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Brookmoor Estates Subdivision
PUD Amendment
Transportation Memorandum
PCD File No.: PUD185
(LSC #174650)

March 4, 2022

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 HOA BOARD PRESIDENT
HOA President

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

HOA BOARD

Date 4/5/22

Brookmoor Estates

PUD Amendment

Transportation Memorandum

Prepared for:
Brookmoor Homeowners Association

MARCH 4, 2022

LSC Transportation Consultants
Prepared by Jeffrey C. Hodsdon, P.E.

LSC #174650

CONTENTS

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March 4, 2022

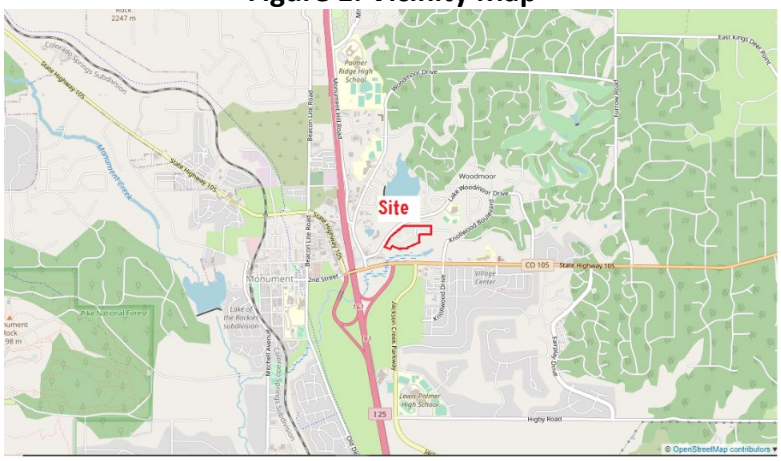
ATTN: Board President
Brookmoor Homeowners Association

RE: Brookmoor Estates Subdivision
Brookmoor PUD Amendment
El Paso County, Colorado
Transportation Memorandum
PCD File No.: PUD-185
LSC #174650

Dear Sir/Ma'am:

In response to your request, LSC Transportation Consultants, Inc. has prepared this transportation memorandum for the proposed Brookmoor Estates PUD Amendment. The Brookmoor Estates subdivision is located generally north of Highway (SH) 105 and east of Woodmoor Drive in El Paso County, Colorado. Figure 1 shows the location of Brookmoor Estates.

Figure 1: Vicinity Map



The purpose of this memo is to assist with your request (to El Paso County) to amend the originally approved PUD to allow conversion of the existing emergency-only east access to the Brookmoor Estates subdivision to an RFID-controlled, resident-only access (emergency vehicles would still have access as well).

This memo presents estimates of the total subdivision vehicle-trip generation at buildout and the average daily traffic volume at the east gate, if converted to an RFID-controlled, resident-only access. This memo also summarizes results of analysis of traffic in the local area and assesses the effect of opening the gate on area traffic safety.

LSC CORPORATE PROFILE

LSC Transportation Consultants, Inc. (LSC) provides consulting services in all phases of transportation planning and traffic engineering throughout the United States. With three offices in Colorado and California, the firm provides highly competent planning and engineering services within the transportation field. The firm is the successor to Leigh Associates and Leigh, Scott & Cleary, Inc. and has provided consulting services continuously since 1975.

LSC provides services to private organizations, government agencies, and individuals in traffic engineering, traffic impact assessment, access planning and design, traffic systems management, traffic signal design, multimodal transportation planning, transit planning and operations, parking analysis and parking feasibility reports, and bicycle/pedestrian circulation. The firm's strength lies in the staff's broad range of professional experience.

LSC has performed more than a thousand traffic impact studies in El Paso County, including the City of Fountain, the City of Colorado Springs, and other municipalities within El Paso County. Typical studies include reviews of the existing infrastructure, trip-generation estimates, intersection analysis, projections of future traffic volumes, and recommendations for improvements. Some include plans for new street/road connections and performing alternatives analysis. To accomplish these studies, a multitude of analysis techniques have been researched, modified as necessary, and applied. We use a variety of traffic data collection methods.

The report has been prepared by Jeffrey Hodsdon, the managing Principal of the Colorado Springs office of LSC. Mr. Hodsdon joined the staff of LSC in 1993 and has accumulated 28 years' experience in the field of traffic engineering and transportation planning.

SECTION 1 - EXECUTIVE SUMMARY

Brookmoor Estates is a 59-lot community located generally north of Highway 105 and east of Woodmoor Drive in the Woodmoor area of unincorporated El Paso County, Colorado.

The Brookmoor Estates HOA is requesting a PUD amendment to allow the conversion of the existing east gate, which is currently restricted to emergency vehicle use, to an RFID-controlled gate open to Brookmoor residents only. The gate would not be used by guests, delivery or service vehicles, or vendors, etc. The roadway through the east gate connects to South Park Drive, a County local public road. South Park Drive intersects Knollwood Boulevard about 900 feet east of the east gate. This PUD Amendment would give Brookmoor residents another useable access to the community and would provide additional travel route options for residents. This would enhance safety in this region of the County and would be especially beneficial during area peak-traffic periods.

The community currently generates about 263 vehicle trips per day (exiting and entering counted as two separate "trips"). The traffic analysis is based on a national-standard-based 354 vehicle trips per day at community buildout. Currently, all trips utilize Moveen Heights for access. LSC estimates about 42 trips per day would shift and utilize the east gate with this amendment. South Park Drive currently carries about 95 vehicle trips per day. With the amendment and estimated addition of 42 Brookmoor resident trips per day, the resulting total would be about 137 trips per day.

South Park Drive will be able to accommodate the projected additional traffic associated with the requested PUD Amendment. The projected volume increase would not result in volume at levels on South Park that would create an over-capacity condition or a traffic safety problem. The County road inventory lists South Park Drive west of Knollwood as a 24-foot-wide, paved, Local roadway within a 60-foot right-of-way. This is consistent with many other roadways within Woodmoor. The roadway will be able to carry the projected traffic volume without upgrade to the current *Engineering Criteria Manual* (*ECM*) Rural Local standard of 28-feet of pavement, plus gravel shoulders and 70' of right of way (which is not available).

Population growth and traffic volumes continue to increase significantly in the Tri-Lakes area and the requested PUD modification would optimize use of County road infrastructure while enhancing safety, by improving connectivity and providing additional route options for Brookmoor Residents.

SUMMARY OF ANALYSIS RESULTS

- The community currently generates about **263 vehicle trips per day**, based on actual data collected.

- Based on ITE rates (Land Use 251), the community buildout trip-generation (all 59 homes) ITE trip-generation estimate shows 354 trips per day. The latter has been used in this report as required by County staff.

- Based on the trip distribution and routing estimates, an estimated 42 additional vehicle trips per day on South Park Drive would result from use of the east gate for travel to and from the site via South Park Drive. LSC estimates 312 daily vehicle trips (the balance of the total ITE buildout trips to be generated by Brookmoor Estates at buildout) would use the existing Moveen Heights gated entry on Lake Woodmoor Drive.

- Based on the alternate analysis ("sensitivity" analysis) about 75 additional vehicle trips per day on South Park Drive would result from use of the east gate for travel to and from the site via South Park Drive.

- Although Brookmoor will add trips to what would remain a cul-de-sac for the public street portion and the residents along South Park Drive, the projected average daily volume of about **137 vehicles per day** would be lower than the hypothetical volume of a typical cul-de-sac serving 25 dwelling units (the County maximum number of dwelling units on a cul-de-sac) - about 240 vehicles per day.

- Based on the alternate analysis ("sensitivity" analysis), the volume on South Park Drive would be 167 vehicle trips per day.

- South Park Drive is a 24-foot-paved-width County Local roadway (although some spot field measurements indicate the roadway in its **current condition** is a relatively narrow 20-22-foot width in spots). The anticipated total traffic volume with additional use allowed by Brookmoor residents will remain within a range that can be handled by a roadway of this width. Infrequent use of the public right-of-way for on-street parking generally allows for use of the entire roadway width for travel, allowing two moving passenger vehicles to pass each other in opposite directions of travel.

- Infrequently, with the occasional vehicle parked on the street or when pedestrians use the street, drivers may need to slow significantly or stop and wait for a vehicle in the opposite direction to pass. This is reasonable for a roadway of this length, function, and low volume.

