8 | 0 | - | 0 | - | - | 10.7 |
| HCM Lane LOS | B | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 30 | 180 | 55 | 5 | 100 | 5 | 35 | 0 | 5 | 5 | 0 | 15 |
| Future Vol, veh/h | 30 | 180 | 55 | 5 | 100 | 5 | 35 | 0 | 5 | 5 | 0 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 33 | 196 | 60 | 5 | 109 | 5 | 38 | 0 | 5 | 5 | 0 | 16 |

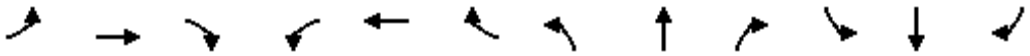
| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 114 | 0 | 0 | 256 | 0 | 0 | 422 | 416 | 226 | 417 | 444 | 112 |
| Stage 1 | - | - | - | - | - | - | 292 | 292 | - | 122 | 122 | - |
| Stage 2 | - | - | - | - | - | - | 130 | 124 | - | 295 | 322 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1475 | - | - | 1331 | - | - | 600 | 564 | 900 | 606 | 541 | 941 |
| Stage 1 | - | - | - | - | - | - | 776 | 698 | - | 882 | 795 | - |
| Stage 2 | - | - | - | - | - | - | 874 | 793 | - | 772 | 675 | - |
| Platoon blocked, % | | - | - | 1 | - | - | 1 | 1 | 1 | 1 | 1 | |
| Mov Cap-1 Maneuver | 1475 | - | - | 1331 | - | - | 576 | 547 | 900 | 588 | 525 | 941 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 576 | 547 | - | 588 | 525 | - |
| Stage 1 | - | - | - | - | - | - | 756 | 680 | - | 859 | 792 | - |
| Stage 2 | - | - | - | - | - | - | 855 | 790 | - | 748 | 657 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.8 | 0.4 | 11.4 | 9.5 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 603 | 1475 | - | - | 1331 | - | - | 818 |
| HCM Lane V/C Ratio | 0.072 | 0.022 | - | - | 0.004 | - | - | 0.027 |
| HCM Control Delay (s) | 11.4 | 7.5 | 0 | - | 7.7 | 0 | - | 9.5 |
| HCM Lane LOS | B | A | A | - | A | A | - | A |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | - | - | 0 | - | - | 0.1 |

# APPENDIX E

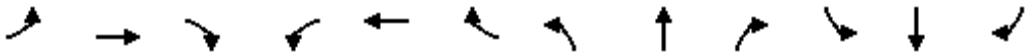
## Queues Analysis Worksheets



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 102 | 4 | 26 | 175 | 12 | 78 | 32 | 848 | 60 | 20 | 1659 | 140 |
| v/c Ratio | 0.41 | 0.05 | 0.14 | 0.98 | 0.10 | 0.38 | 0.16 | 0.34 | 0.05 | 0.04 | 0.68 | 0.12 |
| Control Delay | 51.9 | 55.2 | 1.6 | 112.8 | 54.1 | 8.0 | 12.3 | 16.9 | 6.9 | 3.7 | 13.1 | 1.9 |
| Queue Delay | 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 Delay | 51.9 | 55.2 | 1.6 | 112.8 | 54.1 | 8.0 | 12.3 | 16.9 | 6.9 | 3.7 | 13.1 | 1.9 |
| Queue Length 50th (ft) | 36 | 3 | 0 | 129 | 9 | 0 | 14 | 212 | 8 | 3 | 411 | 3 |
| Queue Length 95th (ft) | 61 | 15 | 0 | #209 | 29 | 18 | m22 | m238 | m19 | 9 | 523 | 25 |
| Internal Link Dist (ft) | | 823 | | | 282 | | | 1023 | | | 636 | |
| Turn Bay Length (ft) | 200 | | 200 | 300 | | 200 | 400 | | | 350 | | 350 |
| Base Capacity (vph) | 251 | 482 | 494 | 179 | 558 | 557 | 204 | 2471 | 1134 | 486 | 2431 | 1124 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.41 | 0.01 | 0.05 | 0.98 | 0.02 | 0.14 | 0.16 | 0.34 | 0.05 | 0.04 | 0.68 | 0.12 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



