TRANSPORTATION CONSULTANTS, INC.

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

Falcon Meadows at Bent Grass
Filing No. 2
Transportation memorandum
(LSC #S214330)
June 22, 2021

Please add PCD File No. SF2134

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.

COLORADO LICENSED
JEFFREY C. HODSDON
31684
6-22-21
PROFESSIONAL ENGINEER

Developer's Statement

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

_____ _____
Date

Falcon Meadows at Bent Grass Filing No. 2 Transportation Memorandum

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

JUNE 22, 2021

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

LSC #S214330

CONTENTS

LAND USE AND ACCESS 3
Land Use 3
Access 4
Pedestrian Routes to Schools 4
TRIP GENERATION 4
SHORT-TERM AND 2040 TOTAL TRAFFIC 4
REQUIRED IMPROVEMENTS 4
ROADWAY CLASSIFICATIONS 5
ROAD IMPROVEMENT FEE PROGRAM 5
Enclosures: 5
Table 1
Site Plan
Pages from *Falcon Meadows at Bent Grass Updated Traffic Impact Study*
Golden Sage Road and Woodmen Road Memorandum

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

June 22, 2021

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

RE: Falcon Meadows at Bent Grass
Filing No. 2
El Paso County, CO
Transportation Memorandum
LSC #214330

Dear Mr. Byers,

LSC Transportation Consultants, Inc. has prepared this Transportation Memorandum for Falcon Meadows at Bent Grass Filing No. 2. The location of the site is shown in the attached site plan exhibit. This report is intended as a site-specific, final-plat traffic report for the currently-proposed Filing 2.

LSC recently completed a traffic impact study (TIS) for the Falcon Meadows at Bent Grass PUD (PUDSP-20-005). This report was dated December 11, 2020. The land use and access currently-proposed for Filing No. 2 is consistent with the land use and trip generation estimated and evaluated in that report.

A memo was also prepared for Filing 1 – dated March 24, 2021.

Please update to the reflect the latest filing 1 traffic memo that was submitted/approved.

LAND USE AND ACCESS

Land Use

Filing No. 2 is planned to include a total of 108 lots for single-family homes. The location of the lots to be included as part of currently-proposed Filing No. 2 was included in traffic analysis zone (TAZ) 1 in the PUD TIS.

please include in this memo

Access

Two full-movement access points are proposed to the recently completed section of Bent Grass Meadows Drive. Please refer to the attached site plan exhibit. Also, please refer to Figures 2 and 3 from PUD TIS for the proposed spacing and sight-distance analysis of the proposed access points.

Pedestrian Routes to Schools

Please refer to page 9 of the PUD TIS for a discussion of the planned pedestrian and bicycle facilities in the vicinity of the site.

Please provide the text in this memo as done with the filing no. 1 report.

TRIP GENERATION

The site-generated vehicle trips were estimated using the nationally published trip-generation rates from *Trip Generation, 10th Edition*, 2017 by the Institute of Transportation Engineers (ITE). Table 1 shows the trip-generation estimates for Falcon Meadows at Bent Grass Filing No. 2.

Falcon Meadows at Bent Grass Filing No. 2 is expected to generate about 1,020 vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 a.m. and 8:30 a.m., about 20 vehicles would enter and 60 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 p.m. and 6:15 p.m., about 67 vehicles would enter and 40 vehicles would exit the site.

Please ensure that these are the latest dates as the approved filing 1 memo is dated September 28, 2021

SHORT-TERM AND 2040 TOTAL TRAFFIC

Please refer to the PUD TIS for the short-term and 2040-total traffic volumes and level of service analysis.

REQUIRED IMPROVEMENTS

Please see a copy of Table 4 Roadway System Improvements from PUD TIS with annotations added in March 2021 (as part of the Filing 1 memo) and June 2021 (for this memo) indicating the status of each improvement.

Regarding Improvement F, note that Bent Grass Meadows Drive has been constructed between the Woodmen frontage road and Meridian Road since completion of the PUD TIS. This improvement is likely currently warranted.

it was identified that this was warranted with Filing 1. Is filing 1 constructing this improvement? Please update the status accordingly.

G

Regarding Improvement J, please see the attached transportation memorandum dated December 30, 2020 which provides a warrant analysis for a protected eastbound left-turn signal phase at the intersection of Woodmen Road/Golden Sage Drive.

Address the status of that improvement. The filing 1 TIS indicated that control of this intersection is being transferred to the City of Colorado Springs and that the timing of the improvement is under discussion. Is this still the case?

Please provide a table that identifies the pro-rata share contributions for this Filing No. 2 similar to what was done with the Filing 1 TIS.

Please refer to Table 5 from the PUD TIS which 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. As Filing No. 2 is planned to include 108 of the 267 total lots planned for the Falcon Meadows at Bent Grass PUD, this filing would be responsible for about 40.4 percent of cost attributed to the PUD.

ROADWAY CLASSIFICATIONS

Please refer to the PUD TIS for the recommended internal street classifications. A copy of the figure from the PUD TIS report is attached for quick reference.

ROAD IMPROVEMENT FEE PROGRAM

Falcon Meadows at Bent Grass West Ranch Filing No. 2 will not be required to participate in the Countywide Transportation Improvement Fee Program, as this project is located within the Woodmen Road Metropolitan District boundary.

* * * * *

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

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E.
Principal

JCH:KDF:jas

Please provide discussion regarding any Auxiliary turn lanes required into the subdivision along Bent Grass meadows drive. Per short term total volumes shown on the PUD TIS it appears that a left turn deceleration lane is required per ECM standards at Rowena Way. Will a dedicated left turn be proposed or TWLT as proposed at other intersections along Bent Grass Meadows drive?

Enclosures: Table 1
Site Plan
Pages from the Falcon Meadows at Bent Grass Updated Traffic Impact Study December 11, 2020 (with updates noted)
Golden Sage Road and Woodmen Road Memorandum

Tables

TRANSPORTATION
CONSULTANTS, INC.

