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 Engineering Review

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 dsdnijkamp

EPC Planning & Community  
 Development Department

Falcon Meadows at Bent Grass  
 Updated Traffic Impact Analysis  
 PUDSP-20-005  
 (LSC #204420)  
 December 11, 2020

Traffic Engineer's Statement

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



Developer's Statement

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

12/14/2020  
 Date

# Falcon Meadows at Bent Grass

## Traffic Impact Analysis

Prepared for:  
Jim Byers  
VP of Community Development  
Challenger Homes  
8605 Explorer Dr, Suite 250  
Colorado Springs, CO 80920

DECEMBER 11, 2020

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LSC Transportation Consultants, Inc.  
Prepared by: Kirstin D. Ferrin, P.E. & Jeffrey C. Hodsdon, P.E.

LSC #204420



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December 11, 2020

Jim Byers  
VP of Community Development  
Challenger Homes  
8605 Explorer Dr, Suite 250  
Colorado Springs, CO 80920

RE: Falcon Meadows at Bent Grass  
El Paso County, Colorado  
Updated Traffic Impact Analysis  
PUDSP-20-005  
LSC #204420

Dear Jim:

LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the Falcon Meadows at Bent Grass residential development. The site is located about one-half mile west of the intersection of Meridian Road and Bent Grass Meadows Drive in El Paso County, Colorado. Figure 1 shows the site location.

LSC has completed the following studies in the vicinity of the site:

- *Bent Grass Subdivision PUD Traffic Impact Analysis* -- October 6, 2006
- *Bent Grass East Commercial – Preliminary Plan* -- January 25, 2013
- *Bent Grass East Commercial – Report Supplement #2* -- March 14, 2013
- *Bent Grass Subdivision Filing 1 Updated Traffic Impact Analysis* -- July 14, 2014
- *Bent Grass East Commercial Filing No. 2 Updated Traffic Impact Analysis* -- July 17, 2014
- *Falcon Dental East Commercial Filing No. 2A* -- March 7, 2016
- *Bent Grass Meadows Drive/Meridian Road Traffic Signal Warrant Analysis* -- October 2, 2017
- *Bent Grass East Commercial/Bent Grass Meadows Drive & Meridian Road Transportation Memorandum* March -- 21, 2019
- *Falcon Marketplace Traffic Impact Analysis* -- October 23, 2017 (September 5, 2018 Revision)
- *Bent Grass Residential Filing No. 2 Traffic Impact Analysis* April 17, 2020

## REPORT CONTENTS

The report contains the following:

- The existing roadway and traffic conditions in the site's vicinity, including the roadway widths, surface conditions, lane geometries, traffic controls, and posted speed limits, etc.;
- The existing traffic volumes on the study-area roadways;
- The projected average weekday and peak-hour vehicle-trips to be generated by the site at buildout;
- The assignment of the projected additional site-generated traffic volumes to the study area roadways and intersections;
- The projected short-term and long-term total traffic volumes on the study-area roadway network;
- The projected levels of service at the intersections of Meridian Road/Bent Grass Meadows Drive, Woodmen frontage road/Bent Grass Meadows Drive, and Woodmen Road/Golden Sage Drive and at the site access points to Bent Grass Meadows Drive; and
- Recommendations for roadway improvements and phasing of these improvements.

## LAND USE

### Land Use

Figure 2 shows the existing, currently proposed, and future land uses in the vicinity of the site. These include 104 existing single-family homes that are part of the Bent Grass Residential Filing No 1, 178 lots for single family homes that are part of Bent Grass Residential Filing No. 2 currently under review, and the Bent Grass East Commercial development. The Bent Grass East Commercial development is partially developed with a veterinary clinic, a gas station with convenience store, and a dental clinic. Falcon Meadows at Bent Grass is planned to include 267 lots for single family homes.

### Access

Bent Grass Meadows Drive is planned to be completed between the existing sections located north of the Woodmen frontage road and west of Meridian, as part of Bent Grass Residential Filing No. 2. Three full-movement access points are proposed to the new section of Bent Grass Meadows Drive. Figure 2 shows the location of the proposed access points.

### Sight Distance

Figure 3 shows a sight distance analysis at the proposed access points to Bent Grass Meadows Drive. Based on a design speed of 40 miles per hour (mph) on Bent Grass Meadows Drive and the criteria contained in Table 2-21 of the ECM, the required intersection sight distance at the proposed site access points is 445 feet. The required stopping sight distance from ECM Table 2-17 is also shown in the figure. The required intersection sight distance and stopping sight distance can be met at both intersections, if the areas between the sight distance lines and the curb line have low-level landscaping and are kept free of other obstructions (such as monument signs and parking areas) that would restrict the drivers'

line of sight. Landscaping should be low — about 18 inches or lower in height — to the east of the passenger vehicle lines of sight shown. Please refer to ECM Sections 2.3.6.G.1 and 2.

## **EXISTING ROADWAY AND TRAFFIC CONDITIONS**

### **Area Roadways**

The roadways in the study area are identified below, followed by a brief description of each. Figure 1 shows the roadway system. Copies of the *2016 El Paso County Major Transportation Corridors Plan (MTCP)*, *2040 Roadway Plan*, and *2016 MTCP 2060 Corridor Preservation Plan*, with the site location identified on each of them, have been attached to this report.

**Meridian Road** is shown on the *El Paso County 2040 Major Transportation Corridors Plan* and the *Preserved Corridor Network Plan* as a four-lane Principal Arterial. Meridian Road was recently expanded from two lanes to four lanes between Woodmen Road and Rolling Thunder and may soon be connected to US Highway 24 (US Hwy 24). The posted speed limit is 55 miles per hour (mph).

**Bent Grass Meadows Drive** is a Non-Residential Collector that extends north from the Woodmen North frontage road for about 2,000 feet and then curves east and extends to Meridian Road. The Bent Grass Meadows Drive/Meridian Road intersection is planned to be signalized in the short-term future once warrants for signalization are satisfied.

**Woodmen Road** is shown on the *El Paso County 2040 Major Transportation Corridors Plan* and the *Preserved Corridor Network Plan* as a four-lane Expressway in the vicinity of the site. The posted speed limit on Woodmen Road in the vicinity of Golden Sage Road is 55 mph.

**Woodmen Frontage Road** is a paved two-lane frontage road along the north side of Woodmen Road. The Woodmen frontage road extends from just west of Meridian Road to its current terminus west of Golden Sage Road. The posted speed limit on the Woodmen frontage road is 30 mph.

### **Existing Traffic Conditions**

Figure 4 shows the existing morning and afternoon peak-hour traffic volumes at the intersections of Meridian Road/Bent Grass Meadows Drive, Woodmen frontage road/Bent Grass Meadows Drive, and Woodmen Road/Golden Sage Road. The traffic count reports are attached.

The traffic volumes at the intersection of Woodmen/Golden Sage were counted in January 2020 and again in December 2020. The January 2020 counts were conducted prior to the completion of Bent Grass Meadows Drive between the Woodmen frontage road and Meridian Road, but before the restrictions due to the COVID-19 pandemic were put in place. Figure 4 shows the results of both the October 2018 counts and the October 2020 counts as the more current counts were likely impacted by the COVID-19 pandemic.

The intersections of Golden Sage/Woodmen frontage road and Bent Grass Meadows/Woodmen frontage road were conducted in January 2020 and May 2019 respectively. These counts were conducted prior to the completion of Bent Grass Meadows Drive between the Woodmen frontage road and Meridian Road. The traffic volumes have not been adjusted based on the more current counts at Golden Sage/Woodmen, as it is difficult to determine if the changes in traffic patterns are due to the completion of Bent Grass Meadows Road or impacts of the COVID-19 pandemic.

The traffic volumes at the intersection of Meridian Road/Bent Grass Meadows were counted in September and October 2018 and again in October 2020. The more recent October 2020 counts are slightly lower than the volumes counted two years previously. Figure 4 shows the results of both the October 2018 counts and the October 2020 counts as the more current counts were likely impacted by the COVID-19 pandemic. Note that both counts occurred prior to the completion of Bent Grass Meadows Drive between the Woodmen frontage road and Meridian Road.

Note that the “existing” traffic volumes at the intersections Bent Grass Meadows/Woodmen frontage road and Bent Grass Meadows/Meridian have not been adjusted based on the more current counts at Golden Sage/Woodmen, as it is difficult to determine if the changes in traffic patterns are due to the completion of Bent Grass Meadows Drive or the impacts of restrictions due to the COVID 19 pandemic.

**Existing Levels of Service**

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

**Table 1: Intersection Levels of Service Delay Ranges**

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	Average Control Delay (seconds per vehicle) <sup>(1)</sup>
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

(1) For unsignalized intersections, if V/C ratio is greater than 1.0 the level of service is LOS F, regardless of the projected average control delay per vehicle.



The intersections of Meridian Road/Bent Grass Meadows Drive and Woodmen frontage road/Bent Grass Meadows Drive were analyzed to determine the existing levels of service based on the unsignalized method of analysis procedures found in the *Highway Capacity Manual, 6<sup>th</sup> Edition* by the Transportation Research Board. The intersection of Woodmen Road/Golden Sage Drive was analyzed using Synchro. Figure 3 shows the level of service analysis results. The level of service reports are attached.

The eastbound left-turn movement at the stop sign-controlled intersection of Meridian/Bent Grass Meadows is currently operating at LOS F during the morning peak hour and LOS E during the afternoon peak hour. The eastbound right-turn movement is currently operating at LOS D during the morning peak hour and LOS B during the afternoon peak hour.

All movements at the intersections of the Woodmen frontage road/Bent Grass Meadows Drive and the Woodmen frontage road/Golden Sage Road are currently operating at LOS B or better during the peak hours.

All movements at the signal-controlled intersection of Woodmen/Golden Sage are currently operating at LOS D or better during the peak hours.

## **BACKGROUND TRAFFIC**

Background traffic is the traffic estimated to be on the roadways without the Falcon Meadows at Bent Grass traffic. The short-term (Year 2021) background traffic volumes are shown in Figure 5. The background traffic volumes are based on the existing traffic volumes shown in Figure 3, with a portion of the volumes assumed to be rerouted with the recent construction of Bent Grass Meadows Drive between the sections located north of the Woodmen frontage road and west of Meridian Road. The short-term background traffic volumes also include additional traffic projected to be generated by buildout of Bent Grass Residential Filing No. 2, buildout of the initial phase of Banning Lewis Ranch North, **buildout of the Bent Grass East Commercial** development, and **buildout of Falcon Marketplace** located northwest of the intersection of Woodmen Road/Meridian Road. As buildout of these projects has been assumed, these short-term volumes may be conservative if commercial buildout takes several years to occur. The short-term background traffic volumes also assume a right-in-only access to Woodmen Road just west of Meridian Road. Through traffic on Meridian Road was assumed to grow based on two percent growth per year.

Figure 6 shows the projected 2040 background traffic volumes. These volumes were estimated by LSC, based on previous work completed in the area by LSC, including other Bent Grass Meadows developments, the Falcon Marketplace, and *the Banning Lewis Ranch North - Traffic Impact Study* prepared by SM Rocha, LLC, dated August 2019. The 2040 background traffic volumes assume buildout of the area north of Woodmen Road and west of Meridian Road. Appendix Table 1 shows the trip generation estimates for all existing and future land uses assumed to be built out in this area by 2040.

## **TRIP GENERATION**

Estimates of the vehicle-trips generated by Falcon Meadows at Bent Grass have been made using the nationally published trip generation rates found in *Trip Generation, 10th Edition* by the Institute of Transportation Engineers (ITE). The results of the trip generation estimate are shown in Table 2.

Falcon Meadows at Bent Grass can be expected to generate about 2,520 vehicle trips on the average weekday, with about half entering and half exiting in a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 49 vehicles would enter, and 148 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 167 vehicles would enter, and 98 vehicles would exit the site.

## **TRIP DISTRIBUTION AND ASSIGNMENT**

The estimated directional distribution of the site-generated traffic volumes on the adjacent roadways is an important factor in determining the site's traffic impacts. Figure 7 shows the directional distribution estimates for the site-generated traffic. The estimates have been based on the following factors: the land use proposed for the site and its location; the existing and planned street and roadway system in the vicinity; and the existing/projected traffic volumes.

Trips with destination and/or origins within the area bound by Woodmen Road on the south and Meridian Road on the east have been assigned separately. In the short term, a portion of the trips generated by Falcon Meadows at Bent Grass are estimated to travel to and from Bent Grass East Commercial development located on the southwest corner of Meridian Road and Bent Grass Meadows Drive. In the future, an additional portion of the trips by Falcon Meadows at Bent Grass are estimated to travel to and from the future elementary school located just east of the site, to and from the future retail development planned on the northwest corner of Meridian Road and Bent Grass Meadows Drive, and to and from the Falcon Marketplace to be located on the northwest corner of Woodmen Road and Meridian Road. Appendix Tables 1 and 2 show the internal trip assumptions and calculations.

When the external trip distribution percentages (from Figure 7) are applied to the trip generation estimates (from Table 2), the resulting site-generated traffic volumes can be determined. Figure 8 shows the short-term site-generated traffic-volume estimates. The short-term site-generated traffic volumes assume Bent Grass Meadows Drive has been constructed between Meridian Road and the Woodmen frontage road.

Figure 9 shows the long-term site-generated traffic volumes. The long-term site-generated traffic volumes assume buildout of the areas north of Woodmen Road and west of Meridian Road.

## **TOTAL TRAFFIC**

Figure 10 shows the projected short-term total traffic volumes at the site access points and key area intersections. The short-term total traffic volumes are the sum of the short-term background traffic volumes from Figure 5 plus the short-term site-generated traffic volumes from Figure 8.

Figure 11 shows the projected 2040 total traffic volumes at the site access points and key area intersections. The 2040 total traffic volumes are the sum of the 2040 background traffic volumes from Figure 6 plus the long-term site-generated traffic volumes from Figure 9.

## **PROJECTED LEVELS OF SERVICE**

The site access points, and key area intersections were analyzed to determine the projected levels of service, based on the unsignalized method of analysis procedures found in the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board or using Synchro. Figures 5, 6, 10, and 11 show the level of service analysis results. The level of service technical reports are attached.

### **Meridian/Bent Grass Meadows**

The intersection of Meridian/Bent Grass Meadows is currently two-way, stop-sign-controlled. It is our understanding that this intersection will be required to be converted to traffic-signal control in the short-term future. As a signal-controlled intersection, all movements are projected to operate at LOS D or better during the peak hours, based on both short-term and 2040 total traffic volumes.

### **Woodmen/Golden Sage**

The shared southbound right-turn and through lane at the intersection of Woodmen/Golden Sage is projected to operate at LOS E during the afternoon peak hour, based on the projected short-term total traffic volumes. These movements are projected to operate at LOS D or better if a separate southbound right-turn lane is constructed. All other movements at this intersection are projected to operate at LOS D or better during the peak hours, based on the projected short-term total and 2040 total traffic volumes. The analysis assumes the addition of protected/permitted phasing for the eastbound and westbound left-turn movements in the short-term.

### **Woodmen North Frontage Road/Falcon Market Place (Proposed Roundabout)**

The future intersection of Woodmen North Frontage Road/Falcon Market Place (Proposed Roundabout) has been included in the long-term analysis. Note: The southeast leg of this intersection is the right-in connection from westbound Woodmen Road. The analysis indicates LOS A, as shown in Figure 11.

### **Woodmen North Frontage Road/Golden Sage**

The intersection of the Woodmen North Frontage Road/Golden Sage is currently stop sign-controlled. All movements at this intersection are projected to operate at LOS D or better during the peak hours, based on the projected short-term total traffic volumes. By 2040, the westbound approach is projected to operate at LOS F during the afternoon peak hour. All

movements are projected to operate at LOS C or better if this intersection is converted to either traffic-signal control or reconstructed as a modern roundabout. Due to right-of-way and spacing constraints, the signal is most likely the primary future option. Table 3 shows a comparison of the level of service for each of the options. Due to the short spacing between the frontage road and Woodmen Road and the high volume of northbound right-turning vehicles at this intersection, LSC recommends a dual northbound right-turn to allow for better utilization of the dual eastbound left-turn lanes at the intersection of Woodmen/Golden Sage.

### **Possible Alternative to a Traffic Signal: A Modern Roundabout Intersection**

#### Advantages

- The delay for all movements is projected to be lower with a modern roundabout than with traffic signal control.
- Generally, modern roundabouts have safety advantages over signal-controlled intersections. This is because crashes tend to be lower speed, there are fewer conflict points, and the types (angle) of crashes tend to be those which generally result in less severe accidents. Granted, conventional T-intersections have significantly fewer conflict points than four-leg conventional intersections.
- A roundabout may be more aesthetically appealing than a traditional signal-controlled intersection and may have generally lower traffic noise levels.
- Long-term operation and maintenance cost is likely to be lower with a roundabout than a traffic signal.

#### Disadvantages

- A roundabout could potentially require additional right-of-way and construction costs than a traffic signal. The required right-of-way may not be available.
- Due to the proximity to Woodmen Road, southbound queues extending from the signal at Woodmen Road have the potential to back into the circulating lanes of a roundabout.

### **Woodmen Frontage Road/Bent Grass Meadows**

All movements at the stop sign-controlled intersection of the Woodmen frontage road/Bent Grass Meadows are projected to operate at LOS C or better during the peak hours, based on the projected short-term and 2040 total traffic volumes.

#### **Site Access Points**

The full-movement site access points to Bent Grass Meadows Drive are projected to operate at LOS B or better for all movements as stop sign-controlled intersections, based on the short-term and 2040 total traffic volumes.

## **SUBDIVISION STREET CLASSIFICATIONS**

Figure 12 shows the recommended street classifications for the streets in the vicinity of the site.

## **PEDESTRIAN & BICYCLE FACILITIES**

- Woodmen & Meridian are shown as proposed bike routes on the *MTCP Non-Motorized Plan*. Also shown is a proposed secondary regional trail west of the site.
- Bent Grass Meadows Drive is sufficiently wide for bicycles with the paved shoulder.
- There are developing pedestrian connections along the north side of the Woodmen North Frontage Road, Bent Grass Meadows Drive, and Meridian Park Drive. Other area sections of sidewalk/trail connections are being added as development occurs.
- Sidewalks will be added along Bent Grass Meadows Drive with the connection south to the north terminus of the existing section, adjacent to the School District 49 headquarters.
- The subdivision streets will all have sidewalks to connect to the sidewalk along Bent Grass Meadows Drive

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Trip Generation**

- Falcon Meadows at Bent Grass can be expected to generate about 2,520 vehicle-trips on the average weekday, with about half entering and half exiting in a 24-hour period. During the morning peak hour, about 49 vehicles would enter, and 148 vehicles would exit the site. During the afternoon peak hour, about 167 additional vehicles would enter, and 98 vehicles would exit the site.

### **Level of Service**

- The eastbound left-turn movement at the stop sign-controlled intersection of Meridian/Bent Grass Meadows is currently operating at LOS F during the morning peak hour and LOS E during the afternoon peak hour. If signalized, all movements are projected to operate at LOS D or better during the peak hours, based on the projected short-term and 2040 total traffic volumes.
- The shared southbound right-turn and through lane at the intersection of Woodmen/Golden Sage is projected to operate at LOS E during the afternoon peak hour, based on the projected short-term total traffic volumes. These movements are projected to operate at LOS D or better if a separate southbound right-turn lane is constructed. All other movements at this intersection are projected to operate at LOS D or better during the peak hours, based on the projected short-term and 2040 total traffic volumes.
- All movements at the stop sign-controlled intersection of the Woodmen frontage road/Golden Sage are projected to operate at LOS D or better during the peak hours, based on the projected short-term total traffic volumes. By 2040, alternate intersection

control, such as a traffic signal or a modern roundabout, will likely be needed to maintain an acceptable level of service for this intersection.

- The intersection of the Woodmen frontage road/Bent Grass Meadows and the site access points to Bent Grass Meadows are projected to operate at LOS C or better for all movements during the peak hours as stop sign-controlled intersections, based on the projected short-term and 2040 total traffic volumes.

### Roadway Improvements

- Table 4 identifies the future roadway improvements that will be needed in the vicinity of the site. Table 5 also gives a recommended trigger for when each improvement will be needed.
- Table 5 shows the percentage of the projected 2040 total traffic due to Falcon Meadows at Bent Grass. These percentages could be used to determine the pro-rata share of the cost of intersection improvements.
- Regarding the future eastbound left-turn signal phase at Woodmen/Golden Sage: signal modification plans should be prepared, and coordination with EPC DPW (and possibly the City of Colorado Springs) will be a necessary step(s) toward future implementation of this left-turn phase. Steps should be taken such that the phase can be implemented shortly after it has been determined that it should be implemented. This determination would be made by monitoring the traffic volumes and operations as Bent Grass Residential Filing 2, Falcon Meadows at Bent Grass, and the initial phases of Banning Lewis North develop to determine if the phase should be added at that time.

\* \* \* \* \*

Please contact me if you have any questions regarding this report.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Kirstin D. Ferrin, P.E.  
Senior Transportation Engineer

JCH:KDF:jas

Enclosures: Tables 2-5  
Appendix Tables 1 and 2  
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MTCP Maps  
Traffic Count Reports  
Level of Service Reports

# Tables

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**Table 2  
Trip Generation Estimate  
Falcon Meadows at Bent Grass**

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(1)</sup>				Total Trips Generated					
			Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
				In	Out	In	Out		In	Out	In	Out
210	Single-Family Detached Housing	267 DU <sup>(2)</sup>	9.44	0.19	0.56	0.62	0.37	2,520	49	148	167	98

Notes:  
 (1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)  
 (2) DU = dwelling unit  
 Source: LSC Transportation Consultants, Inc.



**Table 3**  
**Level of Service Comparison**  
**Golden Sage Drive/Woodmen frontage road**

Scenario		2040 Total Traffic									
		AM Peak					PM Peak				
		Eastbound	Westbound	Northbound		Overall	Eastbound	Westbound	Northbound		Overall
Left	Right			Left	Right						
Stop-Sign Control	Delay	7.3	23.2	Free	Free	---	9.1	58.1	Free	Free	---
	LOS	A	C				A	F			
Modern Roundabout	Delay	5.6	6.1	3.2	Free	3.5	5.8	7.3	3.5	Free	3.8
	LOS	A	A	A		A	A	A	A		
Traffic Signal Control With Single Northbound Right-Turn Lane	Delay	3.8	5.8	21.8	6.1	7.0	4.7	7.6	23.1	6.7	8.7
Traffic Signal Control With Dual Northbound Right-Turn Lane <sup>(1)</sup>	Delay	A	A	C	A	A	A	A	C	A	A
	LOS	3.9	6.4	13.5	6.3	7.8	5.4	10.6	20.2	6.9	11.7
	LOS	A	A	B	A	A	A	B	C	A	B

**Note:**

(1) Dual northbound right-turn lanes will allow for better utilization of the dual eastbound left-turn lanes at the intersection of Golden Sage/Woodmen

**Table 4**  
**Roadway System Improvements**  
**Falcon Meadows at Bent Grass**

Description		Trigger	Timing	Responsibility	
<b>Meridian Road/Bent Grass Meadows Road</b>					
A	Signalize Meridian/Bent Grass Meadows	Remove existing stop-sign and replace with traffic signal control.	When warrant(s) are met -- 2 of the 3 conditions of the "Crash Experience" warrant are currently met. The current number of reported crashes (susceptible to correction with a signal) exceeds the threshold as do the associated traffic volume thresholds.	With opening of the approved expansion of the veterinary clinic or Once El Paso County determines that the remaining condition within the Crash Experience Warrant has been met (determines that alternatives have failed to reduce crash frequency) and determines that a signal should be installed.	Bent Grass Metro District
B	Right-turn acceleration lane on Meridian at Bent Grass Meadows	ECM criteria indicates the acceleration lane would need to be 960 feet long plus a 222-foot taper based on the design speed of 60 mph. Note that Owl Lane is located approximately 925 feet south of Bent Grass Meadows Drive. Therefore, the lane would be a continuous acceleration/deceleration lane between Bent Grass Meadows Drive and Owl Lane.	ECM criteria has been exceeded. A deviation was previously approved waiving this requirement with the development of Bent Grass Residential Filing 1 and Bent Grass East Commercial Filing 2A. Additional development will either require the submittal and approval of a new deviation or construction of this improvement. (Notes: The installation of the traffic signal will regularly stop southbound traffic allowing eastbound right turns to enter southbound Meridian Road without an acceleration lane. The LOS analysis indicates significant improvement of the LOS with the signal. The crash data does not indicate a safety issue with the current eastbound right movement without the accel lane. Several costly improvements may be needed to build the accel lane -- including burying the overhead power lines south to Owl Place, reconstructing the ditch section along the west side of Meridian Road, and reworking the radius at Meridian Road. This intersection is similar to the Meridian/Woodmen Hills, Meridian/Stapleton, and Meridian/Londonderry intersections to the north in that [or "to the extent that"] southbound right acceleration lanes have not been added. If the County ultimately wants a raised right-turn island on this southwest corner of the Bent Grass Meadows/Meridian Road intersection in conjunction with an accel lane, this would likely need to be accomplished later with the overall widening of Bent Grass Meadows just west of Meridian Road.	Accel lane construction or a deviation -- with any development beyond the approved expansion of the veterinary clinic and expansion of parking for the dental clinic.	Bent Grass Metro District
<b>Bent Grass Meadows Dr</b>					
C	Construct Bent Grass Meadows Drive between the existing sections located north of the Woodmen frontage road and west of Meridian Road	Construct Bent Grass Meadows Drive as a Non-Residential Collector	With any development west of Bent Grass Residential Filing No. 1	With Bent Grass Residential Filing No. 2	Bent Grass Metro District
D	Restrict westbound left-turn at 7-Eleven access	Remove the striping for the left-turn bay at the 7-Eleven access, restripe for two sets of dual yellow lines as shown in Figure 9. If trigger for closure of westbound left-in is reached prior to the trigger for access closure, install No Left Turn signs and reflective, plastic delineators within the painted center median across the 7-Eleven access.	When westbound left-turn queue exceeds the length of the existing lane.	"With 50% percent development of the remaining vacant parcels within Bent Grass East Commercial beyond the approved expansion of the veterinary clinic and expansion of parking for the dental clinic.  or With the completion of Bent Grass Meadows Dr between the Woodmen frontage road and Meridian Road	Bent Grass Metro District
E	Close 7-Eleven Access	Remove the existing curb cut.	When the eastbound right-turn queue approaching Meridian Road blocks the access and/or if motorists exiting from the 7-Eleven access and turning into the eastbound left-turn lane approaching Meridian Road regularly impede/block the adjacent eastbound right-turn lane approaching Meridian Road.	With 50% percent development of the remaining vacant parcels within Bent Grass East Commercial beyond the approved expansion of the veterinary clinic and expansion of parking for the dental clinic.  or With the completion of Bent Grass Meadows Dr between the Woodmen frontage road and Meridian Road	Bent Grass Metro District
<b>Woodmen frontage road/Bent Grass Meadows Dr</b>					
F	Eastbound left-turn lane on Woodmen frontage road approaching Bent Grass Meadows Dr.	ECM criteria indicates the left-turn lane would need to be 315 feet long (155 feet of deceleration length plus 160 feet of storage length) plus a 160-foot taper based on the design speed of 40 mph.	When the eastbound left-turn volume exceeds 25 vehicles per hour	With the completion of Bent Grass Meadows Dr between the Woodmen frontage road and Meridian Road	Bent Grass Metro District*
<b>Woodmen/Golden Sage</b>					
G	Add protected/permitted phasing for left-turn movements	Prepare a traffic signal modification plan and furnish/install new traffic signal heads for protected-permissive phasing and other necessary hardware, software needed to implement this phase; modify existing signal timing plan.	If/when needed to maintain acceptable level of service/traffic operations and/or to control vehicle queues.	--Prior to the opening of the Bent Grass Meadows Boulevard to the public, signal modification plans should be prepared, and coordination with EPC DPW (and possibly the City of Colorado Springs) will be a necessary step(s) toward future implementation of this left turn phase. Steps should be taken such that the phase can be implemented shortly after it has been determined that it should be implemented. This determination would be made by monitoring the traffic volumes and operations once Bent Grass Meadows Drive connection is opened to traffic to determine if the phase should be added at that time.	Bent Grass Metro District* - pro-rata share (based on total traffic volumes) of the cost of the improvement. <sup>(1)</sup> Note: Other potential responsibility for participation: In addition to the yet-to-be developed properties within the Bent Grass Metro District service area and the Falcon Marketplace development, other future developers of currently vacant lane within the "travel shed" of the north leg (and potentially the south leg) of the Golden Sage/Woodmen and Golden Sage/Woodmen N. Frontage Road intersection may also be assigned as responsible participants in future or completed (if a cost recovery agreement is put in place) traffic/roadway improvements.
H	Lengthening of the current eastbound single left-turn deceleration lane on Woodmen approaching Golden Sage Road	Provide a 240-foot transition taper (20:1 taper ratio), 290 feet of deceleration distance plus sufficient vehicle stacking distance. CURRENT: 175-foot taper plus a 465-foot left-turn lane which translates to a 175-foot taper, 290-foot deceleration distance, and 175 feet of stacking distance. SHORT TERM: Adequate stacking is available in the current turn lane - calculated queue length 204 feet. LONG TERM: Lengthen single left-turn lane and/or future implementation of dual left-turn lanes (if capacity needs dictate). If a dual left is implemented in the future, consideration will need to be given to the configuration on Golden Sage and at the Golden Sage/Woodmen Frontage Road intersection to receive the dual left-turn movement.	The estimated "trigger" of 40 PM peak hour eastbound left turns above the estimated short term total volume (from Figure 16a of the TIS) approximately translates to and additional 589 directional ADT for residential trips making this turning movement (based on the ITE single family trip ratio). This estimated threshold may be reached with a combination of site-generated trips and background trips.	AS NEEDED TO MAINTAIN ADEQUATE LEVEL OF SERVICE AND VEHICLE STACKING DISTANCE - This is estimated to be when the eastbound left turn turning volume reaches approximately 200 vehicles per hour during the PM peak. This translates to about 40 vehicles per hour over the estimated short term total volume from Figure 16a of the Falcon Marketplace TIS. Note: Short term total volumes assume the Meridian extension to Highway 24 to be open.	Bent Grass Metro District* - pro-rata share (based on total traffic volumes) of the cost of the improvement. <sup>(1)</sup> Note: Other potential responsibility for participation: In addition to the yet-to-be developed properties within the Bent Grass Metro District service area and the Falcon Marketplace development, other future developers of currently vacant lane within the "travel shed" of the north leg (and potentially the south leg) of the Golden Sage/Woodmen and Golden Sage/Woodmen N. Frontage Road intersection may also be assigned as responsible participants in future or completed (if a cost recovery agreement is put in place) traffic/roadway improvements.
I	Southbound exclusive right-turn lane on Golden Sage Road approaching Woodmen Road	A continuous right-turn lane within the 150 feet between the Woodmen Frontage Road and Woodmen Road	The estimated "trigger" of 5-30 AM peak hour southbound right turns above the estimated short term total volume (from Figure 16a of the Falcon Marketplace TIS) approximately translates to an additional 85-510 directional ADT for residential trips making this turning movement (based on the ITE single family trip ratio). This estimated threshold may be reached with a combination of site-generated trips and background trips.	AS NEEDED TO MAINTAIN ADEQUATE LEVEL OF SERVICE AND VEHICLE STACKING DISTANCE - A preliminary trigger could be a southbound right turn volume of about 150-175 vehicles per hour. This translates to about 5 to 30 vehicles per hour over the projected short term volume from Figure 16a of the Falcon Marketplace TIS. This may be conservative due to the westbound right turn acceleration lane on Woodmen Road. Additional study may indicate a higher threshold based on empirical data collection and analysis.	Bent Grass Metro District - pro-rata share (based on total traffic volumes) of the cost of the improvement. <sup>(1)</sup> Note: Other potential responsibility for participation: In addition to the yet-to-be developed properties within the Bent Grass Metro District service area and the Falcon Marketplace development, other future developers of currently vacant lane within the "travel shed" of the north leg (and potentially the south leg) of the Golden Sage/Woodmen and Golden Sage/Woodmen N. Frontage Road intersection may also be assigned as responsible participants in future or completed (if a cost recovery agreement is put in place) traffic/roadway improvements
J	Signalization of Golden Sage Road/Woodmen Frontage Road or reconstruction as a modern roundabout; Future additional laneage may be necessary at this intersection to accommodate vehicle queues and for traffic operations.	Remove existing stop-signs and replace with traffic signal control or reconstruct as modern roundabout	If/when needed to maintain acceptable level of service/traffic operations and/or to control vehicle queues. Fair-share participation by the development or the district on behalf of the district members.	If/when needed to maintain acceptable level of service/traffic operations and/or to control vehicle queues.	Bent Grass Metro District* - pro-rata share (based on total traffic volumes) of the cost of the improvement. <sup>(1)</sup> Note: Other potential responsibility for participation: In addition to the yet-to-be developed properties within the Bent Grass Metro District service area and the Falcon Marketplace development, other future developers of currently vacant lane within the "travel shed" of the north leg (and potentially the south leg) of the Golden Sage/Woodmen and Golden Sage/Woodmen N. Frontage Road intersection may also be assigned as responsible participants in future or completed (if a cost recovery agreement is put in place) traffic/roadway improvements.
Notes:	*Note: It is our understanding that the specifics of the district participation will need to be included in the SIA/ revised development agreement to be completed and finalized prior to the development of lots beyond the initial 49 lots. If for some reason the District is unable or unwilling to participate, or if determination by the district is delayed, the applicant would be responsible. In this case, an escrow agreement between the applicant and the County would be prepared and finalized. We understand that staff would like for that the applicant to understand the estimated/approximate costs associated with their fair share of future improvements at Golden Sage/Woodmen. LSC will provide preliminary fair share cost estimates utilizing available information from the Falcon Marketplace SIA. This will be provided by March 31st to the applicant and staff.				