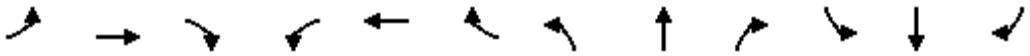
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 323 | 11 | 48 | 167 | 27 | 75 | 38 | 1608 | 59 | 22 | 2349 | 409 |
| v/c Ratio | 1.26 | 0.11 | 0.25 | 1.16 | 0.24 | 0.36 | 0.26 | 0.66 | 0.05 | 0.10 | 0.96 | 0.35 |
| Control Delay | 185.5 | 55.2 | 3.0 | 170.7 | 58.2 | 7.4 | 11.7 | 24.9 | 5.1 | 4.5 | 29.3 | 3.7 |
| Queue Delay | 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 Delay | 185.5 | 55.2 | 3.0 | 170.7 | 58.2 | 7.4 | 11.7 | 24.9 | 5.1 | 4.5 | 29.3 | 3.7 |
| Queue Length 50th (ft) | ~147 | 8 | 0 | ~135 | 20 | 0 | 12 | 466 | 4 | 3 | ~1027 | 37 |
| Queue Length 95th (ft) | #231 | 28 | 0 | #269 | 51 | 15 | m19 | m492 | m12 | 10 | #1197 | 88 |
| Internal Link Dist (ft) | | 823 | | | 282 | | | 1023 | | | 636 | |
| Turn Bay Length (ft) | 200 | | 200 | 300 | | 200 | 400 | | | 350 | | 350 |
| Base Capacity (vph) | 257 | 510 | 517 | 144 | 558 | 557 | 147 | 2428 | 1116 | 222 | 2445 | 1168 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.26 | 0.02 | 0.09 | 1.16 | 0.05 | 0.13 | 0.26 | 0.66 | 0.05 | 0.10 | 0.96 | 0.35 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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



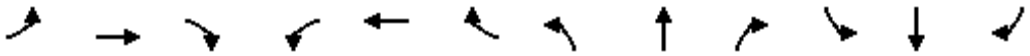
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 323 | 11 | 48 | 194 | 32 | 91 | 38 | 1608 | 75 | 27 | 2349 | 409 |
| v/c Ratio | 1.32 | 0.12 | 0.25 | 0.99 | 0.23 | 0.40 | 0.26 | 0.48 | 0.07 | 0.12 | 0.70 | 0.35 |
| Control Delay | 212.0 | 56.4 | 3.2 | 112.8 | 55.0 | 9.5 | 15.9 | 25.4 | 9.7 | 5.1 | 14.0 | 2.1 |
| Queue Delay | 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 Delay | 212.0 | 56.4 | 3.2 | 112.8 | 55.0 | 9.5 | 15.9 | 25.4 | 9.7 | 5.1 | 14.0 | 2.1 |
| Queue Length 50th (ft) | ~147 | 8 | 0 | ~151 | 24 | 0 | 20 | 345 | 17 | 5 | 417 | 7 |
| Queue Length 95th (ft) | #232 | 28 | 0 | #250 | 56 | 30 | m23 | m375 | m25 | 12 | 508 | 46 |
| Internal Link Dist (ft) | | 823 | | | 282 | | | 1023 | | | 636 | |
| Turn Bay Length (ft) | 200 | | 200 | 300 | | 200 | 400 | | 400 | 350 | | 350 |
| Base Capacity (vph) | 244 | 467 | 483 | 195 | 558 | 557 | 147 | 3327 | 1069 | 233 | 3351 | 1163 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.32 | 0.02 | 0.10 | 0.99 | 0.06 | 0.16 | 0.26 | 0.48 | 0.07 | 0.12 | 0.70 | 0.35 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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



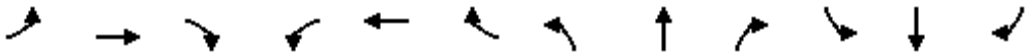
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 382 | 22 | 70 | 65 | 27 | 48 | 59 | 2710 | 129 | 70 | 2215 | 339 |
| v/c Ratio | 1.50 | 0.22 | 0.36 | 0.42 | 0.23 | 0.23 | 0.38 | 0.81 | 0.12 | 0.43 | 0.65 | 0.29 |
| Control Delay | 278.8 | 58.1 | 6.6 | 54.2 | 57.6 | 2.5 | 18.9 | 19.0 | 5.2 | 19.7 | 12.6 | 1.6 |
| Queue Delay | 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 Delay | 278.8 | 58.1 | 6.6 | 54.2 | 57.6 | 2.5 | 18.9 | 19.0 | 5.2 | 19.7 | 12.6 | 1.6 |
| Queue Length 50th (ft) | ~204 | 17 | 0 | 45 | 20 | 0 | 14 | 402 | 8 | 11 | 353 | 1 |
| Queue Length 95th (ft) | #285 | 44 | 10 | 87 | 50 | 0 | m40 | m442 | m29 | 51 | 444 | 34 |
| Internal Link Dist (ft) | | 823 | | | 282 | | | 1023 | | | 636 | |
| Turn Bay Length (ft) | 200 | | 200 | 300 | | 200 | 400 | | 400 | 350 | | 350 |
| Base Capacity (vph) | 255 | 510 | 517 | 154 | 558 | 557 | 155 | 3350 | 1079 | 163 | 3409 | 1163 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.50 | 0.04 | 0.14 | 0.42 | 0.05 | 0.09 | 0.38 | 0.81 | 0.12 | 0.43 | 0.65 | 0.29 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

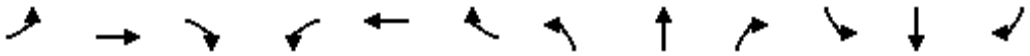
m Volume for 95th percentile queue is metered by upstream signal.



