

# MASTER TRAFFIC IMPACT STUDY

For

**The Markets at Bent Grass**  
**El Paso County, Colorado**  
(EPC No.: CR-26-01, SP-26-02)

March 2026  
Revised: May 2026  
Revised: July 2026  
Revised: August 2026

Prepared for:

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Prepared by:



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25-022358

**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.



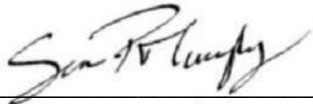
\_\_\_\_\_  
Fred Lantz, PE #23410

08/19/2026

\_\_\_\_\_  
Date

**Developer's Statement**

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



\_\_\_\_\_  
Evergreen  
2390 East Camelback Road, Suite 140  
Phoenix, AZ 85016

08/19/2026

\_\_\_\_\_  
Date

## Table of Contents

|                                                                         |           |
|-------------------------------------------------------------------------|-----------|
| <b>I. Introduction .....</b>                                            | <b>1</b>  |
| Project Overview .....                                                  | 1         |
| Study Area .....                                                        | 1         |
| Site Description .....                                                  | 1         |
| Existing and Committed Surface Transportation Network .....             | 5         |
| <b>II. Existing Traffic Conditions .....</b>                            | <b>7</b>  |
| Peak Hour Intersection Levels of Service – Existing Traffic .....       | 10        |
| Existing Traffic Analysis Results .....                                 | 11        |
| <b>III. Future Traffic Conditions Without Proposed Development.....</b> | <b>12</b> |
| Peak Hour Intersection Levels of Service – Background Traffic .....     | 18        |
| Background Traffic Analysis Results – Year 2030 .....                   | 18        |
| Background Traffic Analysis Results – Year 2045 .....                   | 19        |
| <b>IV. Proposed Project Traffic .....</b>                               | <b>21</b> |
| Trip Generation Estimation .....                                        | 21        |
| Adjustments to Trip Generation Rates .....                              | 22        |
| Trip Distribution .....                                                 | 23        |
| Trip Assignment .....                                                   | 24        |
| <b>V. Future Traffic Conditions With Proposed Development.....</b>      | <b>26</b> |
| Peak Hour Intersection Levels of Service – Total Traffic .....          | 31        |
| Total Traffic Analysis Results Upon Assumed Development Build-Out.....  | 32        |
| <b>VI. Project Impacts .....</b>                                        | <b>33</b> |
| Development Impacts .....                                               | 33        |
| Recommended Improvements .....                                          | 33        |
| Sight Distance Analysis .....                                           | 34        |
| Roundabout Consideration .....                                          | 35        |
| Site Access Analysis.....                                               | 35        |
| <b>VII. Conclusion .....</b>                                            | <b>37</b> |

### List of Figures

|                                                                        |    |
|------------------------------------------------------------------------|----|
| Figure 1 – Location.....                                               | 3  |
| Figure 2 – Conceptual Site Plan.....                                   | 4  |
| Figure 3A – Existing Traffic Volumes.....                              | 8  |
| Figure 3B – Existing Traffic Intersection Geometry .....               | 9  |
| Figure 4A – Background Traffic Volumes – Year 2030.....                | 14 |
| Figure 4B – Background Traffic Intersection Geometry – Year 2030 ..... | 15 |
| Figure 5A – Background Traffic Volumes – Year 2045.....                | 16 |
| Figure 5B – Background Traffic Intersection Geometry – Year 2045 ..... | 17 |
| Figure 6 – Distribution and Site-Generated Assignment.....             | 25 |
| Figure 7A – Total Traffic Volumes – Year 2030.....                     | 27 |
| Figure 7B – Total Traffic Intersection Geometry – Year 2030 .....      | 28 |
| Figure 8A – Total Traffic Volumes – Year 2045.....                     | 29 |
| Figure 8B – Total Traffic Intersection Geometry – Year 2045 .....      | 30 |

### List of Tables

|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| Table 1 – Intersection Capacity Analysis Summary – Existing Traffic .....                     | 11 |
| Table 2 – Intersection Capacity Analysis Summary – Background Traffic – Year 2030 .....       | 18 |
| Table 3 – Intersection Capacity Analysis Summary – Background Traffic – Year 2045 .....       | 19 |
| Table 4 – Trip Generation Rates .....                                                         | 21 |
| Table 5 – Trip Generation Summary .....                                                       | 22 |
| Table 6 – Trip Generation Summary with Reductions .....                                       | 23 |
| Table 6 – Intersection Capacity Analysis Summary – Total Traffic – Year 2030 .....            | 31 |
| Table 7 – Intersection Capacity Analysis Summary – Total Traffic – Year 2045 .....            | 32 |
| Table 8 – Recommended Improvements Summary .....                                              | 34 |
| Table 9 – Site Access Intersection Capacity Analysis Summary – Total Traffic – Year 2045..... | 36 |

### Appendices

|            |                               |
|------------|-------------------------------|
| APPENDIX A | TRAFFIC COUNT DATA            |
| APPENDIX B | LEVEL OF SERVICE DEFINITIONS  |
|            | INTERNAL CAPTURE WORKSHEETS   |
|            | WOODMEN ROAD COORDINATED CGTs |
| APPENDIX C | CAPACITY WORKSHEETS           |

## **I. Introduction**

### **Project Overview**

This traffic impact study is provided as a planning document and addresses the capacity, geometric, and control requirements associated with the development zoning application entitled The Markets at Bent Grass.

This assumed commercial development is conceptual and anticipated to consist of various commercial uses including a home improvement superstore, restaurants, a gas station, and a variety of retail shops. The development is located at the northeast of the intersection of Bent Grass Meadows Drive with Woodmen Frontage Road in El Paso County, Colorado.

This study has been revised to address County review comments received and dated 4/1/2026, June 2026, and again in August 2026.

### **Study Area**

The study area to be examined in this analysis encompasses the E Woodmen Road corridor between Golden Sage Drive and Meridian Road, the Woodmen Frontage Road corridor between Golden Sage Drive and Falcon Market Place, as well as the Bent Grass Meadows Drive Corridor between Woodmen Frontage Road and Meridian Road.

Figure 1 illustrates location of the site and study intersections.

### **Site Description**

Land for the assumed development is currently vacant and is surrounded by a mix of light industrial, commercial, and residential land uses.

The assumed development is conceptual, and specific land uses are subject to change. However, for purposes of this analysis, site construction is assumed to entail a day care center, strip retail, home improvement store, free-standing discount superstore, drive-in bank, fast casual restaurants, restaurants with drive-through, coffee/donut shop with drive-through, automobile parts and service center, gas station convenience store, medical clinic, and small grocery store. Table 5 of this analysis presents assumed sizes of each described land use.

Direct access to the overall development is conceptual and subject to change pursuant to final lot configuration, therefore only key site access drives were considered in this analysis. However, it is expected that intersection operations for site access drives will be comparable to or better than operational results determined for adjacent area intersections. General access is anticipated to include various locations along Bent Grass Meadows Drive and Woodmen Frontage Road with connection to the regional roadway network via the intersections of Golden Sage Drive with E Woodmen Road, Woodmen Frontage Road and Falcon Market Place, and Bent Grass Meadows Drive with Meridian Road. Operations of the assumed site access drives are discussed in detail later in this study.

Additionally, the development assumes the realignment of Woodmen Frontage Road to allow for improved site connectivity and circulation by introducing a new full-movement intersection with E Woodmen Road. This intersection is assumed to be designed as a Continuous Green T-Intersection (CGT). A CGT is a T-intersection design where one major street (E Woodmen Road) direction of travel (the top side of the “T”) can pass through the intersection without stopping and opposite major street (E Woodmen Road) direction of travel is typically controlled by a traffic signal. Left-turn vehicles from the side street (Bent Grass Meadows Drive) use a channelized receiving lane on the major street (E Woodmen Road) to merge onto the major street. A CGT intersection is typically signalized but can also be designed without a traffic signal. Intersections of this type are common and have performed well in other states including Colorado. CGT intersections are shown to reduce delays at high-volume locations by removing the need to stop both directions of mainline traffic to accommodate left turns. A CGT intersection can also be referred to as a Turbo-T, High-T, or Seagull intersection.

The above-described access to E Woodmen Road is compliant to the E Woodmen Road Access Management Plan for Bent Grass Meadows Drive connection.

Through detailed coordination and collaboration between El Paso County and the City of Colorado Springs, implementation of the innovative CGT intersection control concept at Woodmen Road and Golden Sage Road has been conceptually approved. This CGT intersection is intended to work in tandem with the above-described CGT intersection and other planned corridor improvements to enhance traffic operations, improve corridor mobility, and help accommodate the significant travel demands anticipated along the E Woodmen Road corridor. It is further envisioned that this CGT configuration would allow westbound travel on E Woodmen Road to continue without interruption while restricting the north leg of Golden Sage Road to right-in/right-out movements. A copy of the County prepared concept of the coordinated CGT intersections is provided for reference in Appendix B.

For purposes of this study, it is anticipated that development construction would be completed by end of Year 2030.

General site and access locations are shown on Figure 1.

A conceptual site plan, as prepared by Galloway, is shown in Figure 2. This plan is provided for illustrative purposes only, and it is emphasized that assumed land uses are subject to change.

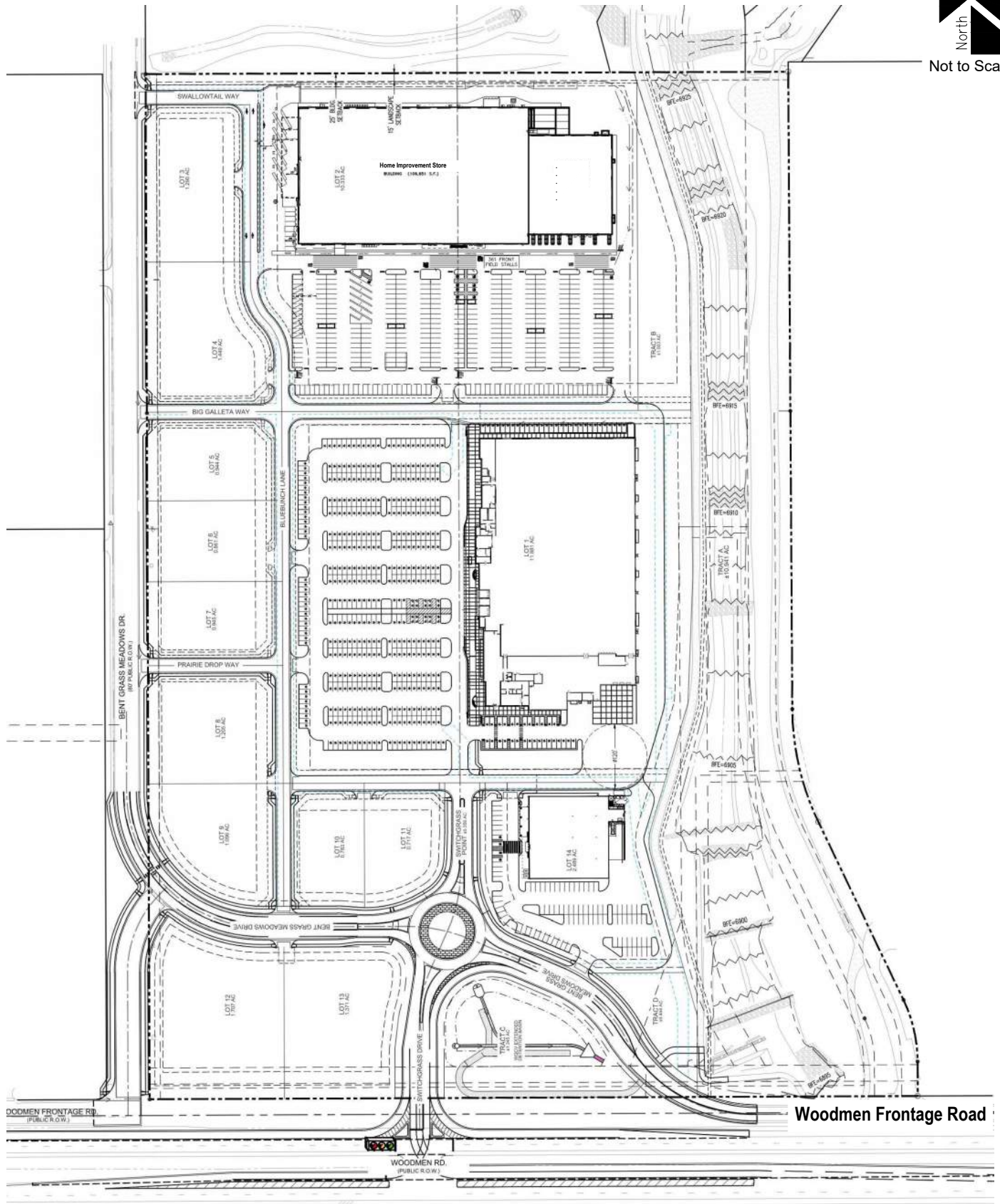


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Figure 1  
SITE LOCATION





## Existing and Committed Surface Transportation Network

Within the study area, regional access to the proposed development area is provided by way of E Woodmen Road and Meridian Road while local access is provided via Bent Grass Meadows Drive, Woodmen Frontage Road, Golden Sage Drive, and Falcon Market Place. A brief description of each roadway, based on the City of Colorado Springs Major Thoroughfare Plan (MTP)<sup>1</sup> and Traffic Criteria Manual<sup>2</sup>, and the County's 2024 Major Transportation Corridors Plan (MTCP)<sup>3</sup> and Engineering Criteria Manual (ECM)<sup>4</sup>, is provided below:

E Woodmen Road is an east-west expressway roadway having four through lanes (two lanes in each direction) with exclusive turn lanes at the intersection within the study area. E Woodmen Road provides a posted speed limit of 55 MPH.

Meridian Road is a north-south principal arterial roadway with four through lanes (two lanes in each direction) with exclusive turn lanes at the intersections within the study area. Meridian Road provides a posted speed limit of 55 MPH.

Bent Grass Meadows Drive is a north-south urban collector roadway at Woodmen Frontage Road intersection having two through lanes (one lane in each direction) with exclusive turn lanes at the intersections within the study area. Bent Grass Meadows Drive provides a posted speed limit of 35 MPH.

Woodmen Frontage Road is an east-west frontage roadway with County classification as an urban major collector. Two through lanes (one lane in each direction) are provided with shared turn lanes at the intersections within the study area. Woodmen Frontage Road provides a posted speed limit of 35 MPH.

Golden Sage Drive is a north-south roadway having two through lanes (one lane in each direction) with a combination of shared and exclusive turn lanes at the intersection within the study area. Golden Sage Drive is unclassified in the City's MTP. However, per the City's Traffic Criteria Manual and the roadway's estimated right-of-way (ROW) width, Golden Sage Road is assumed to be classified as a collector roadway with a speed limit of 35 MPH.

Falcon Market Place is a recently constructed north-south roadway. Two through lanes (one lane in each direction) are provided with shared turn lanes within the study area. Falcon Market Place is unclassified in County's MTCP. However, pursuant to County Staff review comments, Falcon Market Place is considered to be classified as a non-residential collector roadway and provides a posted speed limit of 25 MPH.

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<sup>1</sup> Major Thoroughfare Plan, City of Colorado Springs, August 2011.

<sup>2</sup> Engineering Criteria Manual, Section III: Traffic Criteria Manual, City of Colorado Springs City Engineering, July 2010.

<sup>3</sup> El Paso County Major Transportation Corridors Plan (MTCP), El Paso County, July 2024.

<sup>4</sup> El Paso County Engineering Criteria Manual, El Paso County, July 2023.

The study intersections of E Woodmen Road with Golden Sage Drive and Meridian Road, as well as the intersection of Meridian Road with Bent Grass Meadows Drive are signalized. The intersection of Woodmen Frontage Road with Falcon Market Place is a roundabout. All other study intersections operate under a stop-controlled condition. A stop-controlled intersection is defined as a roadway intersection where vehicle rights-of-way are controlled by one or more “STOP” signs.

In reference to the County’s MTCP, E Woodmen Road is planned to be widened to six through lanes west of Golden Sage Road. However, in correspondence with County Staff, specific timing of this improvement is undetermined, but may occur as early as 2030. Additionally, pursuant to the Briargate Parkway-Stapleton Road Corridor Preservation Plan<sup>5</sup> (CPP) and Access Control Plan<sup>6</sup> (ACP), Meridian Road is anticipated to be widened to a six-lane principal arterial roadway by Year 2060. For purposes of this analysis, only the E Woodmen Road widening project is assumed to have occurred by Year 2045.

No other regional or specific improvements for the above-described roadways are known to be planned or committed at this time. These study area roadways appear to be built to their ultimate cross-sections.

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<sup>5</sup> Corridor Preservation Plan Briargate Parkway/Stapleton Road Corridor Study, Wilson & Company, January 2022.

<sup>6</sup> Briargate Parkway-Stapleton Road Corridor Study Appendix D: Access Control Plan Draft, El Paso County Department of Public Works, December 2021.

## **II. Existing Traffic Conditions**

Morning (AM) and afternoon (PM) peak hour traffic counts were collected at the intersections of E Woodmen Road with Golden Sage Drive and Meridian Road, as well as Woodmen Frontage Road with Golden Sage Drive, Bent Grass Meadows Drive, and Falcon Market Place, and the intersection of Meridian Road with Bent Grass Meadows Drive. Counts were collected on Wednesday, February 26, 2025, with AM peak hour counts being collected during the period of 7:00 a.m. to 9:00 a.m. and PM peak hour counts being collected during the period of 4:00 p.m. to 6:00 p.m.

Existing volumes and intersection geometry are shown in Figures 3A and 3B, respectively. Traffic count data is included for reference in Appendix A.

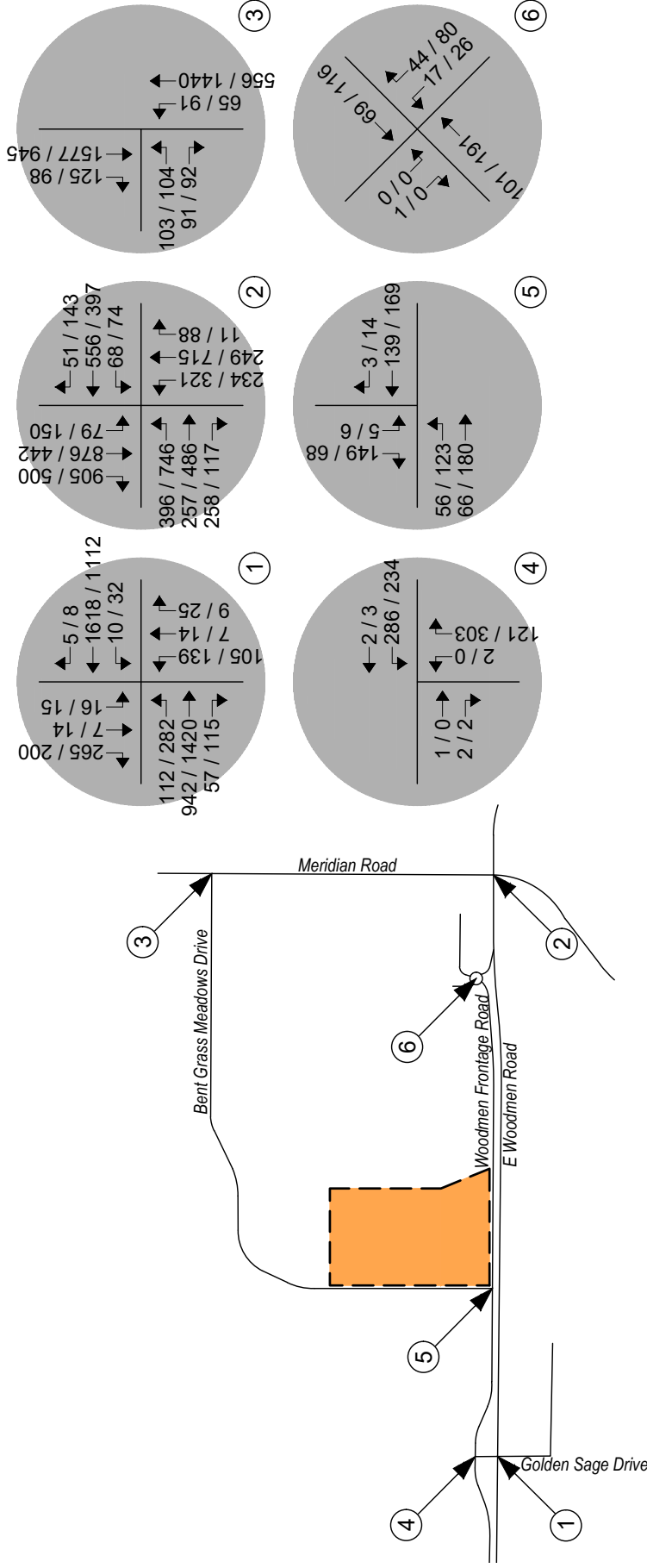
Existing signal timing parameters for study intersections were assumed based on the existing signal head configuration and allowable movements, and pursuant to typical signal timing data described within the County's Engineering Criteria Manual (ECM)<sup>7</sup>. Timings were used throughout this study to the best extent possible to remain consistent with typical City and County signal coordination plans.

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<sup>7</sup> El Paso County Engineering Criteria Manual, El Paso County, October 2020.



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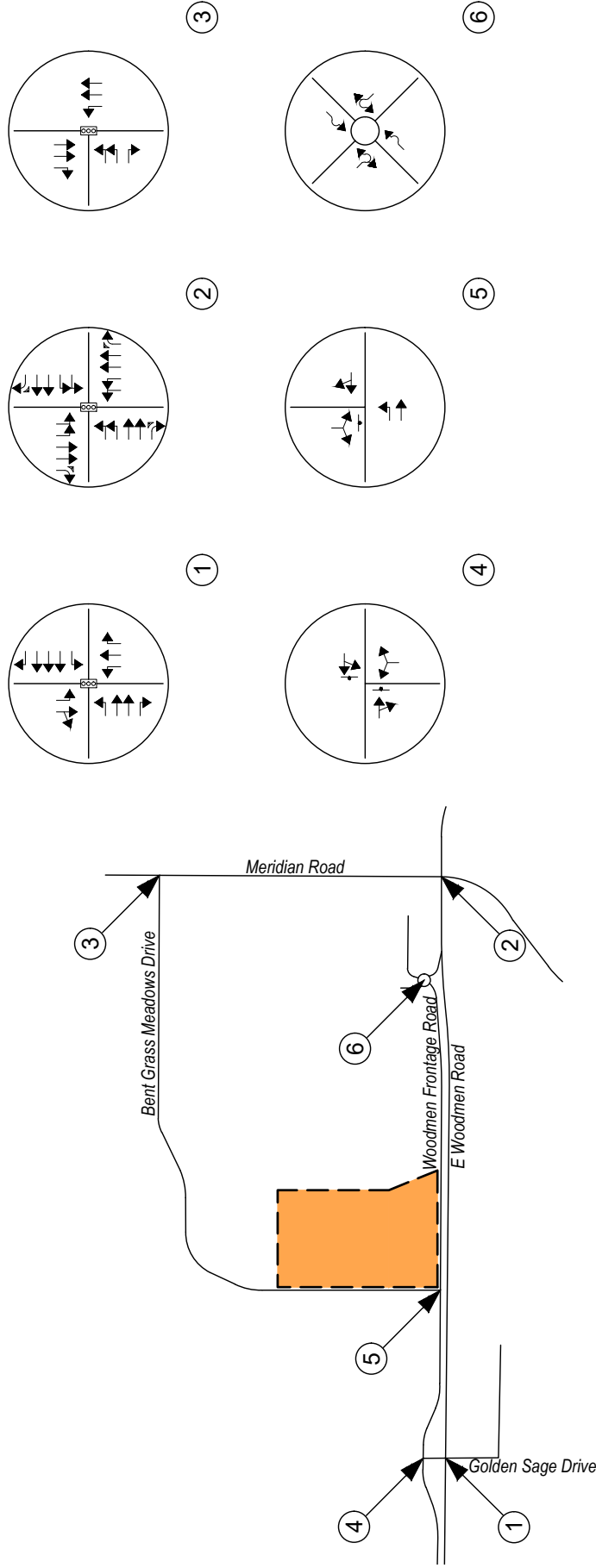
- Study Intersection Volumes
- Development Site

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**Figure 3A**  
**EXISTING TRAFFIC**  
Intersection Volumes  
AM / PM Peak Hour



**LEGEND**

- Study Intersection
- Lane Geometry
- Development Site

### **Peak Hour Intersection Levels of Service – Existing Traffic**

The Signalized, Unsignalized and Roundabout Intersection Analysis techniques, as published in the Highway Capacity Manual (HCM), 7<sup>th</sup> Edition, by the Transportation Research Board and as incorporated into the SYNCHRO computer program, were used to analyze the study intersections for existing and future traffic conditions. These nationally accepted techniques allow for the determination of intersection level of service (LOS) based on the congestion and control delay of each traffic movement.

It should be noted that exceptions include the intersection of Woodmen Frontage Road with Golden Sage Drive which currently operates as a two-way stop-controlled intersection with stop signs located on the eastbound and westbound approaches. HCM 7<sup>th</sup> Edition analysis methods do not provide results for an intersection configuration of this type. Therefore, HCM 2000 methodologies were utilized for determination of LOS at the study intersection.

Level of service is a method of measurement used by transportation professionals to quantify a driver's perception of travel conditions that include travel time, number of stops, and total amount of stopped delay experienced on a roadway network. The HCM categorizes level of service into a range from "A" which indicates little, if any, vehicle delay, to "F" which indicates a level of operation considered unacceptable to most drivers. These levels of service grades with brief descriptions of the operating condition, for unsignalized and signalized intersections, are included for reference in Appendix B and have been used throughout this study.

The level of service analyses results for existing conditions are summarized in Table 1.

Intersection capacity worksheets developed for this study are provided in Appendix C.

**Table 1 – Intersection Capacity Analysis Summary – Existing Traffic**

| INTERSECTION<br>LANE GROUPS                                        | LEVEL OF SERVICE |              |
|--------------------------------------------------------------------|------------------|--------------|
|                                                                    | AM PEAK HOUR     | PM PEAK HOUR |
| E Woodmen Road / Golden Sage Drive (Signalized)                    | C (27.4)         | C (25.5)     |
| E Woodmen Road / Meridian Road (Signalized)                        | C (33.8)         | D (40.1)     |
| Meridian Road / Bent Grass Meadows Drive (Signalized)              | B (13.3)         | B (10.2)     |
| Woodmen Frontage Road / Golden Sage Drive (Stop-Controlled)        |                  |              |
| Eastbound Through and Right                                        | A                | A            |
| Westbound Left and Through                                         | B                | B            |
| Woodmen Frontage Road / Bent Grass Meadows Drive (Stop-Controlled) |                  |              |
| Eastbound Left                                                     | A                | A            |
| Southbound Left and Right                                          | B                | B            |
| Woodmen Frontage Road / Falcon Market Place (Roundabout)           |                  |              |
| Eastbound Through                                                  | A                | A            |
| Westbound Through                                                  | A                | A            |
| Northbound Left and Right                                          | A                | A            |
| Southbound Left and Right                                          | A                | A            |

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
 Stop-Controlled / Roundabout Intersection: Level of Service

### Existing Traffic Analysis Results

Under existing conditions, operational analysis shows that the signalized intersection of E Woodmen Road with Golden Sage Drive has overall operations at LOS C during both the morning and afternoon peak traffic hours.

The signalized intersection of E Woodmen Road with Meridian Road has overall operations at LOS C during the morning peak traffic hour, and LOS D during the afternoon peak traffic hour.

The signalized intersection of Meridian Road with Bent Grass Meadows Drive has overall operations at LOS B during both the morning and afternoon peak traffic hours.

The unsignalized intersection of Woodmen Frontage Road with Golden Sage Drive has turning movement operations at or better than LOS B during both the morning and afternoon peak traffic hours.

The unsignalized intersection of Woodmen Frontage Road with Bent Grass Meadows Drive has turning movement operations at or better than LOS B during both the morning and afternoon peak traffic hours.

The roundabout intersection of Woodmen Frontage Road with Falcon Market Place has turning movement operations at LOS A during both the morning and afternoon peak traffic hours.

### III. Future Traffic Conditions Without Proposed Development

Background traffic is the traffic projected to be on area roadways without consideration of the proposed development. Background traffic includes traffic generated by development of vacant parcels in the area.

To account for projected increases in background traffic for Years 2030 and 2045, a compounded annual growth rate was determined using historical traffic data for the surrounding area provided by CDOT's Online Transportation Information System (OTIS), CDOT's Traffic Count Database System (TCDS)<sup>8</sup>, and using population growth estimates provided by the Pikes Peak Area Council of Governments' (PPACG) 2045 Long Range Transportation Plan<sup>9</sup> along the adjacent segments of E Woodmen Road, Meridian Road, and US Highway 24. These sources indicate an expected 20-year growth rate of approximately 1.3 percent annually. Therefore, an annual growth rate of 1.3 percent was applied to existing traffic volumes. This annual growth rate is assumed to account for general regional growth based on the level of ongoing in-fill development within the area, as well as for recent or newly constructed adjacent developments which may not be in full operational or occupied status.

In addition to the above identified growth rate for regional growth in the area, to account for projected traffic from known adjacent developments not yet built, trip generations from the following traffic studies were added to background traffic volumes as applicable:

- Percheron<sup>10</sup>
- Bent Grass East Commercial Filing No. 3<sup>11</sup>

It is important to note that trip generations from additional adjacent developments were also considered including those from recently construction or partially constructed development areas. This includes the Falcon Marketplace, Owl Place Commercial, and Bent Grass Commercial North development areas, in addition to the adjacent Falcon Meadows at Bent Grass and Banning Lewis Ranch Villages A-D residential subdivisions. However, upon consideration of these developments, and in reference to future volume projections as previously assessed in the Bent Grass East Commercial Filing No. 3 report, it is determined that existing count data already accounts for a portion of the expected traffic from these areas, and calculated future volumes are generally comparable to those previously estimated. It is noted that the Bent Grass East Commercial Filing no. 3 development included trips from these developments as part of background growth estimates. Based on these estimates being similar to those determined in this report, it is concluded that the applied 1.3 percent annual growth rate adequately accounts for other development trip generation not directly added to existing volumes.

It is further noted that considering the substantial number of ongoing developments within the area, future volume projections may be subject to overly conservative estimates and unrealistically portray future conditions. Such over estimation may in turn result in minimizing or detracting from the actual impacts that may result from the currently proposed commercial development.

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<sup>8</sup> Transportation Data Management System, MS2, 2021.

<sup>9</sup> Moving Forward 2045: Pikes Peak Area Regional Transportation Plan, PPACG, January 2020.

<sup>10</sup> Percheron Traffic Impact Study, SM Rocha LLC, October 2021.

<sup>11</sup> Bent Grass East Commercial F3 Updated Traffic Impact Analysis, LSC Transportation Consultants Inc., October 2021.

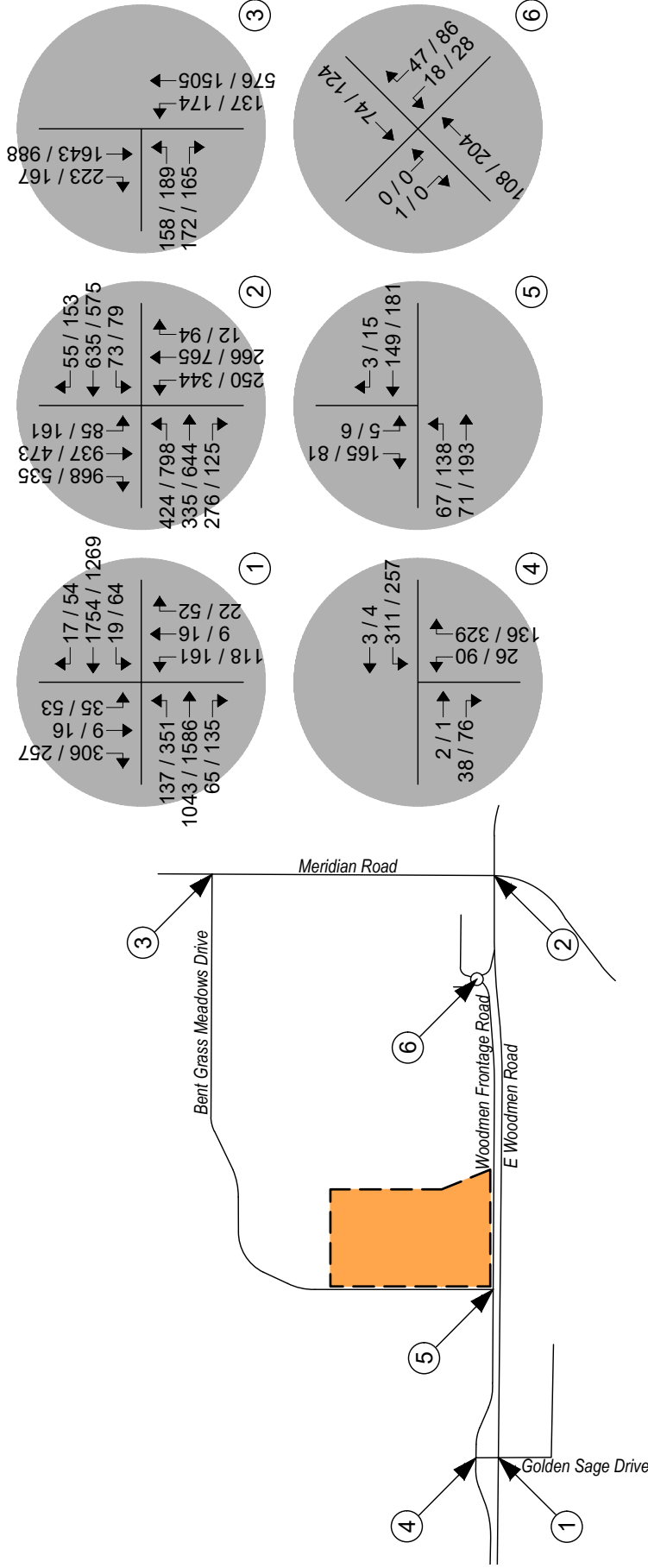
Pursuant to the non-committed area roadway improvements discussed in Section I, Year 2030 and Year 2045 background traffic conditions assume no further improvements with exception to Year 2045 where widening of E Woodmen Road is assumed. This assumption provides for a conservative analysis. Year 2045 assumes existing signal timing parameters for study intersections with optimized intersection splits in effort to better long-term intersection performance.

Projected background traffic volumes and intersection geometry for Year 2030 are shown in Figures 4A and 4B, respectively.

Projected background traffic volumes and intersection geometry for Year 2045 are shown in Figures 5A and 5B, respectively.



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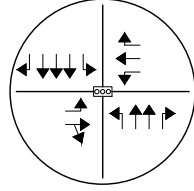
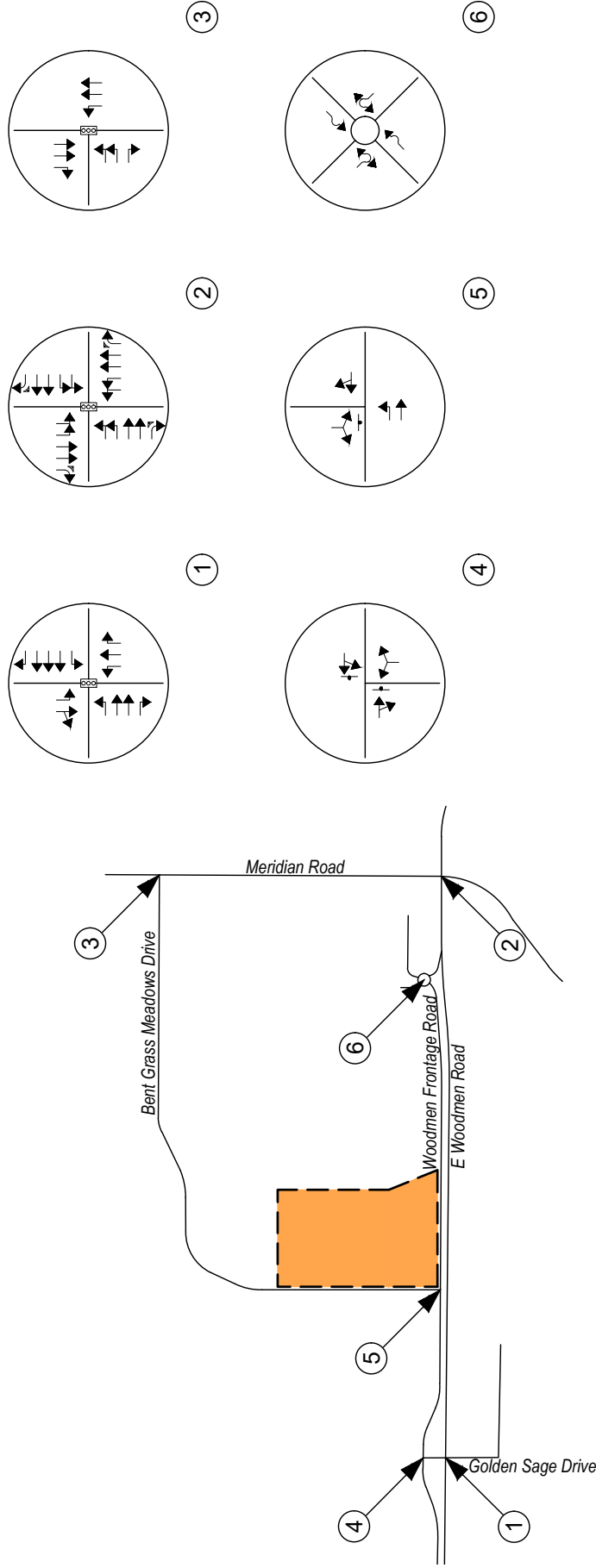
- Study Intersection Volumes
- Development Site

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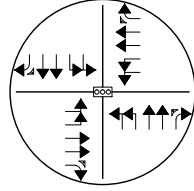


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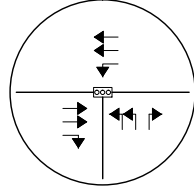
**Figure 4A**  
**BACKGROUND TRAFFIC - YEAR 2030**  
Intersection Volumes  
AM / PM Peak Hour



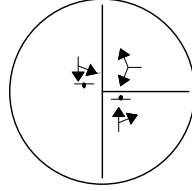
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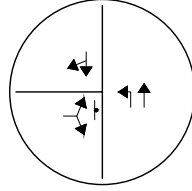
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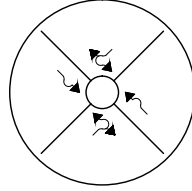
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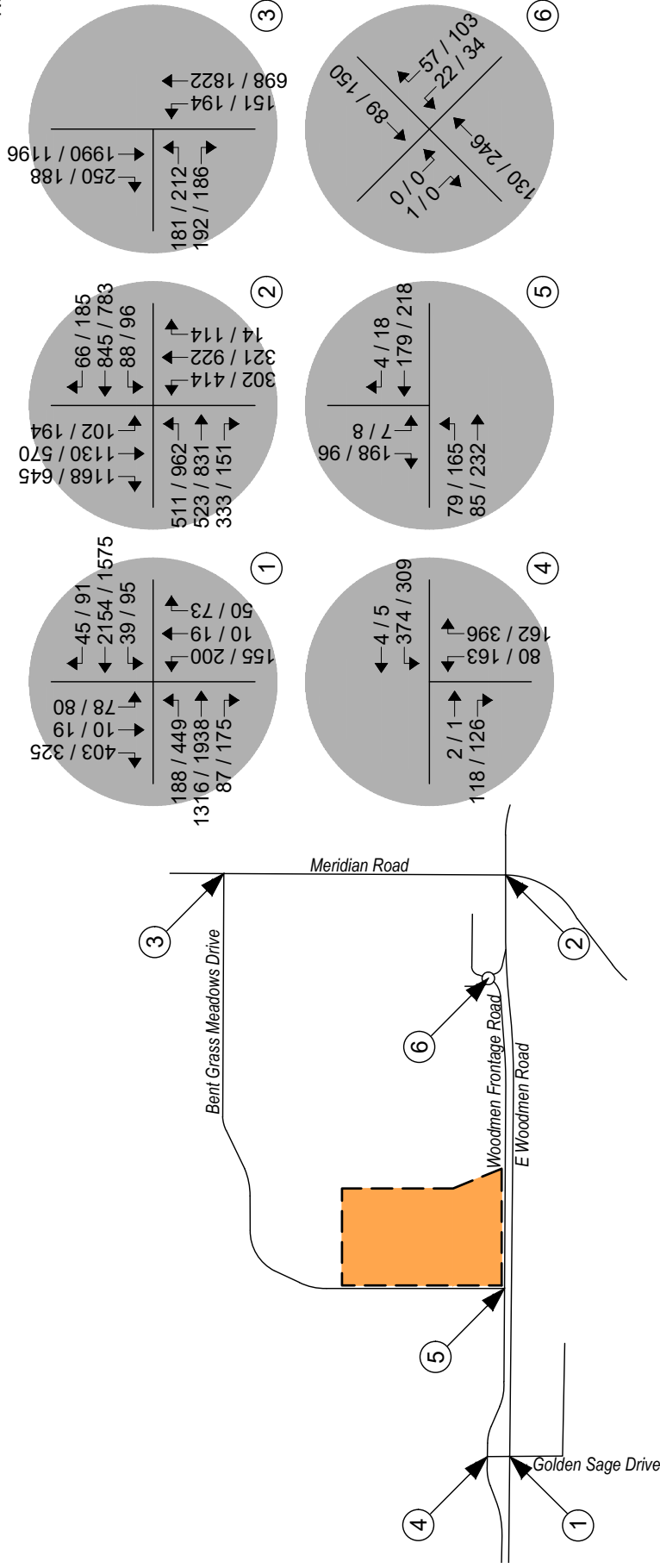
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- Study Intersection
- Lane Geometry
- Development Site



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**LEGEND**

Study Intersection Volumes

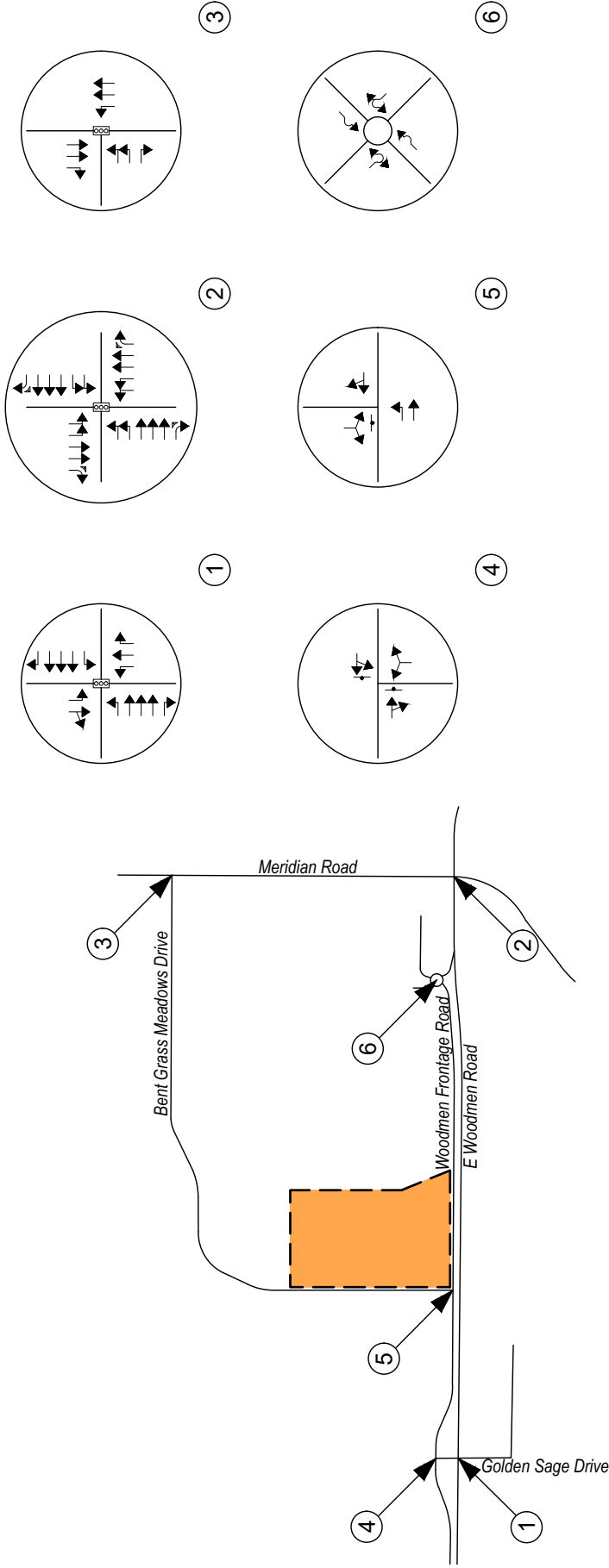
Development Site

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Figure 5A  
BACKGROUND TRAFFIC - YEAR 2045  
Intersection Volumes  
AM / PM Peak Hour



**LEGEND**

Study Intersection

Lane Geometry

Development Site

### Peak Hour Intersection Levels of Service – Background Traffic

As with existing traffic conditions, the operations of study intersections were analyzed under background conditions, without the proposed development, using the SYNCHRO computer program.

Background traffic level of service analysis results for Year 2030 are listed in Table 2. Year 2045 operational results are summarized in Table 3.

Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

**Table 2 – Intersection Capacity Analysis Summary – Background Traffic – Year 2030**

| INTERSECTION<br>LANE GROUPS                                        | LEVEL OF SERVICE |              |
|--------------------------------------------------------------------|------------------|--------------|
|                                                                    | AM PEAK HOUR     | PM PEAK HOUR |
| E Woodmen Road / Golden Sage Drive (Signalized)                    | D (38.3)         | E (56.8)     |
| E Woodmen Road / Meridian Road (Signalized)                        | D (36.8)         | D (44.5)     |
| Meridian Road / Bent Grass Meadows Drive (Signalized)              | B (16.2)         | B (12.5)     |
| Woodmen Frontage Road / Golden Sage Drive (Stop-Controlled)        |                  |              |
| Eastbound Through and Right                                        | A                | A            |
| Westbound Left and Through                                         | B                | D            |
| Woodmen Frontage Road / Bent Grass Meadows Drive (Stop-Controlled) |                  |              |
| Eastbound Left                                                     | A                | A            |
| Southbound Left and Right                                          | B                | B            |
| Woodmen Frontage Road / Falcon Market Place (Roundabout)           |                  |              |
| Eastbound Through                                                  | A                | A            |
| Westbound Through                                                  | A                | A            |
| Northbound Left and Right                                          | A                | A            |
| Southbound Left and Right                                          | A                | A            |

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
Stop-Controlled / Roundabout Intersection: Level of Service

### Background Traffic Analysis Results – Year 2030

Year 2030 background traffic analysis indicates that the signalized intersection of E Woodmen Road with Golden Sage Drive has overall operations at LOS D during the AM peak traffic hour and LOS E during the PM peak traffic hour. The LOS E operation anticipated during the afternoon peak traffic period is attributed to the high eastbound left turning volumes, as well as the northbound left turn movement and high east-west through volumes.

The signalized intersection of E Woodmen Road with Meridian Road has overall operations at LOS D during both the AM and PM peak traffic hours.

The signalized intersection of Meridian Road with Bent Grass Meadows Drive has overall operations at LOS B during both the AM and PM peak traffic hours.

Unsignalized and roundabout intersections within the study area operate at or better than LOS B during the AM peak traffic period and LOS D or better during the PM peak traffic period.

**Table 3 – Intersection Capacity Analysis Summary – Background Traffic – Year 2045**

| INTERSECTION<br>LANE GROUPS                                        | LEVEL OF SERVICE |              |
|--------------------------------------------------------------------|------------------|--------------|
|                                                                    | AM PEAK HOUR     | PM PEAK HOUR |
| E Woodmen Road / Golden Sage Drive (Signalized)                    | D (52.3)         | E (56.6)     |
| E Woodmen Road / Meridian Road (Signalized)                        | D (46.1)         | E (56.8)     |
| Meridian Road / Bent Grass Meadows Drive (Signalized)              | C (22.4)         | B (13.7)     |
| Woodmen Frontage Road / Golden Sage Drive (Stop-Controlled)        |                  |              |
| Eastbound Through and Right                                        | A                | A            |
| Westbound Left and Through                                         | E                | F            |
| Woodmen Frontage Road / Bent Grass Meadows Drive (Stop-Controlled) |                  |              |
| Eastbound Left                                                     | A                | A            |
| Southbound Left and Right                                          | B                | B            |
| Woodmen Frontage Road / Falcon Market Place (Roundabout)           |                  |              |
| Eastbound Through                                                  | A                | A            |
| Westbound Through                                                  | A                | A            |
| Northbound Left and Right                                          | A                | A            |
| Southbound Left and Right                                          | A                | A            |

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
Stop-Controlled / Roundabout Intersection: Level of Service

### Background Traffic Analysis Results – Year 2045

By 2045 and without the assumed development but considering widening of E Woodmen Road from four to six through lanes, the study intersection of E Woodmen Road with Golden Sage Drive experiences LOS E or better operations during both the AM and PM peak traffic hours. Said widening is expected to increase capacity along E Woodmen and allow optimization of signal splits and progression to mitigate poor operations if four through lanes remain.

The study intersection of E Woodmen Road with Meridian Road experiences LOS E or better operations during both the AM and PM peak traffic hours.

The study intersection of Meridian Road with Bent Grass Meadows Drive experiences LOS C operations during the AM peak traffic hour and LOS B during the PM peak traffic hour.

The study intersection of Woodmen Frontage Road with Golden Sage Drive generally experiences LOS A operations during both the AM and PM peak traffic hours. Exceptions include the westbound turning movements which operate at LOS E and LOS F during the AM and PM peak hours,

respectively. These LOS E and LOS F operations are primarily attributed to the high northbound to eastbound, and westbound to southbound traffic volumes, the stop-controlled nature of the Woodmen Frontage Road / Golden Sage Drive intersection, and the signalized control of the adjacent Golden Sage Drive / Woodmen Road intersection. It is to be noted that it is not uncommon for unsignalized movements to or from an arterial roadway, in urban areas, to operate with noticeable delays during peak traffic hours. Considering the existing intersection configuration, the long-term (Year 2045) peak hour analysis projects 95th percentile queue lengths associated with the LOS E and LOS F operations for the westbound left-turn and through movement at Woodmen Frontage Road / Golden Sage Drive to range from approximately 220 to 392 feet (approximately 9 to 16 vehicles assuming 25 feet of average vehicle spacing). It is noted that the closely spaced and signalized intersection of Woodmen Road / Golden Sage Drive is a primary contributor to the projected operational deficiencies at the Woodmen Frontage Road intersection. Existing signal operations at the Woodmen Road intersection are understood to prioritize progression and travel time along the Woodmen Road mainline corridor, which can limit side-street vehicle clearance opportunities and contribute to queue accumulation along Golden Sage Drive and the adjacent frontage road intersection. Potential operational mitigation measures could include refinement of signal timing and phasing at the Woodmen Road / Golden Sage Drive intersection to provide additional side-street vehicle clearance opportunities during peak periods while maintaining acceptable mainline progression along Woodmen Road. Such adjustments may improve the ability of queued vehicles from Woodmen Frontage Road to access Golden Sage Drive and continue through the adjacent signalized intersection. Additional long-term mitigation could include evaluation of signal control at the Golden Sage Drive / Woodmen Frontage Road intersection with coordinated operations integrated with the existing Woodmen Road traffic signal system. Coordinated signal timing, phasing, and offset optimization between the closely spaced intersections could improve overall corridor progression, reduce queue spillback potential, and enhance operational efficiency for both frontage road and side-street traffic movements. Actual mitigation measures, feasibility, and implementation strategies would require further evaluation beyond the scope of this traffic study and would be subject to review and approval by the City of Colorado Springs, as the governing agency responsible for operation and control of the Woodmen Road / Golden Sage Drive / Woodmen Frontage Road intersections.

The study intersection of Woodmen Frontage Road with Bent Grass Meadows Drive experiences LOS B or better operations during both the AM and PM peak traffic hours.

The study roundabout intersection of Woodmen Frontage Road with Falcon Market Place experiences LOS A operations during both the AM and PM peak traffic hours. A separate roundabout analysis was prepared by Galloway and submitted to County Staff for review to confirm that the proposed roundabout design conforms to County standards. Refer to the separate roundabout analysis for additional design details and supporting analysis.

## IV. Proposed Project Traffic

### Trip Generation Estimation

Standard traffic generation characteristics compiled by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual, 12<sup>th</sup> Edition, were applied to the assumed land use to estimate Average Daily Traffic (ADT), AM Peak Hour, and PM Peak Hour vehicle trips. A vehicle trip is defined as a one-way vehicle movement from a point of origin to a point of destination.

The ITE land use codes and corresponding average trip generation rates identified in Table 4 were used for estimating trip generation because they provide a conservative and appropriate representation of the conceptual land use assumptions evaluated within this study. Average rates were intentionally applied in lieu of fitted curve equations given the preliminary and conceptual nature of the assumed land uses, development densities, and site configurations currently under consideration. Use of average rates is considered appropriate at this planning-level stage of analysis where detailed development parameters have not yet been finalized. Additionally, fitted curve equations are not available for certain land uses assumed within this study, further supporting the use of average trip generation rates for consistency and comparative analysis purposes.

As actual land uses, development densities, tenant mixes, access configurations, and site plans within The Markets at Bent Grass development area become more defined over time, it is anticipated that the traffic generation characteristics evaluated within this study may require refinement through more detailed traffic analyses or site-specific studies to assess whether additional transportation improvements may be necessary to mitigate potential traffic impacts. It is emphasized that the land uses and densities assumed within this study are conceptual in nature and represent a conservative assessment of potential full build-out conditions.

Trip generation rates used in this study are presented in Table 4.

**Table 4 – Trip Generation Rates**

| ITE<br>CODE | LAND USE                           | UNIT | TRIP GENERATION RATES |              |       |       |              |       |       |
|-------------|------------------------------------|------|-----------------------|--------------|-------|-------|--------------|-------|-------|
|             |                                    |      | 24                    | AM PEAK HOUR |       |       | PM PEAK HOUR |       |       |
|             |                                    |      | HOURLY                | ENTER        | EXIT  | TOTAL | ENTER        | EXIT  | TOTAL |
| 565         | Day Care Center                    | KSF  | 39.30                 | 5.77         | 5.11  | 10.88 | 5.05         | 5.70  | 10.75 |
| 630         | Walk-In Clinic                     | KSF  | 37.60                 | 2.23         | 0.52  | 2.75  | 1.06         | 2.61  | 3.67  |
| 813         | Free-Standing Discount Superstore  | KSF  | 50.52                 | 1.05         | 0.83  | 1.88  | 2.12         | 2.20  | 4.32  |
| 822         | Strip Retail Plaza (<40K)          | KSF  | 54.45                 | 2.16         | 1.77  | 3.93  | 3.15         | 3.15  | 6.29  |
| 850         | Supermarket                        | KSF  | 92.29                 | 1.74         | 1.21  | 2.95  | 4.40         | 4.40  | 8.79  |
| 862         | Home Improvement Superstore        | KSF  | 30.65                 | 0.86         | 0.65  | 1.50  | 1.12         | 1.16  | 2.28  |
| 912         | Drive-In Bank                      | KSF  | 98.95                 | 5.77         | 4.18  | 9.95  | 10.52        | 10.52 | 21.03 |
| 930         | Fast Casual Restaurant             | KSF  | 225.89                | 1.01         | 0.57  | 1.58  | 7.61         | 6.74  | 14.35 |
| 934         | Fast-Food Restaurant w/DTW         | KSF  | 448.12                | 16.95        | 16.29 | 33.24 | 16.43        | 15.17 | 31.60 |
| 937         | Coffee/Donut Shop w/DTW            | KSF  | 600.50                | 43.56        | 41.85 | 85.41 | 19.50        | 19.50 | 39.00 |
| 943         | Automobile Parts/Service Center    | KSF  | 16.60                 | 1.38         | 0.53  | 1.91  | 0.80         | 1.26  | 2.06  |
| 945         | Conv. Store/Gas Station (VFP 9-15) | KSF  | 579.86                | 24.30        | 24.30 | 48.60 | 25.04        | 25.04 | 50.08 |

Key: KSF = Thousand Square Feet Gross Floor Area.

Note: 1) All data and calculations above are subject to being rounded to nearest value.

Table 5 illustrates the projected ADT, AM Peak Hour, and PM Peak Hour traffic volumes anticipated to be generated by the assumed development at full build-out based on the average trip generation rates presented in Table 4.

**Table 5 – Trip Generation Summary**

| ITE<br>CODE   | LAND USE                           | SIZE      | TOTAL TRIPS GENERATED |              |            |              |              |              |              |
|---------------|------------------------------------|-----------|-----------------------|--------------|------------|--------------|--------------|--------------|--------------|
|               |                                    |           | 24<br>HOUR            | AM PEAK HOUR |            |              | PM PEAK HOUR |              |              |
| 565           | Day Care Center                    | 15.0 KSF  | 590                   | 86           | 77         | 163          | 76           | 85           | 161          |
| 630           | Walk-In Clinic                     | 10.0 KSF  | 376                   | 22           | 5          | 28           | 11           | 26           | 37           |
| 813           | Free-Standing Discount Superstore  | 140.0 KSF | 7,073                 | 147          | 116        | 263          | 296          | 308          | 605          |
| 822           | Strip Retail Plaza (<40K)          | 10.5 KSF  | 572                   | 23           | 19         | 41           | 33           | 33           | 66           |
| 850           | Supermarket                        | 23.0 KSF  | 2,123                 | 40           | 28         | 68           | 101          | 101          | 202          |
| 862           | Home Improvement Superstore        | 110.0 KSF | 3,372                 | 94           | 71         | 165          | 123          | 128          | 251          |
| 912           | Drive-In Bank                      | 4.0 KSF   | 396                   | 23           | 17         | 40           | 42           | 42           | 84           |
| 930           | Fast Casual Restaurant             | 5.0 KSF   | 1,129                 | 5            | 3          | 8            | 38           | 34           | 72           |
| 934           | Fast-Food Restaurant w/DTW         | 8.5 KSF   | 3,809                 | 144          | 138        | 283          | 140          | 129          | 269          |
| 937           | Coffee/Donut Shop w/DTW            | 1.8 KSF   | 1,081                 | 78           | 75         | 154          | 35           | 35           | 70           |
| 943           | Automobile Parts/Service Center    | 10.0 KSF  | 166                   | 14           | 5          | 19           | 8            | 13           | 21           |
| 945           | Conv. Store/Gas Station (VFP 9-15) | 5.0 KSF   | 2,899                 | 122          | 122        | 243          | 125          | 125          | 250          |
| <i>Total:</i> |                                    |           | <b>23,585</b>         | <b>799</b>   | <b>675</b> | <b>1,474</b> | <b>1,028</b> | <b>1,060</b> | <b>2,087</b> |

Key: KSF = Thousand Square Feet Gross Floor Area.

Note: 1) All data and calculations above are subject to being rounded to nearest value.

2) ITE Code 930 total KSF analyzed assumes multiple units within ITE data range for traffic generation estimating.

Upon build-out of assumed land uses and densities, Table 5 illustrates that the proposed development has the potential to generate approximately 23,585 daily vehicle trips with 1,474 of those occurring during the morning peak hour and 2,087 during the afternoon peak hour.

### Adjustments to Trip Generation Rates

It is considered likely that a mixed-use development of this type will attract trips from within area land uses. Utilizing research obtained by the National Cooperative Highway Research Program (NCHRP), ITE created an estimation tool<sup>12</sup> for determining internal capture for mixed-use developments. Using NCHRP Report 684 methodology, it was determined that the assumed land uses have potential for 8 to 14 percent of peak hour trips being captured internally. A conservative potential capture reduction of ten percent was applied. It is noted that, given the conceptual nature of the assumed land uses, the estimated internal capture percentage may be subject to change and could potentially increase as development details become more defined. However, the estimate is considered reasonable and typical for mixed-use commercial developments.

ITE's internal capture spreadsheets are provided for reference in Appendix B.

<sup>12</sup> NCHRP Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments, National Cooperative Highway Research Program, October 2010.

Table 6 illustrates projected ADT, AM Peak Hour, and PM Peak Hour traffic volumes likely generated by the assumed development upon build-out with reductions applied due to internal capture.

**Table 6 – Trip Generation Summary with Reductions**

| ITE<br>CODE                        | LAND USE                           | SIZE      | TOTAL EXTERNAL TRIPS GENERATED |              |      |       |              |      |       |
|------------------------------------|------------------------------------|-----------|--------------------------------|--------------|------|-------|--------------|------|-------|
|                                    |                                    |           | 24<br>HOUR                     | AM PEAK HOUR |      |       | PM PEAK HOUR |      |       |
|                                    |                                    |           |                                | ENTER        | EXIT | TOTAL | ENTER        | EXIT | TOTAL |
| 565                                | Day Care Center                    | 15.0 KSF  | 590                            | 86           | 77   | 163   | 76           | 85   | 161   |
| 630                                | Walk-In Clinic                     | 10.0 KSF  | 376                            | 22           | 5    | 28    | 11           | 26   | 37    |
| 813                                | Free-Standing Discount Superstore  | 140.0 KSF | 7,073                          | 147          | 116  | 263   | 296          | 308  | 605   |
| 822                                | Strip Retail Plaza (<40K)          | 10.5 KSF  | 572                            | 23           | 19   | 41    | 33           | 33   | 66    |
| 850                                | Supermarket                        | 23.0 KSF  | 2,123                          | 40           | 28   | 68    | 101          | 101  | 202   |
| 862                                | Home Improvement Superstore        | 110.0 KSF | 3,372                          | 94           | 71   | 165   | 123          | 128  | 251   |
| 912                                | Drive-In Bank                      | 4.0 KSF   | 396                            | 23           | 17   | 40    | 42           | 42   | 84    |
| 930                                | Fast Casual Restaurant             | 5.0 KSF   | 1,129                          | 5            | 3    | 8     | 38           | 34   | 72    |
| 934                                | Fast-Food Restaurant w/DTW         | 8.5 KSF   | 3,809                          | 144          | 138  | 283   | 140          | 129  | 269   |
| 937                                | Coffee/Donut Shop w/DTW            | 1.8 KSF   | 1,081                          | 78           | 75   | 154   | 35           | 35   | 70    |
| 943                                | Automobile Parts/Service Center    | 10.0 KSF  | 166                            | 14           | 5    | 19    | 8            | 13   | 21    |
| 945                                | Conv. Store/Gas Station (VFP 9-15) | 5.0 KSF   | 2,899                          | 122          | 122  | 243   | 125          | 125  | 250   |
| <i>Internal Capture Reduction:</i> |                                    |           | 10%                            | 10%          | 10%  | 10%   | 10%          | 10%  | 10%   |
| <i>Total External Trips:</i>       |                                    |           | 21,226                         | 719          | 608  | 1,327 | 925          | 954  | 1,879 |

Key: KSF = Thousand Square Feet Gross Floor Area.

Note: 1) All data and calculations above are subject to being rounded to nearest value.

2) ITE Code 930 total KSF analyzed assumes multiple units within ITE data range for traffic generation estimating.

Upon assumed build-out with consideration for internal capture trip reductions, Table 6 presents that the conceptual development has the potential to generate approximately 21,226 daily trips with 1,327 of those occurring during the morning peak hour and 1,879 during the afternoon peak hour.

### Trip Distribution

To assess the potential impacts and benefits associated with the addition of a new intersection on E. Woodmen Road, the Year 2030 and 2045 Background Traffic Volumes were reassessed for the Total Traffic Volume analysis to establish a baseline condition from which total build-out traffic conditions could be evaluated. This reassessment considers a scenario in which the assumed intersection is constructed without the proposed commercial development. Construction of this intersection is considered likely to have a direct impact on ideal routes for existing traffic attempting to access current residential and commercial sites located along Woodmen Frontage Road. Typically, drivers select routes based on a combination of the shortest path from point of origin to destination, ease of navigation, relative speed and travel time, and existing congestion. Considering these factors, Year 2030 and 2045 background traffic volumes were assessed and redistributed to utilize the new intersection. Assumptions regarding new preferred routes are generally described as follows:

- Assumed development access by way of a new full-movement intersection to be located on E Woodmen Road. Said intersection would be anticipated to provide a new access drive (referred to as Bent Grass Meadows Drive) connecting to Woodmen Frontage Road, which in turn would

be realigned to provide additional separation between the two roadways. The access is assumed to be positioned approximately one-half mile east of the E Woodmen Road intersection with Golden Sage Road to allow for adequate corridor progression. Additionally, to ensure minimal disruption to through volumes along the E Woodmen Road corridor, the intersection is assumed to be designed as a Continuous Green T-Intersection (CGT) providing no interruption to eastbound through traffic. Provision of such intersection is believed likely to provide improved site connectivity in addition to offering an alternative route for existing and background trips seeking to access the Falcon Meadows area that currently utilize the Golden Sage Drive intersection to do so.