(1) See Table 5 for pro-rata percentage calculations

**Table 5**  
**Prorata Share Contribution Calculations**  
**Falcon Meadows at Bent Grass**

Item	Improvement Description and Estimated Cost		AM	PM	AM + PM	
G	Add protected/permitted phasing at Woodmen/Golden Sage		Site-Generated Traffic <sup>(1)</sup> (vehicles per hour)	16	76	92
			2040 Total Traffic <sup>(1)</sup> (vehicles per hour)	319	447	766
			%	5.02%	17.00%	12.01%
	Estimated Improvement Cost:	\$ 33,750	Estimated Fair-Share Portion for this project based on calculated AM + PM percentage:	\$ 4,054		
H	Lengthening of the current eastbound single left-turn deceleration lane on Woodmen approaching Golden Sage Road		Site-Generated Traffic <sup>(1)</sup> (vehicles per hour)	16	76	92
			2040 Total Traffic <sup>(1)</sup> (vehicles per hour)	319	447	766
			%	5.02%	17.00%	12.01%
	Estimated Improvement Cost:	\$ 200,000	Estimated Fair-Share Portion for this project based on calculated AM + PM percentage:	\$ 24,021		
I	Southbound exclusive right-turn lane on Golden Sage Road approaching Woodmen Road		Site-Generated Traffic <sup>(2)</sup> (vehicles per hour)	56	44	100
			2040 Total Traffic <sup>(2)</sup> (vehicles per hour)	392	391	783
			%	14.29%	11.25%	12.77%
	Estimated Improvement Cost:	\$ 100,000	Estimated Fair-Share Portion for this project based on calculated AM + PM percentage:	\$ 12,771		
J	Signalization of Golden Sage Road/Woodmen Frontage Road or reconstruction as a modern roundabout; Future additional laneage may be necessary at this intersection to accommodate vehicle queues and for traffic operations.		Site-Generated Traffic <sup>(3)</sup> (vehicles per hour)	73	123	196
			2040 Total Traffic <sup>(3)</sup> (vehicles per hour)	979	1183	2162
			%	7.46%	10.40%	9.07%
	Estimated Improvement Cost:	\$ 350,000	Estimated Fair-Share Portion for this project based on calculated AM + PM percentage:	\$ 31,730		

Notes:

- (1) Eastbound left-turn volume at the intersection of Woodmen/Golden Sage
- (2) Southbound right-turn volume at the intersection of Woodmen/Golden Sage
- (3) Sum of all traffic volumes at the intersection of Golden Sage/Woodmen frontage road

# Appendix Tables

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Appendix Table 1  
Falcon Meadows at Bent Grass  
Study Area Buildout Trip Generation Estimate

TAZ Name	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(1)</sup>						Total Future Trips Generated						TAZ Internal Trips	Total Future Trips Internal to the TAZ						Total Future Trips Internal to the Study Area						New Future External Trips Generated							
				Average Weekday Traffic			Morning Peak Hour			Afternoon Peak Hour			Average Weekday Traffic				Morning Peak Hour			Afternoon Peak Hour			Average Weekday Traffic			Morning Peak Hour			Afternoon Peak Hour			Average				
				Weekday	In	Out	In	Out	In	Out	Weekday	In	Out	In	Out		In	Out	Weekday	In	Out	In	Out	Weekday	In	Out	In	Out	Weekday	In	Out	Weekday	In	Out	Pass-By Trips <sup>(2)</sup>	New Weekday Traffic
1 Bent Grass Residential Fil 2 North	Bent Grass Residential Fil 2 South	210 Single-Family Detached Housing	121 DU <sup>(3)</sup>	9.44	0.19	0.56	0.62	0.37	1,142	22	67	75	44	0%	0	0	0	0	0	149	7	17	7	5	0%	993										
	Bent Grass Residential Fil 2 North	210 Single-Family Detached Housing	58 DU	9.44	0.19	0.56	0.62	0.37	548	11	32	36	21	0%	0	0	0	0	0	71	4	8	4	2	0%	477										
	Bent Grass West	210 Single-Family Detached Housing	16 DU	9.44	0.19	0.56	0.62	0.37	151	3	9	10	6	0%	0	0	0	0	0	19	1	2	0	0	0%	132										
2 Bent Grass School	Bent Grass West	210 Single-Family Detached Housing	77 DU	9.44	0.19	0.56	0.62	0.37	727	14	43	48	28	0%	0	0	0	0	0	95	5	11	4	3	0%	632										
	Bent Grass West	210 Single-Family Detached Housing	92 DU	9.44	0.19	0.56	0.62	0.37	868	17	51	57	34	0%	0	0	0	0	0	113	6	12	5	3	0%	755										
	Bent Grass School	520 Elementary School	500 Students	1.89	0.36	0.31	0.08	0.09	945	181	154	41	44	0%	0	0	0	0	0	473	91	39	10	22	0%	472										
3 Single Family/Retail/Office	Bent Grass School	210 Single-Family Detached Housing	94 DU	9.44	0.19	0.56	0.62	0.37	510	10	30	34	20	0%	0	0	0	0	0	67	4	8	3	2	0%	443										
	820 Shopping Center	11.5 KSF <sup>(4)</sup>	83.44	2.93	1.80	3.40	3.69	960	34	21	39	42	2%	19	1	0	1	1	10	0	0	0	0	34%	614											
	710 General Office Building	17 KSF	10.74	1.15	0.19	0.19	0.98	183	20	3	3	17	8%	19	0	1	1	2	0	0	0	0	0%	162												
4 Retail/Office	820 Shopping Center	24.4 KSF	83.44	2.93	1.80	3.40	3.69	2,036	72	44	83	90	2%	41	1	1	2	2	20	1	0	1	1	34%	1,303											
	710 General Office Building	50 KSF	10.74	1.15	0.19	0.19	0.98	537	57	9	9	49	8%	41	1	1	2	2	5	0	0	0	0	0%	491											
	5 Bent Grass Residential Filing 1	210 Single-Family Detached Housing	0 DU	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0	0%	0	0	0	0	0	0	0	0	0	0	0%	0										
6 Bent Grass East Commercial Future	Bent Grass East Commercial Existing	--- Gas Station/Vet Clinic/Dental Clinic	-----	---	---	---	---	---	0	0	0	0	0	5%	0	0	0	0	0	0	0	0	0	0	50%	0										
		640 Animal Hospital/Veterinary Clinic	4.171 KSF	21.50	2.72	1.34	1.89	2.83	90	11	6	8	12	5%	5	1	0	0	1	1	0	0	0	0	0%	84										
		932 High-Turnover Sit-Down Restaurant	4.8 KSF	112.18	5.47	4.47	6.06	3.71	538	26	21	29	18	5%	27	1	1	1	1	5	0	0	0	0	43%	288										
		930 Fast Casual Restaurant	5 KSF	315.17	1.39	0.68	7.77	6.46	1,576	7	3	39	32	5%	79	0	0	2	2	16	0	0	1	1	43%	844										
		770 Business Park	10.8 KSF	76.88	1.29	0.23	0.48	1.36	830	14	2	5	15	5%	42	1	0	0	1	8	0	0	0	0	0%	780										
		820 Shopping Center	42 KSF	79.40	2.55	1.57	3.27	3.54	3,329	107	66	137	149	5%	166	5	3	7	7	33	1	1	1	1	34%	2,066										
7 Bent Grass Industrial (5301000017)	110 General Light Industrial	54 KSF	4.96	0.62	0.08	0.08	0.55	269	33	5	4	30	0%	0	0	0	0	0	0	0	0	0	0	0%	268											
8 Bent Grass West	210 Single-Family Detached Housing	82 DU	9.44	0.19	0.56	0.62	0.37	774	15	46	51	30	0%	0	0	0	0	0	101	5	11	4	3	0%	673											
9 Falcon Mini-Storage	151 Mini-Warehouse	3.74 Storage Units (100s)	---	---	---	---	---	0	0	0	0	0	0%	0	0	0	0	0	0	0	0	0	0	0%	0											
10 Man Cave at Bentgrass	0.65 RV/Vehicle Storage	20.00 Occupied Spaces (100s)	---	---	---	---	---	13	1	1	1	2	0%	0	0	0	0	0	0	0	0	0	0	0%	13											
	151 Mini-Warehouse	1.04 Storage Units (100s)	---	---	---	---	---	19	1	1	1	1	0%	0	0	0	0	0	0	0	0	0	0	0%	19											
11 Mountain View Electric	Mountain View Electric	---	---	---	---	---	---	0	0	0	0	0	0%	0	0	0	0	0	0	0	0	0	0	0%	0											
	110 General Light Industrial	218 KSF	4.96	0.62	0.08	0.08	0.55	1,081	134	18	18	119	0%	0	0	0	0	0	0	0	0	0	0	0%	1,081											
	820 Shopping Center	318 KSF	41.52	0.61	0.37	1.93	2.09	13,203	193	118	614	665	0%	0	0	0	0	0	132	3	2	6	6	20%	10,457											
12 Owl Lane Redevelopment	210 Single-Family Detached Housing	140 DU	9.44	0.19	0.56	0.62	0.37	1,322	26	78	87	51	0%	0	0	0	0	0	172	8	19	8	5	0%	1,150											
	220 Multifamily Housing Low-Rise	120 DU	7.32	0.11	0.35	0.35	0.21	878	13	43	42	25	0%	0	0	0	0	0	115	6	13	5	3	0%	763											
	Administration Office/Bus Barn	---	---	---	---	---	---	0	0	0	0	0	0%	0	0	0	0	0	0	0	0	0	0	0%	0											
13 Falcon School District 49	140 Manufacturing	29.34 Acres	33.92	3.95	0.44	1.95	2.59	995	116	13	57	76	0%	0	0	0	0	0	0	0	0	0	0	0%	995											
14 Latigo (5301002007)	210 Single-Family Detached Housing	0 DU	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0	0%	0	0	0	0	0	0	0	0	0	0	0%	0											
15 Courtyards at Woodmen Hills West	866 Pet Supply Superstore <sup>(5)</sup>	15 KSF	38.24	0.53	0.33	1.69	1.69	574	8	5	25	25	5%	54	1	2	3	2	6	0	0	0	0	10%	463											
	850 Supermarket	123 KSF	78.26	2.11	1.29	3.76	3.62	9,626	259	159	463	445	5%	909	17	26	48	37	96	2	2	4	4	38%	5517											
	944 Gasoline/Service Station	18 VFP <sup>(6)</sup>	166.56	6.20	5.96	6.94	6.94	3,034	112	107	125	125	5%	286	5	8	15	12	30	1	0	1	1	56%	1196											
	934 Fast-Food Restaurant with Drive-Through Window <sup>(7)</sup>	2.5 KSF	496.12	0.42	0.39	16.98	15.67	1,240	1	1	42	39	0%	380	0	0	12	17	12	0	0	1	1	50%	424											
	820 Shopping Center	5 KSF	55.14	0.77	0.47	2.36	2.51	276	4	2	12	13	0%	26	1	0	1	1	3	0	0	0	0	34%	163											
	848 Tire Store	7.72 KSF	24.87	1.82	1.07	1.78	2.37	192	14	8	14	18	0%	18	0	1	1	1	2	0	0	0	0	28%	124											
	934 Fast-Food Restaurant with Drive-Through Window	3.5 KSF	496.12	23.15	22.26	16.98	15.67	1,736	81	78	59	55	5%	532	26	12	17	24	17	0	0	1	1	50%	593											
	934 Fast-Food Restaurant with Drive-Through Window <sup>(7)</sup>	2.5 KSF	496.12	0.42	0.39	16.98	15.67	1,240	1	1	42	39	0%	380	0	0	12	17	12	0	0	1	1	50%	424											
	610 Clinic	8 KSF	31.45	2.19	2.19	2.12	3.06	245	17	17	17	24	0%	40	3	16	10	5	2	0	0	0	0	0%	203											
	820 Shopping Center	8 KSF	55.14	0.77	0.47	2.36	2.51	441	6	4	19	20	0%	42	1	1	2	2	4	0	0	0	0	34%	261											
	937 Coffee/Donut Shop With Drive-Through Window	1.3 KSF	818.58	51.30	49.28	21.40	21.40	1,064	67	64	28	28	2%	326	21	10	9	12	11	0	0	0	0	89%	80											
<b>TOTAL</b>										<b>53,191</b>	<b>1,708</b>	<b>1,330</b>	<b>2,374</b>	<b>2,451</b>		<b>3,432</b>	<b>86</b>	<b>83</b>	<b>146</b>	<b>148</b>	<b>1,802</b>	<b>145</b>	<b>145</b>	<b>67</b>	<b>65</b>		<b>35,403</b>									

Notes:  
(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)  
(2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice, Third Edition" by ITE  
(3) DU = dwelling unit  
(4) KSF = thousand square feet  
(5) Daily and morning peak-hour trip generation rates for Pet Supply Superstore are estimates by LSC  
(6) VFP = vehicle fueling position  
(7) The AM peak-hour trip generation rates have been reduced by LSC as the proposed fast-food restaurant does not serve breakfast  
(8) Based on the NCHRP 684 Internal Trip Capture Estimate Tool  
Source: LSC Transportation Consultants, Inc.

**Appendix Table 2  
Falcon Meadows at Bent Grass  
Buildout Internal Trip Estimate**

Land Use	Raw ITE Trip Generation (Individual Driveway Trips)					Percent Internal Trips					Total Internal Trips					
	Daily	AM Peak Hour		PM Peak Hour		Daily	AM Peak Hour		PM Peak Hour		Daily	AM Peak Hour		PM Peak Hour		
		In	Out	In	Out		In	Out	In	Out		In	Out			
Single-Family Detached Housing	6,042	118	356	398	234											
Multifamily Housing (Low-Rise)	878	13	43	42	25											
	<b>6,920</b>	<b>131</b>	<b>399</b>	<b>440</b>	<b>259</b>											
						<b>School</b>	7%	30%	23%	5%	4%	473	39	91	22	10
						<b>Other</b>	6%	5%	3%	4%	7%	430	7	11	19	18
						<b>Total</b>	13%	35%	26%	9%	11%	<b>903</b>	<b>46</b>	<b>102</b>	<b>41</b>	<b>28</b>
Elementary School	945	181	154	41	44		50%	50%	25%	25%	50%	473	91	39	10	22
Retail/Office	42,950	1,111	739	1,812	1,920		1%	1%	1%	1%	1%	430	11	7	18	19
Industrial/Manufacturing	2,376	285	38	81	228		0%	0%	0%	0%	0%	0	0	0	0	0
<b>TOTAL Non-Residential</b>	<b>46,271</b>	<b>1,577</b>	<b>931</b>	<b>1,934</b>	<b>2,192</b>							<b>903</b>	<b>102</b>	<b>46</b>	<b>28</b>	<b>41</b>
<b>TOTAL</b>	<b>53,191</b>	<b>1,708</b>	<b>1,330</b>	<b>2,374</b>	<b>2,451</b>							<b>1,806</b>	<b>148</b>	<b>148</b>	<b>69</b>	<b>69</b>
Notes:																

# Figures

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Approximate Scale  
Scale: 1" = 1,200'

Figure 1

# Vicinity Map

Falcon Meadows at Bent Grass (LSC #204420)





Approximate Scale  
Scale: NTS

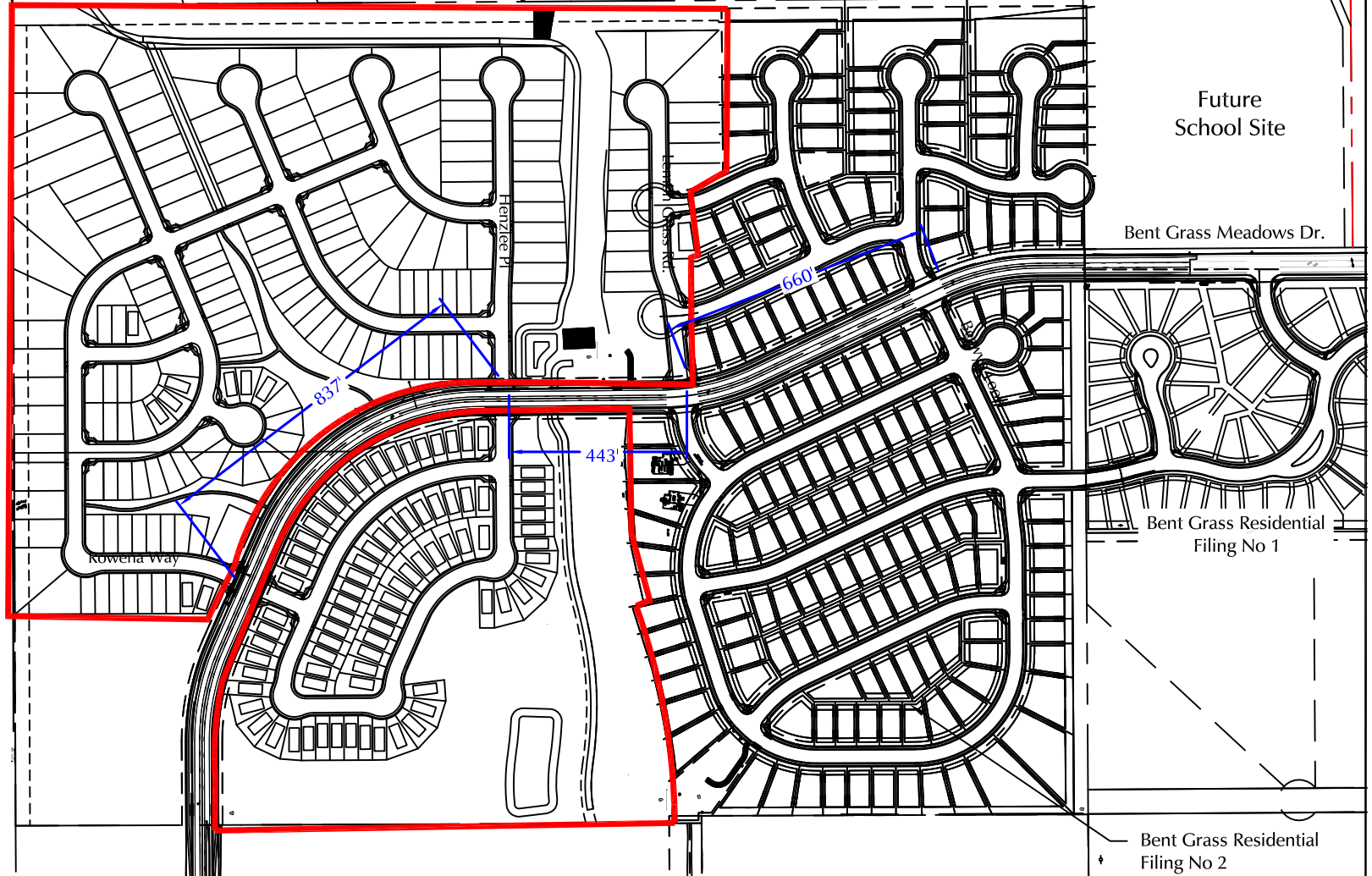
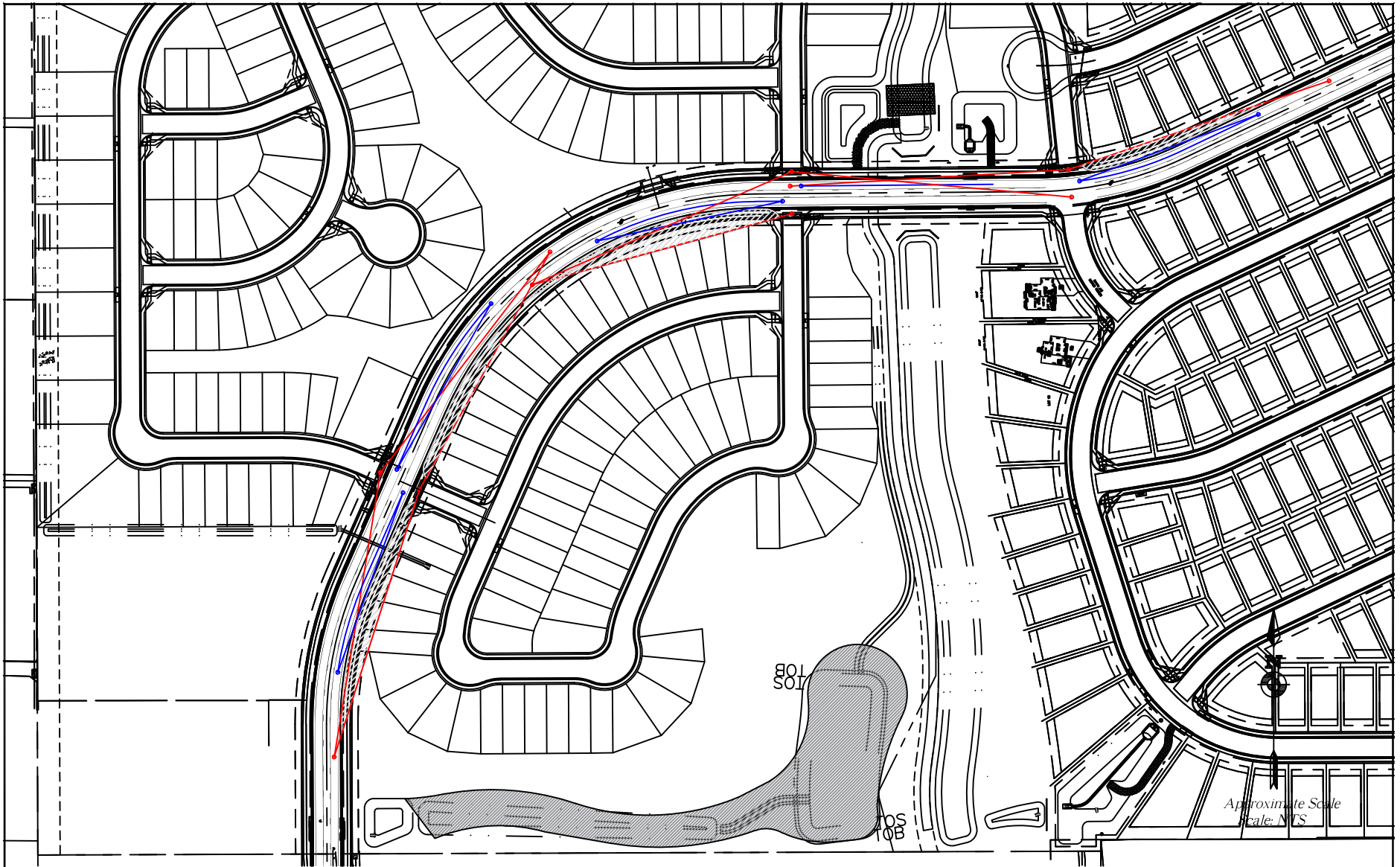


Figure 2  
**Site Plan**

Falcon Meadows at Bent Grass (LSC #204420)



LEGEND:

- = ECM Required Intersection Sight Distance (445' based on design speed of 40mph from Table 2-21)
- ←←← = ECM Required Stopping Sight Distance Travel Path (305' based on design speed of 40mph from Table 2-17)
- = Stopping Sight Distance Sight Line
- ▨ = Area must be kept clear of obstructions to intersection distance line of sight.

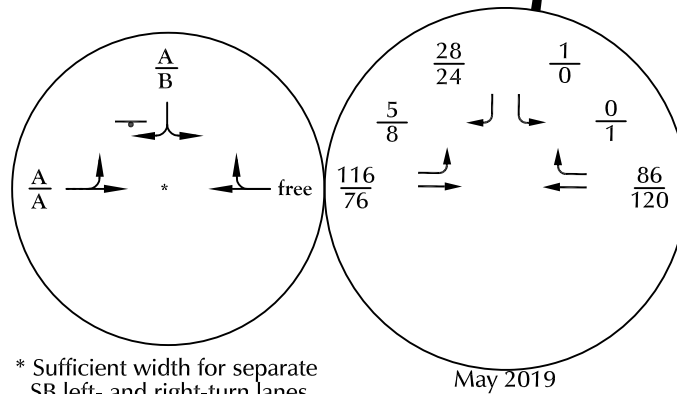
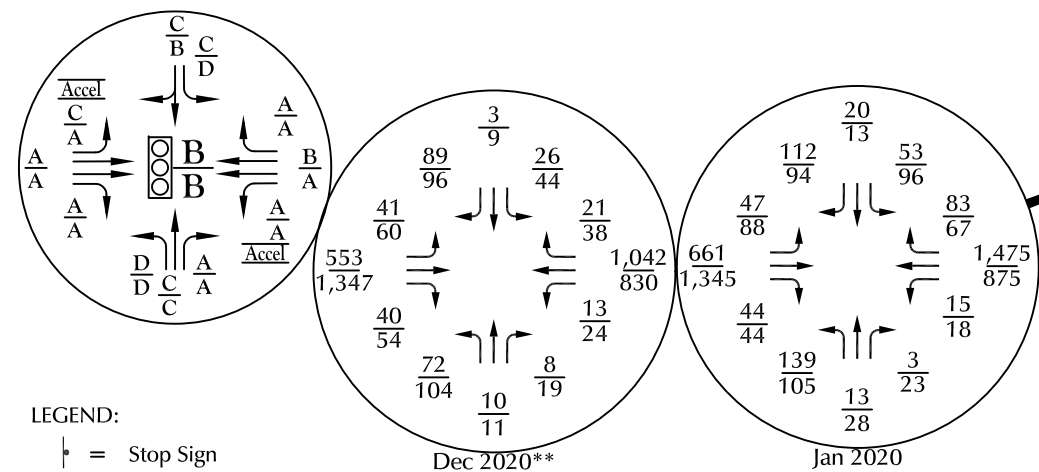
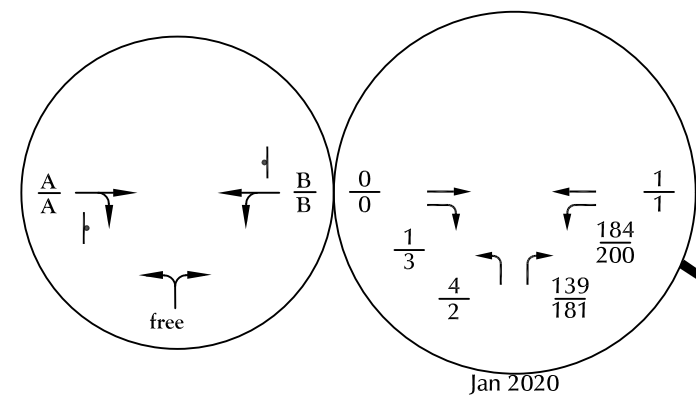
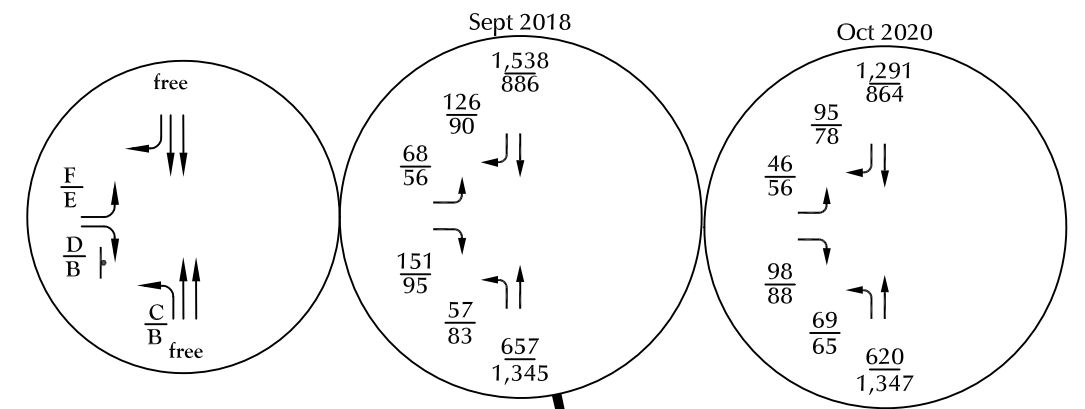


Figure 3  
**Sight Distance**

Falcon Meadows at Bent Grass (LSC #204420)

Approximate Scale  
 Scale: NTS

\*\*This traffic count was conducted following the completion of Bent Grass Meadows Drive between the Woodmen frontage road and Meridian Ranch. All other counts were conducted prior to this connection being made.

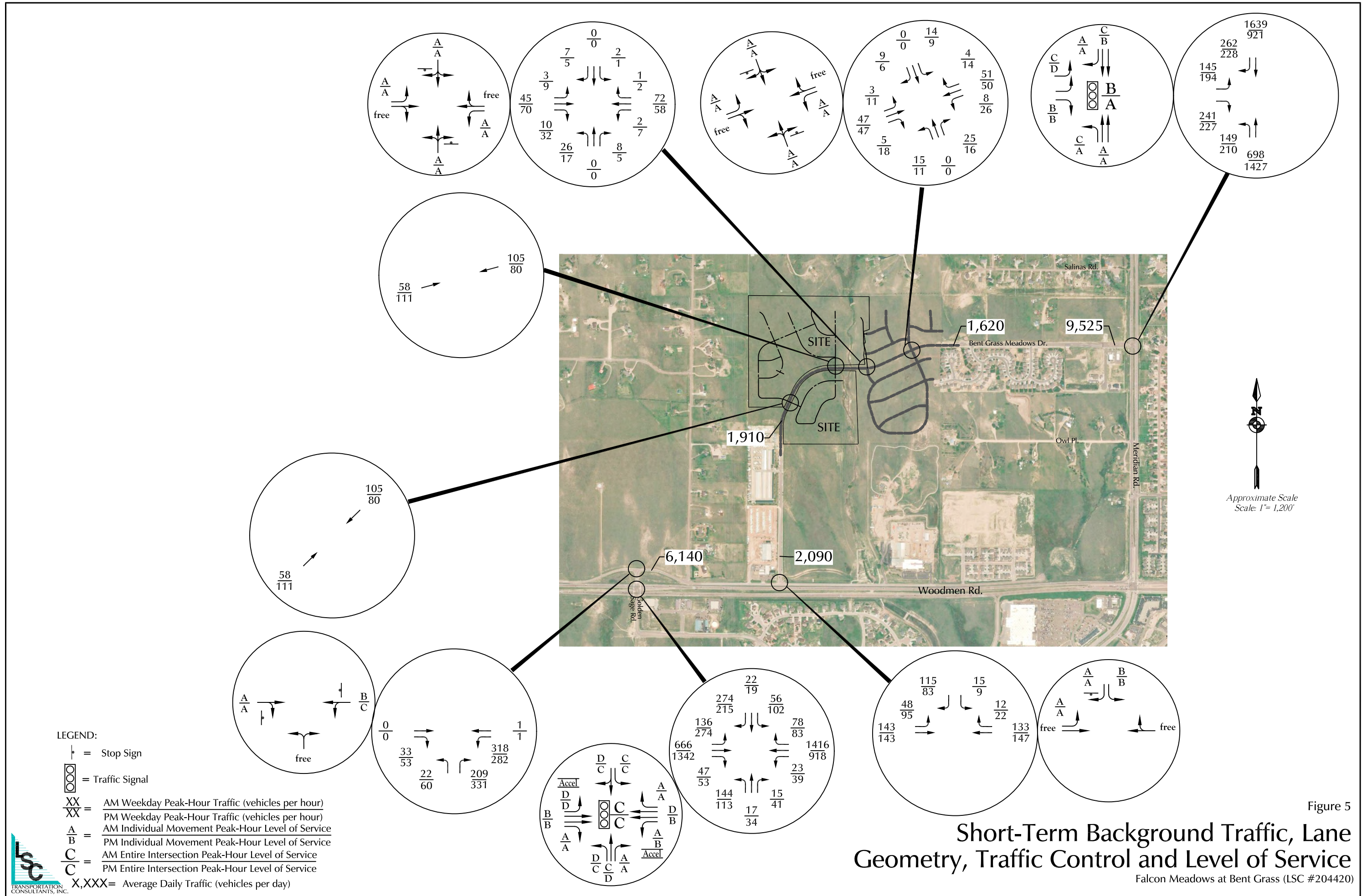


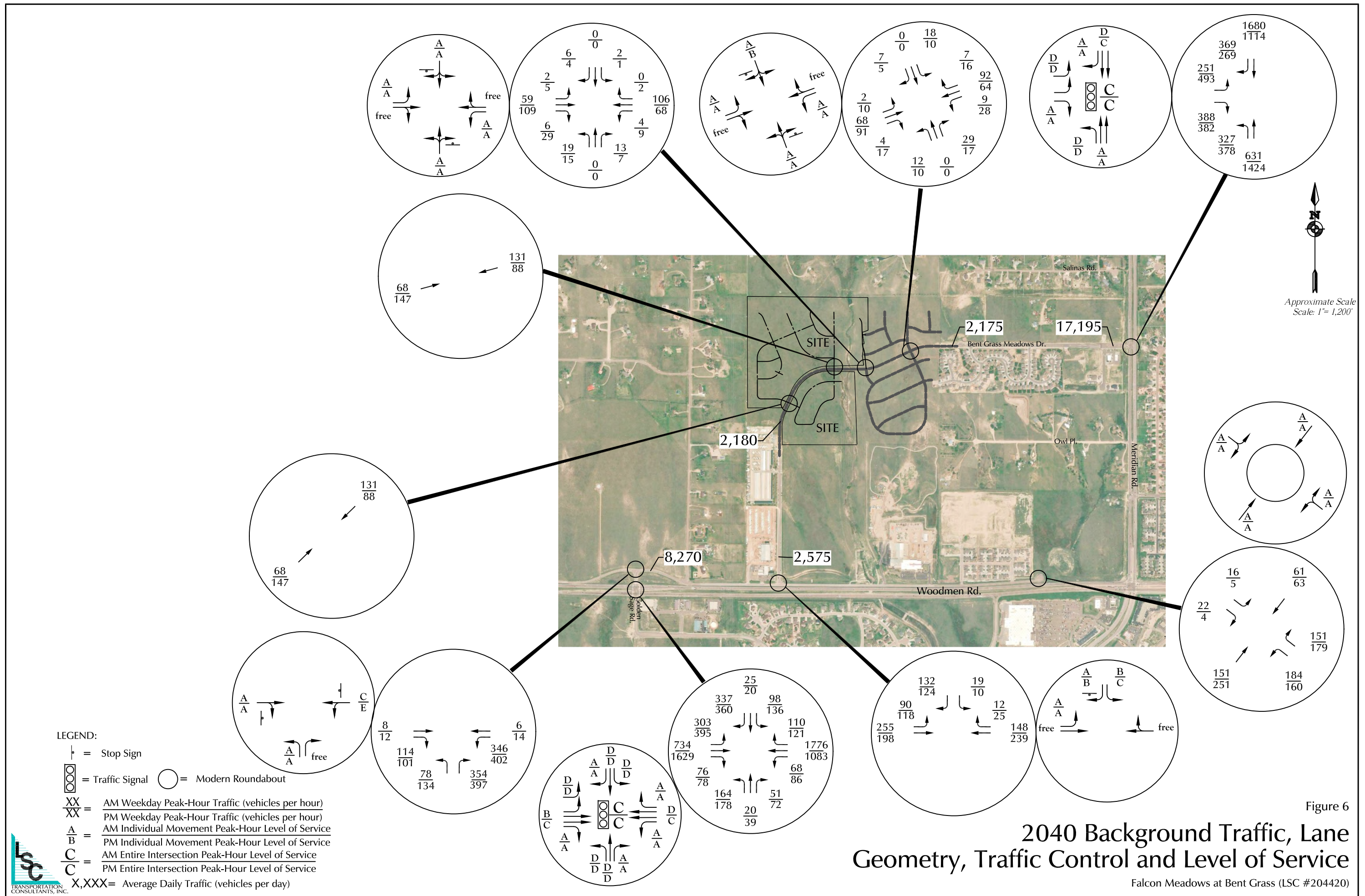
LEGEND:

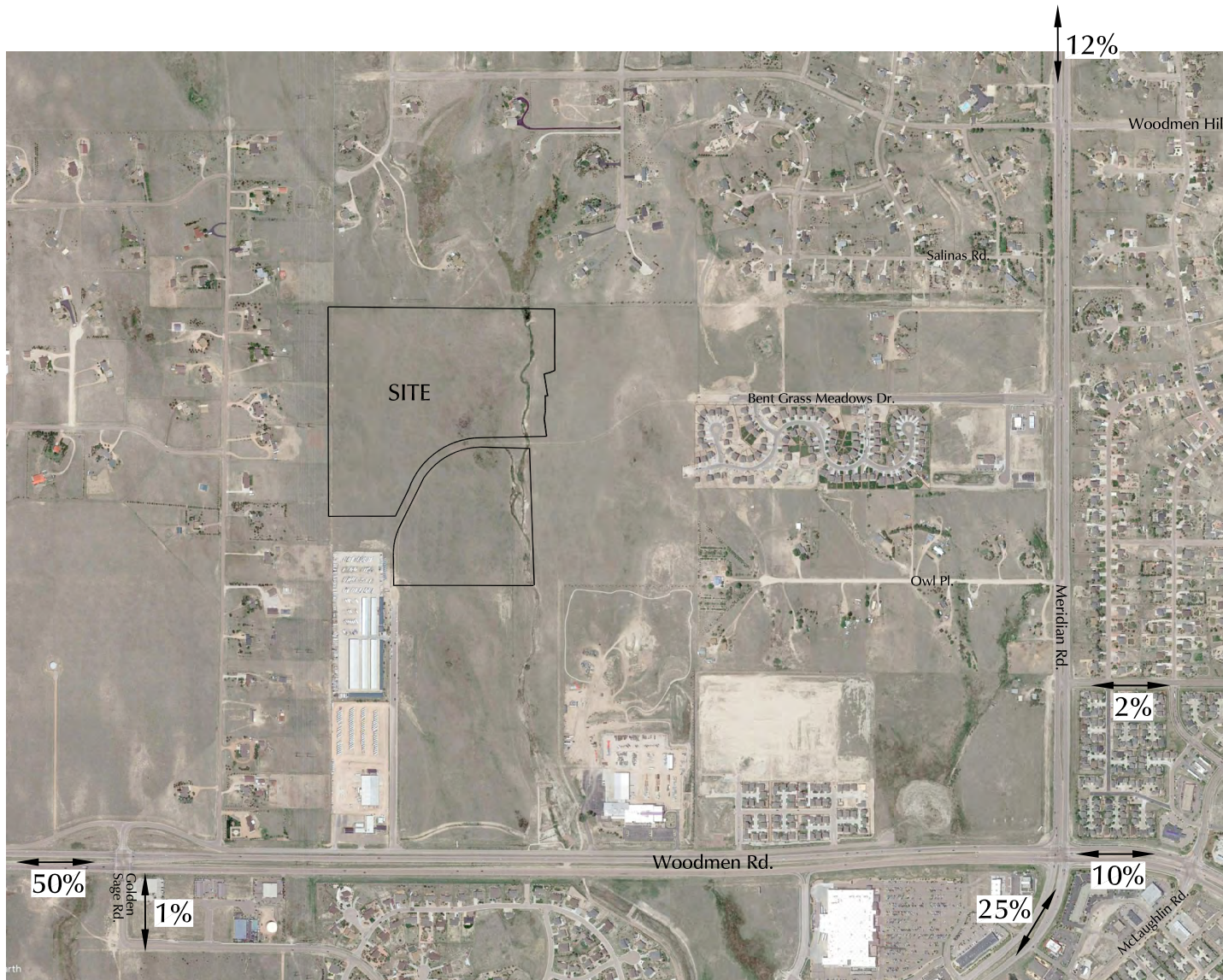
- = Stop Sign
- = Traffic Signal
- $\frac{XX}{XX}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{XX}{XX}$  = PM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{A}{B}$  = AM Individual Movement Peak-Hour Level of Service
- $\frac{A}{B}$  = PM Individual Movement Peak-Hour Level of Service
- $\frac{C}{C}$  = AM Entire Intersection Peak-Hour Level of Service
- $\frac{C}{C}$  = PM Entire Intersection Peak-Hour Level of Service
- X,XXX = Average Daily Traffic (vehicles per day)

\* Sufficient width for separate SB left- and right-turn lanes

Figure 4  
**Existing Traffic, Lane Geometry,  
 Traffic Control and Level of Service**  
 Falcon Meadows at Bent Grass (LSC #204420)










  
 Approximate Scale  
 Scale: 1" = 1,200'

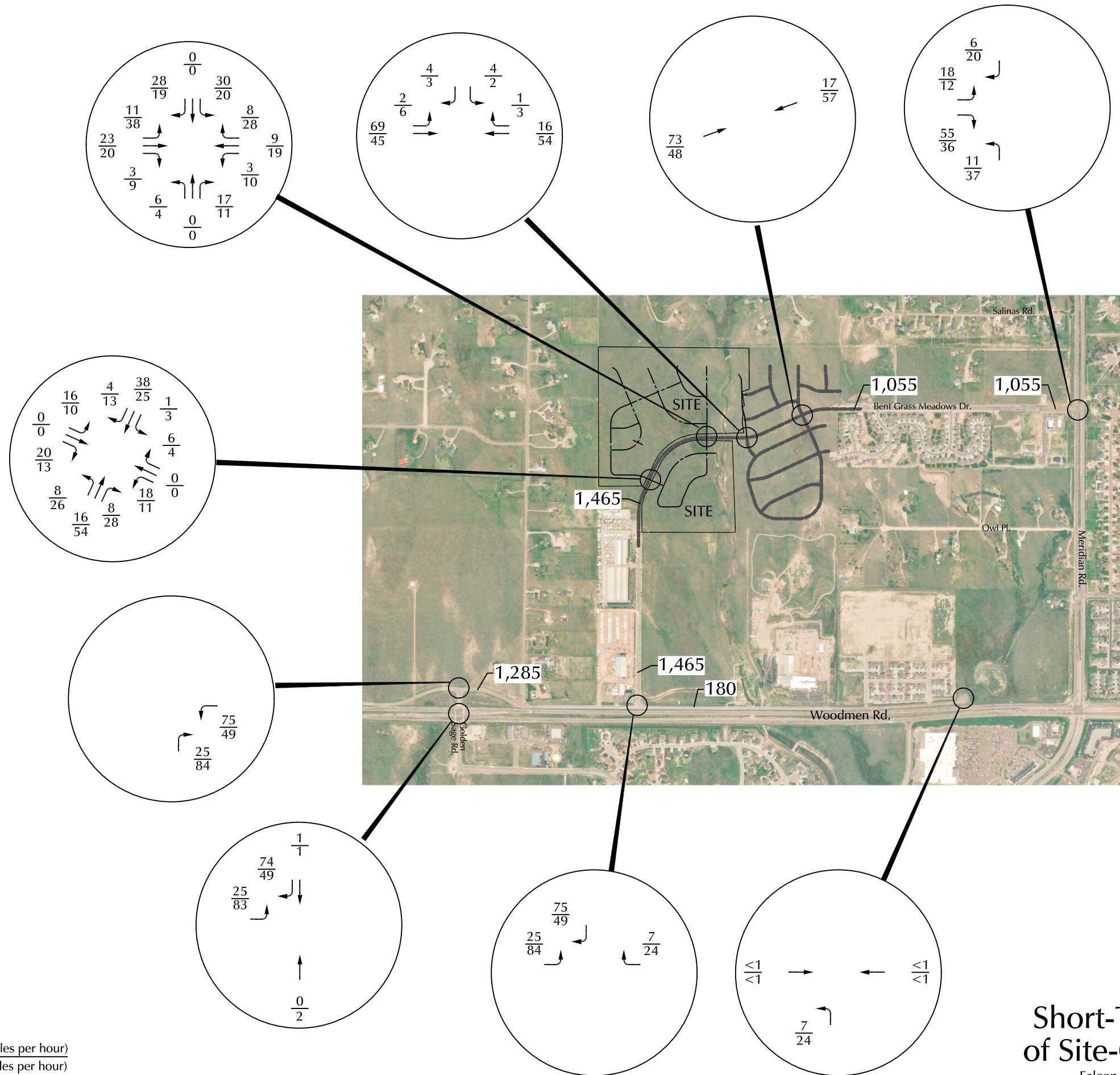
Figure 7

# Directional Distribution of Site-Generated Traffic

Falcon Meadows at Bent Grass (LSC #204420)


**TRANSPORTATION CONSULTANTS, INC.**

**LEGEND:**  
 XX% = Percent Directional Distribution




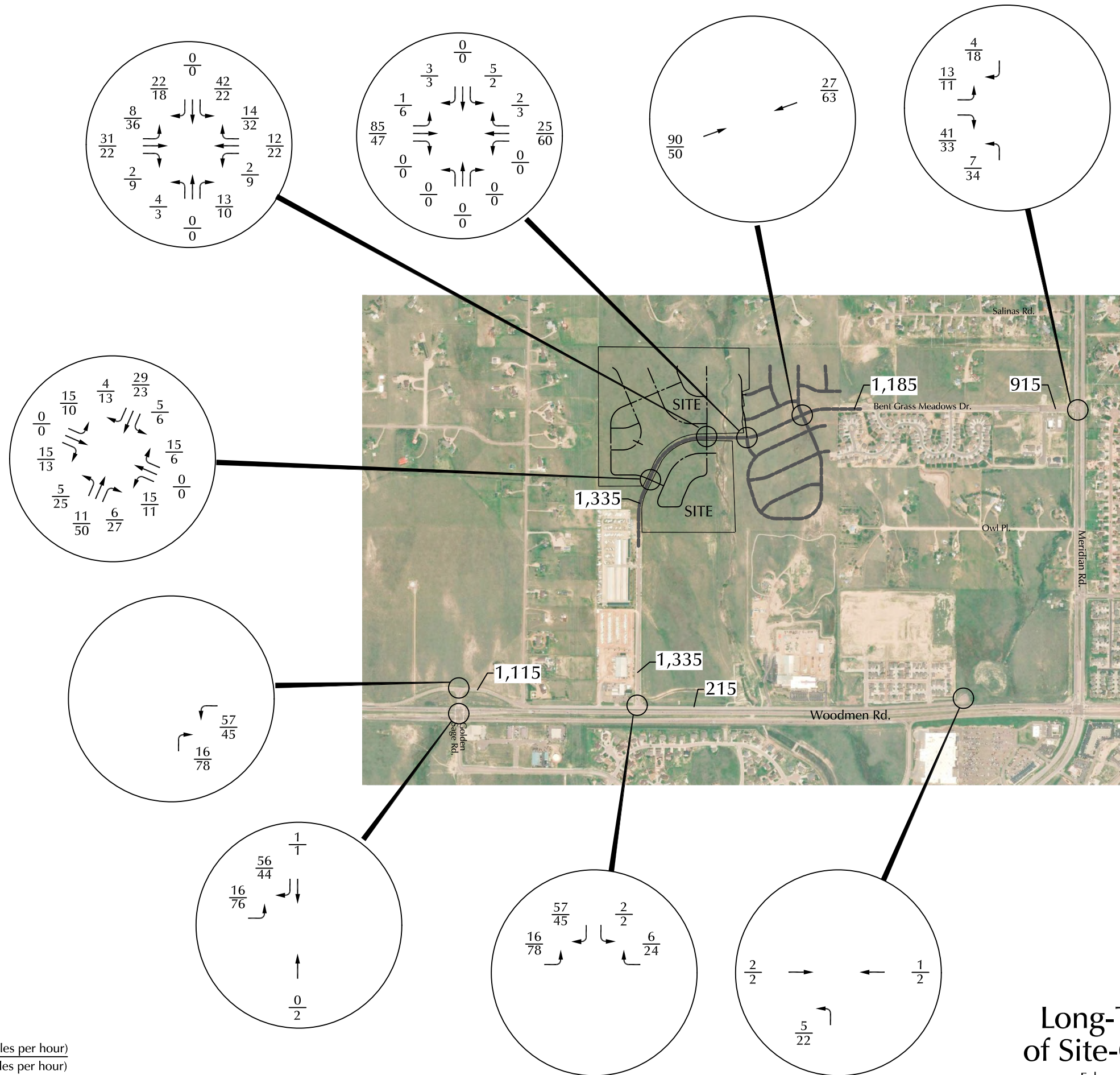

**LEGEND:**  
 $\frac{XX}{XX}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 $\frac{XX}{XX}$  = PM Weekday Peak-Hour Traffic (vehicles per hour)  
 X,XXX = Average Daily Traffic (vehicles per day)

Figure 8  
**Short-Term Assignment of Site-Generated Traffic**  
 Falcon Meadows at Bent Grass (LSC #204420)

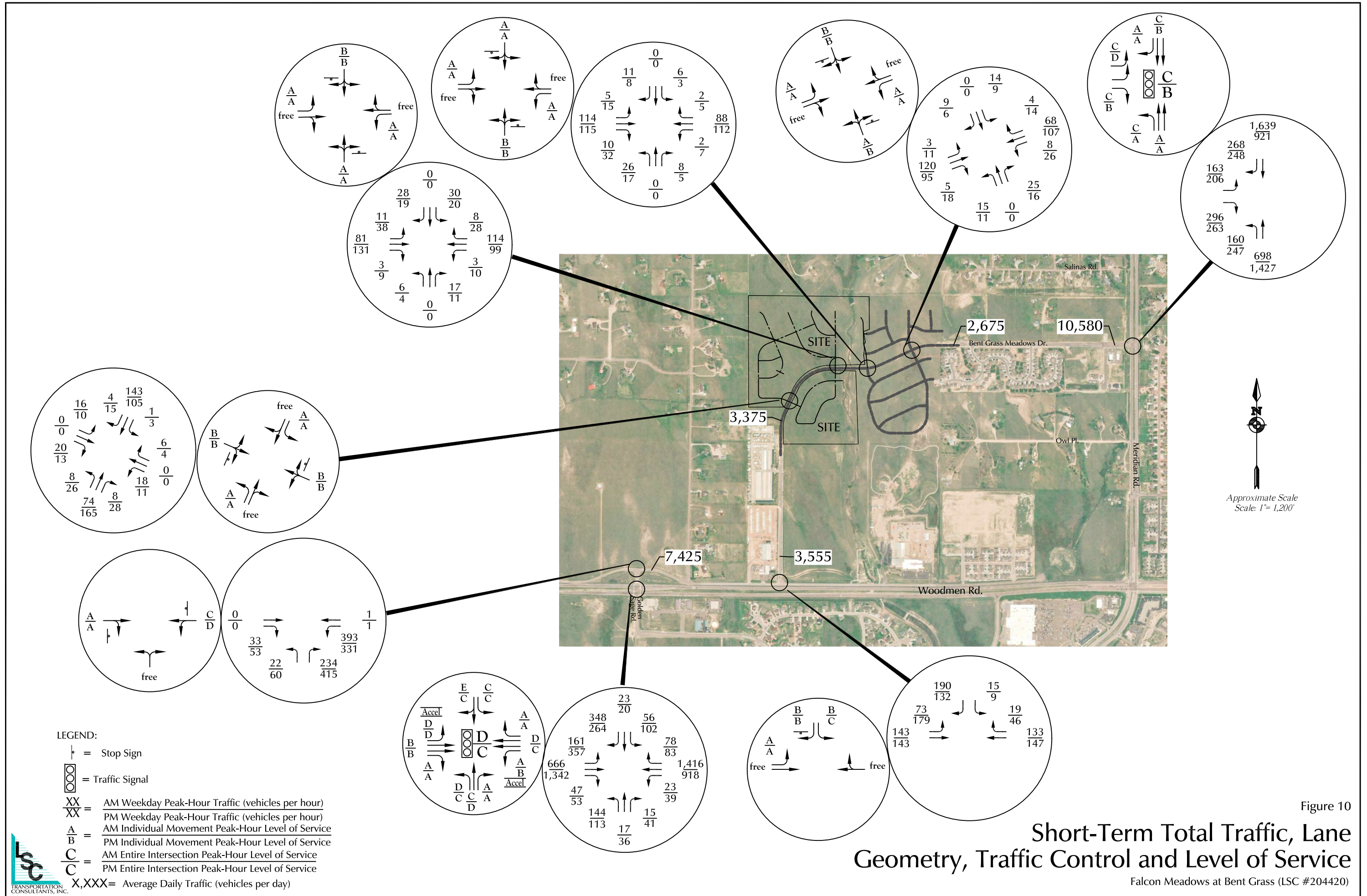


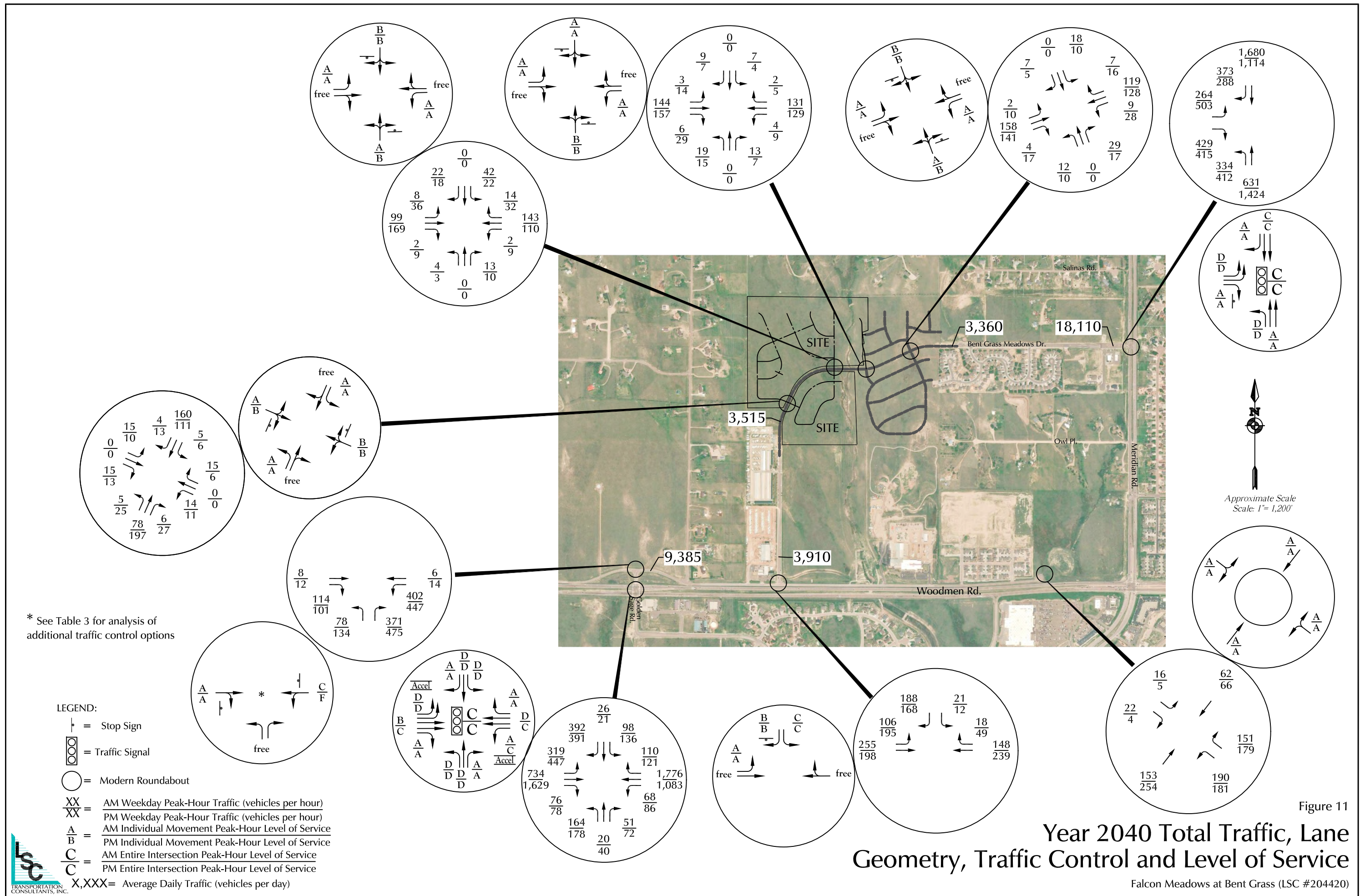
Approximate Scale  
Scale: 1" = 1,200'

LEGEND:  
 $\frac{XX}{XX}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 $\frac{XX}{XX}$  = PM Weekday Peak-Hour Traffic (vehicles per hour)  
 X,XXX = Average Daily Traffic (vehicles per day)

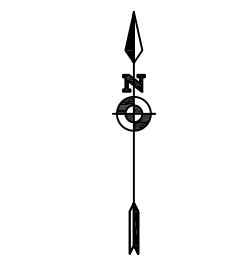
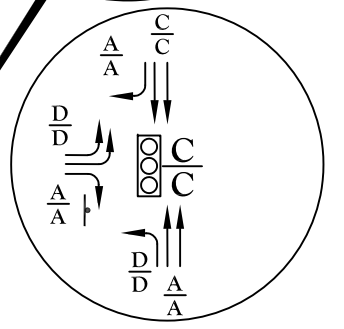
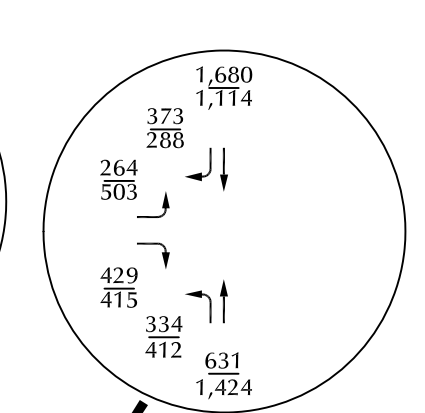
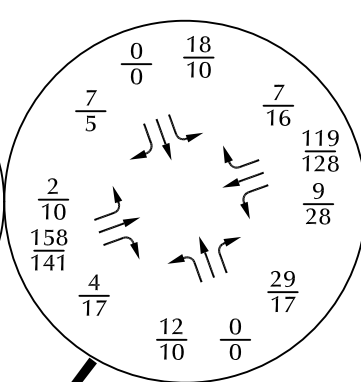
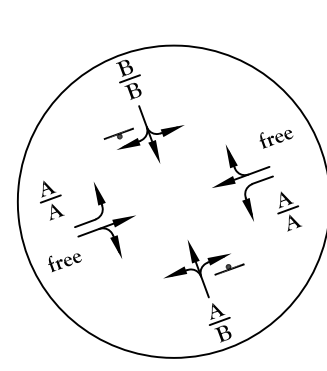
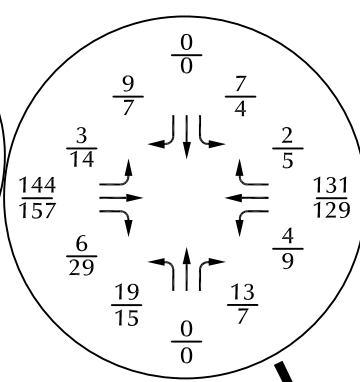
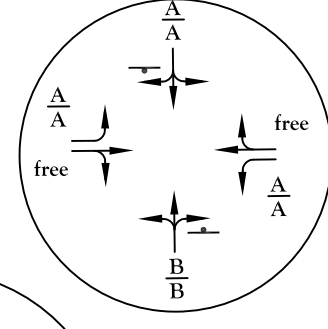
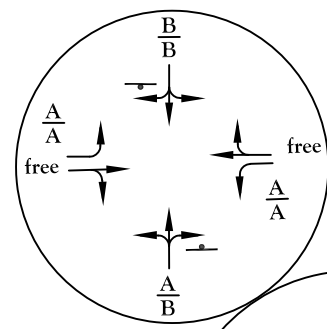
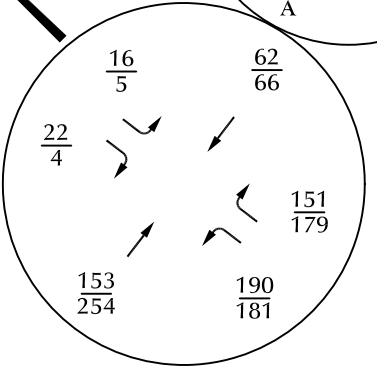
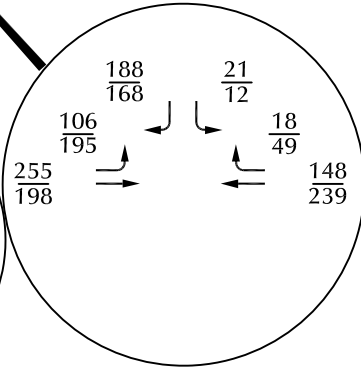
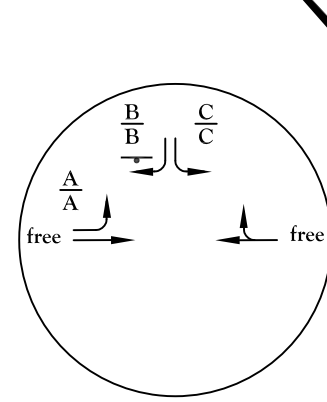
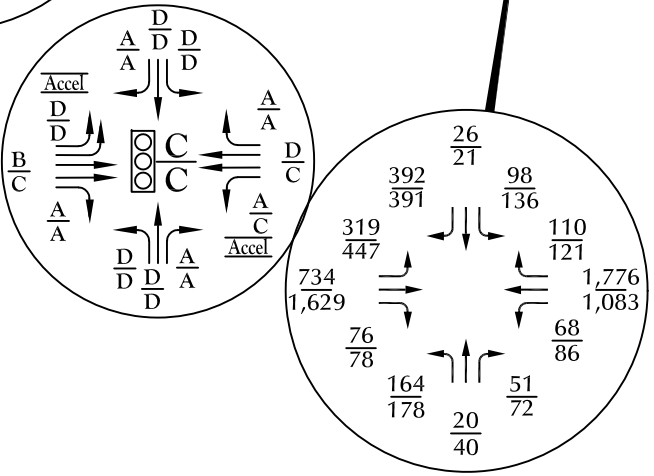
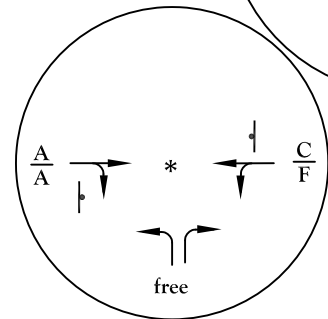
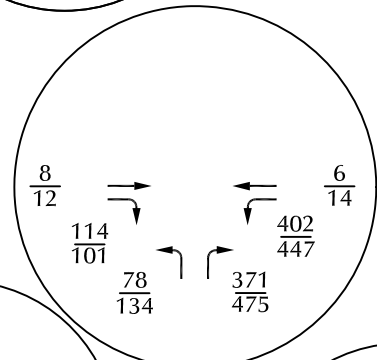
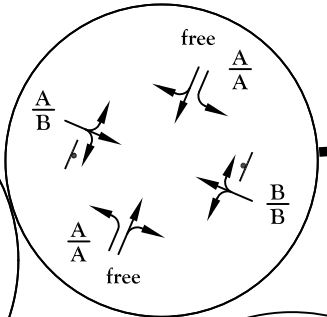
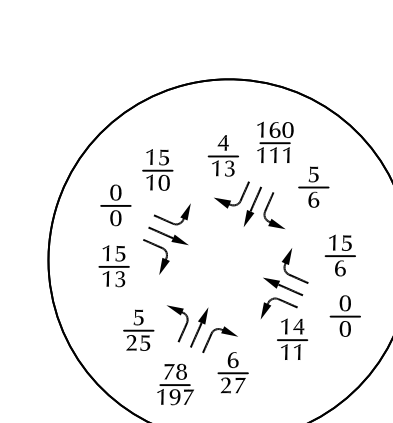
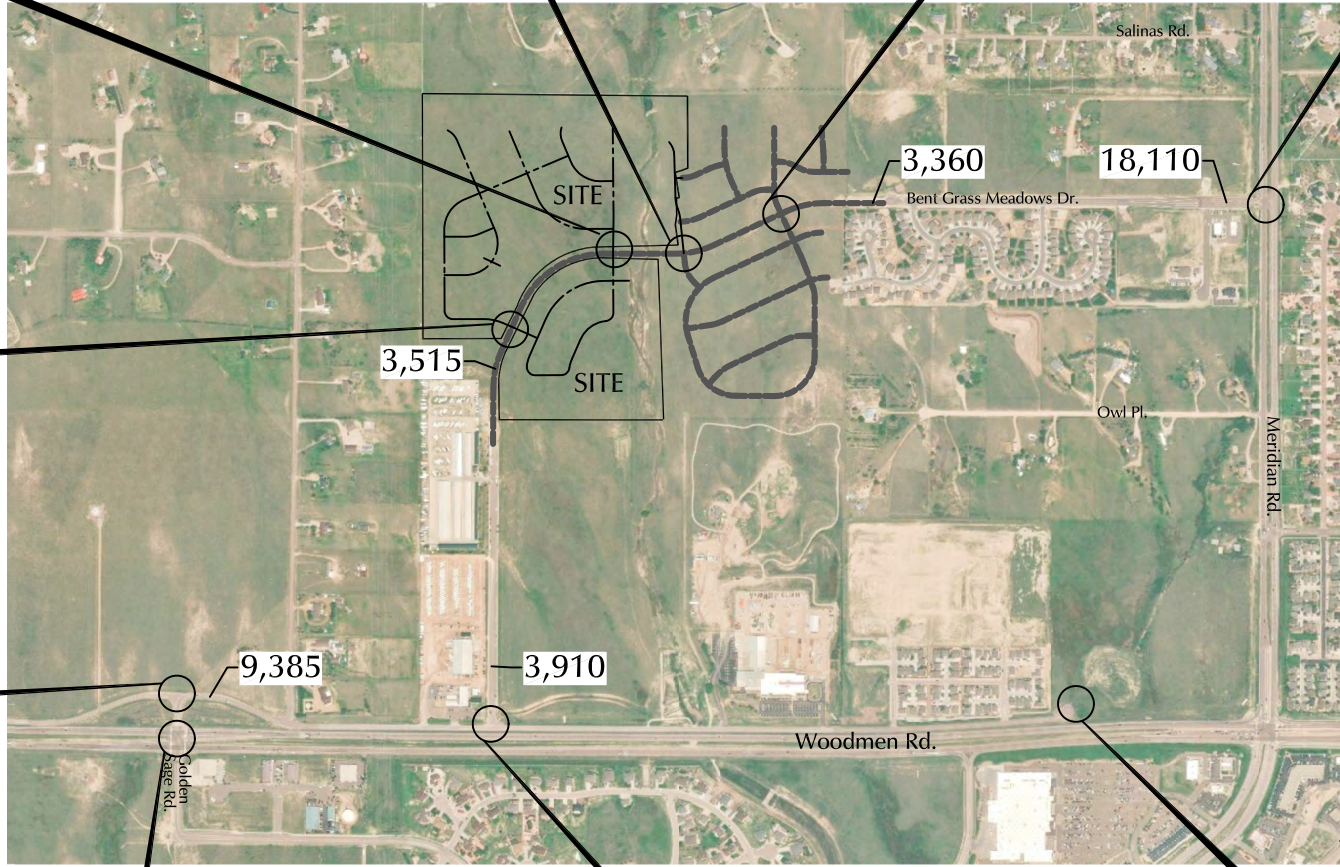
Figure 9  
**Long-Term Assignment  
 of Site-Generated Traffic**  
 Falcon Meadows at Bent Grass (LSC #204420)







\* See Table 3 for analysis of additional traffic control options



Approximate Scale  
Scale: 1" = 1,200'

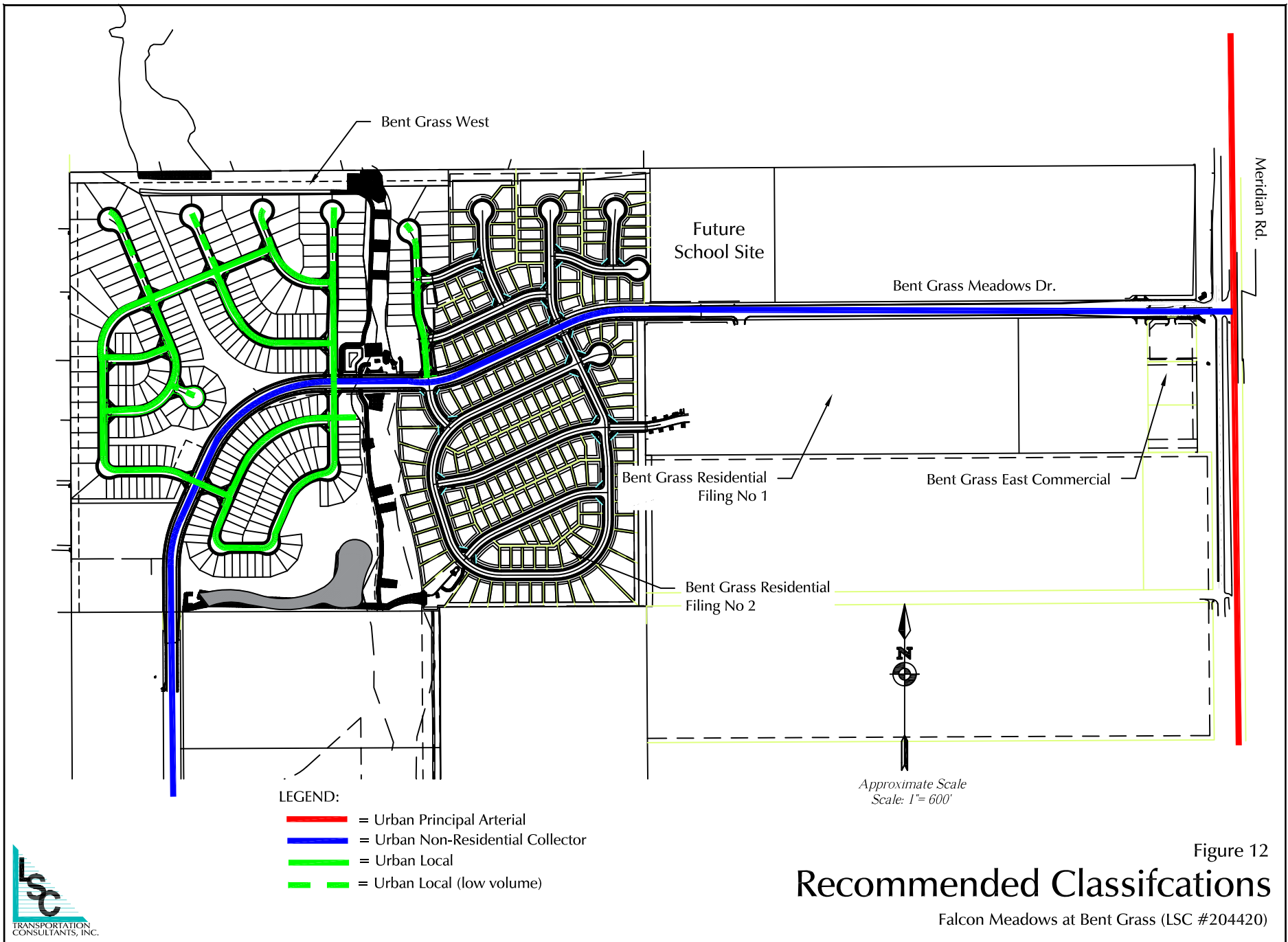


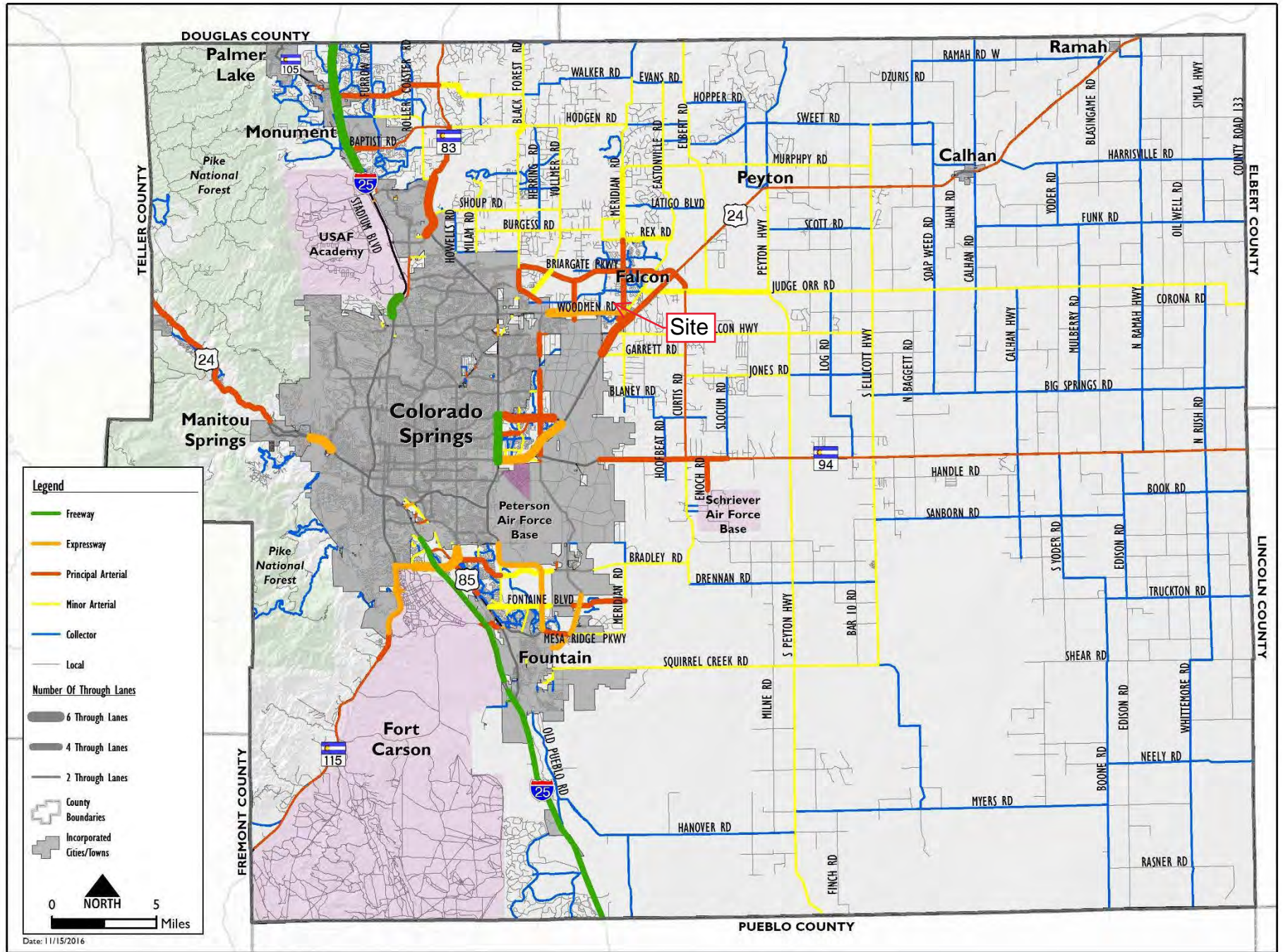
Figure 12  
**Recommended Classifications**