- South Park Drive is similar to other roadways within Woodmoor – rural, relatively narrow 24-foot paved cross sections with no sidewalks, serving higher-than-rural housing density development.

THE PUD AMENDMENT WOULD BE A BENEFIT RELATIVE TO TRAFFIC SAFETY IN THE AREA

- The projected volume increase would not result in volume at levels on South Park that would create an over capacity condition or a traffic safety problem.

- Allowing the connection (and associated increase in traffic on South Park) will have a benefit that far outweighs the marginal impact of an additional 42 vehicles per day.

- The PUD Amendment would result in more effective utilization of County road infrastructure (South Park Drive) to distribute peak traffic, improve circulation in the area and provide connectivity of roadways.

- The PUD Amendment would give Brookmoor residents another travel route option. This additional option would enhance safety, as it would likely provide an alternative (especially beneficial during peak periods) to the Moveen Heights/Lake Woodmoor route involving the westbound left turn at Woodmoor Drive. Providing alternatives for motorists to choose routes to avoid peak congestion and to select routes that, based on individual driver preferences/capabilities, are safer and/or more "user-friendly." Route choice will depend on driver preferences and factors such as balancing travel distance/time, tendency to avoid difficult turning movements or pockets of peak-period congestion etc.

- The PUD Amendment will help the overall system by relieving – to a minor extent because the difference in volume isn't high – peak-period congestion and delay on intersection approaches/turning movements. Notably, the westbound left turn at Lake Woodmoor/Woodmoor during school peak travel times.

- This change would result in a reduction in trips currently traveling past the elementary school – again, to a minor extent, because the difference in volume is not high.

- It is not only reasonable, but prudent to allow this change to better utilize an existing County road. The Tri-lakes area is seeing nearly unprecedented growth and resulting increases in traffic volumes. The area transportation infrastructure is seeing (and has seen) significantly increased demand. For example, between 2005 and 2018, Woodmoor Drive PM peak-hour traffic south of Lake Woodmoor has increased by a factor of 1.67 and the AM peak-hour traffic has increased by a factor of 1.4. It would be unrealistic and not in the overall best interest of the public not to allow this request simply to avoid **any** increase in traffic on South Park Drive. This proposed PUD Amendment provides an opportunity to optimize use of County road infrastructure while improving connectivity and providing route options for Brookmoor residents that will enhance safety.

- The safety and utilization of the system will be most prevalent during peak times. It is important to note that during off-peak travel times, there would be less of a tendency to alter travel routes for most Brookmoor residents. Moveen Heights to Woodmoor Drive is still the shortest distance to/from most destinations.

- Although the traffic will increase somewhat on South Park to achieve these benefits, there is available capacity.

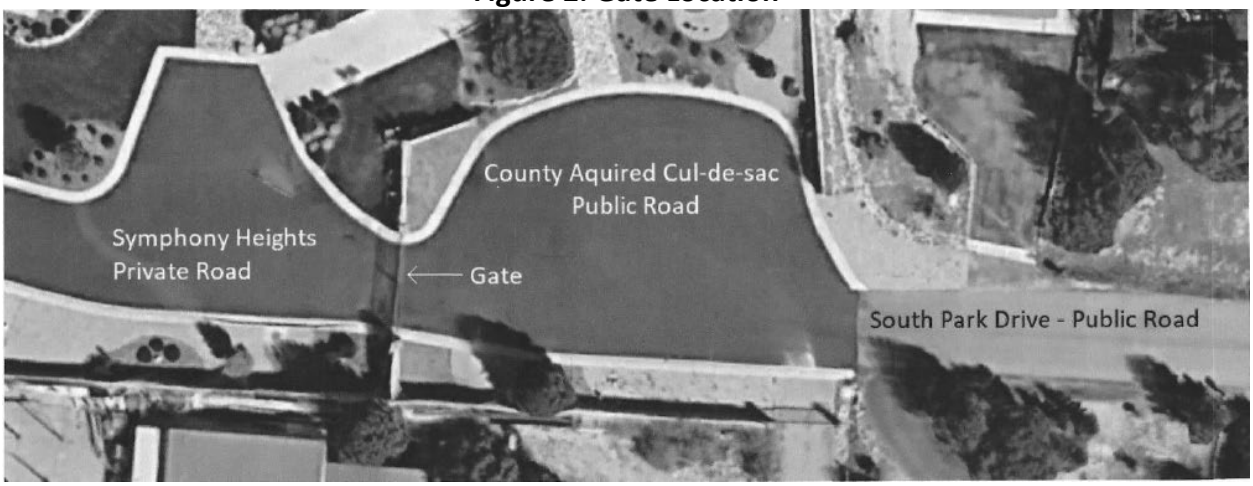
SECTION 2 - LAND USE AND ACCESS

2.1 - CURRENT & BUILDOUT LAND USE AND APPLICATION FOR PUD AMENDMENT

Opened in 1995, the Brookmoor Estates subdivision is a gated community with 59 lots for single-family homes. Homes have been built on all but two of the lots. Currently, the community has one full-use access. Moveen Heights at Lake Woodmoor is an existing gated access on the west end of Lake Woodmoor Drive about one-quarter mile northeast of Woodmoor Drive. There is an additional gated, emergency-vehicle-only access on the east side of the subdivision at the terminus of Symphony Heights (a private street). South Park Drive, a public County Road, extends east from the east gate across Knollwood Drive and terminates near the east end of Lake Woodmoor Drive.

The Brookmoor HOA is proposing conversion of the emergency-only gate between Symphony Heights and South Park Drive to a resident-only gate. The gate location is depicted in Figure 2.

Figure 2: Gate Location



East-gate access would be controlled by an RFID and transponder system and would not be used by guests, service vehicles, or any other non-resident vehicles except for emergency vehicles. Emergency services will be able to access the community via Knox Box as requested. The Knox Box will be mounted on the exterior side of the stone gate column. Two transponders would be issued per household (118 transponders) plus a transponder available for emergency services.

2.2 – NEIGHBORING SUBDIVISION HISTORY

The adjoining ten lots along South Park Drive (Lots 1-5, Block 9, on the north side and Lots 1-4, Block 10, on the south side) were originally platted in Harmon Hills Filing No. 2, which was recorded October 28, 1963. Road rights of way are dedicated to public use and all are 60 feet

wide. South Park Drive ended with no turn around, obviously planned (and approved) that way to continue westerly to serve the adjoining property. Lots are about half an acre.

Knollwood Estates Filing No 1 was recorded February 11, 1959. It was somehow "renamed" Harmon Hills Filing No 1 - though it is believed that happened casually and unofficially somewhat later. The plat of Knollwood Estates Filing No. 1 was vacated in its entirety May 23, 1962 and replatted the same day into Harmon Hills Filing No. 1. Lots and roads were unchanged. The purpose of the replat was evidently to legitimize the name and create utility easements along the lot lines. Again, the lots would have the same 60-foot ROW and about half acre lots.

Just for context, the United States Air Force Academy was begun in 1959. Woodmoor started platting in 1959. Wakonda Hills on the west side of Interstate 25 (I-25) was platted in 1959, and so were several others in this northern part of the County. All have dedicated 60-foot road ROWs, no curb and gutter, no sidewalks. Many of those roads were planned for extension into other subdivisions in the future. Pavement widths are 20-24 feet wide.

El Paso County first instituted zoning in 1955. The project team is unaware of the engineering standards (if any) in place in 1959.

According to the County Road System inventory (*El Paso County Road System – 2019* report), the section of South Park Drive west of Knollwood Drive was accepted by El Paso County (by Resolution) in 1980. Additional detail is provided in Section 3.1.

2.3 - BROOKMOOR ESTATES DEMOGRAPHICS

Although Brookmoor Estates is not an “age-restricted” community (over 55, for example), it is an “age-targeted” community with a high percentage of retired residents. This is unlikely to change significantly in the future due to the covenants for the community. The covenants are such that the community would remain attractive for retirees, and less attractive for families with children or lower-income families. The following are specific reasons:

- Gated Community;
- Minimal common area parks within areas for children to play;
- Small lots and yards;
- There is to be no overnight parking on the streets and no fences on any property or play equipment such as swing sets in the yards;
- The HOA provides landscape maintenance and snow removal for all residents.
- The above, along with security and maintenance of private street infrastructure, results in the need for rather high monthly assessments for all residents.