Table 1
Trip Generation Estimate
Falcon Meadows at Bent Grass Filing No. 2

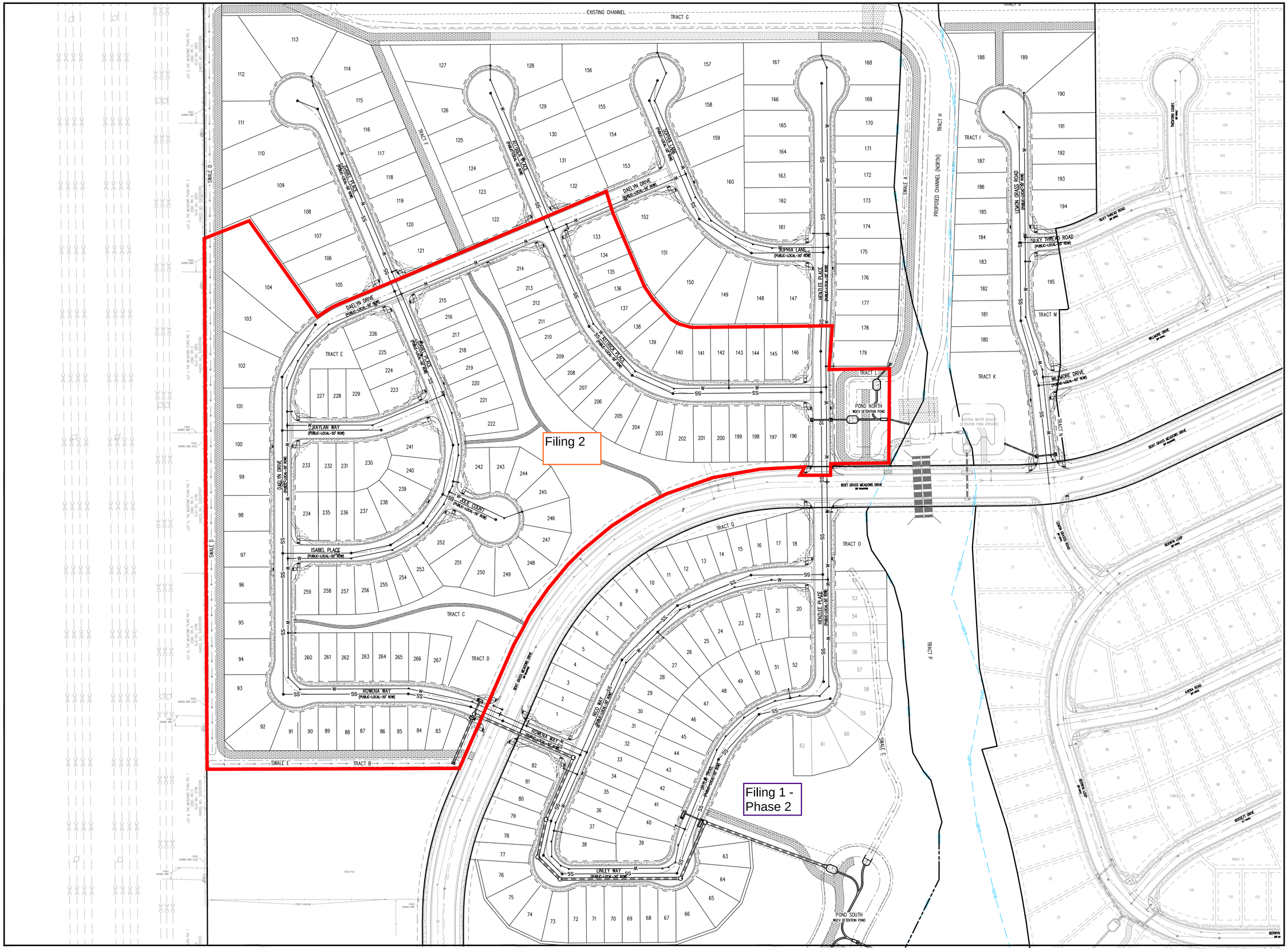
Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates [1]					Total Trips Generated				
			Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
				In	Out	In	Out		In	Out	In	Out
210	Single-Family Detached Housing	108 DU [2]	9.44	0.19	0.56	0.62	0.37	1,020	20	60	67	40

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

Source: LSC Transportation Consultants, Inc. *Jun-21*

Site Plan

TRANSPORTATION
CONSULTANTS, INC.



Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

PRELIMINARY
NOT FOR BIDDING
NOT FOR CONSTRUCTION

COPYRIGHT
THESE PLANS ARE AN INSTRUMENT OF SERVICE AND ARE THE PROPERTY OF GALLOWAY, AND MAY NOT BE DUPLICATED, DISCLOSED, OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF GALLOWAY. COPYRIGHTS AND INFRINGEMENTS WILL BE ENFORCED AND PROSECUTED.

CHALLENGER HOMES

PUD PRELIMINARY PLAN
FALCON MEADOWS AT BENT GRASS
FOR
CHALLENGER COMMUNTIES, LLC

BENT GRASS MEADOWS DRIVE & MERDIAN ROAD
FALCON, CO 80831 - EL PASO COUNTY

#	Date	Issue / Description	Init.

Project No:	CLH000017
Drawn By:	CMWJ
Checked By:	RGD
Date:	02/09/2021

PRELIMINARY UTILITY PLAN

C3.2

Sheet 8 of 11

Additional Attachments

Pages from *Falcon Meadows at Bent Grass Updated Traffic Impact Study*

TRANSPORTATION
CONSULTANTS, INC.

Taken from the *Falcon Meadows at Bent Grass Updated Traffic Impact Study* December 11, 2020 with Updates added in March 2021 and June 2021

Updated for Fil 2 June 2021

Please update this table accordingly as some items have been completed and/or have been identified to be completed by other subdivisions.

Table 4
Roadway System Improvements
Falcon Meadows at Bent Grass

	Description		Trigger	Timing	Reponsiblity
			Meridian Road/Bent Grass Meadows Road		
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 Once ... re... E... (dete... reduce... at the ... rash ... net ... ailed to ... nes that a signal should be installed. June 2021: Under Construction	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 la... any ... expa... expan... with ... d ... l ... nic. This improvement has been completed	Bent Grass Metro District
			Bent Grass Meadows Dr		
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	This improvement has been completed	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 remain... rass Eas... ed exp... d expa... nic. With th... dows Dr betw... d and Meridian Road. This improvement has been completed	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 remai... Grass Eas... ved ex... nd exp... linic. With t... adows Dr bet... d and Meridian Road. This improvement has been completed	
			Woodmen frontage road/Bent Grass Meadows Dr		
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*
			Woodmen/Golden Sage		
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 M... m... co... th... ne... im... sh... im... de... Th... m... once Bent Grass Meadows Drive connection is opened to traffic to determine if the phase should be added at that time. See transportation memorandum dated December 30, 2020	Bent Grass Metro District* - pro-rata share (based on total traffic volumes) of the cost of the improvement.(1) 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.	Likely needed with Filing No. 2 — 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.(1) 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	Likely needed with Filing No. 2 — 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. (1)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	Not anticipated with Filing No. 1 — 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. — Not anticipated with Filing No. 2	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. (1)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.