Falcon Meadows at Bent Grass (LSC #204420)

# MTCP Maps

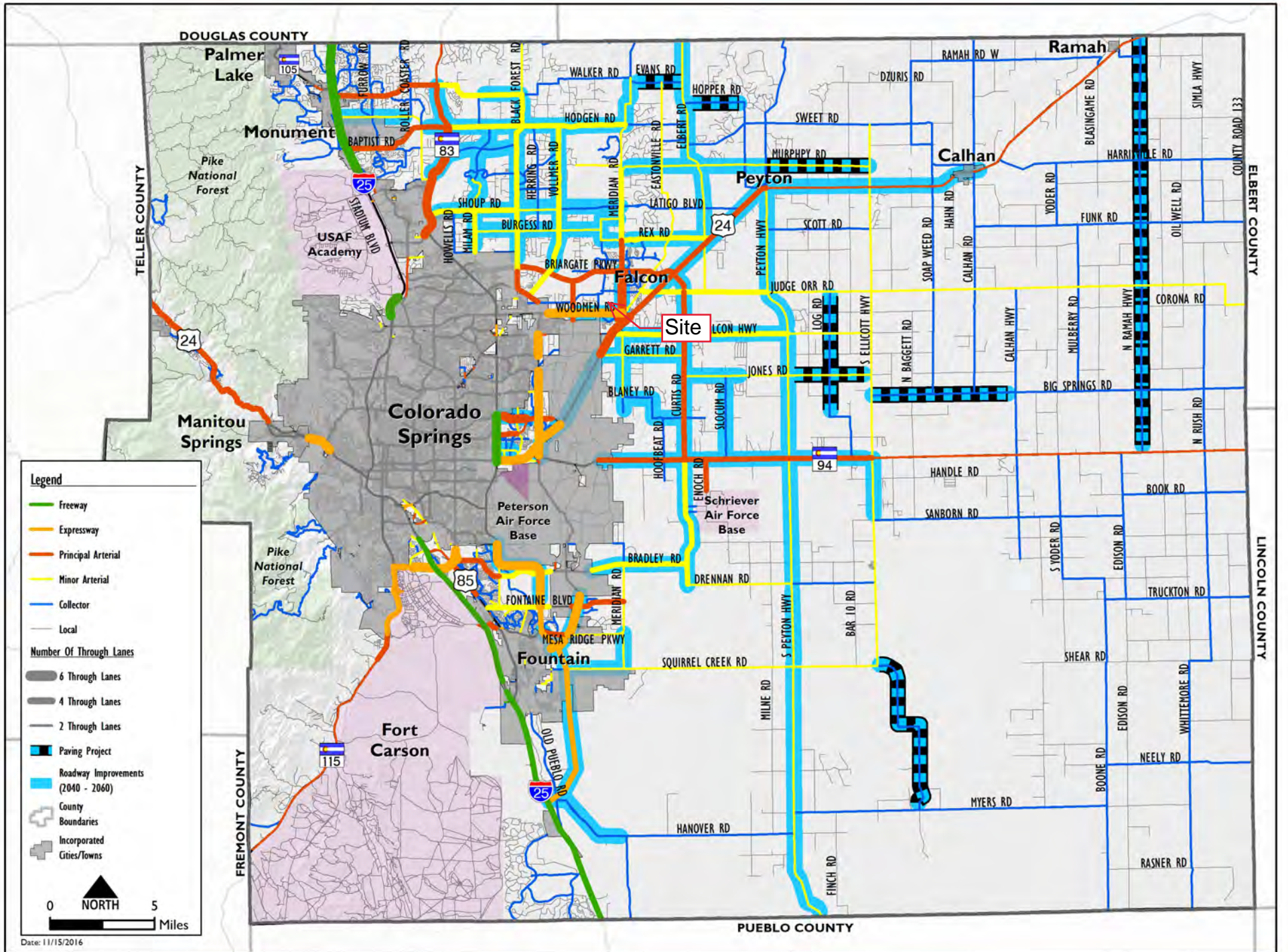
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Map 14: 2040 Roadway Plan (Classification and Lanes)

# Map 17: 2060 Corridor Preservation



# Traffic Counts

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# LSC Transportation Consultants, Inc.

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Colorado Springs, CO 80905

719-633-2868

File Name : Meridian Rd - Bent Grass Meadows Dr AM 9-18

Site Code : 154561

Start Date : 9/12/2018

Page No : 1

## Groups Printed- Unshifted

Start Time	Meridian Rd Southbound				Westbound				Meridian Rd Northbound				Bent Grass Meadows Dr Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	0	286	26	0	0	0	0	0	10	71	0	0	7	0	32	0	432
06:45	0	319	36	1	0	0	0	0	15	137	0	0	10	0	38	0	556
Total	0	605	62	1	0	0	0	0	25	208	0	0	17	0	70	0	988
07:00	0	426	24	0	0	0	0	0	9	121	0	0	13	0	37	0	630
07:15	0	443	29	0	0	0	0	0	13	195	0	0	16	0	41	0	737
07:30	0	372	33	0	0	0	0	0	19	179	0	0	17	0	30	0	650
07:45	0	297	40	0	0	0	0	0	16	162	0	0	22	0	43	0	580
Total	0	1538	126	0	0	0	0	0	57	657	0	0	68	0	151	0	2597
08:00	0	256	19	0	0	0	0	0	21	154	0	0	17	0	21	0	488
08:15	0	284	25	0	0	0	0	0	10	136	0	0	21	0	27	0	503
Grand Total	0	2683	232	1	0	0	0	0	113	1155	0	0	123	0	269	0	4576
Apprch %	0	92	8	0	0	0	0	0	8.9	91.1	0	0	31.4	0	68.6	0	
Total %	0	58.6	5.1	0	0	0	0	0	2.5	25.2	0	0	2.7	0	5.9	0	



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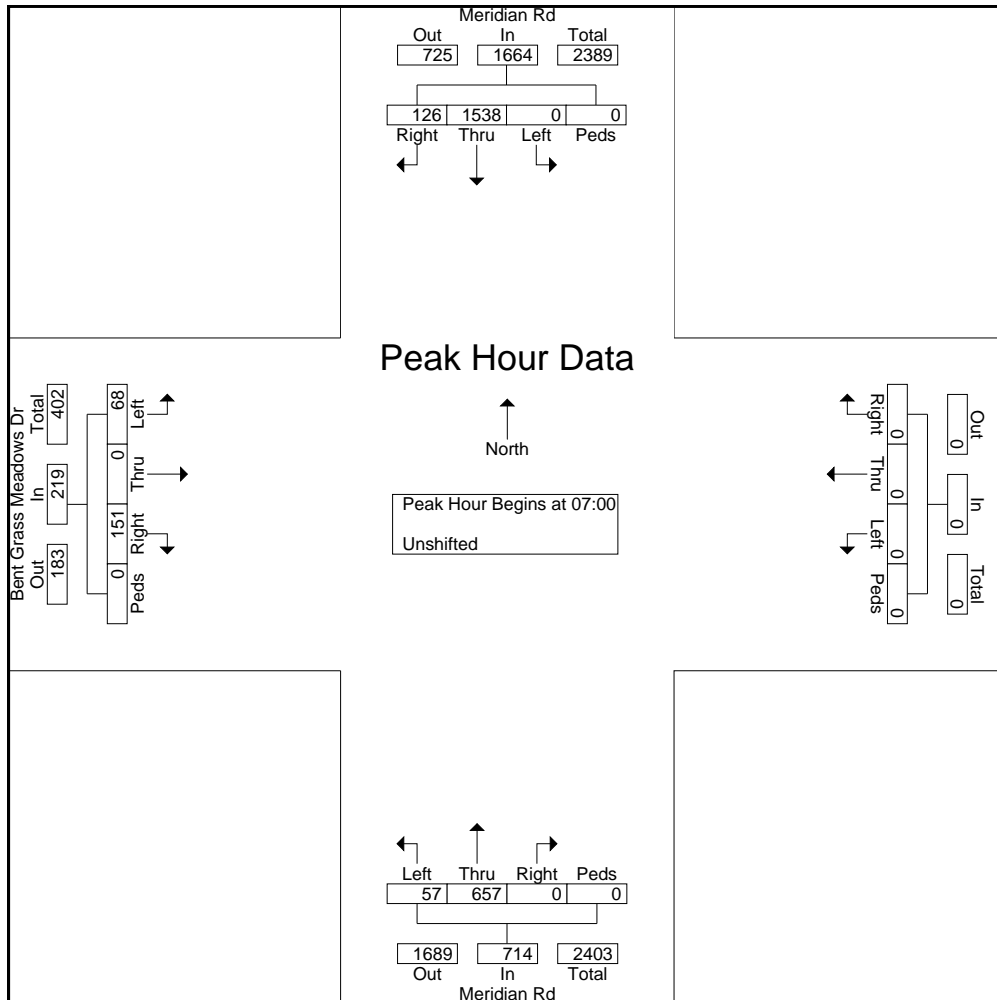
File Name : Meridian Rd - Bent Grass Meadows Dr AM 9-18

Site Code : 154561

Start Date : 9/12/2018

Page No : 2

Start Time	Meridian Rd Southbound					Westbound					Meridian Rd Northbound					Bent Grass Meadows Dr Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	426	24	0	450	0	0	0	0	0	9	121	0	0	130	13	0	37	0	50	630
07:15	0	<b>443</b>	29	0	<b>472</b>	0	0	0	0	0	13	<b>195</b>	0	0	<b>208</b>	16	0	41	0	57	<b>737</b>
07:30	0	372	33	0	405	0	0	0	0	0	<b>19</b>	179	0	0	198	17	0	30	0	47	650
07:45	0	297	<b>40</b>	0	337	0	0	0	0	0	16	162	0	0	178	<b>22</b>	0	<b>43</b>	0	<b>65</b>	580
Total Volume	0	1538	126	0	1664	0	0	0	0	0	57	657	0	0	714	68	0	151	0	219	2597
% App. Total	0	92.4	7.6	0		0	0	0	0		8	92	0	0		31.1	0	68.9	0		
PHF	.000	.868	.788	.000	.881	.000	.000	.000	.000	.000	.750	.842	.000	.000	.858	.773	.000	.878	.000	.842	.881



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## Groups Printed- Unshifted

Start Time	Meridian Rd Southbound				Westbound				Meridian Rd Northbound				Bent Grass Meadows Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
16:15	0	192	21	0	0	0	0	0	20	295	0	0	15	0	25	0	568
16:30	0	213	19	0	0	0	0	0	22	344	0	0	12	0	15	0	625
16:45	0	197	19	0	0	0	0	0	19	332	0	0	20	0	23	0	610
Total	0	602	59	0	0	0	0	0	61	971	0	0	47	0	63	0	1803
17:00	0	223	27	0	0	0	0	0	16	347	0	0	11	0	25	0	649
17:15	0	214	19	0	0	0	0	0	25	348	0	0	16	0	28	0	650
17:30	0	252	25	0	0	0	0	0	23	318	0	0	9	0	19	0	646
17:45	0	179	27	0	0	0	0	0	19	328	0	0	15	0	22	0	590
Total	0	868	98	0	0	0	0	0	83	1341	0	0	51	0	94	0	2535
18:00	0	169	25	0	0	0	0	0	18	321	0	0	11	0	28	0	572
Grand Total	0	1639	182	0	0	0	0	0	162	2633	0	0	109	0	185	0	4910
Apprch %	0	90	10	0	0	0	0	0	5.8	94.2	0	0	37.1	0	62.9	0	
Total %	0	33.4	3.7	0	0	0	0	0	3.3	53.6	0	0	2.2	0	3.8	0	

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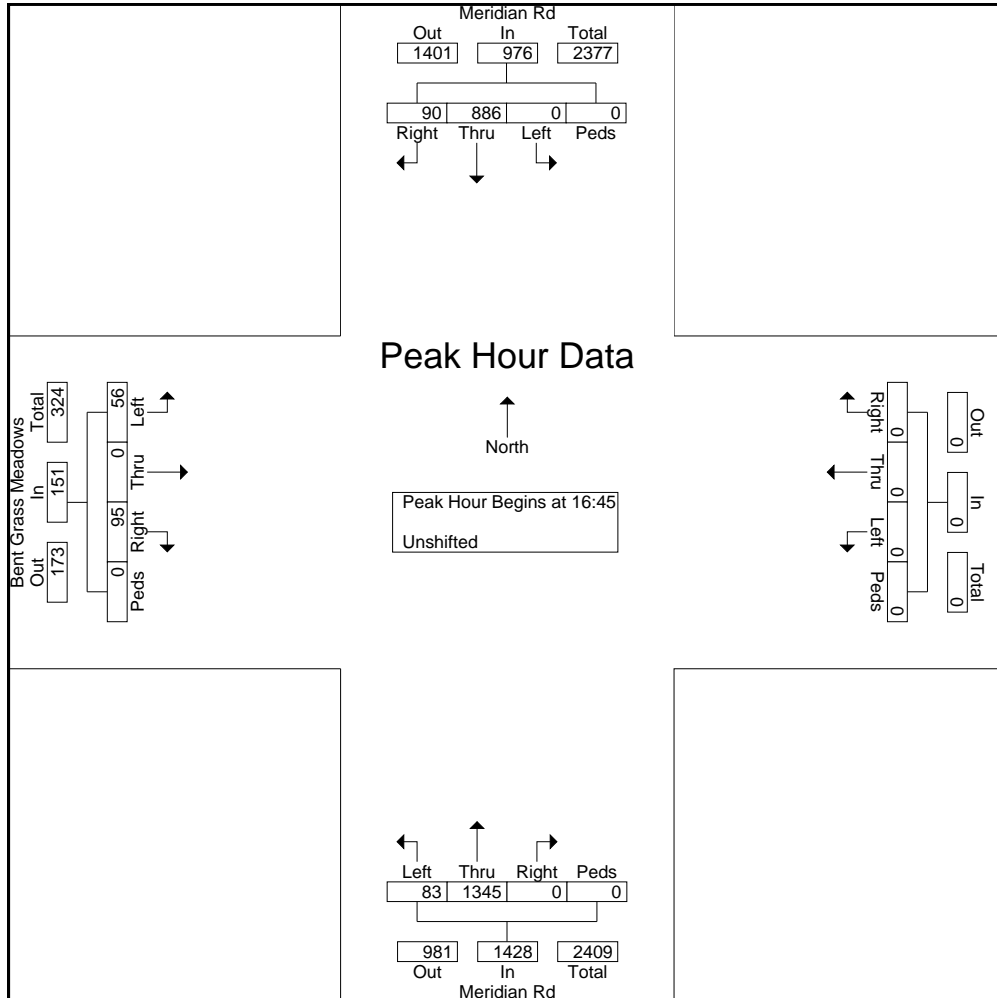
File Name : Meridian Rd - Bent Grass Meadows PM 9-18

Site Code : 154561

Start Date : 9/12/2018

Page No : 2

Start Time	Meridian Rd Southbound					Westbound					Meridian Rd Northbound					Bent Grass Meadows Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 16:15 to 18:00 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	0	197	19	0	216	0	0	0	0	0	19	332	0	0	351	20	0	23	0	43	610
17:00	0	223	27	0	250	0	0	0	0	0	16	347	0	0	363	11	0	25	0	36	649
17:15	0	214	19	0	233	0	0	0	0	0	25	348	0	0	373	16	0	28	0	44	650
17:30	0	252	25	0	277	0	0	0	0	0	23	318	0	0	341	9	0	19	0	28	646
Total Volume	0	886	90	0	976	0	0	0	0	0	83	1345	0	0	1428	56	0	95	0	151	2555
% App. Total	0	90.8	9.2	0		0	0	0	0		5.8	94.2	0	0		37.1	0	62.9	0		
PHF	.000	.879	.833	.000	.881	.000	.000	.000	.000	.000	.830	.966	.000	.000	.957	.700	.000	.848	.000	.858	.983



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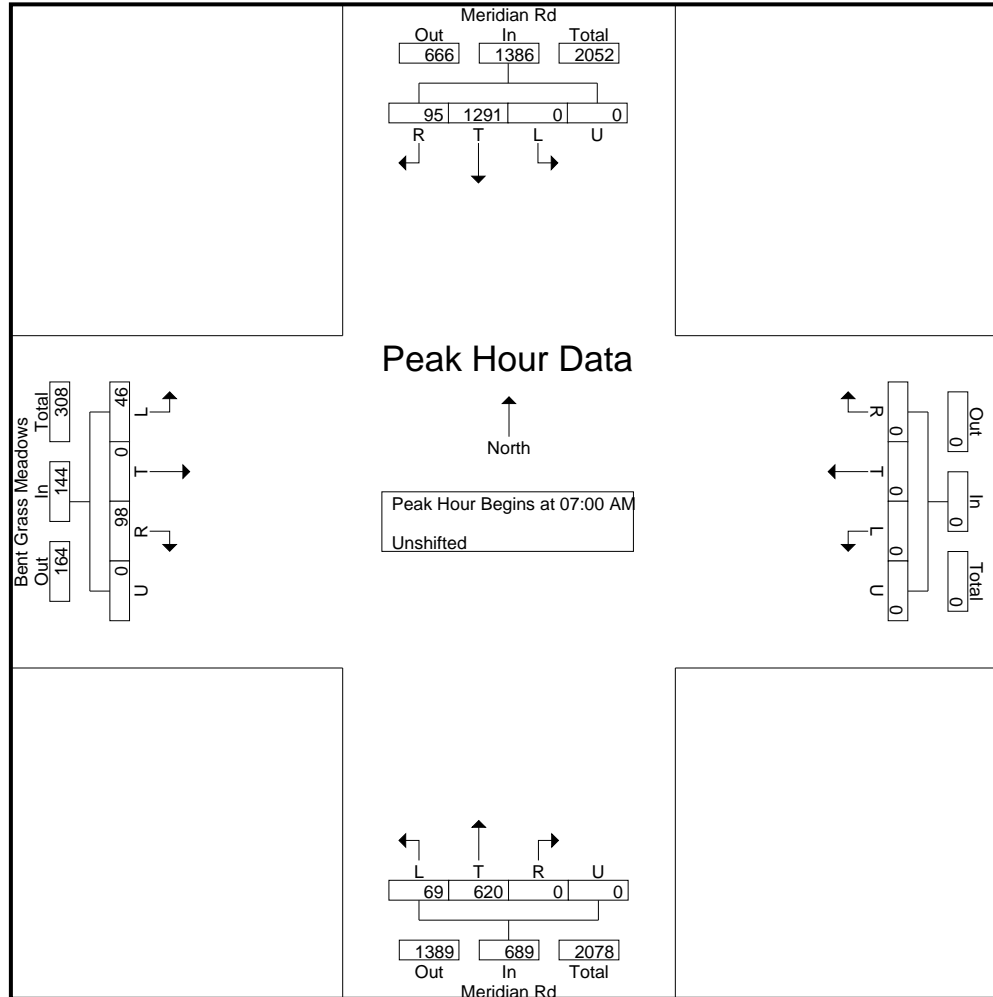
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07:00 AM	0	314	11	0	325	0	0	0	0	0	17	106	0	0	123	7	0	18	0	25	473
07:15 AM	0	338	22	0	360	0	0	0	0	0	19	169	0	0	188	5	0	20	0	25	573
07:30 AM	0	357	35	0	392	0	0	0	0	0	16	170	0	0	186	20	0	35	0	55	633
07:45 AM	0	282	27	0	309	0	0	0	0	0	17	175	0	0	192	14	0	25	0	39	540
Total	0	1291	95	0	1386	0	0	0	0	0	69	620	0	0	689	46	0	98	0	144	2219
08:00 AM	0	208	15	0	223	0	0	0	0	0	14	118	0	0	132	12	0	16	0	28	383
08:15 AM	0	236	24	0	260	0	0	0	0	0	18	164	0	0	182	10	0	21	0	31	473
08:30 AM	0	235	15	0	250	0	0	0	0	0	13	146	1	0	160	15	0	17	0	32	442
08:45 AM	0	199	16	0	215	0	0	0	0	0	25	148	0	0	173	12	0	14	0	26	414
Total	0	878	70	0	948	0	0	0	0	0	70	576	1	0	647	49	0	68	0	117	1712
Grand Total	0	2169	165	0	2334	0	0	0	0	0	139	1196	1	0	1336	95	0	166	0	261	3931
Apprch %	0	92.9	7.1	0		0	0	0	0	0	10.4	89.5	0.1	0		36.4	0	63.6	0		
Total %	0	55.2	4.2	0	59.4	0	0	0	0	0	3.5	30.4	0	0	34	2.4	0	4.2	0	6.6	

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File Name : Meridian Rd - Bent Grass Meadows PM  
 Site Code : 00204660  
 Start Date : 10/6/2020  
 Page No : 1

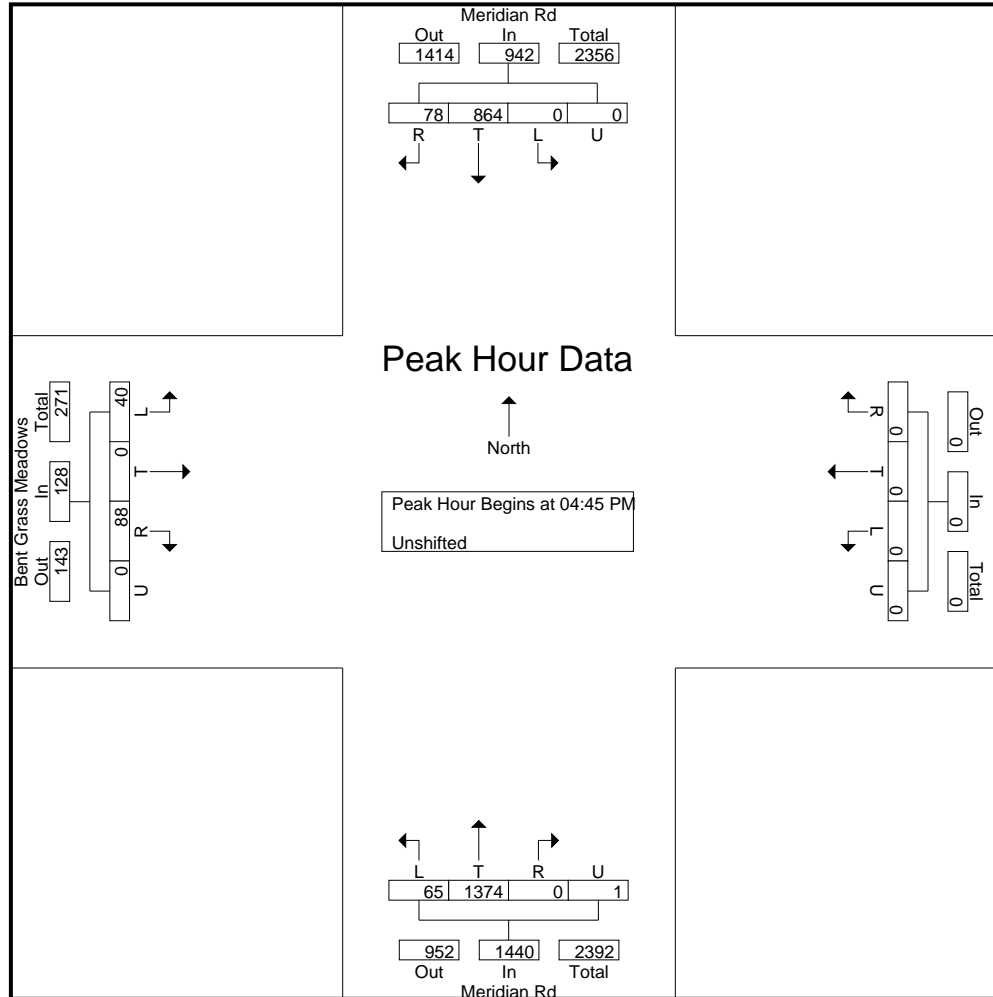
### Groups Printed- Unshifted

Start Time	Meridian Rd Southbound					Westbound					Meridian Rd Northbound					Bent Grass Meadows Eastbound					Int. Total
	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	
04:00 PM	0	250	30	0	280	0	0	0	0	0	16	281	0	0	297	10	0	28	0	38	615
04:15 PM	0	226	18	0	244	0	0	0	0	0	21	318	0	0	339	15	0	27	0	42	625
04:30 PM	0	214	13	0	227	0	0	0	0	0	16	299	0	0	315	12	0	29	0	41	583
04:45 PM	0	223	21	0	244	0	0	0	0	0	15	341	0	0	356	11	0	17	0	28	628
Total	0	913	82	0	995	0	0	0	0	0	68	1239	0	0	1307	48	0	101	0	149	2451
05:00 PM	0	224	22	0	246	0	0	0	0	0	19	364	0	0	383	9	0	30	0	39	668
05:15 PM	0	201	19	0	220	0	0	0	0	0	18	335	0	1	354	11	0	18	0	29	603
05:30 PM	0	216	16	0	232	0	0	0	0	0	13	334	0	0	347	9	0	23	0	32	611
05:45 PM	0	210	6	0	216	0	0	0	0	0	16	287	0	0	303	10	0	14	0	24	543
Total	0	851	63	0	914	0	0	0	0	0	66	1320	0	1	1387	39	0	85	0	124	2425
Grand Total	0	1764	145	0	1909	0	0	0	0	0	134	2559	0	1	2694	87	0	186	0	273	4876
Apprch %	0	92.4	7.6	0		0	0	0	0	0	5	95	0	0		31.9	0	68.1	0		
Total %	0	36.2	3	0	39.2	0	0	0	0	0	2.7	52.5	0	0	55.3	1.8	0	3.8	0	5.6	

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 Site Code : 00204660  
 Start Date : 10/6/2020  
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# LSC Transportation Consultants, Inc.

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Colorado Springs, CO 80905

719-633-2868

File Name Bent Grass Meadows Dr/Woodmen frontage road

Site Code

Start Date 5/15/2019

Page #

## Groups Printed- Unshifted

Start Time	Bent Grass Meadows Southbound					Woodmen Frontage Rd Westbound					Northbound					Woodmen Frontage Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
06:30 AM	1	0	20	0	21	0	14	0	0	14	0	0	0	0	0	0	37	0	0	37	72
06:45 AM	0	0	6	0	6	0	15	0	0	15	0	0	0	0	0	1	49	0	0	50	71
Total	1	0	26	0	27	0	29	0	0	29	0	0	0	0	0	1	86	0	0	87	143
07:00 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	14	0	0	14	38
07:15 AM	0	0	2	0	2	0	33	0	0	33	0	0	0	0	0	4	16	0	0	20	55
07:30 AM	0	0	3	0	3	0	24	0	0	24	0	0	0	0	0	2	6	0	0	8	35
07:45 AM	0	0	2	0	2	0	23	0	0	23	0	0	0	0	0	0	8	0	0	8	33
Total	0	0	7	0	7	0	104	0	0	104	0	0	0	0	0	6	44	0	0	50	161
08:00 AM	0	0	1	0	1	0	12	0	0	12	0	0	0	0	0	2	9	0	0	11	24
08:15 AM	0	0	13	0	13	0	14	0	0	14	0	0	0	0	0	0	11	0	0	11	38





# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name Bent Grass Meadows Dr/Woodmen frontage road

Site Code

Start Date 5/15/2019

Page #

### Groups Printed- Unshifted

Start Time	Bent Grass Meadows Southbound					Woodmen Frontage Rd Westbound					Northbound					Woodmen Frontage Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
04:00 PM	0	0	2	0	2	0	13	0	0	13	0	0	0	0	0	3	14	0	0	17	32
04:15 PM	0	0	4	0	4	0	11	0	0	11	0	0	0	0	0	1	21	0	0	22	37
04:30 PM	0	0	20	0	20	0	10	0	0	10	0	0	0	0	0	3	16	0	0	19	49
04:45 PM	0	0	12	0	12	0	10	1	0	11	0	0	0	0	0	2	24	0	0	26	49
Total	0	0	38	0	38	0	44	1	0	45	0	0	0	0	0	9	75	0	0	84	167
05:00 PM	0	0	7	0	7	0	10	0	0	10	0	0	0	0	0	0	18	0	0	18	35
05:15 PM	0	0	3	0	3	0	17	0	0	17	0	0	0	0	0	3	17	0	0	20	40
05:30 PM	0	0	2	0	2	0	83	1	0	84	0	0	0	0	0	3	17	0	0	20	106
05:45 PM	0	0	3	0	3	0	25	0	0	25	0	0	0	0	0	1	16	0	0	17	45
Total	0	0	15	0	15	0	135	1	0	136	0	0	0	0	0	7	68	0	0	75	226

# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Rd AM 1-20  
 Site Code : 00194460  
 Start Date : 1/21/2020  
 Page No : 1

### Groups Printed- Unshifted

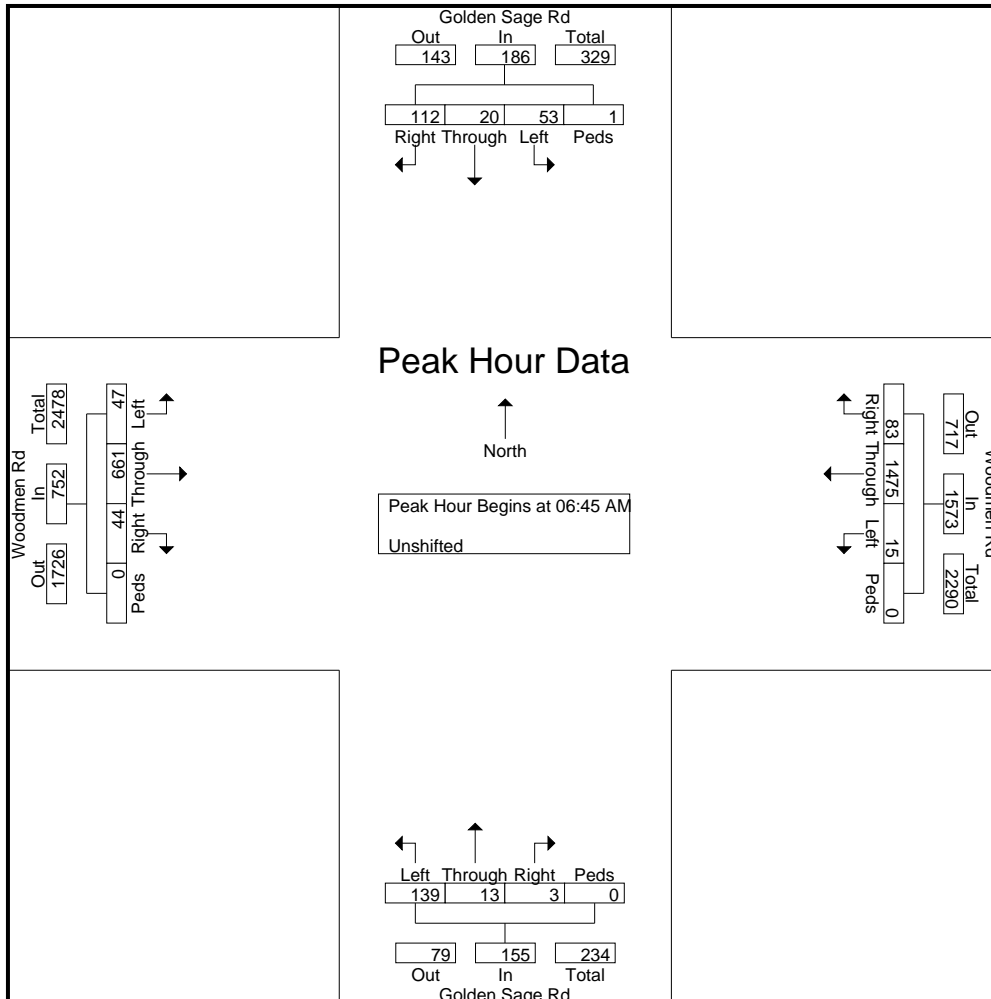
Start Time	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
06:30 AM	5	1	25	0	31	0	195	48	1	244	20	2	0	0	22	10	107	0	0	117	414
06:45 AM	12	5	28	0	45	4	355	30	0	389	24	4	0	0	28	14	151	9	0	174	636
Total	17	6	53	0	76	4	550	78	1	633	44	6	0	0	50	24	258	9	0	291	1050
07:00 AM	17	7	29	0	53	2	340	25	0	367	42	2	1	0	45	13	158	13	0	184	649
07:15 AM	8	4	30	0	42	3	424	16	0	443	44	3	1	0	48	12	171	11	0	194	727
07:30 AM	16	4	25	1	46	6	356	12	0	374	29	4	1	0	34	8	181	11	0	200	654
07:45 AM	7	1	7	0	15	2	293	17	0	312	13	5	0	0	18	16	209	20	0	245	590
Total	48	16	91	1	156	13	1413	70	0	1496	128	14	3	0	145	49	719	55	0	823	2620
08:00 AM	9	1	14	0	24	3	239	12	1	255	18	0	0	0	18	16	165	13	1	195	492
08:15 AM	13	2	12	0	27	2	267	19	1	289	18	3	2	0	23	28	142	6	1	177	516
Grand Total	87	25	170	1	283	22	2469	179	3	2673	208	23	5	0	236	117	1284	83	2	1486	4678
Apprch %	30.7	8.8	60.1	0.4		0.8	92.4	6.7	0.1		88.1	9.7	2.1	0		7.9	86.4	5.6	0.1		
Total %	1.9	0.5	3.6	0	6	0.5	52.8	3.8	0.1	57.1	4.4	0.5	0.1	0	5	2.5	27.4	1.8	0	31.8	

# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Rd AM 1-20  
 Site Code : 00194460  
 Start Date : 1/21/2020  
 Page No : 2

Start Time	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
<b>Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1</b>																					
Peak Hour for Entire Intersection Begins at 6:45:00 AM																					
6:45:00 AM	12	5	28	0	45	4	355	30	0	389	24	4	0	0	28	14	151	9	0	174	636
7:00:00 AM	17	7	29	0	53	2	340	25	0	367	42	2	1	0	45	13	158	13	0	184	649
7:15:00 AM	8	4	30	0	42	3	424	16	0	443	44	3	1	0	48	12	171	11	0	194	727
7:30:00 AM	16	4	25	1	46	6	356	12	0	374	29	4	1	0	34	8	181	11	0	200	654
Total Volume	53	20	112	1	186	15	1475	83	0	1573	139	13	3	0	155	47	661	44	0	752	2666
% App. Total	28.5	10.8	60.2	0.5		1	93.8	5.3	0		89.7	8.4	1.9	0		6.2	87.9	5.9	0		
PHF	.779	.714	.933	.250	.877	.625	.870	.692	.000	.888	.790	.813	.750	.000	.807	.839	.913	.846	.000	.940	.917



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Golden Sage Rd - Woodmen Rd PM 1-20

Site Code : 00194460

Start Date : 1/21/2020

Page No : 1

### Groups Printed- Unshifted

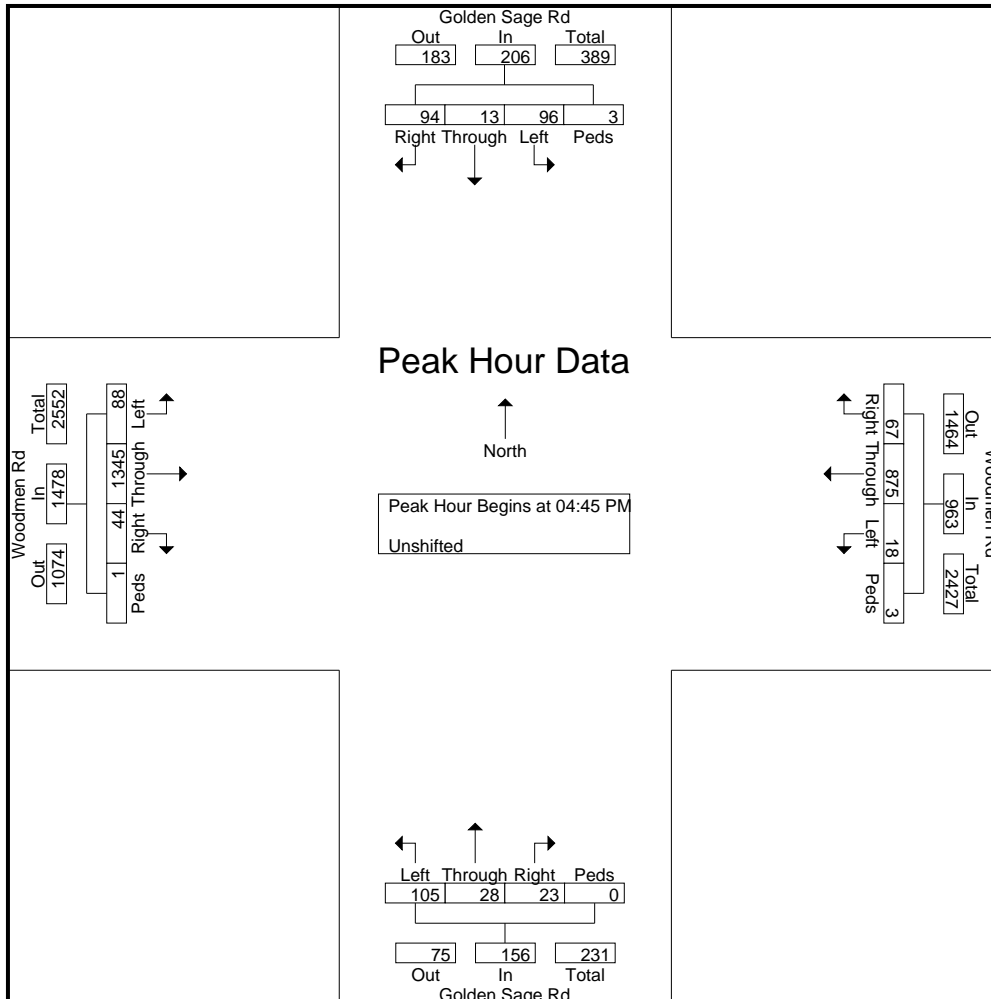
Start Time	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
04:00 PM	17	2	26	0	45	7	205	16	0	228	23	9	5	0	37	21	272	23	2	318	628
04:15 PM	7	1	22	0	30	5	241	26	0	272	26	5	6	0	37	28	325	12	1	366	705
04:30 PM	21	4	24	0	49	1	241	20	1	263	26	8	4	0	38	24	313	3	1	341	691
04:45 PM	29	3	19	2	53	1	202	24	0	227	16	4	0	0	20	18	341	10	1	370	670
Total	74	10	91	2	177	14	889	86	1	990	91	26	15	0	132	91	1251	48	5	1395	2694
05:00 PM	18	1	27	0	46	2	254	11	2	269	27	7	1	0	35	19	328	11	0	358	708
05:15 PM	7	2	6	0	15	8	192	9	1	210	32	10	12	0	54	23	340	17	0	380	659
05:30 PM	42	7	42	1	92	7	227	23	0	257	30	7	10	0	47	28	336	6	0	370	766
05:45 PM	21	1	18	0	40	1	180	12	1	194	19	5	5	0	29	18	326	9	0	353	616
Total	88	11	93	1	193	18	853	55	4	930	108	29	28	0	165	88	1330	43	0	1461	2749
Grand Total	162	21	184	3	370	32	1742	141	5	1920	199	55	43	0	297	179	2581	91	5	2856	5443
Apprch %	43.8	5.7	49.7	0.8		1.7	90.7	7.3	0.3		67	18.5	14.5	0		6.3	90.4	3.2	0.2		
Total %	3	0.4	3.4	0.1	6.8	0.6	32	2.6	0.1	35.3	3.7	1	0.8	0	5.5	3.3	47.4	1.7	0.1	52.5	

# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Rd PM 1-20  
 Site Code : 00194460  
 Start Date : 1/21/2020  
 Page No : 2

Start Time	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
<b>Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1</b>																					
Peak Hour for Entire Intersection Begins at 4:45:00 PM																					
4:45:00 PM	29	3	19	2	53	1	202	24	0	227	16	4	0	0	20	18	341	10	1	370	670
5:00:00 PM	18	1	27	0	46	2	254	11	2	269	27	7	1	0	35	19	328	11	0	358	708
5:15:00 PM	7	2	6	0	15	8	192	9	1	210	32	10	12	0	54	23	340	17	0	380	659
5:30:00 PM	42	7	42	1	92	7	227	23	0	257	30	7	10	0	47	28	336	6	0	370	766
Total Volume	96	13	94	3	206	18	875	67	3	963	105	28	23	0	156	88	1345	44	1	1478	2803
% App. Total	46.6	6.3	45.6	1.5		1.9	90.9	7	0.3		67.3	17.9	14.7	0		6	91	3	0.1		
PHF	.571	.464	.560	.375	.560	.563	.861	.698	.375	.895	.820	.700	.479	.000	.722	.786	.986	.647	.250	.972	.915



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Golden Sage Rd - Woodmen Rd AM

Site Code : 00194460

Start Date : 12/8/2020

Page No : 1

### Groups Printed- Unshifted

Start Time	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					Int. Total
	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	
07:00 AM	17	1	13	0	31	1	242	5	0	248	13	4	0	0	17	7	127	6	0	140	436
07:15 AM	8	0	20	0	28	4	289	7	0	300	20	2	1	0	23	7	138	4	0	149	500
07:30 AM	8	2	30	0	40	3	318	7	0	328	29	3	2	0	34	10	138	11	1	160	562
07:45 AM	7	0	21	0	28	4	211	3	0	218	11	2	2	0	15	8	133	17	0	158	419
Total	40	3	84	0	127	12	1060	22	0	1094	73	11	5	0	89	32	536	38	1	607	1917
08:00 AM	3	1	18	0	22	2	224	4	2	232	12	3	3	0	18	16	144	8	1	169	441
08:15 AM	10	2	23	0	35	3	210	6	0	219	14	2	3	0	19	18	165	4	0	187	460
08:30 AM	6	0	22	0	28	1	247	6	0	254	16	0	1	0	17	7	161	9	0	177	476
08:45 AM	10	3	12	0	25	3	170	8	0	181	19	2	0	0	21	12	142	14	0	168	395
Total	29	6	75	0	110	9	851	24	2	886	61	7	7	0	75	53	612	35	1	701	1772
Grand Total	69	9	159	0	237	21	1911	46	2	1980	134	18	12	0	164	85	1148	73	2	1308	3689
Apprch %	29.1	3.8	67.1	0		1.1	96.5	2.3	0.1		81.7	11	7.3	0		6.5	87.8	5.6	0.2		
Total %	1.9	0.2	4.3	0	6.4	0.6	51.8	1.2	0.1	53.7	3.6	0.5	0.3	0	4.4	2.3	31.1	2	0.1	35.5	

# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

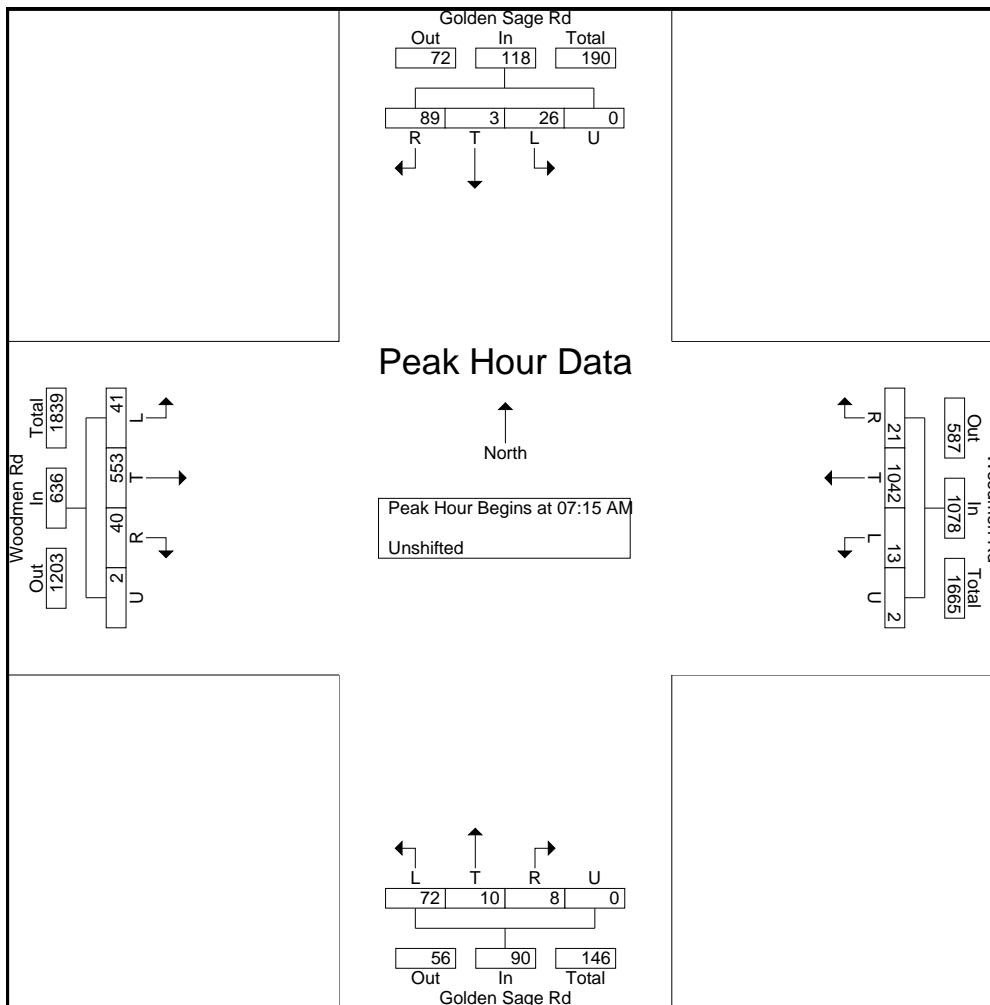
719-633-2868

File Name : Golden Sage Rd - Woodmen Rd AM

Site Code : 00194460

Start Date : 12/8/2020

Page No : 3



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Rd PM  
 Site Code : 00194460  
 Start Date : 12/3/2020  
 Page No : 1

### Groups Printed- Unshifted

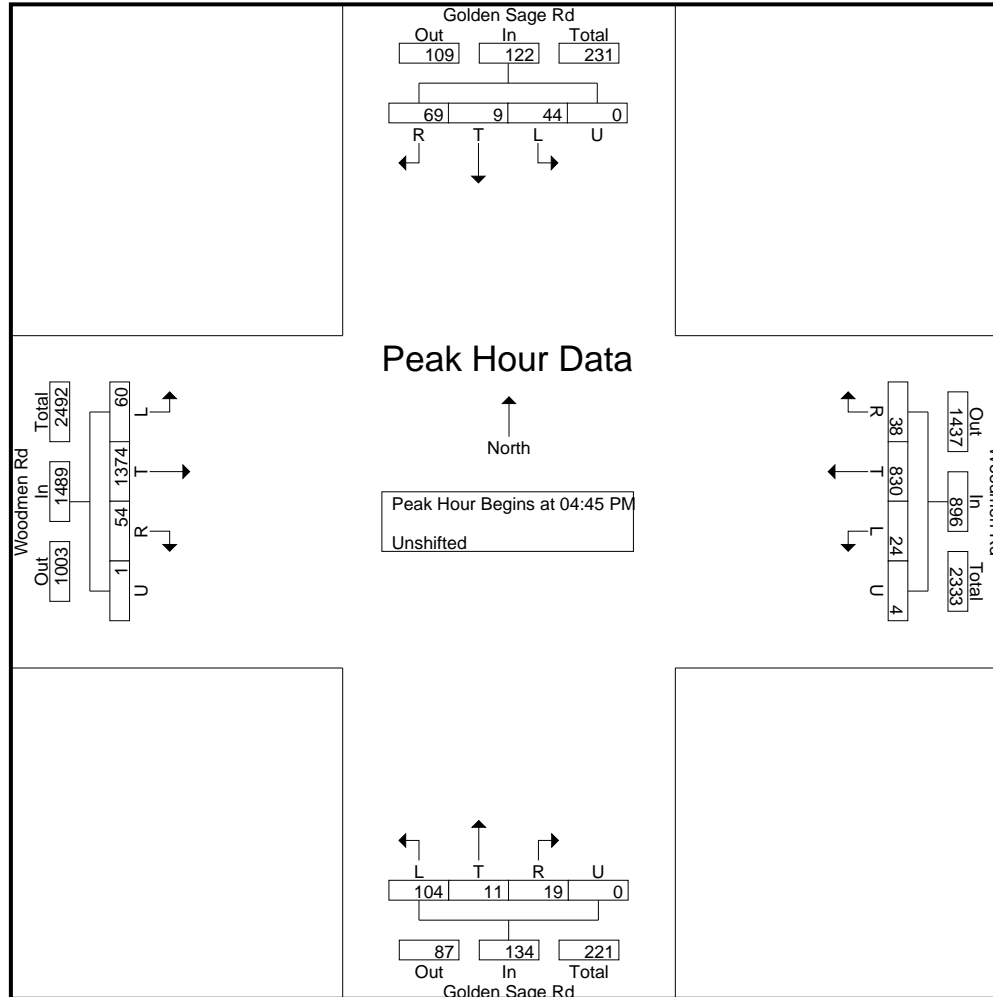
Start Time	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					Int. Total
	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	L	T	R	U	App. Total	
04:00 PM	23	0	12	0	35	8	260	13	0	281	18	3	7	0	28	13	279	30	1	323	667
04:15 PM	13	1	15	0	29	4	220	8	0	232	16	2	4	0	22	16	332	19	0	367	650
04:30 PM	15	1	17	0	33	1	245	10	0	256	14	4	2	0	20	14	316	16	0	346	655
04:45 PM	11	0	13	0	24	2	223	12	2	239	21	2	3	0	26	10	335	8	1	354	643
Total	62	2	57	0	121	15	948	43	2	1008	69	11	16	0	96	53	1262	73	2	1390	2615
05:00 PM	9	3	16	0	28	2	225	8	0	235	27	3	2	0	32	15	336	17	0	368	663
05:15 PM	7	4	12	0	23	5	190	13	2	210	32	4	11	0	47	18	325	19	0	362	642
05:30 PM	17	2	28	0	47	15	192	5	0	212	24	2	3	0	29	17	378	10	0	405	693
05:45 PM	10	2	5	0	17	3	145	9	1	158	12	4	2	0	18	15	278	16	1	310	503
Total	43	11	61	0	115	25	752	35	3	815	95	13	18	0	126	65	1317	62	1	1445	2501
Grand Total	105	13	118	0	236	40	1700	78	5	1823	164	24	34	0	222	118	2579	135	3	2835	5116
Apprch %	44.5	5.5	50	0		2.2	93.3	4.3	0.3		73.9	10.8	15.3	0		4.2	91	4.8	0.1		
Total %	2.1	0.3	2.3	0	4.6	0.8	33.2	1.5	0.1	35.6	3.2	0.5	0.7	0	4.3	2.3	50.4	2.6	0.1	55.4	



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Rd PM  
 Site Code : 00194460  
 Start Date : 12/3/2020  
 Page No : 3



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Golden Sage Rd - Woodmen Frontage Rd AM 1-20

Site Code : 00194460

Start Date : 1/21/2020

Page No : 1

### Groups Printed- Bank 1

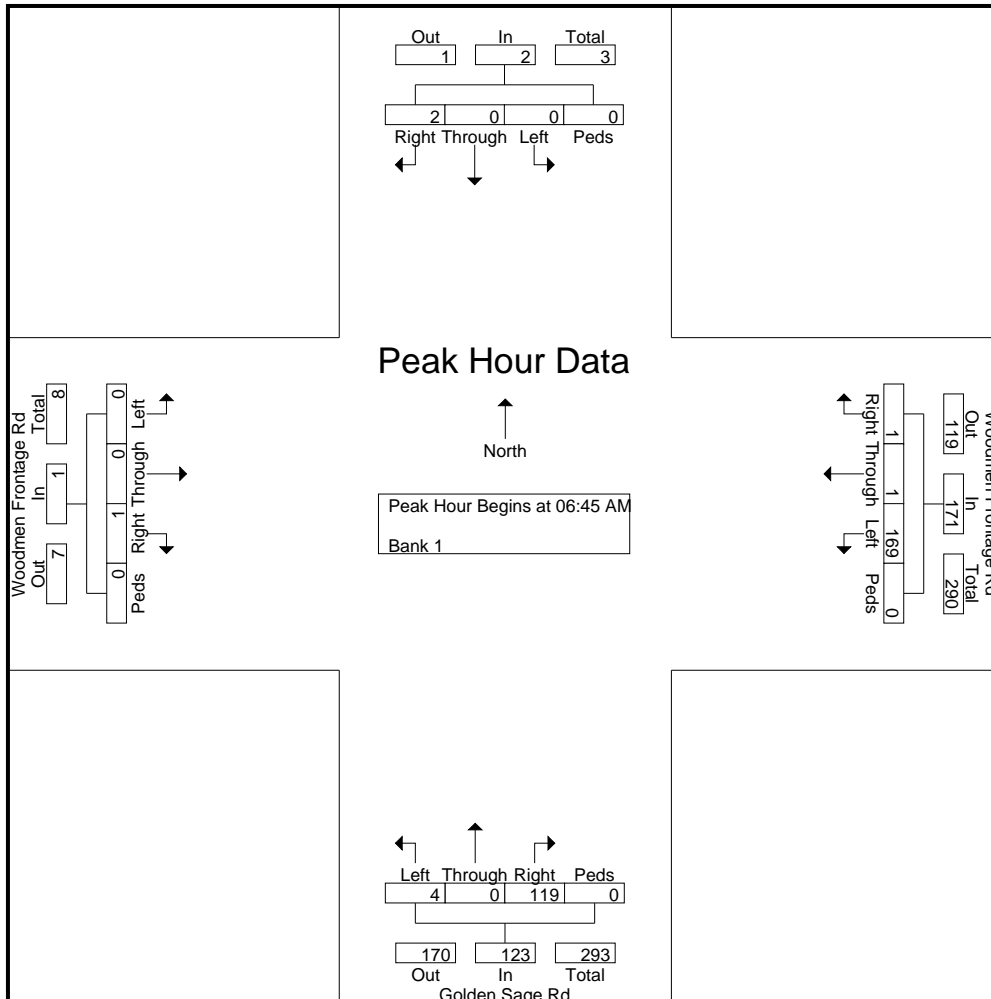
Start Time	Southbound					Woodmen Frontage Rd Westbound					Golden Sage Rd Northbound					Woodmen Frontage Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
06:30 AM	0	0	0	0	0	19	0	0	0	19	0	0	21	0	21	1	0	0	0	1	41
06:45 AM	0	0	2	0	2	41	0	1	0	42	4	0	47	0	51	0	0	0	0	0	95
Total	0	0	2	0	2	60	0	1	0	61	4	0	68	0	72	1	0	0	0	1	136
07:00 AM	0	0	0	0	0	49	1	0	0	50	0	0	19	0	19	0	0	0	0	0	69
07:15 AM	0	0	0	0	0	34	0	0	0	34	0	0	31	0	31	0	0	0	0	0	65
07:30 AM	0	0	0	0	0	45	0	0	0	45	0	0	22	0	22	0	0	1	0	1	68
07:45 AM	0	0	0	0	0	19	0	0	0	19	0	0	36	0	36	0	0	0	0	0	55
Total	0	0	0	0	0	147	1	0	0	148	0	0	108	0	108	0	0	1	0	1	257
08:00 AM	0	0	0	0	0	27	0	0	0	27	0	0	24	0	24	0	0	0	0	0	51
08:15 AM	0	0	0	0	0	26	0	0	0	26	0	0	48	1	49	0	0	1	0	1	76
Grand Total	0	0	2	0	2	260	1	1	0	262	4	0	248	1	253	1	0	2	0	3	520
Apprch %	0	0	100	0		99.2	0.4	0.4	0		1.6	0	98	0.4		33.3	0	66.7	0		
Total %	0	0	0.4	0	0.4	50	0.2	0.2	0	50.4	0.8	0	47.7	0.2	48.7	0.2	0	0.4	0	0.6	

# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Frontage Rd AM 1-20  
 Site Code : 00194460  
 Start Date : 1/21/2020  
 Page No : 2

Start Time	Southbound					Woodmen Frontage Rd Westbound					Golden Sage Rd Northbound					Woodmen Frontage Rd Eastbound					Int. Total	
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total		
<b>Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1</b>																						
Peak Hour for Entire Intersection Begins at 6:45:00 AM																						
6:45:00 AM	0	0	2	0	2	41	0	1	0	42	4	0	47	0	51	0	0	0	0	0	0	95
7:00:00 AM	0	0	0	0	0	49	1	0	0	50	0	0	19	0	19	0	0	0	0	0	0	69
7:15:00 AM	0	0	0	0	0	34	0	0	0	34	0	0	31	0	31	0	0	0	0	0	0	65
7:30:00 AM	0	0	0	0	0	45	0	0	0	45	0	0	22	0	22	0	0	1	0	0	1	68
Total Volume	0	0	2	0	2	169	1	1	0	171	4	0	119	0	123	0	0	1	0	1	1	297
% App. Total	0	0	100	0		98.8	0.6	0.6	0		3.3	0	96.7	0		0	0	100	0			
PHF	.000	.000	.250	.000	.250	.862	.250	.250	.000	.855	.250	.000	.633	.000	.603	.000	.000	.250	.000	.250		.782

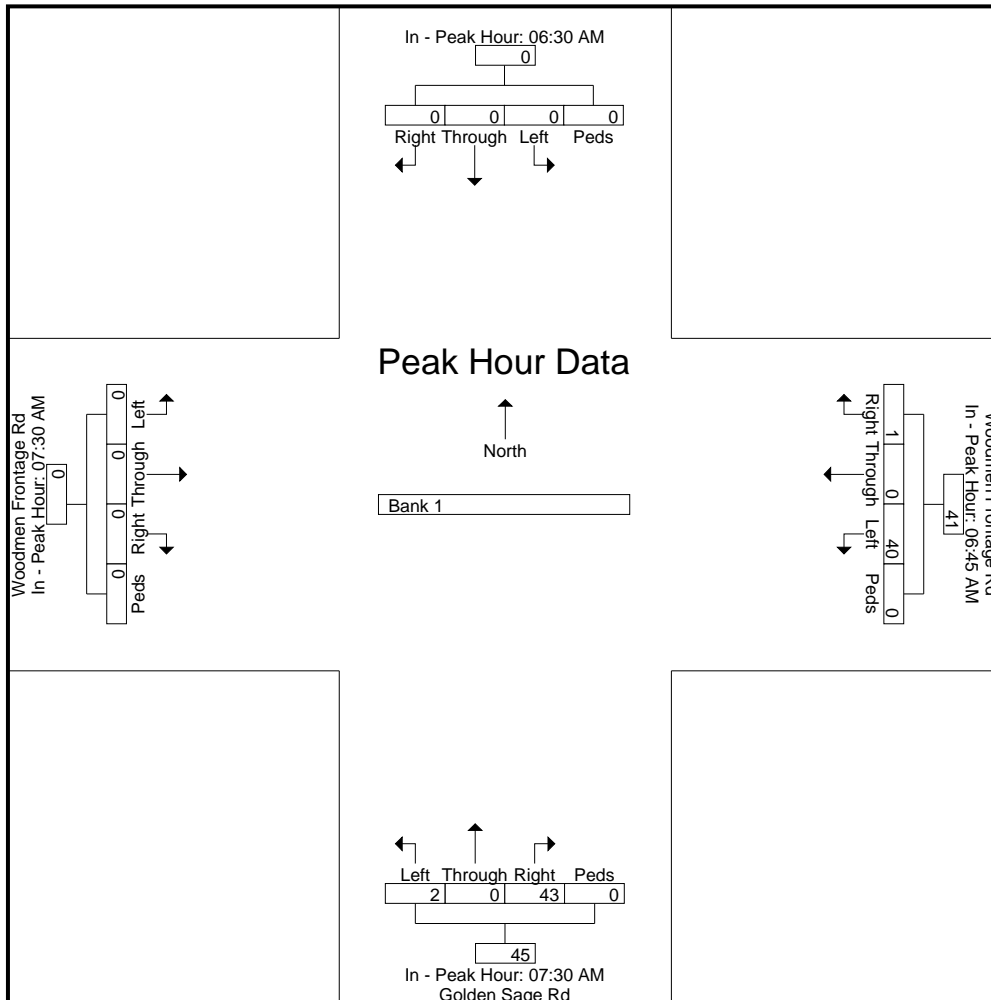


# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Frontage Rd AM 1-20  
 Site Code : 00194460  
 Start Date : 1/21/2020  
 Page No : 3

Start Time	Southbound					Woodmen Frontage Rd Westbound					Golden Sage Rd Northbound					Woodmen Frontage Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
<b>Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1</b>																					
Peak Hour for Each Approach Begins at:																					
	6:30:00 AM					6:45:00 AM					7:30:00 AM					7:30:00 AM					
+0 mins.	0	0	0	0	0	41	0	1	0	42	0	0	22	0	22	0	0	1	0	1	
+5 mins.	0	0	2	0	2	49	1	0	0	50	0	0	36	0	36	0	0	0	0	0	
+10 mins.	0	0	0	0	0	34	0	0	0	34	0	0	24	0	24	0	0	0	0	0	
+15 mins.	0	0	0	0	0	45	0	0	0	45	0	0	48	1	49	0	0	1	0	1	
Total Volume	0	0	2	0	2	169	1	1	0	171	0	0	130	1	131	0	0	2	0	2	
% App. Total	0	0	100	0		98.8	0.6	0.6	0		0	0	99.2	0.8		0	0	100	0		
PHF	.000	.000	.250	.000	.250	.862	.250	.250	.000	.855	.000	.000	.677	.250	.668	.000	.000	.500	.000	.500	



# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Frontage Rd PM 1-20  
 Site Code : 00194460  
 Start Date : 1/21/2020  
 Page No : 1

### Groups Printed- Bank 1

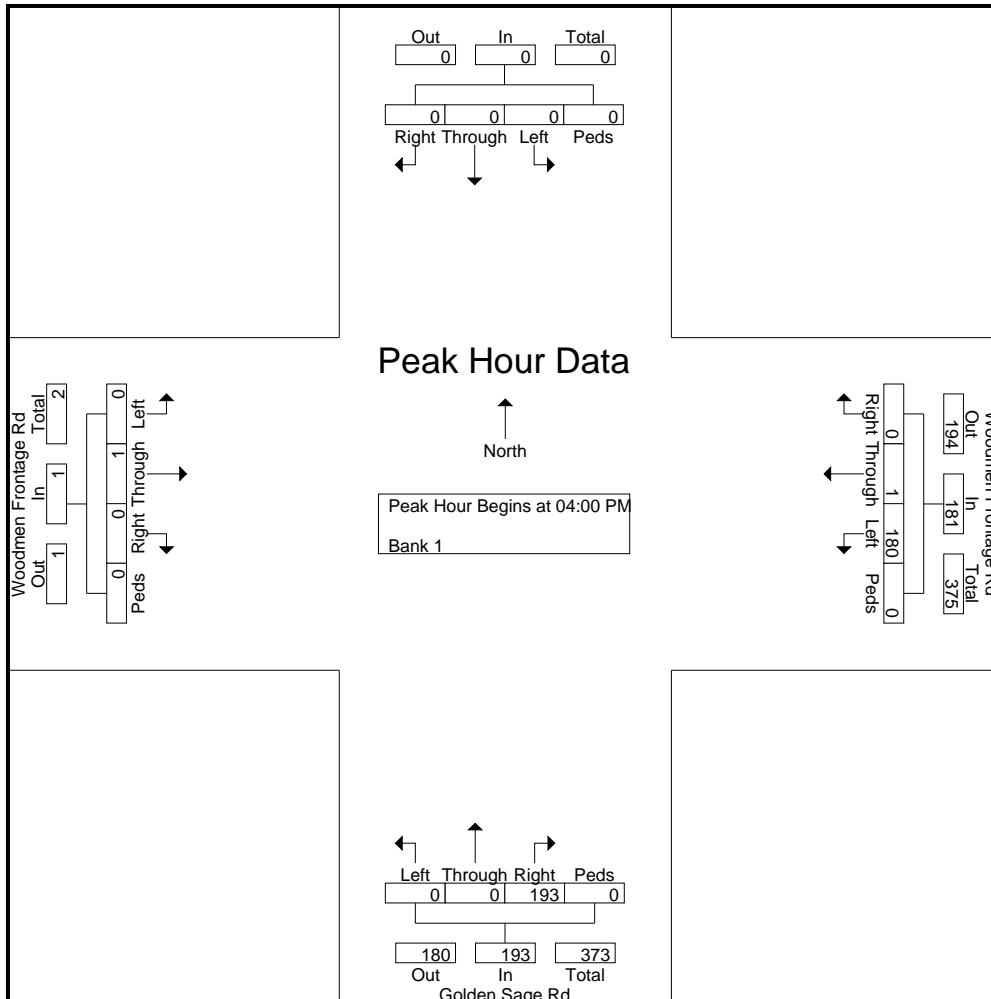
Start Time	Southbound					Woodmen Frontage Rd Westbound					Golden Sage Rd Northbound					Woodmen Frontage Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
04:00 PM	0	0	0	0	0	43	1	0	0	44	0	0	45	0	45	0	0	0	0	0	89
04:15 PM	0	0	0	0	0	33	0	0	0	33	0	0	52	0	52	0	1	0	0	1	86
04:30 PM	0	0	0	0	0	44	0	0	0	44	0	0	52	0	52	0	0	0	0	0	96
04:45 PM	0	0	0	0	0	60	0	0	0	60	0	0	44	0	44	0	0	0	0	0	104
Total	0	0	0	0	0	180	1	0	0	181	0	0	193	0	193	0	1	0	0	1	375
05:00 PM	0	0	0	0	0	45	0	0	0	45	0	0	33	0	33	0	0	2	0	2	80
05:15 PM	0	0	0	0	0	13	0	0	0	13	2	0	41	1	44	0	0	1	0	1	58
05:30 PM	0	0	0	0	0	89	0	1	0	90	0	0	35	0	35	0	0	0	0	0	125
05:45 PM	0	0	0	0	0	43	0	1	0	44	0	0	31	0	31	0	0	0	0	0	75
Total	0	0	0	0	0	190	0	2	0	192	2	0	140	1	143	0	0	3	0	3	338
Grand Total	0	0	0	0	0	370	1	2	0	373	2	0	333	1	336	0	1	3	0	4	713
Apprch %	0	0	0	0		99.2	0.3	0.5	0		0.6	0	99.1	0.3		0	25	75	0		
Total %	0	0	0	0	0	51.9	0.1	0.3	0	52.3	0.3	0	46.7	0.1	47.1	0	0.1	0.4	0	0.6	

# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Frontage Rd PM 1-20  
 Site Code : 00194460  
 Start Date : 1/21/2020  
 Page No : 2

Start Time	Southbound					Woodmen Frontage Rd Westbound					Golden Sage Rd Northbound					Woodmen Frontage Rd Eastbound					Int. Total	
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total		
<b>Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1</b>																						
Peak Hour for Entire Intersection Begins at 4:00:00 PM																						
4:00:00 PM	0	0	0	0	0	43	1	0	0	44	0	0	45	0	45	0	0	0	0	0	0	89
4:15:00 PM	0	0	0	0	0	33	0	0	0	33	0	0	52	0	52	0	1	0	0	0	1	86
4:30:00 PM	0	0	0	0	0	44	0	0	0	44	0	0	52	0	52	0	0	0	0	0	0	96
4:45:00 PM	0	0	0	0	0	60	0	0	0	60	0	0	44	0	44	0	0	0	0	0	0	104
Total Volume	0	0	0	0	0	180	1	0	0	181	0	0	193	0	193	0	1	0	0	0	1	375
% App. Total	0	0	0	0	0	99.4	0.6	0	0		0	0	100	0		0	100	0	0	0		
PHF	.000	.000	.000	.000	.000	.750	.250	.000	.000	.754	.000	.000	.928	.000	.928	.000	.250	.000	.000	.250	.901	