SECTION 3 - EXISTING CONDITIONS

3.1 - EXISTING AREA ROADWAYS

- **State Highway 105** is a Principal Arterial adjacent to the site. Locally, SH 105 extends east from Palmer Lake to State Highway 83. The westbound posted speed limits on SH 105 are 50 miles per hour (mph) east of Knollwood Drive and 40 mph west of Knollwood Drive. SH 105 currently has two through lanes in each direction between the southbound I-25 ramp and Jackson Creek Parkway and one through lane in each direction east of Jackson Creek Parkway. *The Highway 105 Corridor Study Corridor Preservation Plan for El Paso County Department of Public Services* dated November 2012 (Revised May 2013) shows SH 105 expanded to two lanes in each direction between Knollwood Drive and Lake Woodmoor Drive. The current design plans reflect this. Based on information provided by El Paso County, this expansion project will occur in the short-term future. SH 105 is a primary service roadway.

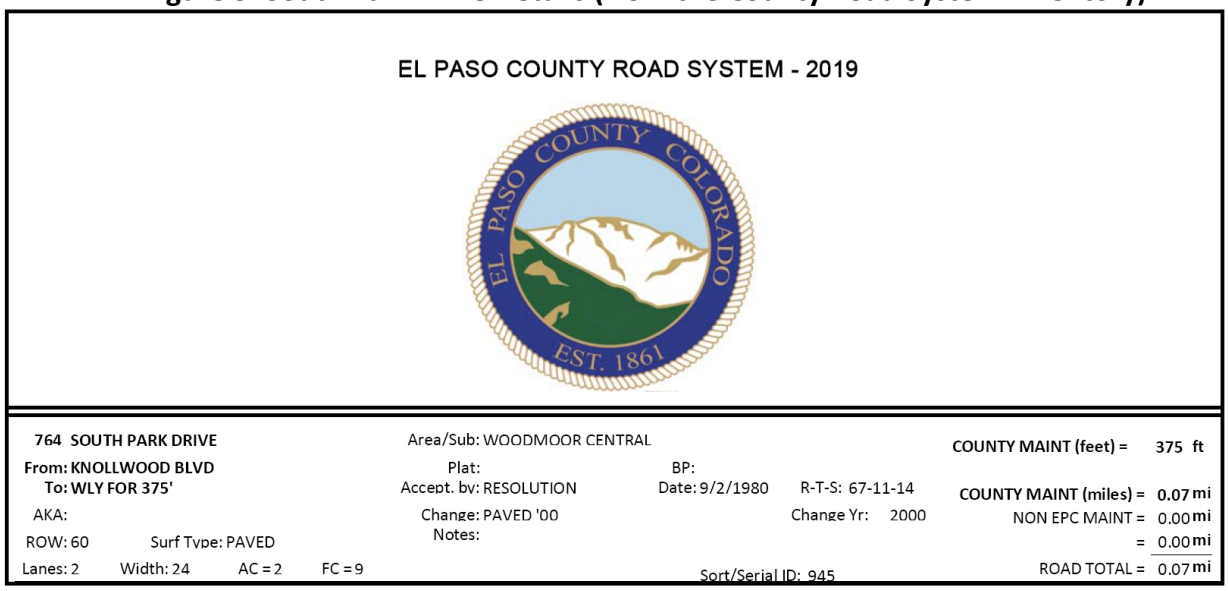
- **Lake Woodmoor Drive** extends east from Woodmoor Drive (near the I-25/SH 105 interchange) to Doewood Drive and then continues east and south before intersecting with SH 105. Lake Woodmoor Drive is classified as a Collector road on the El Paso County *2016 Major Transportation Corridors Plan* (MTCP) and has a speed limit of 30 mph. Lake Woodmoor Drive has one through lane in each direction and is a primary service roadway.

- **Woodmoor Drive** extends north from SH 105 between the I-25 off-ramps to Doewood Drive and then continues east to Furrow Road. Woodmoor Drive is classified as a Collector on the El Paso County *Major Transportation Corridors Plan* (MTCP) and has a speed limit of 30 mph. Woodmoor Drive has one through lane in each direction and is a primary service roadway.

- **Knollwood Drive** is a two-lane Collector extending north from Quarry Way to SH 105 where it continues north to White Fawn Drive as **Knollwood Boulevard**. The SH 105/Knollwood Drive intersection is signalized. Knollwood Drive is a secondary service roadway.

- **South Park Drive** is a paved, local, secondary service roadway. The cross section of South Park Drive is considered “rural” as it was not constructed with curb, gutter, and sidewalks as with an “urban” street. Stormwater is conveyed via roadside ditch sections rather than a storm sewer system as with urban streets. The El Paso County Road Inventory (Figure 3 below shows a clip from this document) indicates that South Park Drive west of Knollwood is a 24-foot-wide, paved, Local roadway within a 60-foot right-of-way. This is consistent with many of the other roadways within Woodmoor. The County inventory indicates that the County maintains 375’ of South Park Drive west of Knollwood. This length represents only half the distance to the cul-de-sac. This west section is presumed to be maintained by El Paso County as well.

Figure 3: South Park Drive Details (from the County Road System Inventory)



EL PASO COUNTY ROAD SYSTEM - 2019

764 SOUTH PARK DRIVE
From: KNOLLWOOD BLVD
To: WLY FOR 375'
AKA:
ROW: 60 Surf Type: PAVED
Lanes: 2 Width: 24 AC = 2 FC = 9

Area/Sub: WOODMOOR CENTRAL
Plat:
Accept. by: RESOLUTION
Change: PAVED '00
Notes:
BP:
Date: 9/2/1980 R-T-S: 67-11-14
Change Yr: 2000
Sort/Serial ID: 945

COUNTY MAINT (feet) = 375 ft
COUNTY MAINT (miles) = 0.07 mi
NON EPC MAINT = 0.00 mi
= 0.00 mi
ROAD TOTAL = 0.07 mi

South Park Drive Additional Details

Other design elements of the existing South Park Drive include:

- South Park Drive is a 24-foot-paved-width County Local roadway per the County road inventory above (although some spot field measurements indicate the roadway in its current condition is a relatively narrow 20-22-foot width in spots). This is consistent with many other roadways within Woodmoor;
- No shoulders;
- No sidewalks;
- Roadside ditch sections to convey stormwater;
- Centerline radius: The estimated existing roadway centerline radius for the horizontal curve northwest of Knollwood/South Park Drive is 200-225 feet;
- There is no posted speed limit sign on South Park Drive. Therefore, the default speed limit is 30 mph.
- On Street Parking: There are no posted restrictions to on-street parking, and that is consistent with EPC code. Parking is allowed on El Paso County local roadways and streets. However, the sizes of the developed lots are relatively large compared to urban standard lots. Many of the properties along South Park Drive have horseshoe/long driveways. Field observations indicate infrequent use of on-street parking. Initial observations found one vehicle parked on the street during the time period of one week. Additional data, shown in the table below, were collected in July 2019.

Table 1: Parking Data for South Park Drive

Date	Time	Cars Parked On-Street	Date	Time	Cars Parked On-Street
7/2/2019	6:00 AM	0	7/7/2019	9:45 AM	0
7/4/2019	8:00 AM	0	7/7/2019	11:30 AM	0
7/4/2019	11:30 AM	0	7/7/2019	5:00 PM	0
7/5/2019	7:00 AM	0	7/8/2019	8:15 AM	0
7/6/2019	9:00 AM	0	7/8/2019	3:30 PM	0
7/6/2019	12:00 PM	0	7/9/2019	8:05 AM	0
7/6/2019	2:45 PM	0	7/9/2019	6:00 PM	0
7/6/2019	5:30 PM	0	7/10/2019	5:45 PM	1

3.2 - PAVEMENT CONDITIONS

Roadway conditions and functional classifications throughout the County are outlined in the *El Paso County Road System – 2019* report. Per this road-conditions report, "paved" refers to a roadway with a mixed bituminous surface or bituminous penetration road on a flexible base.

State Highway 105 has a paved roadway surface west of I-25 until 560 feet east of Roller Coaster Road. Maintenance of Highway 105 in the vicinity of this site was transferred from CDOT to El Paso County in 2007. The most recent surface improvement date is not available in the *El Paso County Road System – 2019* report.