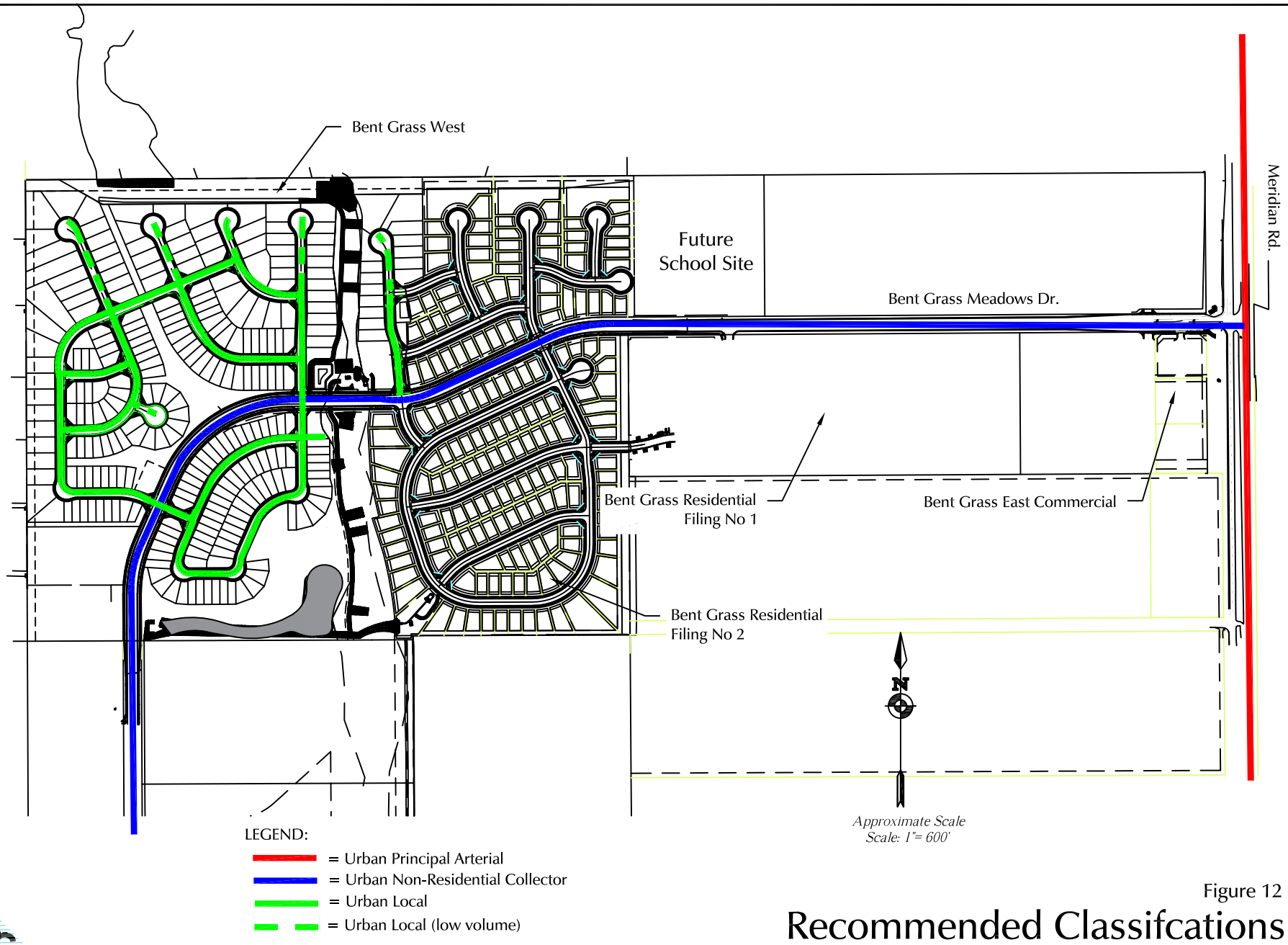
This section of Bent Grass Meadows has been constructed and opened Improvement F is likely currently warranted

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

Source: LSC Transportation Consultants, Inc. (December 2020)

please identify if these are warranted by this filing and are to be installed by this development in the narrative of this report.



LSC TRANSPORTATION CONSULTANTS, INC.

Figure 12

Recommended Classifcations

Falcon Meadows at Bent Grass (LSC #204420)

Golden Sage Road and Woodmen Road Memorandum

TRANSPORTATION
CONSULTANTS, INC.

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

MEMORANDUM

DATE: December 30, 2020

TO: Jeff Rice, P.E.

CC: Jim Byers

FROM: Jeffrey C. Hodsdon, P.E.

SUBJECT: Golden Sage Road and Woodmen Road
LSC #194460

This memorandum contains the following:

- The results of manual intersection turning movement counts at the intersection of Golden Sage Road and Woodmen Road in January and December 2020;
- A warrant analysis for the addition of a protected phase for the eastbound left-turn movement at the intersection of Golden Sage Road and Woodmen Road;

Existing Traffic Volumes

LSC Transportation Consultants, Inc conducted manual intersection turning-movement counts at the intersection of Woodmen/Golden Sage in January 2020 and again in December 2020. Note that 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 effects of the COVID-19 pandemic. The December 2020 counts were conducted following the completion of Bent Grass Meadows Drive between the Woodmen frontage road and Meridian Road, but during the COVID-19 pandemic. The traffic count reports are attached.

Left Turn Phase Analysis

The intersection of Golden Sage Road and Woodmen Road is currently traffic-signal controlled. The existing signal timing plan has two phases, namely a northbound/southbound phase and an eastbound/westbound phase with no protected phasing for any of the left-turn movements. LSC has analyzed the need to add an additional protected phase for the eastbound left-turn movement based on the criteria found in Exhibit 11-6 from the Federal Highway Administration Report *Signalized Intersections: Informational Guide* Publication Number: FHWA-SA-13-027 dated July 2013 copied below with our analysis.

<u>Exhibit 11-6 Guidelines for use of left-turn phasing</u>

Left-turn phasing (protected-permissive, permissive-protected, or protected-only) should be considered if any one of the following criteria is satisfied:

1. *A minimum of 2 left-turning vehicles per cycle and the product of opposing and left-turn hourly volumes exceeds the appropriate following value:*
    a. *Random arrivals (no other traffic signals within 0.8 km (0.5 mi))*
       One opposing lane: 45,000 Two opposing lanes: 90,000
    b. *Platoon arrivals (other traffic signals within 0.8 km (0.5 mi))*
       One opposing lane: 50,000 Two opposing lanes: 100,000

    Table 1 shows the results of the analysis based on criterion "b" Platoon arrivals with two opposing lanes. As shown in Table 1, the existing traffic volumes do not currently meet this criterion. This criterion is projected to be met following buildout of Bent Grass Residential Filing No. 2, based on the January 2020 afternoon peak-hour traffic volumes but not the December 2020 afternoon peak-hour traffic volumes. Following buildout of both Bent Grass Residential Filing No. 2 and Falcon Meadows at Bent Grass, the criterion is projected to be met based on the January 2020 existing afternoon peak-hour traffic volumes and based on both the January and December 2020 existing morning peak-hour traffic volumes. The analysis assumes **no** growth of through traffic on Woodmen Road and **no** additional traffic on Golden Sage Road due to any other future area developments. The known projects in the area that could potentially add traffic to this intersection in the short-term include the initial phase of Banning Lewis Ranch North located northeast of the intersection of Golden Sage Road/Woodmen Road, buildout of the Bent Grass East Commercial development located southwest of the intersection of Meridian Road/Bent Grass Meadows Drive, and Falcon Marketplace located northwest of the intersection of Woodmen Road/Meridian Road. Development of any of these projects or increases in through traffic on Woodmen Road could potentially trigger the need for an eastbound left-turn protected phase prior to buildout of Bent Grass Residential 2.

2. *The left-turning movement crosses 3 or more lanes of opposing through traffic.*

    This criterion is not currently applicable to the intersection of Golden Sage/Woodmen.

3. *The posted speed of opposing traffic exceeds 45 mph.*

   This criterion is currently met.

4. *Recent crash history for a 12-month period indicates 5 or more left-turn collisions that could be prevented by the installation of left-turn signals.*

   The Colorado State Patrol (CSP) provided LSC with crash history data for the intersection of Woodmen Road and Golden Sage Road from 2017 through 2020. During the reported time period there was one left-turn collision that could potentially have been prevented by installation of left-turn signals. Based on this data, criterion 4 is not currently met. The crash history data has been attached.