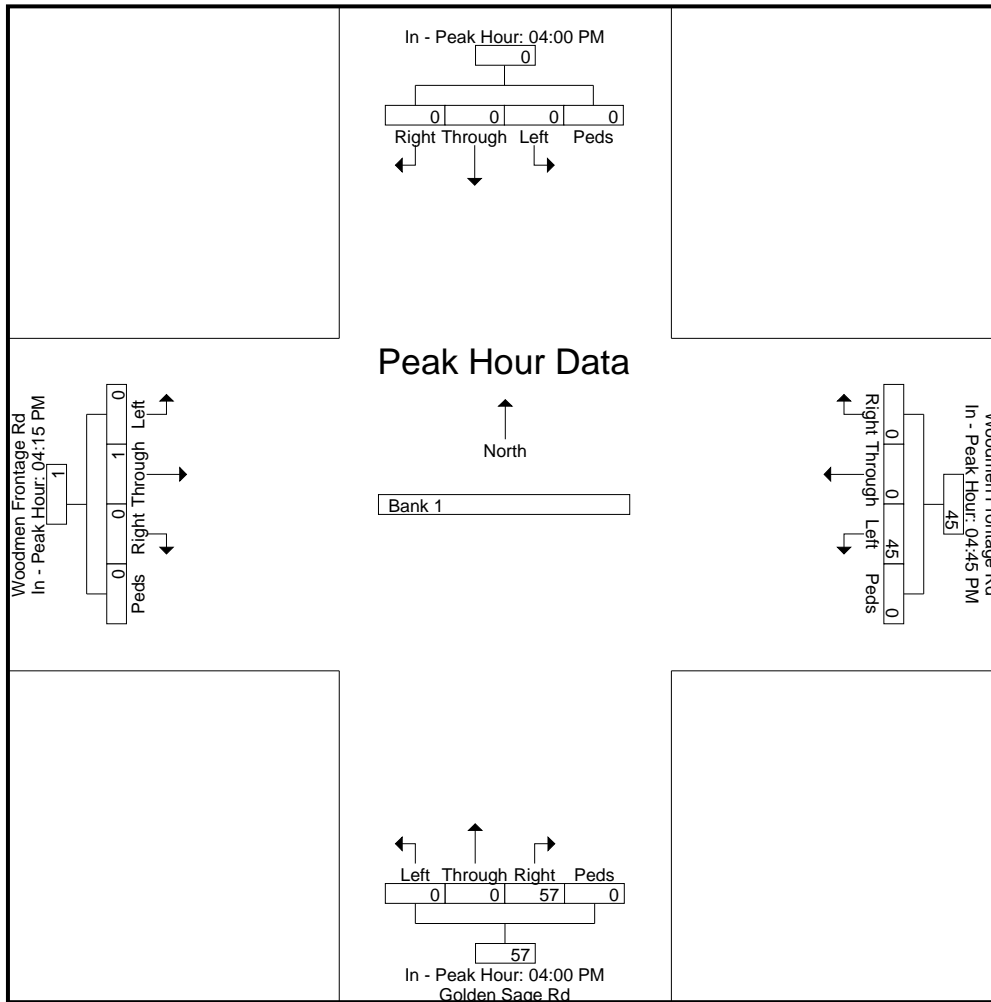


# LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210  
 Colorado Springs, CO 80905  
 719-633-2868

File Name : Golden Sage Rd - Woodmen Frontage Rd PM 1-20  
 Site Code : 00194460  
 Start Date : 1/21/2020  
 Page No : 3

Start Time	Southbound					Woodmen Frontage Rd Westbound					Golden Sage Rd Northbound					Woodmen Frontage Rd Eastbound					Int. Total
	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	Left	Through	Right	Peds	App. Total	
<b>Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1</b>																					
Peak Hour for Each Approach Begins at:																					
	4:00:00 PM					4:45:00 PM					4:00:00 PM					4:15:00 PM					
+0 mins.	0	0	0	0	0	60	0	0	0	60	0	0	45	0	45	0	1	0	0	1	
+5 mins.	0	0	0	0	0	45	0	0	0	45	0	0	52	0	52	0	0	0	0	0	
+10 mins.	0	0	0	0	0	13	0	0	0	13	0	0	52	0	52	0	0	0	0	0	
+15 mins.	0	0	0	0	0	89	0	1	0	90	0	0	44	0	44	0	0	2	0	2	
Total Volume	0	0	0	0	0	207	0	1	0	208	0	0	193	0	193	0	1	2	0	3	
% App. Total	0	0	0	0	0	99.5	0	0.5	0		0	0	100	0		0	33.3	66.7	0		
PHF	.000	.000	.000	.000	.000	.581	.000	.250	.000	.578	.000	.000	.928	.000	.928	.000	.250	.250	.000	.375	



# Levels of Service

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HCM 6th TWSC  
3: Meridian Rd & Bent Grass Meadows Dr

Existing Traffic  
AM Peak Hour

Intersection						
Int Delay, s/veh	5.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	68	151	57	657	1538	126
Future Vol, veh/h	68	151	57	657	1538	126
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	0	700	-	-	330
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	86	86	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	157	66	764	1748	143

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2262	874	1891	0	-	0
Stage 1	1748	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 35	293	312	-	-	-
Stage 1	125	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 28	293	312	-	-	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	99	-	-	-	-	-
Stage 2	565	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	68.5	1.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	312	-	82	293	-	-
HCM Lane V/C Ratio	0.212	-	0.864	0.537	-	-
HCM Control Delay (s)	19.6	-	152.4	30.7	-	-
HCM Lane LOS	C	-	F	D	-	-
HCM 95th %tile Q(veh)	0.8	-	4.5	3	-	-

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

Timings  
25: Golden Sage & Woodmen

Existing Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	47	661	44	15	1475	83	134	13	3	53	20
Future Volume (vph)	47	661	44	15	1475	83	134	13	3	53	20
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases		2			6			8			4
Permitted Phases	2		2	6		6	8		8	4	
Detector Phase	2	2	2	6	6	6	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	63.0	63.0	63.0	63.0	63.0	63.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	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)	7.0	7.0	7.0	7.0	7.0	7.0	5.5	5.5	5.5	5.5	5.5
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effect Green (s)	56.2	56.2	56.2	56.2	56.2	56.2	16.4	16.4	16.4	16.4	16.4
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.66	0.66	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.44	0.31	0.05	0.04	0.71	0.09	0.76	0.04	0.01	0.24	0.47
Control Delay	23.6	7.1	2.2	6.6	12.2	1.8	54.1	27.1	0.0	30.7	28.9
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	23.6	7.1	2.2	6.6	12.2	1.8	54.1	27.1	0.0	30.7	28.9
LOS	C	A	A	A	B	A	D	C	A	C	C
Approach Delay		7.9			11.6			50.6			29.4
Approach LOS		A			B			D			C

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 85.1  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 14.3  
 Intersection Capacity Utilization 71.2%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 25: Golden Sage & Woodmen



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

Existing Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶			↷			↷			↷	
Traffic Vol, veh/h	0	0	1	184	1	0	4	0	139	0	0	0
Future Vol, veh/h	0	0	1	184	1	0	4	0	139	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	83	83	83	65	65	65	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	1	222	1	0	6	0	214	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	227	1	121	120	-	1	0	0	214	0	0
Stage 1	-	1	-	119	119	-	-	-	-	-	-	-
Stage 2	-	226	-	2	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	672	1084	854	770	0	1622	-	-	1356	-	-
Stage 1	0	895	-	885	797	0	-	-	-	-	-	-
Stage 2	0	717	-	1021	895	0	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	669	1084	851	767	-	1622	-	-	1356	-	-
Mov Cap-2 Maneuver	-	669	-	851	767	-	-	-	-	-	-	-
Stage 1	-	895	-	881	794	-	-	-	-	-	-	-
Stage 2	-	714	-	1020	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	8.3		10.7		0.2		0			
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR	
Capacity (veh/h)	1622	-	-	1084	850	1356	-	-
HCM Lane V/C Ratio	0.004	-	-	0.001	0.262	-	-	-
HCM Control Delay (s)	7.2	0	-	8.3	10.7	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	1.1	0	-	-

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	116	86	0	1	28
Future Vol, veh/h	5	116	86	0	1	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	83	83	35	35
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	141	104	0	3	80

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	104	0	-	0	257
Stage 1	-	-	-	-	104
Stage 2	-	-	-	-	153
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1488	-	-	-	732
Stage 1	-	-	-	-	920
Stage 2	-	-	-	-	875
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1488	-	-	-	729
Mov Cap-2 Maneuver	-	-	-	-	729
Stage 1	-	-	-	-	916
Stage 2	-	-	-	-	875

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1488	-	-	-	941
HCM Lane V/C Ratio	0.004	-	-	-	0.088
HCM Control Delay (s)	7.4	-	-	-	9.2
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

HCM 6th TWSC  
 3: Meridian Rd & Bent Grass Meadows Dr

Existing Traffic  
 PM Peak Hour

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↕↕	↕↕	↗
Traffic Vol, veh/h	56	95	83	1345	886	90
Future Vol, veh/h	56	95	83	1345	886	90
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	0	700	-	-	330
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	96	96	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	110	86	1401	886	90

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1759	443	976	0	-	0
Stage 1	886	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	76	562	703	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	67	562	703	-	-	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	369	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.9	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	703	-	167	562	-	-
HCM Lane V/C Ratio	0.123	-	0.39	0.197	-	-
HCM Control Delay (s)	10.8	-	39.7	13	-	-
HCM Lane LOS	B	-	E	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.7	0.7	-	-

Timings  
25: Golden Sage & Woodmen

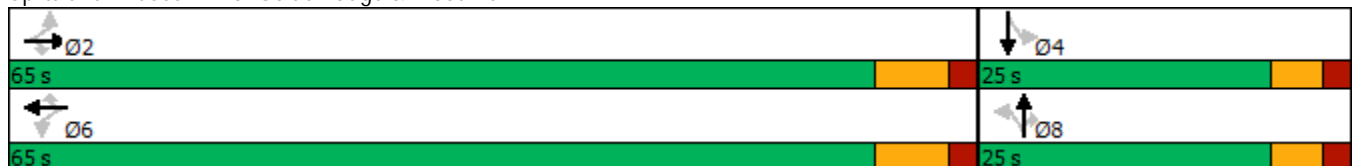
Existing Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	88	1345	44	18	875	67	105	28	23	96	13
Future Volume (vph)	88	1345	44	18	875	67	105	28	23	96	13
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases		2			6			8			4
Permitted Phases	2		2	6		6	8		8	4	
Detector Phase	2	2	2	6	6	6	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	65.0	65.0	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	4.0	4.0	6.0	4.0	4.0	4.5	5.5	5.5	5.5	5.5
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effect Green (s)	58.1	61.1	61.1	59.1	61.1	61.1	16.2	15.2	15.2	15.2	15.2
Actuated g/C Ratio	0.68	0.71	0.71	0.69	0.71	0.71	0.19	0.18	0.18	0.18	0.18
v/c Ratio	0.25	0.58	0.04	0.11	0.37	0.06	0.69	0.10	0.09	0.71	0.45
Control Delay	8.5	7.7	1.6	7.3	5.8	1.4	52.4	29.6	4.7	49.6	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	7.7	1.6	7.3	5.8	1.4	52.4	29.6	4.7	49.6	10.6
LOS	A	A	A	A	A	A	D	C	A	D	B
Approach Delay		7.6			5.5			41.2			29.0
Approach LOS		A			A			D			C

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 85.8  
 Natural Cycle: 55  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 11.3  
 Intersection Capacity Utilization 65.9%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 25: Golden Sage & Woodmen



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

Existing Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	0	3	200	1	0	2	0	181	0	0	0
Future Vol, veh/h	0	0	3	200	1	0	2	0	181	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	83	83	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	345	2	0	2	0	218	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	223	1	116	114	-	1	0	0	218	0	0
Stage 1	-	1	-	113	113	-	-	-	-	-	-	-
Stage 2	-	222	-	3	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	676	1084	861	776	0	1622	-	-	1352	-	-
Stage 1	0	895	-	892	802	0	-	-	-	-	-	-
Stage 2	0	720	-	1020	895	0	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	675	1084	858	775	-	1622	-	-	1352	-	-
Mov Cap-2 Maneuver	-	675	-	858	775	-	-	-	-	-	-	-
Stage 1	-	895	-	891	801	-	-	-	-	-	-	-
Stage 2	-	719	-	1016	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.3		12		0.1		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	1084	858	1352	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.404	-	-	-
HCM Control Delay (s)	7.2	0	-	8.3	12	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	2	0	-	-

**Intersection**

Int Delay, s/veh 0.8

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	8	76	120	1	0	24
Future Vol, veh/h	8	76	120	1	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	36	36	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	97	333	3	0	31

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All	336	0	-	0	452	335
Stage 1	-	-	-	-	335	-
Stage 2	-	-	-	-	117	-
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	1223	-	-	-	565	707
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	908	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1223	-	-	-	560	707
Mov Cap-2 Maneuver	-	-	-	-	560	-
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	908	-

**Approach** EB WB SB

HCM Control Delay, s	0.8	0	10.3
HCM LOS			B

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1223	-	-	-	707
HCM Lane V/C Ratio	0.008	-	-	-	0.044
HCM Control Delay (s)	8	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



HCM 6th TWSC  
 3: Meridian Rd & Bent Grass Meadows Dr

Existing Traffic  
 PM Peak Hour

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↕	↕	↗
Traffic Vol, veh/h	56	95	83	1345	886	90
Future Vol, veh/h	56	95	83	1345	886	90
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	0	700	-	-	330
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	96	96	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	110	86	1401	886	90

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1759	443	976	0	-	0
Stage 1	886	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	76	562	703	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	67	562	703	-	-	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	369	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.9	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	703	-	167	562	-	-
HCM Lane V/C Ratio	0.123	-	0.39	0.197	-	-
HCM Control Delay (s)	10.8	-	39.7	13	-	-
HCM Lane LOS	B	-	E	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.7	0.7	-	-

Timings  
25: Golden Sage & Woodmen

Existing Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	88	1345	44	18	875	67	105	28	23	96	13
Future Volume (vph)	88	1345	44	18	875	67	105	28	23	96	13
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases		2			6			8			4
Permitted Phases	2		2	6		6	8		8	4	
Detector Phase	2	2	2	6	6	6	8	8	8	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	21.5	21.5	21.5	21.5	21.5
Total Split (s)	65.0	65.0	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	4.0	4.0	6.0	4.0	4.0	4.5	5.5	5.5	5.5	5.5
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	Max	Max	Max	Max	Max	Max	None	None	None	None	None
Act Effect Green (s)	58.1	61.1	61.1	59.1	61.1	61.1	16.2	15.2	15.2	15.2	15.2
Actuated g/C Ratio	0.68	0.71	0.71	0.69	0.71	0.71	0.19	0.18	0.18	0.18	0.18
v/c Ratio	0.25	0.58	0.04	0.11	0.37	0.06	0.69	0.10	0.09	0.71	0.45
Control Delay	8.5	7.7	1.6	7.3	5.8	1.4	52.4	29.6	4.7	49.6	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	7.7	1.6	7.3	5.8	1.4	52.4	29.6	4.7	49.6	10.6
LOS	A	A	A	A	A	A	D	C	A	D	B
Approach Delay		7.6			5.5			41.2			29.0
Approach LOS		A			A			D			C

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 85.8  
 Natural Cycle: 55  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 11.3  
 Intersection Capacity Utilization 65.9%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 25: Golden Sage & Woodmen



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

Existing Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	0	3	200	1	0	2	0	181	0	0	0
Future Vol, veh/h	0	0	3	200	1	0	2	0	181	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	58	58	58	83	83	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	345	2	0	2	0	218	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	223	1	116	114	-	1	0	0	218	0	0
Stage 1	-	1	-	113	113	-	-	-	-	-	-	-
Stage 2	-	222	-	3	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	676	1084	861	776	0	1622	-	-	1352	-	-
Stage 1	0	895	-	892	802	0	-	-	-	-	-	-
Stage 2	0	720	-	1020	895	0	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	675	1084	858	775	-	1622	-	-	1352	-	-
Mov Cap-2 Maneuver	-	675	-	858	775	-	-	-	-	-	-	-
Stage 1	-	895	-	891	801	-	-	-	-	-	-	-
Stage 2	-	719	-	1016	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.3		12		0.1		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	1084	858	1352	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.404	-	-	-
HCM Control Delay (s)	7.2	0	-	8.3	12	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	2	0	-	-

**Intersection**

Int Delay, s/veh 0.8

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	8	76	120	1	0	24
Future Vol, veh/h	8	76	120	1	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	36	36	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	97	333	3	0	31

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All	336	0	-	0	452	335
Stage 1	-	-	-	-	335	-
Stage 2	-	-	-	-	117	-
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	1223	-	-	-	565	707
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	908	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1223	-	-	-	560	707
Mov Cap-2 Maneuver	-	-	-	-	560	-
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	908	-

**Approach** EB WB SB

HCM Control Delay, s	0.8	0	10.3
HCM LOS			B

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1223	-	-	-	707
HCM Lane V/C Ratio	0.008	-	-	-	0.044
HCM Control Delay (s)	8	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Timings  
3: Meridian Rd & Bent Grass Meadows Dr



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Lane Configurations	↖↗	↗	↖	↑↑	↑↑	↗	
Traffic Volume (vph)	145	241	149	698	1639	262	
Future Volume (vph)	145	241	149	698	1639	262	
Turn Type	pm+pt	Perm	pm+pt	NA	NA	Perm	
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2			6	
Detector Phase	7	7	5	2	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	10.0	23.0	23.0	23.0	23.0
Total Split (s)	25.0	25.0	15.0	65.0	50.0	50.0	25.0
Total Split (%)	27.8%	27.8%	16.7%	72.2%	55.6%	55.6%	28%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	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	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag			Lead		Lag	Lag	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None
Act Effect Green (s)	9.9	9.9	60.1	60.1	46.9	46.9	
Actuated g/C Ratio	0.12	0.12	0.75	0.75	0.59	0.59	
v/c Ratio	0.35	0.67	0.63	0.31	0.90	0.28	
Control Delay	34.1	17.9	23.2	3.9	23.5	2.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	34.1	17.9	23.2	3.9	23.5	2.1	
LOS	C	B	C	A	C	A	
Approach Delay	24.0			7.3	20.6		
Approach LOS	C			A	C		

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 80.1  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 17.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 70.2%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 3: Meridian Rd & Bent Grass Meadows Dr



Timings  
25: Golden Sage & Woodmen

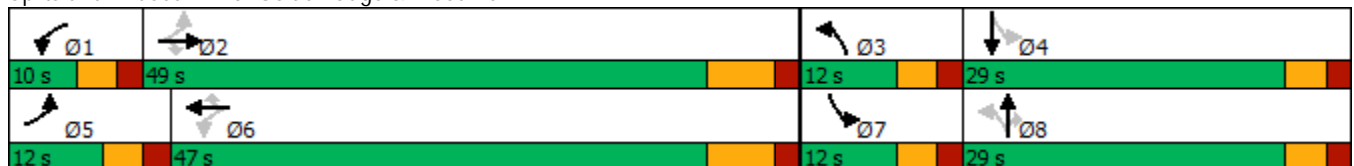
Short-Term Background Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	136	666	47	23	1416	78	144	17	15	56	22
Future Volume (vph)	136	666	47	23	1416	78	144	17	15	56	22
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases	2		2	6		6	8		8	4	
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0	11.0	10.0	21.0	21.0	10.0	21.0
Total Split (s)	12.0	49.0	49.0	10.0	47.0	47.0	12.0	29.0	29.0	12.0	29.0
Total Split (%)	12.0%	49.0%	49.0%	10.0%	47.0%	47.0%	12.0%	29.0%	29.0%	12.0%	29.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None
Act Effect Green (s)	53.0	51.4	51.4	49.2	43.1	43.1	23.8	17.9	17.9	24.7	17.0
Actuated g/C Ratio	0.57	0.55	0.55	0.53	0.46	0.46	0.26	0.19	0.19	0.27	0.18
v/c Ratio	0.71	0.37	0.05	0.06	0.97	0.11	0.80	0.06	0.04	0.17	0.84
Control Delay	36.2	14.3	0.1	10.1	42.7	1.4	53.3	30.9	0.2	23.3	40.5
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	36.2	14.3	0.1	10.1	42.7	1.4	53.3	30.9	0.2	23.3	40.5
LOS	D	B	A	B	D	A	D	C	A	C	D
Approach Delay		17.1			40.1			46.5			37.7
Approach LOS		B			D			D			D

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 93.2  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 33.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 87.7%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 25: Golden Sage & Woodmen



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

Short-Term Background Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	8.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻			↻			↻	
Traffic Vol, veh/h	0	0	33	318	1	0	22	0	209	0	0	0
Future Vol, veh/h	0	0	33	318	1	0	22	0	209	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	87	87	87	87	87	87	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	42	366	1	0	25	0	240	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	291	1	192	171	-	1	0	0	240	0	0
Stage 1	-	1	-	170	170	-	-	-	-	-	-	-
Stage 2	-	290	-	22	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	619	1084	768	722	0	1622	-	-	1327	-	-
Stage 1	0	895	-	832	758	0	-	-	-	-	-	-
Stage 2	0	672	-	996	895	0	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	608	1084	728	709	-	1622	-	-	1327	-	-
Mov Cap-2 Maneuver	-	608	-	728	709	-	-	-	-	-	-	-
Stage 1	-	895	-	817	744	-	-	-	-	-	-	-
Stage 2	-	660	-	957	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		14.9		0.7		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	1084	728	1327	-
HCM Lane V/C Ratio	0.016	-	-	0.039	0.504	-	-
HCM Control Delay (s)	7.3	0	-	8.5	14.9	0	-
HCM Lane LOS	A	A	-	A	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	2.9	0	-

**Intersection**

Int Delay, s/veh 3.6

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations	↙	↑	↘		↙	↘
Traffic Vol, veh/h	48	143	133	12	15	115
Future Vol, veh/h	48	143	133	12	15	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	155	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	174	160	14	18	139

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All	174	0	-	0	459	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	292	-
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	1403	-	-	-	560	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1403	-	-	-	536	877
Mov Cap-2 Maneuver	-	-	-	-	536	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	758	-

**Approach** EB WB SB

HCM Control Delay, s	1.9	0	10.1
HCM LOS			B

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1403	-	-	-	536	877
HCM Lane V/C Ratio	0.042	-	-	-	0.034	0.158
HCM Control Delay (s)	7.7	-	-	-	12	9.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.6



Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	3	45	10	2	72	1	26	0	8	2	0	7
Future Vol, veh/h	3	45	10	2	72	1	26	0	8	2	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	53	12	2	85	1	31	0	9	2	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	86	0	0	65	0	0	161	157	59	162	163	86
Stage 1	-	-	-	-	-	-	67	67	-	90	90	-
Stage 2	-	-	-	-	-	-	94	90	-	72	73	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1510	-	-	1537	-	-	804	735	1007	803	729	973
Stage 1	-	-	-	-	-	-	943	839	-	917	820	-
Stage 2	-	-	-	-	-	-	913	820	-	938	834	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1510	-	-	1537	-	-	795	732	1007	793	726	973
Mov Cap-2 Maneuver	-	-	-	-	-	-	795	732	-	793	726	-
Stage 1	-	-	-	-	-	-	940	836	-	914	819	-
Stage 2	-	-	-	-	-	-	904	819	-	927	831	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.2			9.5			8.9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	836	1510	-	-	1537	-	-	926
HCM Lane V/C Ratio	0.048	0.002	-	-	0.002	-	-	0.011
HCM Control Delay (s)	9.5	7.4	-	-	7.3	-	-	8.9
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	3	47	5	8	51	4	15	0	25	14	0	9
Future Vol, veh/h	3	47	5	8	51	4	15	0	25	14	0	9
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	55	6	9	60	5	18	0	29	16	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	65	0	0	61	0	0	152	149	58	162	150	63
Stage 1	-	-	-	-	-	-	66	66	-	81	81	-
Stage 2	-	-	-	-	-	-	86	83	-	81	69	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1537	-	-	1542	-	-	815	743	1008	803	742	1002
Stage 1	-	-	-	-	-	-	945	840	-	927	828	-
Stage 2	-	-	-	-	-	-	922	826	-	927	837	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1537	-	-	1542	-	-	801	736	1008	775	735	1002
Mov Cap-2 Maneuver	-	-	-	-	-	-	801	736	-	775	735	-
Stage 1	-	-	-	-	-	-	942	837	-	924	823	-
Stage 2	-	-	-	-	-	-	907	821	-	898	834	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.9			9.1			9.4		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	919	1537	-	-	1542	-	-	850
HCM Lane V/C Ratio	0.051	0.002	-	-	0.006	-	-	0.032
HCM Control Delay (s)	9.1	7.3	-	-	7.3	-	-	9.4
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

Timings  
3: Meridian Rd & Bent Grass Meadows Dr

Short-Term Background Traffic  
PM Peak Hour

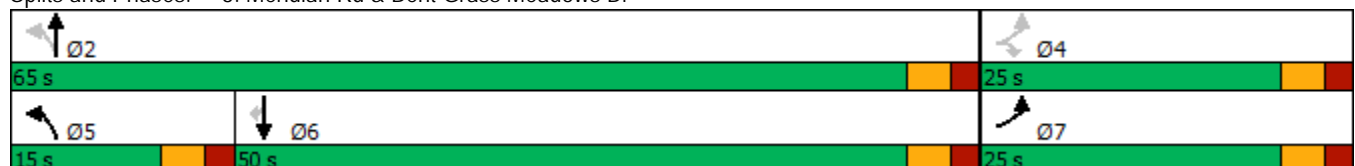


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔	↔	↔	↑↑	↑↑	↔
Traffic Volume (vph)	194	227	210	1427	921	228
Future Volume (vph)	194	227	210	1427	921	228
Turn Type	pm+pt	Perm	pm+pt	NA	NA	Perm
Protected Phases	7		5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	7	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	10.0	23.0	23.0	23.0
Total Split (s)	25.0	25.0	15.0	65.0	50.0	50.0
Total Split (%)	27.8%	27.8%	16.7%	72.2%	55.6%	55.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	10.6	10.6	60.0	60.0	46.7	46.7
Actuated g/C Ratio	0.13	0.13	0.74	0.74	0.58	0.58
v/c Ratio	0.50	0.61	0.47	0.56	0.45	0.23
Control Delay	36.6	10.9	6.8	5.8	11.0	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	10.9	6.8	5.8	11.0	2.0
LOS	D	B	A	A	B	A
Approach Delay	22.7			5.9	9.2	
Approach LOS	C			A	A	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 80.6  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 9.5  
 Intersection Capacity Utilization 55.1%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 3: Meridian Rd & Bent Grass Meadows Dr



Timings  
25: Golden Sage & Woodmen

Short-Term Background Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	274	1342	53	39	918	83	113	34	41	102	19
Future Volume (vph)	274	1342	53	39	918	83	113	34	41	102	19
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases	2		2	6		6	8		8	4	
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0	11.0	10.0	21.0	21.0	10.0	21.0
Total Split (s)	13.0	54.0	54.0	10.0	51.0	51.0	15.0	21.0	21.0	15.0	21.0
Total Split (%)	13.0%	54.0%	54.0%	10.0%	51.0%	51.0%	15.0%	21.0%	21.0%	15.0%	21.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None
Act Effect Green (s)	58.0	54.4	54.4	53.2	47.1	47.1	22.5	12.9	12.9	19.2	10.1
Actuated g/C Ratio	0.62	0.58	0.58	0.57	0.50	0.50	0.24	0.14	0.14	0.20	0.11
v/c Ratio	0.91	0.71	0.06	0.21	0.55	0.10	0.51	0.16	0.14	0.37	0.76
Control Delay	46.5	18.6	0.1	10.2	18.2	1.3	33.6	38.9	0.8	30.5	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	18.6	0.1	10.2	18.2	1.3	33.6	38.9	0.8	30.5	25.7
LOS	D	B	A	B	B	A	C	D	A	C	C
Approach Delay		22.6			16.6			27.5			27.2
Approach LOS		C			B			C			C

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 93.7  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 21.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 76.1%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 25: Golden Sage & Woodmen



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

Short-Term Background Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻			↻			↻	
Traffic Vol, veh/h	0	0	53	282	1	0	60	0	331	0	0	0
Future Vol, veh/h	0	0	53	282	1	0	60	0	331	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	87	87	87	87	87	87	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	68	324	1	0	69	0	380	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	519	1	363	329	-	1	0	0	380	0	0
Stage 1	-	1	-	328	328	-	-	-	-	-	-	-
Stage 2	-	518	-	35	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	461	1084	593	590	0	1622	-	-	1178	-	-
Stage 1	0	895	-	685	647	0	-	-	-	-	-	-
Stage 2	0	533	-	981	895	0	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	435	1084	531	556	-	1622	-	-	1178	-	-
Mov Cap-2 Maneuver	-	435	-	531	556	-	-	-	-	-	-	-
Stage 1	-	895	-	646	610	-	-	-	-	-	-	-
Stage 2	-	503	-	920	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		21.9		1.1		0	
HCM LOS	A		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	1084	531	1178	-
HCM Lane V/C Ratio	0.043	-	-	0.063	0.613	-	-
HCM Control Delay (s)	7.3	0	-	8.5	21.9	0	-
HCM Lane LOS	A	A	-	A	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	4.1	0	-

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	143	147	22	9	83
Future Vol, veh/h	95	143	147	22	9	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	155	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	83	83	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	164	177	27	12	106

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	204	0	-	0	573 191
Stage 1	-	-	-	-	191 -
Stage 2	-	-	-	-	382 -
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	1368	-	-	-	481 851
Stage 1	-	-	-	-	841 -
Stage 2	-	-	-	-	690 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1368	-	-	-	443 851
Mov Cap-2 Maneuver	-	-	-	-	443 -
Stage 1	-	-	-	-	774 -
Stage 2	-	-	-	-	690 -

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1368	-	-	-	443	851
HCM Lane V/C Ratio	0.08	-	-	-	0.026	0.125
HCM Control Delay (s)	7.9	-	-	-	13.3	9.8
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1	0.4

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	9	70	32	7	58	2	17	0	5	1	0	5
Future Vol, veh/h	9	70	32	7	58	2	17	0	5	1	0	5
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	82	38	8	68	2	20	0	6	1	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	70	0	0	120	0	0	211	209	101	211	227	69
Stage 1	-	-	-	-	-	-	123	123	-	85	85	-
Stage 2	-	-	-	-	-	-	88	86	-	126	142	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1531	-	-	1468	-	-	746	688	954	746	672	994
Stage 1	-	-	-	-	-	-	881	794	-	923	824	-
Stage 2	-	-	-	-	-	-	920	824	-	878	779	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1531	-	-	1468	-	-	735	680	954	734	664	994
Mov Cap-2 Maneuver	-	-	-	-	-	-	735	680	-	734	664	-
Stage 1	-	-	-	-	-	-	875	788	-	917	820	-
Stage 2	-	-	-	-	-	-	910	820	-	866	774	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.8			9.8			8.9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	775	1531	-	-	1468	-	-	939
HCM Lane V/C Ratio	0.033	0.007	-	-	0.006	-	-	0.008
HCM Control Delay (s)	9.8	7.4	-	-	7.5	-	-	8.9
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	47	18	26	50	14	11	0	16	9	0	6
Future Vol, veh/h	11	47	18	26	50	14	11	0	16	9	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	55	21	31	59	16	13	0	19	11	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	75	0	0	76	0	0	225	229	66	230	231	67
Stage 1	-	-	-	-	-	-	92	92	-	129	129	-
Stage 2	-	-	-	-	-	-	133	137	-	101	102	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1524	-	-	1523	-	-	730	671	998	725	669	997
Stage 1	-	-	-	-	-	-	915	819	-	875	789	-
Stage 2	-	-	-	-	-	-	870	783	-	905	811	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1524	-	-	1523	-	-	709	652	998	696	650	997
Mov Cap-2 Maneuver	-	-	-	-	-	-	709	652	-	696	650	-
Stage 1	-	-	-	-	-	-	907	812	-	867	773	-
Stage 2	-	-	-	-	-	-	846	767	-	880	804	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			2.1			9.4			9.6		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	856	1524	-	-	1523	-	-	792
HCM Lane V/C Ratio	0.037	0.008	-	-	0.02	-	-	0.022
HCM Control Delay (s)	9.4	7.4	-	-	7.4	-	-	9.6
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1



Timings  
3: Meridian Rd & Bent Grass Meadows Dr

2040 Background Traffic  
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖	↖	↖	↑↑	↑↑	↖
Traffic Volume (vph)	251	388	327	631	1680	369
Future Volume (vph)	251	388	327	631	1680	369
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	10.0		10.0	10.0	10.0	10.0
Total Split (s)	25.0		32.0	95.0	63.0	63.0
Total Split (%)	20.8%		26.7%	79.2%	52.5%	52.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None		None	Max	Max	Max
Act Effect Green (s)	14.3	114.4	90.1	90.1	62.9	62.9
Actuated g/C Ratio	0.12	1.00	0.79	0.79	0.55	0.55
v/c Ratio	0.64	0.27	0.87	0.25	0.94	0.39
Control Delay	54.6	0.4	53.4	3.6	36.2	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	0.4	53.4	3.6	36.2	4.2
LOS	D	A	D	A	D	A
Approach Delay	21.7			20.6	30.5	
Approach LOS	C			C	C	

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 114.4	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 26.3	Intersection LOS: C
Intersection Capacity Utilization 84.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Meridian Rd & Bent Grass Meadows Dr



Timings  
25: Golden Sage Rd & Woodmen Rd

2040 Background Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	734	76	68	1776	110	164	20	51	98	25	337
Future Volume (vph)	303	734	76	68	1776	110	164	20	51	98	25	337
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		Free
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	12.0	12.0	10.0	12.0	12.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	21.0	72.0	72.0	10.0	61.0	61.0	23.0	15.0	15.0	23.0	15.0	
Total Split (%)	17.5%	60.0%	60.0%	8.3%	50.8%	50.8%	19.2%	12.5%	12.5%	19.2%	12.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effect Green (s)	15.2	67.1	67.1	63.6	55.6	55.6	24.1	10.3	10.3	17.5	8.1	109.2
Actuated g/C Ratio	0.14	0.61	0.61	0.58	0.51	0.51	0.22	0.09	0.09	0.16	0.07	1.00
v/c Ratio	0.67	0.34	0.08	0.16	1.01	0.13	0.53	0.12	0.18	0.39	0.19	0.22
Control Delay	53.1	12.6	1.2	8.4	51.6	1.5	42.2	48.5	1.3	40.2	53.6	0.3
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	53.1	12.6	1.2	8.4	51.6	1.5	42.2	48.5	1.3	40.2	53.6	0.3
LOS	D	B	A	A	D	A	D	D	A	D	D	A
Approach Delay		23.0			47.1			33.8				11.7
Approach LOS		C			D			C				B

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 109.2  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 34.7  
 Intersection Capacity Utilization 85.2%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service E