- Vehicle trips traveling eastbound on E Woodmen Road to Golden Sage Drive, then traveling eastbound along Woodmen Frontage Road to either Bent Grass Meadows Drive or continuing east, are expected to choose the more direct route provided by the new intersection. Likewise, the inverse of this route for vehicles seeking to head westbound on E Woodmen Road via the Golden Sage Drive intersection, are also considered more likely to access E Woodmen Road via the new intersection. In general, it is assumed that as much as 90 percent of existing trips utilizing these routes would change their path upon installation of the new intersection as it provides a more direct connection to E Woodmen Road.
- Some vehicle trips performing an eastbound right turn/northbound left turn at the intersection of Bent Grass Meadows Drive with Meridian Road are also assumed to consider the alternative route of access Falcon Meadows Residential development areas by instead performing a westbound right turn at the new intersection along E Woodmen Road. Such a route is considered to offer a comparable travel time and distance depending on the final destination of a given vehicle on Bent Grass Meadows Drive. For analysis purposes it is assumed that as much as 10 percent of existing trips utilizing this route may change their path.
- Additionally, vehicles performing an eastbound left turn movement at the intersection of E Woodmen Road with Meridian Road to head northbound on Meridian Road to Eastonville Road for access to the Falcon Marketplace commercial development, or adjacent residential development, are considered likely instead perform a westbound left turn movement at the new intersection. For analysis purposes it is assumed that as much as 20 percent of existing vehicle trips may choose this new route given that it provides a shorter path to access parts of the existing land uses when approaching from the west, while also avoiding likely congestion from the high projected volume of westbound left turns at the Meridian Road intersection.

Utilizing the above, the overall directional distribution of site-generated traffic was determined based on the location of development site within the County, proposed and existing area land uses, allowed turning movements, available roadway network, and in reference to distribution patterns of existing traffic count data.

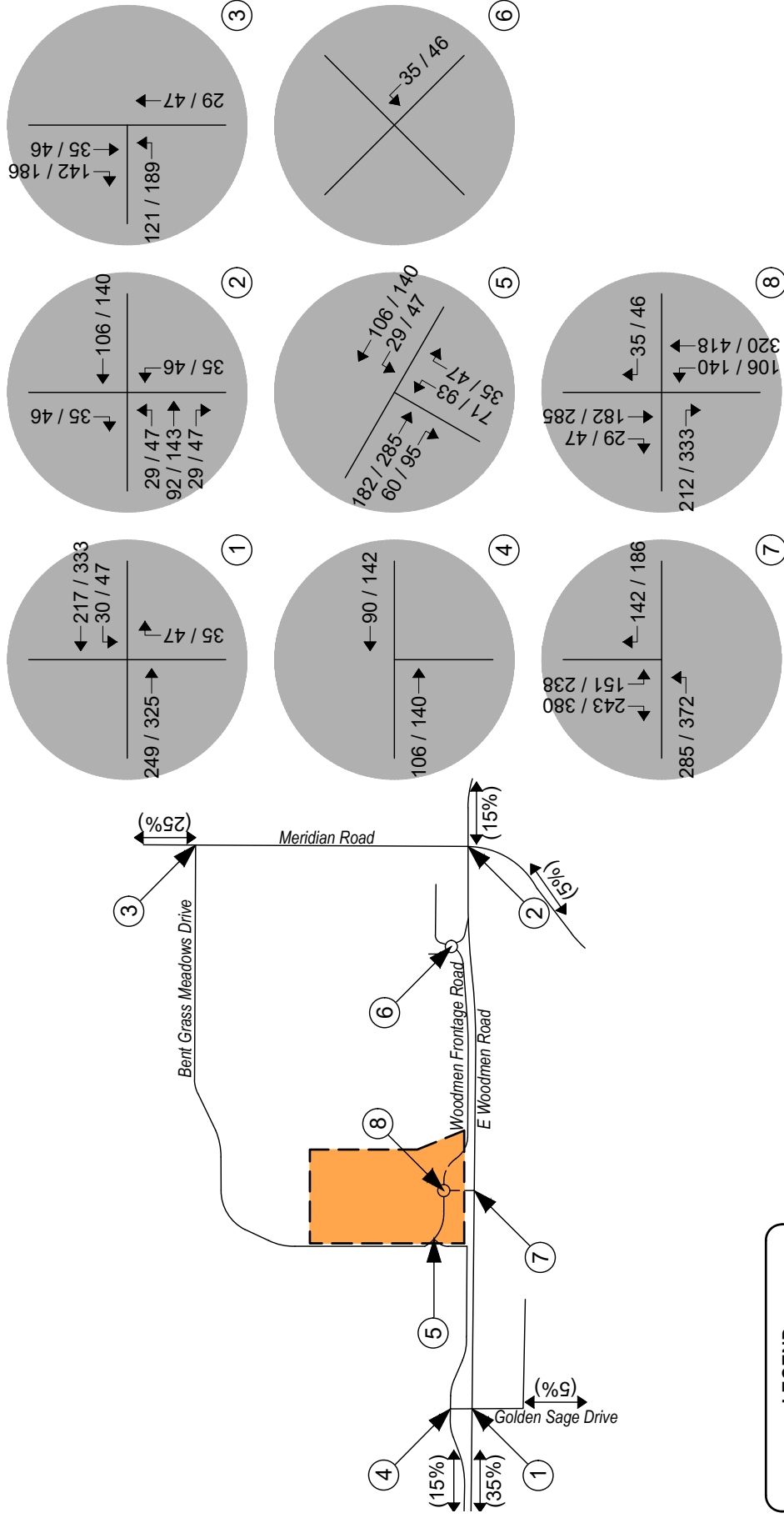
Overall trip distribution patterns for the development are shown on Figure 6.

### **Trip Assignment**

Traffic assignment is how generated and distributed vehicle trips are expected to be loaded onto the available roadway network. Applying trip distribution patterns to site-generated traffic provides the overall site-generated trip assignments shown on Figure 6.



Not to Scale



**LEGEND**

- Study Intersection
- Volumes
- Development Site

**Figure 6**  
**SITE DEVELOPMENT DISTRIBUTION**  
(%) : Overall  
**SITE-GENERATED TRIPS**  
AM / PM Peak Hour

**THE MARKETS AT BENT GRASS**  
Traffic Impact Study



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## **V. Future Traffic Conditions With Proposed Development**

Total traffic is the traffic projected to be on area roadways with consideration of the assumed development. Total traffic includes background traffic projections for Years 2030 and 2045 with consideration of site-generated traffic. For analysis purposes, it was assumed that development construction would be completed by end of Year 2030.

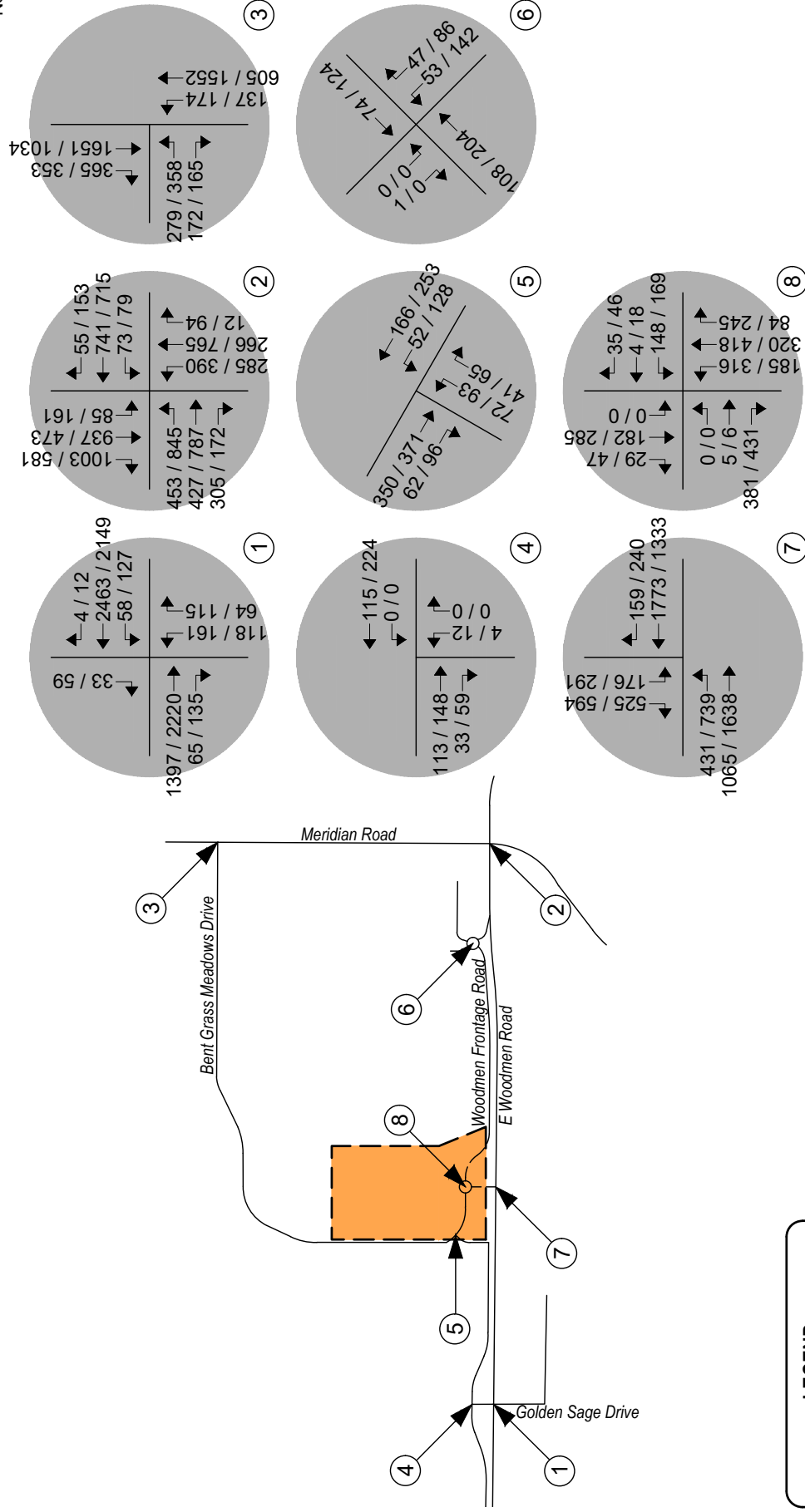
Pursuant to area roadway improvement discussions provided in Section III, Year 2030 and Year 2045 total traffic conditions assume the CGT intersections, applicable auxiliary lanes, and realignment of Woodmen Frontage Road. Roadway improvements associated with site development are expected to be limited to site access and frontage as required by the governing agency. As discussed for Year 2045 Background Traffic Conditions, E Woodmen Road is assumed as a six-lane roadway.

Projected Year 2030 total traffic volumes and intersection geometry are shown in Figures 7A and 7B, respectively.

Figures 8A and 8B show projected total traffic volumes and intersection geometry for Year 2045, respectively.



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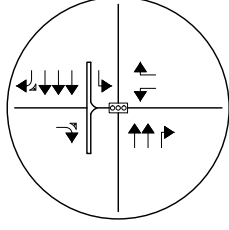
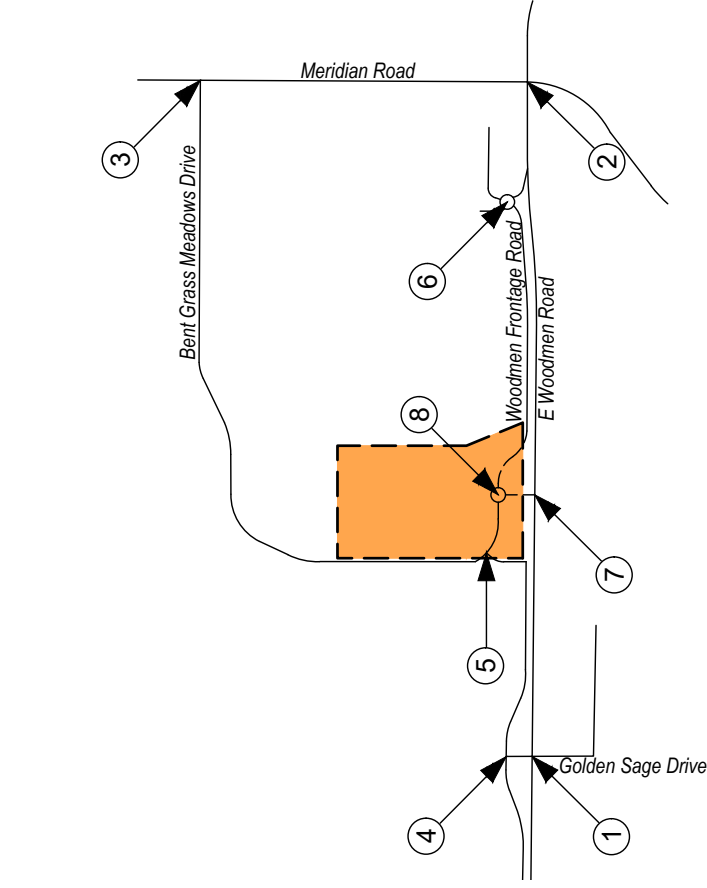


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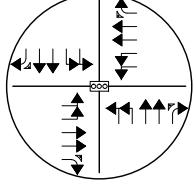
- Study Intersection Volumes
- Development Site



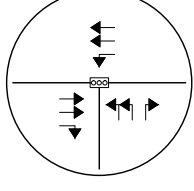
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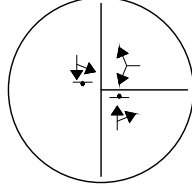
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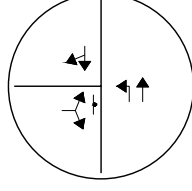
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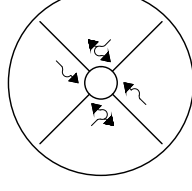
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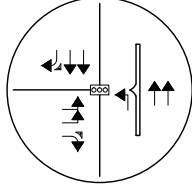
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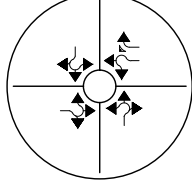
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6



7



8

**LEGEND**

Study Intersection  
Lane Geometry

Development Site

**THE MARKETS AT BENT GRASS**  
Traffic Impact Study

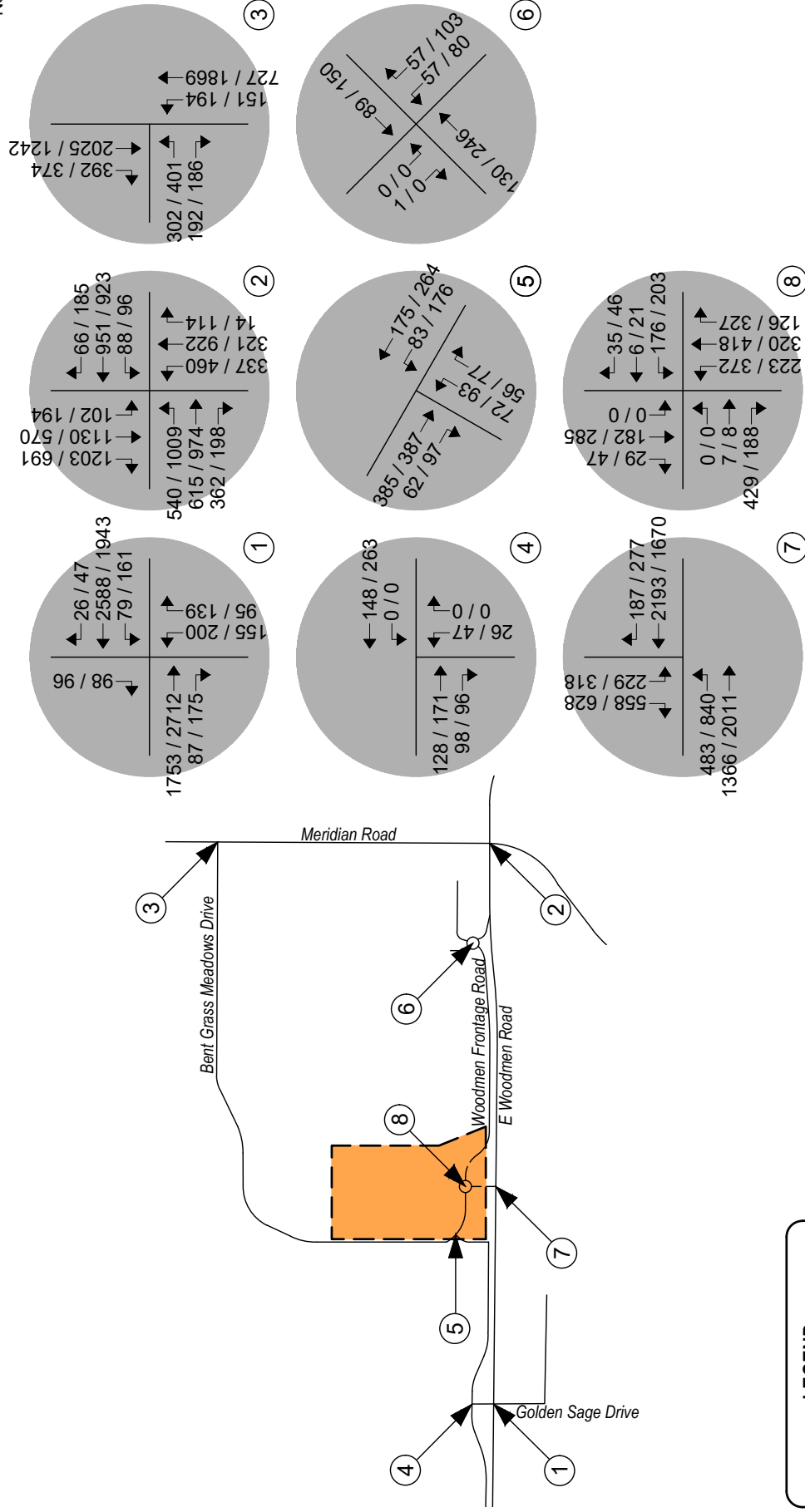
**Figure 7B**  
**TOTAL TRAFFIC - YEAR 2030**  
Intersection Geometry

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August 2026  
Page 28



Not to Scale

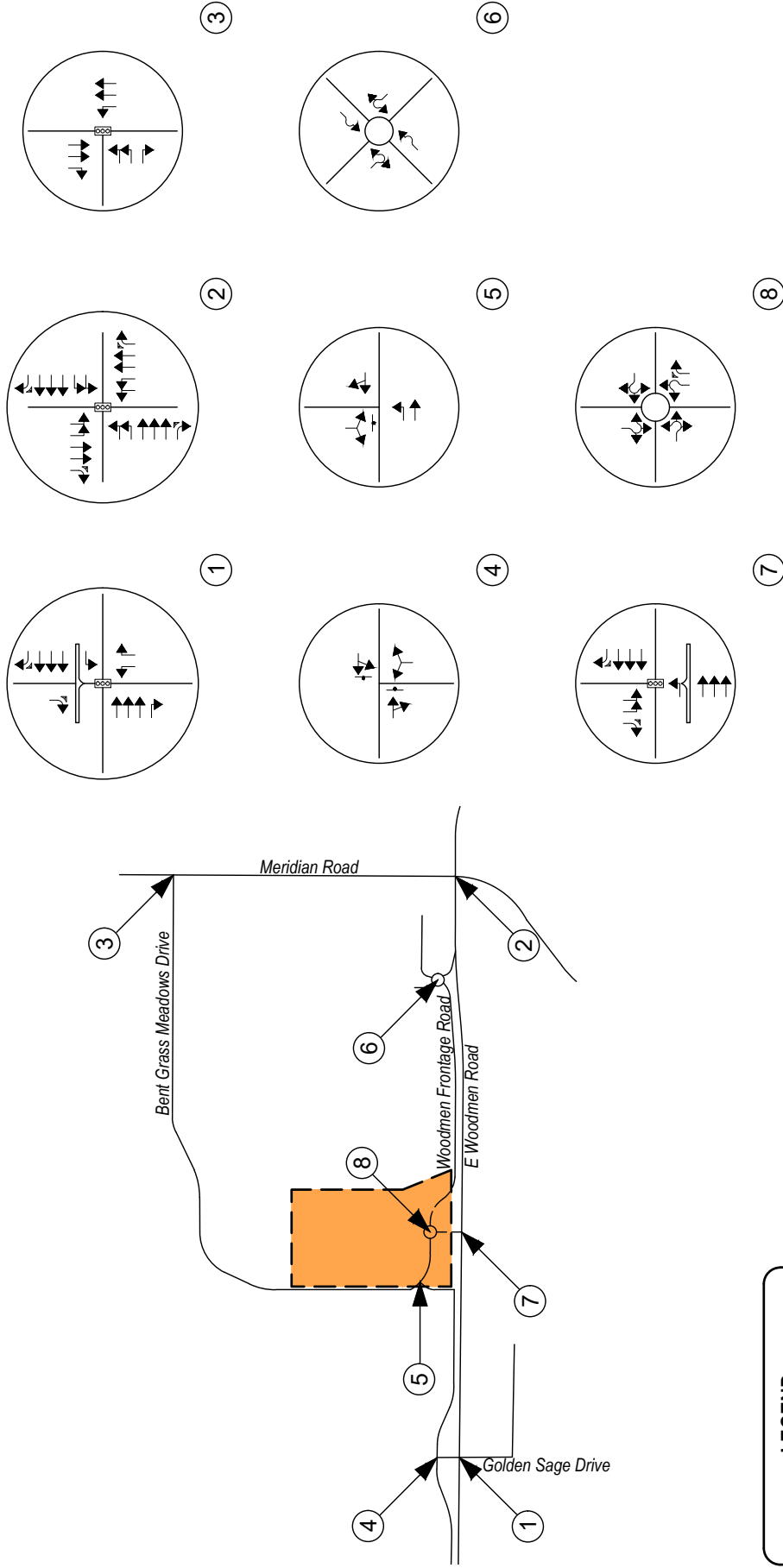


**LEGEND**

- Study Intersection Volumes
- Development Site

**THE MARKETS AT BENT GRASS**  
Traffic Impact Study

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### Peak Hour Intersection Levels of Service – Total Traffic

As with background traffic, the operations of the study intersections were analyzed under projected total traffic conditions using the SYNCHRO computer program. The analyses and procedures were performed in accordance with the latest HCM and are based upon the worst-case conditions that occur during a typical weekday upon build-out of site development and analyzed land uses. Therefore, study intersections are likely to operate with traffic conditions better than those described within this study, which represent the peak hours of weekday operations only.

Total traffic level of service analysis results for Years 2030 and 2045 are summarized in Table 6 and Table 7, respectively.

Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

**Table 6 – Intersection Capacity Analysis Summary – Total Traffic – Year 2030**

| INTERSECTION<br>LANE GROUPS                                        | LEVEL OF SERVICE |              |
|--------------------------------------------------------------------|------------------|--------------|
|                                                                    | AM PEAK HOUR     | PM PEAK HOUR |
| E Woodmen Road / Golden Sage Drive (Signalized)                    | A (8.1)          | D (36.8)     |
| E Woodmen Road / Meridian Road (Signalized)                        | D (41.6)         | D (50.8)     |
| Meridian Road / Bent Grass Meadows Drive (Signalized)              | B (17.4)         | B (16.6)     |
| E Woodmen Road / Bent Grass Meadows Drive (Signalized)             | D (43.2)         | D (50.5)     |
| Woodmen Frontage Road / Golden Sage Drive (Stop-Controlled)        |                  |              |
| Eastbound Through and Right                                        | A                | B            |
| Westbound Left and Through                                         | A                | B            |
| Woodmen Frontage Road / Bent Grass Meadows Drive (Stop-Controlled) |                  |              |
| Westbound Left                                                     | A                | A            |
| Northbound Left and Right                                          | C                | D            |
| Woodmen Frontage Road / Falcon Market Place (Roundabout)           |                  |              |
| Eastbound Through                                                  | A                | A            |
| Westbound Through                                                  | A                | A            |
| Northbound Left and Right                                          | A                | A            |
| Southbound Left and Right                                          | A                | A            |
| Woodmen Frontage Road / Bent Grass Meadows Drive (Roundabout)      |                  |              |
| Eastbound Left, Through and Right                                  | A                | B            |
| Westbound Left, Through and Right                                  | A                | A            |
| Northbound Left and Through                                        | A                | A            |
| Southbound Left, Through and Right                                 | A                | A            |

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
Stop-Controlled / Roundabout Intersection: Level of Service

**Table 7 – Intersection Capacity Analysis Summary – Total Traffic – Year 2045**

| INTERSECTION<br>LANE GROUPS                                                                                                                                                                                  | LEVEL OF SERVICE |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|
|                                                                                                                                                                                                              | AM PEAK HOUR     | PM PEAK HOUR     |
| E Woodmen Road / Golden Sage Drive (Signalized)                                                                                                                                                              | B (11.1)         | C (23.2)         |
| E Woodmen Road / Meridian Road (Signalized)                                                                                                                                                                  | E (55.6)         | E (69.4)         |
| Meridian Road / Bent Grass Meadows Drive (Signalized)                                                                                                                                                        | C (24.2)         | B (18.2)         |
| E Woodmen Road / Bent Grass Meadows Drive (Signalized)                                                                                                                                                       | C (34.6)         | D (52.9)         |
| Woodmen Frontage Road / Golden Sage Drive (Stop-Controlled)<br>Eastbound Through and Right<br>Westbound Left and Through                                                                                     | B<br>B           | B<br>B           |
| Woodmen Frontage Road / Bent Grass Meadows Drive (Stop-Controlled)<br>Westbound Left<br>Northbound Left and Right                                                                                            | A<br>C           | A<br>E           |
| Woodmen Frontage Road / Falcon Market Place (Roundabout)<br>Eastbound Through<br>Westbound Through<br>Northbound Left and Right<br>Southbound Left and Right                                                 | A<br>A<br>A<br>A | A<br>A<br>A<br>A |
| Woodmen Frontage Road / Bent Grass Meadows Drive (Roundabout)<br>Eastbound Left, Through and Right<br>Westbound Left, Through and Right<br>Northbound Left and Through<br>Southbound Left, Through and Right | A<br>A<br>A<br>A | B<br>A<br>A<br>A |

Key: Signalized Intersection: Level of Service (Control Delay in sec/veh)  
 Stop-Controlled / Roundabout Intersection: Level of Service

### Total Traffic Analysis Results Upon Assumed Development Build-Out

Table 7 illustrates how, by Year 2045 and upon assumed development build-out, the CGT intersection of E Woodmen Road with Golden Sage Drive shows an LOS C or better operation during both the morning and afternoon peak traffic hours.

The signalized intersection of E Woodmen Road with Meridian Road is projected to have morning peak traffic hour operations at LOS D and afternoon peak traffic hour operations at LOS E.

The signalized intersection of Meridian Road with Bent Grass Meadows Drive is projected to have LOS C operations for the morning peak traffic hour and LOS B for the afternoon peak traffic hour.

The stop-controlled intersection of Woodmen Frontage Road with Golden Sage Drive has a long-term projection to have turn movement operations at LOS B for the morning and afternoon peak traffic hours.

The stop-controlled intersection of Woodmen Frontage Road and Bent Grass Meadows Drive is projected to operate at LOS C or better during the morning peak hour and LOS E or better during the afternoon peak hour. The projected LOS E operation is limited to the northbound left- and right-turn movements and results from the conservative traffic volume assumptions used in the analysis, together with the stop-controlled nature of the intersection. No mitigation is recommended at this time, as the projected operation represents a long-range planning condition based on conservative assumptions and does not warrant improvements under the current conceptual development scenario.

The stop-controlled intersection of Woodmen Frontage Road with Falcon Market Place is projected to have traffic operations at LOS A during both morning and afternoon peak traffic hours.

## **VI. Project Impacts**

It is emphasized that the analyses and procedures described in this study were performed in accordance with the latest HCM and are based upon the worst-case conditions that occur during a typical weekday upon build-out of site development and analyzed land uses. Therefore, study intersections are likely to operate with traffic conditions better than those described within this study, which represent the peak hours of weekday operations only.

### **Development Impacts**

Analysis of future traffic conditions indicates that the addition of site-generated traffic is expected to cause some impact to the existing and surrounding roadway system. However, upon consideration of new additional access onto E Woodmen Road, it is concluded that the development can be accommodated without causing negative impact to future projected operations. It is noted that some delay is still anticipated under long-term scenarios, however the primary cause of this delay is identified as being due to high eastbound and westbound through volumes along E Woodmen Road. With all conservative assumptions defined in this analysis, and with application of applicable mitigation measures, the study intersections are projected to operate at future levels of service comparable to Year 2045 background traffic conditions.

It is however emphasized that as actual land uses, densities, or site plans within The Markets at Bent Grass development area become defined over time, it is expected that traffic generation characteristics considered within this study will need to be updated by more specific traffic analyses or studies to help assess if transportation improvements are needed to mitigate potential traffic impacts.

### **Recommended Improvements**

Beyond standard frontage improvements required by the County and pursuant to the analyses performed, it is recommended that additional direct access to E Woodmen Road be provided to provide mitigation to congestion on side streets, as well as along the E Woodmen Road corridor for specific turning movements. Analysis results indicate that this addition would not only provide benefit to the proposed commercial development but would also likely improve operations for background traffic conditions and continued regional growth.

Additionally, it is noted that to accommodate long-term regional traffic growth along the E Woodmen Road corridor, and to maintain acceptable intersection operations, it is recommended that E Woodmen Road be widened from four to six through lanes prior to Year 2045.

Table 8 illustrates the recommended roadway and intersection control improvements associated with the proposed development and adjacent area.

**Table 8 – Recommended Improvements Summary**

| IMPROVEMENT                                                                                                                                                      | TYPE                  | TIMING                                                           | RESPONSIBILITY                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------|-----------------------------------------------------------------|
| New direct full-movement (CGT) intersection with associated auxiliary lanes on Woodmen Road east of existing Bent Grass Meadows Drive                            | Access / Intersection | Upon Development                                                 | Applicable Developer or other Party                             |
| Conversion of existing full movement signalized Woodmen Road / Golden Sage Road intersection to full-movement (CGT) intersection with associated auxiliary lanes | Access / Intersection | Upon Development                                                 | Applicable Developer or other Party                             |
| Realignment of Woodmen Frontage Road and Bent Grass Meadows Drive for accommodation of new direct full movement CGT intersection on Woodmen Road                 | Roadway Segment       | Upon Development                                                 | Applicable Developer or other Party                             |
| Construct new roundabout (RAB) with Woodmen Frontage Road realignment                                                                                            | Access / Intersection | Upon Development                                                 | Applicable Developer or other Party                             |
| Widen Woodmen Road to six-lane cross-section east of Golden Sage Road to Meridian Road                                                                           | Roadway Segment       | When warranted. Based on Expressway Classification per 2040 MTCP | Master planned. Whoever warrants the need; i.e., County or City |

Note: 1) Final improvement responsibility to be determined with actual development

## Sight Distance Analysis

A preliminary sight distance assessment was performed pursuant to Section 2.4 of the County's ECM for the proposed site accesses along the realigned Bent Grass Meadows Drive. For purposes of this analysis, it was assumed that the roadway realignment will include a reduced posted speed limit of 25 MPH. Pursuant to Table 2-35 of the ECM, the required entering sight distance for access onto a two-lane public roadway with a posted speed limit of 25 MPH is 325 feet.

In review of the conceptual site plan, as shown in Figure 2, it is noted that there is some overlap of sight distance areas between the accesses proposed. However, no other significant obstructions or hindrances to sight distance are identified. It is noted that pursuant to County criteria, access spacing should provide sufficient separation to accommodate the necessary sight distance areas. However, with consideration for the proximity of the new roundabout intersection for Woodmen Road access and other stop-controlled intersections, it is likely that additional access separation cannot be reasonably achieved without presenting significant impacts to the adjacent intersections. Furthermore, restriction or removal of access is not recommended as this is likely to negatively impact site circulation, emergency vehicle access, and access operations. With all other operational goals achieved pursuant to the performed analysis, it is believed that the access as proposed may be accommodated without any significant operational or safety concerns. It is understood that access locations may be subject to change upon further site plan development, and final access locations may require additional County approvals. A deviation request for reduced access spacing is anticipated to be coordinated with County Staff as may be required.

A separate sight distance analysis was prepared by Galloway and submitted to County Staff for review and confirmation of available sight distance.

## **Roundabout Consideration**

A preliminary roundabout design, as prepared by Galloway and shown on Figure 2, was developed for this conceptual development and the proposed Bent Grass Meadows Drive realignment and access intersection to Woodmen Road. The preliminary design was prepared using the latest County design standards to establish a reliable basis for roadway geometry, operational analysis, and overall site planning while demonstrating conformance with prior design discussions conducted with County Staff.

Given the conceptual nature of the proposed development at this stage, detailed design parameters and final engineering elements are not anticipated to be necessary for the purposes of this traffic study or preliminary entitlement review. It is, however, anticipated that comprehensive design review and refinement will occur during subsequent final design and construction plan stages of the site development process.

A separate roundabout analysis was prepared by Galloway and submitted to County Staff for review to confirm that the proposed roundabout design conforms to County standards.

## **Site Access Analysis**

In support of the separate access spacing deviation request, additional operational analyses were conducted to evaluate the effects of the proposed site accesses on traffic operations along Bent Grass Meadows Drive and to assess intersection operations and vehicle queuing at each proposed site access shown on Figure 2.

Intersection operations and vehicle queue lengths at the proposed site access intersections were analyzed under Year 2045 total traffic conditions using the assumed buildout traffic volumes presented in Table 6 and overall traffic distribution percentages shown on Figure 6.

The analysis yields estimate of 95th percentile queue lengths, which have only a five percent probability of being exceeded during the analysis time period. Queue lengths were modeled and are included with the Synchro worksheets in Appendix C.

Proposed site accesses are hereby referred to as Swallowtail Way, Big Galleta Way, Prairie Drop Way, Bluebunch Lane, and Lot 14 Access.

No significant queue at proposed site accesses were indicated. The greatest on-site queue length anticipated at proposed access (Prairie Drop Way) occurs during the afternoon peak hour. The queue length is three vehicles for the westbound left and right turn movement. The conceptual site plan with lot orientation shows sufficient storage length to accommodate future peak hour traffic volumes and anticipated queue length.

The operations of the study site access intersections were analyzed under projected total traffic conditions using the SYNCHRO computer program. Definitions of levels of service are given in Appendix B. Intersection capacity worksheets are provided in Appendix C.

Site access level of service analysis results for Year 2045 are summarized in Table 9.

**Table 9 – Site Access Intersection Capacity Analysis Summary – Total Traffic – Year 2045**

| INTERSECTION<br>LANE GROUPS                                                                                                                        | LEVEL OF SERVICE |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|
|                                                                                                                                                    | AM PEAK HOUR     | PM PEAK HOUR |
| Bent Grass Meadows Drive / Swallowtail Way (Full-Movement, Stop-Controlled)<br>Westbound Left and Right<br>Southbound Left                         | B<br>A           | C<br>A       |
| Bent Grass Meadows Drive / Big Galleta Way (Full-Movement, Stop-Controlled)<br>Westbound Left and Right<br>Southbound Left                         | B<br>A           | B<br>A       |
| Bent Grass Meadows Drive / Prairie Drop Way (Full-Movement, Stop-Controlled)<br>Westbound Left and Right<br>Southbound Left                        | B<br>A           | C<br>A       |
| Woodmen Frontage Road / Bluebunch Lane (Combination RIRO, 3/4 Movement, Stop-Controlled)<br>Westbound Left<br>Northbound Right<br>Southbound Right | A<br>B<br>A      | A<br>B<br>B  |
| Woodmen Frontage Road / Lot 14 Access (Full-Movement, Stop-Controlled)<br>Eastbound Left<br>Southbound Left and Right                              | A<br>B           | A<br>B       |

Key: Stop-Controlled Intersection: Level of Service

Table 9 illustrates how, by Year 2045 and upon assumed development build-out, the stop-controlled site access intersections are projected to have turning movement operations at LOS B or better during the morning peak traffic hour and LOS C or better in the afternoon peak traffic hour.

## **VII. Conclusion**

This traffic impact study is provided as a planning document and addressed the capacity, geometric, and control requirements associated with the development entitled The Markets at Bent Grass. This assumed mixed-use retail development is conceptual and anticipated to consist of various commercial uses including a home improvement superstore, restaurants, a gas station, and strip retail shops. The development is located at the northeast of the intersection of Bent Grass Meadows Drive with Woodmen Frontage Road in El Paso County, Colorado.

The study area to be examined in this analysis encompasses the E Woodmen Road corridor between Golden Sage Drive and Meridian Road, the Woodmen Frontage Road corridor between Golden Sage Drive and Falcon Market Place, as well as the Bent Grass Meadows Drive Corridor between Woodmen Frontage Road and Meridian Road.

Analysis was conducted for critical AM Peak Hour and PM Peak Hour traffic operations for existing traffic conditions, Year 2030 and Year 2045 background traffic conditions, and Year 2030 and Year 2045 total traffic conditions.

Analysis of existing traffic conditions indicates that all signalized intersections operate under LOS D or better conditions during their respective peak hour periods, while all stop-controlled and roundabout intersections operate with turn movements at or better than LOS B or better during their respective peak traffic periods.

Under Year 2030 and 2045 background traffic conditions, operational analysis shows that study intersections along the E Woodmen Road corridor are projected to experience some operations of LOS E or better during peak traffic periods. The signalized intersection of Bent Grass Meadows Drive with Meridian Road is anticipated to experience LOS C or better operations during peak traffic periods. All stop-controlled and roundabout intersections generally anticipate turn movement operations at or better than LOS C during their respective peak traffic periods.

Analysis of future traffic conditions indicates that the addition of site-generated traffic is expected to create some impact to traffic operations for the existing and surrounding roadway system. However, upon consideration for direct signalized access to E Woodmen Road, in addition to future widening of E Woodmen Road from four to six through lanes, it is anticipated that the assumed development can be accommodated without causing any negative impacts. With all conservative assumptions defined in this analysis, the study intersections are projected to operate at future levels of service comparable to Year 2045 background traffic conditions.

It is emphasized that this traffic study evaluates future traffic conditions based on the anticipated highest and best uses within The Markets at Bent Grass. The projected traffic volumes associated with these uses form the basis of the analyses presented herein, and the recommended transportation improvements are considered sufficient to accommodate these projected traffic volumes and associated impacts. Should future development plans materially deviate from the land use assumptions evaluated in this study, and such changes result in traffic generation characteristics that substantially exceed or differ from those evaluated herein, supplemental traffic analysis may be required to assess site-specific impacts and determine whether additional transportation improvements are warranted. Absent such material changes, the findings and recommended improvements presented in this study remain valid and are considered sufficient to accommodate the transportation needs of The Markets at Bent Grass.

## **APPENDIX A**

### **Traffic Count Data**



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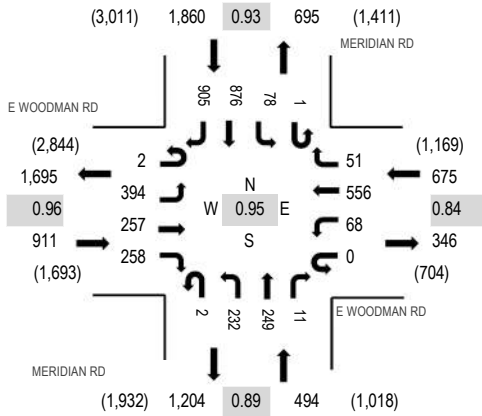
**Location:** 1 MERIDIAN RD & E WOODMAN RD AM

**Date:** Wednesday, February 26, 2025

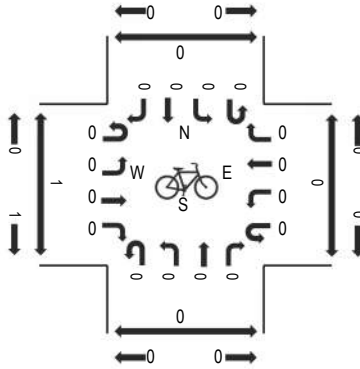
**Peak Hour:** 07:00 AM - 08:00 AM

**Peak 15-Minutes:** 07:30 AM - 07:45 AM

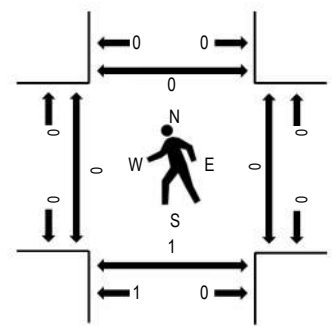
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | E WOODMAN RD<br>Eastbound |      |      |       | E WOODMAN RD<br>Westbound |      |      |       | MERIDIAN RD<br>Northbound |      |      |       | MERIDIAN RD<br>Southbound |      |       |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|-------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru  | Right |       |                 | West                 | East | South | North |
| 7:00 AM                | 0                         | 86   | 55   | 61    | 0                         | 17   | 155  | 12    | 0                         | 52   | 58   | 3     | 0                         | 6    | 194   | 247   | 946   | 3,940           | 0                    | 0    | 0     | 0     |
| 7:15 AM                | 0                         | 100  | 61   | 81    | 0                         | 22   | 124  | 10    | 0                         | 67   | 63   | 3     | 1                         | 16   | 236   | 246   | 1,030 | 3,755           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                         | 98   | 67   | 65    | 0                         | 18   | 171  | 11    | 0                         | 59   | 75   | 1     | 0                         | 23   | 228   | 222   | 1,038 | 3,512           | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 2                         | 110  | 74   | 51    | 0                         | 11   | 106  | 18    | 2                         | 54   | 53   | 4     | 0                         | 33   | 218   | 190   | 926   | 3,215           | 0                    | 0    | 1     | 0     |
| 8:00 AM                | 1                         | 97   | 67   | 52    | 0                         | 13   | 88   | 10    | 0                         | 52   | 93   | 4     | 0                         | 16   | 125   | 143   | 761   | 2,951           | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 2                         | 99   | 64   | 38    | 0                         | 10   | 104  | 16    | 0                         | 49   | 74   | 6     | 0                         | 22   | 151   | 152   | 787   |                 | 0                    | 0    | 1     | 0     |
| 8:30 AM                | 1                         | 76   | 73   | 37    | 0                         | 11   | 113  | 15    | 1                         | 51   | 66   | 6     | 0                         | 22   | 113   | 156   | 741   |                 | 0                    | 0    | 0     | 0     |
| 8:45 AM                | 2                         | 89   | 50   | 34    | 0                         | 19   | 87   | 8     | 3                         | 36   | 73   | 10    | 0                         | 18   | 121   | 112   | 662   |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 8                         | 755  | 511  | 419   | 0                         | 121  | 948  | 100   | 6                         | 420  | 555  | 37    | 1                         | 156  | 1,386 | 1,468 | 6,891 |                 | 0                    | 0    | 2     | 0     |
| Peak Hour              | 2                         | 394  | 257  | 258   | 0                         | 68   | 556  | 51    | 2                         | 232  | 249  | 11    | 1                         | 78   | 876   | 905   | 3,940 |                 | 0                    | 0    | 1     | 0     |



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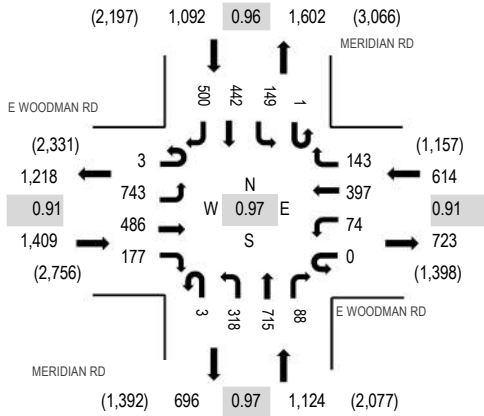
**Location:** 1 MERIDIAN RD & E WOODMAN RD PM

**Date:** Wednesday, February 26, 2025

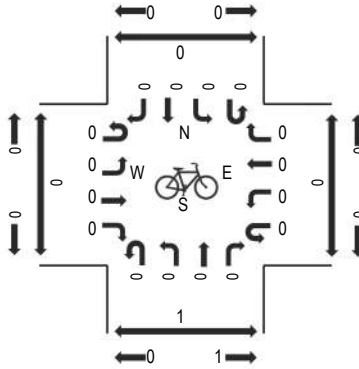
**Peak Hour:** 04:00 PM - 05:00 PM

**Peak 15-Minutes:** 04:30 PM - 04:45 PM

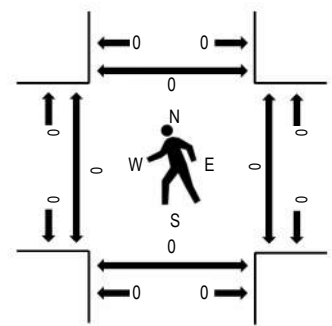
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | E WOODMAN RD<br>Eastbound |       |      |       | E WOODMAN RD<br>Westbound |      |      |       | MERIDIAN RD<br>Northbound |      |       |       | MERIDIAN RD<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------------|-------|------|-------|---------------------------|------|------|-------|---------------------------|------|-------|-------|---------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                    | Left  | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru  | Right | U-Turn                    | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:00 PM                | 1                         | 183   | 117  | 39    | 0                         | 17   | 86   | 38    | 1                         | 77   | 189   | 23    | 1                         | 29   | 128  | 134   | 1,063 | 4,239           | 0                    | 0    | 0     | 0     |
| 4:15 PM                | 0                         | 191   | 118  | 44    | 0                         | 20   | 109  | 29    | 1                         | 81   | 169   | 31    | 0                         | 44   | 97   | 110   | 1,044 | 4,207           | 0                    | 0    | 0     | 0     |
| 4:30 PM                | 2                         | 204   | 132  | 51    | 0                         | 15   | 92   | 37    | 0                         | 79   | 180   | 16    | 0                         | 40   | 125  | 119   | 1,092 | 4,201           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                         | 165   | 119  | 43    | 0                         | 22   | 110  | 39    | 1                         | 81   | 177   | 18    | 0                         | 36   | 92   | 137   | 1,040 | 4,125           | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 1                         | 167   | 127  | 52    | 0                         | 19   | 98   | 34    | 1                         | 45   | 172   | 24    | 0                         | 32   | 114  | 145   | 1,031 | 3,948           | 0                    | 0    | 1     | 0     |
| 5:15 PM                | 2                         | 173   | 117  | 43    | 0                         | 25   | 91   | 31    | 0                         | 74   | 168   | 20    | 0                         | 38   | 109  | 147   | 1,038 |                 | 0                    | 0    | 0     | 0     |
| 5:30 PM                | 1                         | 221   | 119  | 56    | 0                         | 14   | 74   | 32    | 0                         | 55   | 152   | 22    | 0                         | 31   | 116  | 123   | 1,016 |                 | 0                    | 0    | 0     | 0     |
| 5:45 PM                | 3                         | 135   | 93   | 37    | 1                         | 17   | 81   | 26    | 1                         | 51   | 153   | 15    | 0                         | 36   | 92   | 122   | 863   |                 | 0                    | 0    | 0     | 1     |
| Count Total            | 10                        | 1,439 | 942  | 365   | 1                         | 149  | 741  | 266   | 5                         | 543  | 1,360 | 169   | 1                         | 286  | 873  | 1,037 | 8,187 |                 | 0                    | 0    | 1     | 1     |
| Peak Hour              | 3                         | 743   | 486  | 177   | 0                         | 74   | 397  | 143   | 3                         | 318  | 715   | 88    | 1                         | 149  | 442  | 500   | 4,239 |                 | 0                    | 0    | 0     | 0     |



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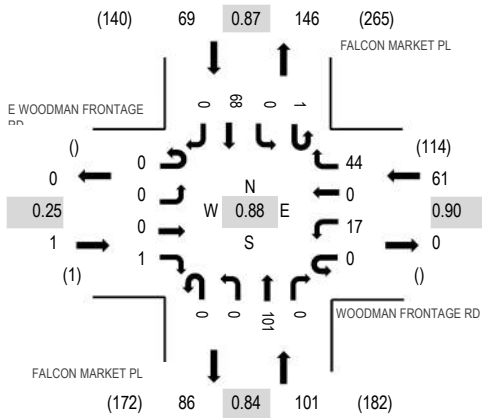
**Location:** 2 FALCON MARKET PL & WOODMAN FRONTAGE RD AM

**Date:** Wednesday, February 26, 2025

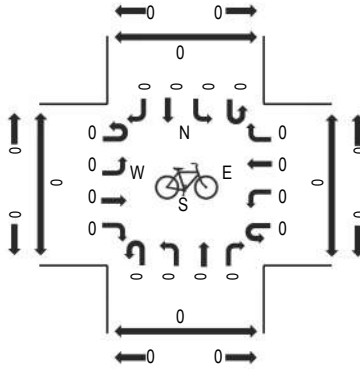
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**Peak 15-Minutes:** 08:15 AM - 08:30 AM

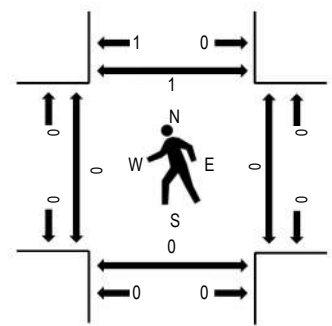
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | E WOODMAN FRONTAGE |      |      |       | WOODMAN FRONTAGE RD |      |      |       | FALCON MARKET PL |      |      |       | FALCON MARKET PL |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|--------------------|------|------|-------|---------------------|------|------|-------|------------------|------|------|-------|------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | Eastbound          |      |      |       | Westbound           |      |      |       | Northbound       |      |      |       | Southbound       |      |      |       |       |                 | West                 | East | South | North |
|                        | U-Turn             | Left | Thru | Right | U-Turn              | Left | Thru | Right | U-Turn           | Left | Thru | Right | U-Turn           | Left | Thru | Right |       |                 |                      |      |       |       |
| 7:00 AM                | 0                  | 0    | 0    | 0     | 0                   | 8    | 0    | 6     | 0                | 0    | 26   | 0     | 0                | 0    | 14   | 0     | 54    | 208             | 1                    | 0    | 0     | 0     |
| 7:15 AM                | 0                  | 0    | 0    | 0     | 0                   | 5    | 0    | 9     | 0                | 0    | 18   | 0     | 0                | 0    | 21   | 0     | 53    | 207             | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                  | 0    | 0    | 0     | 0                   | 1    | 0    | 9     | 0                | 0    | 19   | 0     | 0                | 0    | 16   | 0     | 45    | 220             | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                  | 0    | 0    | 0     | 0                   | 5    | 0    | 12    | 0                | 0    | 19   | 0     | 1                | 0    | 19   | 0     | 56    | 232             | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                  | 0    | 0    | 0     | 0                   | 3    | 0    | 8     | 0                | 0    | 26   | 0     | 0                | 0    | 16   | 0     | 53    | 229             | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 0                  | 0    | 0    | 0     | 0                   | 3    | 0    | 14    | 0                | 0    | 30   | 0     | 0                | 0    | 19   | 0     | 66    |                 | 0                    | 0    | 0     | 0     |
| 8:30 AM                | 0                  | 0    | 0    | 1     | 0                   | 6    | 0    | 10    | 0                | 0    | 26   | 0     | 0                | 0    | 14   | 0     | 57    |                 | 0                    | 0    | 0     | 1     |
| 8:45 AM                | 0                  | 0    | 0    | 0     | 0                   | 1    | 0    | 14    | 0                | 0    | 18   | 0     | 0                | 0    | 20   | 0     | 53    |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 0                  | 0    | 0    | 1     | 0                   | 32   | 0    | 82    | 0                | 0    | 182  | 0     | 1                | 0    | 139  | 0     | 437   |                 | 1                    | 0    | 0     | 1     |
| Peak Hour              | 0                  | 0    | 0    | 1     | 0                   | 17   | 0    | 44    | 0                | 0    | 101  | 0     | 1                | 0    | 68   | 0     | 232   |                 | 0                    | 0    | 0     | 1     |



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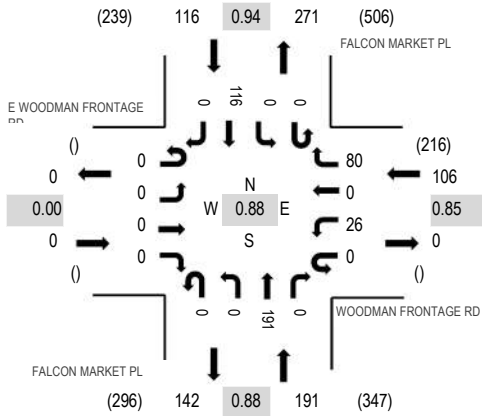
**Location:** 2 FALCON MARKET PL & WOODMAN FRONTAGE RD PM

**Date:** Wednesday, February 26, 2025

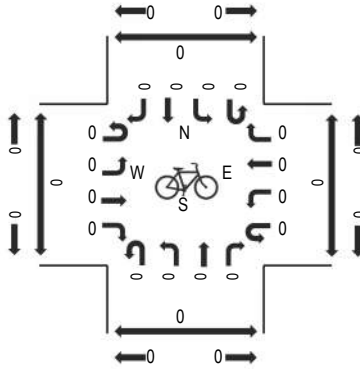
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**Peak 15-Minutes:** 05:15 PM - 05:30 PM

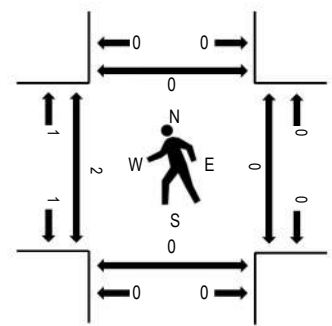
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | E WOODMAN FRONTAGE |      |      |       | WOODMAN FRONTAGE RD |      |      |       | FALCON MARKET PL |      |      |       | FALCON MARKET PL |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|--------------------|------|------|-------|---------------------|------|------|-------|------------------|------|------|-------|------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | Eastbound          |      |      |       | Westbound           |      |      |       | Northbound       |      |      |       | Southbound       |      |      |       |       |                 | West                 | East | South | North |
|                        | U-Turn             | Left | Thru | Right | U-Turn              | Left | Thru | Right | U-Turn           | Left | Thru | Right | U-Turn           | Left | Thru | Right |       |                 |                      |      |       |       |
| 4:00 PM                | 0                  | 0    | 0    | 0     | 0                   | 11   | 0    | 22    | 0                | 0    | 49   | 0     | 0                | 0    | 32   | 0     | 114   | 392             | 0                    | 0    | 0     | 0     |
| 4:15 PM                | 0                  | 0    | 0    | 0     | 0                   | 11   | 0    | 15    | 0                | 0    | 39   | 0     | 2                | 0    | 29   | 0     | 96    | 377             | 0                    | 0    | 0     | 0     |
| 4:30 PM                | 0                  | 0    | 0    | 0     | 0                   | 8    | 0    | 19    | 0                | 0    | 39   | 0     | 1                | 0    | 31   | 0     | 98    | 399             | 2                    | 0    | 0     | 0     |
| 4:45 PM                | 0                  | 0    | 0    | 0     | 0                   | 9    | 0    | 17    | 0                | 0    | 33   | 0     | 0                | 0    | 25   | 0     | 84    | 413             | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                  | 0    | 0    | 0     | 0                   | 5    | 0    | 12    | 0                | 0    | 51   | 0     | 0                | 0    | 31   | 0     | 99    | 410             | 2                    | 0    | 0     | 0     |
| 5:15 PM                | 0                  | 0    | 0    | 0     | 0                   | 9    | 0    | 26    | 0                | 0    | 53   | 0     | 0                | 0    | 30   | 0     | 118   |                 | 0                    | 0    | 0     | 0     |
| 5:30 PM                | 0                  | 0    | 0    | 0     | 0                   | 3    | 0    | 25    | 0                | 0    | 54   | 0     | 0                | 0    | 30   | 0     | 112   |                 | 0                    | 0    | 0     | 0     |
| 5:45 PM                | 0                  | 0    | 0    | 0     | 0                   | 4    | 0    | 20    | 0                | 0    | 29   | 0     | 0                | 0    | 28   | 0     | 81    |                 | 1                    | 0    | 0     | 0     |
| Count Total            | 0                  | 0    | 0    | 0     | 0                   | 60   | 0    | 156   | 0                | 0    | 347  | 0     | 3                | 0    | 236  | 0     | 802   |                 | 5                    | 0    | 0     | 0     |
| Peak Hour              | 0                  | 0    | 0    | 0     | 0                   | 26   | 0    | 80    | 0                | 0    | 191  | 0     | 0                | 0    | 116  | 0     | 413   |                 | 2                    | 0    | 0     | 0     |



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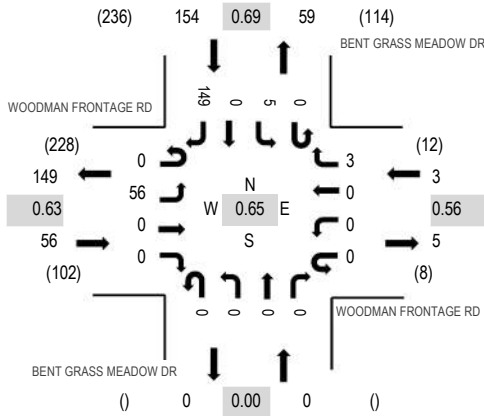
**Location:** 3 BENT GRASS MEADOW DR & WOODMAN FRONTAGE RD AM

**Date:** Wednesday, February 26, 2025

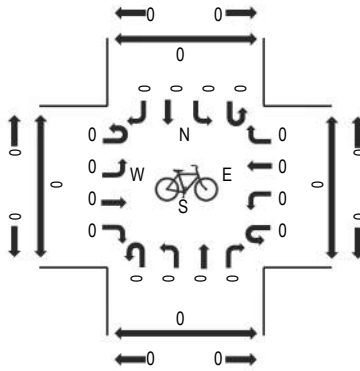
**Peak Hour:** 07:00 AM - 08:00 AM

**Peak 15-Minutes:** 07:30 AM - 07:45 AM

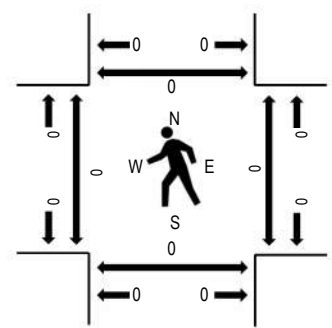
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | WOODMAN FRONTAGE RD |      |      |       | WOODMAN FRONTAGE RD |      |      |       | BENT GRASS MEADOW DR |      |      |       | BENT GRASS MEADOW DR |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------|------|------|-------|---------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | Eastbound           |      |      |       | Westbound           |      |      |       | Northbound           |      |      |       | Southbound           |      |      |       |       |                 | West                 | East | South | North |
|                        | U-Turn              | Left | Thru | Right | U-Turn              | Left | Thru | Right | U-Turn               | Left | Thru | Right | U-Turn               | Left | Thru | Right |       |                 |                      |      |       |       |
| 7:00 AM                | 0                   | 3    | 0    | 0     | 0                   | 0    | 0    | 1     | 0                    | 0    | 0    | 0     | 0                    | 1    | 0    | 33    | 38    | 213             | 0                    | 0    | 0     | 0     |
| 7:15 AM                | 0                   | 13   | 0    | 0     | 0                   | 0    | 0    | 1     | 0                    | 0    | 0    | 0     | 0                    | 1    | 0    | 37    | 52    | 212             | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                   | 26   | 0    | 0     | 0                   | 0    | 0    | 0     | 0                    | 0    | 0    | 0     | 0                    | 3    | 0    | 53    | 82    | 189             | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                   | 14   | 0    | 0     | 0                   | 0    | 0    | 1     | 0                    | 0    | 0    | 0     | 0                    | 0    | 0    | 26    | 41    | 153             | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                   | 12   | 0    | 0     | 0                   | 0    | 0    | 2     | 0                    | 0    | 0    | 0     | 0                    | 0    | 0    | 23    | 37    | 137             | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 0                   | 10   | 0    | 0     | 0                   | 0    | 0    | 2     | 0                    | 0    | 0    | 0     | 0                    | 1    | 0    | 16    | 29    |                 | 0                    | 0    | 0     | 0     |
| 8:30 AM                | 0                   | 12   | 0    | 0     | 0                   | 0    | 0    | 4     | 0                    | 0    | 0    | 0     | 0                    | 1    | 0    | 29    | 46    |                 | 0                    | 0    | 0     | 0     |
| 8:45 AM                | 0                   | 12   | 0    | 0     | 0                   | 0    | 0    | 1     | 0                    | 0    | 0    | 0     | 0                    | 1    | 0    | 11    | 25    |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 0                   | 102  | 0    | 0     | 0                   | 0    | 0    | 12    | 0                    | 0    | 0    | 0     | 0                    | 8    | 0    | 228   | 350   |                 | 0                    | 0    | 0     | 0     |
| Peak Hour              | 0                   | 56   | 0    | 0     | 0                   | 0    | 0    | 3     | 0                    | 0    | 0    | 0     | 0                    | 5    | 0    | 149   | 213   |                 | 0                    | 0    | 0     | 0     |



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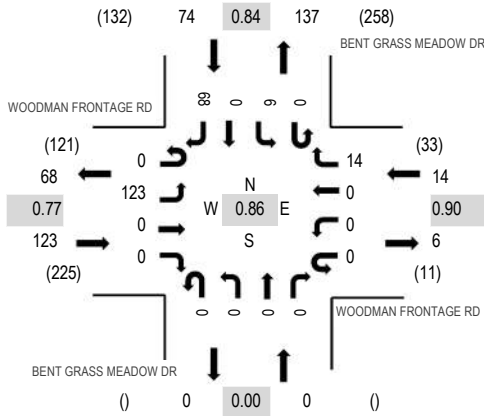
**Location:** 3 BENT GRASS MEADOW DR & WOODMAN FRONTAGE RD PM

**Date:** Wednesday, February 26, 2025

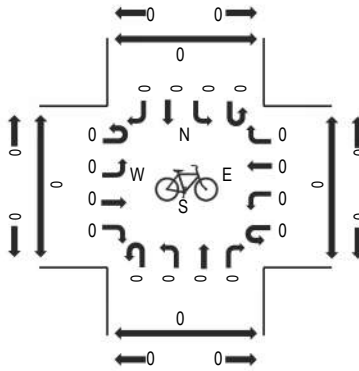
**Peak Hour:** 04:30 PM - 05:30 PM

**Peak 15-Minutes:** 05:15 PM - 05:30 PM

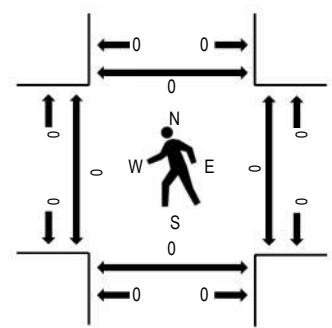
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | WOODMAN FRONTAGE RD Eastbound |      |      |       | WOODMAN FRONTAGE RD Westbound |      |      |       | BENT GRASS MEADOW DR Northbound |      |      |       | BENT GRASS MEADOW DR Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|---------------------------------|------|------|-------|---------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                          | Left | Thru | Right | U-Turn                          | Left | Thru | Right |       |                 | West                 | East | South | North |
|                        |                               |      |      |       |                               |      |      |       |                                 |      |      |       |                                 |      |      |       |       |                 |                      |      |       |       |
| 4:00 PM                | 0                             | 28   | 0    | 0     | 0                             | 0    | 0    | 4     | 0                               | 0    | 0    | 0     | 0                               | 2    | 0    | 13    | 47    | 187             | 0                    | 0    | 0     | 0     |
| 4:15 PM                | 0                             | 19   | 0    | 0     | 0                             | 0    | 0    | 6     | 0                               | 0    | 0    | 0     | 0                               | 0    | 0    | 11    | 36    | 186             | 0                    | 0    | 0     | 0     |
| 4:30 PM                | 0                             | 31   | 0    | 0     | 0                             | 0    | 0    | 4     | 0                               | 0    | 0    | 0     | 0                               | 1    | 0    | 16    | 52    | 211             | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                             | 29   | 0    | 0     | 0                             | 0    | 0    | 1     | 0                               | 0    | 0    | 0     | 0                               | 1    | 0    | 21    | 52    | 206             | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                             | 23   | 0    | 0     | 0                             | 0    | 0    | 4     | 0                               | 0    | 0    | 0     | 0                               | 4    | 0    | 15    | 46    | 203             | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                             | 40   | 0    | 0     | 0                             | 0    | 0    | 5     | 0                               | 0    | 0    | 0     | 0                               | 0    | 0    | 16    | 61    |                 | 0                    | 0    | 0     | 0     |
| 5:30 PM                | 0                             | 26   | 0    | 0     | 0                             | 0    | 0    | 4     | 0                               | 0    | 0    | 0     | 0                               | 2    | 0    | 15    | 47    |                 | 0                    | 0    | 0     | 0     |
| 5:45 PM                | 0                             | 29   | 0    | 0     | 0                             | 0    | 0    | 5     | 0                               | 0    | 0    | 0     | 0                               | 1    | 0    | 14    | 49    |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 0                             | 225  | 0    | 0     | 0                             | 0    | 0    | 33    | 0                               | 0    | 0    | 0     | 0                               | 11   | 0    | 121   | 390   |                 | 0                    | 0    | 0     | 0     |
| Peak Hour              | 0                             | 123  | 0    | 0     | 0                             | 0    | 0    | 14    | 0                               | 0    | 0    | 0     | 0                               | 6    | 0    | 68    | 211   |                 | 0                    | 0    | 0     | 0     |