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 377 | 400 | 404 | 242 | 1119 | 15 | 4 | 523 | 86 | 16 | 926 | 824 |
| v/c Ratio | 0.99 | 0.29 | 0.28 | 0.64 | 0.78 | 0.01 | 0.05 | 0.58 | 0.05 | 0.17 | 0.94 | 0.54 |
| Control Delay | 96.5 | 24.4 | 0.5 | 59.4 | 35.8 | 0.0 | 57.0 | 42.4 | 0.1 | 47.1 | 47.8 | 1.4 |
| Queue Delay | 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 Delay | 96.5 | 24.4 | 0.5 | 59.4 | 35.8 | 0.0 | 57.0 | 42.4 | 0.1 | 47.1 | 47.8 | 1.4 |
| Queue Length 50th (ft) | 152 | 99 | 0 | 93 | 365 | 0 | 3 | 183 | 0 | 12 | 378 | 0 |
| Queue Length 95th (ft) | #254 | 161 | 0 | 137 | #570 | 0 | 15 | 247 | 0 | m18 | m#503 | m0 |
| Internal Link Dist (ft) | | 716 | | | 2597 | | | 13369 | | | 1023 | |
| Turn Bay Length (ft) | 1000 | | 650 | 1000 | | 700 | 300 | | 375 | 375 | | |
| Base Capacity (vph) | 381 | 1376 | 1455 | 378 | 1440 | 1553 | 73 | 966 | 1568 | 95 | 990 | 1524 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.99 | 0.29 | 0.28 | 0.64 | 0.78 | 0.01 | 0.05 | 0.54 | 0.05 | 0.17 | 0.94 | 0.54 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



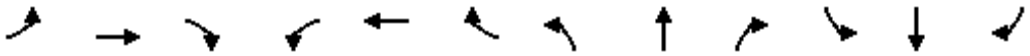
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 438 | 665 | 485 | 448 | 1469 | 21 | 5 | 1134 | 165 | 15 | 1371 | 954 |
| v/c Ratio | 0.53 | 0.48 | 0.33 | 2.91 | 2.02 | 0.01 | 0.07 | 0.98 | 0.11 | 0.21 | 1.14 | 0.63 |
| Control Delay | 40.7 | 27.1 | 0.6 | 896.8 | 488.9 | 0.0 | 57.4 | 62.4 | 0.1 | 43.7 | 94.6 | 1.6 |
| Queue Delay | 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 Delay | 40.7 | 27.1 | 0.6 | 896.8 | 488.9 | 0.0 | 57.4 | 62.4 | 0.1 | 43.7 | 94.6 | 1.6 |
| Queue Length 50th (ft) | 150 | 179 | 0 | ~308 | ~885 | 0 | 4 | 455 | 0 | 11 | ~670 | 0 |
| Queue Length 95th (ft) | 202 | 271 | 0 | #413 | #1153 | 0 | 18 | #606 | 0 | m12 | m#716 | m0 |
| Internal Link Dist (ft) | | 716 | | | 2597 | | | 13369 | | | 1023 | |
| Turn Bay Length (ft) | 1000 | | 650 | 1000 | | 700 | 300 | | 375 | 375 | | |
| Base Capacity (vph) | 828 | 1387 | 1455 | 154 | 728 | 1553 | 73 | 1156 | 1568 | 70 | 1206 | 1524 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.53 | 0.48 | 0.33 | 2.91 | 2.02 | 0.01 | 0.07 | 0.98 | 0.11 | 0.21 | 1.14 | 0.63 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

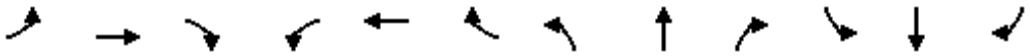
m Volume for 95th percentile queue is metered by upstream signal.