Splits and Phases: 25: Golden Sage Rd & Woodmen Rd



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

2040 Background Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	15.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻			↻	↻		↻	
Traffic Vol, veh/h	0	8	114	346	6	0	78	0	354	0	0	0
Future Vol, veh/h	0	8	114	346	6	0	78	0	354	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	95	95	95	92	95	92	95	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	8	120	364	6	0	82	0	373	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	165	1	229	165	-	1	0	-	0	0	0
Stage 1	-	1	-	164	164	-	-	-	-	-	-	-
Stage 2	-	164	-	65	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	728	1084	726	728	0	1622	-	0	-	-	-
Stage 1	0	895	-	838	762	0	-	-	0	-	-	-
Stage 2	0	762	-	946	895	0	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	-	691	1084	615	691	-	1622	-	-	-	-	-
Mov Cap-2 Maneuver	-	691	-	615	691	-	-	-	-	-	-	-
Stage 1	-	895	-	795	723	-	-	-	-	-	-	-
Stage 2	-	723	-	833	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.9		19.3		7.3		0	
HCM LOS	A		C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	1045	616	-	-	-
HCM Lane V/C Ratio	0.051	-	0.123	0.602	-	-	-
HCM Control Delay (s)	7.3	0	8.9	19.3	0	-	-
HCM Lane LOS	A	A	A	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	4	-	-	-

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	255	148	12	19	132
Future Vol, veh/h	90	255	148	12	19	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	155	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	98	277	161	13	21	143

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	174	0	-	0	641 168
Stage 1	-	-	-	-	168 -
Stage 2	-	-	-	-	473 -
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	1403	-	-	-	439 876
Stage 1	-	-	-	-	862 -
Stage 2	-	-	-	-	627 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1403	-	-	-	408 876
Mov Cap-2 Maneuver	-	-	-	-	408 -
Stage 1	-	-	-	-	802 -
Stage 2	-	-	-	-	627 -

Approach	EB	WB	SB
HCM Control Delay, s	2	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1403	-	-	-	408	876
HCM Lane V/C Ratio	0.07	-	-	-	0.051	0.164
HCM Control Delay (s)	7.8	-	-	-	14.3	9.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	0.6

Intersection				
Intersection Delay, s/veh	5.2			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	164	66	364	41
Demand Flow Rate, veh/h	167	67	371	41
Vehicles Circulating, veh/h	17	204	184	271
Vehicles Exiting, veh/h	295	351	0	0
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.7	3.8	6.4	3.8
Approach LOS	A	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	T	T	LR	LR
Assumed Moves	T	T	LR	LR
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
Entry Flow, veh/h	167	67	371	41
Cap Entry Lane, veh/h	1356	1121	1144	1047
Entry HV Adj Factor	0.980	0.980	0.981	1.000
Flow Entry, veh/h	164	66	364	41
Cap Entry, veh/h	1330	1099	1122	1047
V/C Ratio	0.123	0.060	0.324	0.039
Control Delay, s/veh	3.7	3.8	6.4	3.8
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	0

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	2	59	6	4	106	0	19	0	13	2	0	6
Future Vol, veh/h	2	59	6	4	106	0	19	0	13	2	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	155	-	-	-	-	-	-	-	-
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	2	64	7	4	115	0	21	0	14	2	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	115	0	0	71	0	0	199	195	68	202	198	115
Stage 1	-	-	-	-	-	-	72	72	-	123	123	-
Stage 2	-	-	-	-	-	-	127	123	-	79	75	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1474	-	-	1529	-	0	760	700	995	756	698	937
Stage 1	-	-	-	-	-	0	938	835	-	881	794	-
Stage 2	-	-	-	-	-	0	877	794	-	930	833	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1474	-	-	1529	-	-	752	697	995	743	695	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	752	697	-	743	695	-
Stage 1	-	-	-	-	-	-	937	834	-	880	792	-
Stage 2	-	-	-	-	-	-	869	792	-	916	832	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			9.5			9.1		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	835	1474	-	-	1529	-	880
HCM Lane V/C Ratio	0.042	0.001	-	-	0.003	-	0.01
HCM Control Delay (s)	9.5	7.4	-	-	7.4	-	9.1
HCM Lane LOS	A	A	-	-	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	0

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	2	68	4	9	92	7	12	0	29	18	0	7
Future Vol, veh/h	2	68	4	9	92	7	12	0	29	18	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	155	-	-	-	-	-	-	-	-
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	2	74	4	10	100	8	13	0	32	20	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	108	0	0	78	0	0	208	208	76	220	206	104
Stage 1	-	-	-	-	-	-	80	80	-	124	124	-
Stage 2	-	-	-	-	-	-	128	128	-	96	82	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1483	-	-	1520	-	-	749	689	985	736	691	951
Stage 1	-	-	-	-	-	-	929	828	-	880	793	-
Stage 2	-	-	-	-	-	-	876	790	-	911	827	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1483	-	-	1520	-	-	739	683	985	708	685	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	739	683	-	708	685	-
Stage 1	-	-	-	-	-	-	928	827	-	879	787	-
Stage 2	-	-	-	-	-	-	863	784	-	881	826	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			9.2			9.9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	898	1483	-	-	1520	-	-	763
HCM Lane V/C Ratio	0.05	0.001	-	-	0.006	-	-	0.036
HCM Control Delay (s)	9.2	7.4	-	-	7.4	-	-	9.9
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

Timings  
3: Meridian Rd & Bent Grass Meadows Dr

2040 Background Traffic  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗	↗	↖	↑↑	↑↑	↗
Traffic Volume (vph)	493	382	378	1424	1114	269
Future Volume (vph)	493	382	378	1424	1114	269
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)	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	31.0	31.0	37.0	89.0	52.0	52.0
Total Split (%)	25.8%	25.8%	30.8%	74.2%	43.3%	43.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	22.6	22.6	84.1	84.1	53.8	53.8
Actuated g/C Ratio	0.19	0.19	0.72	0.72	0.46	0.46
v/c Ratio	0.78	0.64	0.83	0.59	0.72	0.32
Control Delay	53.6	8.9	39.9	9.4	30.4	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	8.9	39.9	9.4	30.4	3.8
LOS	D	A	D	A	C	A
Approach Delay	34.1			15.8	25.2	
Approach LOS	C			B	C	

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 116.7	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 23.0	Intersection LOS: C
Intersection Capacity Utilization 78.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Meridian Rd & Bent Grass Meadows Dr





Timings  
25: Golden Sage Rd & Woodmen Rd

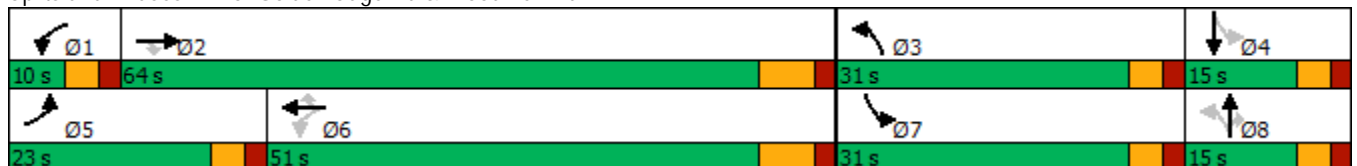
2040 Background Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	1629	78	86	1083	121	178	39	72	136	21	360
Future Volume (vph)	395	1629	78	86	1083	121	178	39	72	136	21	360
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		Free
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	12.0	12.0	10.0	12.0	12.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	23.0	64.0	64.0	10.0	51.0	51.0	31.0	15.0	15.0	31.0	15.0	
Total Split (%)	19.2%	53.3%	53.3%	8.3%	42.5%	42.5%	25.8%	12.5%	12.5%	25.8%	12.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effct Green (s)	17.6	55.6	55.6	49.5	41.1	41.1	24.5	9.4	9.4	17.7	8.0	98.3
Actuated g/C Ratio	0.18	0.57	0.57	0.50	0.42	0.42	0.25	0.10	0.10	0.18	0.08	1.00
v/c Ratio	0.68	0.83	0.09	0.48	0.75	0.17	0.46	0.23	0.25	0.45	0.15	0.24
Control Delay	46.4	24.5	1.5	22.5	28.9	2.6	35.4	48.5	1.9	39.3	49.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	24.5	1.5	22.5	28.9	2.6	35.4	48.5	1.9	39.3	49.4	0.4
LOS	D	C	A	C	C	A	D	D	A	D	D	A
Approach Delay		27.8			25.9			28.8				12.6
Approach LOS		C			C			C				B

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 98.3  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 25.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 78.0%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 25: Golden Sage Rd & Woodmen Rd



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

2040 Background Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	29.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔	↔		↔	
Traffic Vol, veh/h	0	12	101	402	14	0	134	0	397	0	0	0
Future Vol, veh/h	0	12	101	402	14	0	134	0	397	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	95	95	95	92	95	92	95	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	13	106	423	15	0	141	0	418	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	283	1	343	283	-	1	0	-	0	0	0
Stage 1	-	1	-	282	282	-	-	-	-	-	-	-
Stage 2	-	282	-	61	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	626	1084	611	626	0	1622	-	0	-	-	-
Stage 1	0	895	-	725	678	0	-	-	0	-	-	-
Stage 2	0	678	-	950	895	0	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	-	572	1084	506	572	-	1622	-	-	-	-	-
Mov Cap-2 Maneuver	-	572	-	506	572	-	-	-	-	-	-	-
Stage 1	-	895	-	662	619	-	-	-	-	-	-	-
Stage 2	-	619	-	845	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.1		42		7.4		0	
HCM LOS	A		E					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	990	508	-	-	-
HCM Lane V/C Ratio	0.087	-	0.12	0.862	-	-	-
HCM Control Delay (s)	7.4	0	9.1	42	0	-	-
HCM Lane LOS	A	A	A	E	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	9.2	-	-	-

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↖	↗
Traffic Vol, veh/h	118	198	239	25	10	124
Future Vol, veh/h	118	198	239	25	10	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	155	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	128	215	260	27	11	135

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	287	0	-	0	745 274
Stage 1	-	-	-	-	274 -
Stage 2	-	-	-	-	471 -
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	1275	-	-	-	382 765
Stage 1	-	-	-	-	772 -
Stage 2	-	-	-	-	628 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1275	-	-	-	344 765
Mov Cap-2 Maneuver	-	-	-	-	344 -
Stage 1	-	-	-	-	695 -
Stage 2	-	-	-	-	628 -

Approach	EB	WB	SB
HCM Control Delay, s	3	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1275	-	-	-	344	765
HCM Lane V/C Ratio	0.101	-	-	-	0.032	0.176
HCM Control Delay (s)	8.1	-	-	-	15.8	10.7
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1	0.6

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	8	109	29	9	68	2	15	0	7	1	0	4
Future Vol, veh/h	8	109	29	9	68	2	15	0	7	1	0	4
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	118	32	10	74	2	16	0	8	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	76	0	0	150	0	0	249	248	134	251	263	75
Stage 1	-	-	-	-	-	-	152	152	-	95	95	-
Stage 2	-	-	-	-	-	-	97	96	-	156	168	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1523	-	-	1431	-	-	705	655	915	702	642	986
Stage 1	-	-	-	-	-	-	850	772	-	912	816	-
Stage 2	-	-	-	-	-	-	910	815	-	846	759	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1523	-	-	1431	-	-	695	646	915	689	634	986
Mov Cap-2 Maneuver	-	-	-	-	-	-	695	646	-	689	634	-
Stage 1	-	-	-	-	-	-	845	767	-	907	810	-
Stage 2	-	-	-	-	-	-	900	809	-	834	754	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.9			9.9			9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	753	1523	-	-	1431	-	-	908
HCM Lane V/C Ratio	0.032	0.006	-	-	0.007	-	-	0.006
HCM Control Delay (s)	9.9	7.4	-	-	7.5	-	-	9
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	10	91	17	28	64	16	10	0	17	10	0	5
Future Vol, veh/h	10	91	17	28	64	16	10	0	17	10	0	5
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	99	18	30	70	17	11	0	18	11	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	117	0	0	271	277	108	278	278	79
Stage 1	-	-	-	-	-	-	130	130	-	139	139	-
Stage 2	-	-	-	-	-	-	141	147	-	139	139	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1509	-	-	1471	-	-	682	631	946	674	630	981
Stage 1	-	-	-	-	-	-	874	789	-	864	782	-
Stage 2	-	-	-	-	-	-	862	775	-	864	782	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1509	-	-	1471	-	-	664	614	946	647	613	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	664	614	-	647	613	-
Stage 1	-	-	-	-	-	-	868	783	-	858	766	-
Stage 2	-	-	-	-	-	-	840	760	-	841	777	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			1.9			9.6			10		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	817	1509	-	-	1471	-	-	730
HCM Lane V/C Ratio	0.036	0.007	-	-	0.021	-	-	0.022
HCM Control Delay (s)	9.6	7.4	-	-	7.5	-	-	10
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

Volume  
3: Meridian Rd & Bent Grass Meadows Dr

Short-Term Total Traffic  
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	163	296	160	698	1639	268
Future Volume (vph)	163	296	160	698	1639	268
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.86	0.86	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	170	308	186	812	1863	305
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	308	186	812	1863	305
<b>Intersection Summary</b>						

Timings  
3: Meridian Rd & Bent Grass Meadows Dr

Short-Term Total Traffic  
AM Peak Hour

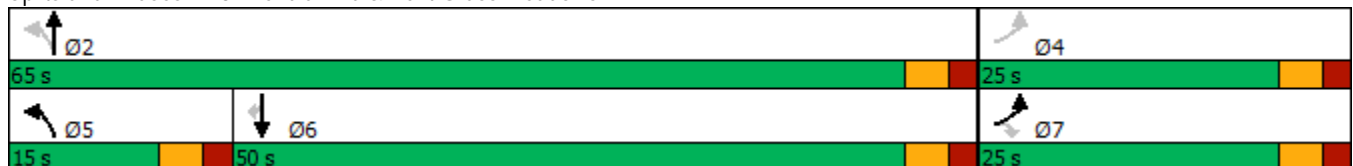


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Lane Configurations	↔↔	↔	↔	↕↕	↕↕	↔	
Traffic Volume (vph)	163	296	160	698	1639	268	
Future Volume (vph)	163	296	160	698	1639	268	
Turn Type	pm+pt	Perm	pm+pt	NA	NA	Perm	
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2			6	
Detector Phase	7	7	5	2	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	10.0	23.0	23.0	23.0	23.0
Total Split (s)	25.0	25.0	15.0	65.0	50.0	50.0	25.0
Total Split (%)	27.8%	27.8%	16.7%	72.2%	55.6%	55.6%	28%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	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	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag			Lead		Lag	Lag	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	Max	Max	Max	None
Act Effect Green (s)	12.1	12.1	60.2	60.2	46.6	46.6	
Actuated g/C Ratio	0.15	0.15	0.73	0.73	0.57	0.57	
v/c Ratio	0.34	0.76	0.68	0.31	0.93	0.30	
Control Delay	32.7	24.6	27.4	4.8	28.2	2.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.7	24.6	27.4	4.8	28.2	2.3	
LOS	C	C	C	A	C	A	
Approach Delay	27.5			9.0	24.6		
Approach LOS	C			A	C		

Intersection Summary













Cycle Length: 90  
 Actuated Cycle Length: 82.3  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 20.7  
 Intersection Capacity Utilization 72.0%  
 Analysis Period (min) 15  
 Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 3: Meridian Rd & Bent Grass Meadows Dr



Volume  
25: Golden Sage & Woodmen

Short-Term Total Traffic  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	161	666	47	23	1416	78	144	17	15	56	23	348
Future Volume (vph)	161	666	47	23	1416	78	144	17	15	56	23	348
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.81	0.81	0.81	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	175	724	51	26	1591	88	178	21	19	64	26	400
Shared Lane Traffic (%)												
Lane Group Flow (vph)	175	724	51	26	1591	88	178	21	19	64	426	0
Intersection Summary												



Timings  
25: Golden Sage & Woodmen

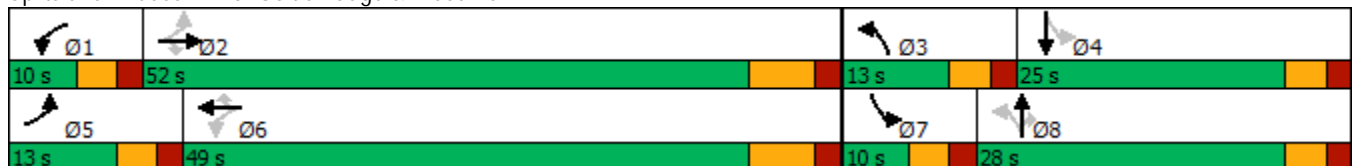
Short-Term Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	161	666	47	23	1416	78	144	17	15	56	23
Future Volume (vph)	161	666	47	23	1416	78	144	17	15	56	23
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases	2		2	6		6	8		8	4	
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0	11.0	10.0	21.0	21.0	10.0	21.0
Total Split (s)	13.0	52.0	52.0	10.0	49.0	49.0	13.0	28.0	28.0	10.0	25.0
Total Split (%)	13.0%	52.0%	52.0%	10.0%	49.0%	49.0%	13.0%	28.0%	28.0%	10.0%	25.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	56.2	54.0	54.0	51.0	45.0	45.0	28.4	21.6	21.6	26.6	20.0
Actuated g/C Ratio	0.56	0.54	0.54	0.51	0.45	0.45	0.28	0.22	0.22	0.27	0.20
v/c Ratio	0.82	0.38	0.06	0.07	1.00	0.11	0.79	0.05	0.04	0.16	1.00
Control Delay	50.0	14.8	0.1	9.7	50.7	1.3	53.2	31.4	0.2	24.9	74.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	14.8	0.1	9.7	50.7	1.3	53.2	31.4	0.2	24.9	74.1
LOS	D	B	A	A	D	A	D	C	A	C	E
Approach Delay		20.5			47.6			46.5			67.6
Approach LOS		C			D			D			E

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 100  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 42.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 93.8%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 25: Golden Sage & Woodmen



Timings  
25: Golden Sage & Woodmen With SB RT Lane

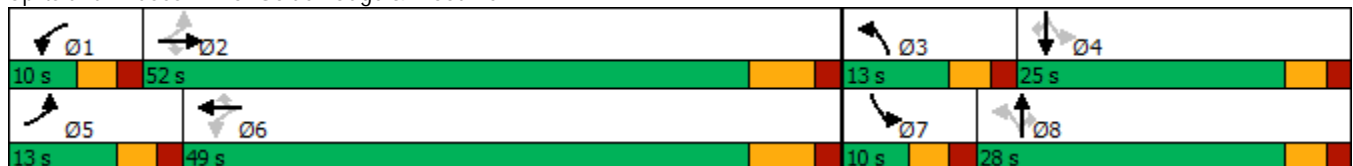
Short-Term Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	666	47	23	1416	78	144	17	15	56	23	348
Future Volume (vph)	161	666	47	23	1416	78	144	17	15	56	23	348
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0	11.0	10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	13.0	52.0	52.0	10.0	49.0	49.0	13.0	28.0	28.0	10.0	25.0	25.0
Total Split (%)	13.0%	52.0%	52.0%	10.0%	49.0%	49.0%	13.0%	28.0%	28.0%	10.0%	25.0%	25.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	56.2	54.1	54.1	51.0	45.0	45.0	27.4	20.6	20.6	25.5	18.9	18.9
Actuated g/C Ratio	0.57	0.55	0.55	0.52	0.45	0.45	0.28	0.21	0.21	0.26	0.19	0.19
v/c Ratio	0.81	0.37	0.06	0.06	0.99	0.11	0.43	0.05	0.04	0.17	0.07	0.93
Control Delay	48.6	14.5	0.1	9.7	47.7	1.3	31.3	31.4	0.2	25.0	33.2	54.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	14.5	0.1	9.7	47.7	1.3	31.3	31.4	0.2	25.0	33.2	54.1
LOS	D	B	A	A	D	A	C	C	A	C	C	D
Approach Delay		20.0			44.7			28.6			49.2	
Approach LOS		C			D			C			D	

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 99  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 37.4  
 Intersection LOS: D  
 Intersection Capacity Utilization 79.5%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 25: Golden Sage & Woodmen



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

Short-Term Total Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	11.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗			↖			↕			↕	
Traffic Vol, veh/h	0	0	33	393	1	0	22	0	234	0	0	0
Future Vol, veh/h	0	0	33	393	1	0	22	0	234	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	87	87	87	87	87	87	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	42	452	1	0	25	0	269	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	320	1	207	186	-	1	0	0	269	0	0
Stage 1	-	1	-	185	185	-	-	-	-	-	-	-
Stage 2	-	319	-	22	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	597	1084	751	708	0	1622	-	-	1295	-	-
Stage 1	0	895	-	817	747	0	-	-	-	-	-	-
Stage 2	0	653	-	996	895	0	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	586	1084	711	695	-	1622	-	-	1295	-	-
Mov Cap-2 Maneuver	-	586	-	711	695	-	-	-	-	-	-	-
Stage 1	-	895	-	801	733	-	-	-	-	-	-	-
Stage 2	-	641	-	957	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		18.5		0.6		0	
HCM LOS	A		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	1084	711	1295	-
HCM Lane V/C Ratio	0.016	-	-	0.039	0.637	-	-
HCM Control Delay (s)	7.3	0	-	8.5	18.5	0	-
HCM Lane LOS	A	A	-	A	C	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	4.6	0	-

**Intersection**

Int Delay, s/veh	4.8					
<b>Movement</b>	<b>EBL</b>	<b>EBT</b>	<b>WBT</b>	<b>WBR</b>	<b>SBL</b>	<b>SBR</b>
Lane Configurations	↘	↑	↗		↘	↗
Traffic Vol, veh/h	73	143	133	19	15	190
Future Vol, veh/h	73	143	133	19	15	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	155	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	89	174	160	23	18	229

<b>Major/Minor</b>	<b>Major1</b>	<b>Major2</b>	<b>Minor2</b>		
Conflicting Flow All	183	0	-	0	524
Stage 1	-	-	-	-	172
Stage 2	-	-	-	-	352
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1392	-	-	-	514
Stage 1	-	-	-	-	858
Stage 2	-	-	-	-	712
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1392	-	-	-	481
Mov Cap-2 Maneuver	-	-	-	-	481
Stage 1	-	-	-	-	803
Stage 2	-	-	-	-	712

<b>Approach</b>	<b>EB</b>	<b>WB</b>	<b>SB</b>
HCM Control Delay, s	2.6	0	10.8
HCM LOS			B

<b>Minor Lane/Major Mvmt</b>	<b>EBL</b>	<b>EBT</b>	<b>WBT</b>	<b>WBR</b>	<b>SBLn1</b>	<b>SBLn2</b>
Capacity (veh/h)	1392	-	-	-	481	872
HCM Lane V/C Ratio	0.064	-	-	-	0.038	0.263
HCM Control Delay (s)	7.8	-	-	-	12.8	10.6
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	1.1

HCM 6th TWSC  
 201: Bent Grass Meadows Dr & Rowena Way

Short-Term Total Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	16	0	20	18	0	6	8	74	8	1	143	4
Future Vol, veh/h	16	0	20	18	0	6	8	74	8	1	143	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	155	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	24	21	0	7	9	87	9	1	168	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	286	287	171	295	285	92	173	0	0	96	0	0
Stage 1	173	173	-	110	110	-	-	-	-	-	-	-
Stage 2	113	114	-	185	175	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	666	623	873	657	624	965	1404	-	-	1498	-	-
Stage 1	829	756	-	895	804	-	-	-	-	-	-	-
Stage 2	892	801	-	817	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	657	619	873	636	620	965	1404	-	-	1498	-	-
Mov Cap-2 Maneuver	657	619	-	636	620	-	-	-	-	-	-	-
Stage 1	824	755	-	890	799	-	-	-	-	-	-	-
Stage 2	880	796	-	794	753	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	10		10.4		0.7		0.1			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1404	-	-	762	695	1498	-
HCM Lane V/C Ratio	0.007	-	-	0.056	0.041	0.001	-
HCM Control Delay (s)	7.6	-	-	10	10.4	7.4	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	11	81	3	3	114	8	6	0	17	30	0	28
Future Vol, veh/h	11	81	3	3	114	8	6	0	17	30	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	85	85	85	85	92	85	92	85	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	95	4	4	134	9	7	0	20	33	0	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	143	0	0	99	0	0	283	272	97	278	270	139
Stage 1	-	-	-	-	-	-	121	121	-	147	147	-
Stage 2	-	-	-	-	-	-	162	151	-	131	123	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1440	-	-	1494	-	-	669	635	959	674	636	909
Stage 1	-	-	-	-	-	-	883	796	-	856	775	-
Stage 2	-	-	-	-	-	-	840	772	-	873	794	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1440	-	-	1494	-	-	641	628	959	654	629	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	641	628	-	654	629	-
Stage 1	-	-	-	-	-	-	876	790	-	849	773	-
Stage 2	-	-	-	-	-	-	810	770	-	848	788	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.2			9.4			10.2		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	849	1440	-	-	1494	-	-	756
HCM Lane V/C Ratio	0.032	0.008	-	-	0.002	-	-	0.083
HCM Control Delay (s)	9.4	7.5	-	-	7.4	-	-	10.2
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

HCM 6th TWSC  
 203: Lemon Grass Rd & Bent Grass Meadows Dr

Short-Term Total Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	5	114	10	2	88	2	26	0	8	6	0	11
Future Vol, veh/h	5	114	10	2	88	2	26	0	8	6	0	11
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	134	12	2	104	2	31	0	9	7	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	106	0	0	146	0	0	268	262	140	266	267	105
Stage 1	-	-	-	-	-	-	152	152	-	109	109	-
Stage 2	-	-	-	-	-	-	116	110	-	157	158	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1485	-	-	1436	-	-	685	643	908	687	639	949
Stage 1	-	-	-	-	-	-	850	772	-	896	805	-
Stage 2	-	-	-	-	-	-	889	804	-	845	767	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1485	-	-	1436	-	-	673	640	908	677	636	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	673	640	-	677	636	-
Stage 1	-	-	-	-	-	-	847	769	-	892	804	-
Stage 2	-	-	-	-	-	-	876	803	-	833	764	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			10.3			9.4		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	717	1485	-	-	1436	-	-	831
HCM Lane V/C Ratio	0.056	0.004	-	-	0.002	-	-	0.024
HCM Control Delay (s)	10.3	7.4	-	-	7.5	-	-	9.4
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	3	120	5	8	68	4	15	0	25	14	0	9
Future Vol, veh/h	3	120	5	8	68	4	15	0	25	14	0	9
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	141	6	9	80	5	18	0	29	16	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	85	0	0	147	0	0	258	255	144	268	256	83
Stage 1	-	-	-	-	-	-	152	152	-	101	101	-
Stage 2	-	-	-	-	-	-	106	103	-	167	155	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1512	-	-	1435	-	-	695	649	903	685	648	976
Stage 1	-	-	-	-	-	-	850	772	-	905	811	-
Stage 2	-	-	-	-	-	-	900	810	-	835	769	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1512	-	-	1435	-	-	682	643	903	658	642	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	682	643	-	658	642	-
Stage 1	-	-	-	-	-	-	847	770	-	902	806	-
Stage 2	-	-	-	-	-	-	885	805	-	806	767	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.8			9.8			10		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	805	1512	-	-	1435	-	-	754
HCM Lane V/C Ratio	0.058	0.002	-	-	0.007	-	-	0.036
HCM Control Delay (s)	9.8	7.4	-	-	7.5	-	-	10
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1



Volume  
3: Meridian Rd & Bent Grass Meadows Dr

Short-Term Total Traffic  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	206	263	247	1427	921	248
Future Volume (vph)	206	263	247	1427	921	248
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.86	0.86	0.96	0.96	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	240	306	257	1486	921	248
Shared Lane Traffic (%)						
Lane Group Flow (vph)	240	306	257	1486	921	248
<b>Intersection Summary</b>						

Timings  
3: Meridian Rd & Bent Grass Meadows Dr

Short-Term Total Traffic  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗	↗	↖	↑↑	↑↑	↗
Traffic Volume (vph)	206	263	247	1427	921	248
Future Volume (vph)	206	263	247	1427	921	248
Turn Type	pm+pt	Perm	pm+pt	NA	NA	Perm
Protected Phases	7		5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	7	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)	23.0	23.0	10.0	23.0	23.0	23.0
Total Split (s)	25.0	25.0	15.0	65.0	50.0	50.0
Total Split (%)	27.8%	27.8%	16.7%	72.2%	55.6%	55.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	11.3	11.3	60.1	60.1	46.3	46.3
Actuated g/C Ratio	0.14	0.14	0.74	0.74	0.57	0.57
v/c Ratio	0.50	0.67	0.56	0.57	0.46	0.25
Control Delay	36.1	13.9	8.5	6.2	11.7	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	13.9	8.5	6.2	11.7	2.1
LOS	D	B	A	A	B	A
Approach Delay	23.6			6.6	9.7	
Approach LOS	C			A	A	

Intersection Summary













Cycle Length: 90  
 Actuated Cycle Length: 81.4  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.67  
 Intersection Signal Delay: 10.3  
 Intersection Capacity Utilization 57.5%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 3: Meridian Rd & Bent Grass Meadows Dr



Volume  
25: Golden Sage & Woodmen

Short-Term Total Traffic  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	357	1342	53	39	918	83	113	36	41	102	20	264
Future Volume (vph)	357	1342	53	39	918	83	113	36	41	102	20	264
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.83	0.83	0.83	0.87	0.87	0.87
Growth Factor	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	349	1459	58	42	987	89	136	43	49	117	23	303
Shared Lane Traffic (%)												
Lane Group Flow (vph)	349	1459	58	42	987	89	136	43	49	117	326	0
Intersection Summary												

Timings  
25: Golden Sage & Woodmen

Short-Term Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	357	1342	53	39	918	83	113	36	41	102	20
Future Volume (vph)	357	1342	53	39	918	83	113	36	41	102	20
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases	2		2	6		6	8		8	4	
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0	11.0	10.0	21.0	21.0	10.0	21.0
Total Split (s)	18.0	54.0	54.0	10.0	46.0	46.0	15.0	21.0	21.0	15.0	21.0
Total Split (%)	18.0%	54.0%	54.0%	10.0%	46.0%	46.0%	15.0%	21.0%	21.0%	15.0%	21.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	59.2	54.4	54.4	48.1	42.1	42.1	23.2	13.7	13.7	19.9	10.8
Actuated g/C Ratio	0.63	0.58	0.58	0.51	0.45	0.45	0.25	0.15	0.15	0.21	0.11
v/c Ratio	0.92	0.72	0.06	0.21	0.63	0.11	0.52	0.16	0.12	0.36	0.81
Control Delay	49.0	19.1	0.1	11.2	23.0	0.3	33.6	38.6	0.6	30.0	27.3
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	49.0	19.1	0.1	11.2	23.0	0.3	33.6	38.6	0.6	30.0	27.3
LOS	D	B	A	B	C	A	C	D	A	C	C
Approach Delay		24.1			20.7			27.4			28.0
Approach LOS		C			C			C			C

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 94.4  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 23.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 81.8%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 25: Golden Sage & Woodmen



Timings  
25: Golden Sage & Woodmen With SB RT

Short-Term Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	1342	53	39	918	83	113	36	41	102	20	264
Future Volume (vph)	357	1342	53	39	918	83	113	36	41	102	20	264
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0	11.0	10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	18.0	54.0	54.0	10.0	46.0	46.0	15.0	21.0	21.0	15.0	21.0	21.0
Total Split (%)	18.0%	54.0%	54.0%	10.0%	46.0%	46.0%	15.0%	21.0%	21.0%	15.0%	21.0%	21.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-3.0	-3.0	-1.0	-3.0	-3.0	-1.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effect Green (s)	59.1	54.3	54.3	48.1	42.1	42.1	21.4	11.8	11.8	18.1	9.0	9.0
Actuated g/C Ratio	0.64	0.59	0.59	0.52	0.45	0.45	0.23	0.13	0.13	0.20	0.10	0.10
v/c Ratio	0.89	0.70	0.06	0.20	0.61	0.11	0.40	0.18	0.13	0.38	0.13	0.76
Control Delay	42.7	17.8	0.1	10.4	21.8	0.3	30.5	39.8	0.7	31.1	38.9	20.2
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	42.7	17.8	0.1	10.4	21.8	0.3	30.5	39.8	0.7	31.1	38.9	20.2
LOS	D	B	A	B	C	A	C	D	A	C	D	C
Approach Delay		21.9			19.7			25.9			24.1	
Approach LOS		C			B			C			C	

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 92.6  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 21.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 67.8%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 25: Golden Sage & Woodmen



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

Short-Term Total Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	13.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗			↖			↕			↕	
Traffic Vol, veh/h	0	0	53	331	1	0	60	0	415	0	0	0
Future Vol, veh/h	0	0	53	331	1	0	60	0	415	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	87	87	87	87	87	87	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	68	380	1	0	69	0	477	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	616	1	412	378	-	1	0	0	477	0	0
Stage 1	-	1	-	377	377	-	-	-	-	-	-	-
Stage 2	-	615	-	35	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	406	1084	550	554	0	1622	-	-	1085	-	-
Stage 1	0	895	-	644	616	0	-	-	-	-	-	-
Stage 2	0	482	-	981	895	0	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	381	1084	491	520	-	1622	-	-	1085	-	-
Mov Cap-2 Maneuver	-	381	-	491	520	-	-	-	-	-	-	-
Stage 1	-	895	-	604	578	-	-	-	-	-	-	-
Stage 2	-	452	-	920	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		33.5		0.9		0	
HCM LOS	A		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	1084	491	1085	-
HCM Lane V/C Ratio	0.043	-	-	0.063	0.777	-	-
HCM Control Delay (s)	7.3	0	-	8.5	33.5	0	-
HCM Lane LOS	A	A	-	A	D	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	6.9	0	-

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↖	↗
Traffic Vol, veh/h	179	143	147	46	9	132
Future Vol, veh/h	179	143	147	46	9	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	155	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	83	83	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	206	164	177	55	12	169

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	232	0	-	0	781 205
Stage 1	-	-	-	-	205 -
Stage 2	-	-	-	-	576 -
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	1336	-	-	-	363 836
Stage 1	-	-	-	-	829 -
Stage 2	-	-	-	-	562 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1336	-	-	-	307 836
Mov Cap-2 Maneuver	-	-	-	-	307 -
Stage 1	-	-	-	-	701 -
Stage 2	-	-	-	-	562 -

Approach	EB	WB	SB
HCM Control Delay, s	4.5	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1336	-	-	-	307	836
HCM Lane V/C Ratio	0.154	-	-	-	0.038	0.202
HCM Control Delay (s)	8.2	-	-	-	17.2	10.4
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.1	0.8

HCM 6th TWSC  
201: Bent Grass Meadows Dr & Rowena Way

Short-Term Total Traffic  
PM Peak Hour

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	10	0	13	11	0	4	26	165	28	3	105	13
Future Vol, veh/h	10	0	13	11	0	4	26	165	28	3	105	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	155	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	15	13	0	5	31	194	33	4	124	15

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	415	429	132	420	420	211	139	0	0	227	0	0
Stage 1	140	140	-	273	273	-	-	-	-	-	-	-
Stage 2	275	289	-	147	147	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	548	518	917	544	525	829	1445	-	-	1341	-	-
Stage 1	863	781	-	733	684	-	-	-	-	-	-	-
Stage 2	731	673	-	856	775	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	535	506	917	525	512	829	1445	-	-	1341	-	-
Mov Cap-2 Maneuver	535	506	-	525	512	-	-	-	-	-	-	-
Stage 1	845	779	-	718	670	-	-	-	-	-	-	-
Stage 2	711	659	-	839	773	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.4		11.4		0.9		0.2	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1445	-	-	700	582	1341	-
HCM Lane V/C Ratio	0.021	-	-	0.039	0.03	0.003	-
HCM Control Delay (s)	7.5	-	-	10.4	11.4	7.7	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-



Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	38	131	9	10	99	28	4	0	11	20	0	19
Future Vol, veh/h	38	131	9	10	99	28	4	0	11	20	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	85	85	85	85	92	85	92	85	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	154	11	12	116	30	5	0	13	22	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	165	0	0	408	412	160	403	402	131
Stage 1	-	-	-	-	-	-	242	242	-	155	155	-
Stage 2	-	-	-	-	-	-	166	170	-	248	247	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1436	-	-	1413	-	-	554	530	885	558	537	919
Stage 1	-	-	-	-	-	-	762	705	-	847	769	-
Stage 2	-	-	-	-	-	-	836	758	-	756	702	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1436	-	-	1413	-	-	526	510	885	535	517	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	526	510	-	535	517	-
Stage 1	-	-	-	-	-	-	740	685	-	822	763	-
Stage 2	-	-	-	-	-	-	810	752	-	724	682	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			0.6			9.9			10.7		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	749	1436	-	-	1413	-	-	672
HCM Lane V/C Ratio	0.024	0.029	-	-	0.008	-	-	0.063
HCM Control Delay (s)	9.9	7.6	-	-	7.6	-	-	10.7
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.2

HCM 6th TWSC  
 203: Lemon Grass Rd & Bent Grass Meadows Dr

Short-Term Total Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	15	115	32	7	112	5	17	0	5	3	0	8
Future Vol, veh/h	15	115	32	7	112	5	17	0	5	3	0	8
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	135	38	8	132	6	20	0	6	4	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	138	0	0	173	0	0	346	344	154	344	360	135
Stage 1	-	-	-	-	-	-	190	190	-	151	151	-
Stage 2	-	-	-	-	-	-	156	154	-	193	209	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1446	-	-	1404	-	-	608	579	892	610	567	914
Stage 1	-	-	-	-	-	-	812	743	-	851	772	-
Stage 2	-	-	-	-	-	-	846	770	-	809	729	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1446	-	-	1404	-	-	593	569	892	598	557	914
Mov Cap-2 Maneuver	-	-	-	-	-	-	593	569	-	598	557	-
Stage 1	-	-	-	-	-	-	802	734	-	841	767	-
Stage 2	-	-	-	-	-	-	833	765	-	794	720	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.4			10.8			9.6		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	642	1446	-	-	1404	-	-	799
HCM Lane V/C Ratio	0.04	0.012	-	-	0.006	-	-	0.016
HCM Control Delay (s)	10.8	7.5	-	-	7.6	-	-	9.6
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

HCM 6th TWSC  
 204: Berwyn Dr & Bent Grass Meadows Dr

Short-Term Total Traffic  
 PM Peak Hour

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	95	18	26	107	14	11	0	16	9	0	6
Future Vol, veh/h	11	95	18	26	107	14	11	0	16	9	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	112	21	31	126	16	13	0	19	11	0	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	142	0	0	133	0	0	349	353	123	354	355	134
Stage 1	-	-	-	-	-	-	149	149	-	196	196	-
Stage 2	-	-	-	-	-	-	200	204	-	158	159	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1441	-	-	1452	-	-	606	572	928	601	571	915
Stage 1	-	-	-	-	-	-	854	774	-	806	739	-
Stage 2	-	-	-	-	-	-	802	733	-	844	766	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1441	-	-	1452	-	-	587	555	928	575	554	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	587	555	-	575	554	-
Stage 1	-	-	-	-	-	-	846	767	-	799	723	-
Stage 2	-	-	-	-	-	-	779	718	-	819	759	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			1.3			10			10.5		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	750	1441	-	-	1452	-	-	675
HCM Lane V/C Ratio	0.042	0.009	-	-	0.021	-	-	0.026
HCM Control Delay (s)	10	7.5	-	-	7.5	-	-	10.5
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

Volume  
 3: Meridian Rd & Bent Grass Meadows Dr

2040 Total Traffic  
 AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	264	429	334	631	1680	373
Future Volume (vph)	264	429	334	631	1680	373
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	278	452	352	664	1768	393
Shared Lane Traffic (%)						
Lane Group Flow (vph)	278	452	352	664	1768	393
<b>Intersection Summary</b>						

Timings  
3: Meridian Rd & Bent Grass Meadows Dr

2040 Total Traffic  
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗	↗	↖	↑↑	↑↑	↗
Traffic Volume (vph)	264	429	334	631	1680	373
Future Volume (vph)	264	429	334	631	1680	373
Turn Type	Prot	Free	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		Free	2			6
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	10.0		10.0	10.0	10.0	10.0
Total Split (s)	25.0		32.0	95.0	63.0	63.0
Total Split (%)	20.8%		26.7%	79.2%	52.5%	52.5%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None		None	Max	Max	Max
Act Effect Green (s)	14.5	114.6	90.1	90.1	63.0	63.0
Actuated g/C Ratio	0.13	1.00	0.79	0.79	0.55	0.55
v/c Ratio	0.64	0.29	0.87	0.24	0.91	0.38
Control Delay	54.6	0.5	53.4	3.7	33.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	0.5	53.4	3.7	33.0	3.9
LOS	D	A	D	A	C	A
Approach Delay	21.1			20.9	27.7	
Approach LOS	C			C	C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 114.6  
 Natural Cycle: 75  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 24.7  
 Intersection Capacity Utilization 85.0%  
 Analysis Period (min) 15  
 Intersection LOS: C  
 ICU Level of Service E

Splits and Phases: 3: Meridian Rd & Bent Grass Meadows Dr



Volume  
25: Golden Sage Rd & Woodmen Rd

2040 Total Traffic  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	319	734	76	68	1776	110	164	20	51	98	26	392
Future Volume (vph)	319	734	76	68	1776	110	164	20	51	98	26	392
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.98	0.95	0.95	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	336	749	80	72	1812	116	173	21	54	103	27	413
Shared Lane Traffic (%)												
Lane Group Flow (vph)	336	749	80	72	1812	116	173	21	54	103	27	413

Intersection Summary

Timings  
25: Golden Sage Rd & Woodmen Rd

2040 Total Traffic  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	734	76	68	1776	110	164	20	51	98	26	392
Future Volume (vph)	319	734	76	68	1776	110	164	20	51	98	26	392
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		Free
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	12.0	12.0	10.0	12.0	12.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	21.0	72.0	72.0	10.0	61.0	61.0	23.0	15.0	15.0	23.0	15.0	
Total Split (%)	17.5%	60.0%	60.0%	8.3%	50.8%	50.8%	19.2%	12.5%	12.5%	19.2%	12.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effct Green (s)	15.5	67.4	67.4	63.6	55.5	55.5	24.2	10.4	10.4	17.6	8.2	109.5
Actuated g/C Ratio	0.14	0.62	0.62	0.58	0.51	0.51	0.22	0.09	0.09	0.16	0.07	1.00
v/c Ratio	0.69	0.34	0.08	0.16	1.01	0.13	0.53	0.12	0.18	0.39	0.19	0.26
Control Delay	54.0	12.6	1.2	8.4	52.6	1.5	42.2	48.5	1.3	40.3	53.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	12.6	1.2	8.4	52.6	1.5	42.2	48.5	1.3	40.3	53.7	0.4
LOS	D	B	A	A	D	A	D	D	A	D	D	A
Approach Delay		23.8			48.0			33.8			10.6	
Approach LOS		C			D			C			B	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 109.5  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 34.8  
 Intersection Capacity Utilization 85.6%  
 Analysis Period (min) 15  
 Intersection LOS: C  
 ICU Level of Service E

Splits and Phases: 25: Golden Sage Rd & Woodmen Rd



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

2040 Total Traffic  
 AM Peak Hour

Intersection												
Int Delay, s/veh	18.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔	↔		↔	
Traffic Vol, veh/h	0	8	114	402	6	0	78	0	371	0	0	0
Future Vol, veh/h	0	8	114	402	6	0	78	0	371	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	95	95	95	92	95	92	95	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	8	120	423	6	0	82	0	391	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	165	1	229	165	-	1	0	-	0	0	0
Stage 1	-	1	-	164	164	-	-	-	-	-	-	-
Stage 2	-	164	-	65	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	728	1084	726	728	0	1622	-	0	-	-	-
Stage 1	0	895	-	838	762	0	-	-	0	-	-	-
Stage 2	0	762	-	946	895	0	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	-	691	1084	615	691	-	1622	-	-	-	-	-
Mov Cap-2 Maneuver	-	691	-	615	691	-	-	-	-	-	-	-
Stage 1	-	895	-	795	723	-	-	-	-	-	-	-
Stage 2	-	723	-	833	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.9		23.2		7.3		0	
HCM LOS	A		C					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	1045	616	-	-	-
HCM Lane V/C Ratio	0.051	-	0.123	0.697	-	-	-
HCM Control Delay (s)	7.3	0	8.9	23.2	0	-	-
HCM Lane LOS	A	A	A	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	5.6	-	-	-



**Intersection**

Int Delay, s/veh 4.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	106	255	148	18	21	188
Future Vol, veh/h	106	255	148	18	21	188
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	155	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	115	277	161	20	23	204

**Major/Minor**

	Major1	Major2	Minor2
Conflicting Flow All	181	0	678
Stage 1	-	-	171
Stage 2	-	-	507
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1394	-	873
Stage 1	-	-	859
Stage 2	-	-	605
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1394	-	873
Mov Cap-2 Maneuver	-	-	384
Stage 1	-	-	789
Stage 2	-	-	605

**Approach**

	EB	WB	SB
HCM Control Delay, s	2.3	0	10.9
HCM LOS			B

**Minor Lane/Major Mvmt**

	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1394	-	-	-	384	873
HCM Lane V/C Ratio	0.083	-	-	-	0.059	0.234
HCM Control Delay (s)	7.8	-	-	-	15	10.4
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.2	0.9

HCM 6th TWSC  
201: Bent Grass Meadows Dr & Rowena Way

2040 Total Traffic  
AM Peak Hour

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	15	0	15	14	0	15	5	78	6	5	160	4
Future Vol, veh/h	15	0	15	14	0	15	5	78	6	5	160	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	155	-	-
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	16	0	16	15	0	16	5	85	7	5	174	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	293	288	176	293	287	89	178	0	0	92	0	0
Stage 1	186	186	-	99	99	-	-	-	-	-	-	-
Stage 2	107	102	-	194	188	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	659	622	867	659	623	969	1398	-	-	1503	-	-
Stage 1	816	746	-	907	813	-	-	-	-	-	-	-
Stage 2	898	811	-	808	745	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	645	618	867	643	619	969	1398	-	-	1503	-	-
Mov Cap-2 Maneuver	645	618	-	643	619	-	-	-	-	-	-	-
Stage 1	813	744	-	903	810	-	-	-	-	-	-	-
Stage 2	880	808	-	790	743	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	10.1		9.8		0.4		0.2			
HCM LOS	B		A							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1398	-	-	740	778	1503	-
HCM Lane V/C Ratio	0.004	-	-	0.044	0.041	0.004	-
HCM Control Delay (s)	7.6	-	-	10.1	9.8	7.4	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

**Intersection**

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	8	99	2	2	143	14	4	0	13	42	0	22
Future Vol, veh/h	8	99	2	2	143	14	4	0	13	42	0	22
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	108	2	2	155	15	4	0	14	46	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	170	0	0	110	0	0	306	301	109	301	295	163
Stage 1	-	-	-	-	-	-	127	127	-	167	167	-
Stage 2	-	-	-	-	-	-	179	174	-	134	128	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1407	-	-	1480	-	-	646	612	945	651	616	882
Stage 1	-	-	-	-	-	-	877	791	-	835	760	-
Stage 2	-	-	-	-	-	-	823	755	-	869	790	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1407	-	-	1480	-	-	625	608	945	637	612	882
Mov Cap-2 Maneuver	-	-	-	-	-	-	625	608	-	637	612	-
Stage 1	-	-	-	-	-	-	872	786	-	830	759	-
Stage 2	-	-	-	-	-	-	800	754	-	851	785	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.1			9.4			10.7		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	843	1407	-	-	1480	-	-	704
HCM Lane V/C Ratio	0.022	0.006	-	-	0.001	-	-	0.099
HCM Control Delay (s)	9.4	7.6	-	-	7.4	-	-	10.7
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

**Intersection**

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	3	144	6	4	131	2	19	0	13	7	0	9
Future Vol, veh/h	3	144	6	4	131	2	19	0	13	7	0	9
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	155	-	-	155	-	-	-	-	-	-	-	-
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	3	157	7	4	142	2	21	0	14	8	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	144	0	0	164	0	0	323	319	161	325	321	143
Stage 1	-	-	-	-	-	-	167	167	-	151	151	-
Stage 2	-	-	-	-	-	-	156	152	-	174	170	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1438	-	-	1414	-	-	630	598	884	628	596	905
Stage 1	-	-	-	-	-	-	835	760	-	851	772	-
Stage 2	-	-	-	-	-	-	846	772	-	828	758	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1438	-	-	1414	-	-	621	595	884	615	593	905
Mov Cap-2 Maneuver	-	-	-	-	-	-	621	595	-	615	593	-
Stage 1	-	-	-	-	-	-	833	758	-	849	770	-
Stage 2	-	-	-	-	-	-	834	770	-	813	756	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			10.4			9.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	706	1438	-	-	1414	-	-	750
HCM Lane V/C Ratio	0.049	0.002	-	-	0.003	-	-	0.023
HCM Control Delay (s)	10.4	7.5	-	-	7.6	-	-	9.9
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

**Intersection**

Int Delay, s/veh 2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	2	158	4	9	119	7	12	0	29	18	0	7
Future Vol, veh/h	2	158	4	9	119	7	12	0	29	18	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	155	-	-	-	-	-	-	-	-
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	2	172	4	10	129	8	13	0	32	20	0	8

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	137	0	0	176
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	1447	-	-	1400
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1447	-	-	1400
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	9.9	10.8
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	773	1447	-	-	1400	-	-	647
HCM Lane V/C Ratio	0.058	0.002	-	-	0.007	-	-	0.042
HCM Control Delay (s)	9.9	7.5	-	-	7.6	-	-	10.8
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

Volume  
3: Meridian Rd & Bent Grass Meadows Dr

2040 Total Traffic  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	503	415	413	1424	1114	288
Future Volume (vph)	503	415	413	1424	1114	288
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	529	437	435	1499	1173	303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	529	437	435	1499	1173	303
<b>Intersection Summary</b>						

Timings  
3: Meridian Rd & Bent Grass Meadows Dr

2040 Total Traffic  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗	↖	↗	↑↑	↑↑	↖
Traffic Volume (vph)	503	415	413	1424	1114	288
Future Volume (vph)	503	415	413	1424	1114	288
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)	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	31.0	31.0	37.0	89.0	52.0	52.0
Total Split (%)	25.8%	25.8%	30.8%	74.2%	43.3%	43.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	Max	Max	Max
Act Effect Green (s)	22.8	22.8	84.1	84.1	51.7	51.7
Actuated g/C Ratio	0.20	0.20	0.72	0.72	0.44	0.44
v/c Ratio	0.79	0.66	0.87	0.59	0.75	0.35
Control Delay	54.0	9.1	46.6	9.5	32.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	9.1	46.6	9.5	32.6	3.9
LOS	D	A	D	A	C	A
Approach Delay	33.7			17.9	26.7	
Approach LOS	C			B	C	

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 116.9	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Meridian Rd & Bent Grass Meadows Dr



Volume  
25: Golden Sage Rd & Woodmen Rd

2040 Total Traffic  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	447	1629	78	86	1083	121	178	40	72	136	21	391
Future Volume (vph)	447	1629	78	86	1083	121	178	40	72	136	21	391
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.98	0.95	0.95	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	471	1662	82	91	1105	127	187	42	76	143	22	412
Shared Lane Traffic (%)												
Lane Group Flow (vph)	471	1662	82	91	1105	127	187	42	76	143	22	412

Intersection Summary



Timings  
25: Golden Sage Rd & Woodmen Rd

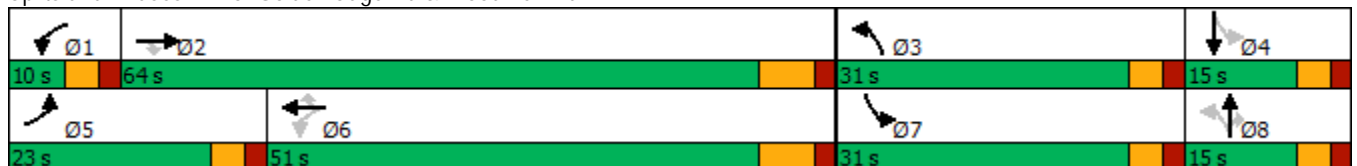
2040 Total Traffic  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	447	1629	78	86	1083	121	178	40	72	136	21	391
Future Volume (vph)	447	1629	78	86	1083	121	178	40	72	136	21	391
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		Free
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	12.0	12.0	10.0	12.0	12.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	23.0	64.0	64.0	10.0	51.0	51.0	31.0	15.0	15.0	31.0	15.0	
Total Split (%)	19.2%	53.3%	53.3%	8.3%	42.5%	42.5%	25.8%	12.5%	12.5%	25.8%	12.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effct Green (s)	18.6	55.9	55.9	48.8	40.5	40.5	24.5	9.4	9.4	17.7	8.0	98.5
Actuated g/C Ratio	0.19	0.57	0.57	0.50	0.41	0.41	0.25	0.10	0.10	0.18	0.08	1.00
v/c Ratio	0.73	0.83	0.09	0.48	0.76	0.17	0.46	0.24	0.25	0.45	0.15	0.26
Control Delay	47.7	24.4	1.5	22.6	29.7	2.6	35.4	48.7	1.9	39.3	49.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	24.4	1.5	22.6	29.7	2.6	35.4	48.7	1.9	39.3	49.5	0.4
LOS	D	C	A	C	C	A	D	D	A	D	D	A
Approach Delay		28.5			26.6			28.9			11.9	
Approach LOS		C			C			C			B	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 98.5  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 25.8  
 Intersection Capacity Utilization 78.0%  
 Analysis Period (min) 15  
 Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 25: Golden Sage Rd & Woodmen Rd



HCM 6th TWSC  
 26: Golden Sage Rd & Woodmen Frontage Rd

2040 Total Traffic  
 PM Peak Hour

Intersection

Int Delay, s/veh 40.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔	↔		↔	
Traffic Vol, veh/h	0	12	101	447	14	0	134	0	475	0	0	0
Future Vol, veh/h	0	12	101	447	14	0	134	0	475	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	95	95	95	92	95	92	95	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	13	106	471	15	0	141	0	500	0	0	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	283	1	343	283	-	1	0	-	0	0	0
Stage 1	-	1	-	282	282	-	-	-	-	-	-	-
Stage 2	-	282	-	61	1	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	626	1084	611	626	0	1622	-	0	-	-	-
Stage 1	0	895	-	725	678	0	-	-	0	-	-	-
Stage 2	0	678	-	950	895	0	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	-	572	1084	506	572	-	1622	-	-	-	-	-
Mov Cap-2 Maneuver	-	572	-	506	572	-	-	-	-	-	-	-
Stage 1	-	895	-	662	619	-	-	-	-	-	-	-
Stage 2	-	619	-	845	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.1		58.1		7.4		0	
HCM LOS	A		F					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	990	508	-	-	-
HCM Lane V/C Ratio	0.087	-	0.12	0.955	-	-	-
HCM Control Delay (s)	7.4	0	9.1	58.1	0	-	-
HCM Lane LOS	A	A	A	F	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	12.1	-	-	-

**Intersection**

Int Delay, s/veh 4.4

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations	↙	↑	↘		↙	↘
Traffic Vol, veh/h	195	198	239	49	12	168
Future Vol, veh/h	195	198	239	49	12	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	-	155	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	212	215	260	53	13	183

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All	313	0	-	0	926	287
Stage 1	-	-	-	-	287	-
Stage 2	-	-	-	-	639	-
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	1247	-	-	-	298	752
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	526	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1247	-	-	-	247	752
Mov Cap-2 Maneuver	-	-	-	-	247	-
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	526	-

**Approach** EB WB SB

HCM Control Delay, s	4.2	0	11.9
HCM LOS			B

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1247	-	-	-	247	752
HCM Lane V/C Ratio	0.17	-	-	-	0.053	0.243
HCM Control Delay (s)	8.5	-	-	-	20.4	11.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.6	-	-	-	0.2	0.9

HCM 6th TWSC  
201: Bent Grass Meadows Dr & Rowen Way

2040 Total Traffic  
PM Peak Hour

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	10	0	13	11	0	6	25	197	27	6	111	13
Future Vol, veh/h	10	0	13	11	0	6	25	197	27	6	111	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	155	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	14	12	0	7	27	214	29	7	121	14

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	428	439	128	432	432	229	135	0	0	243	0	0
Stage 1	142	142	-	283	283	-	-	-	-	-	-	-
Stage 2	286	297	-	149	149	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	537	512	922	534	516	810	1449	-	-	1323	-	-
Stage 1	861	779	-	724	677	-	-	-	-	-	-	-
Stage 2	721	668	-	854	774	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	523	500	922	516	504	810	1449	-	-	1323	-	-
Mov Cap-2 Maneuver	523	500	-	516	504	-	-	-	-	-	-	-
Stage 1	845	775	-	710	664	-	-	-	-	-	-	-
Stage 2	702	655	-	836	770	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	11.3	0.8	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1449	-	-	692	592	1323	-
HCM Lane V/C Ratio	0.019	-	-	0.036	0.031	0.005	-
HCM Control Delay (s)	7.5	-	-	10.4	11.3	7.7	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	36	169	9	9	110	32	3	0	10	22	0	18
Future Vol, veh/h	36	169	9	9	110	32	3	0	10	22	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	100	-	-	-	-	-	-	-	-
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	39	184	10	10	120	35	3	0	11	24	0	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	155	0	0	194	0	0	435	442	189	431	430	138
Stage 1	-	-	-	-	-	-	267	267	-	158	158	-
Stage 2	-	-	-	-	-	-	168	175	-	273	272	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1425	-	-	1379	-	-	531	510	853	535	518	910
Stage 1	-	-	-	-	-	-	738	688	-	844	767	-
Stage 2	-	-	-	-	-	-	834	754	-	733	685	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1425	-	-	1379	-	-	506	493	853	514	500	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	506	493	-	514	500	-
Stage 1	-	-	-	-	-	-	718	669	-	821	762	-
Stage 2	-	-	-	-	-	-	810	749	-	704	667	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.3			0.5			10			11		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	736	1425	-	-	1379	-	-	639
HCM Lane V/C Ratio	0.019	0.027	-	-	0.007	-	-	0.068
HCM Control Delay (s)	10	7.6	-	-	7.6	-	-	11
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.2

HCM 6th TWSC  
 203: Lemon Grass Rd & Bent Grass Meadows Dr

2040 Total Traffic  
 PM Peak Hour

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	14	157	29	9	129	5	15	0	7	4	0	7
Future Vol, veh/h	14	157	29	9	129	5	15	0	7	4	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	155	-	-	155	-	-	-	-	-	-	-	-
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	15	171	32	10	140	5	16	0	8	4	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	145	0	0	203	0	0	384	382	187	384	396	143
Stage 1	-	-	-	-	-	-	217	217	-	163	163	-
Stage 2	-	-	-	-	-	-	167	165	-	221	233	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1437	-	-	1369	-	-	574	551	855	574	541	905
Stage 1	-	-	-	-	-	-	785	723	-	839	763	-
Stage 2	-	-	-	-	-	-	835	762	-	781	712	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1437	-	-	1369	-	-	561	542	855	561	532	905
Mov Cap-2 Maneuver	-	-	-	-	-	-	561	542	-	561	532	-
Stage 1	-	-	-	-	-	-	777	716	-	831	758	-
Stage 2	-	-	-	-	-	-	822	757	-	766	705	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.5			10.9			9.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	630	1437	-	-	1369	-	-	740
HCM Lane V/C Ratio	0.038	0.011	-	-	0.007	-	-	0.016
HCM Control Delay (s)	10.9	7.5	-	-	7.6	-	-	9.9
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

HCM 6th TWSC  
204: Berwyn Dr & Bent Grass Meadows Dr

2040 Total Traffic  
PM Peak Hour

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	10	141	17	28	128	16	10	0	17	10	0	5
Future Vol, veh/h	10	141	17	28	128	16	10	0	17	10	0	5
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	153	18	30	139	17	11	0	18	11	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	171	0	0	394	400	162	401	401	148
Stage 1	-	-	-	-	-	-	184	184	-	208	208	-
Stage 2	-	-	-	-	-	-	210	216	-	193	193	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1424	-	-	1406	-	-	566	538	883	560	538	899
Stage 1	-	-	-	-	-	-	818	747	-	794	730	-
Stage 2	-	-	-	-	-	-	792	724	-	809	741	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1424	-	-	1406	-	-	550	522	883	536	522	899
Mov Cap-2 Maneuver	-	-	-	-	-	-	550	522	-	536	522	-
Stage 1	-	-	-	-	-	-	811	741	-	788	715	-
Stage 2	-	-	-	-	-	-	770	709	-	786	735	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			1.2			10.2			11		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	721	1424	-	-	1406	-	-	619
HCM Lane V/C Ratio	0.041	0.008	-	-	0.022	-	-	0.026
HCM Control Delay (s)	10.2	7.5	-	-	7.6	-	-	11
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

HCM 6th Roundabout  
 26: Golden Sage Rd & Woodmen Frontage Rd

2040 Total Traffic  
 AM Peak Hour

Intersection				
Intersection Delay, s/veh	3.5			
Intersection LOS	A			
Approach	EB	WB	NB	
Entry Lanes	1	1	1	
Conflicting Circle Lanes	1	1	1	
Adj Approach Flow, veh/h	128	429	473	
Demand Flow Rate, veh/h	130	437	483	
Vehicles Circulating, veh/h	431	84	8	
Vehicles Exiting, veh/h	90	8	553	
Ped Vol Crossing Leg, #/h	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	
Approach Delay, s/veh	5.6	6.1	0.6	
Approach LOS	A	A	A	
Lane	Left	Left	Left	Bypass
Designated Moves	TR	LT	L	R
Assumed Moves	TR	LT	L	R
RT Channelized				Free
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	399
Entry Flow, veh/h	130	437	84	1938
Cap Entry Lane, veh/h	889	1267	1369	0.980
Entry HV Adj Factor	0.983	0.981	0.976	391
Flow Entry, veh/h	128	429	82	1900
Cap Entry, veh/h	874	1243	1336	0.206
V/C Ratio	0.146	0.345	0.061	0.0
Control Delay, s/veh	5.6	6.1	3.2	A
LOS	A	A	A	1
95th %tile Queue, veh	1	2	0	



Timings  
26: Golden Sage Rd & Woodmen Frontage Rd

2040 Total Traffic  
AM Peak Hour

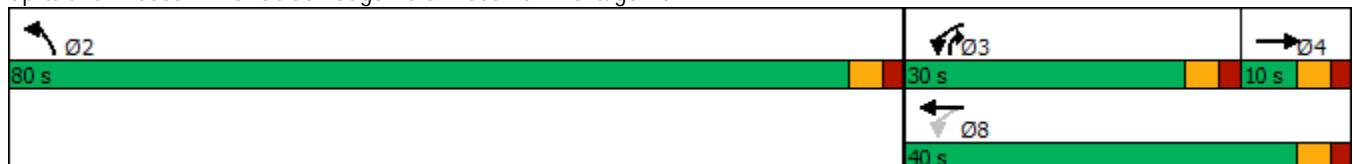


Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	→		←	←	→
Traffic Volume (vph)	8	402	6	78	371
Future Volume (vph)	8	402	6	78	371
Turn Type	NA	pm+pt	NA	Prot	Over
Protected Phases	4	3	8	2	3
Permitted Phases		8			
Detector Phase	4	3	8	2	3
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	30.0	40.0	80.0	30.0
Total Split (%)	8.3%	25.0%	33.3%	66.7%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes			Yes
Recall Mode	None	None	None	Min	None
Act Effect Green (s)	20.1		36.0	8.8	14.0
Actuated g/C Ratio	0.38		0.68	0.17	0.27
v/c Ratio	0.18		0.49	0.28	0.55
Control Delay	3.8		5.8	21.8	6.1
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	3.8		5.8	21.8	6.1
LOS	A		A	C	A
Approach Delay	3.8		5.8	8.9	
Approach LOS	A		A	A	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 52.8  
 Natural Cycle: 40  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.55  
 Intersection Signal Delay: 7.0  
 Intersection Capacity Utilization 44.4%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 26: Golden Sage Rd & Woodmen Frontage Rd



Timings  
26: Golden Sage Rd & Woodmen Frontage Rd

2040 Total Traffic (With 2 NB RT Lanes)  
AM Peak Hour

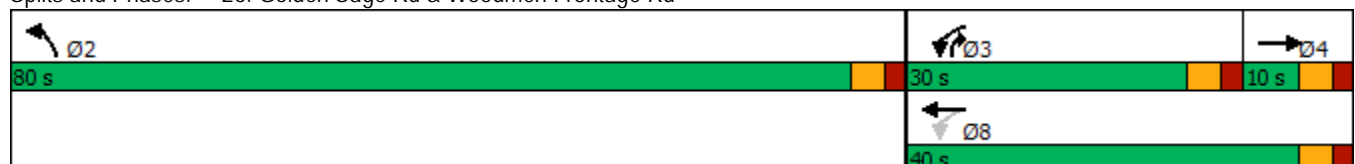


Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	→		←	↔	↔
Traffic Volume (vph)	8	402	6	78	371
Future Volume (vph)	8	402	6	78	371
Turn Type	NA	pm+pt	NA	Prot	Over
Protected Phases	4	3	8	2	3
Permitted Phases		8			
Detector Phase	4	3	8	2	3
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	30.0	40.0	80.0	30.0
Total Split (%)	8.3%	25.0%	33.3%	66.7%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes			Yes
Recall Mode	None	None	None	Min	None
Act Effct Green (s)	20.3		36.0	9.4	13.9
Actuated g/C Ratio	0.38		0.67	0.18	0.26
v/c Ratio	0.19		0.49	0.57	0.41
Control Delay	3.9		6.4	13.5	6.3
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	3.9		6.4	13.5	6.3
LOS	A		A	B	A
Approach Delay	3.9		6.4	10.0	
Approach LOS	A		A	B	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 53.5  
 Natural Cycle: 45  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 7.8  
 Intersection LOS: A  
 Intersection Capacity Utilization 52.0%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 26: Golden Sage Rd & Woodmen Frontage Rd



HCM 6th Roundabout  
 26: Golden Sage Rd & Woodmen Frontage Rd

2040 Total Traffic  
 PM Peak Hour

Intersection				
Intersection Delay, s/veh	3.8			
Intersection LOS	A			
Approach	EB	WB	NB	
Entry Lanes	1	1	1	
Conflicting Circle Lanes	1	1	1	
Adj Approach Flow, veh/h	119	486	641	
Demand Flow Rate, veh/h	121	495	654	
Vehicles Circulating, veh/h	480	144	13	
Vehicles Exiting, veh/h	159	13	588	
Ped Vol Crossing Leg, #/h	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	
Approach Delay, s/veh	5.8	7.3	0.8	
Approach LOS	A	A	A	
Lane	Left	Left	Left	Bypass
Designated Moves	TR	LT	L	R
Assumed Moves	TR	LT	L	R
RT Channelized				Free
Lane Util	1.000	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	2.609	
Critical Headway, s	4.976	4.976	4.976	510
Entry Flow, veh/h	121	495	144	1938
Cap Entry Lane, veh/h	846	1191	1362	0.980
Entry HV Adj Factor	0.981	0.981	0.979	500
Flow Entry, veh/h	119	486	141	1900
Cap Entry, veh/h	830	1169	1333	0.263
V/C Ratio	0.143	0.415	0.106	0.0
Control Delay, s/veh	5.8	7.3	3.5	A
LOS	A	A	A	1
95th %tile Queue, veh	0	2	0	

Timings  
26: Golden Sage Rd & Woodmen Frontage Rd

2040 Total Traffic  
PM Peak Hour

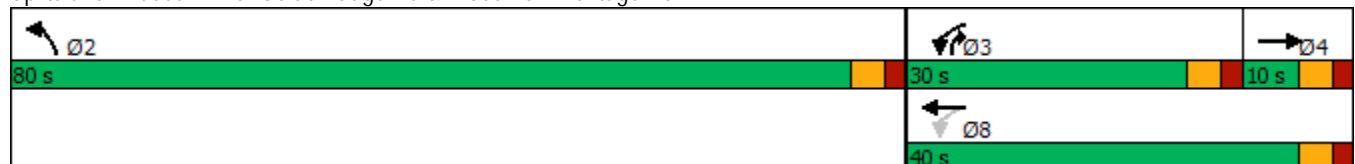


Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	→		←	←	→
Traffic Volume (vph)	12	447	14	134	475
Future Volume (vph)	12	447	14	134	475
Turn Type	NA	pm+pt	NA	Prot	Over
Protected Phases	4	3	8	2	3
Permitted Phases		8			
Detector Phase	4	3	8	2	3
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	30.0	40.0	80.0	30.0
Total Split (%)	8.3%	25.0%	33.3%	66.7%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes			Yes
Recall Mode	None	None	None	Min	None
Act Effect Green (s)	19.6		36.0	10.6	14.5
Actuated g/C Ratio	0.36		0.66	0.19	0.27
v/c Ratio	0.18		0.56	0.41	0.64
Control Delay	4.7		7.6	23.1	6.7
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	4.7		7.6	23.1	6.7
LOS	A		A	C	A
Approach Delay	4.7		7.6	10.3	
Approach LOS	A		A	B	

Intersection Summary

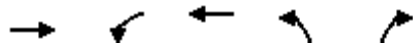
Cycle Length: 120  
 Actuated Cycle Length: 54.6  
 Natural Cycle: 45  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.64  
 Intersection Signal Delay: 8.7  
 Intersection LOS: A  
 Intersection Capacity Utilization 46.3%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 26: Golden Sage Rd & Woodmen Frontage Rd



Timings  
26: Golden Sage Rd & Woodmen Frontage Rd

2040 Total Traffic (With 2 NB RT Lanes)  
PM Peak Hour



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	→		←	↔	↔
Traffic Volume (vph)	12	447	14	134	475
Future Volume (vph)	12	447	14	134	475
Turn Type	NA	pm+pt	NA	Prot	Over
Protected Phases	4	3	8	2	3
Permitted Phases		8			
Detector Phase	4	3	8	2	3
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0
Total Split (s)	10.0	30.0	40.0	80.0	30.0
Total Split (%)	8.3%	25.0%	33.3%	66.7%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.0		4.0	4.0	4.0
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes			Yes
Recall Mode	None	None	None	Min	None
Act Effect Green (s)	19.8		36.1	14.2	14.5
Actuated g/C Ratio	0.34		0.62	0.24	0.25
v/c Ratio	0.19		0.60	0.67	0.52
Control Delay	5.4		10.6	20.2	6.9
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	5.4		10.6	20.2	6.9
LOS	A		B	C	A
Approach Delay	5.4		10.6	13.7	
Approach LOS	A		B	B	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 58.4  
 Natural Cycle: 45  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.67  
 Intersection Signal Delay: 11.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 56.0%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 26: Golden Sage Rd & Woodmen Frontage Rd