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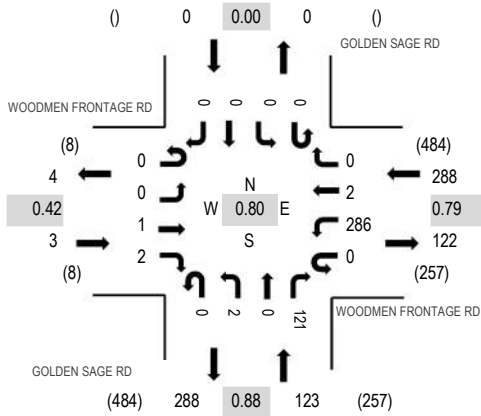
**Location:** 4 GOLDEN SAGE RD & WOODMEN FRONTAGE RD AM

**Date:** Wednesday, February 26, 2025

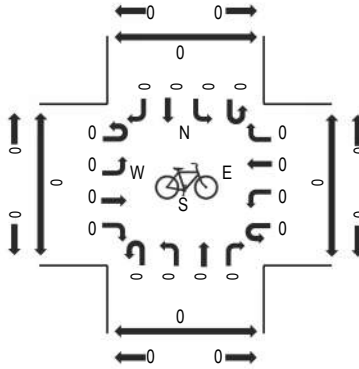
**Peak Hour:** 07:00 AM - 08:00 AM

**Peak 15-Minutes:** 07:30 AM - 07:45 AM

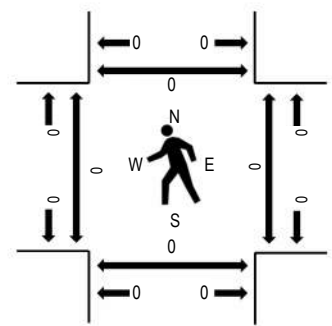
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | WOODMEN FRONTAGE RD Eastbound |      |      |       | WOODMEN FRONTAGE RD Westbound |      |      |       | GOLDEN SAGE RD Northbound |      |      |       | GOLDEN SAGE RD Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru | Right |       |                 | West                 | East | South | North |
|                        |                               |      |      |       |                               |      |      |       |                           |      |      |       |                           |      |      |       |       |                 |                      |      |       |       |
| 7:00 AM                | 0                             | 0    | 0    | 2     | 0                             | 73   | 1    | 0     | 0                         | 0    | 0    | 24    | 0                         | 0    | 0    | 0     | 100   | 414             | 0                    | 0    | 0     | 0     |
| 7:15 AM                | 0                             | 0    | 1    | 0     | 0                             | 69   | 0    | 0     | 0                         | 0    | 0    | 32    | 0                         | 0    | 0    | 0     | 102   | 403             | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                             | 0    | 0    | 0     | 0                             | 90   | 1    | 0     | 0                         | 2    | 0    | 36    | 0                         | 0    | 0    | 0     | 129   | 388             | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                             | 0    | 0    | 0     | 0                             | 54   | 0    | 0     | 0                         | 0    | 0    | 29    | 0                         | 0    | 0    | 0     | 83    | 345             | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                             | 0    | 0    | 0     | 0                             | 48   | 0    | 0     | 0                         | 0    | 0    | 41    | 0                         | 0    | 0    | 0     | 89    | 335             | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 0                             | 0    | 0    | 1     | 0                             | 49   | 0    | 0     | 0                         | 1    | 0    | 36    | 0                         | 0    | 0    | 0     | 87    |                 | 0                    | 0    | 0     | 0     |
| 8:30 AM                | 0                             | 0    | 0    | 1     | 0                             | 54   | 1    | 0     | 0                         | 0    | 0    | 30    | 0                         | 0    | 0    | 0     | 86    |                 | 0                    | 0    | 0     | 0     |
| 8:45 AM                | 0                             | 0    | 2    | 1     | 0                             | 42   | 2    | 0     | 0                         | 0    | 0    | 26    | 0                         | 0    | 0    | 0     | 73    |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 0                             | 0    | 3    | 5     | 0                             | 479  | 5    | 0     | 0                         | 3    | 0    | 254   | 0                         | 0    | 0    | 0     | 749   |                 | 0                    | 0    | 0     | 0     |
| Peak Hour              | 0                             | 0    | 1    | 2     | 0                             | 286  | 2    | 0     | 0                         | 2    | 0    | 121   | 0                         | 0    | 0    | 0     | 414   |                 | 0                    | 0    | 0     | 0     |



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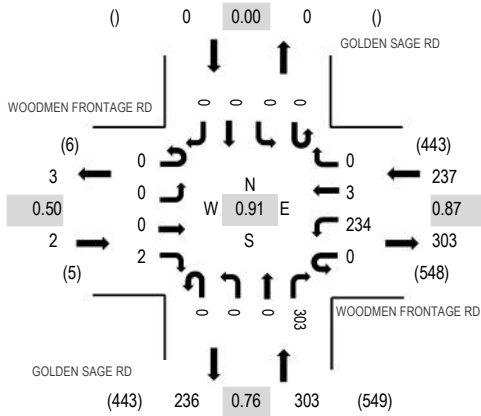
**Location:** 4 GOLDEN SAGE RD & WOODMEN FRONTAGE RD PM

**Date:** Wednesday, February 26, 2025

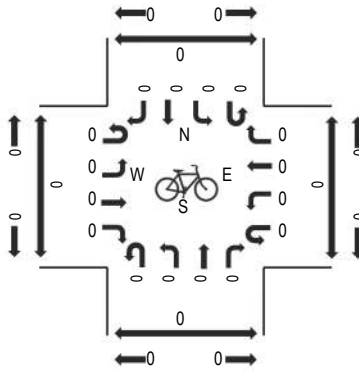
**Peak Hour:** 04:45 PM - 05:45 PM

**Peak 15-Minutes:** 05:15 PM - 05:30 PM

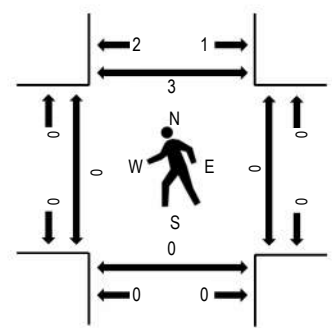
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | WOODMEN FRONTAGE RD Eastbound |      |      |       | WOODMEN FRONTAGE RD Westbound |      |      |       | GOLDEN SAGE RD Northbound |      |      |       | GOLDEN SAGE RD Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                    | Left | Thru | Right |       |                 | West                 | East | South | North |
|                        |                               |      |      |       |                               |      |      |       |                           |      |      |       |                           |      |      |       |       |                 |                      |      |       |       |
| 4:00 PM                | 0                             | 0    | 0    | 1     | 0                             | 61   | 0    | 0     | 0                         | 0    | 0    | 62    | 0                         | 0    | 0    | 0     | 124   | 481             | 0                    | 0    | 0     | 0     |
| 4:15 PM                | 0                             | 0    | 1    | 0     | 0                             | 40   | 0    | 0     | 0                         | 1    | 0    | 59    | 0                         | 0    | 0    | 0     | 101   | 486             | 0                    | 0    | 0     | 0     |
| 4:30 PM                | 0                             | 0    | 0    | 1     | 0                             | 59   | 1    | 0     | 0                         | 1    | 0    | 65    | 0                         | 0    | 0    | 0     | 127   | 534             | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                             | 0    | 0    | 0     | 0                             | 62   | 0    | 0     | 0                         | 0    | 0    | 67    | 0                         | 0    | 0    | 0     | 129   | 542             | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                             | 0    | 0    | 2     | 0                             | 56   | 2    | 0     | 0                         | 0    | 0    | 69    | 0                         | 0    | 0    | 0     | 129   | 516             | 0                    | 0    | 0     | 2     |
| 5:15 PM                | 0                             | 0    | 0    | 0     | 0                             | 49   | 0    | 0     | 0                         | 0    | 0    | 100   | 0                         | 0    | 0    | 0     | 149   |                 | 0                    | 0    | 0     | 0     |
| 5:30 PM                | 0                             | 0    | 0    | 0     | 0                             | 67   | 1    | 0     | 0                         | 0    | 0    | 67    | 0                         | 0    | 0    | 0     | 135   |                 | 0                    | 0    | 0     | 1     |
| 5:45 PM                | 0                             | 0    | 0    | 0     | 0                             | 45   | 0    | 0     | 0                         | 0    | 0    | 58    | 0                         | 0    | 0    | 0     | 103   |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 0                             | 0    | 1    | 4     | 0                             | 439  | 4    | 0     | 0                         | 2    | 0    | 547   | 0                         | 0    | 0    | 0     | 997   |                 | 0                    | 0    | 0     | 3     |
| Peak Hour              | 0                             | 0    | 0    | 2     | 0                             | 234  | 3    | 0     | 0                         | 0    | 0    | 303   | 0                         | 0    | 0    | 0     | 542   |                 | 0                    | 0    | 0     | 3     |



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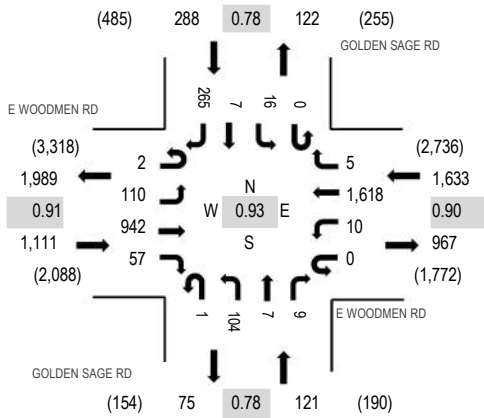
**Location:** 5 GOLDEN SAGE RD & E WOODMEN RD AM

**Date:** Wednesday, February 26, 2025

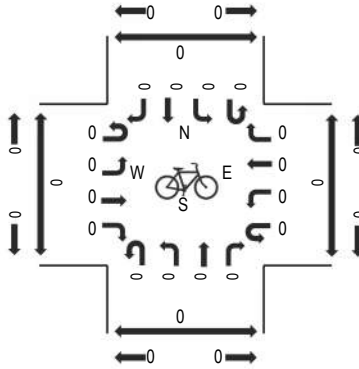
**Peak Hour:** 07:00 AM - 08:00 AM

**Peak 15-Minutes:** 07:15 AM - 07:30 AM

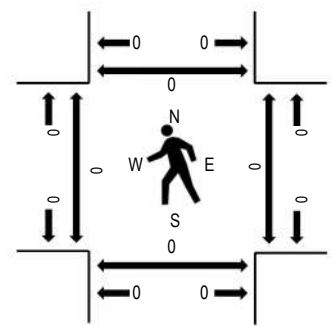
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | E WOODMEN RD<br>Eastbound |      |       |       | E WOODMEN RD<br>Westbound |      |       |       | GOLDEN SAGE RD<br>Northbound |      |      |       | GOLDEN SAGE RD<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------------|------|-------|-------|---------------------------|------|-------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                    | Left | Thru  | Right | U-Turn                    | Left | Thru  | Right | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:00 AM                | 0                         | 20   | 198   | 10    | 0                         | 2    | 404   | 3     | 0                            | 25   | 1    | 6     | 0                            | 6    | 1    | 68    | 744   | 3,153           | 0                    | 0    | 0     | 0     |
| 7:15 AM                | 0                         | 30   | 251   | 14    | 0                         | 1    | 450   | 1     | 1                            | 36   | 1    | 1     | 0                            | 4    | 0    | 62    | 852   | 3,001           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 2                         | 33   | 226   | 14    | 0                         | 5    | 399   | 0     | 0                            | 22   | 4    | 2     | 0                            | 3    | 3    | 86    | 799   | 2,781           | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                         | 27   | 267   | 19    | 0                         | 2    | 365   | 1     | 0                            | 21   | 1    | 0     | 0                            | 3    | 3    | 49    | 758   | 2,571           | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 1                         | 37   | 207   | 16    | 0                         | 3    | 258   | 2     | 0                            | 16   | 1    | 3     | 0                            | 1    | 3    | 44    | 592   | 2,346           | 0                    | 0    | 0     | 0     |
| 8:15 AM                | 0                         | 35   | 221   | 10    | 0                         | 5    | 292   | 2     | 0                            | 17   | 0    | 0     | 0                            | 5    | 1    | 44    | 632   |                 | 0                    | 0    | 0     | 0     |
| 8:30 AM                | 1                         | 30   | 187   | 13    | 0                         | 1    | 288   | 0     | 0                            | 13   | 0    | 0     | 0                            | 4    | 4    | 48    | 589   |                 | 0                    | 0    | 0     | 0     |
| 8:45 AM                | 0                         | 26   | 174   | 19    | 0                         | 2    | 250   | 0     | 0                            | 18   | 0    | 1     | 0                            | 2    | 2    | 39    | 533   |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 4                         | 238  | 1,731 | 115   | 0                         | 21   | 2,706 | 9     | 1                            | 168  | 8    | 13    | 0                            | 28   | 17   | 440   | 5,499 |                 | 0                    | 0    | 0     | 0     |
| Peak Hour              | 2                         | 110  | 942   | 57    | 0                         | 10   | 1,618 | 5     | 1                            | 104  | 7    | 9     | 0                            | 16   | 7    | 265   | 3,153 |                 | 0                    | 0    | 0     | 0     |



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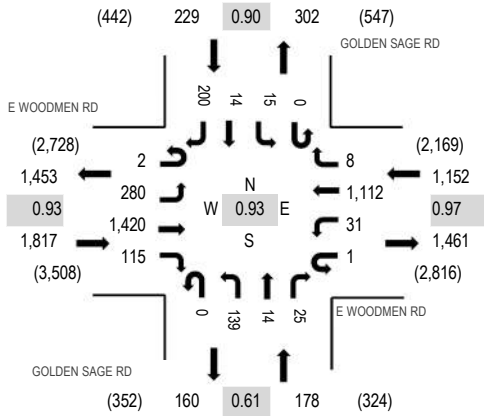
**Location:** 5 GOLDEN SAGE RD & E WOODMEN RD PM

**Date:** Wednesday, February 26, 2025

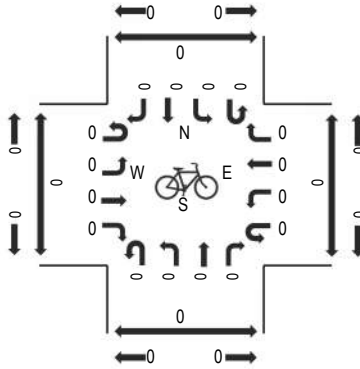
**Peak Hour:** 04:30 PM - 05:30 PM

**Peak 15-Minutes:** 05:15 PM - 05:30 PM

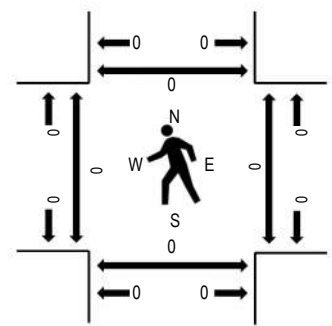
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | E WOODMEN RD<br>Eastbound |      |       |       | E WOODMEN RD<br>Westbound |      |       |       | GOLDEN SAGE RD<br>Northbound |      |      |       | GOLDEN SAGE RD<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|---------------------------|------|-------|-------|---------------------------|------|-------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                    | Left | Thru  | Right | U-Turn                    | Left | Thru  | Right | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:00 PM                | 0                         | 58   | 328   | 61    | 0                         | 10   | 286   | 1     | 0                            | 22   | 2    | 2     | 0                            | 5    | 5    | 49    | 829   | 3,279           | 0                    | 0    | 0     | 0     |
| 4:15 PM                | 1                         | 54   | 363   | 35    | 0                         | 4    | 246   | 1     | 0                            | 38   | 5    | 5     | 0                            | 4    | 2    | 37    | 795   | 3,261           | 0                    | 0    | 0     | 0     |
| 4:30 PM                | 0                         | 58   | 362   | 26    | 1                         | 11   | 282   | 4     | 0                            | 27   | 4    | 3     | 0                            | 2    | 3    | 54    | 837   | 3,376           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 1                         | 64   | 358   | 20    | 0                         | 2    | 272   | 1     | 0                            | 30   | 3    | 5     | 0                            | 6    | 1    | 55    | 818   | 3,337           | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                         | 65   | 344   | 28    | 0                         | 4    | 280   | 1     | 0                            | 27   | 2    | 2     | 0                            | 6    | 2    | 50    | 811   | 3,164           | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 1                         | 93   | 356   | 41    | 0                         | 14   | 278   | 2     | 0                            | 55   | 5    | 15    | 0                            | 1    | 8    | 41    | 910   |                 | 0                    | 0    | 0     | 0     |
| 5:30 PM                | 0                         | 57   | 373   | 27    | 2                         | 7    | 226   | 2     | 0                            | 20   | 7    | 12    | 0                            | 4    | 3    | 58    | 798   |                 | 0                    | 0    | 0     | 0     |
| 5:45 PM                | 3                         | 57   | 250   | 24    | 0                         | 10   | 222   | 0     | 0                            | 29   | 1    | 3     | 0                            | 4    | 4    | 38    | 645   |                 | 0                    | 0    | 0     | 0     |
| Count Total            | 6                         | 506  | 2,734 | 262   | 3                         | 62   | 2,092 | 12    | 0                            | 248  | 29   | 47    | 0                            | 32   | 28   | 382   | 6,443 |                 | 0                    | 0    | 0     | 0     |
| Peak Hour              | 2                         | 280  | 1,420 | 115   | 1                         | 31   | 1,112 | 8     | 0                            | 139  | 14   | 25    | 0                            | 15   | 14   | 200   | 3,376 |                 | 0                    | 0    | 0     | 0     |



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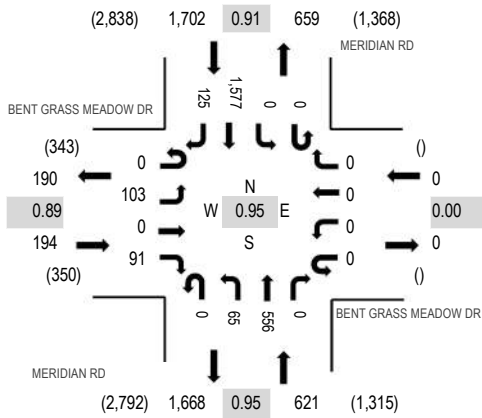
**Location:** 6 MERIDIAN RD & BENT GRASS MEADOW DR AM

**Date:** Wednesday, February 26, 2025

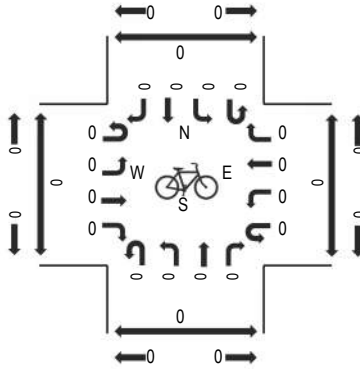
**Peak Hour:** 07:00 AM - 08:00 AM

**Peak 15-Minutes:** 07:15 AM - 07:30 AM

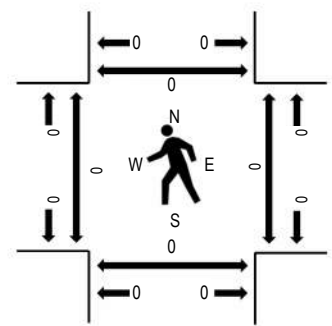
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | BENT GRASS MEADOW DR |      |      |       |           |      |      |       | BENT GRASS MEADOW DR |      |       |       | MERIDIAN RD |      |       |       | MERIDIAN RD |       |       |       | Total | Rolling<br>Hour | Pedestrian Crossings |  |  |  |
|------------------------|----------------------|------|------|-------|-----------|------|------|-------|----------------------|------|-------|-------|-------------|------|-------|-------|-------------|-------|-------|-------|-------|-----------------|----------------------|--|--|--|
|                        | Eastbound            |      |      |       | Westbound |      |      |       | Northbound           |      |       |       | Southbound  |      |       |       | West        | East  | South | North |       |                 |                      |  |  |  |
|                        | U-Turn               | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn               | Left | Thru  | Right | U-Turn      | Left | Thru  | Right |             |       |       |       |       |                 |                      |  |  |  |
| 7:00 AM                | 0                    | 21   | 0    | 24    | 0         | 0    | 0    | 0     | 0                    | 16   | 123   | 0     | 0           | 0    | 368   | 29    | 581         | 2,517 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 7:15 AM                | 0                    | 26   | 0    | 21    | 0         | 0    | 0    | 0     | 0                    | 12   | 136   | 0     | 0           | 0    | 442   | 26    | 663         | 2,464 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 7:30 AM                | 0                    | 31   | 0    | 24    | 0         | 0    | 0    | 0     | 0                    | 15   | 155   | 0     | 0           | 0    | 398   | 37    | 660         | 2,322 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 7:45 AM                | 0                    | 25   | 0    | 22    | 0         | 0    | 0    | 0     | 0                    | 22   | 142   | 0     | 0           | 0    | 369   | 33    | 613         | 2,144 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 8:00 AM                | 0                    | 25   | 0    | 21    | 0         | 0    | 0    | 0     | 0                    | 19   | 164   | 0     | 0           | 0    | 280   | 19    | 528         | 1,986 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 8:15 AM                | 0                    | 17   | 0    | 20    | 0         | 0    | 0    | 0     | 0                    | 11   | 170   | 0     | 0           | 0    | 274   | 29    | 521         |       | 0     | 0     | 0     | 0               |                      |  |  |  |
| 8:30 AM                | 0                    | 13   | 0    | 28    | 0         | 0    | 0    | 0     | 0                    | 14   | 148   | 0     | 0           | 0    | 254   | 25    | 482         |       | 0     | 0     | 0     | 0               |                      |  |  |  |
| 8:45 AM                | 0                    | 16   | 0    | 16    | 0         | 0    | 0    | 0     | 0                    | 12   | 156   | 0     | 0           | 0    | 231   | 24    | 455         |       | 0     | 0     | 0     | 0               |                      |  |  |  |
| Count Total            | 0                    | 174  | 0    | 176   | 0         | 0    | 0    | 0     | 0                    | 121  | 1,194 | 0     | 0           | 0    | 2,616 | 222   | 4,503       |       | 0     | 0     | 0     | 0               |                      |  |  |  |
| Peak Hour              | 0                    | 103  | 0    | 91    | 0         | 0    | 0    | 0     | 0                    | 65   | 556   | 0     | 0           | 0    | 1,577 | 125   | 2,517       |       | 0     | 0     | 0     | 0               |                      |  |  |  |



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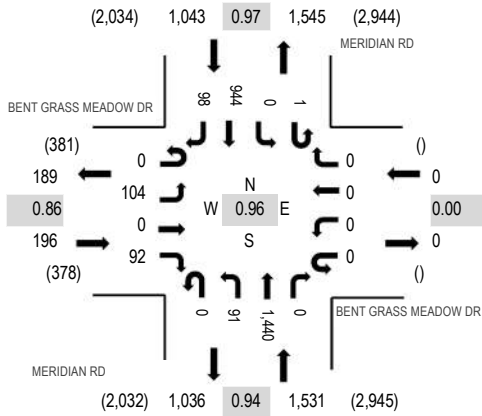
Location: 6 MERIDIAN RD & BENT GRASS MEADOW DR PM

Date: Wednesday, February 26, 2025

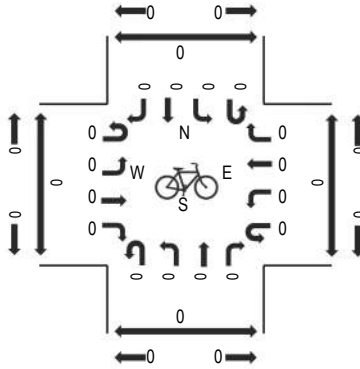
Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:45 PM - 05:00 PM

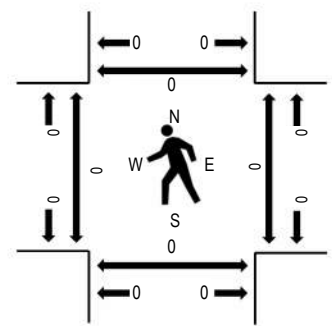
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

| Interval<br>Start Time | BENT GRASS MEADOW DR |      |      |       |           |      |      |       | BENT GRASS MEADOW DR |      |       |       | MERIDIAN RD |      |       |       | MERIDIAN RD |       |       |       | Total | Rolling<br>Hour | Pedestrian Crossings |  |  |  |
|------------------------|----------------------|------|------|-------|-----------|------|------|-------|----------------------|------|-------|-------|-------------|------|-------|-------|-------------|-------|-------|-------|-------|-----------------|----------------------|--|--|--|
|                        | Eastbound            |      |      |       | Westbound |      |      |       | Northbound           |      |       |       | Southbound  |      |       |       | West        | East  | South | North |       |                 |                      |  |  |  |
|                        | U-Turn               | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn               | Left | Thru  | Right | U-Turn      | Left | Thru  | Right |             |       |       |       |       |                 |                      |  |  |  |
| 4:00 PM                | 0                    | 28   | 0    | 24    | 0         | 0    | 0    | 0     | 0                    | 25   | 329   | 0     | 0           | 0    | 253   | 20    | 679         | 2,770 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 4:15 PM                | 0                    | 23   | 0    | 20    | 0         | 0    | 0    | 0     | 0                    | 26   | 372   | 0     | 0           | 0    | 200   | 28    | 669         | 2,751 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 4:30 PM                | 0                    | 34   | 0    | 23    | 0         | 0    | 0    | 0     | 0                    | 13   | 359   | 0     | 0           | 0    | 254   | 18    | 701         | 2,752 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 4:45 PM                | 0                    | 19   | 0    | 25    | 0         | 0    | 0    | 0     | 0                    | 27   | 380   | 0     | 1           | 0    | 237   | 32    | 721         | 2,707 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 5:00 PM                | 0                    | 24   | 0    | 22    | 0         | 0    | 0    | 0     | 1                    | 27   | 318   | 0     | 0           | 0    | 248   | 20    | 660         | 2,587 | 0     | 0     | 0     | 0               |                      |  |  |  |
| 5:15 PM                | 0                    | 23   | 0    | 20    | 0         | 0    | 0    | 0     | 0                    | 33   | 350   | 0     | 0           | 0    | 223   | 21    | 670         |       | 0     | 0     | 0     | 0               |                      |  |  |  |
| 5:30 PM                | 0                    | 30   | 0    | 24    | 0         | 0    | 0    | 0     | 0                    | 26   | 347   | 0     | 0           | 0    | 211   | 18    | 656         |       | 0     | 0     | 0     | 0               |                      |  |  |  |
| 5:45 PM                | 0                    | 22   | 0    | 17    | 0         | 0    | 0    | 0     | 0                    | 27   | 285   | 0     | 0           | 0    | 230   | 20    | 601         |       | 0     | 0     | 0     | 0               |                      |  |  |  |
| Count Total            | 0                    | 203  | 0    | 175   | 0         | 0    | 0    | 0     | 1                    | 204  | 2,740 | 0     | 1           | 0    | 1,856 | 177   | 5,357       |       | 0     | 0     | 0     | 0               |                      |  |  |  |
| Peak Hour              | 0                    | 104  | 0    | 92    | 0         | 0    | 0    | 0     | 0                    | 91   | 1,440 | 0     | 1           | 0    | 944   | 98    | 2,770       |       | 0     | 0     | 0     | 0               |                      |  |  |  |

## **APPENDIX B**

**Level of Service Definitions  
ITE Internal Capture Worksheets  
Woodmen Road Coordinated CGTs**

The following information is referenced from the Highway Capacity Manual: A Guide for Multimodal Mobility Analysis, 7<sup>th</sup> Edition, Transportation Research Board, 2022: Chapter 19 – Signalized Intersections.

### **Motorized Vehicle Level of Service (LOS) for Signalized Intersections**

Levels of service are defined to represent reasonable ranges in control delay.

**LOS A** Describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

**LOS B** Describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

**LOS C** Describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

**LOS D** Describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

**LOS E** Describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

**LOS F** Describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

| Control Delay<br>(s/veh) | LOS by Volume-to-Capacity Ratio <sup>a</sup> |             |
|--------------------------|----------------------------------------------|-------------|
|                          | $v/c \leq 1.0$                               | $v/c > 1.0$ |
| $\leq 10$                | A                                            | F           |
| > 10 – 20                | B                                            | F           |
| > 20 – 35                | C                                            | F           |
| > 35 – 55                | D                                            | F           |
| > 55 – 80                | E                                            | F           |
| > 80                     | F                                            | F           |

Note: <sup>a</sup> For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

The following information is referenced from the Highway Capacity Manual: A Guide for Multimodal Mobility Analysis, 7<sup>th</sup> Edition, Transportation Research Board, 2022: Chapter 20 – Two-Way Stop-Controlled Intersections, Chapter 21 – All-Way Stop-Controlled Intersections, and Chapter 22 - Roundabouts.

### **Motorized Vehicle Level of Service (LOS) for Unsignalized & Roundabout Intersections**

LOS is a quantitative stratification of performance measure(s) representing quality of service. Quality of service describes how well a transportation facility or service operates from a traveler's perspective. LOS is measured on an A – F scale, with LOS A representing the best operating conditions from a traveler's perspective.

| Control Delay<br>(s/veh) | <u>LOS by Volume-to-Capacity Ratio<sup>a</sup></u> |             |
|--------------------------|----------------------------------------------------|-------------|
|                          | $v/c \leq 1.0$                                     | $v/c > 1.0$ |
| 0 – 10                   | A                                                  | F           |
| > 10 – 15                | B                                                  | F           |
| > 15 – 25                | C                                                  | F           |
| > 25 – 35                | D                                                  | F           |
| > 35 – 50                | E                                                  | F           |
| > 50                     | F                                                  | F           |

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

<sup>a</sup> For approaches and intersectionwide assessment, LOS is defined solely by control delay.

| NCHRP 684 Internal Trip Capture Estimation Tool |                                    |                      |              |  |  |
|-------------------------------------------------|------------------------------------|----------------------|--------------|--|--|
| <b>Project Name:</b>                            | Markets at Bent Grass              | <b>Organization:</b> | SM ROCHA LLC |  |  |
| <b>Project Location:</b>                        | Bent Grass Meadows Dr & Woodmen Rd | <b>Performed By:</b> | SM ROCHA LLC |  |  |
| <b>Scenario Description:</b>                    | Build-Out                          | <b>Date:</b>         | 7/16/2026    |  |  |
| <b>Analysis Year:</b>                           | 2045                               | <b>Checked By:</b>   |              |  |  |
| <b>Analysis Period:</b>                         | AM Street Peak Hour                | <b>Date:</b>         |              |  |  |

| Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) |                                         |          |       |                                      |          |         |
|------------------------------------------------------------------------------|-----------------------------------------|----------|-------|--------------------------------------|----------|---------|
| Land Use                                                                     | Development Data (For Information Only) |          |       | Estimated Vehicle-Trips <sup>3</sup> |          |         |
|                                                                              | ITE LUCs <sup>1</sup>                   | Quantity | Units | Total                                | Entering | Exiting |
| Office                                                                       |                                         |          |       | 0                                    |          |         |
| Retail                                                                       | 822,862,875                             | 284      | KSF   | 538                                  | 304      | 234     |
| Restaurant                                                                   | 932,937                                 | 15       | KSF   | 443                                  | 227      | 216     |
| Cinema/Entertainment                                                         |                                         |          |       | 0                                    |          |         |
| Residential                                                                  |                                         |          |       | 0                                    |          |         |
| Hotel                                                                        |                                         |          |       | 0                                    |          |         |
| All Other Land Uses <sup>2</sup>                                             | VAR                                     | 44       | KSF   | 493                                  | 267      | 226     |
|                                                                              |                                         |          |       | 1,474                                | 798      | 676     |

| Table 2-A: Mode Split and Vehicle Occupancy Estimates |                        |           |                 |                        |           |                 |
|-------------------------------------------------------|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use                                              | Entering Trips         |           |                 | Exiting Trips          |           |                 |
|                                                       | Veh. Occ. <sup>4</sup> | % Transit | % Non-Motorized | Veh. Occ. <sup>4</sup> | % Transit | % Non-Motorized |
| Office                                                |                        |           |                 |                        |           |                 |
| Retail                                                |                        |           |                 |                        |           |                 |
| Restaurant                                            |                        |           |                 |                        |           |                 |
| Cinema/Entertainment                                  |                        |           |                 |                        |           |                 |
| Residential                                           |                        |           |                 |                        |           |                 |
| Hotel                                                 |                        |           |                 |                        |           |                 |
| All Other Land Uses <sup>2</sup>                      |                        |           |                 |                        |           |                 |

| Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance) |                  |        |            |                      |             |       |
|---------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                             | Destination (To) |        |            |                      |             |       |
|                                                                           | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                    |                  |        |            |                      |             |       |
| Retail                                                                    |                  |        |            |                      |             |       |
| Restaurant                                                                |                  |        |            |                      |             |       |
| Cinema/Entertainment                                                      |                  |        |            |                      |             |       |
| Residential                                                               |                  |        |            |                      |             |       |
| Hotel                                                                     |                  |        |            |                      |             |       |

| Table 4-A: Internal Person-Trip Origin-Destination Matrix* |                  |        |            |                      |             |       |
|------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                              | Destination (To) |        |            |                      |             |       |
|                                                            | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                     |                  | 0      | 0          | 0                    | 0           | 0     |
| Retail                                                     | 0                |        | 30         | 0                    | 0           | 0     |
| Restaurant                                                 | 0                | 24     |            | 0                    | 0           | 0     |
| Cinema/Entertainment                                       | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                | 0                | 0      | 0          | 0                    |             | 0     |
| Hotel                                                      | 0                | 0      | 0          | 0                    | 0           |       |

| Table 5-A: Computations Summary           |       |          |         |
|-------------------------------------------|-------|----------|---------|
|                                           | Total | Entering | Exiting |
| All Person-Trips                          | 1,474 | 798      | 676     |
| Internal Capture Percentage               | 7%    | 7%       | 8%      |
| External Vehicle-Trips <sup>5</sup>       | 1,366 | 744      | 622     |
| External Transit-Trips <sup>6</sup>       | 0     | 0        | 0       |
| External Non-Motorized Trips <sup>6</sup> | 0     | 0        | 0       |

| Table 6-A: Internal Trip Capture Percentages by Land Use |                |               |
|----------------------------------------------------------|----------------|---------------|
| Land Use                                                 | Entering Trips | Exiting Trips |
| Office                                                   | N/A            | N/A           |
| Retail                                                   | 8%             | 13%           |
| Restaurant                                               | 13%            | 11%           |
| Cinema/Entertainment                                     | N/A            | N/A           |
| Residential                                              | N/A            | N/A           |
| Hotel                                                    | N/A            | N/A           |

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

<sup>3</sup>Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

<sup>4</sup>Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

<sup>5</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

<sup>6</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

|                         |                       |
|-------------------------|-----------------------|
| <b>Project Name:</b>    | Markets at Bent Grass |
| <b>Analysis Period:</b> | AM Street Peak Hour   |

| Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends |                               |               |               |                              |               |               |
|----------------------------------------------------------------|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use                                                       | Table 7-A (D): Entering Trips |               |               | Table 7-A (O): Exiting Trips |               |               |
|                                                                | Veh. Occ.                     | Vehicle-Trips | Person-Trips* | Veh. Occ.                    | Vehicle-Trips | Person-Trips* |
| Office                                                         | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Retail                                                         | 1.00                          | 304           | 304           | 1.00                         | 234           | 234           |
| Restaurant                                                     | 1.00                          | 227           | 227           | 1.00                         | 216           | 216           |
| Cinema/Entertainment                                           | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Residential                                                    | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Hotel                                                          | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |

| Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) |                  |        |            |                      |             |       |
|------------------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                                      | Destination (To) |        |            |                      |             |       |
|                                                                                    | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                             |                  | 0      | 0          | 0                    | 0           | 0     |
| Retail                                                                             | 68               |        | 30         | 0                    | 33          | 0     |
| Restaurant                                                                         | 67               | 30     |            | 0                    | 9           | 6     |
| Cinema/Entertainment                                                               | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                                        | 0                | 0      | 0          | 0                    |             | 0     |
| Hotel                                                                              | 0                | 0      | 0          | 0                    | 0           |       |

| Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) |                  |        |            |                      |             |       |
|-----------------------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                                           | Destination (To) |        |            |                      |             |       |
|                                                                                         | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                                  |                  | 97     | 52         | 0                    | 0           | 0     |
| Retail                                                                                  | 0                |        | 114        | 0                    | 0           | 0     |
| Restaurant                                                                              | 0                | 24     |            | 0                    | 0           | 0     |
| Cinema/Entertainment                                                                    | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                                             | 0                | 52     | 45         | 0                    |             | 0     |
| Hotel                                                                                   | 0                | 12     | 14         | 0                    | 0           |       |

| Table 9-A (D): Internal and External Trips Summary (Entering Trips) |                       |          |       |                         |                      |                            |
|---------------------------------------------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use                                                | Person-Trip Estimates |          |       | External Trips by Mode* |                      |                            |
|                                                                     | Internal              | External | Total | Vehicles <sup>1</sup>   | Transit <sup>2</sup> | Non-Motorized <sup>2</sup> |
| Office                                                              | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Retail                                                              | 24                    | 280      | 304   | 280                     | 0                    | 0                          |
| Restaurant                                                          | 30                    | 197      | 227   | 197                     | 0                    | 0                          |
| Cinema/Entertainment                                                | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Residential                                                         | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Hotel                                                               | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| All Other Land Uses <sup>3</sup>                                    | 0                     | 267      | 267   | 267                     | 0                    | 0                          |

| Table 9-A (O): Internal and External Trips Summary (Exiting Trips) |                       |          |       |                         |                      |                            |
|--------------------------------------------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use                                                    | Person-Trip Estimates |          |       | External Trips by Mode* |                      |                            |
|                                                                    | Internal              | External | Total | Vehicles <sup>1</sup>   | Transit <sup>2</sup> | Non-Motorized <sup>2</sup> |
| Office                                                             | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Retail                                                             | 30                    | 204      | 234   | 204                     | 0                    | 0                          |
| Restaurant                                                         | 24                    | 192      | 216   | 192                     | 0                    | 0                          |
| Cinema/Entertainment                                               | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Residential                                                        | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Hotel                                                              | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| All Other Land Uses <sup>3</sup>                                   | 0                     | 226      | 226   | 226                     | 0                    | 0                          |

|                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <sup>1</sup> Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A                                              |
| <sup>2</sup> Person-Trips                                                                                                                                |
| <sup>3</sup> Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator |
| *Indicates computation that has been rounded to the nearest whole number.                                                                                |

| NCHRP 684 Internal Trip Capture Estimation Tool |                                    |                      |              |  |  |
|-------------------------------------------------|------------------------------------|----------------------|--------------|--|--|
| <b>Project Name:</b>                            | Bent Grass Marketplace             | <b>Organization:</b> | SM ROCHA LLC |  |  |
| <b>Project Location:</b>                        | Bent Grass Meadows Dr & Woodmen Rd | <b>Performed By:</b> | SM ROCHA LLC |  |  |
| <b>Scenario Description:</b>                    | Build-Out                          | <b>Date:</b>         | 7/16/2026    |  |  |
| <b>Analysis Year:</b>                           | 2045                               | <b>Checked By:</b>   |              |  |  |
| <b>Analysis Period:</b>                         | PM Street Peak Hour                | <b>Date:</b>         |              |  |  |

| Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) |                                         |          |       |                                      |          |         |
|------------------------------------------------------------------------------|-----------------------------------------|----------|-------|--------------------------------------|----------|---------|
| Land Use                                                                     | Development Data (For Information Only) |          |       | Estimated Vehicle-Trips <sup>3</sup> |          |         |
|                                                                              | ITE LUCs <sup>1</sup>                   | Quantity | Units | Total                                | Entering | Exiting |
| Office                                                                       |                                         |          |       | 0                                    |          |         |
| Retail                                                                       | 821,862,875                             | 284      | KSF   | 1,123                                | 553      | 570     |
| Restaurant                                                                   | 932,937                                 | 15       | KSF   | 411                                  | 213      | 198     |
| Cinema/Entertainment                                                         |                                         |          |       | 0                                    |          |         |
| Residential                                                                  |                                         |          |       | 0                                    |          |         |
| Hotel                                                                        |                                         |          |       | 0                                    |          |         |
| All Other Land Uses <sup>2</sup>                                             | VAR                                     | 44       | KSF   | 553                                  | 262      | 291     |
|                                                                              |                                         |          |       | 2,087                                | 1,028    | 1,059   |

| Table 2-P: Mode Split and Vehicle Occupancy Estimates |                        |           |                 |                        |           |                 |
|-------------------------------------------------------|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use                                              | Entering Trips         |           |                 | Exiting Trips          |           |                 |
|                                                       | Veh. Occ. <sup>4</sup> | % Transit | % Non-Motorized | Veh. Occ. <sup>4</sup> | % Transit | % Non-Motorized |
| Office                                                |                        |           |                 |                        |           |                 |
| Retail                                                |                        |           |                 |                        |           |                 |
| Restaurant                                            |                        |           |                 |                        |           |                 |
| Cinema/Entertainment                                  |                        |           |                 |                        |           |                 |
| Residential                                           |                        |           |                 |                        |           |                 |
| Hotel                                                 |                        |           |                 |                        |           |                 |
| All Other Land Uses <sup>2</sup>                      |                        |           |                 |                        |           |                 |

| Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance) |                  |        |            |                      |             |       |
|---------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                             | Destination (To) |        |            |                      |             |       |
|                                                                           | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                    |                  |        |            |                      |             |       |
| Retail                                                                    |                  |        |            |                      |             |       |
| Restaurant                                                                |                  |        |            |                      |             |       |
| Cinema/Entertainment                                                      |                  |        |            |                      |             |       |
| Residential                                                               |                  |        |            |                      |             |       |
| Hotel                                                                     |                  |        |            |                      |             |       |

| Table 4-P: Internal Person-Trip Origin-Destination Matrix* |                  |        |            |                      |             |       |
|------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                              | Destination (To) |        |            |                      |             |       |
|                                                            | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                     |                  | 0      | 0          | 0                    | 0           | 0     |
| Retail                                                     | 0                |        | 62         | 0                    | 0           | 0     |
| Restaurant                                                 | 0                | 81     |            | 0                    | 0           | 0     |
| Cinema/Entertainment                                       | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                | 0                | 0      | 0          | 0                    |             | 0     |
| Hotel                                                      | 0                | 0      | 0          | 0                    | 0           |       |

| Table 5-P: Computations Summary           |       |          |         |
|-------------------------------------------|-------|----------|---------|
|                                           | Total | Entering | Exiting |
| All Person-Trips                          | 2,087 | 1,028    | 1,059   |
| Internal Capture Percentage               | 14%   | 14%      | 14%     |
| External Vehicle-Trips <sup>5</sup>       | 1,801 | 885      | 916     |
| External Transit-Trips <sup>6</sup>       | 0     | 0        | 0       |
| External Non-Motorized Trips <sup>6</sup> | 0     | 0        | 0       |

| Table 6-P: Internal Trip Capture Percentages by Land Use |                |               |
|----------------------------------------------------------|----------------|---------------|
| Land Use                                                 | Entering Trips | Exiting Trips |
| Office                                                   | N/A            | N/A           |
| Retail                                                   | 15%            | 11%           |
| Restaurant                                               | 29%            | 41%           |
| Cinema/Entertainment                                     | N/A            | N/A           |
| Residential                                              | N/A            | N/A           |
| Hotel                                                    | N/A            | N/A           |

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

<sup>3</sup>Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

<sup>4</sup>Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

<sup>5</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

<sup>6</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

|                         |                        |
|-------------------------|------------------------|
| <b>Project Name:</b>    | Bent Grass Marketplace |
| <b>Analysis Period:</b> | PM Street Peak Hour    |

| Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends |                               |               |               |                              |               |               |
|----------------------------------------------------------------|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use                                                       | Table 7-P (D): Entering Trips |               |               | Table 7-P (O): Exiting Trips |               |               |
|                                                                | Veh. Occ.                     | Vehicle-Trips | Person-Trips* | Veh. Occ.                    | Vehicle-Trips | Person-Trips* |
| Office                                                         | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Retail                                                         | 1.00                          | 553           | 553           | 1.00                         | 570           | 570           |
| Restaurant                                                     | 1.00                          | 213           | 213           | 1.00                         | 198           | 198           |
| Cinema/Entertainment                                           | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Residential                                                    | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |
| Hotel                                                          | 1.00                          | 0             | 0             | 1.00                         | 0             | 0             |

| Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) |                  |        |            |                      |             |       |
|------------------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                                      | Destination (To) |        |            |                      |             |       |
|                                                                                    | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                             |                  | 0      | 0          | 0                    | 0           | 0     |
| Retail                                                                             | 11               |        | 165        | 23                   | 148         | 29    |
| Restaurant                                                                         | 6                | 81     |            | 16                   | 36          | 14    |
| Cinema/Entertainment                                                               | 0                | 0      | 0          |                      | 0           | 0     |
| Residential                                                                        | 0                | 0      | 0          | 0                    |             | 0     |
| Hotel                                                                              | 0                | 0      | 0          | 0                    | 0           |       |

| Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) |                  |        |            |                      |             |       |
|-----------------------------------------------------------------------------------------|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From)                                                                           | Destination (To) |        |            |                      |             |       |
|                                                                                         | Office           | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office                                                                                  |                  | 44     | 4          | 0                    | 0           | 0     |
| Retail                                                                                  | 0                |        | 62         | 0                    | 0           | 0     |
| Restaurant                                                                              | 0                | 277    |            | 0                    | 0           | 0     |
| Cinema/Entertainment                                                                    | 0                | 22     | 6          |                      | 0           | 0     |
| Residential                                                                             | 0                | 55     | 30         | 0                    |             | 0     |
| Hotel                                                                                   | 0                | 11     | 11         | 0                    | 0           |       |

| Table 9-P (D): Internal and External Trips Summary (Entering Trips) |                       |          |       |                         |                      |                            |
|---------------------------------------------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use                                                | Person-Trip Estimates |          |       | External Trips by Mode* |                      |                            |
|                                                                     | Internal              | External | Total | Vehicles <sup>1</sup>   | Transit <sup>2</sup> | Non-Motorized <sup>2</sup> |
| Office                                                              | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Retail                                                              | 81                    | 472      | 553   | 472                     | 0                    | 0                          |
| Restaurant                                                          | 62                    | 151      | 213   | 151                     | 0                    | 0                          |
| Cinema/Entertainment                                                | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Residential                                                         | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Hotel                                                               | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| All Other Land Uses <sup>3</sup>                                    | 0                     | 262      | 262   | 262                     | 0                    | 0                          |

| Table 9-P (O): Internal and External Trips Summary (Exiting Trips) |                       |          |       |                         |                      |                            |
|--------------------------------------------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use                                                    | Person-Trip Estimates |          |       | External Trips by Mode* |                      |                            |
|                                                                    | Internal              | External | Total | Vehicles <sup>1</sup>   | Transit <sup>2</sup> | Non-Motorized <sup>2</sup> |
| Office                                                             | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Retail                                                             | 62                    | 508      | 570   | 508                     | 0                    | 0                          |
| Restaurant                                                         | 81                    | 117      | 198   | 117                     | 0                    | 0                          |
| Cinema/Entertainment                                               | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Residential                                                        | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| Hotel                                                              | 0                     | 0        | 0     | 0                       | 0                    | 0                          |
| All Other Land Uses <sup>3</sup>                                   | 0                     | 291      | 291   | 291                     | 0                    | 0                          |

<sup>1</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

<sup>2</sup>Person-Trips

<sup>3</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

\*Indicates computation that has been rounded to the nearest whole number.



DEVELOPMENT SITE

BENT GRASS MEADOWS DRIVE

WOODMEN ROAD

PROPOSED  
WOODMEN ACCESS

Green T Signal  
Configuration  
(Westbound Holds)



Green T Signal  
Configuration  
(Eastbound Holds)



## **APPENDIX C**

### **Capacity Worksheets**

# Timings

## 1: Golden Sage Drive & E Woodmen Road

# Existing Traffic Conditions

AM Peak Traffic Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 112                                                                               | 942                                                                               | 57                                                                                | 10                                                                                | 1618                                                                              | 5                                                                                 | 105                                                                                 | 7                                                                                   | 9                                                                                   | 16                                                                                  | 7                                                                                   | 265                                                                                 |
| Future Volume (vph)     | 112                                                                               | 942                                                                               | 57                                                                                | 10                                                                                | 1618                                                                              | 5                                                                                 | 105                                                                                 | 7                                                                                   | 9                                                                                   | 16                                                                                  | 7                                                                                   | 265                                                                                 |
| Satd. Flow (prot)       | 1770                                                                              | 3539                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 1583                                                                              | 1770                                                                                | 1863                                                                                | 1583                                                                                | 1770                                                                                | 1591                                                                                | 0                                                                                   |
| Flt Permitted           | 0.053                                                                             |                                                                                   |                                                                                   | 0.259                                                                             |                                                                                   |                                                                                   | 0.272                                                                               |                                                                                     |                                                                                     | 0.752                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 99                                                                                | 3539                                                                              | 1583                                                                              | 482                                                                               | 3539                                                                              | 1583                                                                              | 507                                                                                 | 1863                                                                                | 1583                                                                                | 1401                                                                                | 1591                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 64                                                                                |                                                                                   |                                                                                   | 64                                                                                |                                                                                     |                                                                                     | 82                                                                                  |                                                                                     | 97                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 122                                                                               | 1024                                                                              | 62                                                                                | 11                                                                                | 1759                                                                              | 5                                                                                 | 114                                                                                 | 8                                                                                   | 10                                                                                  | 17                                                                                  | 296                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | Perm                                                                              | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Perm                                                                                | NA                                                                                  | Perm                                                                                | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 | 4                                                                                   |                                                                                     | 4                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 4                                                                                   | 4                                                                                   | 4                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                |                                                                                     |
| Total Split (s)         | 13.0                                                                              | 75.5                                                                              | 75.5                                                                              | 10.5                                                                              | 73.0                                                                              | 73.0                                                                              | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                |                                                                                     |
| Total Split (%)         | 10.8%                                                                             | 62.9%                                                                             | 62.9%                                                                             | 8.8%                                                                              | 60.8%                                                                             | 60.8%                                                                             | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                                | None                                                                                | None                                                                                | None                                                                                | None                                                                                |                                                                                     |
| Act Effect Green (s)    | 83.9                                                                              | 80.3                                                                              | 80.3                                                                              | 77.3                                                                              | 69.8                                                                              | 69.8                                                                              | 25.6                                                                                | 25.6                                                                                | 25.6                                                                                | 25.6                                                                                | 25.6                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.70                                                                              | 0.67                                                                              | 0.67                                                                              | 0.64                                                                              | 0.58                                                                              | 0.58                                                                              | 0.21                                                                                | 0.21                                                                                | 0.21                                                                                | 0.21                                                                                | 0.21                                                                                |                                                                                     |
| v/c Ratio               | 0.69                                                                              | 0.43                                                                              | 0.05                                                                              | 0.02                                                                              | 0.85                                                                              | 0.00                                                                              | 1.05                                                                                | 0.02                                                                                | 0.02                                                                                | 0.05                                                                                | 0.71                                                                                |                                                                                     |
| Control Delay (s/veh)   | 41.9                                                                              | 11.0                                                                              | 2.5                                                                               | 6.8                                                                               | 27.2                                                                              | 0.0                                                                               | 148.1                                                                               | 35.0                                                                                | 0.1                                                                                 | 35.8                                                                                | 38.4                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay (s/veh)     | 41.9                                                                              | 11.0                                                                              | 2.5                                                                               | 6.8                                                                               | 27.2                                                                              | 0.0                                                                               | 148.1                                                                               | 35.0                                                                                | 0.1                                                                                 | 35.8                                                                                | 38.4                                                                                |                                                                                     |
| LOS                     | D                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 | C                                                                                 | A                                                                                 | F                                                                                   | C                                                                                   | A                                                                                   | D                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s/veh)  |                                                                                   | 13.7                                                                              |                                                                                   |                                                                                   | 27.1                                                                              |                                                                                   |                                                                                     | 130.1                                                                               |                                                                                     |                                                                                     | 38.3                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 43                                                                                | 184                                                                               | 0                                                                                 | 3                                                                                 | 613                                                                               | 0                                                                                 | 87                                                                                  | 5                                                                                   | 0                                                                                   | 10                                                                                  | 139                                                                                 |                                                                                     |
| Queue Length 95th (ft)  | #133                                                                              | 294                                                                               | 18                                                                                | 9                                                                                 | 738                                                                               | 0                                                                                 | #206                                                                                | 18                                                                                  | 0                                                                                   | 30                                                                                  | 240                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 2147                                                                              |                                                                                   |                                                                                   | 1854                                                                              |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 180                                                                               | 2367                                                                              | 1080                                                                              | 369                                                                               | 2057                                                                              | 947                                                                               | 122                                                                                 | 450                                                                                 | 444                                                                                 | 338                                                                                 | 458                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 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                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.68                                                                              | 0.43                                                                              | 0.06                                                                              | 0.03                                                                              | 0.86                                                                              | 0.01                                                                              | 0.93                                                                                | 0.02                                                                                | 0.02                                                                                | 0.05                                                                                | 0.65                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

|                                                                 |                        |
|-----------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 1.06                                         |                        |
| Intersection Signal Delay (s/veh): 27.4                         | Intersection LOS: C    |
| Intersection Capacity Utilization 91.8%                         | ICU Level of Service F |
| Analysis Period (min) 15                                        |                        |
| # 95th percentile volume exceeds capacity, queue may be longer. |                        |
| Queue shown is maximum after two cycles.                        |                        |

Splits and Phases: 1: Golden Sage Drive & E Woodmen Road

|                                                                                                                   |                                                                                                                       |                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
|  <div>Ø1</div> <div>10.5 s</div> |  <div>Ø2 (R)</div> <div>75.5 s</div> |  <div>Ø4</div> <div>34 s</div> |
|  <div>Ø5</div> <div>13 s</div>   |  <div>Ø6 (R)</div> <div>73 s</div>   |  <div>Ø8</div> <div>34 s</div> |

# Timings

## 2: Meridian Road & E Woodmen Road

# Existing Traffic Conditions

AM Peak Traffic Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 396                                                                               | 257                                                                               | 258                                                                               | 68                                                                                | 556                                                                               | 51                                                                                | 234                                                                                | 249                                                                                 | 11                                                                                  | 79                                                                                  | 876                                                                                 | 905                                                                                 |
| Future Volume (vph)     | 396                                                                               | 257                                                                               | 258                                                                               | 68                                                                                | 556                                                                               | 51                                                                                | 234                                                                                | 249                                                                                 | 11                                                                                  | 79                                                                                  | 876                                                                                 | 905                                                                                 |
| Satd. Flow (prot)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                               | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Flt Permitted           | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                              |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                               | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 181                                                                               |                                                                                   |                                                                                   | 218                                                                               |                                                                                    |                                                                                     | 282                                                                                 |                                                                                     |                                                                                     | 648                                                                                 |
| Lane Group Flow (vph)   | 430                                                                               | 279                                                                               | 280                                                                               | 74                                                                                | 604                                                                               | 55                                                                                | 254                                                                                | 271                                                                                 | 12                                                                                  | 86                                                                                  | 952                                                                                 | 984                                                                                 |
| Turn Type               | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                               | NA                                                                                  | Free                                                                                | Prot                                                                                | NA                                                                                  | Free                                                                                |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 7                                                                                  | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Permitted Phases        |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Free                                                                                |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 7                                                                                  | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                               | 25.0                                                                                |                                                                                     | 11.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Split (s)         | 24.0                                                                              | 47.0                                                                              | 47.0                                                                              | 11.0                                                                              | 34.0                                                                              | 34.0                                                                              | 17.0                                                                               | 51.0                                                                                |                                                                                     | 11.0                                                                                | 45.0                                                                                |                                                                                     |
| Total Split (%)         | 20.0%                                                                             | 39.2%                                                                             | 39.2%                                                                             | 9.2%                                                                              | 28.3%                                                                             | 28.3%                                                                             | 14.2%                                                                              | 42.5%                                                                               |                                                                                     | 9.2%                                                                                | 37.5%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 4.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                | 3.0                                                                                 |                                                                                     | 2.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                | 7.0                                                                                 |                                                                                     | 5.0                                                                                 | 7.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                               | Lag                                                                                 |                                                                                     | Lead                                                                                | Lag                                                                                 |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                                | Yes                                                                                 |                                                                                     | Yes                                                                                 | Yes                                                                                 |                                                                                     |
| Recall Mode             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                               | Min                                                                                 |                                                                                     | None                                                                                | Min                                                                                 |                                                                                     |
| Act Effct Green (s)     | 18.2                                                                              | 43.7                                                                              | 43.7                                                                              | 6.2                                                                               | 29.5                                                                              | 29.5                                                                              | 12.1                                                                               | 43.9                                                                                | 120.0                                                                               | 6.6                                                                                 | 36.2                                                                                | 120.0                                                                               |
| Actuated g/C Ratio      | 0.15                                                                              | 0.36                                                                              | 0.36                                                                              | 0.05                                                                              | 0.25                                                                              | 0.25                                                                              | 0.10                                                                               | 0.37                                                                                | 1.00                                                                                | 0.06                                                                                | 0.30                                                                                | 1.00                                                                                |
| v/c Ratio               | 0.82                                                                              | 0.21                                                                              | 0.40                                                                              | 0.41                                                                              | 0.69                                                                              | 0.09                                                                              | 0.73                                                                               | 0.20                                                                                | 0.00                                                                                | 0.45                                                                                | 0.89                                                                                | 0.62                                                                                |
| Control Delay (s/veh)   | 63.5                                                                              | 28.3                                                                              | 12.8                                                                              | 62.7                                                                              | 46.9                                                                              | 0.3                                                                               | 65.4                                                                               | 26.7                                                                                | 0.0                                                                                 | 81.5                                                                                | 39.2                                                                                | 4.6                                                                                 |
| 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 (s/veh)     | 63.5                                                                              | 28.3                                                                              | 12.8                                                                              | 62.7                                                                              | 46.9                                                                              | 0.3                                                                               | 65.4                                                                               | 26.7                                                                                | 0.0                                                                                 | 81.5                                                                                | 39.2                                                                                | 4.6                                                                                 |
| LOS                     | E                                                                                 | C                                                                                 | B                                                                                 | E                                                                                 | D                                                                                 | A                                                                                 | E                                                                                  | C                                                                                   | A                                                                                   | F                                                                                   | D                                                                                   | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                   | 39.3                                                                              |                                                                                   |                                                                                   | 45.0                                                                              |                                                                                   |                                                                                    | 44.5                                                                                |                                                                                     |                                                                                     | 24.2                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 167                                                                               | 83                                                                                | 55                                                                                | 29                                                                                | 235                                                                               | 0                                                                                 | 98                                                                                 | 75                                                                                  | 0                                                                                   | 36                                                                                  | 330                                                                                 | 236                                                                                 |
| Queue Length 95th (ft)  | #235                                                                              | 117                                                                               | 131                                                                               | 55                                                                                | 298                                                                               | 0                                                                                 | #154                                                                               | 107                                                                                 | 0                                                                                   | m53                                                                                 | 397                                                                                 | 175                                                                                 |
| Internal Link Dist (ft) |                                                                                   | 715                                                                               |                                                                                   |                                                                                   | 528                                                                               |                                                                                   |                                                                                    | 1133                                                                                |                                                                                     |                                                                                     | 3247                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                               |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                   | 480                                                                                |                                                                                     | 430                                                                                 | 490                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 543                                                                               | 1296                                                                              | 694                                                                               | 177                                                                               | 879                                                                               | 557                                                                               | 356                                                                                | 1315                                                                                | 1583                                                                                | 189                                                                                 | 1120                                                                                | 1583                                                                                |
| 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       | 0.79                                                                              | 0.22                                                                              | 0.40                                                                              | 0.42                                                                              | 0.69                                                                              | 0.10                                                                              | 0.71                                                                               | 0.21                                                                                | 0.01                                                                                | 0.46                                                                                | 0.85                                                                                | 0.62                                                                                |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

## Timings

## Existing Traffic Conditions

### 2: Meridian Road & E Woodmen Road

AM Peak Traffic Hour

Maximum v/c Ratio: 0.89

Intersection Signal Delay (s/veh): 33.8

Intersection LOS: C

Intersection Capacity Utilization 77.6%

ICU Level of Service D

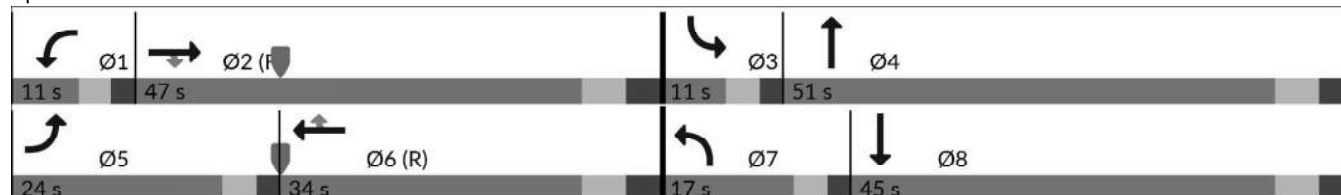
Analysis Period (min) 15

# 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.

Splits and Phases: 2: Meridian Road & E Woodmen Road



# Timings

## 3: Meridian Road & Bent Grass Meadows Drive

# Existing Traffic Conditions

AM Peak Traffic Hour

|                                                                      |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                           | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                 | 103                                                                               | 91                                                                                | 65                                                                                | 556                                                                               | 1577                                                                              | 125                                                                               |
| Future Volume (vph)                                                  | 103                                                                               | 91                                                                                | 65                                                                                | 556                                                                               | 1577                                                                              | 125                                                                               |
| Satd. Flow (prot)                                                    | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                        | 0.950                                                                             |                                                                                   | 0.074                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                    | 3433                                                                              | 1583                                                                              | 138                                                                               | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                    |                                                                                   | 99                                                                                |                                                                                   |                                                                                   |                                                                                   | 136                                                                               |
| Lane Group Flow (vph)                                                | 112                                                                               | 99                                                                                | 71                                                                                | 604                                                                               | 1714                                                                              | 136                                                                               |
| Turn Type                                                            | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                     | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                     |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                       | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                  | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                    | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                      | 23.0                                                                              | 23.0                                                                              | 12.0                                                                              | 97.0                                                                              | 85.0                                                                              | 85.0                                                                              |
| Total Split (%)                                                      | 19.2%                                                                             | 19.2%                                                                             | 10.0%                                                                             | 80.8%                                                                             | 70.8%                                                                             | 70.8%                                                                             |
| Yellow Time (s)                                                      | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                     | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                             |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                          | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                 | 9.3                                                                               | 9.3                                                                               | 101.7                                                                             | 101.7                                                                             | 80.5                                                                              | 80.5                                                                              |
| Actuated g/C Ratio                                                   | 0.08                                                                              | 0.08                                                                              | 0.85                                                                              | 0.85                                                                              | 0.67                                                                              | 0.67                                                                              |
| v/c Ratio                                                            | 0.42                                                                              | 0.46                                                                              | 0.20                                                                              | 0.20                                                                              | 0.72                                                                              | 0.12                                                                              |
| Control Delay (s/veh)                                                | 54.2                                                                              | 15.3                                                                              | 13.8                                                                              | 3.4                                                                               | 14.8                                                                              | 1.3                                                                               |
| Queue Delay                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                  | 54.2                                                                              | 15.3                                                                              | 13.8                                                                              | 3.4                                                                               | 14.8                                                                              | 1.3                                                                               |
| LOS                                                                  | D                                                                                 | B                                                                                 | B                                                                                 | A                                                                                 | B                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                               | 36.0                                                                              |                                                                                   |                                                                                   | 4.5                                                                               | 13.9                                                                              |                                                                                   |
| Approach LOS                                                         | D                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                               | 43                                                                                | 1                                                                                 | 15                                                                                | 73                                                                                | 407                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                               | m71                                                                               | m51                                                                               | m27                                                                               | 94                                                                                | 490                                                                               | 20                                                                                |
| Internal Link Dist (ft)                                              | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                 | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                  | 529                                                                               | 327                                                                               | 344                                                                               | 2999                                                                              | 2374                                                                              | 1106                                                                              |
| Starvation Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                    | 0.21                                                                              | 0.30                                                                              | 0.21                                                                              | 0.20                                                                              | 0.72                                                                              | 0.12                                                                              |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 75                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Timings