Lake Woodmoor Drive has a "paved" surface type between Woodmoor Drive and SH 105. The stretch of Lake Woodmoor Drive from Woodmoor Drive to St. Andrews Drive was paved in 2009, while Lake Woodmoor Drive was most recently paved in 2007 between St. Andrew Drive and SH 105.

Knollwood Boulevard/Drive is classified as paved Local roadway north of SH 105 until it ends at a cul-de-sac approximately 250 feet west of White Fawn Drive. The section between Highway 105 and Lake Woodmoor Drive most recent surface improvement was a 2-inch overlay in 2015.

South Park Drive has a "paved" surface type from 375 feet west of Knollwood Drive to its intersection with Lake Woodmoor Drive. West of Knollwood Drive, South Park Drive was most recently paved in 2000, according to the *El Paso County Road System – 2019* report.

3.3 - BICYCLE AND PEDESTRIAN FACILITIES

Paved sidewalks currently exist on the north side of SH 105 between the I-25 northbound off-ramp and west of the I-25 overpass. No dedicated bike lanes are found on SH 105.

Pedestrian sidewalks are located on the west side of Woodmoor Drive north of SH 105 until approximately 570 feet north of its intersection with Lake Woodmoor Drive. The south side of Woodmoor Drive has a paved sidewalk between Woodmoor Drive and Moveen Heights.

Approximately 200 feet of paved sidewalk currently exists on the east side of Knollwood Boulevard, north of SH 105. No other bicycle or pedestrian facilities exist on Knollwood Boulevard between its intersection with South Park Drive or SH 105. The signals at SH 105/Knollwood Drive and SH 105/Woodmoor Drive provide pedestrian/bicycle crossing phases. South Park Drive, with its originally constructed rural cross-section, does not have sidewalks. Note that neither Lake Woodmoor Drive nor many other roads within Woodmoor have sidewalks.

3.4 - EXISTING INTERSECTION CHARACTERISTICS

State Highway 105/Woodmoor Drive

This is a signalized intersection, with auxiliary turn lanes on all approaches. The posted speed limit on SH 105 is 45 mph, while the posted speed limit on Woodmoor Drive is 30 mph.

Per criteria in the El Paso County *Engineering Criteria Manual* (*ECM*), auxiliary left-turn deceleration lanes should be 565 feet long, consisting of a 155-foot full-width lane length, 250 feet of storage, and 160 feet of taper length. Due to spatial constraints between the I-25 southbound on-ramp and Woodmoor Drive, the eastbound dual left-turn lane on SH 105 at Woodmoor Drive **cannot** be lengthened to meet *ECM* minimum requirements.

Per criteria in the El Paso County *Engineering Criteria Manual* (*ECM*), auxiliary right-turn deceleration lanes should be 315 feet long, consisting of a 155-foot full-width lane length and 160 feet of taper length. The westbound right-turn deceleration lane is 400 feet long, which meets the minimum *ECM*-required total lane length from Table 2-24.

The southbound right-turn and dual left-turn deceleration lanes are 260 feet long, which meet the minimum 235-foot *ECM* -required total lane length from Table 2-24.

State Highway 105/Knollwood Drive

All approaches currently have exclusive left- and right-turn deceleration lanes at the signalized intersection of SH 105/Knollwood Drive. The posted speed limit on SH 105 is 45 mph, while the posted speed limit on Knollwood Drive is 30 mph.

Both the eastbound and westbound left-turn lanes on SH 105 meet the *ECM* minimum-required length of 565 feet. Right-turn deceleration lanes on both approaches on SH 105 meet the *ECM* minimum-required total lane length of 400 feet.

Due to spatial constraints on Knollwood Drive between SH 105 and Village Ridge Point, the southbound left-turn lane on Knollwood Drive at SH 105 **cannot** be lengthened to meet *ECM* minimum requirements.

Lake Woodmoor Drive/Woodmoor Drive

The center painted median on the north leg of the intersection is currently striped as a 100-foot-long southbound left-turn lane and 25 feet of taper (gap in striping). North of this point, the center painted median is striped as a center, two-way left-turn lane. This striped left-turn lane can be utilized by southbound traffic turning left onto into the access north of Lake Woodmoor Drive or onto Lake Woodmoor Drive. This lane continues on the south side of the intersection and ends at the Highway 105 intersection as the inside (No. 1) left-turn lane (of two) for left turns to eastbound Highway 105. There are two southbound through lanes. Lane number 1 aligns with the outside (No. 2) left-turn lane (of two) for left turns to eastbound Highway 105. The number 2 through lane is used for southbound traffic turning right at the Highway 105/Woodmoor Drive intersection. There is striping for what appears to be a right-turn acceleration/deceleration lane between the two park 'n ride access points. However, there is likely negligible traffic turning right into the south access as it is restricted to transit vehicles only.

The northbound approach is two lanes. The outside lane functions both as a merge lane for traffic using the dual eastbound left-turn lane from SH 105 and as a continuous right-turn lane for access points (and the Lake Woodmoor intersection) between SH 105 and the north bank access (on the northeast corner of the intersection).

Lake Woodmoor Drive/Moveen Heights

Auxiliary left- and right-turn lanes are **not** required based on *ECM* criteria and long-term projected traffic volumes at the intersection of Lake Woodmoor Drive/Moveen Heights.

Knollwood Drive/South Park Drive

Auxiliary left- and right-turn lanes are **not** required at the intersection of Knollwood Drive/South Park Drive based on *ECM* criteria and long-term projected traffic volumes.

3.5 - INTERSECTION SIGHT DISTANCE

Moveen Heights/Lake Woodmoor Drive Intersection

The horizontal alignment of Lake Woodmoor Drive in the vicinity of Moveen Heights was recently adjusted to improve the intersection sight distance at this intersection.

Knollwood/South Park Drive Intersection

LSC field-measured the sight distance to/from the north and south from the eastbound approach (west leg) of this intersection. The sight distance to/from the south is about 450 feet. This is based on a line of sight which passes across a lot on the inside of the horizontal curve to the south. The sight distance based on a line of sight remaining within the ROW is about 370 feet.

3.6 - INTERSECTION ACCIDENT HISTORY

The Colorado State Patrol provided LSC with a three-year accident history at the following intersections:

- Woodmoor Drive/SH 105
- SH 105/Knollwood, and
- Lake Woodmoor Drive/Woodmoor Drive.

The detailed crash history reports are attached as an Appendix A, for reference.

Lake Woodmoor Drive/Woodmoor Drive

Based on crash data for the three-year period ending February 2019 at this intersection, three or fewer accidents per year have been reported at the intersection of Woodmoor Drive/Lake Woodmoor Drive during each year since 2016. Of these six total crashes, four had the potential to have been avoided if the intersection were signalized, while the remaining two accidents were due to careless driving from following too closely. Two crashes in 2016 and three crashes in 2018 were reported which involved the westbound to southbound left-turn movement.

Woodmoor Drive/State Highway 105 and State Highway 105/Knollwood

The majority of reported crashes at these signalized intersections were rear-end crashes, which is often the case at signalized intersections. There were a smaller number of left-turn-related crashes, with no apparent pattern.

3.7 - CURRENT BASELINE INTERSECTION TRAFFIC VOLUMES

Vehicular turning-movement counts were conducted from 6:30 – 8:30 a.m. and from 4:00 – 6:00 p.m. at the following intersections. Raw count data is attached:

- SH 105/Woodmoor Drive – Thursday, November 1, 2018 and Tuesday, November 6, 2018
- Lake Woodmoor Drive/Woodmoor Drive – Thursday, March 8, 2018
- SH 105/Knollwood Boulevard – Thursday, October 18, 2018

Figures 4 and 5 show the baseline turning-movement volumes at the study-area intersection for the morning and afternoon peak hours, respectively which were used to analyze traffic operational performance.