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 448 | 665 | 454 | 448 | 1469 | 21 | 5 | 1139 | 165 | 21 | 1376 | 923 |
| v/c Ratio | 0.97 | 0.44 | 0.31 | 0.68 | 0.79 | 0.03 | 0.07 | 0.79 | 0.11 | 0.28 | 0.91 | 0.61 |
| Control Delay | 87.2 | 34.4 | 0.6 | 50.7 | 38.5 | 0.1 | 57.4 | 44.3 | 0.1 | 52.3 | 38.2 | 4.3 |
| Queue Delay | 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 Delay | 87.2 | 34.4 | 0.6 | 50.7 | 38.5 | 0.1 | 57.4 | 44.3 | 0.1 | 52.3 | 38.2 | 4.3 |
| Queue Length 50th (ft) | 180 | 141 | 0 | 167 | 347 | 0 | 4 | 297 | 0 | 16 | 385 | 67 |
| Queue Length 95th (ft) | #286 | 204 | 0 | 224 | #500 | 0 | 18 | 353 | 0 | m24 | m#486 | m159 |
| Internal Link Dist (ft) | | 716 | | | 2597 | | | 13369 | | | 1023 | |
| Turn Bay Length (ft) | 1000 | | 650 | 1000 | | 700 | 300 | | 375 | 375 | | |
| Base Capacity (vph) | 460 | 1499 | 1455 | 659 | 1849 | 664 | 73 | 1456 | 1568 | 75 | 1516 | 1524 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.97 | 0.44 | 0.31 | 0.68 | 0.79 | 0.03 | 0.07 | 0.78 | 0.11 | 0.28 | 0.91 | 0.61 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 835 | 1459 | 923 | 335 | 711 | 41 | 21 | 794 | 356 | 21 | 1613 | 443 |
| v/c Ratio | 1.04 | 0.82 | 0.63 | 1.04 | 0.64 | 0.08 | 0.29 | 0.54 | 0.23 | 0.16 | 1.00 | 0.29 |
| Control Delay | 87.1 | 38.7 | 2.1 | 113.5 | 46.2 | 0.3 | 66.0 | 37.7 | 0.3 | 39.5 | 51.3 | 0.4 |
| Queue Delay | 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 Delay | 87.1 | 38.7 | 2.1 | 113.5 | 46.2 | 0.3 | 66.0 | 37.7 | 0.3 | 39.5 | 51.3 | 0.4 |
| Queue Length 50th (ft) | ~360 | 342 | 0 | ~144 | 173 | 0 | 16 | 180 | 0 | 16 | ~459 | 0 |
| Queue Length 95th (ft) | #486 | #509 | 0 | #239 | #260 | 0 | 44 | 241 | 0 | m24 | #577 | 0 |
| Internal Link Dist (ft) | | 716 | | | 2597 | | | 13369 | | | 1023 | |
| Turn Bay Length (ft) | 1000 | | 650 | 1000 | | 700 | 300 | | 375 | 375 | | |
| Base Capacity (vph) | 801 | 1787 | 1455 | 322 | 1118 | 503 | 73 | 1619 | 1568 | 133 | 1610 | 1524 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 0.82 | 0.63 | 1.04 | 0.64 | 0.08 | 0.29 | 0.49 | 0.23 | 0.16 | 1.00 | 0.29 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 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.

# APPENDIX F

## Conceptual Site Plan

LOT 1 CLAREMONT SUB
NO. 1
LAND FIRST INC.

LOT 1 CLAREMONT
COMMERCIAL
SUB NO. 1
MALLERY LLC

EXISTING 12" PVC
POTABLE WATER LINE

565' EXTENSION OF
EXISTING 8" SANITARY SEWER

TRACT F
PROPERTY BOUNDARY

TRACT H
PROPERTY BOUNDARY
OWNED BY:
CENTRAL MARKSHEFFEL
METROPOLITAN DISTRICT

30' PERMANENT
EASEMENT

20' UTILITY
EASEMENT

50' PERMANENT
UTILITY EASEMENT (54" AND 42"
SDS WATER MAIN)

25' LANDSCAPE
SETBACK

LAND AREA SUBJECT TO
GREATER DEVELOPMENT
REQUIREMENTS

MARKSHEFFEL
ROAD

EXISTING SDS WATER MAIN

50' PERMANENT
UTILITY EASEMENT (54" AND
42" SDS WATER MAIN)

25' LANDSCAPE
SETBACK

EXISTING MAGELLAN
6" GAS PIPELINE

40' PERMANENT
GAS EASEMENT

40'

50'

MEADOWBROOK
PARKWAY

TRACT G CLAREMONT RANCH
FILING NO.7
RODO INVESTMENTS LLC

CONCEPT UTILITY LAYOUT
(8" SSWR)

CONCEPT UTILITY LAYOUT
(8" PVC WATER PIPE)

20' LANDSCAPE
SETBACK

30' LANDSCAPE
SETBACK

10' COMMERCIAL
LANDSCAPE BUFFER

PROPERTY AREA = 8.81 ACRES

STRUCTURALLY DEVELOPABLE
AREA = 6.13 ACRES

APPROXIMATE
TOE OF SLOPE

25' LANDSCAPE
SETBACK

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

G:\Market\Kotford\Claremont 7\Deliverables\CLAREMONT 7 EXHIBIT LA SSWR.dwg

Kimley»Horn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