### 3: Meridian Road & Bent Grass Meadows Drive

## Existing Traffic Conditions

AM Peak Traffic Hour

Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 13.3

Intersection LOS: B

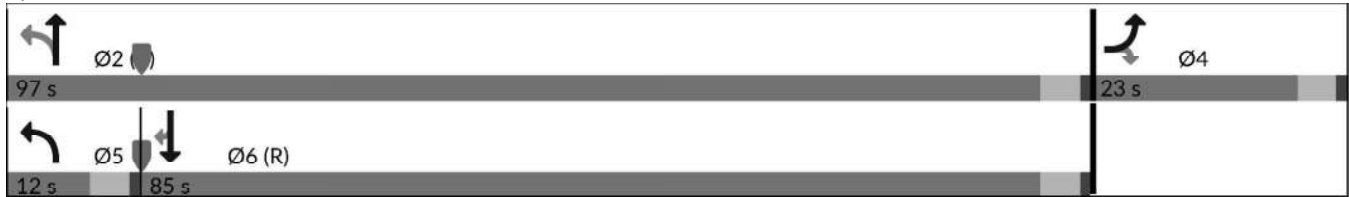
Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



# HCM Unsignalized Intersection Capacity Analysis

## 4: Golden Sage Drive & Woodmen Frontage Road

Existing Traffic Conditions  
AM Peak Traffic Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 1                                                                                 | 2                                                                                 | 286                                                                               | 2                                                                                 | 2                                                                                 | 121                                                                               |
| Future Volume (Veh/h)             | 1                                                                                 | 2                                                                                 | 286                                                                               | 2                                                                                 | 2                                                                                 | 121                                                                               |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Hourly flow rate (vph)            | 1                                                                                 | 2                                                                                 | 311                                                                               | 2                                                                                 | 2                                                                                 | 132                                                                               |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |
| Median storage veh                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 275                                                                               |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 136                                                                               | 0                                                                                 | 73                                                                                | 70                                                                                | 0                                                                                 |                                                                                   |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 136                                                                               | 0                                                                                 | 73                                                                                | 70                                                                                | 0                                                                                 |                                                                                   |
| tC, single (s)                    | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 4.1                                                                               |                                                                                   |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 2.2                                                                               |                                                                                   |
| p0 queue free %                   | 100                                                                               | 100                                                                               | 66                                                                                | 100                                                                               | 100                                                                               |                                                                                   |
| cM capacity (veh/h)               | 754                                                                               | 1085                                                                              | 915                                                                               | 820                                                                               | 1623                                                                              |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 3                                                                                 | 313                                                                               | 134                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 311                                                                               | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 2                                                                                 | 0                                                                                 | 132                                                                               |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 946                                                                               | 914                                                                               | 1623                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.00                                                                              | 0.34                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 38                                                                                | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s/veh)             | 8.8                                                                               | 11.0                                                                              | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          | A                                                                                 | B                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s/veh)            | 8.8                                                                               | 11.0                                                                              | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      | A                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 36.9%                                                                             | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 4.7                                                                               |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR                                                                               |
| Lane Configurations      |  |  |  |      |  |  |
| Traffic Vol, veh/h       | 56                                                                                | 66                                                                                | 139                                                                               | 3    | 5                                                                                 | 149                                                                               |
| Future Vol, veh/h        | 56                                                                                | 66                                                                                | 139                                                                               | 3    | 5                                                                                 | 149                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None | -                                                                                 | None                                                                              |
| Storage Length           | 310                                                                               | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 61                                                                                | 72                                                                                | 151                                                                               | 3    | 5                                                                                 | 162                                                                               |

| Major/Minor          | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 154    | 0      | 0      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 1426   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1426   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach               | EB   | WB | SB    |
|------------------------|------|----|-------|
| HCM Control Delay, s/v | 3.51 | 0  | 10.04 |
| HCM LOS                | B    |    |       |

| Minor Lane/Major Mvmt     | EBL   | EBT | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)          | 1426  | -   | -   | -   | 881   |
| HCM Lane V/C Ratio        | 0.043 | -   | -   | -   | 0.19  |
| HCM Control Delay (s/veh) | 7.6   | -   | -   | -   | 10    |
| HCM Lane LOS              | A     | -   | -   | -   | B     |
| HCM 95th %tile Q(veh)     | 0.1   | -   | -   | -   | 0.7   |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Existing Traffic Conditions  
AM Peak Traffic Hour

| Intersection                |         |         |          |          |         |
|-----------------------------|---------|---------|----------|----------|---------|
| Intersection Delay, s/veh   | 3.2     |         |          |          |         |
| Intersection LOS            | A       |         |          |          |         |
| Approach                    | EB      | SB      | NW       |          | NE      |
| Entry Lanes                 | 1       | 1       | 2        |          | 1       |
| Conflicting Circle Lanes    | 1       | 1       | 1        |          | 1       |
| Adj Approach Flow, veh/h    | 1       | 75      | 66       |          | 110     |
| Demand Flow Rate, veh/h     | 1       | 77      | 67       |          | 112     |
| Vehicles Circulating, veh/h | 94      | 18      | 112      |          | 1       |
| Vehicles Exiting, veh/h     | 0       | 161     | 1        |          | 95      |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0        |          | 0       |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000    |          | 1.000   |
| Approach Delay, s/veh       | 2.9     | 3.2     | 3.1      |          | 3.3     |
| Approach LOS                | A       | A       | A        |          | A       |
| Lane                        | Left    | Left    | Left     | Right    | Left    |
| Designated Moves            | L       | R       | L        | TR       | L       |
| Assumed Moves               | L       | R       | L        | TR       | L       |
| RT Channelized              |         |         |          |          |         |
| Lane Util                   | 1.000   | 1.000   | 0.269    | 0.731    | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.535    | 2.535    | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.544    | 4.544    | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1420     | 1420     | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 9.101e-4 | 9.101e-4 | 1.02e-3 |
| Entry Flow, veh/h           | 1       | 77      | 18       | 49       | 112     |
| Cap Entry Lane, veh/h       | 1254    | 1355    | 1282     | 1282     | 1378    |
| Entry HV Adj Factor         | 1.000   | 0.974   | 0.980    | 0.980    | 0.982   |
| Flow Entry, veh/h           | 1       | 75      | 18       | 48       | 110     |
| Cap Entry, veh/h            | 1254    | 1320    | 1257     | 1256     | 1354    |
| V/C Ratio                   | 0.001   | 0.057   | 0.014    | 0.038    | 0.081   |
| Control Delay, s/veh        | 2.9     | 3.2     | 3.0      | 3.2      | 3.3     |
| LOS                         | A       | A       | A        | A        | A       |
| 95th %tile Queue, veh       | 0       | 0       | 0        | 0        | 0       |

# Timings

## 1: Golden Sage Drive & E Woodmen Road

# Existing Traffic Conditions

PM Peak Traffic Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 282                                                                               | 1420                                                                              | 115                                                                               | 32                                                                                | 1112                                                                              | 8                                                                                 | 139                                                                                 | 14                                                                                  | 25                                                                                  | 15                                                                                  | 14                                                                                  | 200                                                                                 |
| Future Volume (vph)     | 282                                                                               | 1420                                                                              | 115                                                                               | 32                                                                                | 1112                                                                              | 8                                                                                 | 139                                                                                 | 14                                                                                  | 25                                                                                  | 15                                                                                  | 14                                                                                  | 200                                                                                 |
| Satd. Flow (prot)       | 1770                                                                              | 3539                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 1583                                                                              | 1770                                                                                | 1863                                                                                | 1583                                                                                | 1770                                                                                | 1602                                                                                | 0                                                                                   |
| Flt Permitted           | 0.119                                                                             |                                                                                   |                                                                                   | 0.122                                                                             |                                                                                   |                                                                                   | 0.397                                                                               |                                                                                     |                                                                                     | 0.748                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 222                                                                               | 3539                                                                              | 1583                                                                              | 227                                                                               | 3539                                                                              | 1583                                                                              | 740                                                                                 | 1863                                                                                | 1583                                                                                | 1393                                                                                | 1602                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 125                                                                               |                                                                                   |                                                                                   | 109                                                                               |                                                                                     |                                                                                     | 127                                                                                 |                                                                                     | 217                                                                                 |                                                                                     |
| Lane Group Flow (vph)   | 307                                                                               | 1543                                                                              | 125                                                                               | 35                                                                                | 1209                                                                              | 9                                                                                 | 151                                                                                 | 15                                                                                  | 27                                                                                  | 16                                                                                  | 232                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | Perm                                                                              | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Perm                                                                                | NA                                                                                  | Perm                                                                                | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 | 4                                                                                   |                                                                                     | 4                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 4                                                                                   | 4                                                                                   | 4                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                |                                                                                     |
| Total Split (s)         | 27.0                                                                              | 73.4                                                                              | 73.4                                                                              | 10.6                                                                              | 57.0                                                                              | 57.0                                                                              | 36.0                                                                                | 36.0                                                                                | 36.0                                                                                | 36.0                                                                                | 36.0                                                                                |                                                                                     |
| Total Split (%)         | 22.5%                                                                             | 61.2%                                                                             | 61.2%                                                                             | 8.8%                                                                              | 47.5%                                                                             | 47.5%                                                                             | 30.0%                                                                               | 30.0%                                                                               | 30.0%                                                                               | 30.0%                                                                               | 30.0%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                                | None                                                                                | None                                                                                | None                                                                                | None                                                                                |                                                                                     |
| Act Effct Green (s)     | 84.6                                                                              | 76.1                                                                              | 76.1                                                                              | 66.7                                                                              | 58.9                                                                              | 58.9                                                                              | 25.4                                                                                | 25.4                                                                                | 25.4                                                                                | 25.4                                                                                | 25.4                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.71                                                                              | 0.63                                                                              | 0.63                                                                              | 0.56                                                                              | 0.49                                                                              | 0.49                                                                              | 0.21                                                                                | 0.21                                                                                | 0.21                                                                                | 0.21                                                                                | 0.21                                                                                |                                                                                     |
| v/c Ratio               | 0.77                                                                              | 0.68                                                                              | 0.11                                                                              | 0.17                                                                              | 0.69                                                                              | 0.01                                                                              | 0.96                                                                                | 0.03                                                                                | 0.06                                                                                | 0.05                                                                                | 0.45                                                                                |                                                                                     |
| Control Delay (s/veh)   | 33.2                                                                              | 18.4                                                                              | 2.4                                                                               | 11.0                                                                              | 28.3                                                                              | 0.0                                                                               | 109.6                                                                               | 34.5                                                                                | 0.2                                                                                 | 34.9                                                                                | 8.9                                                                                 |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay (s/veh)     | 33.2                                                                              | 18.4                                                                              | 2.4                                                                               | 11.0                                                                              | 28.3                                                                              | 0.0                                                                               | 109.6                                                                               | 34.5                                                                                | 0.2                                                                                 | 34.9                                                                                | 8.9                                                                                 |                                                                                     |
| LOS                     | C                                                                                 | B                                                                                 | A                                                                                 | B                                                                                 | C                                                                                 | A                                                                                 | F                                                                                   | C                                                                                   | A                                                                                   | C                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s/veh)  |                                                                                   | 19.8                                                                              |                                                                                   |                                                                                   | 27.7                                                                              |                                                                                   |                                                                                     | 88.5                                                                                |                                                                                     |                                                                                     | 10.6                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 125                                                                               | 445                                                                               | 0                                                                                 | 8                                                                                 | 398                                                                               | 0                                                                                 | 114                                                                                 | 9                                                                                   | 0                                                                                   | 10                                                                                  | 9                                                                                   |                                                                                     |
| Queue Length 95th (ft)  | 236                                                                               | 574                                                                               | 27                                                                                | 20                                                                                | 523                                                                               | 0                                                                                 | #226                                                                                | 27                                                                                  | 0                                                                                   | 28                                                                                  | 72                                                                                  |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 2147                                                                              |                                                                                   |                                                                                   | 1854                                                                              |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 439                                                                               | 2244                                                                              | 1049                                                                              | 200                                                                               | 1738                                                                              | 832                                                                               | 191                                                                                 | 481                                                                                 | 503                                                                                 | 359                                                                                 | 574                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 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                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.70                                                                              | 0.69                                                                              | 0.12                                                                              | 0.18                                                                              | 0.70                                                                              | 0.01                                                                              | 0.79                                                                                | 0.03                                                                                | 0.05                                                                                | 0.04                                                                                | 0.40                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Timings

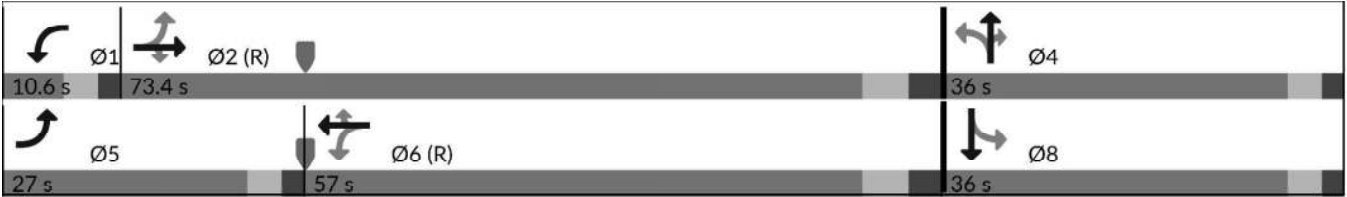
1: Golden Sage Drive & E Woodmen Road

Existing Traffic Conditions

PM Peak Traffic Hour

|                                                                 |                        |
|-----------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 0.97                                         |                        |
| Intersection Signal Delay (s/veh): 25.5                         | Intersection LOS: C    |
| Intersection Capacity Utilization 85.5%                         | ICU Level of Service E |
| Analysis Period (min) 15                                        |                        |
| # 95th percentile volume exceeds capacity, queue may be longer. |                        |
| Queue shown is maximum after two cycles.                        |                        |

Splits and Phases: 1: Golden Sage Drive & E Woodmen Road



# Timings

## 2: Meridian Road & E Woodmen Road

Existing Traffic Conditions  
PM Peak Traffic Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 746                                                                               | 486                                                                               | 117                                                                               | 74                                                                                | 397                                                                               | 143                                                                               | 321                                                                                 | 715                                                                                 | 88                                                                                  | 150                                                                                 | 442                                                                                 | 500                                                                                 |
| Future Volume (vph)     | 746                                                                               | 486                                                                               | 117                                                                               | 74                                                                                | 397                                                                               | 143                                                                               | 321                                                                                 | 715                                                                                 | 88                                                                                  | 150                                                                                 | 442                                                                                 | 500                                                                                 |
| Satd. Flow (prot)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Flt Permitted           | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 173                                                                               |                                                                                   |                                                                                   | 218                                                                               |                                                                                     |                                                                                     | 282                                                                                 |                                                                                     |                                                                                     | 543                                                                                 |
| Lane Group Flow (vph)   | 811                                                                               | 528                                                                               | 127                                                                               | 80                                                                                | 432                                                                               | 155                                                                               | 349                                                                                 | 777                                                                                 | 96                                                                                  | 163                                                                                 | 480                                                                                 | 543                                                                                 |
| Turn Type               | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                                | NA                                                                                  | Free                                                                                | Prot                                                                                | NA                                                                                  | Free                                                                                |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Permitted Phases        |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Free                                                                                |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                                | 25.0                                                                                |                                                                                     | 11.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Split (s)         | 39.0                                                                              | 57.0                                                                              | 57.0                                                                              | 11.0                                                                              | 29.0                                                                              | 29.0                                                                              | 22.0                                                                                | 39.0                                                                                |                                                                                     | 13.0                                                                                | 30.0                                                                                |                                                                                     |
| Total Split (%)         | 32.5%                                                                             | 47.5%                                                                             | 47.5%                                                                             | 9.2%                                                                              | 24.2%                                                                             | 24.2%                                                                             | 18.3%                                                                               | 32.5%                                                                               |                                                                                     | 10.8%                                                                               | 25.0%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 4.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 3.0                                                                                 |                                                                                     | 2.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 7.0                                                                                 |                                                                                     | 5.0                                                                                 | 7.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                                | Lag                                                                                 |                                                                                     | Lead                                                                                | Lag                                                                                 |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 | Yes                                                                                 |                                                                                     |
| Recall Mode             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                                | Min                                                                                 |                                                                                     | None                                                                                | Min                                                                                 |                                                                                     |
| Act Effect Green (s)    | 32.1                                                                              | 53.0                                                                              | 53.0                                                                              | 6.3                                                                               | 24.9                                                                              | 24.9                                                                              | 16.0                                                                                | 30.0                                                                                | 120.0                                                                               | 8.9                                                                                 | 23.0                                                                                | 120.0                                                                               |
| Actuated g/C Ratio      | 0.27                                                                              | 0.44                                                                              | 0.44                                                                              | 0.05                                                                              | 0.21                                                                              | 0.21                                                                              | 0.13                                                                                | 0.25                                                                                | 1.00                                                                                | 0.07                                                                                | 0.19                                                                                | 1.00                                                                                |
| v/c Ratio               | 0.88                                                                              | 0.33                                                                              | 0.15                                                                              | 0.44                                                                              | 0.58                                                                              | 0.30                                                                              | 0.76                                                                                | 0.87                                                                                | 0.06                                                                                | 0.63                                                                                | 0.70                                                                                | 0.34                                                                                |
| Control Delay (s/veh)   | 54.1                                                                              | 23.7                                                                              | 1.5                                                                               | 63.5                                                                              | 47.8                                                                              | 2.8                                                                               | 61.6                                                                                | 55.2                                                                                | 0.0                                                                                 | 87.3                                                                                | 41.6                                                                                | 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 (s/veh)     | 54.1                                                                              | 23.7                                                                              | 1.5                                                                               | 63.5                                                                              | 47.8                                                                              | 2.8                                                                               | 61.6                                                                                | 55.2                                                                                | 0.0                                                                                 | 87.3                                                                                | 41.6                                                                                | 0.9                                                                                 |
| LOS                     | D                                                                                 | C                                                                                 | A                                                                                 | E                                                                                 | D                                                                                 | A                                                                                 | E                                                                                   | E                                                                                   | A                                                                                   | F                                                                                   | D                                                                                   | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                   | 38.7                                                                              |                                                                                   |                                                                                   | 39.3                                                                              |                                                                                   |                                                                                     | 52.7                                                                                |                                                                                     |                                                                                     | 29.3                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 304                                                                               | 150                                                                               | 0                                                                                 | 31                                                                                | 169                                                                               | 0                                                                                 | 134                                                                                 | 298                                                                                 | 0                                                                                   | 69                                                                                  | 168                                                                                 | 1                                                                                   |
| Queue Length 95th (ft)  | 382                                                                               | 190                                                                               | 15                                                                                | 58                                                                                | 222                                                                               | 14                                                                                | 187                                                                                 | 375                                                                                 | 0                                                                                   | #115                                                                                | 235                                                                                 | 21                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 715                                                                               |                                                                                   |                                                                                   | 528                                                                               |                                                                                   |                                                                                     | 1133                                                                                |                                                                                     |                                                                                     | 3247                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                               |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                   | 480                                                                                 |                                                                                     | 430                                                                                 | 490                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 972                                                                               | 1578                                                                              | 801                                                                               | 178                                                                               | 749                                                                               | 507                                                                               | 489                                                                                 | 943                                                                                 | 1583                                                                                | 255                                                                                 | 692                                                                                 | 1583                                                                                |
| 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       | 0.83                                                                              | 0.33                                                                              | 0.16                                                                              | 0.45                                                                              | 0.58                                                                              | 0.31                                                                              | 0.71                                                                                | 0.82                                                                                | 0.06                                                                                | 0.64                                                                                | 0.69                                                                                | 0.34                                                                                |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

## Existing Traffic Conditions

PM Peak Traffic Hour

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 40.1

Intersection LOS: D

Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Meridian Road & E Woodmen Road



# Timings

## 3: Meridian Road & Bent Grass Meadows Drive

# Existing Traffic Conditions

PM Peak Traffic Hour

|                                                                     |  |  |  |  |  |  |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                 |  |  |  |  |  |  |
| Traffic Volume (vph)                                                | 104                                                                               | 92                                                                                | 91                                                                                | 1440                                                                              | 945                                                                               | 98                                                                                |
| Future Volume (vph)                                                 | 104                                                                               | 92                                                                                | 91                                                                                | 1440                                                                              | 945                                                                               | 98                                                                                |
| Satd. Flow (prot)                                                   | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                       | 0.950                                                                             |                                                                                   | 0.212                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                   | 3433                                                                              | 1583                                                                              | 395                                                                               | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   | 107                                                                               |
| Lane Group Flow (vph)                                               | 113                                                                               | 100                                                                               | 99                                                                                | 1565                                                                              | 1027                                                                              | 107                                                                               |
| Turn Type                                                           | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                    | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                    |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                      | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                 | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                   | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                     | 26.0                                                                              | 26.0                                                                              | 14.0                                                                              | 94.0                                                                              | 80.0                                                                              | 80.0                                                                              |
| Total Split (%)                                                     | 21.7%                                                                             | 21.7%                                                                             | 11.7%                                                                             | 78.3%                                                                             | 66.7%                                                                             | 66.7%                                                                             |
| Yellow Time (s)                                                     | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                    | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                 | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                            |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                  |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                         | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                | 9.3                                                                               | 9.3                                                                               | 101.7                                                                             | 101.7                                                                             | 75.5                                                                              | 75.5                                                                              |
| Actuated g/C Ratio                                                  | 0.08                                                                              | 0.08                                                                              | 0.85                                                                              | 0.85                                                                              | 0.63                                                                              | 0.63                                                                              |
| v/c Ratio                                                           | 0.42                                                                              | 0.46                                                                              | 0.16                                                                              | 0.52                                                                              | 0.46                                                                              | 0.10                                                                              |
| Control Delay (s/veh)                                               | 49.3                                                                              | 14.7                                                                              | 1.9                                                                               | 6.6                                                                               | 12.4                                                                              | 1.8                                                                               |
| Queue Delay                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                 | 49.3                                                                              | 14.7                                                                              | 1.9                                                                               | 6.6                                                                               | 12.4                                                                              | 1.8                                                                               |
| LOS                                                                 | D                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 | B                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                              | 33.1                                                                              |                                                                                   |                                                                                   | 6.3                                                                               | 11.5                                                                              |                                                                                   |
| Approach LOS                                                        | C                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                              | 44                                                                                | 13                                                                                | 8                                                                                 | 317                                                                               | 203                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                              | m68                                                                               | m51                                                                               | m13                                                                               | 360                                                                               | 250                                                                               | 21                                                                                |
| Internal Link Dist (ft)                                             | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                 | 615                                                                               | 365                                                                               | 583                                                                               | 2998                                                                              | 2226                                                                              | 1035                                                                              |
| Starvation Cap Reductn                                              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                   | 0.18                                                                              | 0.27                                                                              | 0.17                                                                              | 0.52                                                                              | 0.46                                                                              | 0.10                                                                              |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 60                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Timings

### 3: Meridian Road & Bent Grass Meadows Drive

## Existing Traffic Conditions

PM Peak Traffic Hour

Maximum v/c Ratio: 0.52

Intersection Signal Delay (s/veh): 10.2

Intersection LOS: B

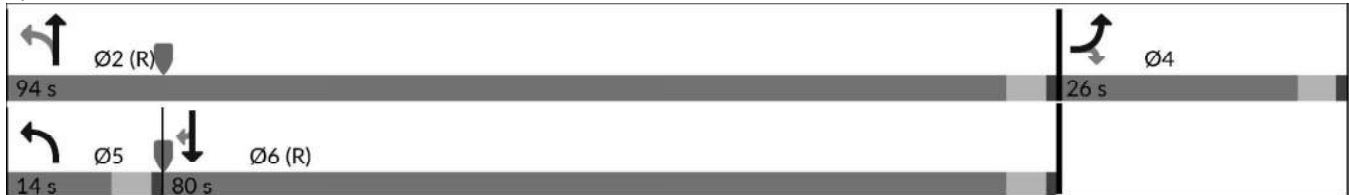
Intersection Capacity Utilization 51.5%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



# HCM Unsignalized Intersection Capacity Analysis

## 4: Golden Sage Drive & Woodmen Frontage Road

Existing Traffic Conditions  
PM Peak Traffic Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 0                                                                                 | 2                                                                                 | 234                                                                               | 3                                                                                 | 0                                                                                 | 303                                                                               |
| Future Volume (Veh/h)             | 0                                                                                 | 2                                                                                 | 234                                                                               | 3                                                                                 | 0                                                                                 | 303                                                                               |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Hourly flow rate (vph)            | 0                                                                                 | 2                                                                                 | 254                                                                               | 3                                                                                 | 0                                                                                 | 329                                                                               |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 275                                                                               |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 329                                                                               | 0                                                                                 | 167                                                                               | 165                                                                               | 0                                                                                 |                                                                                   |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 329                                                                               | 0                                                                                 | 167                                                                               | 165                                                                               | 0                                                                                 |                                                                                   |
| tC, single (s)                    | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 4.1                                                                               |                                                                                   |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 2.2                                                                               |                                                                                   |
| p0 queue free %                   | 100                                                                               | 100                                                                               | 68                                                                                | 100                                                                               | 100                                                                               |                                                                                   |
| cM capacity (veh/h)               | 590                                                                               | 1085                                                                              | 796                                                                               | 728                                                                               | 1623                                                                              |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 2                                                                                 | 257                                                                               | 329                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 254                                                                               | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 2                                                                                 | 0                                                                                 | 329                                                                               |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1085                                                                              | 795                                                                               | 1623                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.00                                                                              | 0.32                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 35                                                                                | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s/veh)             | 8.3                                                                               | 11.7                                                                              | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          | A                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s/veh)            | 8.3                                                                               | 11.7                                                                              | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      | A                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 45.2%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 3.1                                                                               |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR                                                                               |
| Lane Configurations      |  |  |  |      |  |  |
| Traffic Vol, veh/h       | 123                                                                               | 180                                                                               | 169                                                                               | 14   | 6                                                                                 | 68                                                                                |
| Future Vol, veh/h        | 123                                                                               | 180                                                                               | 169                                                                               | 14   | 6                                                                                 | 68                                                                                |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None | -                                                                                 | None                                                                              |
| Storage Length           | 310                                                                               | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 134                                                                               | 196                                                                               | 184                                                                               | 15   | 7                                                                                 | 74                                                                                |

| Major/Minor          | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 199    | 0      | 0      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 1373   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1373   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach               | EB   | WB | SB    |
|------------------------|------|----|-------|
| HCM Control Delay, s/v | 3.21 | 0  | 10.18 |
| HCM LOS                |      |    | B     |

| Minor Lane/Major Mvmt     | EBL   | EBT | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)          | 1373  | -   | -   | -   | 776   |
| HCM Lane V/C Ratio        | 0.097 | -   | -   | -   | 0.104 |
| HCM Control Delay (s/veh) | 7.9   | -   | -   | -   | 10.2  |
| HCM Lane LOS              | A     | -   | -   | -   | B     |
| HCM 95th %tile Q(veh)     | 0.3   | -   | -   | -   | 0.3   |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Existing Traffic Conditions  
PM Peak Traffic Hour

| Intersection                |         |         |          |          |         |
|-----------------------------|---------|---------|----------|----------|---------|
| Intersection Delay, s/veh   | 3.7     |         |          |          |         |
| Intersection LOS            | A       |         |          |          |         |
| Approach                    | EB      | SB      | NW       | NE       |         |
| Entry Lanes                 | 1       | 1       | 2        | 1        |         |
| Conflicting Circle Lanes    | 1       | 1       | 1        | 1        |         |
| Adj Approach Flow, veh/h    | 0       | 126     | 115      | 208      |         |
| Demand Flow Rate, veh/h     | 0       | 129     | 118      | 212      |         |
| Vehicles Circulating, veh/h | 158     | 29      | 212      | 0        |         |
| Vehicles Exiting, veh/h     | 0       | 301     | 0        | 158      |         |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0        | 0        |         |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000    | 1.000    |         |
| Approach Delay, s/veh       | 0.0     | 3.5     | 3.7      | 3.9      |         |
| Approach LOS                | -       | A       | A        | A        |         |
| Lane                        | Left    | Left    | Left     | Right    | Left    |
| Designated Moves            | L       | R       | L        | TR       | L       |
| Assumed Moves               | L       | R       | L        | TR       | L       |
| RT Channelized              |         |         |          |          |         |
| Lane Util                   | 1.000   | 1.000   | 0.246    | 0.754    | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.535    | 2.535    | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.544    | 4.544    | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1420     | 1420     | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 9.101e-4 | 9.101e-4 | 1.02e-3 |
| Entry Flow, veh/h           | 0       | 129     | 29       | 89       | 212     |
| Cap Entry Lane, veh/h       | 1174    | 1340    | 1171     | 1171     | 1380    |
| Entry HV Adj Factor         | 1.000   | 0.977   | 0.980    | 0.978    | 0.981   |
| Flow Entry, veh/h           | 0       | 126     | 28       | 87       | 208     |
| Cap Entry, veh/h            | 1174    | 1308    | 1148     | 1145     | 1354    |
| V/C Ratio                   | 0.000   | 0.096   | 0.025    | 0.076    | 0.154   |
| Control Delay, s/veh        | 3.1     | 3.5     | 3.3      | 3.8      | 3.9     |
| LOS                         | A       | A       | A        | A        | A       |
| 95th %tile Queue, veh       | 0       | 0       | 0        | 0        | 1       |

# Timings

## 1: Golden Sage Drive & E Woodmen Road

# Background Traffic Conditions

AM Peak Traffic Hour - Year 2030

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 137                                                                               | 1043                                                                              | 65                                                                                | 19                                                                                | 1754                                                                              | 17                                                                                | 118                                                                                 | 9                                                                                   | 22                                                                                  | 35                                                                                  | 9                                                                                   | 306                                                                                 |
| Future Volume (vph)     | 137                                                                               | 1043                                                                              | 65                                                                                | 19                                                                                | 1754                                                                              | 17                                                                                | 118                                                                                 | 9                                                                                   | 22                                                                                  | 35                                                                                  | 9                                                                                   | 306                                                                                 |
| Satd. Flow (prot)       | 1770                                                                              | 3539                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 1583                                                                              | 1770                                                                                | 1863                                                                                | 1583                                                                                | 1770                                                                                | 1591                                                                                | 0                                                                                   |
| Flt Permitted           | 0.056                                                                             |                                                                                   |                                                                                   | 0.209                                                                             |                                                                                   |                                                                                   | 0.241                                                                               |                                                                                     |                                                                                     | 0.751                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 104                                                                               | 3539                                                                              | 1583                                                                              | 389                                                                               | 3539                                                                              | 1583                                                                              | 449                                                                                 | 1863                                                                                | 1583                                                                                | 1399                                                                                | 1591                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 71                                                                                |                                                                                   |                                                                                   | 64                                                                                |                                                                                     |                                                                                     | 82                                                                                  |                                                                                     | 92                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 149                                                                               | 1134                                                                              | 71                                                                                | 21                                                                                | 1907                                                                              | 18                                                                                | 128                                                                                 | 10                                                                                  | 24                                                                                  | 38                                                                                  | 343                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | Perm                                                                              | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Perm                                                                                | NA                                                                                  | Perm                                                                                | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 | 4                                                                                   |                                                                                     | 4                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 4                                                                                   | 4                                                                                   | 4                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                |                                                                                     |
| Total Split (s)         | 13.0                                                                              | 75.5                                                                              | 75.5                                                                              | 10.5                                                                              | 73.0                                                                              | 73.0                                                                              | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                |                                                                                     |
| Total Split (%)         | 10.8%                                                                             | 62.9%                                                                             | 62.9%                                                                             | 8.8%                                                                              | 60.8%                                                                             | 60.8%                                                                             | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                                | None                                                                                | None                                                                                | None                                                                                | None                                                                                |                                                                                     |
| Act Effct Green (s)     | 80.0                                                                              | 74.8                                                                              | 74.8                                                                              | 73.5                                                                              | 66.0                                                                              | 66.0                                                                              | 29.0                                                                                | 29.0                                                                                | 29.0                                                                                | 29.0                                                                                | 29.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.67                                                                              | 0.62                                                                              | 0.62                                                                              | 0.61                                                                              | 0.55                                                                              | 0.55                                                                              | 0.24                                                                                | 0.24                                                                                | 0.24                                                                                | 0.24                                                                                | 0.24                                                                                |                                                                                     |
| v/c Ratio               | 0.82                                                                              | 0.51                                                                              | 0.07                                                                              | 0.06                                                                              | 0.97                                                                              | 0.02                                                                              | 1.18                                                                                | 0.02                                                                                | 0.05                                                                                | 0.11                                                                                | 0.75                                                                                |                                                                                     |
| Control Delay (s/veh)   | 58.9                                                                              | 14.2                                                                              | 2.8                                                                               | 7.1                                                                               | 42.9                                                                              | 0.0                                                                               | 185.7                                                                               | 35.0                                                                                | 0.2                                                                                 | 36.6                                                                                | 42.3                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay (s/veh)     | 58.9                                                                              | 14.2                                                                              | 2.8                                                                               | 7.1                                                                               | 42.9                                                                              | 0.0                                                                               | 185.7                                                                               | 35.0                                                                                | 0.2                                                                                 | 36.6                                                                                | 42.3                                                                                |                                                                                     |
| LOS                     | E                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 | F                                                                                   | C                                                                                   | A                                                                                   | D                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s/veh)  |                                                                                   | 18.6                                                                              |                                                                                   |                                                                                   | 42.2                                                                              |                                                                                   |                                                                                     | 148.9                                                                               |                                                                                     |                                                                                     | 41.8                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 62                                                                                | 213                                                                               | 0                                                                                 | 5                                                                                 | 725                                                                               | 0                                                                                 | ~119                                                                                | 6                                                                                   | 0                                                                                   | 23                                                                                  | 184                                                                                 |                                                                                     |
| Queue Length 95th (ft)  | #182                                                                              | 338                                                                               | 20                                                                                | 13                                                                                | #930                                                                              | 0                                                                                 | #246                                                                                | 20                                                                                  | 0                                                                                   | 53                                                                                  | #305                                                                                |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 2147                                                                              |                                                                                   |                                                                                   | 1854                                                                              |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 180                                                                               | 2205                                                                              | 1013                                                                              | 301                                                                               | 1946                                                                              | 899                                                                               | 108                                                                                 | 450                                                                                 | 444                                                                                 | 338                                                                                 | 454                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 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                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.83                                                                              | 0.51                                                                              | 0.07                                                                              | 0.07                                                                              | 0.98                                                                              | 0.02                                                                              | 1.19                                                                                | 0.02                                                                                | 0.05                                                                                | 0.11                                                                                | 0.76                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 130

Control Type: Actuated-Coordinated

## Timings

### 1: Golden Sage Drive & E Woodmen Road

## Background Traffic Conditions

AM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 1.19

Intersection Signal Delay (s/veh): 38.3

Intersection LOS: D

Intersection Capacity Utilization 100.4%

ICU Level of Service G

Analysis Period (min) 15

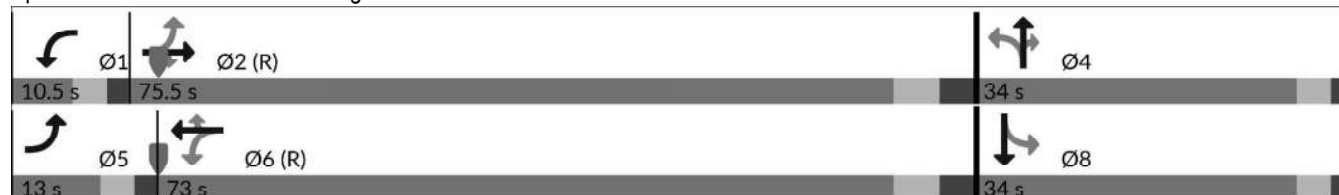
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Golden Sage Drive & E Woodmen Road



# Timings

## 2: Meridian Road & E Woodmen Road

Background Traffic Conditions  
AM Peak Traffic Hour - Year 2030

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 424                                                                               | 335                                                                               | 276                                                                               | 73                                                                                | 635                                                                               | 55                                                                                | 250                                                                                 | 266                                                                                 | 12                                                                                  | 85                                                                                  | 937                                                                                 | 968                                                                                 |
| Future Volume (vph)     | 424                                                                               | 335                                                                               | 276                                                                               | 73                                                                                | 635                                                                               | 55                                                                                | 250                                                                                 | 266                                                                                 | 12                                                                                  | 85                                                                                  | 937                                                                                 | 968                                                                                 |
| Satd. Flow (prot)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Flt Permitted           | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 176                                                                               |                                                                                   |                                                                                   | 173                                                                               |                                                                                     |                                                                                     | 236                                                                                 |                                                                                     |                                                                                     | 648                                                                                 |
| Lane Group Flow (vph)   | 461                                                                               | 364                                                                               | 300                                                                               | 79                                                                                | 690                                                                               | 60                                                                                | 272                                                                                 | 289                                                                                 | 13                                                                                  | 92                                                                                  | 1018                                                                                | 1052                                                                                |
| Turn Type               | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                                | NA                                                                                  | Free                                                                                | Prot                                                                                | NA                                                                                  | Free                                                                                |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Permitted Phases        |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Free                                                                                |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                                | 25.0                                                                                |                                                                                     | 11.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Split (s)         | 23.0                                                                              | 48.0                                                                              | 48.0                                                                              | 11.0                                                                              | 36.0                                                                              | 36.0                                                                              | 16.0                                                                                | 49.0                                                                                |                                                                                     | 12.0                                                                                | 45.0                                                                                |                                                                                     |
| Total Split (%)         | 19.2%                                                                             | 40.0%                                                                             | 40.0%                                                                             | 9.2%                                                                              | 30.0%                                                                             | 30.0%                                                                             | 13.3%                                                                               | 40.8%                                                                               |                                                                                     | 10.0%                                                                               | 37.5%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 4.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 3.0                                                                                 |                                                                                     | 2.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 7.0                                                                                 |                                                                                     | 5.0                                                                                 | 7.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                                | Lag                                                                                 |                                                                                     | Lead                                                                                | Lag                                                                                 |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 | Yes                                                                                 |                                                                                     |
| Recall Mode             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                                | Min                                                                                 |                                                                                     | None                                                                                | Min                                                                                 |                                                                                     |
| Act Effct Green (s)     | 17.9                                                                              | 43.2                                                                              | 43.2                                                                              | 6.0                                                                               | 29.2                                                                              | 29.2                                                                              | 11.7                                                                                | 42.0                                                                                | 120.0                                                                               | 7.0                                                                                 | 37.2                                                                                | 120.0                                                                               |
| Actuated g/C Ratio      | 0.15                                                                              | 0.36                                                                              | 0.36                                                                              | 0.05                                                                              | 0.24                                                                              | 0.24                                                                              | 0.10                                                                                | 0.35                                                                                | 1.00                                                                                | 0.06                                                                                | 0.31                                                                                | 1.00                                                                                |
| v/c Ratio               | 0.90                                                                              | 0.28                                                                              | 0.43                                                                              | 0.46                                                                              | 0.80                                                                              | 0.11                                                                              | 0.81                                                                                | 0.23                                                                                | 0.00                                                                                | 0.46                                                                                | 0.92                                                                                | 0.66                                                                                |
| Control Delay (s/veh)   | 72.5                                                                              | 28.9                                                                              | 14.4                                                                              | 64.4                                                                              | 51.0                                                                              | 0.4                                                                               | 72.4                                                                                | 28.1                                                                                | 0.0                                                                                 | 79.4                                                                                | 42.5                                                                                | 5.2                                                                                 |
| 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 (s/veh)     | 72.5                                                                              | 28.9                                                                              | 14.4                                                                              | 64.4                                                                              | 51.0                                                                              | 0.4                                                                               | 72.4                                                                                | 28.1                                                                                | 0.0                                                                                 | 79.4                                                                                | 42.5                                                                                | 5.2                                                                                 |
| LOS                     | E                                                                                 | C                                                                                 | B                                                                                 | E                                                                                 | D                                                                                 | A                                                                                 | E                                                                                   | C                                                                                   | A                                                                                   | E                                                                                   | D                                                                                   | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                   | 43.0                                                                              |                                                                                   |                                                                                   | 48.7                                                                              |                                                                                   |                                                                                     | 48.5                                                                                |                                                                                     |                                                                                     | 26.0                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 182                                                                               | 108                                                                               | 69                                                                                | 31                                                                                | 266                                                                               | 0                                                                                 | 108                                                                                 | 82                                                                                  | 0                                                                                   | 38                                                                                  | 371                                                                                 | 111                                                                                 |
| Queue Length 95th (ft)  | #275                                                                              | 148                                                                               | 150                                                                               | 57                                                                                | 338                                                                               | 0                                                                                 | #184                                                                                | 117                                                                                 | 0                                                                                   | m53                                                                                 | #514                                                                                | 211                                                                                 |
| Internal Link Dist (ft) |                                                                                   | 715                                                                               |                                                                                   |                                                                                   | 528                                                                               |                                                                                   |                                                                                     | 1133                                                                                |                                                                                     |                                                                                     | 3247                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                               |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                   | 480                                                                                 |                                                                                     | 430                                                                                 | 490                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 514                                                                               | 1293                                                                              | 689                                                                               | 171                                                                               | 878                                                                               | 522                                                                               | 335                                                                                 | 1252                                                                                | 1583                                                                                | 203                                                                                 | 1120                                                                                | 1583                                                                                |
| 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       | 0.90                                                                              | 0.28                                                                              | 0.44                                                                              | 0.46                                                                              | 0.79                                                                              | 0.11                                                                              | 0.81                                                                                | 0.23                                                                                | 0.01                                                                                | 0.45                                                                                | 0.91                                                                                | 0.66                                                                                |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

## Background Traffic Conditions

AM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 0.93

Intersection Signal Delay (s/veh): 36.8

Intersection LOS: D

Intersection Capacity Utilization 82.7%

ICU Level of Service E

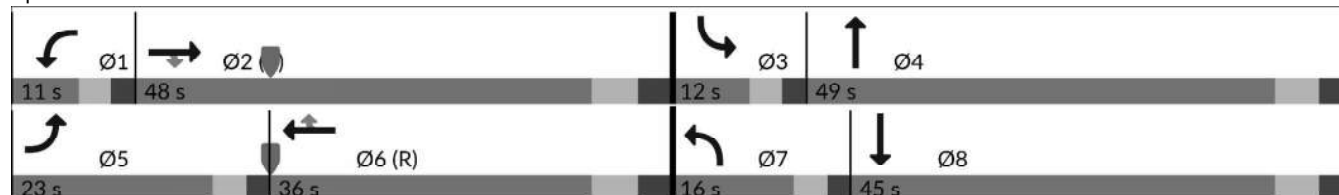
Analysis Period (min) 15

# 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.

Splits and Phases: 2: Meridian Road & E Woodmen Road



# Timings

## 3: Meridian Road & Bent Grass Meadows Drive

# Background Traffic Conditions

AM Peak Traffic Hour - Year 2030

|                                                                      |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                           | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                 | 158                                                                               | 172                                                                               | 137                                                                               | 576                                                                               | 1643                                                                              | 223                                                                               |
| Future Volume (vph)                                                  | 158                                                                               | 172                                                                               | 137                                                                               | 576                                                                               | 1643                                                                              | 223                                                                               |
| Satd. Flow (prot)                                                    | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                        | 0.950                                                                             |                                                                                   | 0.064                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                    | 3433                                                                              | 1583                                                                              | 119                                                                               | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                    |                                                                                   | 120                                                                               |                                                                                   |                                                                                   |                                                                                   | 242                                                                               |
| Lane Group Flow (vph)                                                | 172                                                                               | 187                                                                               | 149                                                                               | 626                                                                               | 1786                                                                              | 242                                                                               |
| Turn Type                                                            | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                     | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                     |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                       | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                  | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                    | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                      | 23.0                                                                              | 23.0                                                                              | 12.0                                                                              | 97.0                                                                              | 85.0                                                                              | 85.0                                                                              |
| Total Split (%)                                                      | 19.2%                                                                             | 19.2%                                                                             | 10.0%                                                                             | 80.8%                                                                             | 70.8%                                                                             | 70.8%                                                                             |
| Yellow Time (s)                                                      | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                     | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                             |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                          | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                 | 12.4                                                                              | 12.4                                                                              | 98.6                                                                              | 98.6                                                                              | 80.5                                                                              | 80.5                                                                              |
| Actuated g/C Ratio                                                   | 0.10                                                                              | 0.10                                                                              | 0.82                                                                              | 0.82                                                                              | 0.67                                                                              | 0.67                                                                              |
| v/c Ratio                                                            | 0.48                                                                              | 0.69                                                                              | 0.52                                                                              | 0.21                                                                              | 0.75                                                                              | 0.21                                                                              |
| Control Delay (s/veh)                                                | 52.6                                                                              | 31.0                                                                              | 35.7                                                                              | 4.1                                                                               | 15.7                                                                              | 1.3                                                                               |
| Queue Delay                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                  | 52.6                                                                              | 31.0                                                                              | 35.7                                                                              | 4.1                                                                               | 15.7                                                                              | 1.3                                                                               |
| LOS                                                                  | D                                                                                 | C                                                                                 | D                                                                                 | A                                                                                 | B                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                               | 41.4                                                                              |                                                                                   |                                                                                   | 10.2                                                                              | 14.0                                                                              |                                                                                   |
| Approach LOS                                                         | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | B                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                               | 67                                                                                | 51                                                                                | 58                                                                                | 76                                                                                | 442                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                               | m94                                                                               | m117                                                                              | m98                                                                               | m98                                                                               | 532                                                                               | 25                                                                                |
| Internal Link Dist (ft)                                              | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                 | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                  | 529                                                                               | 345                                                                               | 284                                                                               | 2907                                                                              | 2374                                                                              | 1141                                                                              |
| Starvation Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                    | 0.33                                                                              | 0.54                                                                              | 0.52                                                                              | 0.22                                                                              | 0.75                                                                              | 0.21                                                                              |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 80                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Timings

### 3: Meridian Road & Bent Grass Meadows Drive

## Background Traffic Conditions

AM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 16.2

Intersection LOS: B

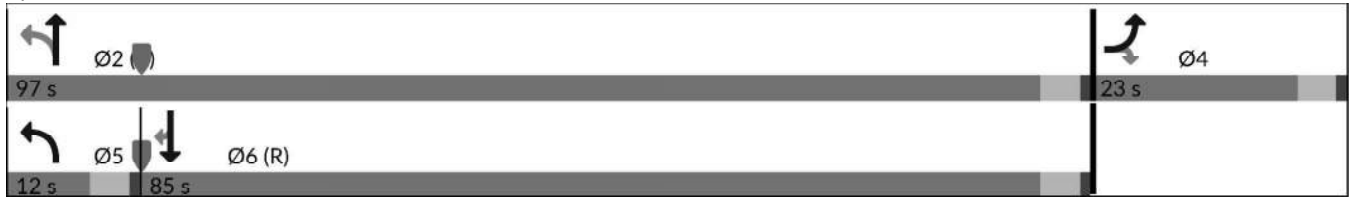
Intersection Capacity Utilization 68.8%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



# HCM Unsignalized Intersection Capacity Analysis

## 4: Golden Sage Drive & Woodmen Frontage Road

Background Traffic Conditions  
AM Peak Traffic Hour - Year 2030

|                                   |      |      |       |                      |      |      |
|-----------------------------------|------|------|-------|----------------------|------|------|
|                                   | →    | ↘    | ↙     | ←                    | ↖    | ↗    |
| Movement                          | EBT  | EBR  | WBL   | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↶    |      |       | ↷                    | ↘↙   |      |
| Traffic Volume (veh/h)            | 2    | 38   | 311   | 3                    | 26   | 136  |
| Future Volume (Veh/h)             | 2    | 38   | 311   | 3                    | 26   | 136  |
| Sign Control                      | Stop |      |       | Stop                 | Free |      |
| Grade                             | 0%   |      |       | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.92 | 0.92 | 0.92  | 0.92                 | 0.92 | 0.92 |
| Hourly flow rate (vph)            | 2    | 41   | 338   | 3                    | 28   | 148  |
| Pedestrians                       |      |      |       |                      |      |      |
| Lane Width (ft)                   |      |      |       |                      |      |      |
| Walking Speed (ft/s)              |      |      |       |                      |      |      |
| Percent Blockage                  |      |      |       |                      |      |      |
| Right turn flare (veh)            |      |      |       |                      |      |      |
| Median type                       |      |      |       |                      | None |      |
| Median storage veh                |      |      |       |                      |      |      |
| Upstream signal (ft)              |      |      |       |                      | 275  |      |
| pX, platoon unblocked             |      |      |       |                      |      |      |
| vC, conflicting volume            | 204  | 0    | 172   | 130                  | 0    |      |
| vC1, stage 1 conf vol             |      |      |       |                      |      |      |
| vC2, stage 2 conf vol             |      |      |       |                      |      |      |
| vCu, unblocked vol                | 204  | 0    | 172   | 130                  | 0    |      |
| tC, single (s)                    | 6.5  | 6.2  | 7.1   | 6.5                  | 4.1  |      |
| tC, 2 stage (s)                   |      |      |       |                      |      |      |
| tF (s)                            | 4.0  | 3.3  | 3.5   | 4.0                  | 2.2  |      |
| p0 queue free %                   | 100  | 96   | 55    | 100                  | 98   |      |
| cM capacity (veh/h)               | 680  | 1085 | 750   | 747                  | 1623 |      |
| Direction, Lane #                 | EB 1 | WB 1 | NB 1  |                      |      |      |
| Volume Total                      | 43   | 341  | 176   |                      |      |      |
| Volume Left                       | 0    | 338  | 28    |                      |      |      |
| Volume Right                      | 41   | 0    | 148   |                      |      |      |
| cSH                               | 1056 | 750  | 1623  |                      |      |      |
| Volume to Capacity                | 0.04 | 0.45 | 0.02  |                      |      |      |
| Queue Length 95th (ft)            | 3    | 60   | 1     |                      |      |      |
| Control Delay (s/veh)             | 8.6  | 13.7 | 1.3   |                      |      |      |
| Lane LOS                          | A    | B    | A     |                      |      |      |
| Approach Delay (s/veh)            | 8.6  | 13.7 | 1.3   |                      |      |      |
| Approach LOS                      | A    | B    |       |                      |      |      |
| Intersection Summary              |      |      |       |                      |      |      |
| Average Delay                     |      |      | 9.4   |                      |      |      |
| Intersection Capacity Utilization |      |      | 40.6% | ICU Level of Service | A    |      |
| Analysis Period (min)             |      |      | 15    |                      |      |      |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 4.9                                                                               |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR                                                                               |
| Lane Configurations      |  |  |  |      |  |  |
| Traffic Vol, veh/h       | 67                                                                                | 71                                                                                | 149                                                                               | 3    | 5                                                                                 | 165                                                                               |
| Future Vol, veh/h        | 67                                                                                | 71                                                                                | 149                                                                               | 3    | 5                                                                                 | 165                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None | -                                                                                 | None                                                                              |
| Storage Length           | 310                                                                               | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 73                                                                                | 77                                                                                | 162                                                                               | 3    | 5                                                                                 | 179                                                                               |

| Major/Minor          | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 165    | 0      | 0      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 1413   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1413   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach               | EB   | WB | SB    |
|------------------------|------|----|-------|
| HCM Control Delay, s/v | 3.73 | 0  | 10.26 |
| HCM LOS                | B    |    |       |

| Minor Lane/Major Mvmt     | EBL   | EBT | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)          | 1413  | -   | -   | -   | 868   |
| HCM Lane V/C Ratio        | 0.052 | -   | -   | -   | 0.213 |
| HCM Control Delay (s/veh) | 7.7   | -   | -   | -   | 10.3  |
| HCM Lane LOS              | A     | -   | -   | -   | B     |
| HCM 95th %tile Q(veh)     | 0.2   | -   | -   | -   | 0.8   |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Background Traffic Conditions  
AM Peak Traffic Hour - Year 2030

| Intersection                |         |         |          |          |         |
|-----------------------------|---------|---------|----------|----------|---------|
| Intersection Delay, s/veh   | 3.2     |         |          |          |         |
| Intersection LOS            | A       |         |          |          |         |
| Approach                    | EB      | SB      | NW       |          | NE      |
| Entry Lanes                 | 1       | 1       | 2        |          | 1       |
| Conflicting Circle Lanes    | 1       | 1       | 1        |          | 1       |
| Adj Approach Flow, veh/h    | 1       | 80      | 71       |          | 117     |
| Demand Flow Rate, veh/h     | 1       | 82      | 72       |          | 119     |
| Vehicles Circulating, veh/h | 102     | 20      | 119      |          | 1       |
| Vehicles Exiting, veh/h     | 0       | 171     | 1        |          | 102     |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0        |          | 0       |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000    |          | 1.000   |
| Approach Delay, s/veh       | 2.9     | 3.2     | 3.2      |          | 3.3     |
| Approach LOS                | A       | A       | A        |          | A       |
| Lane                        | Left    | Left    | Left     | Right    | Left    |
| Designated Moves            | L       | R       | L        | TR       | L       |
| Assumed Moves               | L       | R       | L        | TR       | L       |
| RT Channelized              |         |         |          |          |         |
| Lane Util                   | 1.000   | 1.000   | 0.278    | 0.722    | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.535    | 2.535    | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.544    | 4.544    | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1420     | 1420     | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 9.101e-4 | 9.101e-4 | 1.02e-3 |
| Entry Flow, veh/h           | 1       | 82      | 20       | 52       | 119     |
| Cap Entry Lane, veh/h       | 1244    | 1352    | 1274     | 1274     | 1378    |
| Entry HV Adj Factor         | 1.000   | 0.976   | 0.980    | 0.981    | 0.983   |
| Flow Entry, veh/h           | 1       | 80      | 20       | 51       | 117     |
| Cap Entry, veh/h            | 1244    | 1319    | 1249     | 1250     | 1355    |
| V/C Ratio                   | 0.001   | 0.061   | 0.016    | 0.041    | 0.086   |
| Control Delay, s/veh        | 2.9     | 3.2     | 3.0      | 3.2      | 3.3     |
| LOS                         | A       | A       | A        | A        | A       |
| 95th %tile Queue, veh       | 0       | 0       | 0        | 0        | 0       |

# Timings

## 1: Golden Sage Drive & E Woodmen Road

# Background Traffic Conditions

PM Peak Traffic Hour - Year 2030

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 351                                                                               | 1586                                                                              | 135                                                                               | 64                                                                                | 1269                                                                              | 54                                                                                | 161                                                                                 | 16                                                                                  | 52                                                                                  | 53                                                                                  | 16                                                                                  | 257                                                                                 |
| Future Volume (vph)     | 351                                                                               | 1586                                                                              | 135                                                                               | 64                                                                                | 1269                                                                              | 54                                                                                | 161                                                                                 | 16                                                                                  | 52                                                                                  | 53                                                                                  | 16                                                                                  | 257                                                                                 |
| Satd. Flow (prot)       | 1770                                                                              | 3539                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 1583                                                                              | 1770                                                                                | 1863                                                                                | 1583                                                                                | 1770                                                                                | 1600                                                                                | 0                                                                                   |
| Flt Permitted           | 0.103                                                                             |                                                                                   |                                                                                   | 0.061                                                                             |                                                                                   |                                                                                   | 0.321                                                                               |                                                                                     |                                                                                     | 0.746                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 192                                                                               | 3539                                                                              | 1583                                                                              | 114                                                                               | 3539                                                                              | 1583                                                                              | 598                                                                                 | 1863                                                                                | 1583                                                                                | 1390                                                                                | 1600                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 147                                                                               |                                                                                   |                                                                                   | 64                                                                                |                                                                                     |                                                                                     | 82                                                                                  |                                                                                     | 118                                                                                 |                                                                                     |
| Lane Group Flow (vph)   | 382                                                                               | 1724                                                                              | 147                                                                               | 70                                                                                | 1379                                                                              | 59                                                                                | 175                                                                                 | 17                                                                                  | 57                                                                                  | 58                                                                                  | 296                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | Perm                                                                              | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Perm                                                                                | NA                                                                                  | Perm                                                                                | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 | 4                                                                                   |                                                                                     | 4                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 4                                                                                   | 4                                                                                   | 4                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                |                                                                                     |
| Total Split (s)         | 13.0                                                                              | 75.5                                                                              | 75.5                                                                              | 10.5                                                                              | 73.0                                                                              | 73.0                                                                              | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                | 34.0                                                                                |                                                                                     |
| Total Split (%)         | 10.8%                                                                             | 62.9%                                                                             | 62.9%                                                                             | 8.8%                                                                              | 60.8%                                                                             | 60.8%                                                                             | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               | 28.3%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                                | None                                                                                | None                                                                                | None                                                                                | None                                                                                |                                                                                     |
| Act Effct Green (s)     | 79.0                                                                              | 70.6                                                                              | 70.6                                                                              | 73.5                                                                              | 66.0                                                                              | 66.0                                                                              | 29.0                                                                                | 29.0                                                                                | 29.0                                                                                | 29.0                                                                                | 29.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.66                                                                              | 0.59                                                                              | 0.59                                                                              | 0.61                                                                              | 0.55                                                                              | 0.55                                                                              | 0.24                                                                                | 0.24                                                                                | 0.24                                                                                | 0.24                                                                                | 0.24                                                                                |                                                                                     |
| v/c Ratio               | 1.65                                                                              | 0.82                                                                              | 0.14                                                                              | 0.48                                                                              | 0.70                                                                              | 0.06                                                                              | 1.21                                                                                | 0.03                                                                                | 0.12                                                                                | 0.17                                                                                | 0.62                                                                                |                                                                                     |
| Control Delay (s/veh)   | 334.0                                                                             | 24.9                                                                              | 2.2                                                                               | 22.7                                                                              | 22.4                                                                              | 2.9                                                                               | 184.1                                                                               | 35.3                                                                                | 4.0                                                                                 | 37.7                                                                                | 30.3                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay (s/veh)     | 334.0                                                                             | 24.9                                                                              | 2.2                                                                               | 22.7                                                                              | 22.4                                                                              | 2.9                                                                               | 184.1                                                                               | 35.3                                                                                | 4.0                                                                                 | 37.7                                                                                | 30.3                                                                                |                                                                                     |
| LOS                     | F                                                                                 | C                                                                                 | A                                                                                 | C                                                                                 | C                                                                                 | A                                                                                 | F                                                                                   | D                                                                                   | A                                                                                   | D                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s/veh)  |                                                                                   | 75.8                                                                              |                                                                                   |                                                                                   | 21.7                                                                              |                                                                                   |                                                                                     | 132.8                                                                               |                                                                                     |                                                                                     | 31.6                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | ~340                                                                              | 559                                                                               | 0                                                                                 | 17                                                                                | 396                                                                               | 0                                                                                 | ~166                                                                                | 10                                                                                  | 0                                                                                   | 36                                                                                  | 123                                                                                 |                                                                                     |
| Queue Length 95th (ft)  | #537                                                                              | 673                                                                               | 28                                                                                | 48                                                                                | 480                                                                               | 18                                                                                | #311                                                                                | 30                                                                                  | 19                                                                                  | 73                                                                                  | 221                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 2147                                                                              |                                                                                   |                                                                                   | 1854                                                                              |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 231                                                                               | 2082                                                                              | 991                                                                               | 145                                                                               | 1946                                                                              | 899                                                                               | 144                                                                                 | 450                                                                                 | 444                                                                                 | 335                                                                                 | 476                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 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                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 1.65                                                                              | 0.83                                                                              | 0.15                                                                              | 0.48                                                                              | 0.71                                                                              | 0.07                                                                              | 1.22                                                                                | 0.04                                                                                | 0.13                                                                                | 0.17                                                                                | 0.62                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 110

Control Type: Actuated-Coordinated

Timings  
1: Golden Sage Drive & E Woodmen Road

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2030

|                                                                                                             |                        |
|-------------------------------------------------------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 1.65                                                                                     |                        |
| Intersection Signal Delay (s/veh): 56.8                                                                     | Intersection LOS: E    |
| Intersection Capacity Utilization 98.5%                                                                     | ICU Level of Service F |
| Analysis Period (min) 15                                                                                    |                        |
| ~ Volume exceeds capacity, queue is theoretically infinite.<br>Queue shown is maximum after two cycles.     |                        |
| # 95th percentile volume exceeds capacity, queue may be longer.<br>Queue shown is maximum after two cycles. |                        |

Splits and Phases: 1: Golden Sage Drive & E Woodmen Road

|                                                                                                |                                                                                                    |                                                                                                |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|  Ø1<br>10.5 s |  Ø2 (R)<br>75.5 s |  Ø4<br>34 s |
|  Ø5<br>13 s   |  Ø6 (R)<br>73 s   |  Ø8<br>34 s |