Not to scale

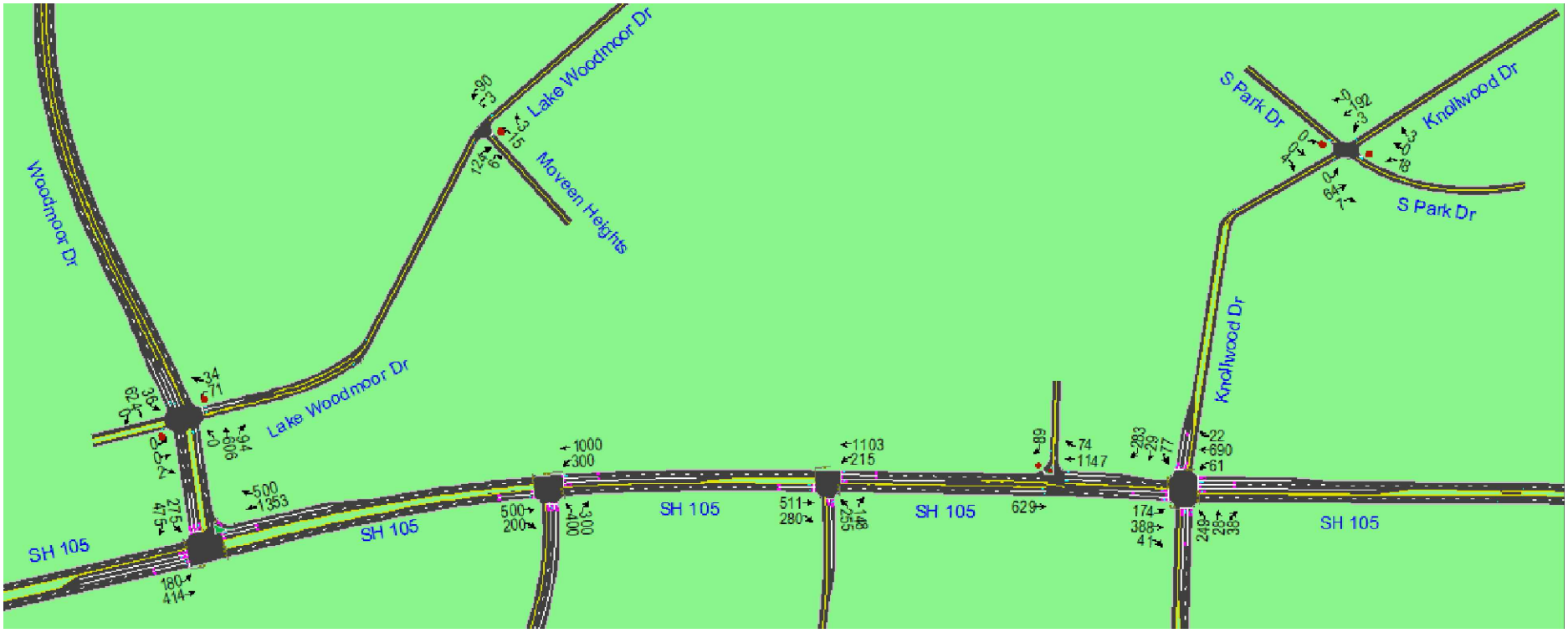


Figure 4

Current Baseline Traffic
AM Peak Hour

Brookmoor Estates PUD Amendment (LSC # 174650)

LSC TRANSPORTATION CONSULTANTS, INC.

Not to scale

Figure 5

Current Baseline Traffic
PM Peak Hour

Brookmoor Estates PUD Amendment (LSC # 174650)

LSC TRANSPORTATION CONSULTANTS, INC.

3.8 - BROOKMOOR ENTRY AND EXIT TRAFFIC COUNT DATA COLLECTED

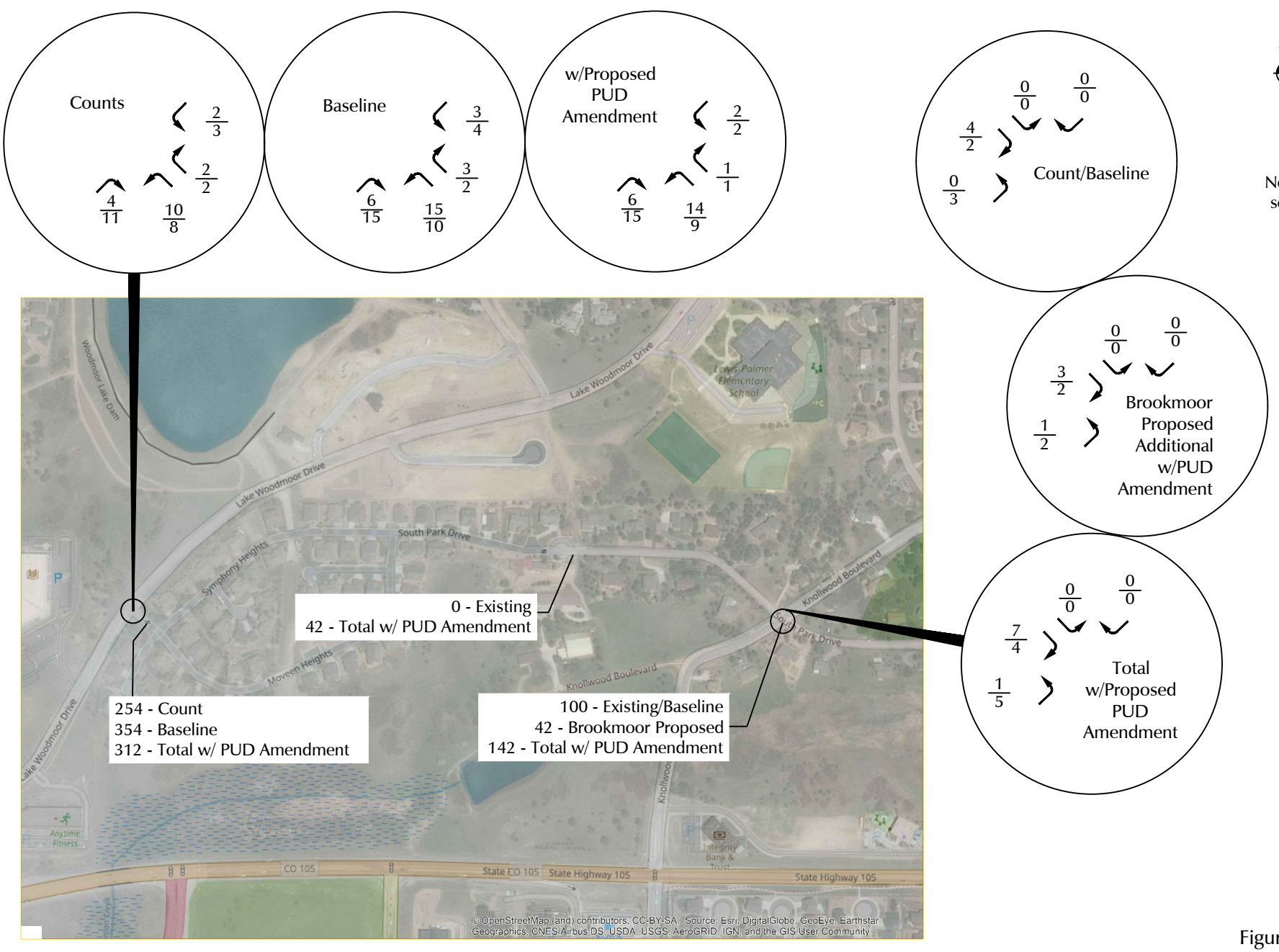
Three days of 24-hour surveillance video footage at the Brookmoor Estates access gate on Moveen Heights was reviewed to determine the number of vehicles entering and exiting using this access during peak hours, as summarized in Table 2. The complete set of raw data collected are attached as an appendix item, for reference.

Video footage revealed that between 226 and 280 vehicles entered and exited the property (combined) during each 24-hour midweek period. During the average morning peak hour of adjacent street traffic (which usually occurs between 6:30 a.m. and 9:00 a.m.), 5 vehicles entered the community via Moveen Heights while 10 vehicles exited. On average, 14 vehicles entered the community via Moveen Heights while 9 vehicles exited during the average evening peak hour, which generally occurs from 4:00 p.m. to 6:00 p.m. The recorded average daily traffic (ADT) was 254 vehicles per day.