5. *Sight distances to oncoming traffic are less than the minimum distances in Exhibit 11-7.*

   This criterion is not applicable to the intersection of Golden Sage/Woodmen.

6. *The intersection has unusual geometric configurations, such as five legs, when an analysis indicates that left-turn or other special traffic-signal phases would be appropriate to provide positive direction to the motorist.*

   This criterion is not applicable to the intersection of Golden Sage/Woodmen.

7. *An opposing left-turn approach has a left-turn signal or meets one or more of the criteria in this table.*

   This criterion is not currently applicable to the intersection of Golden Sage/Woodmen.

8. *An engineering study indicates a need for left-turn signals. Items that may be considered include, but are not necessarily limited to, pedestrian volumes, traffic-signal progression, freeway interchange design, maneuverability of particular classes of vehicles, and operational requirements unique to preemption systems.*

   As criterion 1b is projected to be met in the short-term and criterion 3 is currently met, an additional engineering study was not completed at this time. Note: should a study be requested, a key component of that study would likely include analysis of the "maneuverability of particular classes of vehicles" (i.e., school buses) due to the location of the Academy School District 20 Transportation Department just northeast of the study intersection and would therefore need to be delayed until the district returns to in-person instruction and regular bus service is resumed so that field observations could be conducted.

* * * * *

Attachments: Table 1
Traffic Count Data
Crash History Data

Table 1

TRANSPORTATION
CONSULTANTS, INC.

Table 1
Left-Turn Signal Phase Warrant Analysis
Golden Sage Road/Woodmen Road
Bent Grass Residential Filing No. 2

		Existing Traffic Volumes[1]					Following Buildout of Bent Grass Residential Filing No. 2				Following Buildout of Falcon Meadows at Bent Grass			
Date	**Time**	**Eastbound Left-Turn Volume (vph)**	**Westbount Through and Right-Turn (vph)**	**Product**	**Threshold[3]**	**Met?**	**Projected Additional Eastbound Left-Turn Traffic [3]**	**Product**	**Threshold**	**Met?**	**Projected Additional Eastbound Left-Turn Traffic [4]**	**Product**	**Threshold**	**Met?**
1/21/2020	6:45 AM - 7:45 AM	47	1,558	73,226	100,000	NO	12	91,922	100,000	NO	25	130,872	100,000	YES
1/21/2020	4:45 PM - 5:45 PM	88	942	82,896	100,000	NO	52	131,880	100,000	YES	83	210,066	100,000	YES
12/8/2020	7:15 AM - 8:15 AM	41	1,063	43,583	100,000	NO	12	56,339	100,000	NO	25	82,914	100,000	NO
12/3/2020	4:45 PM - 5:45 PM	60	868	52,080	100,000	NO	52	97,216	100,000	NO	83	169,260	100,000	YES

Notes:

(1) Based on manual turning movement counts by LSC in January and 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 impacts of the COVID-19 pandemic. The December 2020 counts were conducted following the completion of Bent Grass Meadows Drive between the Woodmen frontage road and Meridian Road, but during the COVID-19 pandemic.

(2) Based on the criteria contained in Exhibit 11-6 from the Federal Highway Administration Report *Signalized Intersections: Informational Guide* Publication Number: FHWA-SA-13-027 dated July 2013

(3) Taken from Figure 7 of the *Bent Grass Residential Filing No. 2 Traffic Impact Analysis* dated April 17, 2020

(4) Taken from Figure 8 of the Falcon Meadows at *Bent Grass Updated Traffic Impact Analysis* dated December 11, 2020

Source:LSC Transportation Consultants, Inc. Dec-20

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

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

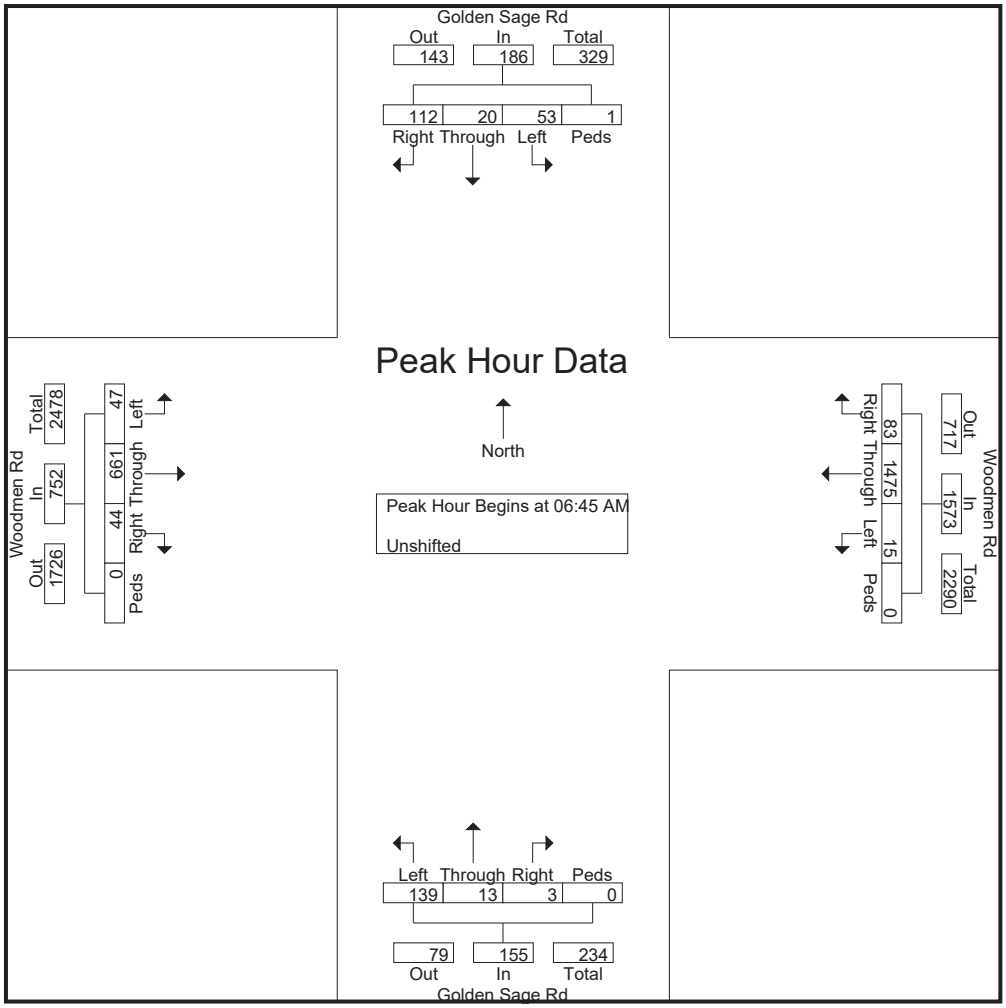
	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. 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

	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 6:30:00 AM to 8:15:00 AM - Peak 1 of 1																					
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