# Timings

## 2: Meridian Road & E Woodmen Road

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2030

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 798                                                                               | 644                                                                               | 125                                                                               | 79                                                                                | 575                                                                               | 153                                                                               | 344                                                                                 | 765                                                                                 | 94                                                                                  | 161                                                                                 | 473                                                                                 | 535                                                                                 |
| Future Volume (vph)     | 798                                                                               | 644                                                                               | 125                                                                               | 79                                                                                | 575                                                                               | 153                                                                               | 344                                                                                 | 765                                                                                 | 94                                                                                  | 161                                                                                 | 473                                                                                 | 535                                                                                 |
| Satd. Flow (prot)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Flt Permitted           | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 173                                                                               |                                                                                   |                                                                                   | 218                                                                               |                                                                                     |                                                                                     | 282                                                                                 |                                                                                     |                                                                                     | 582                                                                                 |
| Lane Group Flow (vph)   | 867                                                                               | 700                                                                               | 136                                                                               | 86                                                                                | 625                                                                               | 166                                                                               | 374                                                                                 | 832                                                                                 | 102                                                                                 | 175                                                                                 | 514                                                                                 | 582                                                                                 |
| Turn Type               | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                                | NA                                                                                  | Free                                                                                | Prot                                                                                | NA                                                                                  | Free                                                                                |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Permitted Phases        |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Free                                                                                |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                                | 25.0                                                                                |                                                                                     | 11.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Split (s)         | 38.0                                                                              | 59.0                                                                              | 59.0                                                                              | 11.0                                                                              | 32.0                                                                              | 32.0                                                                              | 21.0                                                                                | 38.0                                                                                |                                                                                     | 12.0                                                                                | 29.0                                                                                |                                                                                     |
| Total Split (%)         | 31.7%                                                                             | 49.2%                                                                             | 49.2%                                                                             | 9.2%                                                                              | 26.7%                                                                             | 26.7%                                                                             | 17.5%                                                                               | 31.7%                                                                               |                                                                                     | 10.0%                                                                               | 24.2%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 4.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 3.0                                                                                 |                                                                                     | 2.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 7.0                                                                                 |                                                                                     | 5.0                                                                                 | 7.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                                | Lag                                                                                 |                                                                                     | Lead                                                                                | Lag                                                                                 |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 | Yes                                                                                 |                                                                                     |
| Recall Mode             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                                | Min                                                                                 |                                                                                     | None                                                                                | Min                                                                                 |                                                                                     |
| Act Effect Green (s)    | 32.4                                                                              | 54.3                                                                              | 54.3                                                                              | 6.0                                                                               | 25.7                                                                              | 25.7                                                                              | 15.7                                                                                | 30.4                                                                                | 120.0                                                                               | 7.6                                                                                 | 22.2                                                                                | 120.0                                                                               |
| Actuated g/C Ratio      | 0.27                                                                              | 0.45                                                                              | 0.45                                                                              | 0.05                                                                              | 0.21                                                                              | 0.21                                                                              | 0.13                                                                                | 0.25                                                                                | 1.00                                                                                | 0.06                                                                                | 0.19                                                                                | 1.00                                                                                |
| v/c Ratio               | 0.93                                                                              | 0.43                                                                              | 0.16                                                                              | 0.50                                                                              | 0.82                                                                              | 0.32                                                                              | 0.83                                                                                | 0.92                                                                                | 0.06                                                                                | 0.80                                                                                | 0.78                                                                                | 0.36                                                                                |
| Control Delay (s/veh)   | 60.7                                                                              | 24.1                                                                              | 1.7                                                                               | 65.8                                                                              | 55.5                                                                              | 3.4                                                                               | 67.3                                                                                | 61.1                                                                                | 0.0                                                                                 | 101.2                                                                               | 47.7                                                                                | 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 (s/veh)     | 60.7                                                                              | 24.1                                                                              | 1.7                                                                               | 65.8                                                                              | 55.5                                                                              | 3.4                                                                               | 67.3                                                                                | 61.1                                                                                | 0.0                                                                                 | 101.2                                                                               | 47.7                                                                                | 1.0                                                                                 |
| LOS                     | E                                                                                 | C                                                                                 | A                                                                                 | E                                                                                 | E                                                                                 | A                                                                                 | E                                                                                   | E                                                                                   | A                                                                                   | F                                                                                   | D                                                                                   | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                   | 41.0                                                                              |                                                                                   |                                                                                   | 46.7                                                                              |                                                                                   |                                                                                     | 58.2                                                                                |                                                                                     |                                                                                     | 33.7                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 336                                                                               | 197                                                                               | 0                                                                                 | 34                                                                                | 246                                                                               | 0                                                                                 | 147                                                                                 | 330                                                                                 | 0                                                                                   | 74                                                                                  | 203                                                                                 | 11                                                                                  |
| Queue Length 95th (ft)  | #454                                                                              | 251                                                                               | 19                                                                                | 61                                                                                | #336                                                                              | 23                                                                                | #219                                                                                | #446                                                                                | 0                                                                                   | #141                                                                                | 266                                                                                 | 19                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 715                                                                               |                                                                                   |                                                                                   | 528                                                                               |                                                                                   |                                                                                     | 1133                                                                                |                                                                                     |                                                                                     | 3247                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                               |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                   | 480                                                                                 |                                                                                     | 430                                                                                 | 490                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 944                                                                               | 1604                                                                              | 812                                                                               | 172                                                                               | 762                                                                               | 512                                                                               | 461                                                                                 | 914                                                                                 | 1583                                                                                | 217                                                                                 | 654                                                                                 | 1583                                                                                |
| 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       | 0.92                                                                              | 0.44                                                                              | 0.17                                                                              | 0.50                                                                              | 0.82                                                                              | 0.32                                                                              | 0.81                                                                                | 0.91                                                                                | 0.06                                                                                | 0.81                                                                                | 0.79                                                                                | 0.37                                                                                |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

## Background Traffic Conditions

PM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 0.94

Intersection Signal Delay (s/veh): 44.5

Intersection LOS: D

Intersection Capacity Utilization 84.4%

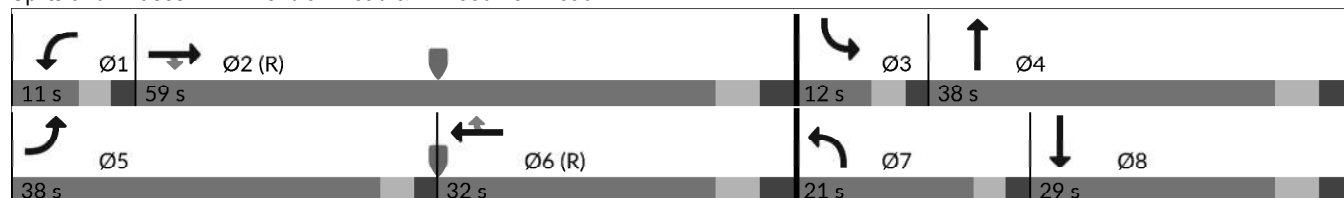
ICU Level of Service E

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Meridian Road & E Woodmen Road



# Timings

## 3: Meridian Road & Bent Grass Meadows Drive

## Background Traffic Conditions

PM Peak Traffic Hour - Year 2030

|                                                                      |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                           | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                 | 189                                                                               | 165                                                                               | 174                                                                               | 1505                                                                              | 988                                                                               | 167                                                                               |
| Future Volume (vph)                                                  | 189                                                                               | 165                                                                               | 174                                                                               | 1505                                                                              | 988                                                                               | 167                                                                               |
| Satd. Flow (prot)                                                    | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                        | 0.950                                                                             |                                                                                   | 0.210                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                    | 3433                                                                              | 1583                                                                              | 391                                                                               | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                    |                                                                                   | 179                                                                               |                                                                                   |                                                                                   |                                                                                   | 182                                                                               |
| Lane Group Flow (vph)                                                | 205                                                                               | 179                                                                               | 189                                                                               | 1636                                                                              | 1074                                                                              | 182                                                                               |
| Turn Type                                                            | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                     | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                     |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                       | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                  | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                    | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                      | 23.0                                                                              | 23.0                                                                              | 12.0                                                                              | 97.0                                                                              | 85.0                                                                              | 85.0                                                                              |
| Total Split (%)                                                      | 19.2%                                                                             | 19.2%                                                                             | 10.0%                                                                             | 80.8%                                                                             | 70.8%                                                                             | 70.8%                                                                             |
| Yellow Time (s)                                                      | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                     | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                             |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                          | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                 | 12.5                                                                              | 12.5                                                                              | 98.5                                                                              | 98.5                                                                              | 80.5                                                                              | 80.5                                                                              |
| Actuated g/C Ratio                                                   | 0.10                                                                              | 0.10                                                                              | 0.82                                                                              | 0.82                                                                              | 0.67                                                                              | 0.67                                                                              |
| v/c Ratio                                                            | 0.57                                                                              | 0.55                                                                              | 0.39                                                                              | 0.56                                                                              | 0.45                                                                              | 0.16                                                                              |
| Control Delay (s/veh)                                                | 52.9                                                                              | 11.8                                                                              | 5.5                                                                               | 11.2                                                                              | 10.0                                                                              | 1.3                                                                               |
| Queue Delay                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                  | 52.9                                                                              | 11.8                                                                              | 5.5                                                                               | 11.2                                                                              | 10.0                                                                              | 1.3                                                                               |
| LOS                                                                  | D                                                                                 | B                                                                                 | A                                                                                 | B                                                                                 | B                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                               | 33.8                                                                              |                                                                                   |                                                                                   | 10.7                                                                              | 8.8                                                                               |                                                                                   |
| Approach LOS                                                         | C                                                                                 |                                                                                   |                                                                                   | B                                                                                 | A                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                               | 79                                                                                | 7                                                                                 | 37                                                                                | 342                                                                               | 188                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                               | m93                                                                               | m30                                                                               | m49                                                                               | m753                                                                              | 231                                                                               | 23                                                                                |
| Internal Link Dist (ft)                                              | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                 | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                  | 529                                                                               | 395                                                                               | 476                                                                               | 2905                                                                              | 2374                                                                              | 1121                                                                              |
| Starvation Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                    | 0.39                                                                              | 0.45                                                                              | 0.40                                                                              | 0.56                                                                              | 0.45                                                                              | 0.16                                                                              |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 60                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Timings

### 3: Meridian Road & Bent Grass Meadows Drive

## Background Traffic Conditions

PM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 0.58

Intersection Signal Delay (s/veh): 12.5

Intersection LOS: B

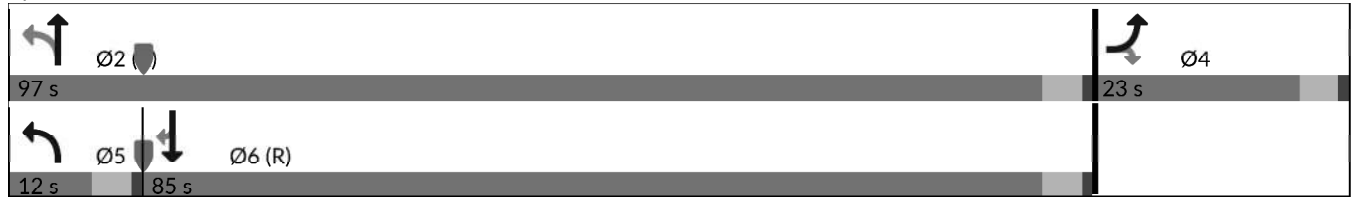
Intersection Capacity Utilization 54.5%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



# HCM Unsignalized Intersection Capacity Analysis

## 4: Golden Sage Drive & Woodmen Frontage Road

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2030

|                                   | →    | ↘     | ↙    | ←                    | ↖    | ↗    |
|-----------------------------------|------|-------|------|----------------------|------|------|
| Movement                          | EBT  | EBR   | WBL  | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↰    |       |      | ↱                    | ↗    | ↘    |
| Traffic Volume (veh/h)            | 1    | 76    | 257  | 4                    | 90   | 329  |
| Future Volume (Veh/h)             | 1    | 76    | 257  | 4                    | 90   | 329  |
| Sign Control                      | Stop |       |      | Stop                 | Free |      |
| Grade                             | 0%   |       |      | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.92 | 0.92  | 0.92 | 0.92                 | 0.92 | 0.92 |
| Hourly flow rate (vph)            | 1    | 83    | 279  | 4                    | 98   | 358  |
| Pedestrians                       |      |       |      |                      |      |      |
| Lane Width (ft)                   |      |       |      |                      |      |      |
| Walking Speed (ft/s)              |      |       |      |                      |      |      |
| Percent Blockage                  |      |       |      |                      |      |      |
| Right turn flare (veh)            |      |       |      |                      |      |      |
| Median type                       |      |       |      |                      | None |      |
| Median storage (veh)              |      |       |      |                      |      |      |
| Upstream signal (ft)              |      |       |      |                      | 275  |      |
| pX, platoon unblocked             |      |       |      |                      |      |      |
| vC, conflicting volume            | 554  | 0     | 459  | 375                  | 0    |      |
| vC1, stage 1 conf vol             |      |       |      |                      |      |      |
| vC2, stage 2 conf vol             |      |       |      |                      |      |      |
| vCu, unblocked vol                | 554  | 0     | 459  | 375                  | 0    |      |
| tC, single (s)                    | 6.5  | 6.2   | 7.1  | 6.5                  | 4.1  |      |
| tC, 2 stage (s)                   |      |       |      |                      |      |      |
| tF (s)                            | 4.0  | 3.3   | 3.5  | 4.0                  | 2.2  |      |
| p0 queue free %                   | 100  | 92    | 38   | 99                   | 94   |      |
| cM capacity (veh/h)               | 414  | 1085  | 451  | 522                  | 1623 |      |
| Direction, Lane #                 | EB 1 | WB 1  | NB 1 |                      |      |      |
| Volume Total                      | 84   | 283   | 456  |                      |      |      |
| Volume Left                       | 0    | 279   | 98   |                      |      |      |
| Volume Right                      | 83   | 0     | 358  |                      |      |      |
| cSH                               | 1064 | 452   | 1623 |                      |      |      |
| Volume to Capacity                | 0.08 | 0.63  | 0.06 |                      |      |      |
| Queue Length 95th (ft)            | 6    | 105   | 5    |                      |      |      |
| Control Delay (s/veh)             | 8.7  | 25.4  | 2.0  |                      |      |      |
| Lane LOS                          | A    | D     | A    |                      |      |      |
| Approach Delay (s/veh)            | 8.7  | 25.4  | 2.0  |                      |      |      |
| Approach LOS                      | A    | D     |      |                      |      |      |
| Intersection Summary              |      |       |      |                      |      |      |
| Average Delay                     |      | 10.7  |      |                      |      |      |
| Intersection Capacity Utilization |      | 53.0% |      | ICU Level of Service |      | A    |
| Analysis Period (min)             |      | 15    |      |                      |      |      |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 3.3                                                                               |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR                                                                               |
| Lane Configurations      |  |  |  |      |  |  |
| Traffic Vol, veh/h       | 138                                                                               | 193                                                                               | 181                                                                               | 15   | 6                                                                                 | 81                                                                                |
| Future Vol, veh/h        | 138                                                                               | 193                                                                               | 181                                                                               | 15   | 6                                                                                 | 81                                                                                |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop                                                                              |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None | -                                                                                 | None                                                                              |
| Storage Length           | 310                                                                               | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 150                                                                               | 210                                                                               | 197                                                                               | 16   | 7                                                                                 | 88                                                                                |

| Major/Minor          | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 213    | 0      | 0      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 1357   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1357   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach               | EB   | WB | SB    |
|------------------------|------|----|-------|
| HCM Control Delay, s/v | 3.33 | 0  | 10.38 |
| HCM LOS                |      |    | B     |

| Minor Lane/Major Mvmt     | EBL   | EBT | WBT | WBR | SBLn1 |
|---------------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)          | 1357  | -   | -   | -   | 764   |
| HCM Lane V/C Ratio        | 0.111 | -   | -   | -   | 0.124 |
| HCM Control Delay (s/veh) | 8     | -   | -   | -   | 10.4  |
| HCM Lane LOS              | A     | -   | -   | -   | B     |
| HCM 95th %tile Q(veh)     | 0.4   | -   | -   | -   | 0.4   |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2030

| Intersection                |         |         |          |          |         |
|-----------------------------|---------|---------|----------|----------|---------|
| Intersection Delay, s/veh   | 3.8     |         |          |          |         |
| Intersection LOS            | A       |         |          |          |         |
| Approach                    | EB      | SB      | NW       | NE       |         |
| Entry Lanes                 | 1       | 1       | 2        | 1        |         |
| Conflicting Circle Lanes    | 1       | 1       | 1        | 1        |         |
| Adj Approach Flow, veh/h    | 0       | 135     | 123      | 222      |         |
| Demand Flow Rate, veh/h     | 0       | 138     | 126      | 226      |         |
| Vehicles Circulating, veh/h | 169     | 31      | 226      | 0        |         |
| Vehicles Exiting, veh/h     | 0       | 321     | 0        | 169      |         |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0        | 0        |         |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000    | 1.000    |         |
| Approach Delay, s/veh       | 0.0     | 3.6     | 3.8      | 4.0      |         |
| Approach LOS                | -       | A       | A        | A        |         |
| Lane                        | Left    | Left    | Left     | Right    | Left    |
| Designated Moves            | L       | R       | L        | TR       | L       |
| Assumed Moves               | L       | R       | L        | TR       | L       |
| RT Channelized              |         |         |          |          |         |
| Lane Util                   | 1.000   | 1.000   | 0.246    | 0.754    | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.535    | 2.535    | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.544    | 4.544    | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1420     | 1420     | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 9.101e-4 | 9.101e-4 | 1.02e-3 |
| Entry Flow, veh/h           | 0       | 138     | 31       | 95       | 226     |
| Cap Entry Lane, veh/h       | 1161    | 1337    | 1156     | 1156     | 1380    |
| Entry HV Adj Factor         | 1.000   | 0.978   | 0.980    | 0.979    | 0.982   |
| Flow Entry, veh/h           | 0       | 135     | 30       | 93       | 222     |
| Cap Entry, veh/h            | 1161    | 1308    | 1133     | 1132     | 1355    |
| V/C Ratio                   | 0.000   | 0.103   | 0.027    | 0.082    | 0.164   |
| Control Delay, s/veh        | 3.1     | 3.6     | 3.4      | 3.9      | 4.0     |
| LOS                         | A       | A       | A        | A        | A       |
| 95th %tile Queue, veh       | 0       | 0       | 0        | 0        | 1       |

# Timings

## 1: Golden Sage Drive & E Woodmen Road

# Background Traffic Conditions

## AM Peak Traffic Hour - Year 2045

|                                                                       |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                                                            | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                   |  |    |  |  |    |  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                  | 188                                                                               | 1316                                                                                                                                                                                                                                                  | 87                                                                                | 39                                                                                | 2154                                                                                                                                                                                                                                                  | 45                                                                                | 155                                                                                 | 10                                                                                  | 50                                                                                  | 78                                                                                  | 10                                                                                  | 403                                                                                 |
| Future Volume (vph)                                                   | 188                                                                               | 1316                                                                                                                                                                                                                                                  | 87                                                                                | 39                                                                                | 2154                                                                                                                                                                                                                                                  | 45                                                                                | 155                                                                                 | 10                                                                                  | 50                                                                                  | 78                                                                                  | 10                                                                                  | 403                                                                                 |
| Satd. Flow (prot)                                                     | 1770                                                                              | 5085                                                                                                                                                                                                                                                  | 1583                                                                              | 1770                                                                              | 5085                                                                                                                                                                                                                                                  | 1583                                                                              | 1770                                                                                | 1863                                                                                | 1583                                                                                | 1770                                                                                | 1591                                                                                | 0                                                                                   |
| Flt Permitted                                                         | 0.070                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.129                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.243                                                                               |                                                                                     |                                                                                     | 0.750                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)                                                     | 130                                                                               | 5085                                                                                                                                                                                                                                                  | 1583                                                                              | 240                                                                               | 5085                                                                                                                                                                                                                                                  | 1583                                                                              | 453                                                                                 | 1863                                                                                | 1583                                                                                | 1397                                                                                | 1591                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)                                                     |                                                                                   |                                                                                                                                                                                                                                                       | 95                                                                                |                                                                                   |                                                                                                                                                                                                                                                       | 64                                                                                |                                                                                     |                                                                                     | 82                                                                                  |                                                                                     | 106                                                                                 |                                                                                     |
| Lane Group Flow (vph)                                                 | 204                                                                               | 1430                                                                                                                                                                                                                                                  | 95                                                                                | 42                                                                                | 2341                                                                                                                                                                                                                                                  | 49                                                                                | 168                                                                                 | 11                                                                                  | 54                                                                                  | 85                                                                                  | 449                                                                                 | 0                                                                                   |
| Turn Type                                                             | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | Perm                                                                              | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | Perm                                                                              | Perm                                                                                | NA                                                                                  | Perm                                                                                | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                                                      | 5                                                                                 | 2                                                                                                                                                                                                                                                     |                                                                                   | 1                                                                                 | 6                                                                                                                                                                                                                                                     |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                                                      | 2                                                                                 |                                                                                                                                                                                                                                                       | 2                                                                                 | 6                                                                                 |                                                                                                                                                                                                                                                       | 6                                                                                 | 4                                                                                   |                                                                                     | 4                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |
| Detector Phase                                                        | 5                                                                                 | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 1                                                                                 | 6                                                                                                                                                                                                                                                     | 6                                                                                 | 4                                                                                   | 4                                                                                   | 4                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)                                                   | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)                                                     | 10.5                                                                              | 25.0                                                                                                                                                                                                                                                  | 25.0                                                                              | 10.5                                                                              | 25.0                                                                                                                                                                                                                                                  | 25.0                                                                              | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                |                                                                                     |
| Total Split (s)                                                       | 14.6                                                                              | 63.3                                                                                                                                                                                                                                                  | 63.3                                                                              | 10.6                                                                              | 59.3                                                                                                                                                                                                                                                  | 59.3                                                                              | 46.1                                                                                | 46.1                                                                                | 46.1                                                                                | 46.1                                                                                | 46.1                                                                                |                                                                                     |
| Total Split (%)                                                       | 12.2%                                                                             | 52.8%                                                                                                                                                                                                                                                 | 52.8%                                                                             | 8.8%                                                                              | 49.4%                                                                                                                                                                                                                                                 | 49.4%                                                                             | 38.4%                                                                               | 38.4%                                                                               | 38.4%                                                                               | 38.4%                                                                               | 38.4%                                                                               |                                                                                     |
| Yellow Time (s)                                                       | 3.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 3.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| All-Red Time (s)                                                      | 2.0                                                                               | 3.0                                                                                                                                                                                                                                                   | 3.0                                                                               | 2.0                                                                               | 3.0                                                                                                                                                                                                                                                   | 3.0                                                                               | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)                                                  | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)                                                   | 5.0                                                                               | 7.0                                                                                                                                                                                                                                                   | 7.0                                                                               | 5.0                                                                               | 7.0                                                                                                                                                                                                                                                   | 7.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lead/Lag                                                              | Lead                                                                              | Lag                                                                                                                                                                                                                                                   | Lag                                                                               | Lead                                                                              | Lag                                                                                                                                                                                                                                                   | Lag                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?                                                    | Yes                                                                               | Yes                                                                                                                                                                                                                                                   | Yes                                                                               | Yes                                                                               | Yes                                                                                                                                                                                                                                                   | Yes                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode                                                           | None                                                                              | C-Max                                                                                                                                                                                                                                                 | C-Max                                                                             | None                                                                              | C-Max                                                                                                                                                                                                                                                 | C-Max                                                                             | None                                                                                | None                                                                                | None                                                                                | None                                                                                | None                                                                                |                                                                                     |
| Act Effect Green (s)                                                  | 68.1                                                                              | 58.4                                                                                                                                                                                                                                                  | 58.4                                                                              | 59.9                                                                              | 52.3                                                                                                                                                                                                                                                  | 52.3                                                                              | 41.1                                                                                | 41.1                                                                                | 41.1                                                                                | 41.1                                                                                | 41.1                                                                                |                                                                                     |
| Actuated g/C Ratio                                                    | 0.57                                                                              | 0.49                                                                                                                                                                                                                                                  | 0.49                                                                              | 0.50                                                                              | 0.44                                                                                                                                                                                                                                                  | 0.44                                                                              | 0.34                                                                                | 0.34                                                                                | 0.34                                                                                | 0.34                                                                                | 0.34                                                                                |                                                                                     |
| v/c Ratio                                                             | 1.00                                                                              | 0.58                                                                                                                                                                                                                                                  | 0.12                                                                              | 0.22                                                                              | 1.06                                                                                                                                                                                                                                                  | 0.07                                                                              | 1.08                                                                                | 0.02                                                                                | 0.09                                                                                | 0.18                                                                                | 0.73                                                                                |                                                                                     |
| Control Delay (s/veh)                                                 | 92.9                                                                              | 23.6                                                                                                                                                                                                                                                  | 3.8                                                                               | 14.4                                                                              | 69.5                                                                                                                                                                                                                                                  | 3.3                                                                               | 135.5                                                                               | 26.3                                                                                | 2.6                                                                                 | 28.9                                                                                | 34.2                                                                                |                                                                                     |
| Queue Delay                                                           | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay (s/veh)                                                   | 92.9                                                                              | 23.6                                                                                                                                                                                                                                                  | 3.8                                                                               | 14.4                                                                              | 69.5                                                                                                                                                                                                                                                  | 3.3                                                                               | 135.5                                                                               | 26.3                                                                                | 2.6                                                                                 | 28.9                                                                                | 34.2                                                                                |                                                                                     |
| LOS                                                                   | F                                                                                 | C                                                                                                                                                                                                                                                     | A                                                                                 | B                                                                                 | E                                                                                                                                                                                                                                                     | A                                                                                 | F                                                                                   | C                                                                                   | A                                                                                   | C                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s/veh)                                                |                                                                                   | 30.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 67.2                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 99.5                                                                                |                                                                                     |                                                                                     | 33.3                                                                                |                                                                                     |
| Approach LOS                                                          |                                                                                   | C                                                                                                                                                                                                                                                     |                                                                                   |                                                                                   | E                                                                                                                                                                                                                                                     |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)                                                | 109                                                                               | 297                                                                                                                                                                                                                                                   | 0                                                                                 | 14                                                                                | ~739                                                                                                                                                                                                                                                  | 0                                                                                 | ~148                                                                                | 6                                                                                   | 0                                                                                   | 47                                                                                  | 240                                                                                 |                                                                                     |
| Queue Length 95th (ft)                                                | #273                                                                              | 346                                                                                                                                                                                                                                                   | 30                                                                                | 30                                                                                | #834                                                                                                                                                                                                                                                  | 17                                                                                | #294                                                                                | 19                                                                                  | 14                                                                                  | 87                                                                                  | 372                                                                                 |                                                                                     |
| Internal Link Dist (ft)                                               |                                                                                   | 2147                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 1854                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)                                                  |                                                                                   |                                                                                                                                                                                                                                                       | 385                                                                               | 340                                                                               |                                                                                                                                                                                                                                                       | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)                                                   | 204                                                                               | 2475                                                                                                                                                                                                                                                  | 819                                                                               | 191                                                                               | 2216                                                                                                                                                                                                                                                  | 726                                                                               | 155                                                                                 | 638                                                                                 | 596                                                                                 | 478                                                                                 | 614                                                                                 |                                                                                     |
| Starvation Cap Reductn                                                | 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                                                                                   |                                                                                     |
| Storage Cap Reductn                                                   | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio                                                     | 1.00                                                                              | 0.58                                                                                                                                                                                                                                                  | 0.12                                                                              | 0.22                                                                              | 1.06                                                                                                                                                                                                                                                  | 0.07                                                                              | 1.08                                                                                | 0.02                                                                                | 0.09                                                                                | 0.18                                                                                | 0.73                                                                                |                                                                                     |
| Intersection Summary                                                  |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cycle Length: 120                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length: 120                                            |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Natural Cycle: 130                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type: Actuated-Coordinated                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Timings

### 1: Golden Sage Drive & E Woodmen Road

## Background Traffic Conditions

### AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.08

Intersection Signal Delay (s/veh): 52.3

Intersection LOS: D

Intersection Capacity Utilization 104.4%

ICU Level of Service G

Analysis Period (min) 15

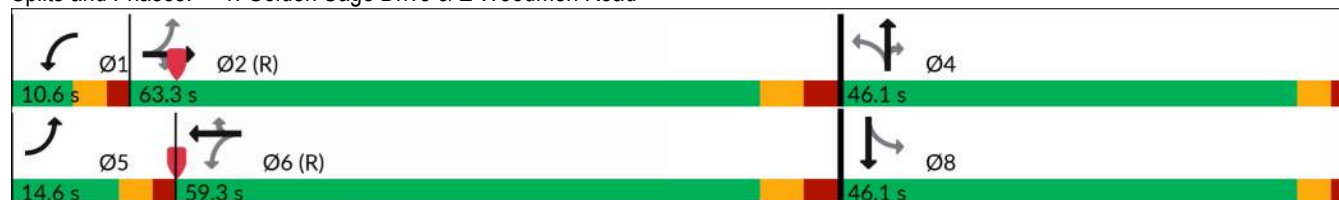
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Golden Sage Drive & E Woodmen Road



Timings  
2: Meridian Road & E Woodmen Road

Background Traffic Conditions  
AM Peak Traffic Hour - Year 2045

|                         |                                                                                    |                                                                                                                                                                      |  |                                                                                    |                                                                                                                                                                      |    |                                                                                      |                                                                                      |  |                                                                                      |                                                                                      |  |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                                                                                                                 | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                                                                                                                 | WBT                                                                                                                                                                                                                                                   | WBR                                                                                 | NBL                                                                                                                                                                     | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations     |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (vph)    | 511                                                                                                                                                                 | 523                                                                                                                                                                                                                                                   | 333                                                                               | 88                                                                                                                                                                  | 845                                                                                                                                                                                                                                                   | 66                                                                                  | 302                                                                                                                                                                     | 321                                                                                                                                                                     | 14                                                                                  | 102                                                                                                                                                                     | 1130                                                                                                                                                                    | 1168                                                                                |
| Future Volume (vph)     | 511                                                                                                                                                                 | 523                                                                                                                                                                                                                                                   | 333                                                                               | 88                                                                                                                                                                  | 845                                                                                                                                                                                                                                                   | 66                                                                                  | 302                                                                                                                                                                     | 321                                                                                                                                                                     | 14                                                                                  | 102                                                                                                                                                                     | 1130                                                                                                                                                                    | 1168                                                                                |
| Satd. Flow (prot)       | 3433                                                                                                                                                                | 5085                                                                                                                                                                                                                                                  | 1583                                                                              | 3433                                                                                                                                                                | 5085                                                                                                                                                                                                                                                  | 1583                                                                                | 3433                                                                                                                                                                    | 3539                                                                                                                                                                    | 1583                                                                                | 3433                                                                                                                                                                    | 3539                                                                                                                                                                    | 1583                                                                                |
| Flt Permitted           | 0.950                                                                                                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | 0.950                                                                                                                                                               |                                                                                                                                                                                                                                                       |                                                                                     | 0.950                                                                                                                                                                   |                                                                                                                                                                         |                                                                                     | 0.950                                                                                                                                                                   |                                                                                                                                                                         |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                                                                                                                | 5085                                                                                                                                                                                                                                                  | 1583                                                                              | 3433                                                                                                                                                                | 5085                                                                                                                                                                                                                                                  | 1583                                                                                | 3433                                                                                                                                                                    | 3539                                                                                                                                                                    | 1583                                                                                | 3433                                                                                                                                                                    | 3539                                                                                                                                                                    | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 175                                                                               |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 173                                                                                 |                                                                                                                                                                         |                                                                                                                                                                         | 236                                                                                 |                                                                                                                                                                         |                                                                                                                                                                         | 649                                                                                 |
| Lane Group Flow (vph)   | 555                                                                                                                                                                 | 568                                                                                                                                                                                                                                                   | 362                                                                               | 96                                                                                                                                                                  | 918                                                                                                                                                                                                                                                   | 72                                                                                  | 328                                                                                                                                                                     | 349                                                                                                                                                                     | 15                                                                                  | 111                                                                                                                                                                     | 1228                                                                                                                                                                    | 1270                                                                                |
| Turn Type               | Prot                                                                                                                                                                | NA                                                                                                                                                                                                                                                    | Perm                                                                              | Prot                                                                                                                                                                | NA                                                                                                                                                                                                                                                    | Perm                                                                                | Prot                                                                                                                                                                    | NA                                                                                                                                                                      | Free                                                                                | Prot                                                                                                                                                                    | NA                                                                                                                                                                      | Free                                                                                |
| Protected Phases        | 5                                                                                                                                                                   | 2                                                                                                                                                                                                                                                     |                                                                                   | 1                                                                                                                                                                   | 6                                                                                                                                                                                                                                                     |                                                                                     | 7                                                                                                                                                                       | 4                                                                                                                                                                       |                                                                                     | 3                                                                                                                                                                       | 8                                                                                                                                                                       |                                                                                     |
| Permitted Phases        |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 2                                                                                 |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 6                                                                                   |                                                                                                                                                                         |                                                                                                                                                                         | Free                                                                                |                                                                                                                                                                         |                                                                                                                                                                         | Free                                                                                |
| Detector Phase          | 5                                                                                                                                                                   | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 1                                                                                                                                                                   | 6                                                                                                                                                                                                                                                     | 6                                                                                   | 7                                                                                                                                                                       | 4                                                                                                                                                                       |                                                                                     | 3                                                                                                                                                                       | 8                                                                                                                                                                       |                                                                                     |
| Switch Phase            |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                                                                                                                 | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                                                                                                 | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                                                                                                     |                                                                                     | 5.0                                                                                                                                                                     | 5.0                                                                                                                                                                     |                                                                                     |
| Minimum Split (s)       | 11.0                                                                                                                                                                | 25.0                                                                                                                                                                                                                                                  | 25.0                                                                              | 11.0                                                                                                                                                                | 25.0                                                                                                                                                                                                                                                  | 25.0                                                                                | 11.0                                                                                                                                                                    | 25.0                                                                                                                                                                    |                                                                                     | 11.0                                                                                                                                                                    | 25.0                                                                                                                                                                    |                                                                                     |
| Total Split (s)         | 25.0                                                                                                                                                                | 42.0                                                                                                                                                                                                                                                  | 42.0                                                                              | 12.0                                                                                                                                                                | 29.0                                                                                                                                                                                                                                                  | 29.0                                                                                | 17.0                                                                                                                                                                    | 53.0                                                                                                                                                                    |                                                                                     | 13.0                                                                                                                                                                    | 49.0                                                                                                                                                                    |                                                                                     |
| Total Split (%)         | 20.8%                                                                                                                                                               | 35.0%                                                                                                                                                                                                                                                 | 35.0%                                                                             | 10.0%                                                                                                                                                               | 24.2%                                                                                                                                                                                                                                                 | 24.2%                                                                               | 14.2%                                                                                                                                                                   | 44.2%                                                                                                                                                                   |                                                                                     | 10.8%                                                                                                                                                                   | 40.8%                                                                                                                                                                   |                                                                                     |
| Yellow Time (s)         | 3.0                                                                                                                                                                 | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 3.0                                                                                                                                                                 | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                                 | 3.0                                                                                                                                                                     | 4.0                                                                                                                                                                     |                                                                                     | 3.0                                                                                                                                                                     | 4.0                                                                                                                                                                     |                                                                                     |
| All-Red Time (s)        | 2.0                                                                                                                                                                 | 3.0                                                                                                                                                                                                                                                   | 3.0                                                                               | 2.0                                                                                                                                                                 | 3.0                                                                                                                                                                                                                                                   | 3.0                                                                                 | 2.0                                                                                                                                                                     | 3.0                                                                                                                                                                     |                                                                                     | 2.0                                                                                                                                                                     | 3.0                                                                                                                                                                     |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                                                                                                     |                                                                                     | 0.0                                                                                                                                                                     | 0.0                                                                                                                                                                     |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                                                                                                                 | 7.0                                                                                                                                                                                                                                                   | 7.0                                                                               | 5.0                                                                                                                                                                 | 7.0                                                                                                                                                                                                                                                   | 7.0                                                                                 | 5.0                                                                                                                                                                     | 7.0                                                                                                                                                                     |                                                                                     | 5.0                                                                                                                                                                     | 7.0                                                                                                                                                                     |                                                                                     |
| Lead/Lag                | Lead                                                                                                                                                                | Lag                                                                                                                                                                                                                                                   | Lag                                                                               | Lead                                                                                                                                                                | Lag                                                                                                                                                                                                                                                   | Lag                                                                                 | Lead                                                                                                                                                                    | Lag                                                                                                                                                                     |                                                                                     | Lead                                                                                                                                                                    | Lag                                                                                                                                                                     |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                                                                                                                 | Yes                                                                                                                                                                                                                                                   | Yes                                                                               | Yes                                                                                                                                                                 | Yes                                                                                                                                                                                                                                                   | Yes                                                                                 | Yes                                                                                                                                                                     | Yes                                                                                                                                                                     |                                                                                     | Yes                                                                                                                                                                     | Yes                                                                                                                                                                     |                                                                                     |
| Recall Mode             | None                                                                                                                                                                | C-Min                                                                                                                                                                                                                                                 | C-Min                                                                             | None                                                                                                                                                                | C-Min                                                                                                                                                                                                                                                 | C-Min                                                                               | None                                                                                                                                                                    | Min                                                                                                                                                                     |                                                                                     | None                                                                                                                                                                    | Min                                                                                                                                                                     |                                                                                     |
| Act Effct Green (s)     | 20.0                                                                                                                                                                | 35.1                                                                                                                                                                                                                                                  | 35.1                                                                              | 6.9                                                                                                                                                                 | 22.0                                                                                                                                                                                                                                                  | 22.0                                                                                | 12.0                                                                                                                                                                    | 46.3                                                                                                                                                                    | 120.0                                                                               | 7.7                                                                                                                                                                     | 42.0                                                                                                                                                                    | 120.0                                                                               |
| Actuated g/C Ratio      | 0.17                                                                                                                                                                | 0.29                                                                                                                                                                                                                                                  | 0.29                                                                              | 0.06                                                                                                                                                                | 0.18                                                                                                                                                                                                                                                  | 0.18                                                                                | 0.10                                                                                                                                                                    | 0.39                                                                                                                                                                    | 1.00                                                                                | 0.06                                                                                                                                                                    | 0.35                                                                                                                                                                    | 1.00                                                                                |
| v/c Ratio               | 0.97                                                                                                                                                                | 0.38                                                                                                                                                                                                                                                  | 0.62                                                                              | 0.49                                                                                                                                                                | 0.98                                                                                                                                                                                                                                                  | 0.17                                                                                | 0.96                                                                                                                                                                    | 0.26                                                                                                                                                                    | 0.01                                                                                | 0.50                                                                                                                                                                    | 0.99                                                                                                                                                                    | 0.80                                                                                |
| Control Delay (s/veh)   | 80.9                                                                                                                                                                | 34.7                                                                                                                                                                                                                                                  | 23.5                                                                              | 63.6                                                                                                                                                                | 75.1                                                                                                                                                                                                                                                  | 0.8                                                                                 | 92.7                                                                                                                                                                    | 25.9                                                                                                                                                                    | 0.0                                                                                 | 72.5                                                                                                                                                                    | 51.2                                                                                                                                                                    | 9.8                                                                                 |
| 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 (s/veh)     | 80.9                                                                                                                                                                | 34.7                                                                                                                                                                                                                                                  | 23.5                                                                              | 63.6                                                                                                                                                                | 75.1                                                                                                                                                                                                                                                  | 0.8                                                                                 | 92.7                                                                                                                                                                    | 25.9                                                                                                                                                                    | 0.0                                                                                 | 72.5                                                                                                                                                                    | 51.2                                                                                                                                                                    | 9.8                                                                                 |
| LOS                     | F                                                                                                                                                                   | C                                                                                                                                                                                                                                                     | C                                                                                 | E                                                                                                                                                                   | E                                                                                                                                                                                                                                                     | A                                                                                   | F                                                                                                                                                                       | C                                                                                                                                                                       | A                                                                                   | E                                                                                                                                                                       | D                                                                                                                                                                       | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                                                                                                     | 49.3                                                                                                                                                                                                                                                  |                                                                                   |                                                                                                                                                                     | 69.1                                                                                                                                                                                                                                                  |                                                                                     |                                                                                                                                                                         | 57.0                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         | 31.9                                                                                                                                                                    |                                                                                     |
| Approach LOS            |                                                                                                                                                                     | D                                                                                                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     | E                                                                                                                                                                                                                                                     |                                                                                     |                                                                                                                                                                         | E                                                                                                                                                                       |                                                                                     |                                                                                                                                                                         | C                                                                                                                                                                       |                                                                                     |
| Queue Length 50th (ft)  | 226                                                                                                                                                                 | 130                                                                                                                                                                                                                                                   | 126                                                                               | 38                                                                                                                                                                  | 266                                                                                                                                                                                                                                                   | 0                                                                                   | 134                                                                                                                                                                     | 97                                                                                                                                                                      | 0                                                                                   | 47                                                                                                                                                                      | 458                                                                                                                                                                     | 290                                                                                 |
| Queue Length 95th (ft)  | #340                                                                                                                                                                | 167                                                                                                                                                                                                                                                   | 234                                                                               | 68                                                                                                                                                                  | #363                                                                                                                                                                                                                                                  | 0                                                                                   | #228                                                                                                                                                                    | 135                                                                                                                                                                     | 0                                                                                   | m56                                                                                                                                                                     | m#622                                                                                                                                                                   | m278                                                                                |
| Internal Link Dist (ft) |                                                                                                                                                                     | 715                                                                                                                                                                                                                                                   |                                                                                   |                                                                                                                                                                     | 528                                                                                                                                                                                                                                                   |                                                                                     |                                                                                                                                                                         | 1133                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         | 3247                                                                                                                                                                    |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                                                                                                                 |                                                                                                                                                                                                                                                       |                                                                                   | 450                                                                                                                                                                 |                                                                                                                                                                                                                                                       |                                                                                     | 480                                                                                                                                                                     |                                                                                                                                                                         | 430                                                                                 | 490                                                                                                                                                                     |                                                                                                                                                                         |                                                                                     |
| Base Capacity (vph)     | 572                                                                                                                                                                 | 1488                                                                                                                                                                                                                                                  | 586                                                                               | 200                                                                                                                                                                 | 932                                                                                                                                                                                                                                                   | 431                                                                                 | 343                                                                                                                                                                     | 1364                                                                                                                                                                    | 1583                                                                                | 228                                                                                                                                                                     | 1238                                                                                                                                                                    | 1583                                                                                |
| 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                                                                                                                                                                | 0.38                                                                                                                                                                                                                                                  | 0.62                                                                              | 0.48                                                                                                                                                                | 0.98                                                                                                                                                                                                                                                  | 0.17                                                                                | 0.96                                                                                                                                                                    | 0.26                                                                                                                                                                    | 0.01                                                                                | 0.49                                                                                                                                                                    | 0.99                                                                                                                                                                    | 0.80                                                                                |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

## Background Traffic Conditions

### AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.99

Intersection Signal Delay (s/veh): 46.1

Intersection LOS: D

Intersection Capacity Utilization 90.8%

ICU Level of Service E

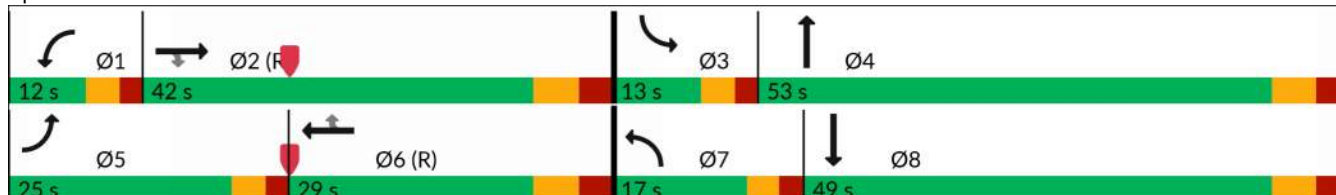
Analysis Period (min) 15

# 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.

Splits and Phases: 2: Meridian Road & E Woodmen Road



# Timings 3: Meridian Road & Bent Grass Meadows Drive

Background Traffic Conditions  
AM Peak Traffic Hour - Year 2045

|                                                                     |  |  |  |  |  |  |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                 |  |  |  |  |  |  |
| Traffic Volume (vph)                                                | 181                                                                               | 192                                                                               | 151                                                                               | 698                                                                               | 1990                                                                              | 250                                                                               |
| Future Volume (vph)                                                 | 181                                                                               | 192                                                                               | 151                                                                               | 698                                                                               | 1990                                                                              | 250                                                                               |
| Satd. Flow (prot)                                                   | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                       | 0.950                                                                             |                                                                                   | 0.047                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                   | 3433                                                                              | 1583                                                                              | 88                                                                                | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                   |                                                                                   | 116                                                                               |                                                                                   |                                                                                   |                                                                                   | 272                                                                               |
| Lane Group Flow (vph)                                               | 197                                                                               | 209                                                                               | 164                                                                               | 759                                                                               | 2163                                                                              | 272                                                                               |
| Turn Type                                                           | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                    | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                    |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                      | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                 | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                   | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                     | 22.5                                                                              | 22.5                                                                              | 13.0                                                                              | 97.5                                                                              | 84.5                                                                              | 84.5                                                                              |
| Total Split (%)                                                     | 18.8%                                                                             | 18.8%                                                                             | 10.8%                                                                             | 81.3%                                                                             | 70.4%                                                                             | 70.4%                                                                             |
| Yellow Time (s)                                                     | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                    | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                 | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                            |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                  |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                         | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                | 13.3                                                                              | 13.3                                                                              | 97.7                                                                              | 97.7                                                                              | 80.0                                                                              | 80.0                                                                              |
| Actuated g/C Ratio                                                  | 0.11                                                                              | 0.11                                                                              | 0.81                                                                              | 0.81                                                                              | 0.67                                                                              | 0.67                                                                              |
| v/c Ratio                                                           | 0.52                                                                              | 0.75                                                                              | 0.64                                                                              | 0.26                                                                              | 0.92                                                                              | 0.24                                                                              |
| Control Delay (s/veh)                                               | 52.1                                                                              | 37.4                                                                              | 47.3                                                                              | 5.7                                                                               | 24.9                                                                              | 1.3                                                                               |
| Queue Delay                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                 | 52.1                                                                              | 37.4                                                                              | 47.3                                                                              | 5.7                                                                               | 24.9                                                                              | 1.3                                                                               |
| LOS                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | A                                                                                 | C                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                              | 44.5                                                                              |                                                                                   |                                                                                   | 13.1                                                                              | 22.3                                                                              |                                                                                   |
| Approach LOS                                                        | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | C                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                              | 77                                                                                | 72                                                                                | 86                                                                                | 100                                                                               | 703                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                              | m106                                                                              | m140                                                                              | m#134                                                                             | m118                                                                              | 855                                                                               | 28                                                                                |
| Internal Link Dist (ft)                                             | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                 | 514                                                                               | 336                                                                               | 256                                                                               | 2880                                                                              | 2359                                                                              | 1146                                                                              |
| Starvation Cap Reductn                                              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                   | 0.38                                                                              | 0.62                                                                              | 0.64                                                                              | 0.26                                                                              | 0.92                                                                              | 0.24                                                                              |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 100                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Timings

### 3: Meridian Road & Bent Grass Meadows Drive

Background Traffic Conditions  
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.92

Intersection Signal Delay (s/veh): 22.4

Intersection LOS: C

Intersection Capacity Utilization 79.8%

ICU Level of Service D

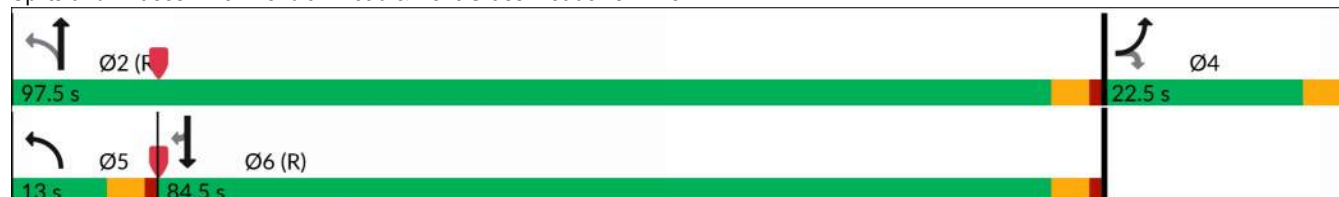
Analysis Period (min) 15

# 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.

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



# HCM Unsignalized Intersection Capacity Analysis

## 4: Golden Sage Drive & Woodmen Frontage Road

Background Traffic Conditions  
AM Peak Traffic Hour - Year 2045

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 2                                                                                 | 118                                                                               | 374                                                                               | 4                                                                                 | 80                                                                                | 162                                                                               |
| Future Volume (Veh/h)             | 2                                                                                 | 118                                                                               | 374                                                                               | 4                                                                                 | 80                                                                                | 162                                                                               |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Hourly flow rate (vph)            | 2                                                                                 | 128                                                                               | 407                                                                               | 4                                                                                 | 87                                                                                | 176                                                                               |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |
| Median storage veh                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 275                                                                               |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 350                                                                               | 0                                                                                 | 391                                                                               | 262                                                                               | 0                                                                                 |                                                                                   |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 350                                                                               | 0                                                                                 | 391                                                                               | 262                                                                               | 0                                                                                 |                                                                                   |
| tC, single (s)                    | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 4.1                                                                               |                                                                                   |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 2.2                                                                               |                                                                                   |
| p0 queue free %                   | 100                                                                               | 88                                                                                | 15                                                                                | 99                                                                                | 95                                                                                |                                                                                   |
| cM capacity (veh/h)               | 543                                                                               | 1085                                                                              | 479                                                                               | 608                                                                               | 1623                                                                              |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 130                                                                               | 411                                                                               | 263                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 407                                                                               | 87                                                                                |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 128                                                                               | 0                                                                                 | 176                                                                               |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1069                                                                              | 480                                                                               | 1623                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.12                                                                              | 0.86                                                                              | 0.05                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 10                                                                                | 220                                                                               | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s/veh)             | 8.8                                                                               | 42.8                                                                              | 2.7                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          | A                                                                                 | E                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s/veh)            | 8.8                                                                               | 42.8                                                                              | 2.7                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      | A                                                                                 | E                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   |                                                                                   | 24.2                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 48.7%                                                                             | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 5.2                                                                               |                                                                                   |                                                                                   |        |                                                                                   |       |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR    | SBL                                                                               | SBR   |
| Lane Configurations      |  |  |  |        |  |       |
| Traffic Vol, veh/h       | 79                                                                                | 85                                                                                | 179                                                                               | 4      | 7                                                                                 | 198   |
| Future Vol, veh/h        | 79                                                                                | 85                                                                                | 179                                                                               | 4      | 7                                                                                 | 198   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free   | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None   | -                                                                                 | None  |
| Storage Length           | 310                                                                               | -                                                                                 | -                                                                                 | -      | 0                                                                                 | -     |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92     | 92                                                                                | 92    |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2      | 2                                                                                 | 2     |
| Mvmt Flow                | 86                                                                                | 92                                                                                | 195                                                                               | 4      | 8                                                                                 | 215   |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
| Major/Minor              | Major1                                                                            | Major2                                                                            |                                                                                   | Minor2 |                                                                                   |       |
| Conflicting Flow All     | 199                                                                               | 0                                                                                 | -                                                                                 | 0      | 461                                                                               | 197   |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 197                                                                               | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 264                                                                               | -     |
| Critical Hdwy            | 4.12                                                                              | -                                                                                 | -                                                                                 | -      | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Follow-up Hdwy           | 2.218                                                                             | -                                                                                 | -                                                                                 | -      | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | 1373                                                                              | -                                                                                 | -                                                                                 | -      | 559                                                                               | 844   |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 836                                                                               | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 780                                                                               | -     |
| Platoon blocked, %       |                                                                                   | -                                                                                 | -                                                                                 | -      |                                                                                   |       |
| Mov Cap-1 Maneuver       | 1373                                                                              | -                                                                                 | -                                                                                 | -      | 524                                                                               | 844   |
| Mov Cap-2 Maneuver       | -                                                                                 | -                                                                                 | -                                                                                 | -      | 524                                                                               | -     |
| Stage 1                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 784                                                                               | -     |
| Stage 2                  | -                                                                                 | -                                                                                 | -                                                                                 | -      | 780                                                                               | -     |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
| Approach                 | EB                                                                                | WB                                                                                |                                                                                   | SB     |                                                                                   |       |
| HCM Ctrl Dly, s/v        | 3.76                                                                              | 0                                                                                 |                                                                                   | 10.95  |                                                                                   |       |
| HCM LOS                  | B                                                                                 |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |                                                                                   |                                                                                   |                                                                                   |        |                                                                                   |       |
| Minor Lane/Major Mvmt    | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR    | SBLn1                                                                             |       |
| Capacity (veh/h)         | 1373                                                                              | -                                                                                 | -                                                                                 | -      | 827                                                                               |       |
| HCM Lane V/C Ratio       | 0.063                                                                             | -                                                                                 | -                                                                                 | -      | 0.269                                                                             |       |
| HCM Ctrl Dly (s/v)       | 7.8                                                                               | -                                                                                 | -                                                                                 | -      | 10.9                                                                              |       |
| HCM Lane LOS             | A                                                                                 | -                                                                                 | -                                                                                 | -      | B                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.2                                                                               | -                                                                                 | -                                                                                 | -      | 1.1                                                                               |       |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Background Traffic Conditions  
AM Peak Traffic Hour - Year 2045

| Intersection                |         |         |          |          |         |
|-----------------------------|---------|---------|----------|----------|---------|
| Intersection Delay, s/veh   | 3.4     |         |          |          |         |
| Intersection LOS            | A       |         |          |          |         |
| Approach                    | EB      | SB      | NW       |          | NE      |
| Entry Lanes                 | 1       | 1       | 2        |          | 1       |
| Conflicting Circle Lanes    | 1       | 1       | 1        |          | 1       |
| Adj Approach Flow, veh/h    | 1       | 97      | 86       |          | 141     |
| Demand Flow Rate, veh/h     | 1       | 99      | 87       |          | 144     |
| Vehicles Circulating, veh/h | 123     | 24      | 144      |          | 1       |
| Vehicles Exiting, veh/h     | 0       | 207     | 1        |          | 123     |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0        |          | 0       |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000    |          | 1.000   |
| Approach Delay, s/veh       | 3.0     | 3.3     | 3.3      |          | 3.5     |
| Approach LOS                | A       | A       | A        |          | A       |
| Lane                        | Left    | Left    | Left     | Right    | Left    |
| Designated Moves            | LR      | R       | L        | TR       | L       |
| Assumed Moves               | LR      | R       | L        | TR       | L       |
| RT Channelized              |         |         |          |          |         |
| Lane Util                   | 1.000   | 1.000   | 0.276    | 0.724    | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.535    | 2.535    | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.544    | 4.544    | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1420     | 1420     | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 9.101e-4 | 9.101e-4 | 1.02e-3 |
| Entry Flow, veh/h           | 1       | 99      | 24       | 63       | 144     |
| Cap Entry Lane, veh/h       | 1217    | 1346    | 1246     | 1246     | 1378    |
| Entry HV Adj Factor         | 1.000   | 0.980   | 0.980    | 0.984    | 0.979   |
| Flow Entry, veh/h           | 1       | 97      | 24       | 62       | 141     |
| Cap Entry, veh/h            | 1217    | 1319    | 1221     | 1226     | 1350    |
| V/C Ratio                   | 0.001   | 0.074   | 0.019    | 0.051    | 0.104   |
| Control Delay, s/veh        | 3.0     | 3.3     | 3.1      | 3.3      | 3.5     |
| LOS                         | A       | A       | A        | A        | A       |
| 95th %tile Queue, veh       | 0       | 0       | 0        | 0        | 0       |

# Timings

## 1: Golden Sage Drive & E Woodmen Road

# Background Traffic Conditions

## PM Peak Traffic Hour - Year 2045

|                                                                       |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                                                            | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                   |  |  |  |  |  |  |   |  |  |  |  |  |
| Traffic Volume (vph)                                                  | 449                                                                               | 1938                                                                              | 175                                                                               | 95                                                                                | 1575                                                                              | 91                                                                                | 200                                                                                 | 19                                                                                  | 73                                                                                  | 80                                                                                  | 19                                                                                  | 325                                                                                 |
| Future Volume (vph)                                                   | 449                                                                               | 1938                                                                              | 175                                                                               | 95                                                                                | 1575                                                                              | 91                                                                                | 200                                                                                 | 19                                                                                  | 73                                                                                  | 80                                                                                  | 19                                                                                  | 325                                                                                 |
| Satd. Flow (prot)                                                     | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 1863                                                                                | 1583                                                                                | 1770                                                                                | 1598                                                                                | 0                                                                                   |
| Flt Permitted                                                         | 0.094                                                                             |                                                                                   |                                                                                   | 0.106                                                                             |                                                                                   |                                                                                   | 0.324                                                                               |                                                                                     |                                                                                     | 0.744                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)                                                     | 175                                                                               | 5085                                                                              | 1583                                                                              | 197                                                                               | 5085                                                                              | 1583                                                                              | 604                                                                                 | 1863                                                                                | 1583                                                                                | 1386                                                                                | 1598                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)                                                     |                                                                                   |                                                                                   | 190                                                                               |                                                                                   |                                                                                   | 109                                                                               |                                                                                     |                                                                                     | 127                                                                                 |                                                                                     | 353                                                                                 |                                                                                     |
| Lane Group Flow (vph)                                                 | 488                                                                               | 2107                                                                              | 190                                                                               | 103                                                                               | 1712                                                                              | 99                                                                                | 217                                                                                 | 21                                                                                  | 79                                                                                  | 87                                                                                  | 374                                                                                 | 0                                                                                   |
| Turn Type                                                             | pm+pt                                                                             | NA                                                                                | Perm                                                                              | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Perm                                                                                | NA                                                                                  | Perm                                                                                | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                                                      | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |
| Permitted Phases                                                      | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 | 4                                                                                   |                                                                                     | 4                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |
| Detector Phase                                                        | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 4                                                                                   | 4                                                                                   | 4                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)                                                     | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              | 25.0                                                                              | 25.0                                                                              | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                | 23.5                                                                                |                                                                                     |
| Total Split (s)                                                       | 30.4                                                                              | 63.3                                                                              | 63.3                                                                              | 11.7                                                                              | 44.6                                                                              | 44.6                                                                              | 45.0                                                                                | 45.0                                                                                | 45.0                                                                                | 45.0                                                                                | 45.0                                                                                |                                                                                     |
| Total Split (%)                                                       | 25.3%                                                                             | 52.8%                                                                             | 52.8%                                                                             | 9.8%                                                                              | 37.2%                                                                             | 37.2%                                                                             | 37.5%                                                                               | 37.5%                                                                               | 37.5%                                                                               | 37.5%                                                                               | 37.5%                                                                               |                                                                                     |
| Yellow Time (s)                                                       | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| All-Red Time (s)                                                      | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)                                                  | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)                                                   | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lead/Lag                                                              | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?                                                    | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode                                                           | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                              | C-Max                                                                             | C-Max                                                                             | None                                                                                | None                                                                                | None                                                                                | None                                                                                | None                                                                                |                                                                                     |
| Act Effect Green (s)                                                  | 70.0                                                                              | 56.3                                                                              | 56.3                                                                              | 46.3                                                                              | 37.6                                                                              | 37.6                                                                              | 40.0                                                                                | 40.0                                                                                | 40.0                                                                                | 40.0                                                                                | 40.0                                                                                |                                                                                     |
| Actuated g/C Ratio                                                    | 0.58                                                                              | 0.47                                                                              | 0.47                                                                              | 0.39                                                                              | 0.31                                                                              | 0.31                                                                              | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                | 0.33                                                                                |                                                                                     |
| v/c Ratio                                                             | 1.11                                                                              | 0.88                                                                              | 0.23                                                                              | 0.63                                                                              | 1.07                                                                              | 0.17                                                                              | 1.08                                                                                | 0.03                                                                                | 0.13                                                                                | 0.19                                                                                | 0.49                                                                                |                                                                                     |
| Control Delay (s/veh)                                                 | 110.6                                                                             | 34.4                                                                              | 3.2                                                                               | 38.5                                                                              | 85.2                                                                              | 5.3                                                                               | 125.5                                                                               | 27.3                                                                                | 1.4                                                                                 | 29.9                                                                                | 6.2                                                                                 |                                                                                     |
| Queue Delay                                                           | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay (s/veh)                                                   | 110.6                                                                             | 34.4                                                                              | 3.2                                                                               | 38.5                                                                              | 85.2                                                                              | 5.3                                                                               | 125.5                                                                               | 27.3                                                                                | 1.4                                                                                 | 29.9                                                                                | 6.2                                                                                 |                                                                                     |
| LOS                                                                   | F                                                                                 | C                                                                                 | A                                                                                 | D                                                                                 | F                                                                                 | A                                                                                 | F                                                                                   | C                                                                                   | A                                                                                   | C                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s/veh)                                                |                                                                                   | 45.6                                                                              |                                                                                   |                                                                                   | 78.5                                                                              |                                                                                   |                                                                                     | 88.1                                                                                |                                                                                     |                                                                                     | 10.7                                                                                |                                                                                     |
| Approach LOS                                                          |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Queue Length 50th (ft)                                                | ~385                                                                              | 536                                                                               | 0                                                                                 | 34                                                                                | ~549                                                                              | 0                                                                                 | ~191                                                                                | 11                                                                                  | 0                                                                                   | 48                                                                                  | 11                                                                                  |                                                                                     |
| Queue Length 95th (ft)                                                | #602                                                                              | 611                                                                               | 40                                                                                | #95                                                                               | #647                                                                              | 34                                                                                | #351                                                                                | 30                                                                                  | 8                                                                                   | 91                                                                                  | 84                                                                                  |                                                                                     |
| Internal Link Dist (ft)                                               |                                                                                   | 2147                                                                              |                                                                                   |                                                                                   | 1854                                                                              |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)                                                  |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)                                                   | 439                                                                               | 2386                                                                              | 843                                                                               | 163                                                                               | 1593                                                                              | 570                                                                               | 201                                                                                 | 621                                                                                 | 612                                                                                 | 462                                                                                 | 768                                                                                 |                                                                                     |
| Starvation Cap Reductn                                                | 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                                                                                   |                                                                                     |
| Storage Cap Reductn                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio                                                     | 1.11                                                                              | 0.88                                                                              | 0.23                                                                              | 0.63                                                                              | 1.07                                                                              | 0.17                                                                              | 1.08                                                                                | 0.03                                                                                | 0.13                                                                                | 0.19                                                                                | 0.49                                                                                |                                                                                     |
| Intersection Summary                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cycle Length: 120                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length: 120                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Natural Cycle: 90                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type: Actuated-Coordinated                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Timings

### 1: Golden Sage Drive & E Woodmen Road

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.11

Intersection Signal Delay (s/veh): 56.6

Intersection LOS: E

Intersection Capacity Utilization 105.8%

ICU Level of Service G

Analysis Period (min) 15

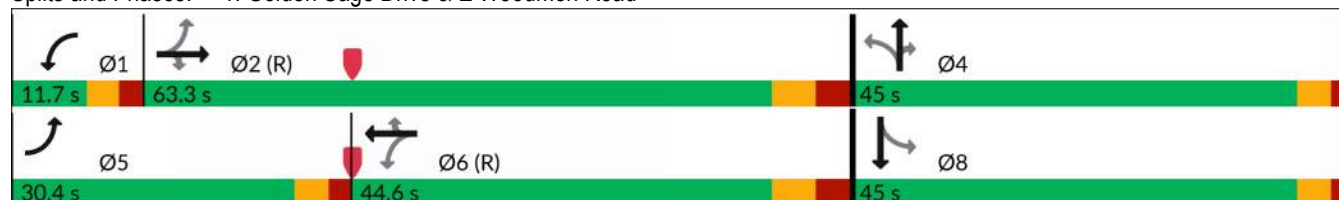
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Golden Sage Drive & E Woodmen Road