Table 2: Summary of Traffic Count Data from Surveillance Video

Day	Date	A.M. Peak		P.M. Peak		ADT
		In	Out	In	Out	
Tuesday	08/28/2018	5	10	17	8	255
Wednesday	08/29/2018	3	10	13	6	226
Thursday	08/30/2018	7	10	13	14	280
Midweek Average		**5**	**10**	**14**	**9**	**254**

Figure 6 also shows the recorded count results. The arrows in the circles next to the count numbers represent the direction/path of the vehicle turning movements.



XX/XX = AM Weekday Peak-Hour Traffic (Veh/Hour) / PM Weekday Peak-Hour Traffic (Veh/Hour)

X,XXX = Average Daily Traffic (Vehicles/Day)

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Figure 6

Traffic Volumes

Broadmoor Estates Subdivision (LSC # 174650)

3.9 - INTERSECTION LEVELS OF SERVICE

Intersection Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 3 shows the level of service delay ranges for signalized and unsignalized intersections.

Table 3: 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) [1]
A	≤ 10.0	≤ 10.0
B	10.1 - 20.0	10.1 - 15.0
C	20.1 - 35.0	15.1 - 25.0
D	35.1 - 55.0	25.1 - 35.0
E	55.1 - 80.0	35.1 - 50.0
F	≥ 80.1	≥ 50.1

[1] For unsignalized intersections, if v/c is > 1.00, then LOS is LOS F, regardless of the projected average control delay per vehicle

The following intersections were analyzed in Synchro using *signalized* method of analysis procedures from the *Highway Capacity Manual*, *2010 Edition* to determine the projected control delay and corresponding levels of service for the key turning movements (Synchro is a widely used and accepted traffic-analysis software program):

- Woodmoor Drive/Lake Woodmoor Drive (long-term alternative only)
- SH 105/Woodmoor Drive
- SH 105/Knollwood Drive

Two-way stop-sign-controlled (TWSC) intersection analysis included delay and LOS calculations for the major street approaches and the minor street approaches incur delay given the stop-sign intersection control. The following intersections were analyzed in Synchro using the *unsignalized* method of analysis procedures from the *Highway Capacity Manual, 2010 Edition*:

- Knollwood Drive/South Park Drive
- Lake Woodmoor Drive/Moveen Heights

Table 4 shows the calculated peak-hour levels of service for the existing baseline volumes.

Table 4: Short-Term Baseline Levels of Service

Analysis Scenario	SH 105 + Knollwood Dr						Lake Woodmoor + Moveen Hgts				Knollwood Dr + South Park Dr					
	Traffic Control	Overall	EBL	WBL	NBL	SBL	Traffic Control	Overall	NW	SW	Traffic Control	Overall	NW	NE	SW	SE
A.M. Peak Hour																
Short-Term Baseline	Signal	B	A	B	D	C	TWSC	-	A	A	TWSC	-	B	A	A	A
P.M. Peak Hour																
Short-Term Baseline	Signal	B	A	B	D	C	TWSC	-	B	A	TWSC	-	C	A	A	A

Analysis Scenario	SH 105 + Woodmoor Dr					Woodmoor Dr + Lake Woodmoor Dr				
	Traffic Control	Overall	EBL	SBR	SBL	Traffic Control	Overall	WBL	WBR	SBL
A.M. Peak Hour										
Short-Term Baseline	Signal	C	C	D	C	TWSC	-	F	B	A
P.M. Peak Hour										
Short-Term Baseline	Signal	B	A	D	D	TWSC	-	F	B	B

[1] Intersection of Lake Woodmoor/Woodmoor remains two-way stop sign-controlled (TWSC)
[2] Intersection of Lake Woodmoor/Woodmoor converted to signalized

As shown in Table 4, study-area intersection levels of service are generally "D" or better. The calculated peak-hour LOS for the westbound left turn at the intersection of Lake Woodmoor/Woodmoor is "F," which indicates average vehicle delays of over 50 seconds per vehicle.

The morning peak period delay and associated level of service at the intersection of Lake Woodmoor/Woodmoor is significantly affected by peak traffic generated by area schools. To demonstrate this, morning level of service analysis has also been run for several fifteen-minute periods of time outside of the highest school traffic periods. This has been completed by converting 15-minute volumes to an equivalent hourly flowrate.

The count data suggests middle school peaks from about 7:00 a.m. and 7:35 a.m. (may begin at just before 7:00 a.m.) and the elementary school peaks between 8:20 to 8:45 a.m. and 8:45 to 9:00 a.m.

Table 5 below shows the high variability in delay for the westbound left-turn movement:

Table 5: Comparison of Traffic Volume, Delay and LOS by Time Period
Woodmoor/Lake Woodmoor Intersection
Existing Baseline Condition

Time Period	Interval	Combined North/ South Approach Volume	Westbound Left turn Volume	Entire Intersection Volume[3]	Multiplier[1]	Entire Intersection - Equivalent Combined 60 min Volume (veh/hr)	Combined Entire Intersection Hourly Flowrate[4] (Veh/hr)	WB LT Delay (sec/veh)	WB LT LOS
AM Peak (7:00 - 8:00 am)	60 min*	1358	67	1458	1	1458	**1875**	98	**F**
7:40 am - 7:55 am	15 min	204	25	233	4	932	1019	20.2	C
8:00 am - 8:15 am	15 min	196	22	221	4	884	967	15.9	C
9:00 am - 9:15 am	15 min	191	39	237	4	948	1041	24.4	C
PM Peak	60 min*	1353	180	1584	1	1584	**2045**	> 300[2]	**F**

Notes:
*Note: although the interval is for the 60 min peak hour period, vehicle flowrates and resulting LOS reflect the "worst case" fifteen minute interval within that hour period.
[1] Multiplier is 4 for converting 15 min volume to equivalent 60 min volume
[2] HCM Calculated delay exceeds 300 sec. per vehicle.
[3] Includes westbound right turns too
[4] After applying peak hour factors (PHFs)

The 7:40-7:55 and 8:00-8:15 (and 9:00-9:15 a.m.) time periods show significantly lower vehicle flowrates than the peak 15 minutes of the morning (and afternoon peak hours). This demonstrates that the morning peak hour LOS F-levels of delay primarily occur during the peak school traffic periods.

3.10 - TRAFFIC SIGNAL WARRANT ANALYSIS – WOODMOOR DRIVE/LAKE WOODMOOR DRIVE

The intersection of Woodmoor/Lake Woodmoor has been analyzed using an initial level of service analysis to determine if this intersection may be close to meeting a Traffic-Signal Warrant(s). Traffic-signal warrants are national standards contained in the *Manual on Uniform Traffic Control Devices* (*MUTCD*). Appendix B contains a description of all the *MUTCD* Warrants.

The combination of major-street approach volumes (includes the sum of northbound and southbound approach volumes) and minor-street left-turn volumes (eastbound approach volume) were analyzed to determine if the combination would exceed the threshold criteria for Four-Hour Vehicular-Volume Traffic-Signal Warrants and applicable other warrants in the 2009 *MUTCD*.

Four separate one-hour periods within the following morning and late-afternoon/evening periods have been analyzed:

- 7:00 – 8:00 a.m.
- 8:00 – 9:00 a.m.
- 4:00 – 5:00 p.m.
- 5:00 – 6:00 p.m.

Four-Hour Vehicular-Volume Traffic-Signal Warrant thresholds have been reached or exceeded, based on the volume data collected during the morning peak period (2 hours) and the late afternoon peak period (2 hours).

Detailed analysis of all applicable signal warrants should be evaluated prior to signalization. The satisfaction of warrants does not indicate that a signal must be installed. The decision to require a signal to be installed rests with the County.

Four Hour Volume Warrant

Figure 7 shows the warrant analysis for the current baseline condition.