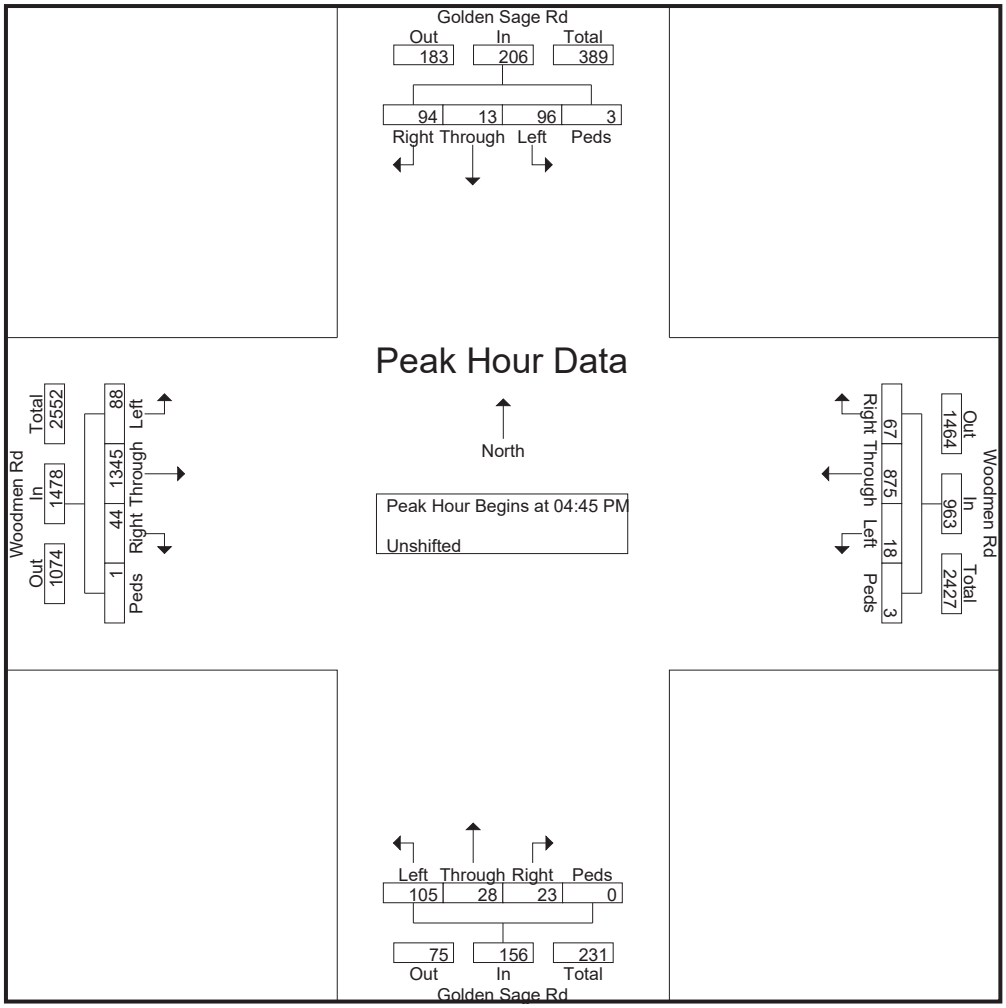
	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. 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

	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					
Start Time	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Left**	**Through**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
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

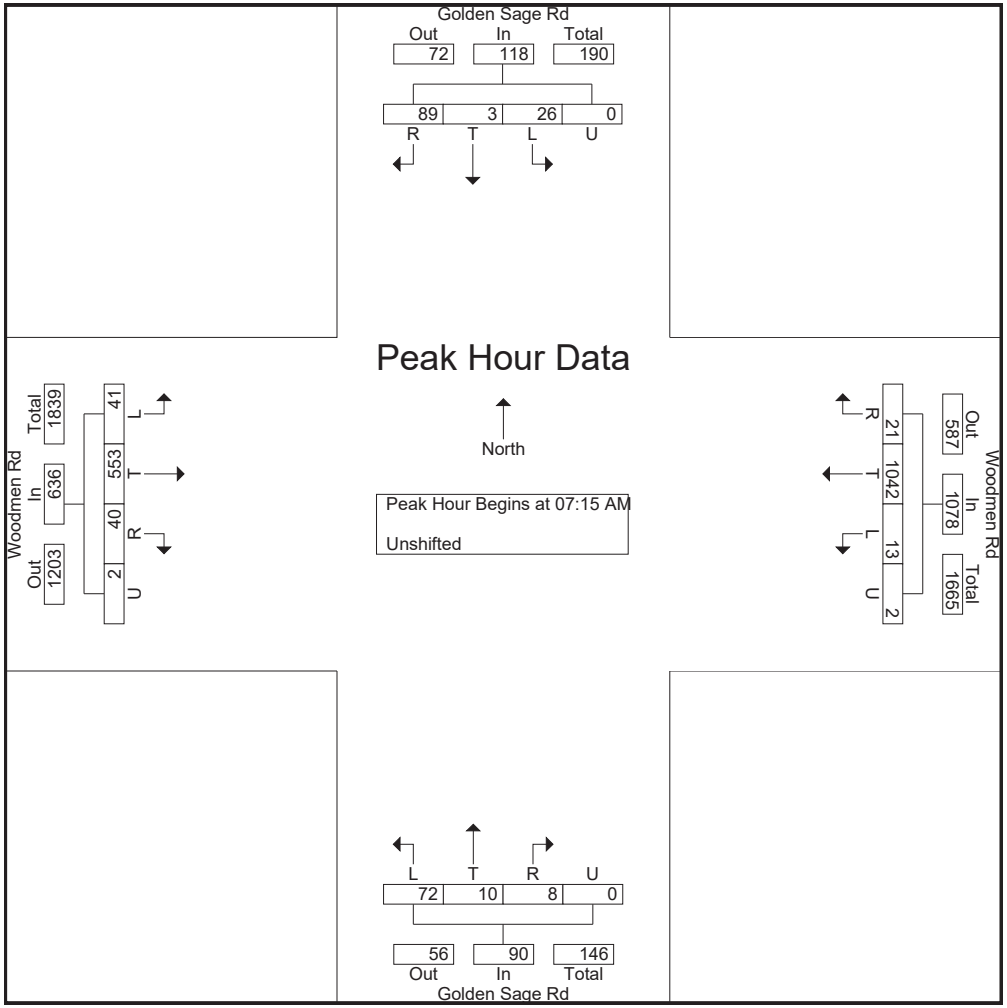
File Name : Golden Sage Rd - Woodmen Rd AM
Site Code : 00194460
Start Date : 12/8/2020
Page No : 1

Groups Printed- Unshifted

	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. 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