Timings  
2: Meridian Road & E Woodmen Road

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2045

|                         |                                                                                    |                                                                                                                                                                      |  |                                                                                    |                                                                                                                                                                      |   |                                                                                      |                                                                                      |  |                                                                                      |                                                                                      |  |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                                                                                                                 | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                                                                                                                 | WBT                                                                                                                                                                                                                                                   | WBR                                                                                | NBL                                                                                                                                                                     | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations     |   |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (vph)    | 962                                                                                                                                                                 | 831                                                                                                                                                                                                                                                   | 151                                                                               | 96                                                                                                                                                                  | 783                                                                                                                                                                                                                                                   | 185                                                                                | 414                                                                                                                                                                     | 922                                                                                                                                                                     | 114                                                                                 | 194                                                                                                                                                                     | 570                                                                                                                                                                     | 645                                                                                 |
| Future Volume (vph)     | 962                                                                                                                                                                 | 831                                                                                                                                                                                                                                                   | 151                                                                               | 96                                                                                                                                                                  | 783                                                                                                                                                                                                                                                   | 185                                                                                | 414                                                                                                                                                                     | 922                                                                                                                                                                     | 114                                                                                 | 194                                                                                                                                                                     | 570                                                                                                                                                                     | 645                                                                                 |
| Satd. Flow (prot)       | 3433                                                                                                                                                                | 5085                                                                                                                                                                                                                                                  | 1583                                                                              | 3433                                                                                                                                                                | 5085                                                                                                                                                                                                                                                  | 1583                                                                               | 3433                                                                                                                                                                    | 3539                                                                                                                                                                    | 1583                                                                                | 3433                                                                                                                                                                    | 3539                                                                                                                                                                    | 1583                                                                                |
| Flt Permitted           | 0.950                                                                                                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | 0.950                                                                                                                                                               |                                                                                                                                                                                                                                                       |                                                                                    | 0.950                                                                                                                                                                   |                                                                                                                                                                         |                                                                                     | 0.950                                                                                                                                                                   |                                                                                                                                                                         |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                                                                                                                | 5085                                                                                                                                                                                                                                                  | 1583                                                                              | 3433                                                                                                                                                                | 5085                                                                                                                                                                                                                                                  | 1583                                                                               | 3433                                                                                                                                                                    | 3539                                                                                                                                                                    | 1583                                                                                | 3433                                                                                                                                                                    | 3539                                                                                                                                                                    | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 173                                                                               |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 218                                                                                |                                                                                                                                                                         |                                                                                                                                                                         | 282                                                                                 |                                                                                                                                                                         |                                                                                                                                                                         | 699                                                                                 |
| Lane Group Flow (vph)   | 1046                                                                                                                                                                | 903                                                                                                                                                                                                                                                   | 164                                                                               | 104                                                                                                                                                                 | 851                                                                                                                                                                                                                                                   | 201                                                                                | 450                                                                                                                                                                     | 1002                                                                                                                                                                    | 124                                                                                 | 211                                                                                                                                                                     | 620                                                                                                                                                                     | 701                                                                                 |
| Turn Type               | Prot                                                                                                                                                                | NA                                                                                                                                                                                                                                                    | Perm                                                                              | Prot                                                                                                                                                                | NA                                                                                                                                                                                                                                                    | Perm                                                                               | Prot                                                                                                                                                                    | NA                                                                                                                                                                      | Free                                                                                | Prot                                                                                                                                                                    | NA                                                                                                                                                                      | Free                                                                                |
| Protected Phases        | 5                                                                                                                                                                   | 2                                                                                                                                                                                                                                                     |                                                                                   | 1                                                                                                                                                                   | 6                                                                                                                                                                                                                                                     |                                                                                    | 7                                                                                                                                                                       | 4                                                                                                                                                                       |                                                                                     | 3                                                                                                                                                                       | 8                                                                                                                                                                       |                                                                                     |
| Permitted Phases        |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 2                                                                                 |                                                                                                                                                                     |                                                                                                                                                                                                                                                       | 6                                                                                  |                                                                                                                                                                         |                                                                                                                                                                         | Free                                                                                |                                                                                                                                                                         |                                                                                                                                                                         | Free                                                                                |
| Detector Phase          | 5                                                                                                                                                                   | 2                                                                                                                                                                                                                                                     | 2                                                                                 | 1                                                                                                                                                                   | 6                                                                                                                                                                                                                                                     | 6                                                                                  | 7                                                                                                                                                                       | 4                                                                                                                                                                       |                                                                                     | 3                                                                                                                                                                       | 8                                                                                                                                                                       |                                                                                     |
| Switch Phase            |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                                                                                                     |                                                                                                                                                                                                                                                       |                                                                                    |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |                                                                                                                                                                         |                                                                                                                                                                         |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                                                                                                                 | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                                                                                                 | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                                | 5.0                                                                                                                                                                     | 5.0                                                                                                                                                                     |                                                                                     | 5.0                                                                                                                                                                     | 5.0                                                                                                                                                                     |                                                                                     |
| Minimum Split (s)       | 11.0                                                                                                                                                                | 25.0                                                                                                                                                                                                                                                  | 25.0                                                                              | 11.0                                                                                                                                                                | 25.0                                                                                                                                                                                                                                                  | 25.0                                                                               | 11.0                                                                                                                                                                    | 25.0                                                                                                                                                                    |                                                                                     | 11.0                                                                                                                                                                    | 25.0                                                                                                                                                                    |                                                                                     |
| Total Split (s)         | 40.0                                                                                                                                                                | 55.0                                                                                                                                                                                                                                                  | 55.0                                                                              | 12.0                                                                                                                                                                | 27.0                                                                                                                                                                                                                                                  | 27.0                                                                               | 21.0                                                                                                                                                                    | 40.0                                                                                                                                                                    |                                                                                     | 13.0                                                                                                                                                                    | 32.0                                                                                                                                                                    |                                                                                     |
| Total Split (%)         | 33.3%                                                                                                                                                               | 45.8%                                                                                                                                                                                                                                                 | 45.8%                                                                             | 10.0%                                                                                                                                                               | 22.5%                                                                                                                                                                                                                                                 | 22.5%                                                                              | 17.5%                                                                                                                                                                   | 33.3%                                                                                                                                                                   |                                                                                     | 10.8%                                                                                                                                                                   | 26.7%                                                                                                                                                                   |                                                                                     |
| Yellow Time (s)         | 3.0                                                                                                                                                                 | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 3.0                                                                                                                                                                 | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                                | 3.0                                                                                                                                                                     | 4.0                                                                                                                                                                     |                                                                                     | 3.0                                                                                                                                                                     | 4.0                                                                                                                                                                     |                                                                                     |
| All-Red Time (s)        | 2.0                                                                                                                                                                 | 3.0                                                                                                                                                                                                                                                   | 3.0                                                                               | 2.0                                                                                                                                                                 | 3.0                                                                                                                                                                                                                                                   | 3.0                                                                                | 2.0                                                                                                                                                                     | 3.0                                                                                                                                                                     |                                                                                     | 2.0                                                                                                                                                                     | 3.0                                                                                                                                                                     |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                                                                                                 | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                                | 0.0                                                                                                                                                                     | 0.0                                                                                                                                                                     |                                                                                     | 0.0                                                                                                                                                                     | 0.0                                                                                                                                                                     |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                                                                                                                 | 7.0                                                                                                                                                                                                                                                   | 7.0                                                                               | 5.0                                                                                                                                                                 | 7.0                                                                                                                                                                                                                                                   | 7.0                                                                                | 5.0                                                                                                                                                                     | 7.0                                                                                                                                                                     |                                                                                     | 5.0                                                                                                                                                                     | 7.0                                                                                                                                                                     |                                                                                     |
| Lead/Lag                | Lead                                                                                                                                                                | Lag                                                                                                                                                                                                                                                   | Lag                                                                               | Lead                                                                                                                                                                | Lag                                                                                                                                                                                                                                                   | Lag                                                                                | Lead                                                                                                                                                                    | Lag                                                                                                                                                                     |                                                                                     | Lead                                                                                                                                                                    | Lag                                                                                                                                                                     |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                                                                                                                 | Yes                                                                                                                                                                                                                                                   | Yes                                                                               | Yes                                                                                                                                                                 | Yes                                                                                                                                                                                                                                                   | Yes                                                                                | Yes                                                                                                                                                                     | Yes                                                                                                                                                                     |                                                                                     | Yes                                                                                                                                                                     | Yes                                                                                                                                                                     |                                                                                     |
| Recall Mode             | None                                                                                                                                                                | C-Min                                                                                                                                                                                                                                                 | C-Min                                                                             | None                                                                                                                                                                | C-Min                                                                                                                                                                                                                                                 | C-Min                                                                              | None                                                                                                                                                                    | Min                                                                                                                                                                     |                                                                                     | None                                                                                                                                                                    | Min                                                                                                                                                                     |                                                                                     |
| Act Effct Green (s)     | 35.0                                                                                                                                                                | 48.1                                                                                                                                                                                                                                                  | 48.1                                                                              | 6.9                                                                                                                                                                 | 20.0                                                                                                                                                                                                                                                  | 20.0                                                                               | 16.0                                                                                                                                                                    | 33.0                                                                                                                                                                    | 120.0                                                                               | 8.0                                                                                                                                                                     | 25.0                                                                                                                                                                    | 120.0                                                                               |
| Actuated g/C Ratio      | 0.29                                                                                                                                                                | 0.40                                                                                                                                                                                                                                                  | 0.40                                                                              | 0.06                                                                                                                                                                | 0.17                                                                                                                                                                                                                                                  | 0.17                                                                               | 0.13                                                                                                                                                                    | 0.28                                                                                                                                                                    | 1.00                                                                                | 0.07                                                                                                                                                                    | 0.21                                                                                                                                                                    | 1.00                                                                                |
| v/c Ratio               | 1.04                                                                                                                                                                | 0.44                                                                                                                                                                                                                                                  | 0.22                                                                              | 0.53                                                                                                                                                                | 1.00                                                                                                                                                                                                                                                  | 0.45                                                                               | 0.98                                                                                                                                                                    | 1.03                                                                                                                                                                    | 0.08                                                                                | 0.93                                                                                                                                                                    | 0.84                                                                                                                                                                    | 0.44                                                                                |
| Control Delay (s/veh)   | 82.4                                                                                                                                                                | 27.1                                                                                                                                                                                                                                                  | 3.7                                                                               | 65.0                                                                                                                                                                | 82.0                                                                                                                                                                                                                                                  | 8.0                                                                                | 90.6                                                                                                                                                                    | 79.6                                                                                                                                                                    | 0.1                                                                                 | 113.3                                                                                                                                                                   | 44.0                                                                                                                                                                    | 1.8                                                                                 |
| 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 (s/veh)     | 82.4                                                                                                                                                                | 27.1                                                                                                                                                                                                                                                  | 3.7                                                                               | 65.0                                                                                                                                                                | 82.0                                                                                                                                                                                                                                                  | 8.0                                                                                | 90.6                                                                                                                                                                    | 79.6                                                                                                                                                                    | 0.1                                                                                 | 113.3                                                                                                                                                                   | 44.0                                                                                                                                                                    | 1.8                                                                                 |
| LOS                     | F                                                                                                                                                                   | C                                                                                                                                                                                                                                                     | A                                                                                 | E                                                                                                                                                                   | F                                                                                                                                                                                                                                                     | A                                                                                  | F                                                                                                                                                                       | E                                                                                                                                                                       | A                                                                                   | F                                                                                                                                                                       | D                                                                                                                                                                       | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                                                                                                     | 52.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                                                                                                     | 67.6                                                                                                                                                                                                                                                  |                                                                                    |                                                                                                                                                                         | 76.5                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         | 34.2                                                                                                                                                                    |                                                                                     |
| Approach LOS            |                                                                                                                                                                     | D                                                                                                                                                                                                                                                     |                                                                                   |                                                                                                                                                                     | E                                                                                                                                                                                                                                                     |                                                                                    |                                                                                                                                                                         | E                                                                                                                                                                       |                                                                                     |                                                                                                                                                                         | C                                                                                                                                                                       |                                                                                     |
| Queue Length 50th (ft)  | ~460                                                                                                                                                                | 187                                                                                                                                                                                                                                                   | 0                                                                                 | 41                                                                                                                                                                  | ~249                                                                                                                                                                                                                                                  | 0                                                                                  | 184                                                                                                                                                                     | ~444                                                                                                                                                                    | 0                                                                                   | 91                                                                                                                                                                      | 191                                                                                                                                                                     | 21                                                                                  |
| Queue Length 95th (ft)  | #592                                                                                                                                                                | 227                                                                                                                                                                                                                                                   | 38                                                                                | 72                                                                                                                                                                  | #347                                                                                                                                                                                                                                                  | 54                                                                                 | #293                                                                                                                                                                    | #578                                                                                                                                                                    | 0                                                                                   | #168                                                                                                                                                                    | #303                                                                                                                                                                    | 40                                                                                  |
| Internal Link Dist (ft) |                                                                                                                                                                     | 715                                                                                                                                                                                                                                                   |                                                                                   |                                                                                                                                                                     | 528                                                                                                                                                                                                                                                   |                                                                                    |                                                                                                                                                                         | 1133                                                                                                                                                                    |                                                                                     |                                                                                                                                                                         | 3247                                                                                                                                                                    |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                                                                                                                 |                                                                                                                                                                                                                                                       |                                                                                   | 450                                                                                                                                                                 |                                                                                                                                                                                                                                                       |                                                                                    | 480                                                                                                                                                                     |                                                                                                                                                                         | 430                                                                                 | 490                                                                                                                                                                     |                                                                                                                                                                         |                                                                                     |
| Base Capacity (vph)     | 1001                                                                                                                                                                | 2038                                                                                                                                                                                                                                                  | 738                                                                               | 200                                                                                                                                                                 | 847                                                                                                                                                                                                                                                   | 445                                                                                | 457                                                                                                                                                                     | 973                                                                                                                                                                     | 1583                                                                                | 228                                                                                                                                                                     | 737                                                                                                                                                                     | 1583                                                                                |
| 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                                                                                                                                                                | 0.44                                                                                                                                                                                                                                                  | 0.22                                                                              | 0.52                                                                                                                                                                | 1.00                                                                                                                                                                                                                                                  | 0.45                                                                               | 0.98                                                                                                                                                                    | 1.03                                                                                                                                                                    | 0.08                                                                                | 0.93                                                                                                                                                                    | 0.84                                                                                                                                                                    | 0.44                                                                                |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 120

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

## Background Traffic Conditions

### PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.04

Intersection Signal Delay (s/veh): 56.8

Intersection LOS: E

Intersection Capacity Utilization 93.6%

ICU Level of Service F

Analysis Period (min) 15

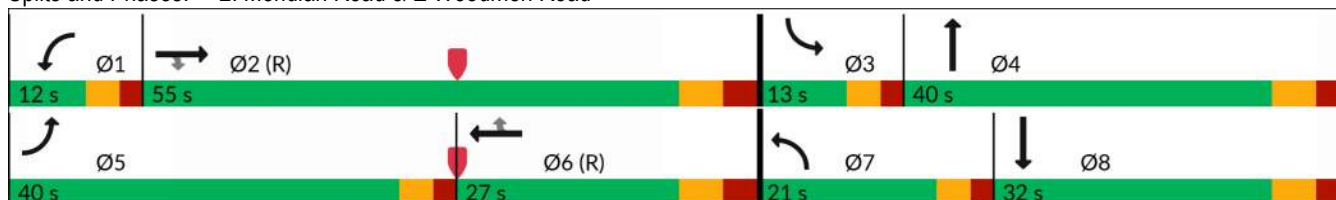
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Meridian Road & E Woodmen Road



# Timings 3: Meridian Road & Bent Grass Meadows Drive

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2045

|                                                                      |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                           | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                 | 212                                                                               | 186                                                                               | 194                                                                               | 1822                                                                              | 1196                                                                              | 188                                                                               |
| Future Volume (vph)                                                  | 212                                                                               | 186                                                                               | 194                                                                               | 1822                                                                              | 1196                                                                              | 188                                                                               |
| Satd. Flow (prot)                                                    | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                        | 0.950                                                                             |                                                                                   | 0.120                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                    | 3433                                                                              | 1583                                                                              | 224                                                                               | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                    |                                                                                   | 202                                                                               |                                                                                   |                                                                                   |                                                                                   | 204                                                                               |
| Lane Group Flow (vph)                                                | 230                                                                               | 202                                                                               | 211                                                                               | 1980                                                                              | 1300                                                                              | 204                                                                               |
| Turn Type                                                            | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                     | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                     |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                       | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                  | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                    | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                      | 24.0                                                                              | 24.0                                                                              | 23.0                                                                              | 96.0                                                                              | 73.0                                                                              | 73.0                                                                              |
| Total Split (%)                                                      | 20.0%                                                                             | 20.0%                                                                             | 19.2%                                                                             | 80.0%                                                                             | 60.8%                                                                             | 60.8%                                                                             |
| Yellow Time (s)                                                      | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                     | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                             |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                          | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                 | 13.3                                                                              | 13.3                                                                              | 97.7                                                                              | 97.7                                                                              | 68.5                                                                              | 68.5                                                                              |
| Actuated g/C Ratio                                                   | 0.11                                                                              | 0.11                                                                              | 0.81                                                                              | 0.81                                                                              | 0.57                                                                              | 0.57                                                                              |
| v/c Ratio                                                            | 0.61                                                                              | 0.57                                                                              | 0.42                                                                              | 0.69                                                                              | 0.64                                                                              | 0.21                                                                              |
| Control Delay (s/veh)                                                | 50.2                                                                              | 11.6                                                                              | 10.2                                                                              | 7.5                                                                               | 19.3                                                                              | 2.1                                                                               |
| Queue Delay                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                  | 50.2                                                                              | 11.6                                                                              | 10.2                                                                              | 7.5                                                                               | 19.3                                                                              | 2.1                                                                               |
| LOS                                                                  | D                                                                                 | B                                                                                 | B                                                                                 | A                                                                                 | B                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                               | 32.2                                                                              |                                                                                   |                                                                                   | 7.7                                                                               | 17.0                                                                              |                                                                                   |
| Approach LOS                                                         | C                                                                                 |                                                                                   |                                                                                   | A                                                                                 | B                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                               | 92                                                                                | 32                                                                                | 29                                                                                | 425                                                                               | 347                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                               | m115                                                                              | m52                                                                               | m29                                                                               | m406                                                                              | 421                                                                               | 33                                                                                |
| Internal Link Dist (ft)                                              | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                 | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                  | 557                                                                               | 426                                                                               | 500                                                                               | 2881                                                                              | 2020                                                                              | 991                                                                               |
| Starvation Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                    | 0.41                                                                              | 0.47                                                                              | 0.42                                                                              | 0.69                                                                              | 0.64                                                                              | 0.21                                                                              |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 70                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Timings  
3: Meridian Road & Bent Grass Meadows Drive

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 13.7

Intersection LOS: B

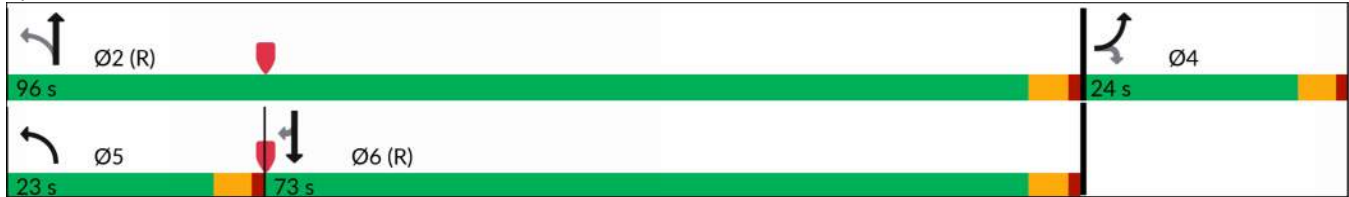
Intersection Capacity Utilization 63.9%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



# HCM Unsignalized Intersection Capacity Analysis 4: Golden Sage Drive & Woodmen Frontage Road

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2045

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |  |  |  |
| Traffic Volume (veh/h)            | 1                                                                                 | 126                                                                               | 309                                                                               | 5                                                                                 | 163                                                                               | 396                                                                               |
| Future Volume (Veh/h)             | 1                                                                                 | 126                                                                               | 309                                                                               | 5                                                                                 | 163                                                                               | 396                                                                               |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Hourly flow rate (vph)            | 1                                                                                 | 137                                                                               | 336                                                                               | 5                                                                                 | 177                                                                               | 430                                                                               |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 275                                                                               |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 784                                                                               | 0                                                                                 | 707                                                                               | 569                                                                               | 0                                                                                 |                                                                                   |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 784                                                                               | 0                                                                                 | 707                                                                               | 569                                                                               | 0                                                                                 |                                                                                   |
| tC, single (s)                    | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 4.1                                                                               |                                                                                   |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 2.2                                                                               |                                                                                   |
| p0 queue free %                   | 100                                                                               | 87                                                                                | 0                                                                                 | 99                                                                                | 89                                                                                |                                                                                   |
| cM capacity (veh/h)               | 290                                                                               | 1085                                                                              | 280                                                                               | 385                                                                               | 1623                                                                              |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 138                                                                               | 341                                                                               | 607                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 336                                                                               | 177                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 137                                                                               | 0                                                                                 | 430                                                                               |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1064                                                                              | 281                                                                               | 1623                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.13                                                                              | 1.21                                                                              | 0.11                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 11                                                                                | 392                                                                               | 9                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s/veh)             | 8.9                                                                               | 162.4                                                                             | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          | A                                                                                 | F                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s/veh)            | 8.9                                                                               | 162.4                                                                             | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      | A                                                                                 | F                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 53.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 68.6%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   | C                                                                                 |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 3.4                                                                               |                                                                                   |                                                                                   |      |                                                                                   |      |
| Movement                 | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
| Lane Configurations      |  |  |  |      |  |      |
| Traffic Vol, veh/h       | 165                                                                               | 232                                                                               | 218                                                                               | 18   | 8                                                                                 | 96   |
| Future Vol, veh/h        | 165                                                                               | 232                                                                               | 218                                                                               | 18   | 8                                                                                 | 96   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | 310                                                                               | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 179                                                                               | 252                                                                               | 237                                                                               | 20   | 9                                                                                 | 104  |

| Major/Minor          | Major1 | Major2 | Minor2 |       |       |
|----------------------|--------|--------|--------|-------|-------|
| Conflicting Flow All | 257    | 0      | 0      | 858   | 247   |
| Stage 1              | -      | -      | -      | 247   | -     |
| Stage 2              | -      | -      | -      | 611   | -     |
| Critical Hdwy        | 4.12   | -      | -      | 6.42  | 6.22  |
| Critical Hdwy Stg 1  | -      | -      | -      | 5.42  | -     |
| Critical Hdwy Stg 2  | -      | -      | -      | 5.42  | -     |
| Follow-up Hdwy       | 2.218  | -      | -      | 3.518 | 3.318 |
| Pot Cap-1 Maneuver   | 1308   | -      | -      | 327   | 792   |
| Stage 1              | -      | -      | -      | 794   | -     |
| Stage 2              | -      | -      | -      | 542   | -     |
| Platoon blocked, %   |        | -      | -      |       |       |
| Mov Cap-1 Maneuver   | 1308   | -      | -      | 283   | 792   |
| Mov Cap-2 Maneuver   | -      | -      | -      | 283   | -     |
| Stage 1              | -      | -      | -      | 685   | -     |
| Stage 2              | -      | -      | -      | 542   | -     |

| Approach          | EB  | WB | SB    |
|-------------------|-----|----|-------|
| HCM Ctrl Dly, s/v | 3.4 | 0  | 11.18 |
| HCM LOS           |     |    | B     |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1308  | -   | -   | -   | 696   |
| HCM Lane V/C Ratio    | 0.137 | -   | -   | -   | 0.163 |
| HCM Ctrl Dly (s/v)    | 8.2   | -   | -   | -   | 11.2  |
| HCM Lane LOS          | A     | -   | -   | -   | B     |
| HCM 95th %tile Q(veh) | 0.5   | -   | -   | -   | 0.6   |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Background Traffic Conditions  
PM Peak Traffic Hour - Year 2045

| Intersection                |         |         |          |          |         |
|-----------------------------|---------|---------|----------|----------|---------|
| Intersection Delay, s/veh   | 4.1     |         |          |          |         |
| Intersection LOS            | A       |         |          |          |         |
| Approach                    | EB      | SB      | NW       | NE       |         |
| Entry Lanes                 | 1       | 1       | 2        | 1        |         |
| Conflicting Circle Lanes    | 1       | 1       | 1        | 1        |         |
| Adj Approach Flow, veh/h    | 0       | 163     | 149      | 267      |         |
| Demand Flow Rate, veh/h     | 0       | 166     | 152      | 272      |         |
| Vehicles Circulating, veh/h | 204     | 38      | 272      | 0        |         |
| Vehicles Exiting, veh/h     | 0       | 386     | 0        | 204      |         |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0        | 0        |         |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000    | 1.000    |         |
| Approach Delay, s/veh       | 0.0     | 3.8     | 4.0      | 4.3      |         |
| Approach LOS                | -       | A       | A        | A        |         |
| Lane                        | Left    | Left    | Left     | Right    | Left    |
| Designated Moves            | LR      | R       | L        | TR       | L       |
| Assumed Moves               | LR      | R       | L        | TR       | L       |
| RT Channelized              |         |         |          |          |         |
| Lane Util                   | 1.000   | 1.000   | 0.250    | 0.750    | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.535    | 2.535    | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.544    | 4.544    | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1420     | 1420     | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 9.101e-4 | 9.101e-4 | 1.02e-3 |
| Entry Flow, veh/h           | 0       | 166     | 38       | 114      | 272     |
| Cap Entry Lane, veh/h       | 1121    | 1327    | 1109     | 1109     | 1380    |
| Entry HV Adj Factor         | 1.000   | 0.982   | 0.980    | 0.982    | 0.982   |
| Flow Entry, veh/h           | 0       | 163     | 37       | 112      | 267     |
| Cap Entry, veh/h            | 1121    | 1303    | 1087     | 1089     | 1354    |
| V/C Ratio                   | 0.000   | 0.125   | 0.034    | 0.103    | 0.197   |
| Control Delay, s/veh        | 3.2     | 3.8     | 3.6      | 4.2      | 4.3     |
| LOS                         | A       | A       | A        | A        | A       |
| 95th %tile Queue, veh       | 0       | 0       | 0        | 0        | 1       |

# Timings

## Total Traffic Conditions

### 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road AM Peak Traffic Hour - Year 2030

|                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                                                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                 |                                                                                   |  |  |  |  |  |  |                                                                                     |  |                                                                                     |                                                                                     |  |
| Traffic Volume (vph)                                                | 0                                                                                 | 1397                                                                              | 65                                                                                | 58                                                                                | 2463                                                                              | 4                                                                                 | 118                                                                                 | 0                                                                                   | 64                                                                                  | 0                                                                                   | 0                                                                                   | 33                                                                                  |
| Future Volume (vph)                                                 | 0                                                                                 | 1397                                                                              | 65                                                                                | 58                                                                                | 2463                                                                              | 4                                                                                 | 118                                                                                 | 0                                                                                   | 64                                                                                  | 0                                                                                   | 0                                                                                   | 33                                                                                  |
| Satd. Flow (prot)                                                   | 0                                                                                 | 3539                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 0                                                                                   | 1583                                                                                | 0                                                                                   | 0                                                                                   | 1611                                                                                |
| Flt Permitted                                                       |                                                                                   |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Satd. Flow (perm)                                                   | 0                                                                                 | 3539                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 0                                                                                   | 1583                                                                                | 0                                                                                   | 0                                                                                   | 1611                                                                                |
| Satd. Flow (RTOR)                                                   |                                                                                   |                                                                                   | 71                                                                                |                                                                                   |                                                                                   | 127                                                                               |                                                                                     |                                                                                     | 127                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)                                               | 0                                                                                 | 1518                                                                              | 71                                                                                | 63                                                                                | 2677                                                                              | 4                                                                                 | 128                                                                                 | 0                                                                                   | 70                                                                                  | 0                                                                                   | 0                                                                                   | 36                                                                                  |
| Turn Type                                                           |                                                                                   | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Free                                                                              | Prot                                                                                |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Perm                                                                                |
| Protected Phases                                                    |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 4 6                                                                               |                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Phases                                                    |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | 4 6                                                                                 |
| Detector Phase                                                      |                                                                                   | 2                                                                                 | 2                                                                                 | 1                                                                                 | 4 6                                                                               |                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 4 6                                                                                 |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)                                                 |                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Split (s)                                                   |                                                                                   | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              |                                                                                   |                                                                                   | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)                                                     |                                                                                   | 79.0                                                                              | 79.0                                                                              | 15.0                                                                              |                                                                                   |                                                                                   | 26.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Split (%)                                                     |                                                                                   | 65.8%                                                                             | 65.8%                                                                             | 12.5%                                                                             |                                                                                   |                                                                                   | 21.7%                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Yellow Time (s)                                                     |                                                                                   | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| All-Red Time (s)                                                    |                                                                                   | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lost Time Adjust (s)                                                |                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Lost Time (s)                                                 |                                                                                   | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead/Lag                                                            |                                                                                   | Lag                                                                               | Lag                                                                               | Lead                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?                                                  |                                                                                   | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode                                                         |                                                                                   | C-Max                                                                             | C-Max                                                                             | None                                                                              |                                                                                   |                                                                                   | None                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Act Effect Green (s)                                                |                                                                                   | 75.5                                                                              | 75.5                                                                              | 8.7                                                                               | 120.0                                                                             | 120.0                                                                             | 21.0                                                                                |                                                                                     | 120.0                                                                               |                                                                                     |                                                                                     | 120.0                                                                               |
| Actuated g/C Ratio                                                  |                                                                                   | 0.63                                                                              | 0.63                                                                              | 0.07                                                                              | 1.00                                                                              | 1.00                                                                              | 0.18                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                |
| v/c Ratio                                                           |                                                                                   | 0.68                                                                              | 0.07                                                                              | 0.49                                                                              | 0.53                                                                              | 0.00                                                                              | 0.41                                                                                |                                                                                     | 0.04                                                                                |                                                                                     |                                                                                     | 0.02                                                                                |
| Control Delay (s/veh)                                               |                                                                                   | 17.3                                                                              | 2.4                                                                               | 55.8                                                                              | 0.2                                                                               | 0.0                                                                               | 48.7                                                                                |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 |
| Queue Delay                                                         |                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 |
| Total Delay (s/veh)                                                 |                                                                                   | 17.3                                                                              | 2.4                                                                               | 55.8                                                                              | 0.2                                                                               | 0.0                                                                               | 48.7                                                                                |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 |
| LOS                                                                 |                                                                                   | B                                                                                 | A                                                                                 | E                                                                                 | A                                                                                 | A                                                                                 | D                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |
| Approach Delay (s/veh)                                              |                                                                                   | 16.6                                                                              |                                                                                   |                                                                                   | 1.5                                                                               |                                                                                   |                                                                                     | 31.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                                                        |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 50th (ft)                                              |                                                                                   | 410                                                                               | 0                                                                                 | 52                                                                                | 0                                                                                 | 0                                                                                 | 91                                                                                  |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Queue Length 95th (ft)                                              |                                                                                   | 500                                                                               | 19                                                                                | m63                                                                               | m0                                                                                | m0                                                                                | 154                                                                                 |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Internal Link Dist (ft)                                             |                                                                                   | 740                                                                               |                                                                                   |                                                                                   | 818                                                                               |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)                                                |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)                                                 |                                                                                   | 2225                                                                              | 1022                                                                              | 147                                                                               | 5085                                                                              | 1583                                                                              | 309                                                                                 |                                                                                     | 1583                                                                                |                                                                                     |                                                                                     | 1611                                                                                |
| Starvation Cap Reductn                                              |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Spillback Cap Reductn                                               |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Storage Cap Reductn                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Reduced v/c Ratio                                                   |                                                                                   | 0.68                                                                              | 0.07                                                                              | 0.43                                                                              | 0.53                                                                              | 0.00                                                                              | 0.41                                                                                |                                                                                     | 0.04                                                                                |                                                                                     |                                                                                     | 0.02                                                                                |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Natural Cycle: 75                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Timings

## Total Traffic Conditions

### 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road AM Peak Traffic Hour - Year 2030

|                         |       |
|-------------------------|-------|
| Lane Group              | Ø6    |
| Lane Configurations     |       |
| Traffic Volume (vph)    |       |
| Future Volume (vph)     |       |
| Satd. Flow (prot)       |       |
| Flt Permitted           |       |
| Satd. Flow (perm)       |       |
| Satd. Flow (RTOR)       |       |
| Lane Group Flow (vph)   |       |
| Turn Type               |       |
| Protected Phases        | 6     |
| Permitted Phases        |       |
| Detector Phase          |       |
| Switch Phase            |       |
| Minimum Initial (s)     | 5.0   |
| Minimum Split (s)       | 25.0  |
| Total Split (s)         | 94.0  |
| Total Split (%)         | 78%   |
| Yellow Time (s)         | 4.0   |
| All-Red Time (s)        | 3.0   |
| Lost Time Adjust (s)    |       |
| Total Lost Time (s)     |       |
| Lead/Lag                |       |
| Lead-Lag Optimize?      |       |
| Recall Mode             | C-Max |
| Act Effect Green (s)    |       |
| Actuated g/C Ratio      |       |
| v/c Ratio               |       |
| Control Delay (s/veh)   |       |
| Queue Delay             |       |
| Total Delay (s/veh)     |       |
| LOS                     |       |
| Approach Delay (s/veh)  |       |
| Approach LOS            |       |
| Queue Length 50th (ft)  |       |
| Queue Length 95th (ft)  |       |
| Internal Link Dist (ft) |       |
| Turn Bay Length (ft)    |       |
| Base Capacity (vph)     |       |
| Starvation Cap Reductn  |       |
| Spillback Cap Reductn   |       |
| Storage Cap Reductn     |       |
| Reduced v/c Ratio       |       |
| Intersection Summary    |       |

Timings

Total Traffic Conditions

1: Golden Sage Drive/Golden Sage Road & E Woodmen Road

AM Peak Traffic Hour - Year 2030

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 0.68                                           |                        |
| Intersection Signal Delay (s/veh): 8.1                            | Intersection LOS: A    |
| Intersection Capacity Utilization 70.0%                           | ICU Level of Service C |
| Analysis Period (min) 15                                          |                        |
| m Volume for 95th percentile queue is metered by upstream signal. |                        |
| ! Phase conflict between lane groups.                             |                        |

Splits and Phases: 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road

|                                                              |                                                              |                                                          |
|--------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------|
| <div>#1</div> <div> <div>Ø1</div> <div>15 s</div> </div>     | <div>#1</div> <div> <div>Ø2 (R)</div> <div>79 s</div> </div> | <div>#1</div> <div> <div>Ø4</div> <div>26 s</div> </div> |
| <div>#1</div> <div> <div>Ø6 (R)</div> <div>94 s</div> </div> |                                                              |                                                          |

# Timings

## 2: Meridian Road & E Woodmen Road

# Total Traffic Conditions

## AM Peak Traffic Hour - Year 2030

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 453                                                                               | 427                                                                               | 305                                                                               | 73                                                                                | 741                                                                               | 55                                                                                | 285                                                                                 | 266                                                                                 | 12                                                                                  | 85                                                                                  | 937                                                                                 | 1003                                                                                |
| Future Volume (vph)     | 453                                                                               | 427                                                                               | 305                                                                               | 73                                                                                | 741                                                                               | 55                                                                                | 285                                                                                 | 266                                                                                 | 12                                                                                  | 85                                                                                  | 937                                                                                 | 1003                                                                                |
| Satd. Flow (prot)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Flt Permitted           | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 178                                                                               |                                                                                   |                                                                                   | 173                                                                               |                                                                                     |                                                                                     | 236                                                                                 |                                                                                     |                                                                                     | 621                                                                                 |
| Lane Group Flow (vph)   | 492                                                                               | 464                                                                               | 332                                                                               | 79                                                                                | 805                                                                               | 60                                                                                | 310                                                                                 | 289                                                                                 | 13                                                                                  | 92                                                                                  | 1018                                                                                | 1090                                                                                |
| Turn Type               | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                                | NA                                                                                  | Free                                                                                | Prot                                                                                | NA                                                                                  | Free                                                                                |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Permitted Phases        |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Free                                                                                |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                                | 25.0                                                                                |                                                                                     | 11.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Split (s)         | 22.0                                                                              | 49.0                                                                              | 49.0                                                                              | 11.0                                                                              | 38.0                                                                              | 38.0                                                                              | 16.0                                                                                | 48.0                                                                                |                                                                                     | 12.0                                                                                | 44.0                                                                                |                                                                                     |
| Total Split (%)         | 18.3%                                                                             | 40.8%                                                                             | 40.8%                                                                             | 9.2%                                                                              | 31.7%                                                                             | 31.7%                                                                             | 13.3%                                                                               | 40.0%                                                                               |                                                                                     | 10.0%                                                                               | 36.7%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 4.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 3.0                                                                                 |                                                                                     | 2.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 7.0                                                                                 |                                                                                     | 5.0                                                                                 | 7.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                                | Lag                                                                                 |                                                                                     | Lead                                                                                | Lag                                                                                 |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 | Yes                                                                                 |                                                                                     |
| Recall Mode             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                                | Min                                                                                 |                                                                                     | None                                                                                | Min                                                                                 |                                                                                     |
| Act Effct Green (s)     | 17.5                                                                              | 43.8                                                                              | 43.8                                                                              | 6.0                                                                               | 30.1                                                                              | 30.1                                                                              | 11.9                                                                                | 41.6                                                                                | 120.0                                                                               | 6.9                                                                                 | 36.5                                                                                | 120.0                                                                               |
| Actuated g/C Ratio      | 0.15                                                                              | 0.37                                                                              | 0.37                                                                              | 0.05                                                                              | 0.25                                                                              | 0.25                                                                              | 0.10                                                                                | 0.35                                                                                | 1.00                                                                                | 0.06                                                                                | 0.30                                                                                | 1.00                                                                                |
| v/c Ratio               | 0.98                                                                              | 0.36                                                                              | 0.48                                                                              | 0.46                                                                              | 0.91                                                                              | 0.11                                                                              | 0.91                                                                                | 0.24                                                                                | 0.01                                                                                | 0.47                                                                                | 0.95                                                                                | 0.69                                                                                |
| Control Delay (s/veh)   | 88.1                                                                              | 29.4                                                                              | 16.1                                                                              | 64.5                                                                              | 58.5                                                                              | 0.4                                                                               | 84.7                                                                                | 28.7                                                                                | 0.0                                                                                 | 78.6                                                                                | 45.6                                                                                | 6.3                                                                                 |
| 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 (s/veh)     | 88.1                                                                              | 29.4                                                                              | 16.1                                                                              | 64.5                                                                              | 58.5                                                                              | 0.4                                                                               | 84.7                                                                                | 28.7                                                                                | 0.0                                                                                 | 78.6                                                                                | 45.6                                                                                | 6.3                                                                                 |
| LOS                     | F                                                                                 | C                                                                                 | B                                                                                 | E                                                                                 | E                                                                                 | A                                                                                 | F                                                                                   | C                                                                                   | A                                                                                   | E                                                                                   | D                                                                                   | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                   | 48.4                                                                              |                                                                                   |                                                                                   | 55.3                                                                              |                                                                                   |                                                                                     | 56.5                                                                                |                                                                                     |                                                                                     | 27.5                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | ~205                                                                              | 142                                                                               | 90                                                                                | 31                                                                                | 321                                                                               | 0                                                                                 | 127                                                                                 | 85                                                                                  | 0                                                                                   | 37                                                                                  | 395                                                                                 | 159                                                                                 |
| Queue Length 95th (ft)  | #320                                                                              | 190                                                                               | 179                                                                               | 58                                                                                | #428                                                                              | 0                                                                                 | #223                                                                                | 121                                                                                 | 0                                                                                   | m53                                                                                 | #535                                                                                | 299                                                                                 |
| Internal Link Dist (ft) |                                                                                   | 663                                                                               |                                                                                   |                                                                                   | 528                                                                               |                                                                                   |                                                                                     | 1133                                                                                |                                                                                     |                                                                                     | 3247                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                               |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                   | 480                                                                                 |                                                                                     | 430                                                                                 | 490                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 500                                                                               | 1291                                                                              | 690                                                                               | 171                                                                               | 914                                                                               | 537                                                                               | 340                                                                                 | 1225                                                                                | 1583                                                                                | 201                                                                                 | 1091                                                                                | 1583                                                                                |
| 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       | 0.98                                                                              | 0.36                                                                              | 0.48                                                                              | 0.46                                                                              | 0.88                                                                              | 0.11                                                                              | 0.91                                                                                | 0.24                                                                                | 0.01                                                                                | 0.46                                                                                | 0.93                                                                                | 0.69                                                                                |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

## Total Traffic Conditions

### AM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 0.98

Intersection Signal Delay (s/veh): 41.6

Intersection LOS: D

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15

~ 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.

Splits and Phases: 2: Meridian Road & E Woodmen Road

|                  |                      |                  |                  |
|------------------|----------------------|------------------|------------------|
| #2<br>Ø1<br>11 s | #2<br>Ø2 (R)<br>49 s | #2<br>Ø3<br>12 s | #2<br>Ø4<br>48 s |
| #2<br>Ø5<br>22 s | #2<br>Ø6 (R)<br>38 s | #2<br>Ø7<br>16 s | #2<br>Ø8<br>44 s |

Timings  
3: Meridian Road & Bent Grass Meadows Drive

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2030

|                                                                      |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                           | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                 | 279                                                                               | 172                                                                               | 137                                                                               | 605                                                                               | 1651                                                                              | 365                                                                               |
| Future Volume (vph)                                                  | 279                                                                               | 172                                                                               | 137                                                                               | 605                                                                               | 1651                                                                              | 365                                                                               |
| Satd. Flow (prot)                                                    | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                        | 0.950                                                                             |                                                                                   | 0.062                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                    | 3433                                                                              | 1583                                                                              | 115                                                                               | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                    |                                                                                   | 120                                                                               |                                                                                   |                                                                                   |                                                                                   | 397                                                                               |
| Lane Group Flow (vph)                                                | 303                                                                               | 187                                                                               | 149                                                                               | 658                                                                               | 1795                                                                              | 397                                                                               |
| Turn Type                                                            | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                     | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                     |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                       | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                  | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                    | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                      | 23.0                                                                              | 23.0                                                                              | 12.0                                                                              | 97.0                                                                              | 85.0                                                                              | 85.0                                                                              |
| Total Split (%)                                                      | 19.2%                                                                             | 19.2%                                                                             | 10.0%                                                                             | 80.8%                                                                             | 70.8%                                                                             | 70.8%                                                                             |
| Yellow Time (s)                                                      | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                     | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                             |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                          | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                 | 15.5                                                                              | 15.5                                                                              | 95.5                                                                              | 95.5                                                                              | 80.5                                                                              | 80.5                                                                              |
| Actuated g/C Ratio                                                   | 0.13                                                                              | 0.13                                                                              | 0.80                                                                              | 0.80                                                                              | 0.67                                                                              | 0.67                                                                              |
| v/c Ratio                                                            | 0.68                                                                              | 0.61                                                                              | 0.63                                                                              | 0.23                                                                              | 0.76                                                                              | 0.33                                                                              |
| Control Delay (s/veh)                                                | 57.9                                                                              | 27.2                                                                              | 41.8                                                                              | 4.2                                                                               | 15.8                                                                              | 1.5                                                                               |
| Queue Delay                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                  | 57.9                                                                              | 27.2                                                                              | 41.8                                                                              | 4.2                                                                               | 15.8                                                                              | 1.5                                                                               |
| LOS                                                                  | E                                                                                 | C                                                                                 | D                                                                                 | A                                                                                 | B                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                               | 46.2                                                                              |                                                                                   |                                                                                   | 11.2                                                                              | 13.2                                                                              |                                                                                   |
| Approach LOS                                                         | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | B                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                               | 118                                                                               | 49                                                                                | 64                                                                                | 83                                                                                | 453                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                               | 163                                                                               | 124                                                                               | m95                                                                               | m95                                                                               | 546                                                                               | 31                                                                                |
| Internal Link Dist (ft)                                              | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                 | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                  | 529                                                                               | 345                                                                               | 236                                                                               | 2816                                                                              | 2374                                                                              | 1192                                                                              |
| Starvation Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                    | 0.57                                                                              | 0.54                                                                              | 0.63                                                                              | 0.23                                                                              | 0.76                                                                              | 0.33                                                                              |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 80                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

## Timings

### 3: Meridian Road & Bent Grass Meadows Drive

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 0.76

Intersection Signal Delay (s/veh): 17.4

Intersection LOS: B

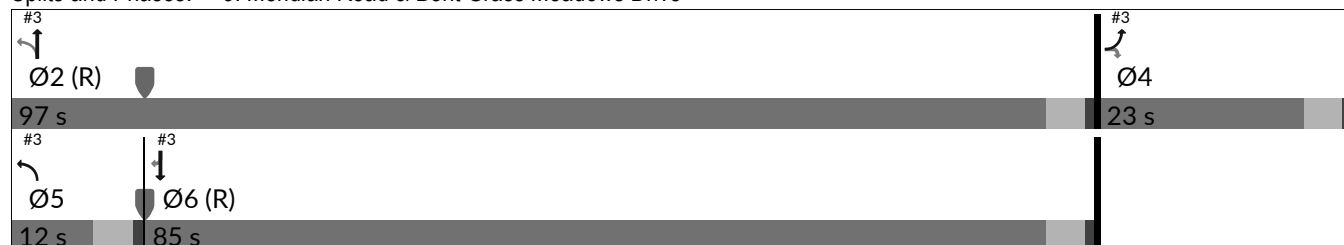
Intersection Capacity Utilization 72.4%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



| Intersection             |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|--------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Int Delay, s/veh         | 3                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Movement                 | SET                                                                               | SER    | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                                |
| Lane Configurations      |  |        |  |  |  |  |
| Traffic Vol, veh/h       | 350                                                                               | 62     | 52                                                                                | 166                                                                               | 72                                                                                | 41                                                                                 |
| Future Vol, veh/h        | 350                                                                               | 62     | 52                                                                                | 166                                                                               | 72                                                                                | 41                                                                                 |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Sign Control             | Free                                                                              | Free   | Free                                                                              | Free                                                                              | Stop                                                                              | Stop                                                                               |
| RT Channelized           | -                                                                                 | None   | -                                                                                 | None                                                                              | -                                                                                 | None                                                                               |
| Storage Length           | -                                                                                 | -      | 50                                                                                | -                                                                                 | -                                                                                 | -                                                                                  |
| Veh in Median Storage, # | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                  |
| Grade, %                 | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                  |
| Peak Hour Factor         | 92                                                                                | 92     | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                 |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  |
| Mvmt Flow                | 380                                                                               | 67     | 57                                                                                | 180                                                                               | 78                                                                                | 45                                                                                 |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Major/Minor              | Major1                                                                            | Major2 |                                                                                   | Minor1                                                                            |                                                                                   |                                                                                    |
| Conflicting Flow All     | 0                                                                                 | 0      | 448                                                                               | 0                                                                                 | 708                                                                               | 414                                                                                |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 414                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 293                                                                               | -                                                                                  |
| Critical Hdwy            | -                                                                                 | -      | 4.12                                                                              | -                                                                                 | 6.42                                                                              | 6.22                                                                               |
| Critical Hdwy Stg 1      | -                                                                                 | -      | -                                                                                 | -                                                                                 | 5.42                                                                              | -                                                                                  |
| Critical Hdwy Stg 2      | -                                                                                 | -      | -                                                                                 | -                                                                                 | 5.42                                                                              | -                                                                                  |
| Follow-up Hdwy           | -                                                                                 | -      | 2.218                                                                             | -                                                                                 | 3.518                                                                             | 3.318                                                                              |
| Pot Cap-1 Maneuver       | -                                                                                 | -      | 1112                                                                              | -                                                                                 | 401                                                                               | 638                                                                                |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 667                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 757                                                                               | -                                                                                  |
| Platoon blocked, %       | -                                                                                 | -      |                                                                                   | -                                                                                 |                                                                                   |                                                                                    |
| Mov Cap-1 Maneuver       | -                                                                                 | -      | 1112                                                                              | -                                                                                 | 381                                                                               | 638                                                                                |
| Mov Cap-2 Maneuver       | -                                                                                 | -      | -                                                                                 | -                                                                                 | 381                                                                               | -                                                                                  |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 633                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 757                                                                               | -                                                                                  |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Approach                 | SE                                                                                | NW     |                                                                                   | NE                                                                                |                                                                                   |                                                                                    |
| HCM Ctrl Dly, s/v        | 0                                                                                 | 2.01   |                                                                                   | 16.1                                                                              |                                                                                   |                                                                                    |
| HCM LOS                  | C                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Minor Lane/Major Mvmt    | NELn1                                                                             | NWL    | NWT                                                                               | SET                                                                               | SER                                                                               |                                                                                    |
| Capacity (veh/h)         | 446                                                                               | 1112   | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane V/C Ratio       | 0.275                                                                             | 0.051  | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Ctrl Dly (s/v)       | 16.1                                                                              | 8.4    | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane LOS             | C                                                                                 | A      | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM 95th %tile Q(veh)    | 1.1                                                                               | 0.2    | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2030

| Intersection                |         |         |         |         |
|-----------------------------|---------|---------|---------|---------|
| Intersection Delay, s/veh   | 3.5     |         |         |         |
| Intersection LOS            | A       |         |         |         |
| Approach                    | EB      | NB      | SB      | NE      |
| Entry Lanes                 | 1       | 1       | 1       | 1       |
| Conflicting Circle Lanes    | 1       | 1       | 1       | 1       |
| Adj Approach Flow, veh/h    | 1       | 109     | 80      | 117     |
| Demand Flow Rate, veh/h     | 1       | 111     | 82      | 119     |
| Vehicles Circulating, veh/h | 141     | 119     | 59      | 0       |
| Vehicles Exiting, veh/h     | 0       | 0       | 171     | 142     |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0       | 0       |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000   | 1.000   |
| Approach Delay, s/veh       | 3.0     | 3.8     | 3.3     | 3.3     |
| Approach LOS                | A       | A       | A       | A       |
| Lane                        | Left    | Left    | Left    | Left    |
| Designated Moves            | LR      | LT      | TR      | L       |
| Assumed Moves               | LR      | LT      | TR      | L       |
| RT Channelized              |         |         |         |         |
| Lane Util                   | 1.000   | 1.000   | 1.000   | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.609   | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.976   | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1380    | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 1.02e-3 | 1.02e-3 |
| Entry Flow, veh/h           | 1       | 111     | 82      | 119     |
| Cap Entry Lane, veh/h       | 1195    | 1222    | 1299    | 1380    |
| Entry HV Adj Factor         | 1.000   | 0.980   | 0.976   | 0.983   |
| Flow Entry, veh/h           | 1       | 109     | 80      | 117     |
| Cap Entry, veh/h            | 1195    | 1198    | 1268    | 1357    |
| V/C Ratio                   | 0.001   | 0.091   | 0.063   | 0.086   |
| Control Delay, s/veh        | 3.0     | 3.8     | 3.3     | 3.3     |
| LOS                         | A       | A       | A       | A       |
| 95th %tile Queue, veh       | 0       | 0       | 0       | 0       |

Timings  
7: E Woodmen Road & Bent Grass Meadows Drive

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2030

|                                                                     |  |  |  |  |  |  |       |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Lane Group                                                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | Ø2    |
| Lane Configurations                                                 |  |  |  |  |  |  |       |
| Traffic Volume (vph)                                                | 431                                                                               | 1065                                                                              | 1773                                                                              | 159                                                                               | 176                                                                               | 525                                                                               |       |
| Future Volume (vph)                                                 | 431                                                                               | 1065                                                                              | 1773                                                                              | 159                                                                               | 176                                                                               | 525                                                                               |       |
| Satd. Flow (prot)                                                   | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 1583                                                                              |       |
| Flt Permitted                                                       | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |       |
| Satd. Flow (perm)                                                   | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 1583                                                                              |       |
| Satd. Flow (RTOR)                                                   |                                                                                   |                                                                                   |                                                                                   | 77                                                                                |                                                                                   | 469                                                                               |       |
| Lane Group Flow (vph)                                               | 468                                                                               | 1158                                                                              | 1927                                                                              | 173                                                                               | 191                                                                               | 571                                                                               |       |
| Turn Type                                                           | Prot                                                                              | NA                                                                                | NA                                                                                | Free                                                                              | Prot                                                                              | Free                                                                              |       |
| Protected Phases                                                    | 5                                                                                 | 2 8!                                                                              | 6                                                                                 |                                                                                   | 8!                                                                                |                                                                                   | 2     |
| Permitted Phases                                                    |                                                                                   |                                                                                   |                                                                                   | Free                                                                              |                                                                                   | Free                                                                              |       |
| Detector Phase                                                      | 5                                                                                 | 2 8                                                                               | 6                                                                                 |                                                                                   | 8                                                                                 |                                                                                   |       |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Minimum Initial (s)                                                 | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   | 5.0   |
| Minimum Split (s)                                                   | 22.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 22.5  |
| Total Split (s)                                                     | 32.0                                                                              |                                                                                   | 65.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 97.5  |
| Total Split (%)                                                     | 26.7%                                                                             |                                                                                   | 54.6%                                                                             |                                                                                   | 18.8%                                                                             |                                                                                   | 81%   |
| Yellow Time (s)                                                     | 3.5                                                                               |                                                                                   | 3.5                                                                               |                                                                                   | 3.5                                                                               |                                                                                   | 3.5   |
| All-Red Time (s)                                                    | 1.0                                                                               |                                                                                   | 1.0                                                                               |                                                                                   | 1.0                                                                               |                                                                                   | 1.0   |
| Lost Time Adjust (s)                                                | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |       |
| Total Lost Time (s)                                                 | 4.5                                                                               |                                                                                   | 4.5                                                                               |                                                                                   | 4.5                                                                               |                                                                                   |       |
| Lead/Lag                                                            | Lead                                                                              |                                                                                   | Lag                                                                               |                                                                                   |                                                                                   |                                                                                   |       |
| Lead-Lag Optimize?                                                  | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |       |
| Recall Mode                                                         | Max                                                                               |                                                                                   | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | C-Max |
| Act Effect Green (s)                                                | 30.3                                                                              | 120.0                                                                             | 61.0                                                                              | 120.0                                                                             | 15.2                                                                              | 120.0                                                                             |       |
| Actuated g/C Ratio                                                  | 0.25                                                                              | 1.00                                                                              | 0.51                                                                              | 1.00                                                                              | 0.13                                                                              | 1.00                                                                              |       |
| v/c Ratio                                                           | 1.05                                                                              | 0.33                                                                              | 1.07                                                                              | 0.11                                                                              | 0.44                                                                              | 0.36                                                                              |       |
| Control Delay (s/veh)                                               | 91.8                                                                              | 0.2                                                                               | 72.9                                                                              | 0.1                                                                               | 51.2                                                                              | 0.6                                                                               |       |
| Queue Delay                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |       |
| Total Delay (s/veh)                                                 | 91.8                                                                              | 0.2                                                                               | 72.9                                                                              | 0.1                                                                               | 51.2                                                                              | 0.6                                                                               |       |
| LOS                                                                 | F                                                                                 | A                                                                                 | E                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 |       |
| Approach Delay (s/veh)                                              |                                                                                   | 26.6                                                                              | 66.9                                                                              |                                                                                   | 13.3                                                                              |                                                                                   |       |
| Approach LOS                                                        |                                                                                   | C                                                                                 | E                                                                                 |                                                                                   | B                                                                                 |                                                                                   |       |
| Queue Length 50th (ft)                                              | ~419                                                                              | 0                                                                                 | ~885                                                                              | 0                                                                                 | 72                                                                                | 0                                                                                 |       |
| Queue Length 95th (ft)                                              | #667                                                                              | 0                                                                                 | #1026                                                                             | 0                                                                                 | 108                                                                               | 0                                                                                 |       |
| Internal Link Dist (ft)                                             |                                                                                   | 500                                                                               | 953                                                                               |                                                                                   | 339                                                                               |                                                                                   |       |
| Turn Bay Length (ft)                                                | 490                                                                               |                                                                                   |                                                                                   | 350                                                                               | 150                                                                               | 150                                                                               |       |
| Base Capacity (vph)                                                 | 447                                                                               | 3526                                                                              | 1798                                                                              | 1583                                                                              | 514                                                                               | 1583                                                                              |       |
| Starvation Cap Reductn                                              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Spillback Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Storage Cap Reductn                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Reduced v/c Ratio                                                   | 1.05                                                                              | 0.33                                                                              | 1.07                                                                              | 0.11                                                                              | 0.37                                                                              | 0.36                                                                              |       |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Natural Cycle: 150                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |

Maximum v/c Ratio: 1.07

Intersection Signal Delay (s/veh): 43.2

Intersection LOS: D

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15

~ 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.

! Phase conflict between lane groups.

Splits and Phases: 7: E Woodmen Road & Bent Grass Meadows Drive



# Timings

## Total Traffic Conditions

### 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road PM Peak Traffic Hour - Year 2030

|                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                                                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                 |                                                                                   |  |  |  |  |  |  |                                                                                     |  |                                                                                     |                                                                                     |  |
| Traffic Volume (vph)                                                | 0                                                                                 | 2220                                                                              | 135                                                                               | 127                                                                               | 2149                                                                              | 12                                                                                | 161                                                                                 | 0                                                                                   | 115                                                                                 | 0                                                                                   | 0                                                                                   | 59                                                                                  |
| Future Volume (vph)                                                 | 0                                                                                 | 2220                                                                              | 135                                                                               | 127                                                                               | 2149                                                                              | 12                                                                                | 161                                                                                 | 0                                                                                   | 115                                                                                 | 0                                                                                   | 0                                                                                   | 59                                                                                  |
| Satd. Flow (prot)                                                   | 0                                                                                 | 3539                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 0                                                                                   | 1583                                                                                | 0                                                                                   | 0                                                                                   | 1611                                                                                |
| Flt Permitted                                                       |                                                                                   |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Satd. Flow (perm)                                                   | 0                                                                                 | 3539                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 0                                                                                   | 1583                                                                                | 0                                                                                   | 0                                                                                   | 1611                                                                                |
| Satd. Flow (RTOR)                                                   |                                                                                   |                                                                                   | 147                                                                               |                                                                                   |                                                                                   | 127                                                                               |                                                                                     |                                                                                     | 127                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)                                               | 0                                                                                 | 2413                                                                              | 147                                                                               | 138                                                                               | 2336                                                                              | 13                                                                                | 175                                                                                 | 0                                                                                   | 125                                                                                 | 0                                                                                   | 0                                                                                   | 64                                                                                  |
| Turn Type                                                           |                                                                                   | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Free                                                                              | Prot                                                                                |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Perm                                                                                |
| Protected Phases                                                    |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 4 6!                                                                              |                                                                                   | 4!                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Phases                                                    |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | 4 6                                                                                 |
| Detector Phase                                                      |                                                                                   | 2                                                                                 | 2                                                                                 | 1                                                                                 | 4 6                                                                               |                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 4 6                                                                                 |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)                                                 |                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Split (s)                                                   |                                                                                   | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              |                                                                                   |                                                                                   | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)                                                     |                                                                                   | 82.4                                                                              | 82.4                                                                              | 14.0                                                                              |                                                                                   |                                                                                   | 23.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Split (%)                                                     |                                                                                   | 68.7%                                                                             | 68.7%                                                                             | 11.7%                                                                             |                                                                                   |                                                                                   | 19.7%                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Yellow Time (s)                                                     |                                                                                   | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| All-Red Time (s)                                                    |                                                                                   | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lost Time Adjust (s)                                                |                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Lost Time (s)                                                 |                                                                                   | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead/Lag                                                            |                                                                                   | Lag                                                                               | Lag                                                                               | Lead                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?                                                  |                                                                                   | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode                                                         |                                                                                   | C-Max                                                                             | C-Max                                                                             | None                                                                              |                                                                                   |                                                                                   | None                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Act Effect Green (s)                                                |                                                                                   | 75.4                                                                              | 75.4                                                                              | 9.0                                                                               | 120.0                                                                             | 120.0                                                                             | 18.6                                                                                |                                                                                     | 120.0                                                                               |                                                                                     |                                                                                     | 120.0                                                                               |
| Actuated g/C Ratio                                                  |                                                                                   | 0.63                                                                              | 0.63                                                                              | 0.08                                                                              | 1.00                                                                              | 1.00                                                                              | 0.16                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                |
| v/c Ratio                                                           |                                                                                   | 1.09                                                                              | 0.14                                                                              | 1.05                                                                              | 0.46                                                                              | 0.01                                                                              | 0.64                                                                                |                                                                                     | 0.08                                                                                |                                                                                     |                                                                                     | 0.04                                                                                |
| Control Delay (s/veh)                                               |                                                                                   | 70.2                                                                              | 1.7                                                                               | 129.3                                                                             | 0.4                                                                               | 0.0                                                                               | 59.2                                                                                |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |
| Queue Delay                                                         |                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 |
| Total Delay (s/veh)                                                 |                                                                                   | 70.2                                                                              | 1.7                                                                               | 129.3                                                                             | 0.4                                                                               | 0.0                                                                               | 59.2                                                                                |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |
| LOS                                                                 |                                                                                   | E                                                                                 | A                                                                                 | F                                                                                 | A                                                                                 | A                                                                                 | E                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |
| Approach Delay (s/veh)                                              |                                                                                   | 66.3                                                                              |                                                                                   |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                     | 34.6                                                                                |                                                                                     |                                                                                     | 0.1                                                                                 |                                                                                     |
| Approach LOS                                                        |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Queue Length 50th (ft)                                              |                                                                                   | ~1121                                                                             | 0                                                                                 | ~120                                                                              | 0                                                                                 | 0                                                                                 | 131                                                                                 |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Queue Length 95th (ft)                                              |                                                                                   | #1256                                                                             | 24                                                                                | m#165                                                                             | m0                                                                                | m0                                                                                | 210                                                                                 |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Internal Link Dist (ft)                                             |                                                                                   | 740                                                                               |                                                                                   |                                                                                   | 818                                                                               |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)                                                |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)                                                 |                                                                                   | 2223                                                                              | 1049                                                                              | 132                                                                               | 5085                                                                              | 1583                                                                              | 274                                                                                 |                                                                                     | 1583                                                                                |                                                                                     |                                                                                     | 1611                                                                                |
| Starvation Cap Reductn                                              |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Spillback Cap Reductn                                               |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Storage Cap Reductn                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Reduced v/c Ratio                                                   |                                                                                   | 1.09                                                                              | 0.14                                                                              | 1.05                                                                              | 0.46                                                                              | 0.01                                                                              | 0.64                                                                                |                                                                                     | 0.08                                                                                |                                                                                     |                                                                                     | 0.04                                                                                |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Natural Cycle: 150                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Timings

Total Traffic Conditions

1: Golden Sage Drive/Golden Sage Road & E Woodmen Road AM Peak Traffic Hour - Year 2030

|                         |       |
|-------------------------|-------|
| Lane Group              | Ø6    |
| Lane Configurations     |       |
| Traffic Volume (vph)    |       |
| Future Volume (vph)     |       |
| Satd. Flow (prot)       |       |
| Flt Permitted           |       |
| Satd. Flow (perm)       |       |
| Satd. Flow (RTOR)       |       |
| Lane Group Flow (vph)   |       |
| Turn Type               |       |
| Protected Phases        | 6     |
| Permitted Phases        |       |
| Detector Phase          |       |
| Switch Phase            |       |
| Minimum Initial (s)     | 5.0   |
| Minimum Split (s)       | 25.0  |
| Total Split (s)         | 96.4  |
| Total Split (%)         | 80%   |
| Yellow Time (s)         | 4.0   |
| All-Red Time (s)        | 3.0   |
| Lost Time Adjust (s)    |       |
| Total Lost Time (s)     |       |
| Lead/Lag                |       |
| Lead-Lag Optimize?      |       |
| Recall Mode             | C-Max |
| Act Effect Green (s)    |       |
| Actuated g/C Ratio      |       |
| v/c Ratio               |       |
| Control Delay (s/veh)   |       |
| Queue Delay             |       |
| Total Delay (s/veh)     |       |
| LOS                     |       |
| Approach Delay (s/veh)  |       |
| Approach LOS            |       |
| Queue Length 50th (ft)  |       |
| Queue Length 95th (ft)  |       |
| Internal Link Dist (ft) |       |
| Turn Bay Length (ft)    |       |
| Base Capacity (vph)     |       |
| Starvation Cap Reductn  |       |
| Spillback Cap Reductn   |       |
| Storage Cap Reductn     |       |
| Reduced v/c Ratio       |       |
| Intersection Summary    |       |

## Timings

## Total Traffic Conditions

### 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road AM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 1.09

Intersection Signal Delay (s/veh): 36.8

Intersection LOS: D

Intersection Capacity Utilization 90.7%

ICU Level of Service E

Analysis Period (min) 15

~ 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.

! Phase conflict between lane groups.