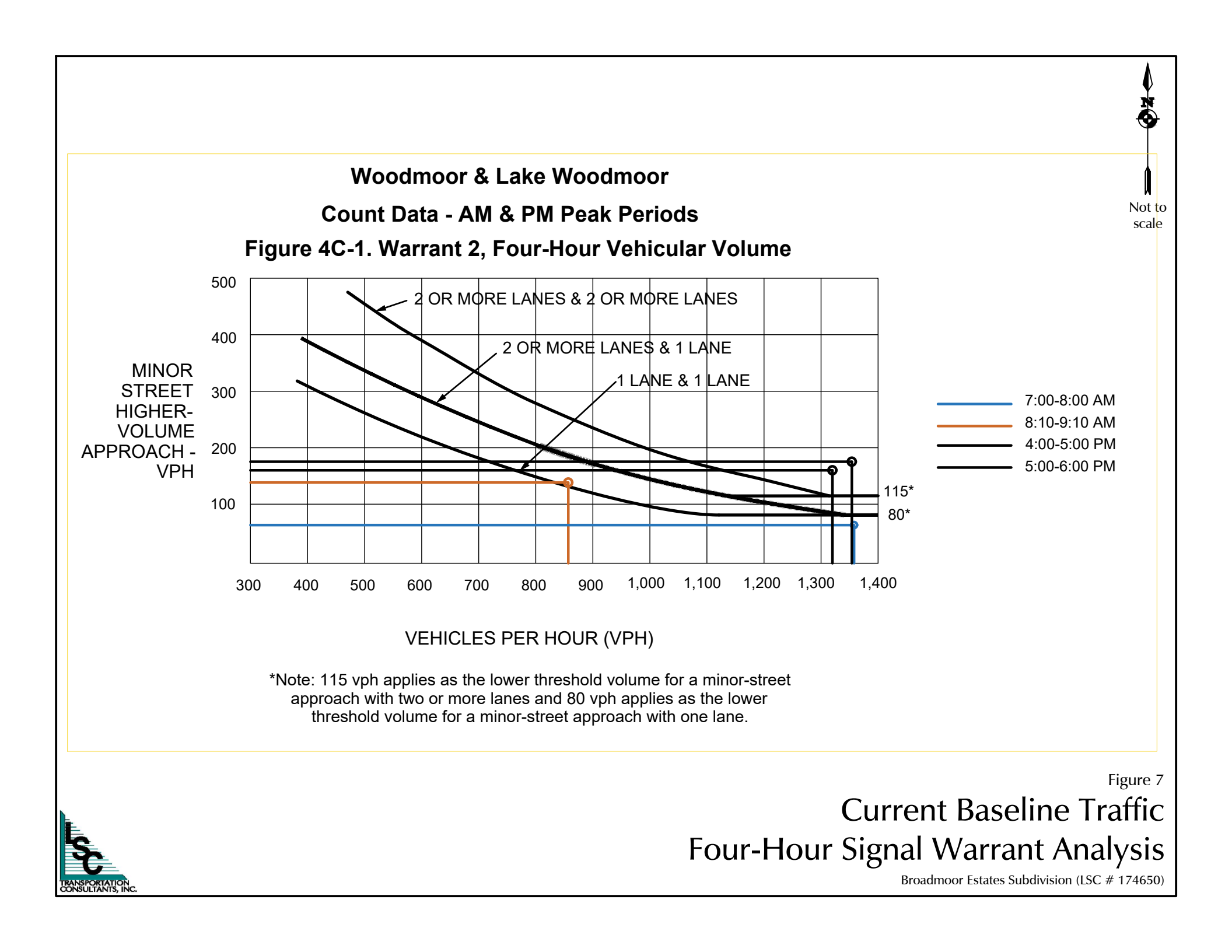

Figure 7

Current Baseline Traffic
Four-Hour Signal Warrant Analysis

Broadmoor Estates Subdivision (LSC # 174650)

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Analysis, based on the count data, the combination of minor and major street intersection volumes do not exceed the hourly-volume thresholds for **all four** volume-data points, which would suggest a four-hour volume warrant is not met. The afternoon peak-hour data points exceed the threshold, but the morning peak-hour data points do not exceed the threshold. All four hours (or at least four including other hours of the day) must exceed the threshold in order for the warrant to be satisfied.

Crash Experience Warrant

Accident history can influence the need and timing of a future traffic signal at an intersection. "Warrant 7, Crash Experience" of the *MUTCD* defines conditions which must be met for a traffic-control signal to be warranted, due to the severity and frequency of crashes at a currently-unsignalized intersection. Section 3.6 above presents the crash history. For this intersection, LSC reviewed the details of the historical crash data relative to Condition B below.

Per Section 4C.08 of the *MUTCD*, the need for a traffic-control signal shall be considered if an engineering study finds that all of the following criteria are met:

A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and

B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and

C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Based on review of the data, Condition B for "Warrant 7, Crash Experience" is **not** satisfied at the intersection of Lake Woodmoor Drive/Woodmoor Drive.

Note: Significant growth/development in El Paso County has been occurring in the past year. However, the COVID-19 pandemic has affected traffic volumes and travel patterns. Updated traffic data would best be obtained by the County after the effects of COVID-19 are lower (such as when D-38 schools return to normal, full, in-person classes). New data may indicate a four-hour warrant (or Crash Experience Warrant) may be met at this intersection.

SECTION 4 - BROOKMOOR ESTATES TRIP GENERATION

4.1 - TRIP GENERATION INTRODUCTION

LSC has evaluated the current and projected buildout vehicle-trip generation of Brookmoor Estates.

Vehicle trip generation of a development/land use is essentially the total number of vehicles entering and exiting during specified, key time periods. Trip generation represents the total combined number of vehicle trips entering and exiting at all access points. Trip generation is typically expressed in terms of “vehicles per day” for daily trip generation (24-hour period) and “vehicles per hour” for the peak-hour trip generation. Typically, peak-hour trip generation is provided for the morning and late afternoon “commuter” peak-hours.

Traffic studies for new developments are typically required to base trip-generation estimates on nationally-published trip-generation rates from the *Trip Generation Manual, 10th Edition, 2017* published by the Institute of Transportation Engineers (ITE). El Paso County requires use of ITE rates, and the technical analysis in this report has been based on ITE-rate-based trip-generation estimates as required by the County. Note: since Brookmoor has existed for 25 years, more reliable, site-specific trip data can actually be obtained and could be used (and was, in the previous version of the report).

ITE Land Use Designation (for purposes of Estimating Trip Generation)

ITE trip-generation rates for various land uses are categorized by ITE Land Use designation. Examples of ITE Land use designations are “Shopping Center,” “Single Family Detached Housing,” and “Fast Food Restaurant with Drive Through.” LSC has selected ITE land use 251 "Senior Adult Housing (detached)" as the “best fit” ITE Land use designation for Brookmoor Estates. The ITE trip-generation rates published for this ITE land use designation have been used for the trip-generation estimate. This land use category has been selected for use for this community (versus land use 220- Single Family Detached Housing). Use of ITE Land Use 251 trip-generation rates is based on several site-specific factors and demographic characteristics as presented in Section 2.3. The selection of this land use category as the “best fit” ITE category for Brookmoor Estates has been validated/confirmed using actual trip-generation data collected.

4.2 - TRIP GENERATION ESTIMATE (BASED ON ITE RATES)

Estimates of the vehicle-trips generated by Brookmoor Estates have been estimated using trip-generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). As explained above in section 4.1, these trip estimates have been developed using ITE trip-generation rates for ITE land use 251 "Senior Adult Housing (detached)." The demographics of Brookmoor Estates are consistent with ITE Land use 251. This is unlikely to

change significantly in the future due to the covenants for the community. The covenants are such that the community would remain attractive for retirees, and less attractive for families with children or lower-income families.

Table 6 shows the average weekday and peak-hour trip-generation estimates, including trip-generation estimates for the current 57 existing homes, as well as for buildout (59 homes).

Table 6: Detailed Trip Generation Estimate

ITE		Value	Units [1]	Trip Generation Rates					Total Trips Generated				
				Average	A.M.		P.M.		Average	A.M.		P.M.	
Code	Description			Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
TRIP GENERATION OF EXISTING CONDITIONS (57 HOMES)													
Trip Generation Based on ITE Rates [2]													
251	Senior Adult Housing - Detached	57	DU	6.02	0.15	0.31	0.33	0.21	343	9	18	19	12
Trip Generation Based on Data Collected [3]													
251	Senior Adult Housing - Detached	57	DU	-	-	-	-	-	254	5	10	14	9
							Difference		-89	-4	-8	-5	-3
				Actual Trip Percentage of ITE Trips					74%	57%	56%	74%	74%
TRIP GENERATION AT BROOKMOOR BUILDOUT (59 HOMES)													
Trip Generation Based on ITE Rates [2]													
251	Senior Adult Housing - Detached	59	DU	5.99	0.15	0.31	0.33	0.21	354	9	18	19	12
Trip Generation Based on Data Collected [3]													
251	Senior Adult Housing - Detached	59	DU	4.46	0.09	0.18	0.25	0.16	263	5	10	14	9
							Difference		-91	-4	-8	-5	-3
				Actual Trip Percentage of ITE Trips					74%	57%	56%	75%	75%

[1] DU = dwelling units

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

[3] Source: Please refer to Table 1 and attached raw data sheets

ITE Trip Generation – Existing (57 Homes)

Based on average ITE trip-generation rates and the current number of dwelling units, the calculated ITE trip generation for a 57-lot development is 343 vehicle trips on the average week-day. The calculated ITE-rate-based morning peak-hour trip generation (generally occurring for one hour between 6:30 and 8:30 a.m.) is 9 entering vehicles and 18 exiting vehicles. The calculated ITE-rate-based afternoon peak-hour trip generation (generally occurring for one hour between 4:00 and 6:00 p.m.) is 19 entering vehicles and 12 exiting vehicles.