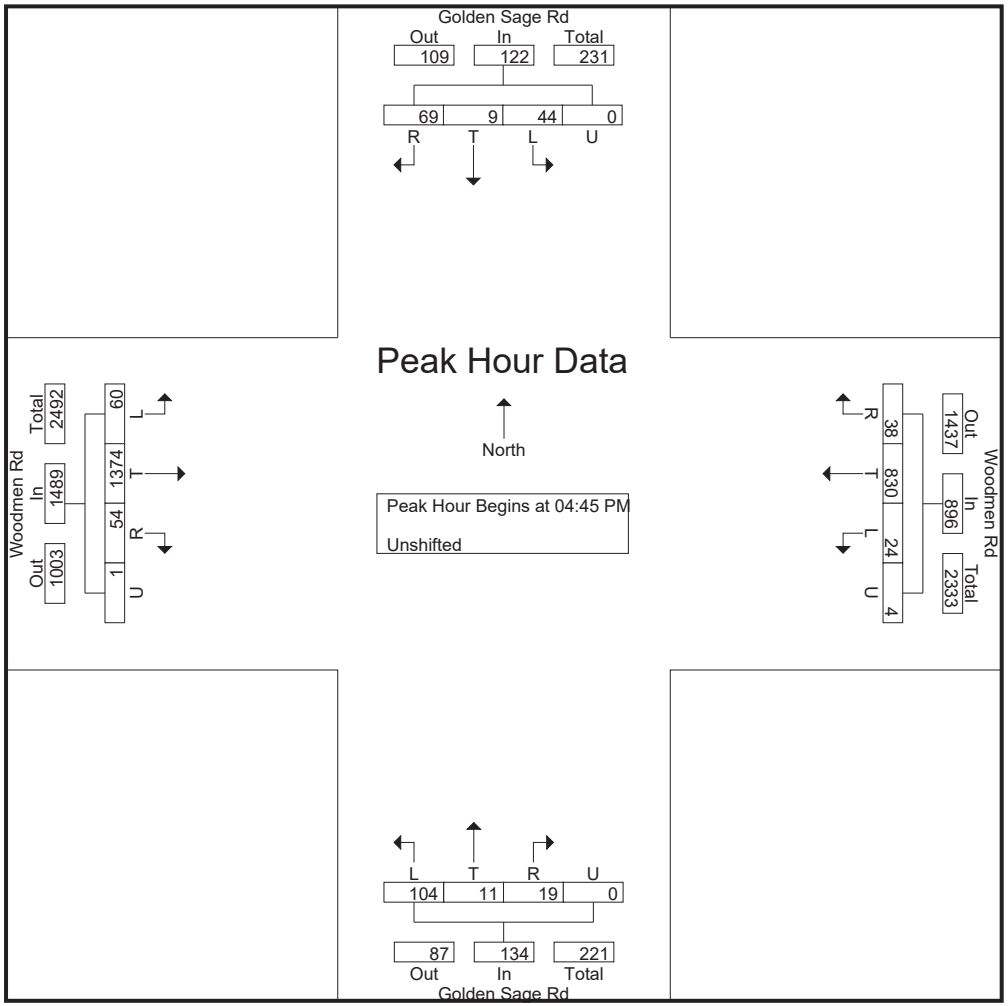
File Name : Golden Sage Rd - Woodmen Rd PM
Site Code : 00194460
Start Date : 12/3/2020
Page No : 1

Groups Printed- Unshifted

	Golden Sage Rd Southbound					Woodmen Rd Westbound					Golden Sage Rd Northbound					Woodmen Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. 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



Crash History

TRANSPORTATION
CONSULTANTS, INC.