Splits and Phases: 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road

|                        |                        |                    |
|------------------------|------------------------|--------------------|
| #1<br>Ø1<br>14 s       | #1<br>Ø2 (R)<br>82.4 s | #1<br>Ø4<br>23.6 s |
| #1<br>Ø6 (R)<br>96.4 s |                        |                    |

# Timings

## 2: Meridian Road & E Woodmen Road

## Total Traffic Conditions PM Peak Traffic Hour - Year 2030

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 845                                                                               | 787                                                                               | 172                                                                               | 79                                                                                | 715                                                                               | 153                                                                               | 390                                                                                 | 765                                                                                 | 94                                                                                  | 161                                                                                 | 473                                                                                 | 581                                                                                 |
| Future Volume (vph)     | 845                                                                               | 787                                                                               | 172                                                                               | 79                                                                                | 715                                                                               | 153                                                                               | 390                                                                                 | 765                                                                                 | 94                                                                                  | 161                                                                                 | 473                                                                                 | 581                                                                                 |
| Satd. Flow (prot)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Flt Permitted           | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 187                                                                               |                                                                                   |                                                                                   | 218                                                                               |                                                                                     |                                                                                     | 282                                                                                 |                                                                                     |                                                                                     | 632                                                                                 |
| Lane Group Flow (vph)   | 918                                                                               | 855                                                                               | 187                                                                               | 86                                                                                | 777                                                                               | 166                                                                               | 424                                                                                 | 832                                                                                 | 102                                                                                 | 175                                                                                 | 514                                                                                 | 632                                                                                 |
| Turn Type               | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                                | NA                                                                                  | Free                                                                                | Prot                                                                                | NA                                                                                  | Free                                                                                |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Permitted Phases        |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Free                                                                                |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                                | 25.0                                                                                |                                                                                     | 11.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Split (s)         | 38.0                                                                              | 59.0                                                                              | 59.0                                                                              | 11.0                                                                              | 32.0                                                                              | 32.0                                                                              | 21.0                                                                                | 38.0                                                                                |                                                                                     | 12.0                                                                                | 29.0                                                                                |                                                                                     |
| Total Split (%)         | 31.7%                                                                             | 49.2%                                                                             | 49.2%                                                                             | 9.2%                                                                              | 26.7%                                                                             | 26.7%                                                                             | 17.5%                                                                               | 31.7%                                                                               |                                                                                     | 10.0%                                                                               | 24.2%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 4.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 3.0                                                                                 |                                                                                     | 2.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 7.0                                                                                 |                                                                                     | 5.0                                                                                 | 7.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                                | Lag                                                                                 |                                                                                     | Lead                                                                                | Lag                                                                                 |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 | Yes                                                                                 |                                                                                     |
| Recall Mode             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                                | Min                                                                                 |                                                                                     | None                                                                                | Min                                                                                 |                                                                                     |
| Act Effct Green (s)     | 33.1                                                                              | 54.8                                                                              | 54.8                                                                              | 6.0                                                                               | 25.6                                                                              | 25.6                                                                              | 16.0                                                                                | 30.4                                                                                | 120.0                                                                               | 7.0                                                                                 | 21.4                                                                                | 120.0                                                                               |
| Actuated g/C Ratio      | 0.28                                                                              | 0.46                                                                              | 0.46                                                                              | 0.05                                                                              | 0.21                                                                              | 0.21                                                                              | 0.13                                                                                | 0.25                                                                                | 1.00                                                                                | 0.06                                                                                | 0.18                                                                                | 1.00                                                                                |
| v/c Ratio               | 0.97                                                                              | 0.53                                                                              | 0.23                                                                              | 0.50                                                                              | 1.03                                                                              | 0.33                                                                              | 0.93                                                                                | 0.93                                                                                | 0.06                                                                                | 0.88                                                                                | 0.82                                                                                | 0.40                                                                                |
| Control Delay (s/veh)   | 66.3                                                                              | 25.6                                                                              | 3.6                                                                               | 65.9                                                                              | 87.3                                                                              | 3.5                                                                               | 79.1                                                                                | 61.2                                                                                | 0.1                                                                                 | 112.4                                                                               | 49.8                                                                                | 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 (s/veh)     | 66.3                                                                              | 25.6                                                                              | 3.6                                                                               | 65.9                                                                              | 87.3                                                                              | 3.5                                                                               | 79.1                                                                                | 61.2                                                                                | 0.1                                                                                 | 112.4                                                                               | 49.8                                                                                | 1.4                                                                                 |
| LOS                     | E                                                                                 | C                                                                                 | A                                                                                 | E                                                                                 | F                                                                                 | A                                                                                 | E                                                                                   | E                                                                                   | A                                                                                   | F                                                                                   | D                                                                                   | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                   | 42.6                                                                              |                                                                                   |                                                                                   | 72.0                                                                              |                                                                                   |                                                                                     | 62.2                                                                                |                                                                                     |                                                                                     | 34.9                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 369                                                                               | 259                                                                               | 0                                                                                 | 34                                                                                | ~352                                                                              | 0                                                                                 | 172                                                                                 | 335                                                                                 | 0                                                                                   | 75                                                                                  | 205                                                                                 | 21                                                                                  |
| Queue Length 95th (ft)  | #506                                                                              | 323                                                                               | 43                                                                                | 62                                                                                | #479                                                                              | 23                                                                                | #270                                                                                | #453                                                                                | 0                                                                                   | #144                                                                                | 271                                                                                 | 32                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 663                                                                               |                                                                                   |                                                                                   | 528                                                                               |                                                                                   |                                                                                     | 1133                                                                                |                                                                                     |                                                                                     | 3247                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                               |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                   | 480                                                                                 |                                                                                     | 430                                                                                 | 490                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 946                                                                               | 1617                                                                              | 824                                                                               | 172                                                                               | 754                                                                               | 509                                                                               | 457                                                                                 | 914                                                                                 | 1583                                                                                | 200                                                                                 | 648                                                                                 | 1583                                                                                |
| 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                                                                              | 0.53                                                                              | 0.23                                                                              | 0.50                                                                              | 1.03                                                                              | 0.33                                                                              | 0.93                                                                                | 0.91                                                                                | 0.06                                                                                | 0.88                                                                                | 0.79                                                                                | 0.40                                                                                |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

## Total Traffic Conditions

### PM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 1.03

Intersection Signal Delay (s/veh): 50.8

Intersection LOS: D

Intersection Capacity Utilization 89.6%

ICU Level of Service E

Analysis Period (min) 15

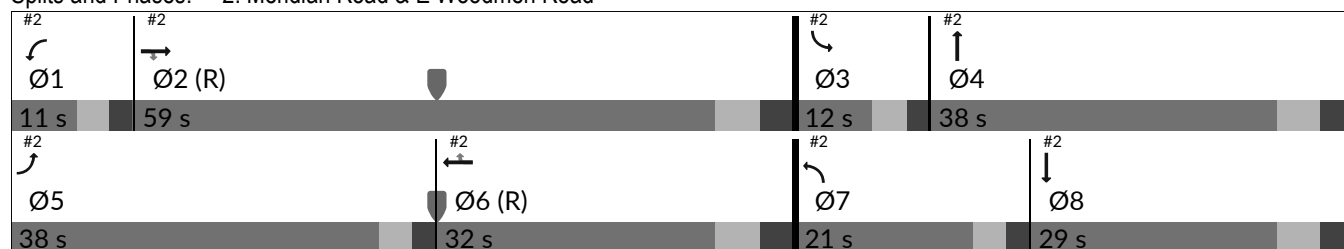
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Meridian Road & E Woodmen Road



Timings  
3: Meridian Road & Bent Grass Meadows Drive

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2030

|                                                                      |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                           | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                 | 358                                                                               | 165                                                                               | 174                                                                               | 1552                                                                              | 1034                                                                              | 353                                                                               |
| Future Volume (vph)                                                  | 358                                                                               | 165                                                                               | 174                                                                               | 1552                                                                              | 1034                                                                              | 353                                                                               |
| Satd. Flow (prot)                                                    | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                        | 0.950                                                                             |                                                                                   | 0.196                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                    | 3433                                                                              | 1583                                                                              | 365                                                                               | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                    |                                                                                   | 179                                                                               |                                                                                   |                                                                                   |                                                                                   | 384                                                                               |
| Lane Group Flow (vph)                                                | 389                                                                               | 179                                                                               | 189                                                                               | 1687                                                                              | 1124                                                                              | 384                                                                               |
| Turn Type                                                            | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                     | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                     |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                       | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                  | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                    | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                      | 23.0                                                                              | 23.0                                                                              | 12.0                                                                              | 97.0                                                                              | 85.0                                                                              | 85.0                                                                              |
| Total Split (%)                                                      | 19.2%                                                                             | 19.2%                                                                             | 10.0%                                                                             | 80.8%                                                                             | 70.8%                                                                             | 70.8%                                                                             |
| Yellow Time (s)                                                      | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                     | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                             |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                          | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                 | 17.3                                                                              | 17.3                                                                              | 93.7                                                                              | 93.7                                                                              | 80.5                                                                              | 80.5                                                                              |
| Actuated g/C Ratio                                                   | 0.14                                                                              | 0.14                                                                              | 0.78                                                                              | 0.78                                                                              | 0.67                                                                              | 0.67                                                                              |
| v/c Ratio                                                            | 0.79                                                                              | 0.47                                                                              | 0.49                                                                              | 0.61                                                                              | 0.47                                                                              | 0.32                                                                              |
| Control Delay (s/veh)                                                | 61.7                                                                              | 10.8                                                                              | 8.5                                                                               | 15.4                                                                              | 10.3                                                                              | 1.4                                                                               |
| Queue Delay                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                  | 61.7                                                                              | 10.8                                                                              | 8.5                                                                               | 15.4                                                                              | 10.3                                                                              | 1.4                                                                               |
| LOS                                                                  | E                                                                                 | B                                                                                 | A                                                                                 | B                                                                                 | B                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                               | 45.7                                                                              |                                                                                   |                                                                                   | 14.7                                                                              | 8.1                                                                               |                                                                                   |
| Approach LOS                                                         | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | A                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                               | 152                                                                               | 0                                                                                 | 55                                                                                | 728                                                                               | 204                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                               | 208                                                                               | 65                                                                                | m55                                                                               | m771                                                                              | 250                                                                               | 31                                                                                |
| Internal Link Dist (ft)                                              | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                 | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                  | 529                                                                               | 395                                                                               | 387                                                                               | 2764                                                                              | 2374                                                                              | 1188                                                                              |
| Starvation Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                    | 0.74                                                                              | 0.45                                                                              | 0.49                                                                              | 0.61                                                                              | 0.47                                                                              | 0.32                                                                              |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 60                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Timings  
3: Meridian Road & Bent Grass Meadows Drive

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2030

Maximum v/c Ratio: 0.79

Intersection Signal Delay (s/veh): 16.6

Intersection LOS: B

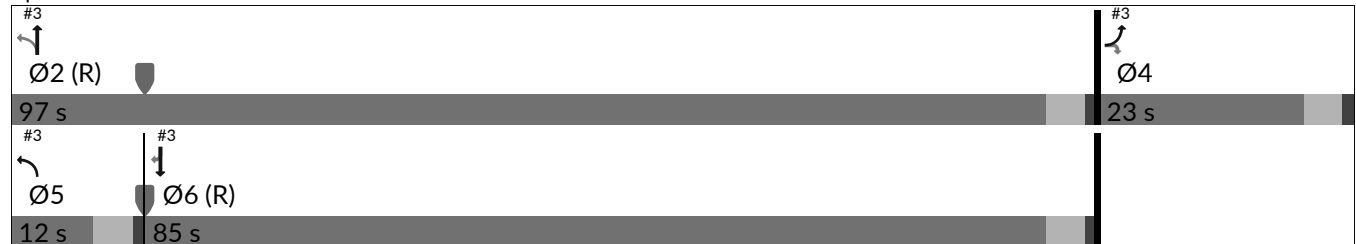
Intersection Capacity Utilization 60.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



| Intersection             |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|--------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Int Delay, s/veh         | 5.9                                                                               |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Movement                 | SET                                                                               | SER    | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                                |
| Lane Configurations      |  |        |  |  |  |  |
| Traffic Vol, veh/h       | 371                                                                               | 96     | 128                                                                               | 253                                                                               | 93                                                                                | 65                                                                                 |
| Future Vol, veh/h        | 371                                                                               | 96     | 128                                                                               | 253                                                                               | 93                                                                                | 65                                                                                 |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Sign Control             | Free                                                                              | Free   | Free                                                                              | Free                                                                              | Stop                                                                              | Stop                                                                               |
| RT Channelized           | -                                                                                 | None   | -                                                                                 | None                                                                              | -                                                                                 | None                                                                               |
| Storage Length           | -                                                                                 | -      | 50                                                                                | -                                                                                 | -                                                                                 | -                                                                                  |
| Veh in Median Storage, # | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                  |
| Grade, %                 | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                  |
| Peak Hour Factor         | 92                                                                                | 92     | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                 |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  |
| Mvmt Flow                | 403                                                                               | 104    | 139                                                                               | 275                                                                               | 101                                                                               | 71                                                                                 |
| Major/Minor              | Major1                                                                            | Major2 |                                                                                   | Minor1                                                                            |                                                                                   |                                                                                    |
| Conflicting Flow All     | 0                                                                                 | 0      | 508                                                                               | 0                                                                                 | 1009                                                                              | 455                                                                                |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 455                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 553                                                                               | -                                                                                  |
| Critical Hdwy            | -                                                                                 | -      | 4.12                                                                              | -                                                                                 | 6.42                                                                              | 6.22                                                                               |
| Critical Hdwy Stg 1      | -                                                                                 | -      | -                                                                                 | -                                                                                 | 5.42                                                                              | -                                                                                  |
| Critical Hdwy Stg 2      | -                                                                                 | -      | -                                                                                 | -                                                                                 | 5.42                                                                              | -                                                                                  |
| Follow-up Hdwy           | -                                                                                 | -      | 2.218                                                                             | -                                                                                 | 3.518                                                                             | 3.318                                                                              |
| Pot Cap-1 Maneuver       | -                                                                                 | -      | 1057                                                                              | -                                                                                 | 266                                                                               | 605                                                                                |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 639                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 576                                                                               | -                                                                                  |
| Platoon blocked, %       | -                                                                                 | -      |                                                                                   | -                                                                                 |                                                                                   |                                                                                    |
| Mov Cap-1 Maneuver       | -                                                                                 | -      | 1057                                                                              | -                                                                                 | 231                                                                               | 605                                                                                |
| Mov Cap-2 Maneuver       | -                                                                                 | -      | -                                                                                 | -                                                                                 | 231                                                                               | -                                                                                  |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 555                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 576                                                                               | -                                                                                  |
| Approach                 | SE                                                                                | NW     |                                                                                   | NE                                                                                |                                                                                   |                                                                                    |
| HCM Ctrl Dly, s/v        | 0                                                                                 | 3      |                                                                                   | 30.12                                                                             |                                                                                   |                                                                                    |
| HCM LOS                  |                                                                                   |        |                                                                                   | D                                                                                 |                                                                                   |                                                                                    |
| Minor Lane/Major Mvmt    | NELn1                                                                             | NWL    | NWT                                                                               | SET                                                                               | SER                                                                               |                                                                                    |
| Capacity (veh/h)         | 310                                                                               | 1057   | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane V/C Ratio       | 0.554                                                                             | 0.132  | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Ctrl Dly (s/v)       | 30.1                                                                              | 8.9    | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane LOS             | D                                                                                 | A      | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM 95th %tile Q(veh)    | 3.2                                                                               | 0.5    | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2030

| Intersection                |         |         |         |         |
|-----------------------------|---------|---------|---------|---------|
| Intersection Delay, s/veh   | 4.6     |         |         |         |
| Intersection LOS            | A       |         |         |         |
| Approach                    | EB      | NB      | SB      | NE      |
| Entry Lanes                 | 1       | 1       | 1       | 1       |
| Conflicting Circle Lanes    | 1       | 1       | 1       | 1       |
| Adj Approach Flow, veh/h    | 0       | 247     | 135     | 222     |
| Demand Flow Rate, veh/h     | 0       | 252     | 138     | 226     |
| Vehicles Circulating, veh/h | 295     | 226     | 157     | 0       |
| Vehicles Exiting, veh/h     | 0       | 0       | 321     | 295     |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0       | 0       |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000   | 1.000   |
| Approach Delay, s/veh       | 0.0     | 5.5     | 4.1     | 4.0     |
| Approach LOS                | -       | A       | A       | A       |
| Lane                        | Left    | Left    | Left    | Left    |
| Designated Moves            | LR      | LT      | TR      | L       |
| Assumed Moves               | LR      | LT      | TR      | L       |
| RT Channelized              |         |         |         |         |
| Lane Util                   | 1.000   | 1.000   | 1.000   | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.609   | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.976   | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1380    | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 1.02e-3 | 1.02e-3 |
| Entry Flow, veh/h           | 0       | 252     | 138     | 226     |
| Cap Entry Lane, veh/h       | 1021    | 1096    | 1176    | 1380    |
| Entry HV Adj Factor         | 1.000   | 0.980   | 0.978   | 0.982   |
| Flow Entry, veh/h           | 0       | 247     | 135     | 222     |
| Cap Entry, veh/h            | 1021    | 1074    | 1150    | 1355    |
| V/C Ratio                   | 0.000   | 0.230   | 0.117   | 0.164   |
| Control Delay, s/veh        | 3.5     | 5.5     | 4.1     | 4.0     |
| LOS                         | A       | A       | A       | A       |
| 95th %tile Queue, veh       | 0       | 1       | 0       | 1       |

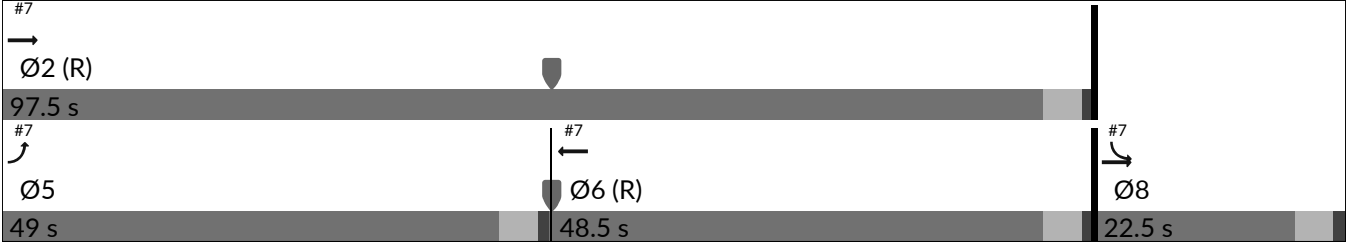
Timings  
7: E Woodmen Road & Bent Grass Meadows Drive

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2030

|                                                                     |  |  |  |  |  |  |       |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Lane Group                                                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | Ø2    |
| Lane Configurations                                                 |  |  |  |  |  |  |       |
| Traffic Volume (vph)                                                | 739                                                                               | 1638                                                                              | 1333                                                                              | 240                                                                               | 291                                                                               | 594                                                                               |       |
| Future Volume (vph)                                                 | 739                                                                               | 1638                                                                              | 1333                                                                              | 240                                                                               | 291                                                                               | 594                                                                               |       |
| Satd. Flow (prot)                                                   | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 1583                                                                              |       |
| Flt Permitted                                                       | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |       |
| Satd. Flow (perm)                                                   | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              | 3433                                                                              | 1583                                                                              |       |
| Satd. Flow (RTOR)                                                   |                                                                                   |                                                                                   |                                                                                   | 154                                                                               |                                                                                   | 642                                                                               |       |
| Lane Group Flow (vph)                                               | 803                                                                               | 1780                                                                              | 1449                                                                              | 261                                                                               | 316                                                                               | 646                                                                               |       |
| Turn Type                                                           | Prot                                                                              | NA                                                                                | NA                                                                                | Free                                                                              | Prot                                                                              | Free                                                                              |       |
| Protected Phases                                                    | 5                                                                                 | 2 8!                                                                              | 6                                                                                 |                                                                                   | 8!                                                                                |                                                                                   | 2     |
| Permitted Phases                                                    |                                                                                   |                                                                                   |                                                                                   | Free                                                                              |                                                                                   | Free                                                                              |       |
| Detector Phase                                                      | 5                                                                                 | 2 8                                                                               | 6                                                                                 |                                                                                   | 8                                                                                 |                                                                                   |       |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Minimum Initial (s)                                                 | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   | 5.0   |
| Minimum Split (s)                                                   | 22.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 22.5  |
| Total Split (s)                                                     | 49.0                                                                              |                                                                                   | 48.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 97.5  |
| Total Split (%)                                                     | 40.8%                                                                             |                                                                                   | 40.4%                                                                             |                                                                                   | 18.8%                                                                             |                                                                                   | 81%   |
| Yellow Time (s)                                                     | 3.5                                                                               |                                                                                   | 3.5                                                                               |                                                                                   | 3.5                                                                               |                                                                                   | 3.5   |
| All-Red Time (s)                                                    | 1.0                                                                               |                                                                                   | 1.0                                                                               |                                                                                   | 1.0                                                                               |                                                                                   | 1.0   |
| Lost Time Adjust (s)                                                | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |       |
| Total Lost Time (s)                                                 | 4.5                                                                               |                                                                                   | 4.5                                                                               |                                                                                   | 4.5                                                                               |                                                                                   |       |
| Lead/Lag                                                            | Lead                                                                              |                                                                                   | Lag                                                                               |                                                                                   |                                                                                   |                                                                                   |       |
| Lead-Lag Optimize?                                                  | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |       |
| Recall Mode                                                         | Max                                                                               |                                                                                   | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | C-Max |
| Act Effect Green (s)                                                | 44.5                                                                              | 120.0                                                                             | 44.0                                                                              | 120.0                                                                             | 18.0                                                                              | 120.0                                                                             |       |
| Actuated g/C Ratio                                                  | 0.37                                                                              | 1.00                                                                              | 0.37                                                                              | 1.00                                                                              | 0.15                                                                              | 1.00                                                                              |       |
| v/c Ratio                                                           | 1.22                                                                              | 0.50                                                                              | 1.12                                                                              | 0.16                                                                              | 0.61                                                                              | 0.41                                                                              |       |
| Control Delay (s/veh)                                               | 128.5                                                                             | 0.0                                                                               | 99.8                                                                              | 0.2                                                                               | 53.5                                                                              | 0.8                                                                               |       |
| Queue Delay                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |       |
| Total Delay (s/veh)                                                 | 128.5                                                                             | 0.0                                                                               | 99.8                                                                              | 0.2                                                                               | 53.5                                                                              | 0.8                                                                               |       |
| LOS                                                                 | F                                                                                 | A                                                                                 | F                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 |       |
| Approach Delay (s/veh)                                              |                                                                                   | 40.0                                                                              | 84.6                                                                              |                                                                                   | 18.1                                                                              |                                                                                   |       |
| Approach LOS                                                        |                                                                                   | D                                                                                 | F                                                                                 |                                                                                   | B                                                                                 |                                                                                   |       |
| Queue Length 50th (ft)                                              | ~803                                                                              | 0                                                                                 | ~689                                                                              | 0                                                                                 | 121                                                                               | 0                                                                                 |       |
| Queue Length 95th (ft)                                              | m#719                                                                             | m0                                                                                | #831                                                                              | 0                                                                                 | 170                                                                               | 0                                                                                 |       |
| Internal Link Dist (ft)                                             |                                                                                   | 500                                                                               | 953                                                                               |                                                                                   | 339                                                                               |                                                                                   |       |
| Turn Bay Length (ft)                                                | 490                                                                               |                                                                                   |                                                                                   | 350                                                                               | 150                                                                               | 150                                                                               |       |
| Base Capacity (vph)                                                 | 656                                                                               | 3539                                                                              | 1297                                                                              | 1583                                                                              | 514                                                                               | 1583                                                                              |       |
| Starvation Cap Reductn                                              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Spillback Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Storage Cap Reductn                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Reduced v/c Ratio                                                   | 1.22                                                                              | 0.50                                                                              | 1.12                                                                              | 0.16                                                                              | 0.61                                                                              | 0.41                                                                              |       |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Natural Cycle: 150                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 1.22                                           |                        |
| Intersection Signal Delay (s/veh): 50.5                           | Intersection LOS: D    |
| Intersection Capacity Utilization 97.3%                           | ICU Level of Service F |
| Analysis Period (min) 15                                          |                        |
| ~ 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. |                        |
| ! Phase conflict between lane groups.                             |                        |

Splits and Phases: 7: E Woodmen Road & Bent Grass Meadows Drive



# Timings

## Total Traffic Conditions

### 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road AM Peak Traffic Hour - Year 2045

|                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                                                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                 |                                                                                   |  |  |  |  |  |  |                                                                                     |  |                                                                                     |                                                                                     |  |
| Traffic Volume (vph)                                                | 0                                                                                 | 1753                                                                              | 87                                                                                | 79                                                                                | 2588                                                                              | 26                                                                                | 155                                                                                 | 0                                                                                   | 95                                                                                  | 0                                                                                   | 0                                                                                   | 98                                                                                  |
| Future Volume (vph)                                                 | 0                                                                                 | 1753                                                                              | 87                                                                                | 79                                                                                | 2588                                                                              | 26                                                                                | 155                                                                                 | 0                                                                                   | 95                                                                                  | 0                                                                                   | 0                                                                                   | 98                                                                                  |
| Satd. Flow (prot)                                                   | 0                                                                                 | 5085                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 0                                                                                   | 1583                                                                                | 0                                                                                   | 0                                                                                   | 1611                                                                                |
| Flt Permitted                                                       |                                                                                   |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Satd. Flow (perm)                                                   | 0                                                                                 | 5085                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 0                                                                                   | 1583                                                                                | 0                                                                                   | 0                                                                                   | 1611                                                                                |
| Satd. Flow (RTOR)                                                   |                                                                                   |                                                                                   | 95                                                                                |                                                                                   |                                                                                   | 127                                                                               |                                                                                     |                                                                                     | 127                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)                                               | 0                                                                                 | 1905                                                                              | 95                                                                                | 86                                                                                | 2813                                                                              | 28                                                                                | 168                                                                                 | 0                                                                                   | 103                                                                                 | 0                                                                                   | 0                                                                                   | 107                                                                                 |
| Turn Type                                                           |                                                                                   | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Free                                                                              | Prot                                                                                |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Perm                                                                                |
| Protected Phases                                                    |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 4 6!                                                                              |                                                                                   | 4!                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Phases                                                    |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | 4 6                                                                                 |
| Detector Phase                                                      |                                                                                   | 2                                                                                 | 2                                                                                 | 1                                                                                 | 4 6                                                                               |                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 4 6                                                                                 |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)                                                 |                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Split (s)                                                   |                                                                                   | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              |                                                                                   |                                                                                   | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)                                                     |                                                                                   | 70.0                                                                              | 70.0                                                                              | 18.0                                                                              |                                                                                   |                                                                                   | 32.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Split (%)                                                     |                                                                                   | 58.3%                                                                             | 58.3%                                                                             | 15.0%                                                                             |                                                                                   |                                                                                   | 26.7%                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Yellow Time (s)                                                     |                                                                                   | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| All-Red Time (s)                                                    |                                                                                   | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lost Time Adjust (s)                                                |                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Lost Time (s)                                                 |                                                                                   | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead/Lag                                                            |                                                                                   | Lag                                                                               | Lag                                                                               | Lead                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?                                                  |                                                                                   | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode                                                         |                                                                                   | C-Max                                                                             | C-Max                                                                             | None                                                                              |                                                                                   |                                                                                   | None                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Act Effect Green (s)                                                |                                                                                   | 67.7                                                                              | 67.7                                                                              | 10.6                                                                              | 120.0                                                                             | 120.0                                                                             | 27.0                                                                                |                                                                                     | 120.0                                                                               |                                                                                     |                                                                                     | 120.0                                                                               |
| Actuated g/C Ratio                                                  |                                                                                   | 0.56                                                                              | 0.56                                                                              | 0.09                                                                              | 1.00                                                                              | 1.00                                                                              | 0.23                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                |
| v/c Ratio                                                           |                                                                                   | 0.66                                                                              | 0.10                                                                              | 0.55                                                                              | 0.55                                                                              | 0.02                                                                              | 0.42                                                                                |                                                                                     | 0.07                                                                                |                                                                                     |                                                                                     | 0.07                                                                                |
| Control Delay (s/veh)                                               |                                                                                   | 20.6                                                                              | 3.1                                                                               | 54.4                                                                              | 2.6                                                                               | 0.0                                                                               | 43.7                                                                                |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |
| Queue Delay                                                         |                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 |
| Total Delay (s/veh)                                                 |                                                                                   | 20.6                                                                              | 3.1                                                                               | 54.4                                                                              | 2.6                                                                               | 0.0                                                                               | 43.7                                                                                |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |
| LOS                                                                 |                                                                                   | C                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 | A                                                                                 | D                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |
| Approach Delay (s/veh)                                              |                                                                                   | 19.7                                                                              |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                     | 27.1                                                                                |                                                                                     |                                                                                     | 0.1                                                                                 |                                                                                     |
| Approach LOS                                                        |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Queue Length 50th (ft)                                              |                                                                                   | 387                                                                               | 0                                                                                 | 71                                                                                | 26                                                                                | 0                                                                                 | 114                                                                                 |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Queue Length 95th (ft)                                              |                                                                                   | 460                                                                               | 26                                                                                | m82                                                                               | m30                                                                               | m0                                                                                | 185                                                                                 |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Internal Link Dist (ft)                                             |                                                                                   | 740                                                                               |                                                                                   |                                                                                   | 818                                                                               |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)                                                |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)                                                 |                                                                                   | 2869                                                                              | 934                                                                               | 191                                                                               | 5085                                                                              | 1583                                                                              | 398                                                                                 |                                                                                     | 1583                                                                                |                                                                                     |                                                                                     | 1611                                                                                |
| Starvation Cap Reductn                                              |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Spillback Cap Reductn                                               |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Storage Cap Reductn                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Reduced v/c Ratio                                                   |                                                                                   | 0.66                                                                              | 0.10                                                                              | 0.45                                                                              | 0.55                                                                              | 0.02                                                                              | 0.42                                                                                |                                                                                     | 0.07                                                                                |                                                                                     |                                                                                     | 0.07                                                                                |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Natural Cycle: 70                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Timings

## Total Traffic Conditions

### 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road AM Peak Traffic Hour - Year 2045

|                         |       |
|-------------------------|-------|
| Lane Group              | Ø6    |
| Lane Configurations     |       |
| Traffic Volume (vph)    |       |
| Future Volume (vph)     |       |
| Satd. Flow (prot)       |       |
| Flt Permitted           |       |
| Satd. Flow (perm)       |       |
| Satd. Flow (RTOR)       |       |
| Lane Group Flow (vph)   |       |
| Turn Type               |       |
| Protected Phases        | 6     |
| Permitted Phases        |       |
| Detector Phase          |       |
| Switch Phase            |       |
| Minimum Initial (s)     | 5.0   |
| Minimum Split (s)       | 25.0  |
| Total Split (s)         | 88.0  |
| Total Split (%)         | 73%   |
| Yellow Time (s)         | 4.0   |
| All-Red Time (s)        | 3.0   |
| Lost Time Adjust (s)    |       |
| Total Lost Time (s)     |       |
| Lead/Lag                |       |
| Lead-Lag Optimize?      |       |
| Recall Mode             | C-Max |
| Act Effect Green (s)    |       |
| Actuated g/C Ratio      |       |
| v/c Ratio               |       |
| Control Delay (s/veh)   |       |
| Queue Delay             |       |
| Total Delay (s/veh)     |       |
| LOS                     |       |
| Approach Delay (s/veh)  |       |
| Approach LOS            |       |
| Queue Length 50th (ft)  |       |
| Queue Length 95th (ft)  |       |
| Internal Link Dist (ft) |       |
| Turn Bay Length (ft)    |       |
| Base Capacity (vph)     |       |
| Starvation Cap Reductn  |       |
| Spillback Cap Reductn   |       |
| Storage Cap Reductn     |       |
| Reduced v/c Ratio       |       |
| Intersection Summary    |       |

Timings

Total Traffic Conditions

1: Golden Sage Drive/Golden Sage Road & E Woodmen Road

AM Peak Traffic Hour - Year 2045

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 0.66                                           |                        |
| Intersection Signal Delay (s/veh): 11.1                           | Intersection LOS: B    |
| Intersection Capacity Utilization 76.3%                           | ICU Level of Service D |
| Analysis Period (min) 15                                          |                        |
| m Volume for 95th percentile queue is metered by upstream signal. |                        |
| ! Phase conflict between lane groups.                             |                        |

Splits and Phases: 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road

|        |        |      |
|--------|--------|------|
| #1     | #1     | #1   |
| Ø1     | Ø2 (R) | Ø4   |
| 18 s   | 70 s   | 32 s |
| #1     |        |      |
| Ø6 (R) |        |      |
| 88 s   |        |      |

# Timings

## 2: Meridian Road & E Woodmen Road

# Total Traffic Conditions

## AM Peak Traffic Hour - Year 2045

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 540                                                                               | 615                                                                               | 362                                                                               | 88                                                                                | 951                                                                               | 66                                                                                | 337                                                                                 | 321                                                                                 | 14                                                                                  | 102                                                                                 | 1130                                                                                | 1203                                                                                |
| Future Volume (vph)     | 540                                                                               | 615                                                                               | 362                                                                               | 88                                                                                | 951                                                                               | 66                                                                                | 337                                                                                 | 321                                                                                 | 14                                                                                  | 102                                                                                 | 1130                                                                                | 1203                                                                                |
| Satd. Flow (prot)       | 3433                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Flt Permitted           | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 175                                                                               |                                                                                   |                                                                                   | 173                                                                               |                                                                                     |                                                                                     | 236                                                                                 |                                                                                     |                                                                                     | 668                                                                                 |
| Lane Group Flow (vph)   | 587                                                                               | 668                                                                               | 393                                                                               | 96                                                                                | 1034                                                                              | 72                                                                                | 366                                                                                 | 349                                                                                 | 15                                                                                  | 111                                                                                 | 1228                                                                                | 1308                                                                                |
| Turn Type               | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                                | NA                                                                                  | Free                                                                                | Prot                                                                                | NA                                                                                  | Free                                                                                |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Permitted Phases        |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Free                                                                                |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                                | 25.0                                                                                |                                                                                     | 11.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Split (s)         | 25.0                                                                              | 42.0                                                                              | 42.0                                                                              | 12.0                                                                              | 29.0                                                                              | 29.0                                                                              | 17.0                                                                                | 53.0                                                                                |                                                                                     | 13.0                                                                                | 49.0                                                                                |                                                                                     |
| Total Split (%)         | 20.8%                                                                             | 35.0%                                                                             | 35.0%                                                                             | 10.0%                                                                             | 24.2%                                                                             | 24.2%                                                                             | 14.2%                                                                               | 44.2%                                                                               |                                                                                     | 10.8%                                                                               | 40.8%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 4.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 3.0                                                                                 |                                                                                     | 2.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 7.0                                                                                 |                                                                                     | 5.0                                                                                 | 7.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                                | Lag                                                                                 |                                                                                     | Lead                                                                                | Lag                                                                                 |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 | Yes                                                                                 |                                                                                     |
| Recall Mode             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                                | Min                                                                                 |                                                                                     | None                                                                                | Min                                                                                 |                                                                                     |
| Act Effct Green (s)     | 20.0                                                                              | 35.1                                                                              | 35.1                                                                              | 6.9                                                                               | 22.0                                                                              | 22.0                                                                              | 12.0                                                                                | 46.3                                                                                | 120.0                                                                               | 7.7                                                                                 | 42.0                                                                                | 120.0                                                                               |
| Actuated g/C Ratio      | 0.17                                                                              | 0.29                                                                              | 0.29                                                                              | 0.06                                                                              | 0.18                                                                              | 0.18                                                                              | 0.10                                                                                | 0.39                                                                                | 1.00                                                                                | 0.06                                                                                | 0.35                                                                                | 1.00                                                                                |
| v/c Ratio               | 1.03                                                                              | 0.45                                                                              | 0.67                                                                              | 0.49                                                                              | 1.11                                                                              | 0.17                                                                              | 1.07                                                                                | 0.26                                                                                | 0.01                                                                                | 0.50                                                                                | 0.99                                                                                | 0.83                                                                                |
| Control Delay (s/veh)   | 93.6                                                                              | 35.8                                                                              | 26.5                                                                              | 63.6                                                                              | 109.4                                                                             | 0.8                                                                               | 118.6                                                                               | 25.9                                                                                | 0.0                                                                                 | 72.0                                                                                | 51.1                                                                                | 11.2                                                                                |
| 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 (s/veh)     | 93.6                                                                              | 35.8                                                                              | 26.5                                                                              | 63.6                                                                              | 109.4                                                                             | 0.8                                                                               | 118.6                                                                               | 25.9                                                                                | 0.0                                                                                 | 72.0                                                                                | 51.1                                                                                | 11.2                                                                                |
| LOS                     | F                                                                                 | D                                                                                 | C                                                                                 | E                                                                                 | F                                                                                 | A                                                                                 | F                                                                                   | C                                                                                   | A                                                                                   | E                                                                                   | D                                                                                   | B                                                                                   |
| Approach Delay (s/veh)  |                                                                                   | 54.2                                                                              |                                                                                   |                                                                                   | 99.2                                                                              |                                                                                   |                                                                                     | 71.8                                                                                |                                                                                     |                                                                                     | 32.3                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | ~254                                                                              | 157                                                                               | 152                                                                               | 38                                                                                | ~340                                                                              | 0                                                                                 | ~163                                                                                | 97                                                                                  | 0                                                                                   | 47                                                                                  | 461                                                                                 | 311                                                                                 |
| Queue Length 95th (ft)  | #370                                                                              | 197                                                                               | 270                                                                               | 68                                                                                | #435                                                                              | 0                                                                                 | #263                                                                                | 135                                                                                 | 0                                                                                   | m56                                                                                 | m#606                                                                               | m311                                                                                |
| Internal Link Dist (ft) |                                                                                   | 663                                                                               |                                                                                   |                                                                                   | 528                                                                               |                                                                                   |                                                                                     | 1133                                                                                |                                                                                     |                                                                                     | 3247                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                               |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                   | 480                                                                                 |                                                                                     | 430                                                                                 | 490                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 572                                                                               | 1488                                                                              | 586                                                                               | 200                                                                               | 932                                                                               | 431                                                                               | 343                                                                                 | 1364                                                                                | 1583                                                                                | 228                                                                                 | 1238                                                                                | 1583                                                                                |
| 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       | 1.03                                                                              | 0.45                                                                              | 0.67                                                                              | 0.48                                                                              | 1.11                                                                              | 0.17                                                                              | 1.07                                                                                | 0.26                                                                                | 0.01                                                                                | 0.49                                                                                | 0.99                                                                                | 0.83                                                                                |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 130

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.11

Intersection Signal Delay (s/veh): 55.6

Intersection LOS: E

Intersection Capacity Utilization 94.6%

ICU Level of Service F

Analysis Period (min) 15

~ 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.

Splits and Phases: 2: Meridian Road & E Woodmen Road

|                  |                      |                  |                  |
|------------------|----------------------|------------------|------------------|
| #2<br>Ø1<br>12 s | #2<br>Ø2 (R)<br>42 s | #2<br>Ø3<br>13 s | #2<br>Ø4<br>53 s |
| #2<br>Ø5<br>25 s | #2<br>Ø6 (R)<br>29 s | #2<br>Ø7<br>17 s | #2<br>Ø8<br>49 s |

# Timings 3: Meridian Road & Bent Grass Meadows Drive

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

|                                                                      |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                           | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                 | 302                                                                               | 192                                                                               | 151                                                                               | 727                                                                               | 2025                                                                              | 392                                                                               |
| Future Volume (vph)                                                  | 302                                                                               | 192                                                                               | 151                                                                               | 727                                                                               | 2025                                                                              | 392                                                                               |
| Satd. Flow (prot)                                                    | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                        | 0.950                                                                             |                                                                                   | 0.047                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                    | 3433                                                                              | 1583                                                                              | 88                                                                                | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                    |                                                                                   | 115                                                                               |                                                                                   |                                                                                   |                                                                                   | 426                                                                               |
| Lane Group Flow (vph)                                                | 328                                                                               | 209                                                                               | 164                                                                               | 790                                                                               | 2201                                                                              | 426                                                                               |
| Turn Type                                                            | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                     | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                     |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                       | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                  | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                    | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                      | 22.5                                                                              | 22.5                                                                              | 13.0                                                                              | 97.5                                                                              | 84.5                                                                              | 84.5                                                                              |
| Total Split (%)                                                      | 18.8%                                                                             | 18.8%                                                                             | 10.8%                                                                             | 81.3%                                                                             | 70.4%                                                                             | 70.4%                                                                             |
| Yellow Time (s)                                                      | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                     | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                             |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                          | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                 | 16.0                                                                              | 16.0                                                                              | 95.0                                                                              | 95.0                                                                              | 80.0                                                                              | 80.0                                                                              |
| Actuated g/C Ratio                                                   | 0.13                                                                              | 0.13                                                                              | 0.79                                                                              | 0.79                                                                              | 0.67                                                                              | 0.67                                                                              |
| v/c Ratio                                                            | 0.72                                                                              | 0.67                                                                              | 0.76                                                                              | 0.28                                                                              | 0.93                                                                              | 0.36                                                                              |
| Control Delay (s/veh)                                                | 59.1                                                                              | 33.4                                                                              | 56.1                                                                              | 6.3                                                                               | 26.6                                                                              | 1.5                                                                               |
| Queue Delay                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                  | 59.1                                                                              | 33.4                                                                              | 56.1                                                                              | 6.3                                                                               | 26.6                                                                              | 1.5                                                                               |
| LOS                                                                  | E                                                                                 | C                                                                                 | E                                                                                 | A                                                                                 | C                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                               | 49.1                                                                              |                                                                                   |                                                                                   | 14.8                                                                              | 22.6                                                                              |                                                                                   |
| Approach LOS                                                         | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | C                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                               | 128                                                                               | 69                                                                                | 88                                                                                | 105                                                                               | 735                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                               | 177                                                                               | 153                                                                               | m#122                                                                             | m115                                                                              | #902                                                                              | 33                                                                                |
| Internal Link Dist (ft)                                              | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                 | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                  | 514                                                                               | 335                                                                               | 217                                                                               | 2802                                                                              | 2359                                                                              | 1197                                                                              |
| Starvation Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                    | 0.64                                                                              | 0.62                                                                              | 0.76                                                                              | 0.28                                                                              | 0.93                                                                              | 0.36                                                                              |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 100                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Timings  
3: Meridian Road & Bent Grass Meadows Drive

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.93

Intersection Signal Delay (s/veh): 24.2

Intersection LOS: C

Intersection Capacity Utilization 84.2%

ICU Level of Service E

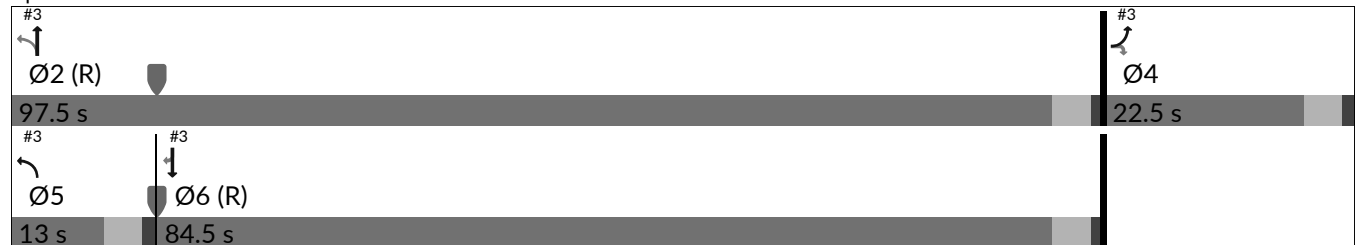
Analysis Period (min) 15

# 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.

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



| Intersection             |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|--------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Int Delay, s/veh         | 3.7                                                                               |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Movement                 | SET                                                                               | SER    | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                                |
| Lane Configurations      |  |        |  |  |  |  |
| Traffic Vol, veh/h       | 385                                                                               | 62     | 83                                                                                | 175                                                                               | 72                                                                                | 56                                                                                 |
| Future Vol, veh/h        | 385                                                                               | 62     | 83                                                                                | 175                                                                               | 72                                                                                | 56                                                                                 |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Sign Control             | Free                                                                              | Free   | Free                                                                              | Free                                                                              | Stop                                                                              | Stop                                                                               |
| RT Channelized           | -                                                                                 | None   | -                                                                                 | None                                                                              | -                                                                                 | None                                                                               |
| Storage Length           | -                                                                                 | -      | 50                                                                                | -                                                                                 | -                                                                                 | -                                                                                  |
| Veh in Median Storage, # | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                  |
| Grade, %                 | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                  |
| Peak Hour Factor         | 92                                                                                | 92     | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                 |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  |
| Mvmt Flow                | 418                                                                               | 67     | 90                                                                                | 190                                                                               | 78                                                                                | 61                                                                                 |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Major/Minor              | Major1                                                                            | Major2 |                                                                                   | Minor1                                                                            |                                                                                   |                                                                                    |
| Conflicting Flow All     | 0                                                                                 | 0      | 486                                                                               | 0                                                                                 | 823                                                                               | 452                                                                                |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 452                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 371                                                                               | -                                                                                  |
| Critical Hdwy            | -                                                                                 | -      | 4.12                                                                              | -                                                                                 | 6.42                                                                              | 6.22                                                                               |
| Critical Hdwy Stg 1      | -                                                                                 | -      | -                                                                                 | -                                                                                 | 5.42                                                                              | -                                                                                  |
| Critical Hdwy Stg 2      | -                                                                                 | -      | -                                                                                 | -                                                                                 | 5.42                                                                              | -                                                                                  |
| Follow-up Hdwy           | -                                                                                 | -      | 2.218                                                                             | -                                                                                 | 3.518                                                                             | 3.318                                                                              |
| Pot Cap-1 Maneuver       | -                                                                                 | -      | 1077                                                                              | -                                                                                 | 343                                                                               | 607                                                                                |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 641                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 698                                                                               | -                                                                                  |
| Platoon blocked, %       | -                                                                                 | -      |                                                                                   | -                                                                                 |                                                                                   |                                                                                    |
| Mov Cap-1 Maneuver       | -                                                                                 | -      | 1077                                                                              | -                                                                                 | 315                                                                               | 607                                                                                |
| Mov Cap-2 Maneuver       | -                                                                                 | -      | -                                                                                 | -                                                                                 | 315                                                                               | -                                                                                  |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 587                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 698                                                                               | -                                                                                  |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Approach                 | SE                                                                                | NW     |                                                                                   | NE                                                                                |                                                                                   |                                                                                    |
| HCM Ctrl Dly, s/v        | 0                                                                                 | 2.78   |                                                                                   | 18.79                                                                             |                                                                                   |                                                                                    |
| HCM LOS                  | C                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Minor Lane/Major Mvmt    | NELn1                                                                             | NWL    | NWT                                                                               | SET                                                                               | SER                                                                               |                                                                                    |
| Capacity (veh/h)         | 399                                                                               | 1077   | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane V/C Ratio       | 0.349                                                                             | 0.084  | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Ctrl Dly (s/v)       | 18.8                                                                              | 8.6    | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane LOS             | C                                                                                 | A      | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM 95th %tile Q(veh)    | 1.5                                                                               | 0.3    | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

| Intersection                |         |         |         |         |
|-----------------------------|---------|---------|---------|---------|
| Intersection Delay, s/veh   | 3.6     |         |         |         |
| Intersection LOS            | A       |         |         |         |
| Approach                    | EB      | NB      | SB      | NE      |
| Entry Lanes                 | 1       | 1       | 1       | 1       |
| Conflicting Circle Lanes    | 1       | 1       | 1       | 1       |
| Adj Approach Flow, veh/h    | 1       | 124     | 97      | 141     |
| Demand Flow Rate, veh/h     | 1       | 126     | 99      | 144     |
| Vehicles Circulating, veh/h | 162     | 144     | 63      | 0       |
| Vehicles Exiting, veh/h     | 0       | 0       | 207     | 163     |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0       | 0       |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000   | 1.000   |
| Approach Delay, s/veh       | 3.1     | 4.0     | 3.5     | 3.5     |
| Approach LOS                | A       | A       | A       | A       |
| Lane                        | Left    | Left    | Left    | Left    |
| Designated Moves            | LR      | LT      | TR      | L       |
| Assumed Moves               | LR      | LT      | TR      | L       |
| RT Channelized              |         |         |         |         |
| Lane Util                   | 1.000   | 1.000   | 1.000   | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.609   | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.976   | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1380    | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 1.02e-3 | 1.02e-3 |
| Entry Flow, veh/h           | 1       | 126     | 99      | 144     |
| Cap Entry Lane, veh/h       | 1170    | 1191    | 1294    | 1380    |
| Entry HV Adj Factor         | 1.000   | 0.980   | 0.980   | 0.979   |
| Flow Entry, veh/h           | 1       | 124     | 97      | 141     |
| Cap Entry, veh/h            | 1170    | 1168    | 1268    | 1351    |
| V/C Ratio                   | 0.001   | 0.106   | 0.077   | 0.104   |
| Control Delay, s/veh        | 3.1     | 4.0     | 3.5     | 3.5     |
| LOS                         | A       | A       | A       | A       |
| 95th %tile Queue, veh       | 0       | 0       | 0       | 0       |

Timings  
7: E Woodmen Road & Bent Grass Meadows Drive

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

|                                                                     |  |  |  |  |  |  |       |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Lane Group                                                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | Ø2    |
| Lane Configurations                                                 |  |  |  |  |  |  |       |
| Traffic Volume (vph)                                                | 483                                                                               | 1366                                                                              | 2193                                                                              | 187                                                                               | 229                                                                               | 558                                                                               |       |
| Future Volume (vph)                                                 | 483                                                                               | 1366                                                                              | 2193                                                                              | 187                                                                               | 229                                                                               | 558                                                                               |       |
| Satd. Flow (prot)                                                   | 1770                                                                              | 5085                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                              | 1583                                                                              |       |
| Flt Permitted                                                       | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |       |
| Satd. Flow (perm)                                                   | 1770                                                                              | 5085                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                              | 1583                                                                              |       |
| Satd. Flow (RTOR)                                                   |                                                                                   |                                                                                   |                                                                                   | 105                                                                               |                                                                                   | 518                                                                               |       |
| Lane Group Flow (vph)                                               | 525                                                                               | 1485                                                                              | 2384                                                                              | 203                                                                               | 249                                                                               | 607                                                                               |       |
| Turn Type                                                           | Prot                                                                              | NA                                                                                | NA                                                                                | Free                                                                              | Prot                                                                              | Free                                                                              |       |
| Protected Phases                                                    | 5                                                                                 | 2 8!                                                                              | 6                                                                                 |                                                                                   | 8!                                                                                |                                                                                   | 2     |
| Permitted Phases                                                    |                                                                                   |                                                                                   |                                                                                   | Free                                                                              |                                                                                   | Free                                                                              |       |
| Detector Phase                                                      | 5                                                                                 | 2 8                                                                               | 6                                                                                 |                                                                                   | 8                                                                                 |                                                                                   |       |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Minimum Initial (s)                                                 | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   | 5.0   |
| Minimum Split (s)                                                   | 22.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 22.5  |
| Total Split (s)                                                     | 37.0                                                                              |                                                                                   | 60.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 97.5  |
| Total Split (%)                                                     | 30.8%                                                                             |                                                                                   | 50.4%                                                                             |                                                                                   | 18.8%                                                                             |                                                                                   | 81%   |
| Yellow Time (s)                                                     | 3.5                                                                               |                                                                                   | 3.5                                                                               |                                                                                   | 3.5                                                                               |                                                                                   | 3.5   |
| All-Red Time (s)                                                    | 1.0                                                                               |                                                                                   | 1.0                                                                               |                                                                                   | 1.0                                                                               |                                                                                   | 1.0   |
| Lost Time Adjust (s)                                                | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |       |
| Total Lost Time (s)                                                 | 4.5                                                                               |                                                                                   | 4.5                                                                               |                                                                                   | 4.5                                                                               |                                                                                   |       |
| Lead/Lag                                                            | Lead                                                                              |                                                                                   | Lag                                                                               |                                                                                   |                                                                                   |                                                                                   |       |
| Lead-Lag Optimize?                                                  | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |       |
| Recall Mode                                                         | Max                                                                               |                                                                                   | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | C-Max |
| Act Effect Green (s)                                                | 33.3                                                                              | 120.0                                                                             | 56.0                                                                              | 120.0                                                                             | 17.2                                                                              | 120.0                                                                             |       |
| Actuated g/C Ratio                                                  | 0.28                                                                              | 1.00                                                                              | 0.47                                                                              | 1.00                                                                              | 0.14                                                                              | 1.00                                                                              |       |
| v/c Ratio                                                           | 1.07                                                                              | 0.29                                                                              | 1.00                                                                              | 0.13                                                                              | 0.51                                                                              | 0.38                                                                              |       |
| Control Delay (s/veh)                                               | 99.3                                                                              | 0.1                                                                               | 51.8                                                                              | 0.2                                                                               | 51.2                                                                              | 0.7                                                                               |       |
| Queue Delay                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |       |
| Total Delay (s/veh)                                                 | 99.3                                                                              | 0.1                                                                               | 51.8                                                                              | 0.2                                                                               | 51.2                                                                              | 0.7                                                                               |       |
| LOS                                                                 | F                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 | D                                                                                 | A                                                                                 |       |
| Approach Delay (s/veh)                                              |                                                                                   | 26.0                                                                              | 47.7                                                                              |                                                                                   | 15.4                                                                              |                                                                                   |       |
| Approach LOS                                                        |                                                                                   | C                                                                                 | D                                                                                 |                                                                                   | B                                                                                 |                                                                                   |       |
| Queue Length 50th (ft)                                              | ~484                                                                              | 0                                                                                 | ~679                                                                              | 0                                                                                 | 93                                                                                | 0                                                                                 |       |
| Queue Length 95th (ft)                                              | #711                                                                              | 0                                                                                 | #813                                                                              | 0                                                                                 | 137                                                                               | 0                                                                                 |       |
| Internal Link Dist (ft)                                             |                                                                                   | 500                                                                               | 953                                                                               |                                                                                   | 339                                                                               |                                                                                   |       |
| Turn Bay Length (ft)                                                | 490                                                                               |                                                                                   |                                                                                   | 350                                                                               | 150                                                                               | 150                                                                               |       |
| Base Capacity (vph)                                                 | 491                                                                               | 5081                                                                              | 2373                                                                              | 1583                                                                              | 514                                                                               | 1583                                                                              |       |
| Starvation Cap Reductn                                              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Spillback Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Storage Cap Reductn                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Reduced v/c Ratio                                                   | 1.07                                                                              | 0.29                                                                              | 1.00                                                                              | 0.13                                                                              | 0.48                                                                              | 0.38                                                                              |       |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Natural Cycle: 140                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |

|                                                                 |                        |
|-----------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 1.07                                         |                        |
| Intersection Signal Delay (s/veh): 34.6                         | Intersection LOS: C    |
| Intersection Capacity Utilization 86.9%                         | ICU Level of Service E |
| Analysis Period (min) 15                                        |                        |
| ~ 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.                        |                        |
| ! Phase conflict between lane groups.                           |                        |

Splits and Phases: 7: E Woodmen Road & Bent Grass Meadows Drive



# HCM 7th Roundabout

Total Traffic Conditions

## 8: Bent Grass Meadows Drive/Access A & Woodmen Frontage Road Traffic Hour - Year 2045

| Intersection                |          |          |          |        |          |
|-----------------------------|----------|----------|----------|--------|----------|
| Intersection Delay, s/veh   | 6.9      |          |          |        |          |
| Intersection LOS            | A        |          |          |        |          |
| Approach                    | EB       | WB       | NB       | SB     |          |
| Entry Lanes                 | 1        | 1        | 1        | 1      |          |
| Conflicting Circle Lanes    | 2        | 2        | 2        | 2      |          |
| Adj Approach Flow, veh/h    | 474      | 236      | 727      | 230    |          |
| Demand Flow Rate, veh/h     | 483      | 241      | 742      | 235    |          |
| Vehicles Circulating, veh/h | 397      | 602      | 8        | 449    |          |
| Vehicles Exiting, veh/h     | 287      | 8        | 872      | 394    |          |
| Ped Vol Crossing Leg, #/h   | 0        | 0        | 0        | 0      |          |
| Ped Cap Adj                 | 1.000    | 1.000    | 1.000    | 1.000  |          |
| Approach Delay, s/veh       | 9.3      | 7.4      | 5.4      | 6.2    |          |
| Approach LOS                | A        | A        | A        | A      |          |
| Lane                        | Left     | Left     | Left     | Bypass | Left     |
| Designated Moves            | LTR      | LTR      | LT       | R      | LTR      |
| Assumed Moves               | LTR      | LTR      | LT       |        | LTR      |
| RT Channelized              |          |          |          | Free   |          |
| Lane Util                   | 1.000    | 1.000    | 1.000    |        | 1.000    |
| Follow-Up Headway, s        | 2.535    | 2.535    | 2.535    |        | 2.535    |
| Critical Headway, s         | 4.328    | 4.328    | 4.328    |        | 4.328    |
| A (Intercept)               | 1420     | 1420     | 1420     |        | 1420     |
| B (Slope)                   | 8.501e-4 | 8.501e-4 | 8.501e-4 |        | 8.501e-4 |
| Entry Flow, veh/h           | 483      | 241      | 602      | 140    | 235      |
| Cap Entry Lane, veh/h       | 1013     | 851      | 1410     | 1938   | 970      |
| Entry HV Adj Factor         | 0.981    | 0.979    | 0.980    | 0.980  | 0.979    |
| Flow Entry, veh/h           | 474      | 236      | 590      | 137    | 230      |
| Cap Entry, veh/h            | 994      | 833      | 1382     | 1900   | 949      |
| V/C Ratio                   | 0.477    | 0.283    | 0.427    | 0.072  | 0.242    |
| Control Delay, s/veh        | 9.3      | 7.4      | 6.7      | 0.0    | 6.2      |
| LOS                         | A        | A        | A        | A      | A        |
| 95th %tile Queue, veh       | 3        | 1        | 2        | 0      | 1        |

HCM 7th TWSC  
25: Bent Grass Meadows Drive & Swallowtail Way

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

| Intersection             |                                                                                   |          |                                                                                   |        |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 1.7                                                                               |          |                                                                                   |        |                                                                                   |                                                                                   |
| Movement                 | WBL                                                                               | WBR      | NBT                                                                               | NBR    | SBL                                                                               | SBT                                                                               |
| Lane Configurations      |  |          |  |        |  |  |
| Traffic Vol, veh/h       | 30                                                                                | 30       | 157                                                                               | 36     | 36                                                                                | 313                                                                               |
| Future Vol, veh/h        | 30                                                                                | 30       | 157                                                                               | 36     | 36                                                                                | 313                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0        | 0                                                                                 | 0      | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop     | Free                                                                              | Free   | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None     | -                                                                                 | None   | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -        | -                                                                                 | -      | 25                                                                                | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -        | 0                                                                                 | -      | -                                                                                 | 0                                                                                 |
| Grade, %                 | 0                                                                                 | -        | 0                                                                                 | -      | -                                                                                 | 0                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92       | 92                                                                                | 92     | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2        | 2                                                                                 | 2      | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 33                                                                                | 33       | 171                                                                               | 39     | 39                                                                                | 340                                                                               |
|                          |                                                                                   |          |                                                                                   |        |                                                                                   |                                                                                   |
| Major/Minor              | Minor1                                                                            | Major1   |                                                                                   | Major2 |                                                                                   |                                                                                   |
| Conflicting Flow All     | 609                                                                               | 190      | 0                                                                                 | 0      | 210                                                                               | 0                                                                                 |
| Stage 1                  | 190                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Stage 2                  | 418                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Critical Hdwy            | 6.42                                                                              | 6.22     | -                                                                                 | -      | 4.12                                                                              | -                                                                                 |
| Critical Hdwy Stg 1      | 5.42                                                                              | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Critical Hdwy Stg 2      | 5.42                                                                              | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Follow-up Hdwy           | 3.518                                                                             | 3.318    | -                                                                                 | -      | 2.218                                                                             | -                                                                                 |
| Pot Cap-1 Maneuver       | 459                                                                               | 852      | -                                                                                 | -      | 1361                                                                              | -                                                                                 |
| Stage 1                  | 842                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Stage 2                  | 664                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Platoon blocked, %       |                                                                                   |          | -                                                                                 | -      |                                                                                   | -                                                                                 |
| Mov Cap-1 Maneuver       | 445                                                                               | 852      | -                                                                                 | -      | 1361                                                                              | -                                                                                 |
| Mov Cap-2 Maneuver       | 445                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Stage 1                  | 818                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Stage 2                  | 664                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
|                          |                                                                                   |          |                                                                                   |        |                                                                                   |                                                                                   |
|                          |                                                                                   |          |                                                                                   |        |                                                                                   |                                                                                   |
| Approach                 | WB                                                                                | NB       |                                                                                   | SB     |                                                                                   |                                                                                   |
| HCM Ctrl Dly, s/v        | 11.93                                                                             | 0        |                                                                                   | 0.8    |                                                                                   |                                                                                   |
| HCM LOS                  | B                                                                                 |          |                                                                                   |        |                                                                                   |                                                                                   |
|                          |                                                                                   |          |                                                                                   |        |                                                                                   |                                                                                   |
| Minor Lane/Major Mvmt    | NBT                                                                               | NBRWBLn1 |                                                                                   | SBL    | SBT                                                                               |                                                                                   |
| Capacity (veh/h)         | -                                                                                 | -        | 585                                                                               | 1361   | -                                                                                 |                                                                                   |
| HCM Lane V/C Ratio       | -                                                                                 | -        | 0.112                                                                             | 0.029  | -                                                                                 |                                                                                   |
| HCM Ctrl Dly (s/v)       | -                                                                                 | -        | 11.9                                                                              | 7.7    | -                                                                                 |                                                                                   |
| HCM Lane LOS             | -                                                                                 | -        | B                                                                                 | A      | -                                                                                 |                                                                                   |
| HCM 95th %tile Q(veh)    | -                                                                                 | -        | 0.4                                                                               | 0.1    | -                                                                                 |                                                                                   |

HCM 7th TWSC  
28: Bent Grass Meadows Drive & Big Galleta Way

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

| Intersection             |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 2.6                                                                               |      |                                                                                   |      |                                                                                   |                                                                                   |
| Movement                 | WBL                                                                               | WBR  | NBT                                                                               | NBR  | SBL                                                                               | SBT                                                                               |
| Lane Configurations      |  |      |  |      |  |  |
| Traffic Vol, veh/h       | 30                                                                                | 60   | 133                                                                               | 36   | 72                                                                                | 271                                                                               |
| Future Vol, veh/h        | 30                                                                                | 60   | 133                                                                               | 36   | 72                                                                                | 271                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -    | -                                                                                 | -    | 25                                                                                | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -    | 0                                                                                 | -    | -                                                                                 | 0                                                                                 |
| Grade, %                 | 0                                                                                 | -    | 0                                                                                 | -    | -                                                                                 | 0                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92   | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 33                                                                                | 65   | 145                                                                               | 39   | 78                                                                                | 295                                                                               |

| Major/Minor          | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 615    | 164    | 0      |
| Stage 1              | 164    | -      | -      |
| Stage 2              | 451    | -      | -      |
| Critical Hdwy        | 6.42   | 6.22   | -      |
| Critical Hdwy Stg 1  | 5.42   | -      | -      |
| Critical Hdwy Stg 2  | 5.42   | -      | -      |
| Follow-up Hdwy       | 3.518  | 3.318  | -      |
| Pot Cap-1 Maneuver   | 455    | 880    | -      |
| Stage 1              | 865    | -      | -      |
| Stage 2              | 642    | -      | -      |
| Platoon blocked, %   |        | -      | -      |
| Mov Cap-1 Maneuver   | 429    | 880    | -      |
| Mov Cap-2 Maneuver   | 429    | -      | -      |
| Stage 1              | 816    | -      | -      |
| Stage 2              | 642    | -      | -      |

| Approach          | WB   | NB | SB   |
|-------------------|------|----|------|
| HCM Ctrl Dly, s/v | 11.5 | 0  | 1.63 |
| HCM LOS           | B    |    |      |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL  | SBT   |
|-----------------------|-----|----------|------|-------|
| Capacity (veh/h)      | -   | -        | 652  | 1391  |
| HCM Lane V/C Ratio    | -   | -        | 0.15 | 0.056 |
| HCM Ctrl Dly (s/v)    | -   | -        | 11.5 | 7.7   |
| HCM Lane LOS          | -   | -        | B    | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0.5  | 0.2   |