AccidentDate	AccidentTime	Total Vehicles	Number Killed	Number Injured	FIP	ReferencePointName	ReferencePointAtName	Direction Code	Direction	Approach Overtaking Turn Code	Road Condition Code	Lighting Condition Code	Adverse Weather Condition Code	Accident Narrative
9/14/2020 0:00	12:05:00 PM	2	0	0	Property	E WOODMEN ROAD	GOLDEN SAGE RD	03	E	03	01	01	00	Vehicle #2 was traveling eastbound on E Woodmen Road in lane 01. Vehicle #2 was traveling slowly with traffic departing the Golden Sage Road traffic light. Vehicle #1 was traveling eastbound on E Woodmen Road behind Vehicle #2. Vehicle #1 did not slow as traffic was, and crashed into the back of vehicle #2. Both vehicles were blocking lane 01 and on all four wheels. Vehicles were driven to nearby parking lot to
8/19/2020 0:00	6:22:00 PM	3	0	1	Injury	WOODMEN RD	W GOLDEN SAGE RD			03	02	01	01	V1, V2, V3 were all eastbound on Woodmen Road in the number 1 lane. V3 was stopped the light at Golden Sage Road and V2 was stopped behind V3. V1 was unable to slow down and the front of V1 collided with the rear of V2 causing the front of V2 to collide with the rear of V3. All vehicles came to final rest on all wheels facing east approximately 1,056 feet west of Golden Sage Road on Woodmen Road in the number 1 lane.
12/2/2019 0:00	6:38:00 AM	2	0	0	Property	E WOODMEN RD	GOLDEN SAGE RD	07	W	03	01	01	00	Vehicle 1 was westbound on East Woodmen Road in Traffic Lane # 1. Vehicle 2 was westbound on East Woodmen Road, in Traffic Lane # 1, ahead of Vehicle 1. Vehicle 2 stopped for a red traffic signal. Vehicle 1 continued westbound. After the signal turned green, Vehicle 2 proceeded westbound and stopped for traffic. Vehicle 1 slowed and struck Vehicle 2, on its rear, with its front. Both vehicles were moved from the scene prior to officer arrival.
10/11/2019 0:00	12:10:00 PM	2	0	0	Property	E WOODMEN RD	GOLDEN SAGE	03	E	03	01	01	00	Vehicle #1 was stopped at the stop light on Woodmen and Golden Sage. Vehicle #2 was stropped at the stop light on Woodmen and Golden Sage, in front of vehicle #1. Vehicle #1 proceeded to travel west and collided its front with the rear of vehicle #2. After impact, both vehicles came to final rest and then moved to a safe location.
10/8/2019 0:00	4:15:00 PM	2	0	0	Property	E WOODMEN RD	W GOLDEN SAGE RD			03	01	01	00	Vehicle #1 was eastbound on E. Woodmen Rd approaching Golden Sage Rd in the left lane. Vehicle #2 was ahead of Vehicle #1 in the left lane. Vehicle #2 slowed for traffic ahead. Vehicle #1 could not stop in time, and collided its front into the rear of Vehicle #2. After impact, both vehicles moved to the center grassy median out of traffic prior to CSP arrival.
7/18/2019 0:00	9:30:00 PM	2	0	1	Injury	E WOODMEN RD	GOLDEN SAGE DR			01	01	03	00	Vehicle 1 was northbound on Golden Sage into the intersection at Woodmen Road. Vehicle 2 was southbound on Golden Sage into the intersection at Woodmen Road. Vehicle 1 failed to yield the right of way to Vehicle 2 and began to make a left turn onto westbound Woodmen Road. The front of Vehicle 1 collided with the front of Vehicle 2 in the intersection. Vehicle 1 was removed from the roadway prior to law enforcement arrival. Vehicle 2 was pushed out of the intersection by law enforcement after arrival to open the roadway. Measurements were not taken due to traffic volume.
6/16/2019 0:00	11:50:00 AM	2	0	0	Property	E WOODMEN RD	GOLDEN SAGE RD			03	01	01	00	Vehicles 1 and 2 were westbound on E. Woodmen Road approaching the intersection with Golden Sage Road. Vehicle 2 slowed to a stop. It is unclear if there was a green light or if the light was red. Vehicle 1 collided its front with the rear of Vehicle 2 in the number 2 lane. Both vehicles were moved from rest prior to investigation.
5/27/2019 0:00	1:20:00 PM	2	0	0	Property	E WOODMEN RD	GOLDEN SAGE RD			03	01	01	00	Vehicles 1 and 2 were stopped at the red light on E. Woodmen Road at the intersection with Golden Sage Road. Vehcle 1 started moving forward when the light turned green and collided its front with the rear of Vehicle 2 before it could start moving. Both vehicles were moved from rest prior to investigation
4/23/2019 0:00	1:37:00 PM	2	0	0	Property	E WOODMEN RD	GOLDEN SAGE DR			01	01	01	00	Vehicle #1 was southbound on Golden Sage road approaching Woodman Road. Vehicle #2 was northbound on Golden Sage Road approaching Woodman Road. Vehicle #2 had the right of way and entered the intersection. Simultaneously Vehicle #1 entered the intersection and made a left turn, failing to yield the right of way to vehicle #2. Vehicle #2 collided it's front with the right side of vehicle #1 in the intersection. Both vehicle's drove to the south shoulder of Woodman road, coming to final
8/24/2018 0:00	5:35:00 PM	2	0	0	Property	E WOODMEN RD	GOLDEN SAGE DR			03	01	01	00	Vehicle #2 was traveling eastbound on Woodmen Road in the left lane. Vehicle #1 was traveling behind Vehicle #2. Vehicle #1 collided with the rear of Vehicle #2 with its front. After impact, both vehicles were driven to the shoulder of the roadway.
6/23/2018 0:00	8:55:00 AM	2	1	0	Fatal	E WOODMAN ROAD	GOLDEN SAGE			03	01	01	00	Vehicle #1 was eastbound in the right lane on Woodmen Road approaching Golden Sage. Vehicle #2 was in the right lane for eastbound traffic on Woodmen, stopped at the traffic signal. Vehicle #1 collided with the rear of Vehicle. #2. Vehicle #2 was pushed foward rolling 1 1/4 times, ejecting the driver. Vehicle #1 came to a stop facing east. Vehicle #2 came to rest facing north.
4/19/2018 0:00	10:55:00 AM	2	0	0	Property	E WOODMEN RD	W GOLDEN SAGE RD	03	E	03	01	01	05	Vehicle 2 was eastbound Woodmen Rd, in the left lane, approaching Golden Sage Rd. Vehicle 1 was the same and behind Vehicle 2. Traffic and Vehicle 2 slowed. Vehicle 1 failed to safely slow. Vehicle 1 struck its front with the rear of Vehicle 2. The point of impact occurred 14' to the right of the left road edge and 859.1 ft west of Golden Sage Rd. Vehicle 1 came to rest in the left lane, facing east, 15'3" east of the point of impact and 8'6" from the left road edge. Vehicle 2 was driven to rest.
3/30/2018 0:00	9:45:00 AM	2	0	0	Property	WOODMEN RD	E GOLDEN SAGE RD			03	01	01	00	Vehicle#1 was traveling west on Woodmen RD east of Golden Sage RD in lane #2. Vehicle#2 was in front of Vehicle#1 in the same location. Vehicle#1 slowed down then collided with Vehicle#2 on the rear bumper with the front bumper of Vehicle#1. Both vehicles pulled to the right shoulder after impact. No final rest as both vehicles were moved prior to
2/14/2018 0:00	5:09:00 PM	2	0	0	Property	WOODMEN RD	GOLDEN SAGE RD	07	W	03	01	02	05	Vehicle #1 and #2 were eastbound on Woodman Road. Vehicle #2 was stopped at the red light at Golden Sage Road. The front of vehicle #1 collided with the rear of vehicle #2 approximately 350' west of the west road edge of Golden Sage Road. Vehicles were moved prior to
10/11/2017 0:00	7:10:00 AM	2	0	0	Property	GOLDEN SAGE ROAD	E WOODMEN ROAD			03	01	01	00	Vehicles 1 and 2 were stopped at the light on Golden Sage Road at the intersection with E. Woodmen Road. The light turned green and both vehicles started into the intersection. Vehicle 2 stopped shortly after starting forward as the vehicle ahead of her suddenly stopped. Vehicle 1 collided its front with the rear of Vehicle 2. Both vehicles were moved prior to investigation.
8/31/2017 0:00	4:45:00 PM	2	0	0	Property	WOODMEN RD	GOLDEN SAGE RD	04	S	03	01	01	00	Vehicles 1 and 2 were eastbound in the left lane on Woodmen Rd stopped for traffic just west of Golden Sage Rd. Vehicle 1 began moving forward before vehicle 2. Vehicle 1 collided its front with the rear of vehicle 2. Both vehicles were moved prior to investigation.
7/26/2017 0:00	6:25:00 PM	2	0	0	Property	WOODMEN RD	GOLDEN SAGE RD	03	NW	03	01	01	00	Vehicles 1 and 2 were westbound on Woodmen Rd approaching Golden Sage Rd in the left lane. Vehicle 2 stopped for traffic ahead. Vehicle 1 failed to stop and collided its front with the rear of vehicle 2. Both vehicles were moved prior to investigation.
7/17/2017 0:00	9:55:00 AM	2	0	0	Property	GOLDEN SAGE ROAD	WOODMEN ROAD	01	N	03	01	01	00	Vehicles 1 and 2 were stopped on Golden Sage Road at the intersection with East Woodmen Road. Vehicle 1 rolled forward and collided its front with the rear of Vehicle 2. Both vehicles were moved from rest prior to
6/2/2017 0:00	4:07:00 PM	2	0	0	Property	Woodmen Rd	Golden Sage Dr			03	01	01	00	Vehicle #1 was eastbound on Woodmen Rd. Vehicle #2 was stopped at the intersection of Golden Sage Rd and Woodmen Rd. Vehicle #1 failed to stop for the red light. Vehicle #2 began to turn left onto Woodmen Rd. Vehicle #1's passenger front bumper impacted Vehicle #2's driver side. Both vehicles moved prior to investigation.
4/14/2017 0:00	6:40:00 PM	2	1	0	Fatal	Woodmen Road	Golden Sage Road			01	01	01	00	Vehicle #1 was eastbound on Woodmen Road making a left turn in front of approaching traffic. Vehicle #2 was westbound on Woodmen Road. Vehicle #1 collided its front with the left side of Vehicle #2. Vehicle #1 came to rest facing north. Vehicle #2 traveled off the right side of the road and came to rest facing south.
4/20/2017 0:00	1:35:00 PM	2	0	0	Property	WOODMEN RD	GOLDEN SAGE RD			03	01	01	05	VEHICLES 1 AND 2 WERE EASTBOUND ON WOODMEN RD, IN THE LEFT LANE, STARTING FROM A GREEN LIGHT, AT GOLDEN SAGE RD. THE FRONT OF VEHICLE 1 IMPACTED THE REAR OF VEHICLE 2, APPROXIMATELY 20' EAST OF THE INTERSECTION, IN THE LEFT LANE. BOTH VEHICLES WERE DRIVEN TO REST IN THE MEDIAN, OUT OF TRAFFIC, PRIOR TO ARRIVAL. EXACT POINT OF IMPACT UNKNOWN.
4/15/2017 0:00	7:45:00 AM	2	0	0	Property	Woodmen Road westbound	Golden Sage Road	03	NW	03	01	01	00	Vehicle #1 was traveling westbound on Woodmen Road in the right lane approaching Golden Sage Road. Vehicle #2 was stopped on Woodmen Road at Golden Sage Road in the right lane. Vehicle #1 attempted to stop leaving 88 feet of braking tire marks before its front left struck Vehicle #2's right rear. Both vehicles moved from final rest onto Golden Sage Road prior to my arrival on scene.