HCM 7th TWSC  
31: Bent Grass Meadows Drive & Prairie Drop Way

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

| Intersection             |                                                                                   |          |                                                                                   |        |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 3.4                                                                               |          |                                                                                   |        |                                                                                   |                                                                                   |
| Movement                 | WBL                                                                               | WBR      | NBT                                                                               | NBR    | SBL                                                                               | SBT                                                                               |
| Lane Configurations      |  |          |  |        |  |  |
| Traffic Vol, veh/h       | 90                                                                                | 60       | 139                                                                               | 108    | 36                                                                                | 265                                                                               |
| Future Vol, veh/h        | 90                                                                                | 60       | 139                                                                               | 108    | 36                                                                                | 265                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0        | 0                                                                                 | 0      | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop     | Free                                                                              | Free   | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None     | -                                                                                 | None   | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -        | -                                                                                 | -      | 25                                                                                | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -        | 0                                                                                 | -      | -                                                                                 | 0                                                                                 |
| Grade, %                 | 0                                                                                 | -        | 0                                                                                 | -      | -                                                                                 | 0                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92       | 92                                                                                | 92     | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2        | 2                                                                                 | 2      | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 98                                                                                | 65       | 151                                                                               | 117    | 39                                                                                | 288                                                                               |
| Major/Minor              | Minor1                                                                            | Major1   |                                                                                   | Major2 |                                                                                   |                                                                                   |
| Conflicting Flow All     | 576                                                                               | 210      | 0                                                                                 | 0      | 268                                                                               | 0                                                                                 |
| Stage 1                  | 210                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Stage 2                  | 366                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Critical Hdwy            | 6.42                                                                              | 6.22     | -                                                                                 | -      | 4.12                                                                              | -                                                                                 |
| Critical Hdwy Stg 1      | 5.42                                                                              | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Critical Hdwy Stg 2      | 5.42                                                                              | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Follow-up Hdwy           | 3.518                                                                             | 3.318    | -                                                                                 | -      | 2.218                                                                             | -                                                                                 |
| Pot Cap-1 Maneuver       | 479                                                                               | 830      | -                                                                                 | -      | 1295                                                                              | -                                                                                 |
| Stage 1                  | 825                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Stage 2                  | 701                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Platoon blocked, %       |                                                                                   |          | -                                                                                 | -      |                                                                                   | -                                                                                 |
| Mov Cap-1 Maneuver       | 465                                                                               | 830      | -                                                                                 | -      | 1295                                                                              | -                                                                                 |
| Mov Cap-2 Maneuver       | 465                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Stage 1                  | 800                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Stage 2                  | 701                                                                               | -        | -                                                                                 | -      | -                                                                                 | -                                                                                 |
| Approach                 | WB                                                                                | NB       |                                                                                   | SB     |                                                                                   |                                                                                   |
| HCM Ctrl Dly, s/v        | 13.96                                                                             | 0        |                                                                                   | 0.94   |                                                                                   |                                                                                   |
| HCM LOS                  | B                                                                                 |          |                                                                                   |        |                                                                                   |                                                                                   |
| Minor Lane/Major Mvmt    | NBT                                                                               | NBRWBLn1 |                                                                                   | SBL    | SBT                                                                               |                                                                                   |
| Capacity (veh/h)         | -                                                                                 | - 564    |                                                                                   | 1295   | -                                                                                 |                                                                                   |
| HCM Lane V/C Ratio       | -                                                                                 | - 0.289  |                                                                                   | 0.03   | -                                                                                 |                                                                                   |
| HCM Ctrl Dly (s/v)       | -                                                                                 | - 14     |                                                                                   | 7.9    | -                                                                                 |                                                                                   |
| HCM Lane LOS             | -                                                                                 | - B      |                                                                                   | A      | -                                                                                 |                                                                                   |
| HCM 95th %tile Q(veh)    | -                                                                                 | - 1.2    |                                                                                   | 0.1    | -                                                                                 |                                                                                   |

HCM 7th TWSC  
39: Woodmen Frontage Road & Bluebunch Lane

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

| Intersection             |        |      |      |        |      |      |        |      |       |        |      |       |
|--------------------------|--------|------|------|--------|------|------|--------|------|-------|--------|------|-------|
| Int Delay, s/veh         | 1.2    |      |      |        |      |      |        |      |       |        |      |       |
| Movement                 | EBL    | EBT  | EBR  | WBL    | WBT  | WBR  | NBL    | NBT  | NBR   | SBL    | SBT  | SBR   |
| Lane Configurations      |        | ↰    |      | ↰      | ↰    |      |        |      | ↰     |        |      | ↰     |
| Traffic Vol, veh/h       | 0      | 405  | 36   | 36     | 228  | 36   | 0      | 0    | 30    | 0      | 0    | 30    |
| Future Vol, veh/h        | 0      | 405  | 36   | 36     | 228  | 36   | 0      | 0    | 30    | 0      | 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           | -      | -    | -    | 25     | -    | -    | -      | -    | 0     | -      | -    | 0     |
| 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                | 0      | 440  | 39   | 39     | 248  | 39   | 0      | 0    | 33    | 0      | 0    | 33    |
|                          |        |      |      |        |      |      |        |      |       |        |      |       |
| Major/Minor              | Major1 |      |      | Major2 |      |      | Minor1 |      |       | Minor2 |      |       |
| Conflicting Flow All     | -      | 0    | 0    | 479    | 0    | 0    | -      | -    | 460   | -      | -    | 267   |
| Stage 1                  | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Stage 2                  | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Critical Hdwy            | -      | -    | -    | 4.12   | -    | -    | -      | -    | 6.22  | -      | -    | 6.22  |
| Critical Hdwy Stg 1      | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Critical Hdwy Stg 2      | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Follow-up Hdwy           | -      | -    | -    | 2.218  | -    | -    | -      | -    | 3.318 | -      | -    | 3.318 |
| Pot Cap-1 Maneuver       | 0      | -    | -    | 1083   | -    | -    | 0      | 0    | 601   | 0      | 0    | 771   |
| Stage 1                  | 0      | -    | -    | -      | -    | -    | 0      | 0    | -     | 0      | 0    | -     |
| Stage 2                  | 0      | -    | -    | -      | -    | -    | 0      | 0    | -     | 0      | 0    | -     |
| Platoon blocked, %       |        | -    | -    |        | -    | -    |        |      |       |        |      |       |
| Mov Cap-1 Maneuver       | -      | -    | -    | 1083   | -    | -    | -      | -    | 601   | -      | -    | 771   |
| Mov Cap-2 Maneuver       | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Stage 1                  | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Stage 2                  | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
|                          |        |      |      |        |      |      |        |      |       |        |      |       |
|                          |        |      |      |        |      |      |        |      |       |        |      |       |
| Approach                 | EB     |      |      | WB     |      |      | NB     |      |       | SB     |      |       |
| HCM Ctrl Dly, s/v        | 0      |      |      | 1.01   |      |      | 11.33  |      |       | 9.87   |      |       |
| HCM LOS                  |        |      |      |        |      |      | B      |      |       | A      |      |       |
|                          |        |      |      |        |      |      |        |      |       |        |      |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR  | WBL    | WBT  | WBR  | SBLn1  |      |       |        |      |       |
| Capacity (veh/h)         | 601    | -    | -    | 1083   | -    | -    | 771    |      |       |        |      |       |
| HCM Lane V/C Ratio       | 0.054  | -    | -    | 0.036  | -    | -    | 0.042  |      |       |        |      |       |
| HCM Ctrl Dly (s/v)       | 11.3   | -    | -    | 8.4    | -    | -    | 9.9    |      |       |        |      |       |
| HCM Lane LOS             | B      | -    | -    | A      | -    | -    | A      |      |       |        |      |       |
| HCM 95th %tile Q(veh)    | 0.2    | -    | -    | 0.1    | -    | -    | 0.1    |      |       |        |      |       |

HCM 7th TWSC  
49: Woodmen Frontage Road & Lot 14 Access

Total Traffic Conditions  
AM Peak Traffic Hour - Year 2045

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 2.4                                                                               |                                                                                   |                                                                                   |      |                                                                                   |      |
| Movement                 | SEL                                                                               | SET                                                                               | NWT                                                                               | NWR  | SWL                                                                               | SWR  |
| Lane Configurations      |  |  |  |      |  |      |
| Traffic Vol, veh/h       | 36                                                                                | 97                                                                                | 151                                                                               | 36   | 30                                                                                | 30   |
| Future Vol, veh/h        | 36                                                                                | 97                                                                                | 151                                                                               | 36   | 30                                                                                | 30   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | 75                                                                                | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 39                                                                                | 105                                                                               | 164                                                                               | 39   | 33                                                                                | 33   |

| Major/Minor          | Major1 | Major2 | Minor2 |       |       |
|----------------------|--------|--------|--------|-------|-------|
| Conflicting Flow All | 203    | 0      | 0      | 315   | 184   |
| Stage 1              | -      | -      | -      | 184   | -     |
| Stage 2              | -      | -      | -      | 131   | -     |
| Critical Hdwy        | 4.13   | -      | -      | 6.63  | 6.23  |
| Critical Hdwy Stg 1  | -      | -      | -      | 5.43  | -     |
| Critical Hdwy Stg 2  | -      | -      | -      | 5.83  | -     |
| Follow-up Hdwy       | 2.219  | -      | -      | 3.519 | 3.319 |
| Pot Cap-1 Maneuver   | 1367   | -      | -      | 666   | 858   |
| Stage 1              | -      | -      | -      | 847   | -     |
| Stage 2              | -      | -      | -      | 882   | -     |
| Platoon blocked, %   | -      | -      | -      | -     | -     |
| Mov Cap-1 Maneuver   | 1367   | -      | -      | 647   | 858   |
| Mov Cap-2 Maneuver   | -      | -      | -      | 647   | -     |
| Stage 1              | -      | -      | -      | 823   | -     |
| Stage 2              | -      | -      | -      | 882   | -     |

| Approach          | SE   | NW | SW    |
|-------------------|------|----|-------|
| HCM Ctrl Dly, s/v | 2.09 | 0  | 10.35 |
| HCM LOS           |      |    | B     |

| Minor Lane/Major Mvmt | NWT | NWR | SEL   | SETSWLn1 |
|-----------------------|-----|-----|-------|----------|
| Capacity (veh/h)      | -   | -   | 1367  | 737      |
| HCM Lane V/C Ratio    | -   | -   | 0.029 | 0.088    |
| HCM Ctrl Dly (s/v)    | -   | -   | 7.7   | 10.4     |
| HCM Lane LOS          | -   | -   | A     | B        |
| HCM 95th %tile Q(veh) | -   | -   | 0.1   | 0.3      |

# Timings

## Total Traffic Conditions

### 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road PM Peak Traffic Hour - Year 2045

|                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group                                                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                 |                                                                                   | ↑↑↑                                                                               | ↑                                                                                 | ↑                                                                                 | ↑↑↑                                                                               | ↑                                                                                 | ↑                                                                                   |                                                                                     | ↑                                                                                   |                                                                                     |                                                                                     | ↑                                                                                   |
| Traffic Volume (vph)                                                | 0                                                                                 | 2712                                                                              | 175                                                                               | 161                                                                               | 1943                                                                              | 47                                                                                | 200                                                                                 | 0                                                                                   | 139                                                                                 | 0                                                                                   | 0                                                                                   | 96                                                                                  |
| Future Volume (vph)                                                 | 0                                                                                 | 2712                                                                              | 175                                                                               | 161                                                                               | 1943                                                                              | 47                                                                                | 200                                                                                 | 0                                                                                   | 139                                                                                 | 0                                                                                   | 0                                                                                   | 96                                                                                  |
| Satd. Flow (prot)                                                   | 0                                                                                 | 5085                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 0                                                                                   | 1583                                                                                | 0                                                                                   | 0                                                                                   | 1611                                                                                |
| Flt Permitted                                                       |                                                                                   |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Satd. Flow (perm)                                                   | 0                                                                                 | 5085                                                                              | 1583                                                                              | 1770                                                                              | 5085                                                                              | 1583                                                                              | 1770                                                                                | 0                                                                                   | 1583                                                                                | 0                                                                                   | 0                                                                                   | 1611                                                                                |
| Satd. Flow (RTOR)                                                   |                                                                                   |                                                                                   | 190                                                                               |                                                                                   |                                                                                   | 127                                                                               |                                                                                     |                                                                                     | 151                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)                                               | 0                                                                                 | 2948                                                                              | 190                                                                               | 175                                                                               | 2112                                                                              | 51                                                                                | 217                                                                                 | 0                                                                                   | 151                                                                                 | 0                                                                                   | 0                                                                                   | 104                                                                                 |
| Turn Type                                                           |                                                                                   | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Free                                                                              | Prot                                                                                |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Perm                                                                                |
| Protected Phases                                                    |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 4 6!                                                                              |                                                                                   | 4!                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Phases                                                    |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | 4 6                                                                                 |
| Detector Phase                                                      |                                                                                   | 2                                                                                 | 2                                                                                 | 1                                                                                 | 4 6                                                                               |                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 4 6                                                                                 |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)                                                 |                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Split (s)                                                   |                                                                                   | 25.0                                                                              | 25.0                                                                              | 10.5                                                                              |                                                                                   |                                                                                   | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)                                                     |                                                                                   | 78.2                                                                              | 78.2                                                                              | 18.0                                                                              |                                                                                   |                                                                                   | 23.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Split (%)                                                     |                                                                                   | 65.2%                                                                             | 65.2%                                                                             | 15.0%                                                                             |                                                                                   |                                                                                   | 19.8%                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Yellow Time (s)                                                     |                                                                                   | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| All-Red Time (s)                                                    |                                                                                   | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lost Time Adjust (s)                                                |                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Lost Time (s)                                                 |                                                                                   | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 5.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead/Lag                                                            |                                                                                   | Lag                                                                               | Lag                                                                               | Lead                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?                                                  |                                                                                   | Yes                                                                               | Yes                                                                               | Yes                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode                                                         |                                                                                   | C-Max                                                                             | C-Max                                                                             | None                                                                              |                                                                                   |                                                                                   | None                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Act Effct Green (s)                                                 |                                                                                   | 71.2                                                                              | 71.2                                                                              | 13.0                                                                              | 120.0                                                                             | 120.0                                                                             | 18.8                                                                                |                                                                                     | 120.0                                                                               |                                                                                     |                                                                                     | 120.0                                                                               |
| Actuated g/C Ratio                                                  |                                                                                   | 0.59                                                                              | 0.59                                                                              | 0.11                                                                              | 1.00                                                                              | 1.00                                                                              | 0.16                                                                                |                                                                                     | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                |
| v/c Ratio                                                           |                                                                                   | 0.98                                                                              | 0.19                                                                              | 0.92                                                                              | 0.42                                                                              | 0.03                                                                              | 0.78                                                                                |                                                                                     | 0.10                                                                                |                                                                                     |                                                                                     | 0.06                                                                                |
| Control Delay (s/veh)                                               |                                                                                   | 35.8                                                                              | 1.9                                                                               | 79.3                                                                              | 1.6                                                                               | 0.0                                                                               | 68.9                                                                                |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |
| Queue Delay                                                         |                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     | 0.0                                                                                 |
| Total Delay (s/veh)                                                 |                                                                                   | 35.8                                                                              | 1.9                                                                               | 79.3                                                                              | 1.6                                                                               | 0.0                                                                               | 68.9                                                                                |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |
| LOS                                                                 |                                                                                   | D                                                                                 | A                                                                                 | E                                                                                 | A                                                                                 | A                                                                                 | E                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |
| Approach Delay (s/veh)                                              |                                                                                   | 33.8                                                                              |                                                                                   |                                                                                   | 7.4                                                                               |                                                                                   |                                                                                     | 40.7                                                                                |                                                                                     |                                                                                     | 0.1                                                                                 |                                                                                     |
| Approach LOS                                                        |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Queue Length 50th (ft)                                              |                                                                                   | 776                                                                               | 0                                                                                 | 146                                                                               | 30                                                                                | 0                                                                                 | 166                                                                                 |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Queue Length 95th (ft)                                              |                                                                                   | #950                                                                              | 30                                                                                | m155                                                                              | m1                                                                                | m0                                                                                | #289                                                                                |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Internal Link Dist (ft)                                             |                                                                                   | 740                                                                               |                                                                                   |                                                                                   | 818                                                                               |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 195                                                                                 |                                                                                     |
| Turn Bay Length (ft)                                                |                                                                                   |                                                                                   | 385                                                                               | 340                                                                               |                                                                                   | 355                                                                               | 140                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)                                                 |                                                                                   | 3017                                                                              | 1016                                                                              | 191                                                                               | 5085                                                                              | 1583                                                                              | 277                                                                                 |                                                                                     | 1583                                                                                |                                                                                     |                                                                                     | 1611                                                                                |
| Starvation Cap Reductn                                              |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Spillback Cap Reductn                                               |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Storage Cap Reductn                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     | 0                                                                                   |
| Reduced v/c Ratio                                                   |                                                                                   | 0.98                                                                              | 0.19                                                                              | 0.92                                                                              | 0.42                                                                              | 0.03                                                                              | 0.78                                                                                |                                                                                     | 0.10                                                                                |                                                                                     |                                                                                     | 0.06                                                                                |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Natural Cycle: 110                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Timings

Total Traffic Conditions

1: Golden Sage Drive/Golden Sage Road & E Woodmen Road PM Peak Traffic Hour - Year 2045

|                         |       |
|-------------------------|-------|
| Lane Group              | Ø6    |
| Lane Configurations     |       |
| Traffic Volume (vph)    |       |
| Future Volume (vph)     |       |
| Satd. Flow (prot)       |       |
| Flt Permitted           |       |
| Satd. Flow (perm)       |       |
| Satd. Flow (RTOR)       |       |
| Lane Group Flow (vph)   |       |
| Turn Type               |       |
| Protected Phases        | 6     |
| Permitted Phases        |       |
| Detector Phase          |       |
| Switch Phase            |       |
| Minimum Initial (s)     | 5.0   |
| Minimum Split (s)       | 25.0  |
| Total Split (s)         | 96.2  |
| Total Split (%)         | 80%   |
| Yellow Time (s)         | 4.0   |
| All-Red Time (s)        | 3.0   |
| Lost Time Adjust (s)    |       |
| Total Lost Time (s)     |       |
| Lead/Lag                |       |
| Lead-Lag Optimize?      |       |
| Recall Mode             | C-Max |
| Act Effect Green (s)    |       |
| Actuated g/C Ratio      |       |
| v/c Ratio               |       |
| Control Delay (s/veh)   |       |
| Queue Delay             |       |
| Total Delay (s/veh)     |       |
| LOS                     |       |
| Approach Delay (s/veh)  |       |
| Approach LOS            |       |
| Queue Length 50th (ft)  |       |
| Queue Length 95th (ft)  |       |
| Internal Link Dist (ft) |       |
| Turn Bay Length (ft)    |       |
| Base Capacity (vph)     |       |
| Starvation Cap Reductn  |       |
| Spillback Cap Reductn   |       |
| Storage Cap Reductn     |       |
| Reduced v/c Ratio       |       |
| Intersection Summary    |       |

Timings

Total Traffic Conditions

1: Golden Sage Drive/Golden Sage Road & E Woodmen Road

PM Peak Traffic Hour - Year 2045

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 0.98                                           |                        |
| Intersection Signal Delay (s/veh): 23.2                           | Intersection LOS: C    |
| Intersection Capacity Utilization 85.7%                           | ICU Level of Service E |
| Analysis Period (min) 15                                          |                        |
| # 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. |                        |
| ! Phase conflict between lane groups.                             |                        |

Splits and Phases: 1: Golden Sage Drive/Golden Sage Road & E Woodmen Road

|                                                                |                                                                |                                                            |
|----------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|
| <div>#1</div> <div> <div>Ø1</div> <div>18 s</div> </div>       | <div>#1</div> <div> <div>Ø2 (R)</div> <div>78.2 s</div> </div> | <div>#1</div> <div> <div>Ø4</div> <div>23.8 s</div> </div> |
| <div>#1</div> <div> <div>Ø6 (R)</div> <div>96.2 s</div> </div> |                                                                |                                                            |

# Timings

## 2: Meridian Road & E Woodmen Road

# Total Traffic Conditions

## PM Peak Traffic Hour - Year 2045

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 1009                                                                              | 974                                                                               | 198                                                                               | 96                                                                                | 923                                                                               | 185                                                                               | 460                                                                                 | 922                                                                                 | 114                                                                                 | 194                                                                                 | 570                                                                                 | 691                                                                                 |
| Future Volume (vph)     | 1009                                                                              | 974                                                                               | 198                                                                               | 96                                                                                | 923                                                                               | 185                                                                               | 460                                                                                 | 922                                                                                 | 114                                                                                 | 194                                                                                 | 570                                                                                 | 691                                                                                 |
| Satd. Flow (prot)       | 3433                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Flt Permitted           | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 3433                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                                | 3539                                                                                | 1583                                                                                | 3433                                                                                | 3539                                                                                | 1583                                                                                |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 215                                                                               |                                                                                   |                                                                                   | 218                                                                               |                                                                                     |                                                                                     | 282                                                                                 |                                                                                     |                                                                                     | 698                                                                                 |
| Lane Group Flow (vph)   | 1097                                                                              | 1059                                                                              | 215                                                                               | 104                                                                               | 1003                                                                              | 201                                                                               | 500                                                                                 | 1002                                                                                | 124                                                                                 | 211                                                                                 | 620                                                                                 | 751                                                                                 |
| Turn Type               | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                              | NA                                                                                | Perm                                                                              | Prot                                                                                | NA                                                                                  | Free                                                                                | Prot                                                                                | NA                                                                                  | Free                                                                                |
| Protected Phases        | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Permitted Phases        |                                                                                   |                                                                                   | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | Free                                                                                |                                                                                     |                                                                                     | Free                                                                                |
| Detector Phase          | 5                                                                                 | 2                                                                                 | 2                                                                                 | 1                                                                                 | 6                                                                                 | 6                                                                                 | 7                                                                                   | 4                                                                                   |                                                                                     | 3                                                                                   | 8                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Minimum Split (s)       | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                              | 25.0                                                                              | 25.0                                                                              | 11.0                                                                                | 25.0                                                                                |                                                                                     | 11.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Split (s)         | 40.0                                                                              | 55.0                                                                              | 55.0                                                                              | 12.0                                                                              | 27.0                                                                              | 27.0                                                                              | 21.0                                                                                | 40.0                                                                                |                                                                                     | 13.0                                                                                | 32.0                                                                                |                                                                                     |
| Total Split (%)         | 33.3%                                                                             | 45.8%                                                                             | 45.8%                                                                             | 10.0%                                                                             | 22.5%                                                                             | 22.5%                                                                             | 17.5%                                                                               | 33.3%                                                                               |                                                                                     | 10.8%                                                                               | 26.7%                                                                               |                                                                                     |
| Yellow Time (s)         | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                               | 4.0                                                                               | 4.0                                                                               | 3.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 4.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                               | 3.0                                                                               | 3.0                                                                               | 2.0                                                                                 | 3.0                                                                                 |                                                                                     | 2.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                               | 7.0                                                                               | 7.0                                                                               | 5.0                                                                                 | 7.0                                                                                 |                                                                                     | 5.0                                                                                 | 7.0                                                                                 |                                                                                     |
| Lead/Lag                | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                              | Lag                                                                               | Lag                                                                               | Lead                                                                                | Lag                                                                                 |                                                                                     | Lead                                                                                | Lag                                                                                 |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                               | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 | Yes                                                                                 |                                                                                     |
| Recall Mode             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                              | C-Min                                                                             | C-Min                                                                             | None                                                                                | Min                                                                                 |                                                                                     | None                                                                                | Min                                                                                 |                                                                                     |
| Act Effct Green (s)     | 35.0                                                                              | 48.1                                                                              | 48.1                                                                              | 6.9                                                                               | 20.0                                                                              | 20.0                                                                              | 16.0                                                                                | 33.0                                                                                | 120.0                                                                               | 8.0                                                                                 | 25.0                                                                                | 120.0                                                                               |
| Actuated g/C Ratio      | 0.29                                                                              | 0.40                                                                              | 0.40                                                                              | 0.06                                                                              | 0.17                                                                              | 0.17                                                                              | 0.13                                                                                | 0.28                                                                                | 1.00                                                                                | 0.07                                                                                | 0.21                                                                                | 1.00                                                                                |
| v/c Ratio               | 1.10                                                                              | 0.52                                                                              | 0.28                                                                              | 0.53                                                                              | 1.18                                                                              | 0.45                                                                              | 1.09                                                                                | 1.03                                                                                | 0.08                                                                                | 0.93                                                                                | 0.84                                                                                | 0.47                                                                                |
| Control Delay (s/veh)   | 98.6                                                                              | 28.4                                                                              | 4.0                                                                               | 65.0                                                                              | 138.3                                                                             | 8.0                                                                               | 118.3                                                                               | 79.6                                                                                | 0.1                                                                                 | 112.8                                                                               | 43.8                                                                                | 2.6                                                                                 |
| 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 (s/veh)     | 98.6                                                                              | 28.4                                                                              | 4.0                                                                               | 65.0                                                                              | 138.3                                                                             | 8.0                                                                               | 118.3                                                                               | 79.6                                                                                | 0.1                                                                                 | 112.8                                                                               | 43.8                                                                                | 2.6                                                                                 |
| LOS                     | F                                                                                 | C                                                                                 | A                                                                                 | E                                                                                 | F                                                                                 | A                                                                                 | F                                                                                   | E                                                                                   | A                                                                                   | F                                                                                   | D                                                                                   | A                                                                                   |
| Approach Delay (s/veh)  |                                                                                   | 58.6                                                                              |                                                                                   |                                                                                   | 112.5                                                                             |                                                                                   |                                                                                     | 85.4                                                                                |                                                                                     |                                                                                     | 33.4                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | ~503                                                                              | 228                                                                               | 0                                                                                 | 41                                                                                | ~347                                                                              | 0                                                                                 | ~228                                                                                | ~444                                                                                | 0                                                                                   | 91                                                                                  | 183                                                                                 | 44                                                                                  |
| Queue Length 95th (ft)  | #637                                                                              | 272                                                                               | 48                                                                                | 72                                                                                | #441                                                                              | 54                                                                                | #339                                                                                | #578                                                                                | 0                                                                                   | #168                                                                                | #305                                                                                | 60                                                                                  |
| Internal Link Dist (ft) |                                                                                   | 663                                                                               |                                                                                   |                                                                                   | 528                                                                               |                                                                                   |                                                                                     | 1133                                                                                |                                                                                     |                                                                                     | 3247                                                                                |                                                                                     |
| Turn Bay Length (ft)    | 680                                                                               |                                                                                   |                                                                                   | 450                                                                               |                                                                                   |                                                                                   | 480                                                                                 |                                                                                     | 430                                                                                 | 490                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 1001                                                                              | 2038                                                                              | 763                                                                               | 200                                                                               | 847                                                                               | 445                                                                               | 457                                                                                 | 973                                                                                 | 1583                                                                                | 228                                                                                 | 737                                                                                 | 1583                                                                                |
| 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       | 1.10                                                                              | 0.52                                                                              | 0.28                                                                              | 0.52                                                                              | 1.18                                                                              | 0.45                                                                              | 1.09                                                                                | 1.03                                                                                | 0.08                                                                                | 0.93                                                                                | 0.84                                                                                | 0.47                                                                                |

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green, Master Intersection

Natural Cycle: 150

Control Type: Actuated-Coordinated

## Timings

### 2: Meridian Road & E Woodmen Road

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 1.18

Intersection Signal Delay (s/veh): 69.4

Intersection LOS: E

Intersection Capacity Utilization 97.6%

ICU Level of Service F

Analysis Period (min) 15

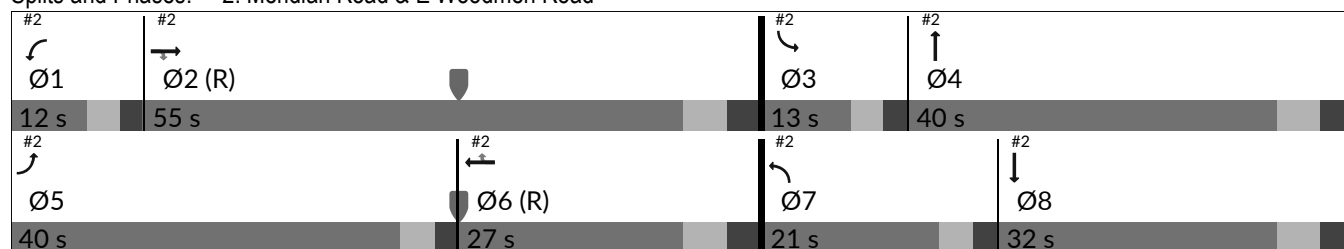
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Meridian Road & E Woodmen Road



# Timings 3: Meridian Road & Bent Grass Meadows Drive

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

|                                                                      |  |  |  |  |  |  |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                                                           | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations                                                  |  |  |  |  |  |  |
| Traffic Volume (vph)                                                 | 401                                                                               | 186                                                                               | 194                                                                               | 1869                                                                              | 1242                                                                              | 374                                                                               |
| Future Volume (vph)                                                  | 401                                                                               | 186                                                                               | 194                                                                               | 1869                                                                              | 1242                                                                              | 374                                                                               |
| Satd. Flow (prot)                                                    | 3433                                                                              | 1583                                                                              | 1770                                                                              | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Flt Permitted                                                        | 0.950                                                                             |                                                                                   | 0.109                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                                                    | 3433                                                                              | 1583                                                                              | 203                                                                               | 3539                                                                              | 3539                                                                              | 1583                                                                              |
| Satd. Flow (RTOR)                                                    |                                                                                   | 202                                                                               |                                                                                   |                                                                                   |                                                                                   | 407                                                                               |
| Lane Group Flow (vph)                                                | 436                                                                               | 202                                                                               | 211                                                                               | 2032                                                                              | 1350                                                                              | 407                                                                               |
| Turn Type                                                            | Prot                                                                              | Perm                                                                              | pm+pt                                                                             | NA                                                                                | NA                                                                                | Perm                                                                              |
| Protected Phases                                                     | 4                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   |
| Permitted Phases                                                     |                                                                                   | 4                                                                                 | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |
| Detector Phase                                                       | 4                                                                                 | 4                                                                                 | 5                                                                                 | 2                                                                                 | 6                                                                                 | 6                                                                                 |
| Switch Phase                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minimum Initial (s)                                                  | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |
| Minimum Split (s)                                                    | 22.5                                                                              | 22.5                                                                              | 9.5                                                                               | 22.5                                                                              | 22.5                                                                              | 22.5                                                                              |
| Total Split (s)                                                      | 24.0                                                                              | 24.0                                                                              | 23.0                                                                              | 96.0                                                                              | 73.0                                                                              | 73.0                                                                              |
| Total Split (%)                                                      | 20.0%                                                                             | 20.0%                                                                             | 19.2%                                                                             | 80.0%                                                                             | 60.8%                                                                             | 60.8%                                                                             |
| Yellow Time (s)                                                      | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               | 3.5                                                                               |
| All-Red Time (s)                                                     | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |
| Lost Time Adjust (s)                                                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Lost Time (s)                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               |
| Lead/Lag                                                             |                                                                                   |                                                                                   | Lead                                                                              |                                                                                   | Lag                                                                               | Lag                                                                               |
| Lead-Lag Optimize?                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               | Yes                                                                               |
| Recall Mode                                                          | None                                                                              | None                                                                              | Max                                                                               | C-Max                                                                             | C-Max                                                                             | C-Max                                                                             |
| Act Effect Green (s)                                                 | 18.5                                                                              | 18.5                                                                              | 92.5                                                                              | 92.5                                                                              | 68.5                                                                              | 68.5                                                                              |
| Actuated g/C Ratio                                                   | 0.15                                                                              | 0.15                                                                              | 0.77                                                                              | 0.77                                                                              | 0.57                                                                              | 0.57                                                                              |
| v/c Ratio                                                            | 0.82                                                                              | 0.49                                                                              | 0.51                                                                              | 0.75                                                                              | 0.67                                                                              | 0.38                                                                              |
| Control Delay (s/veh)                                                | 62.8                                                                              | 10.3                                                                              | 14.0                                                                              | 11.8                                                                              | 19.9                                                                              | 2.2                                                                               |
| Queue Delay                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Total Delay (s/veh)                                                  | 62.8                                                                              | 10.3                                                                              | 14.0                                                                              | 11.8                                                                              | 19.9                                                                              | 2.2                                                                               |
| LOS                                                                  | E                                                                                 | B                                                                                 | B                                                                                 | B                                                                                 | B                                                                                 | A                                                                                 |
| Approach Delay (s/veh)                                               | 46.2                                                                              |                                                                                   |                                                                                   | 12.0                                                                              | 15.8                                                                              |                                                                                   |
| Approach LOS                                                         | D                                                                                 |                                                                                   |                                                                                   | B                                                                                 | B                                                                                 |                                                                                   |
| Queue Length 50th (ft)                                               | 171                                                                               | 0                                                                                 | 36                                                                                | 886                                                                               | 368                                                                               | 0                                                                                 |
| Queue Length 95th (ft)                                               | #232                                                                              | 67                                                                                | m34                                                                               | m453                                                                              | 446                                                                               | 43                                                                                |
| Internal Link Dist (ft)                                              | 827                                                                               |                                                                                   |                                                                                   | 3247                                                                              | 788                                                                               |                                                                                   |
| Turn Bay Length (ft)                                                 | 150                                                                               |                                                                                   | 710                                                                               |                                                                                   |                                                                                   | 330                                                                               |
| Base Capacity (vph)                                                  | 557                                                                               | 426                                                                               | 410                                                                               | 2727                                                                              | 2020                                                                              | 1078                                                                              |
| Starvation Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Spillback Cap Reductn                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Storage Cap Reductn                                                  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Reduced v/c Ratio                                                    | 0.78                                                                              | 0.47                                                                              | 0.51                                                                              | 0.75                                                                              | 0.67                                                                              | 0.38                                                                              |
| Intersection Summary                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Cycle Length: 120                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length: 120                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Natural Cycle: 70                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type: Actuated-Coordinated                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Timings  
3: Meridian Road & Bent Grass Meadows Drive

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 18.2

Intersection LOS: B

Intersection Capacity Utilization 70.6%

ICU Level of Service C

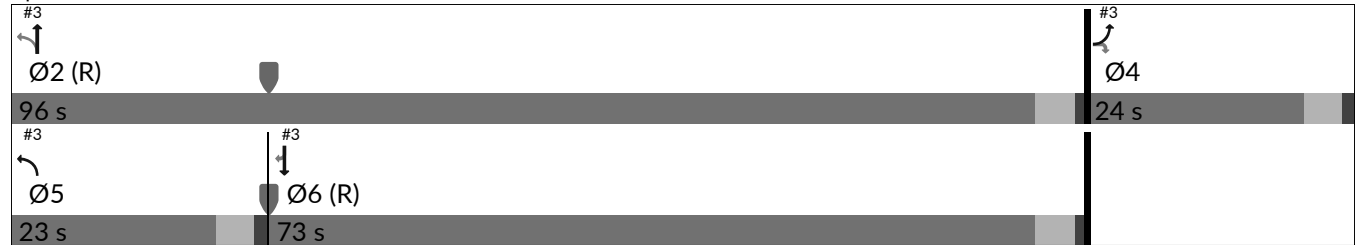
Analysis Period (min) 15

# 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.

Splits and Phases: 3: Meridian Road & Bent Grass Meadows Drive



| Intersection             |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|--------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Int Delay, s/veh         | 8.5                                                                               |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Movement                 | SET                                                                               | SER    | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                                |
| Lane Configurations      |  |        |  |  |  |  |
| Traffic Vol, veh/h       | 387                                                                               | 97     | 176                                                                               | 264                                                                               | 93                                                                                | 77                                                                                 |
| Future Vol, veh/h        | 387                                                                               | 97     | 176                                                                               | 264                                                                               | 93                                                                                | 77                                                                                 |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Sign Control             | Free                                                                              | Free   | Free                                                                              | Free                                                                              | Stop                                                                              | Stop                                                                               |
| RT Channelized           | -                                                                                 | None   | -                                                                                 | None                                                                              | -                                                                                 | None                                                                               |
| Storage Length           | -                                                                                 | -      | 50                                                                                | -                                                                                 | -                                                                                 | -                                                                                  |
| Veh in Median Storage, # | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                  |
| Grade, %                 | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                  |
| Peak Hour Factor         | 92                                                                                | 92     | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                 |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  |
| Mvmt Flow                | 421                                                                               | 105    | 191                                                                               | 287                                                                               | 101                                                                               | 84                                                                                 |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Major/Minor              | Major1                                                                            | Major2 |                                                                                   | Minor1                                                                            |                                                                                   |                                                                                    |
| Conflicting Flow All     | 0                                                                                 | 0      | 526                                                                               | 0                                                                                 | 1143                                                                              | 473                                                                                |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 473                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 670                                                                               | -                                                                                  |
| Critical Hdwy            | -                                                                                 | -      | 4.12                                                                              | -                                                                                 | 6.42                                                                              | 6.22                                                                               |
| Critical Hdwy Stg 1      | -                                                                                 | -      | -                                                                                 | -                                                                                 | 5.42                                                                              | -                                                                                  |
| Critical Hdwy Stg 2      | -                                                                                 | -      | -                                                                                 | -                                                                                 | 5.42                                                                              | -                                                                                  |
| Follow-up Hdwy           | -                                                                                 | -      | 2.218                                                                             | -                                                                                 | 3.518                                                                             | 3.318                                                                              |
| Pot Cap-1 Maneuver       | -                                                                                 | -      | 1041                                                                              | -                                                                                 | 221                                                                               | 591                                                                                |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 627                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 509                                                                               | -                                                                                  |
| Platoon blocked, %       | -                                                                                 | -      |                                                                                   | -                                                                                 |                                                                                   |                                                                                    |
| Mov Cap-1 Maneuver       | -                                                                                 | -      | 1041                                                                              | -                                                                                 | 181                                                                               | 591                                                                                |
| Mov Cap-2 Maneuver       | -                                                                                 | -      | -                                                                                 | -                                                                                 | 181                                                                               | -                                                                                  |
| Stage 1                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 512                                                                               | -                                                                                  |
| Stage 2                  | -                                                                                 | -      | -                                                                                 | -                                                                                 | 509                                                                               | -                                                                                  |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Approach                 | SE                                                                                | NW     |                                                                                   | NE                                                                                |                                                                                   |                                                                                    |
| HCM Ctrl Dly, s/v        | 0                                                                                 | 3.69   |                                                                                   | 45.41                                                                             |                                                                                   |                                                                                    |
| HCM LOS                  | E                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                          |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Minor Lane/Major Mvmt    | NELn1                                                                             | NWL    | NWT                                                                               | SET                                                                               | SER                                                                               |                                                                                    |
| Capacity (veh/h)         | 263                                                                               | 1041   | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane V/C Ratio       | 0.701                                                                             | 0.184  | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Ctrl Dly (s/v)       | 45.4                                                                              | 9.2    | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane LOS             | E                                                                                 | A      | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM 95th %tile Q(veh)    | 4.7                                                                               | 0.7    | -                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |

HCM 7th Roundabout  
6: Woodmen Frontage Road & Falcon Market Place

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

| Intersection                |         |         |         |         |
|-----------------------------|---------|---------|---------|---------|
| Intersection Delay, s/veh   | 4.5     |         |         |         |
| Intersection LOS            | A       |         |         |         |
| Approach                    | EB      | NB      | SB      | NE      |
| Entry Lanes                 | 1       | 1       | 1       | 1       |
| Conflicting Circle Lanes    | 1       | 1       | 1       | 1       |
| Adj Approach Flow, veh/h    | 0       | 199     | 163     | 267     |
| Demand Flow Rate, veh/h     | 0       | 203     | 166     | 272     |
| Vehicles Circulating, veh/h | 255     | 272     | 89      | 0       |
| Vehicles Exiting, veh/h     | 0       | 0       | 386     | 255     |
| Ped Vol Crossing Leg, #/h   | 0       | 0       | 0       | 0       |
| Ped Cap Adj                 | 1.000   | 1.000   | 1.000   | 1.000   |
| Approach Delay, s/veh       | 0.0     | 5.3     | 4.0     | 4.3     |
| Approach LOS                | -       | A       | A       | A       |
| Lane                        | Left    | Left    | Left    | Left    |
| Designated Moves            | LR      | LT      | TR      | L       |
| Assumed Moves               | LR      | LT      | TR      | L       |
| RT Channelized              |         |         |         |         |
| Lane Util                   | 1.000   | 1.000   | 1.000   | 1.000   |
| Follow-Up Headway, s        | 2.609   | 2.609   | 2.609   | 2.609   |
| Critical Headway, s         | 4.976   | 4.976   | 4.976   | 4.976   |
| A (Intercept)               | 1380    | 1380    | 1380    | 1380    |
| B (Slope)                   | 1.02e-3 | 1.02e-3 | 1.02e-3 | 1.02e-3 |
| Entry Flow, veh/h           | 0       | 203     | 166     | 272     |
| Cap Entry Lane, veh/h       | 1064    | 1046    | 1260    | 1380    |
| Entry HV Adj Factor         | 1.000   | 0.980   | 0.982   | 0.982   |
| Flow Entry, veh/h           | 0       | 199     | 163     | 267     |
| Cap Entry, veh/h            | 1064    | 1025    | 1237    | 1354    |
| V/C Ratio                   | 0.000   | 0.194   | 0.132   | 0.197   |
| Control Delay, s/veh        | 3.4     | 5.3     | 4.0     | 4.3     |
| LOS                         | A       | A       | A       | A       |
| 95th %tile Queue, veh       | 0       | 1       | 0       | 1       |

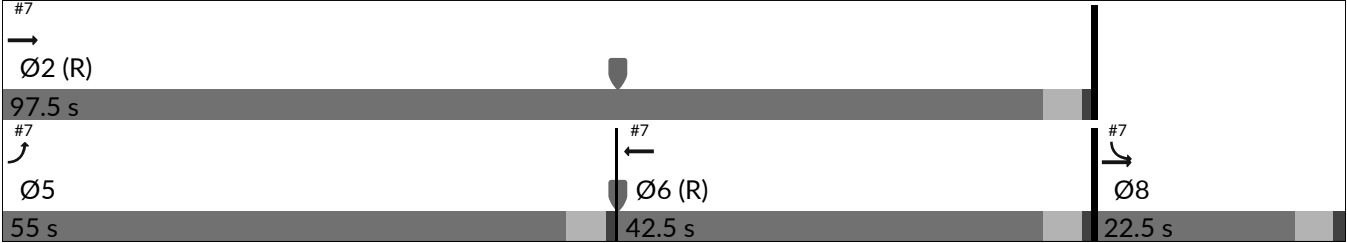
Timings  
7: E Woodmen Road & Bent Grass Meadows Drive

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

|                                                                     |  |  |  |  |  |  |       |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Lane Group                                                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | Ø2    |
| Lane Configurations                                                 |  |  |  |  |  |  |       |
| Traffic Volume (vph)                                                | 840                                                                               | 2011                                                                              | 1670                                                                              | 277                                                                               | 318                                                                               | 628                                                                               |       |
| Future Volume (vph)                                                 | 840                                                                               | 2011                                                                              | 1670                                                                              | 277                                                                               | 318                                                                               | 628                                                                               |       |
| Satd. Flow (prot)                                                   | 1770                                                                              | 5085                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                              | 1583                                                                              |       |
| Flt Permitted                                                       | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   | 0.950                                                                             |                                                                                   |       |
| Satd. Flow (perm)                                                   | 1770                                                                              | 5085                                                                              | 5085                                                                              | 1583                                                                              | 3433                                                                              | 1583                                                                              |       |
| Satd. Flow (RTOR)                                                   |                                                                                   |                                                                                   |                                                                                   | 204                                                                               |                                                                                   | 683                                                                               |       |
| Lane Group Flow (vph)                                               | 913                                                                               | 2186                                                                              | 1815                                                                              | 301                                                                               | 346                                                                               | 683                                                                               |       |
| Turn Type                                                           | Prot                                                                              | NA                                                                                | NA                                                                                | Free                                                                              | Prot                                                                              | Free                                                                              |       |
| Protected Phases                                                    | 5                                                                                 | 2 8!                                                                              | 6                                                                                 |                                                                                   | 8!                                                                                |                                                                                   | 2     |
| Permitted Phases                                                    |                                                                                   |                                                                                   |                                                                                   | Free                                                                              |                                                                                   | Free                                                                              |       |
| Detector Phase                                                      | 5                                                                                 | 2 8                                                                               | 6                                                                                 |                                                                                   | 8                                                                                 |                                                                                   |       |
| Switch Phase                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Minimum Initial (s)                                                 | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   | 5.0                                                                               |                                                                                   | 5.0   |
| Minimum Split (s)                                                   | 22.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 22.5  |
| Total Split (s)                                                     | 55.0                                                                              |                                                                                   | 42.5                                                                              |                                                                                   | 22.5                                                                              |                                                                                   | 97.5  |
| Total Split (%)                                                     | 45.8%                                                                             |                                                                                   | 35.4%                                                                             |                                                                                   | 18.8%                                                                             |                                                                                   | 81%   |
| Yellow Time (s)                                                     | 3.5                                                                               |                                                                                   | 3.5                                                                               |                                                                                   | 3.5                                                                               |                                                                                   | 3.5   |
| All-Red Time (s)                                                    | 1.0                                                                               |                                                                                   | 1.0                                                                               |                                                                                   | 1.0                                                                               |                                                                                   | 1.0   |
| Lost Time Adjust (s)                                                | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |       |
| Total Lost Time (s)                                                 | 4.5                                                                               |                                                                                   | 4.5                                                                               |                                                                                   | 4.5                                                                               |                                                                                   |       |
| Lead/Lag                                                            | Lead                                                                              |                                                                                   | Lag                                                                               |                                                                                   |                                                                                   |                                                                                   |       |
| Lead-Lag Optimize?                                                  | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |       |
| Recall Mode                                                         | Max                                                                               |                                                                                   | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | C-Max |
| Act Effect Green (s)                                                | 50.5                                                                              | 120.0                                                                             | 38.0                                                                              | 120.0                                                                             | 18.0                                                                              | 120.0                                                                             |       |
| Actuated g/C Ratio                                                  | 0.42                                                                              | 1.00                                                                              | 0.32                                                                              | 1.00                                                                              | 0.15                                                                              | 1.00                                                                              |       |
| v/c Ratio                                                           | 1.23                                                                              | 0.43                                                                              | 1.13                                                                              | 0.19                                                                              | 0.67                                                                              | 0.43                                                                              |       |
| Control Delay (s/veh)                                               | 132.7                                                                             | 0.1                                                                               | 104.2                                                                             | 0.3                                                                               | 55.5                                                                              | 0.9                                                                               |       |
| Queue Delay                                                         | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |       |
| Total Delay (s/veh)                                                 | 132.7                                                                             | 0.1                                                                               | 104.2                                                                             | 0.3                                                                               | 55.5                                                                              | 0.9                                                                               |       |
| LOS                                                                 | F                                                                                 | A                                                                                 | F                                                                                 | A                                                                                 | E                                                                                 | A                                                                                 |       |
| Approach Delay (s/veh)                                              |                                                                                   | 39.2                                                                              | 89.4                                                                              |                                                                                   | 19.2                                                                              |                                                                                   |       |
| Approach LOS                                                        |                                                                                   | D                                                                                 | F                                                                                 |                                                                                   | B                                                                                 |                                                                                   |       |
| Queue Length 50th (ft)                                              | ~914                                                                              | 0                                                                                 | ~605                                                                              | 0                                                                                 | 134                                                                               | 0                                                                                 |       |
| Queue Length 95th (ft)                                              | m#962                                                                             | m0                                                                                | #704                                                                              | 0                                                                                 | 187                                                                               | 0                                                                                 |       |
| Internal Link Dist (ft)                                             |                                                                                   | 500                                                                               | 953                                                                               |                                                                                   | 339                                                                               |                                                                                   |       |
| Turn Bay Length (ft)                                                | 490                                                                               |                                                                                   |                                                                                   | 350                                                                               | 150                                                                               | 150                                                                               |       |
| Base Capacity (vph)                                                 | 744                                                                               | 5085                                                                              | 1610                                                                              | 1583                                                                              | 514                                                                               | 1583                                                                              |       |
| Starvation Cap Reductn                                              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Spillback Cap Reductn                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Storage Cap Reductn                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |       |
| Reduced v/c Ratio                                                   | 1.23                                                                              | 0.43                                                                              | 1.13                                                                              | 0.19                                                                              | 0.67                                                                              | 0.43                                                                              |       |
| Intersection Summary                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Cycle Length: 120                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Actuated Cycle Length: 120                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Natural Cycle: 150                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |
| Control Type: Actuated-Coordinated                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |       |

|                                                                   |                        |
|-------------------------------------------------------------------|------------------------|
| Maximum v/c Ratio: 1.23                                           |                        |
| Intersection Signal Delay (s/veh): 52.9                           | Intersection LOS: D    |
| Intersection Capacity Utilization 99.1%                           | ICU Level of Service F |
| Analysis Period (min) 15                                          |                        |
| ~ 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. |                        |
| ! Phase conflict between lane groups.                             |                        |

Splits and Phases: 7: E Woodmen Road & Bent Grass Meadows Drive



# HCM 7th Roundabout

Total Traffic Conditions

## 8: Bent Grass Meadows Drive/Access A & Woodmen Frontage Road Peak Traffic Hour - Year 2045

| Intersection                |          |          |          |        |          |
|-----------------------------|----------|----------|----------|--------|----------|
| Intersection Delay, s/veh   | 8.3      |          |          |        |          |
| Intersection LOS            | A        |          |          |        |          |
| Approach                    | EB       | WB       | NB       | SB     |          |
| Entry Lanes                 | 1        | 1        | 1        | 1      |          |
| Conflicting Circle Lanes    | 2        | 2        | 2        | 2      |          |
| Adj Approach Flow, veh/h    | 213      | 294      | 1213     | 361    |          |
| Demand Flow Rate, veh/h     | 217      | 299      | 1237     | 368    |          |
| Vehicles Circulating, veh/h | 541      | 875      | 9        | 660    |          |
| Vehicles Exiting, veh/h     | 487      | 9        | 749      | 514    |          |
| Ped Vol Crossing Leg, #/h   | 0        | 0        | 0        | 0      |          |
| Ped Cap Adj                 | 1.000    | 1.000    | 1.000    | 1.000  |          |
| Approach Delay, s/veh       | 6.6      | 11.9     | 7.0      | 10.5   |          |
| Approach LOS                | A        | B        | A        | B      |          |
| Lane                        | Left     | Left     | Left     | Bypass | Left     |
| Designated Moves            | LTR      | LTR      | LT       | R      | LTR      |
| Assumed Moves               | LTR      | LTR      | LT       |        | LTR      |
| RT Channelized              |          |          |          | Free   |          |
| Lane Util                   | 1.000    | 1.000    | 1.000    |        | 1.000    |
| Follow-Up Headway, s        | 2.535    | 2.535    | 2.535    |        | 2.535    |
| Critical Headway, s         | 4.328    | 4.328    | 4.328    |        | 4.328    |
| A (Intercept)               | 1420     | 1420     | 1420     |        | 1420     |
| B (Slope)                   | 8.501e-4 | 8.501e-4 | 8.501e-4 |        | 8.501e-4 |
| Entry Flow, veh/h           | 217      | 299      | 875      | 362    | 368      |
| Cap Entry Lane, veh/h       | 897      | 675      | 1409     | 1938   | 810      |
| Entry HV Adj Factor         | 0.981    | 0.982    | 0.980    | 0.980  | 0.980    |
| Flow Entry, veh/h           | 213      | 294      | 858      | 355    | 361      |
| Cap Entry, veh/h            | 879      | 663      | 1382     | 1900   | 794      |
| V/C Ratio                   | 0.242    | 0.443    | 0.621    | 0.187  | 0.454    |
| Control Delay, s/veh        | 6.6      | 11.9     | 9.9      | 0.0    | 10.5     |
| LOS                         | A        | B        | A        | A      | B        |
| 95th %tile Queue, veh       | 1        | 2        | 5        | 1      | 2        |

HCM 7th TWSC  
25: Bent Grass Meadows Drive & Swallowtail Way

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

| Intersection             |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 2.2                                                                               |      |                                                                                   |      |                                                                                   |                                                                                   |
| Movement                 | WBL                                                                               | WBR  | NBT                                                                               | NBR  | SBL                                                                               | SBT                                                                               |
| Lane Configurations      |  |      |  |      |  |  |
| Traffic Vol, veh/h       | 47                                                                                | 47   | 245                                                                               | 46   | 46                                                                                | 389                                                                               |
| Future Vol, veh/h        | 47                                                                                | 47   | 245                                                                               | 46   | 46                                                                                | 389                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -    | -                                                                                 | -    | 50                                                                                | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -    | 0                                                                                 | -    | -                                                                                 | 0                                                                                 |
| Grade, %                 | 0                                                                                 | -    | 0                                                                                 | -    | -                                                                                 | 0                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92   | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 51                                                                                | 51   | 266                                                                               | 50   | 50                                                                                | 423                                                                               |

| Major/Minor          | Minor1 | Major1 | Major2 |   |       |
|----------------------|--------|--------|--------|---|-------|
| Conflicting Flow All | 814    | 291    | 0      | 0 | 316   |
| Stage 1              | 291    | -      | -      | - | -     |
| Stage 2              | 523    | -      | -      | - | -     |
| Critical Hdwy        | 6.42   | 6.22   | -      | - | 4.12  |
| Critical Hdwy Stg 1  | 5.42   | -      | -      | - | -     |
| Critical Hdwy Stg 2  | 5.42   | -      | -      | - | -     |
| Follow-up Hdwy       | 3.518  | 3.318  | -      | - | 2.218 |
| Pot Cap-1 Maneuver   | 347    | 748    | -      | - | 1244  |
| Stage 1              | 758    | -      | -      | - | -     |
| Stage 2              | 595    | -      | -      | - | -     |
| Platoon blocked, %   |        |        | -      | - | -     |
| Mov Cap-1 Maneuver   | 333    | 748    | -      | - | 1244  |
| Mov Cap-2 Maneuver   | 333    | -      | -      | - | -     |
| Stage 1              | 728    | -      | -      | - | -     |
| Stage 2              | 595    | -      | -      | - | -     |

| Approach          | WB    | NB | SB   |
|-------------------|-------|----|------|
| HCM Ctrl Dly, s/v | 15.01 | 0  | 0.85 |
| HCM LOS           | C     |    |      |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT  |
|-----------------------|-----|----------|-------|------|
| Capacity (veh/h)      | -   | -        | 461   | 1244 |
| HCM Lane V/C Ratio    | -   | -        | 0.222 | 0.04 |
| HCM Ctrl Dly (s/v)    | -   | -        | 15    | 8    |
| HCM Lane LOS          | -   | -        | C     | A    |
| HCM 95th %tile Q(veh) | -   | -        | 0.8   | 0.1  |

HCM 7th TWSC  
28: Bent Grass Meadows Drive & Big Galleta Way

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

| Intersection             |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 3.4                                                                               |      |                                                                                   |      |                                                                                   |                                                                                   |
| Movement                 | WBL                                                                               | WBR  | NBT                                                                               | NBR  | SBL                                                                               | SBT                                                                               |
| Lane Configurations      |  |      |  |      |  |  |
| Traffic Vol, veh/h       | 47                                                                                | 95   | 218                                                                               | 46   | 93                                                                                | 342                                                                               |
| Future Vol, veh/h        | 47                                                                                | 95   | 218                                                                               | 46   | 93                                                                                | 342                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -    | -                                                                                 | -    | 50                                                                                | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -    | 0                                                                                 | -    | -                                                                                 | 0                                                                                 |
| Grade, %                 | 0                                                                                 | -    | 0                                                                                 | -    | -                                                                                 | 0                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92   | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 51                                                                                | 103  | 237                                                                               | 50   | 101                                                                               | 372                                                                               |

| Major/Minor          | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 836    | 262    | 0      |
| Stage 1              | 262    | -      | -      |
| Stage 2              | 574    | -      | -      |
| Critical Hdwy        | 6.42   | 6.22   | -      |
| Critical Hdwy Stg 1  | 5.42   | -      | -      |
| Critical Hdwy Stg 2  | 5.42   | -      | -      |
| Follow-up Hdwy       | 3.518  | 3.318  | -      |
| Pot Cap-1 Maneuver   | 337    | 777    | -      |
| Stage 1              | 782    | -      | -      |
| Stage 2              | 563    | -      | -      |
| Platoon blocked, %   |        | -      | -      |
| Mov Cap-1 Maneuver   | 311    | 777    | -      |
| Mov Cap-2 Maneuver   | 311    | -      | -      |
| Stage 1              | 720    | -      | -      |
| Stage 2              | 563    | -      | -      |

| Approach          | WB    | NB | SB   |
|-------------------|-------|----|------|
| HCM Ctrl Dly, s/v | 14.85 | 0  | 1.72 |
| HCM LOS           | B     |    |      |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 519   | 1275  |
| HCM Lane V/C Ratio    | -   | -        | 0.297 | 0.079 |
| HCM Ctrl Dly (s/v)    | -   | -        | 14.8  | 8.1   |
| HCM Lane LOS          | -   | -        | B     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 1.2   | 0.3   |

HCM 7th TWSC  
31: Bent Grass Meadows Drive & Prairie Drop Way

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

| Intersection             |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 5.1                                                                               |      |                                                                                   |      |                                                                                   |                                                                                   |
| Movement                 | WBL                                                                               | WBR  | NBT                                                                               | NBR  | SBL                                                                               | SBT                                                                               |
| Lane Configurations      |  |      |  |      |  |  |
| Traffic Vol, veh/h       | 142                                                                               | 47   | 218                                                                               | 139  | 46                                                                                | 342                                                                               |
| Future Vol, veh/h        | 142                                                                               | 47   | 218                                                                               | 139  | 46                                                                                | 342                                                                               |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -    | -                                                                                 | -    | 50                                                                                | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -    | 0                                                                                 | -    | -                                                                                 | 0                                                                                 |
| Grade, %                 | 0                                                                                 | -    | 0                                                                                 | -    | -                                                                                 | 0                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92   | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 154                                                                               | 51   | 237                                                                               | 151  | 50                                                                                | 372                                                                               |

| Major/Minor          | Minor1 | Major1 | Major2 |   |       |
|----------------------|--------|--------|--------|---|-------|
| Conflicting Flow All | 784    | 313    | 0      | 0 | 388   |
| Stage 1              | 313    | -      | -      | - | -     |
| Stage 2              | 472    | -      | -      | - | -     |
| Critical Hdwy        | 6.42   | 6.22   | -      | - | 4.12  |
| Critical Hdwy Stg 1  | 5.42   | -      | -      | - | -     |
| Critical Hdwy Stg 2  | 5.42   | -      | -      | - | -     |
| Follow-up Hdwy       | 3.518  | 3.318  | -      | - | 2.218 |
| Pot Cap-1 Maneuver   | 362    | 728    | -      | - | 1170  |
| Stage 1              | 742    | -      | -      | - | -     |
| Stage 2              | 628    | -      | -      | - | -     |
| Platoon blocked, %   |        |        | -      | - | -     |
| Mov Cap-1 Maneuver   | 346    | 728    | -      | - | 1170  |
| Mov Cap-2 Maneuver   | 346    | -      | -      | - | -     |
| Stage 1              | 710    | -      | -      | - | -     |
| Stage 2              | 628    | -      | -      | - | -     |

| Approach          | WB    | NB | SB   |
|-------------------|-------|----|------|
| HCM Ctrl Dly, s/v | 23.28 | 0  | 0.97 |
| HCM LOS           | C     |    |      |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 398   | 1170  |
| HCM Lane V/C Ratio    | -   | -        | 0.516 | 0.043 |
| HCM Ctrl Dly (s/v)    | -   | -        | 23.3  | 8.2   |
| HCM Lane LOS          | -   | -        | C     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 2.9   | 0.1   |

HCM 7th TWSC  
39: Woodmen Frontage Road & Bluebunch Lane

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

| Intersection             |        |      |      |        |      |      |        |      |       |        |      |       |
|--------------------------|--------|------|------|--------|------|------|--------|------|-------|--------|------|-------|
| Int Delay, s/veh         | 1.4    |      |      |        |      |      |        |      |       |        |      |       |
| Movement                 | EBL    | EBT  | EBR  | WBL    | WBT  | WBR  | NBL    | NBT  | NBR   | SBL    | SBT  | SBR   |
| Lane Configurations      |        | ↱    |      | ↱      | ↱    |      |        |      | ↱     |        |      | ↱     |
| Traffic Vol, veh/h       | 0      | 418  | 46   | 46     | 440  | 46   | 0      | 0    | 47    | 0      | 0    | 47    |
| Future Vol, veh/h        | 0      | 418  | 46   | 46     | 440  | 46   | 0      | 0    | 47    | 0      | 0    | 47    |
| 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           | -      | -    | -    | 75     | -    | -    | -      | -    | 0     | -      | -    | 0     |
| 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                | 0      | 454  | 50   | 50     | 478  | 50   | 0      | 0    | 51    | 0      | 0    | 51    |
| Major/Minor              | Major1 |      |      | Major2 |      |      | Minor1 |      |       | Minor2 |      |       |
| Conflicting Flow All     | -      | 0    | 0    | 504    | 0    | 0    | -      | -    | 479   | -      | -    | 503   |
| Stage 1                  | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Stage 2                  | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Critical Hdwy            | -      | -    | -    | 4.12   | -    | -    | -      | -    | 6.22  | -      | -    | 6.22  |
| Critical Hdwy Stg 1      | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Critical Hdwy Stg 2      | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Follow-up Hdwy           | -      | -    | -    | 2.218  | -    | -    | -      | -    | 3.318 | -      | -    | 3.318 |
| Pot Cap-1 Maneuver       | 0      | -    | -    | 1060   | -    | -    | 0      | 0    | 586   | 0      | 0    | 568   |
| Stage 1                  | 0      | -    | -    | -      | -    | -    | 0      | 0    | -     | 0      | 0    | -     |
| Stage 2                  | 0      | -    | -    | -      | -    | -    | 0      | 0    | -     | 0      | 0    | -     |
| Platoon blocked, %       | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Mov Cap-1 Maneuver       | -      | -    | -    | 1060   | -    | -    | -      | -    | 586   | -      | -    | 568   |
| Mov Cap-2 Maneuver       | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Stage 1                  | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Stage 2                  | -      | -    | -    | -      | -    | -    | -      | -    | -     | -      | -    | -     |
| Approach                 | EB     |      |      | WB     |      |      | NB     |      |       | SB     |      |       |
| HCM Ctrl Dly, s/v        | 0      |      |      | 0.74   |      |      | 11.72  |      |       | 11.96  |      |       |
| HCM LOS                  |        |      |      |        |      |      | B      |      |       | B      |      |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBT  | EBR  | WBL    | WBT  | WBR  | SBLn1  |      |       |        |      |       |
| Capacity (veh/h)         | 586    | -    | -    | 1060   | -    | -    | 568    |      |       |        |      |       |
| HCM Lane V/C Ratio       | 0.087  | -    | -    | 0.047  | -    | -    | 0.09   |      |       |        |      |       |
| HCM Ctrl Dly (s/v)       | 11.7   | -    | -    | 8.6    | -    | -    | 12     |      |       |        |      |       |
| HCM Lane LOS             | B      | -    | -    | A      | -    | -    | B      |      |       |        |      |       |
| HCM 95th %tile Q(veh)    | 0.3    | -    | -    | 0.1    | -    | -    | 0.3    |      |       |        |      |       |

HCM 7th TWSC  
49: Woodmen Frontage Road & Lot 14 Accss

Total Traffic Conditions  
PM Peak Traffic Hour - Year 2045

| Intersection             |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 2.2                                                                               |                                                                                   |                                                                                   |      |                                                                                   |      |
| Movement                 | SEL                                                                               | SET                                                                               | NWT                                                                               | NWR  | SWL                                                                               | SWR  |
| Lane Configurations      |  |  |  |      |  |      |
| Traffic Vol, veh/h       | 46                                                                                | 289                                                                               | 223                                                                               | 46   | 47                                                                                | 47   |
| Future Vol, veh/h        | 46                                                                                | 289                                                                               | 223                                                                               | 46   | 47                                                                                | 47   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free                                                                              | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -                                                                                 | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | 75                                                                                | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -                                                                                 | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 50                                                                                | 314                                                                               | 242                                                                               | 50   | 51                                                                                | 51   |

| Major/Minor          | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 292    | 0      | 0      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.13   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.219  | -      | -      |
| Pot Cap-1 Maneuver   | 1268   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1268   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach          | SE   | NW | SW    |
|-------------------|------|----|-------|
| HCM Ctrl Dly, s/v | 1.09 | 0  | 12.37 |
| HCM LOS           |      |    | B     |

| Minor Lane/Major Mvmt | NWT | NWR | SEL   | SETSWLn1 |
|-----------------------|-----|-----|-------|----------|
| Capacity (veh/h)      | -   | -   | 1268  | -        |
| HCM Lane V/C Ratio    | -   | -   | 0.039 | -        |
| HCM Ctrl Dly (s/v)    | -   | -   | 8     | -        |
| HCM Lane LOS          | -   | -   | A     | -        |
| HCM 95th %tile Q(veh) | -   | -   | 0.1   | -        |