A. LOCATION

01. On Roadway
02. Ran Off Left Side
03. Ran Off Right Side
04. Ran Off 'T' Intersection
05. Vehicle Crossed Center Median Into Opposing Lanes
06. On Private Property

B. HARMFUL EVENT SEQUENCE

NON-COLLISION ACCIDENT
01. Overturning
02. Other Non-Collision

COLLISION WITH PEDESTRIAN
03. School Age To / From School
04. Pedestrian on Toy Motorized Veh.
05. All Other Peds

COLLISION WITH MOTOR VEHICLE IN TRANSPORT
06. Front to Front
07. Front to Rear
08. Front to Side
09. Rear to Side
10. Rear to Rear
11. Side to Side-Same Direction
12. Side to Side-Opposite Direction

COLLISION WITH OTHER VEHICLE
13. Parked Motor Vehicle
14. Railway Vehicle/Light Rail
15. Bicycle
16. Road Maintenance Equipment

COLLISION WITH ANIMAL
17. Domestic Animal
18. Wild Animal

COLLISION WITH OBJECT
19. Light Pole / Utility Pole
20. Traffic Signal Pole
21. Sign
22. Guard Rail
23. Cable Rail
24. Concrete Highway Barrier
25. Bridge Structure
26. Vehicle Debris or Cargo
27. Culvert or Headwall
28. Embankment
29. Curb
30. Delineator Post
31. Fence
32. Tree
33. Large Rocks or Boulder
34. Railroad Crossing Equipment
35. Barricade
36. Wall or Building
37. Crash Cushion / Traffic Barrel
38. Mailbox
39. Other Fixed Object (Specify in Narrative)
40. Other Object (Specify in Narrative)

C. APPROACH/OVERTAKING TURN

01. Approach Turn
02. Overtaking Turn
03. Not Applicable

D. ROAD DESCRIPTION

01. At Intersection
02. Driveway Access Related
03. Intersection Related
04. Non-Intersection
05. Alley Related
06. Roundabout
07. Highway Interchange
08. Parking Lot

E. ROAD CONTOUR

01. Straight On-Level
02. Straight On-Grade
03. Curve On-Level
04. Curve On-Grade
05. Hillcrest

F. ROAD SURFACE

01. Concrete
02. Blacktop
03. Brick or Block
04. Gravel, Slag or Stone
05. Dirt
06. Other (Describe in Narrative)
07. Unknown

G. ROAD CONDITION

01. Dry
02. Wet
03. Muddy
04. Snowy
05. Icy
06. Slushy
07. Foreign Material
08. Dry W/Visible Icy Road Treatment
09. Wet W/Visible Icy Road Treatment
10. Snowy W/Visible Icy Road Treatment
11. Icy W/Visible Icy Road Treatment
12. Slushy W/Visible Icy Road Treatment

H. LIGHTING CONDITION

01. Daylight
02. Dawn or Dusk
03. Dark - Lighted
04. Dark - Unlighted

J. ADVERSE WEATHER CONDITION

00. None
01. Rain
02. Snow / Sleet / Hail
03. Fog
04. Dust
05. Wind

K. VEHICLE / VEHICLE COMBINATION

FMC (Overlay C) Required
01. Vehicle / Vehicle Combination (10,001 lbs. and over)
02. School Bus (all school buses)
03. Non-school Bus (9 occupants or more including driver) in commerce
04. Transit Bus

GVWR 10,000 lbs. or Less
05. Passenger Car / Passenger Van
06. Passenger Car / Passenger Van W/ Trailer
07. Pickup Truck / Utility Van
08. Pickup Truck / Utility Van W/Trailer
09. SUV
10. SUV W/Trailer
11. Motor Home
12. Motorcycle
13. Bicycle
14. Motorized Bicycle
15. Farm Equipment
16. Hit & Run Unknown
17. Light Rail
18. Other (Describe in Narrative)

L. DIRECTION OF TRAVEL – PRIOR TO IMPACT

01. North
02. Northeast
03. East
04. Southeast
05. South
06. Southwest
07. West
08. Northwest

M. VEHICLE MOVEMENT – PRIOR TO IMPACT

01. Going Straight
02. Slowing
03. Stopped in Traffic
04. Making Right Turn
05. Making Left Turn
06. Making U-Turn
07. Passing
08. Backing
09. Entering / Leaving Parked Position
10. Parked
11. Changing Lanes
12. Avoiding Object in Roadway
13. Weaving
14. Spun Out of Control
15. Drove Wrong Way
16. Other (Describe in Narrative)

N. ROADWAY SPEED LIMIT - Vehicles Only

Traffic Unit #1 or _____

Traffic Unit #2 or _____

P. ESTIMATED VEHICLE SPEED - Vehicles Only

Traffic Unit #1 or _____

Traffic Unit #2 or _____

Q. DRIVER ACTIONS (Officer Opinion Only)

00. No Action
01. Exceeded Safe/ Posted Speed
02. Impeded Traffic
03. Failed to Yield ROW
04. Disregard Stop Sign
05. Failed to Stop at Signal
06. Disregarded Other Device
07. Improper Turn
08. Turned from Wrong Lane or Position
09. Other Improper Turns
10. Lane Violation
11. Improper Passing on Left
12. Improper Passing on Right
13. Followed Too Closely
14. Improper Backing
15. Signaling Violation
16. Reckless Driving
17. Careless Driving (if used, block R can not be coded "00")

R. DRIVER - MOST APPARENT HUMAN CONTRIBUTING FACTOR (Officer Opinion Only)

00. No Apparent Contributing Factor
01. Asleep at the Wheel
02. Driver Fatigue
03. Illness / Medical
04. Driver Inexperience
05. Aggressive Driving
06. Driver Unfamiliar With Area
07. Driver Emotionally Upset
08. Evading Law Enforcement Officer
09. Physical Disability
10. DUI, DWAI, DUID
11. Distracted / Passenger
12. Distracted / Cell Phone
13. Distracted / Radio
14. Distracted / Other i.e. Food, Objects, Pet, etc.
15. Other Factor (Describe in Narrative)

S. BY PEDESTRIAN ACTION (Officer Opinion Only)

01. Cross Against Signal
02. Cross / Enter at Intersection
03. Cross / Enter NOT at Intersection
04. Standing in Roadway
05. Playing in Roadway
06. Soliciting Rides
07. Walking in Roadway in Direction of Traffic
08. Walking in Roadway Against Direction of Traffic
09. Entering / Exiting Vehicle
10. Pushing / Working on Vehicle
11. Lying in Roadway
12. Other (Describe in Narrative)

T. VEHICLE DEFECT / CONDITION (Officer Opinion Only)

00. No Vehicle Defects
01. Defective Head Light(s)
02. Defective Brake/Tail Light(s)
03. Defective Signaling Device
04. Brakes Defective/Out of Adjustment
05. Defective Tires
06. Sudden Tire Failure
07. Improper Tires for Conditions
08. Mechanical Failure
09. Obstructed Window(s)
10. Improper Load
11. Spilled Load – Commercial Aggregate
12. Spilled Load – Commercial Non- Aggregate
13. Spilled Load – Other
14. Parking Violation
15. Other Defect(s) (Describe in Narrative)