ITE Trip Generation – Buildout (59 Homes)

The table also includes the ITE-rate-based trip generation for buildout, including trip generation for two additional dwelling units. The daily buildout trip-generation estimate indicates 354 vehicle trips per day. The buildout peak-hour estimates are also shown in the table.

4.3 - OBSERVED (ACTUAL) BROOKMOOR ESTATES TRIP GENERATION DATA

As summarized in Table 2, traffic counts from surveillance/security video footage revealed that between 226 and 280 vehicles entered and exited the property (combined) during each 24-hour midweek period. Table 6 presents the daily and peak-hour observed trip generation based on the data collected. The community was 96 percent built out (57 Homes) at the time of the data collection.

4.4 - COMPARISON BETWEEN ITE AND OBSERVED TRIP GENERATION

The actual data reflects the demographics of the community – almost all retirees and very few families with children reside in Brookmoor. Actual trip generation based on count data is lower than projections based on ITE rates for Land USE 251, however ITE rates have been used in all the traffic-volume estimates, level of service, and other calculations.

As shown in Table 6 the average of **254 vehicles per day** represents 89 fewer trips than the ITE-rate-based trip-generation estimate.

During the average morning peak hour of adjacent street traffic, actual trip generation based on counts showed an average of 4 fewer entering and 8 fewer exiting vehicle trips than the ITE-rate-based trip-generation estimate.

During the average evening peak hour of adjacent street traffic, actual trip generation based on counts showed an average of 5 fewer entering and 3 fewer exiting vehicle-trips than the ITE rate-based trip-generation estimate.

Validation of ITE Land Use Designation and Trip Rates

Since this development already exists (and is over 95 percent built out) **and** given the unique community demographics described in section 2.3 above. These data have been used to validate and confirm the selection of ITE Land use category 251 as the “best fit” ITE residential land use category and have been included in this report for reference.

The actual trip-generation data confirms that Brookmoor Trip generation is generally consistent with ITE estimates based on Land Use 251. The ITE estimated entering and exiting trips are slightly higher, but comparable to the trip generation based on collected data. Please refer to Table 6 for comparison.

Note: The traffic volume estimates and analysis in Sections 5, 6 and 7 have been based on ITE trip-generation estimates as required by staff and to be conservative.

Composition of Trips Generated

ITE trip generation includes all vehicle trips entering and exiting. Trips include residents, guests, visitors, service provider vehicles, contractors, mail and package delivery vehicles, etc. ITE does not specify the breakdown of trips by residents versus all other trips. However, LSC has estimated this as it is an important component of this analysis. Only residents would have the option of travel through the back gate. Trips by non-residents, including personal visitors, deliveries, service vehicles, trash and recycling collections, snowplows, mail deliveries, vendors, etc. would not have the option to travel through the east gate and would continue only use the main gate.

SECTION 5 - TRIP DISTRIBUTION & TRIP ASSIGNMENT/ROUTING

5.1 - TRIP DISTRIBUTION

Traffic data collected indicated an observed directional split of 85 percent to/from the west on Lake Woodmoor Drive and 15 percent to/from the east on Lake Woodmoor Drive. This is based on all traffic entering and exiting the community (including non-resident trips such as service vehicles and package delivery).

The December 11, 2017 memo presented an estimated directional split of 90 percent of the total vehicle trips using the west gate and 10 percent using the east gate. This accounted for resident-only (with transponder) use of the east gate.

Table 7 shows the directional distribution and percentages of trips estimated to use each of the gates if the east gate is converted from an emergency-only access to an RFID-controlled, resident-only gate. Table 7 also shows the resulting calculated percentage of total Brookmoor-generated vehicle trips projected to use the west gate vs. the east gate, once opened. These distribution percentages are estimates by LSC based in-part on analysis using the *Pikes Peak Area Council of Governments* (*PPACG*) travel demand model and travel time analysis to/from various destinations.

Table 7: Directional Distribution by Trip Type and Trip Routing

General Direction of Trip Origin/Destination	Directional Distribution Percentages	Percent of Trips Using East Gate			Percent of Trips Using Main Gate		
		In	Out	In & Out Combined	In	Out	In & Out Combined
I-25 South	41%	2%	1%	**2%**	98%	99%	**98%**
Downtown Monument	17%	0%	0%	**0%**	100%	100%	**100%**
I-25 North	11%	0%	1%	**1%**	100%	99%	**99%**
Woodmoor Drive North	6%	0%	0%	**0%**	100%	100%	**100%**
SH 83 (North)	1%	1%	1%	**1%**	99%	99%	**99%**
Hwy 105 (East)	6%	3%	5%	**4%**	97%	95%	**96%**
Knollwood S/O Hwy 105	3%	1%	2%	**2%**	99%	98%	**98%**
Jackson Creek Parkway South	15%	5%	10%	**7%**	95%	90%	**93%**

Appendix Table A-1 in Appendix A presents the detailed trip-distribution and trip routing calculations, for reference. Appendix Table A-2 is a worksheet with trip-purpose calculations and the estimate of percent resident-vehicle trips.

5.2 - TRIP ASSIGNMENT & PUD AMENDMENT TRAFFIC

Brookmoor-Generated-Traffic with Proposed Access Change

Figure 6 (section 3.8) presented a summary of the existing, baseline, and projected traffic (with the PUD Amendment) entering and exiting peak hour and daily traffic volumes at the Moveen Heights intersection with Lake Woodmoor Drive and at the intersection of South Park Drive/ Knollwood Drive.

The number of trips expected to use the east gate accounts for the resident-vehicle-only restriction on use of this gate. Table 8 below shows the resulting Brookmoor-Estates-generated trips projected to use the east gate.

Table 8: Brookmoor PUD Trip Assignment/Projections at the East Gate

East Gate Percentages			Brookmoor Trips - Both gates combined					
			Daily Trips (24 Hour)		AM Peak Hour Trips		PM Peak Hour Trips	
			Total Brookmoor Daily Trips		Total Brookmoor AM Peak Trips		Total Brookmoor PM Peak Trips	
			354		27		31	
			Resident Only Trips (75%[1] of Total)		Resident Only Trips (90%)[2] of Total		Resident Only Trips (90%)[2] of Total	
			266		24		28	
			IN	OUT	IN	OUT	IN	OUT
	(from Table 7)		133	133	8	16	17	11
By Destination	IN	OUT	East Gate Trips (Resident Passenger Vehicle ONLY)					
I-25 South	2%	1%	3	1	0	0	0	0
Downtown Monument	0%	0%	0	0	0	0	0	0
I-25 North	0%	1%	0	1	0	0	0	0
Woodmoor Drive North	0%	0%	0	0	0	0	0	0
SH 83 North	1%	1%	1	1	0	0	0	0
Hwy 105 East	3%	5%	3	6	0	1	0	1
Knollwood Drive	1%	2%	2	3	0	0	0	0
Jackson Creek Parkway South	5%	10%	7	13	0	2	1	1
Sum of All Destinations			16	26	1	3	2	2
Sum (IN/OUT Combined			42		4		4	

Notes:
[1] Please refer to Appendix Table 1; [2] Estimate by LSC

Table 8 refers to Appendix Table A-2, which shows the adjustment factor calculation for resident trips only at the east gate applied to the daily total trip generation. The factor for peak hours has been estimated by LSC. These factors were applied to the daily and peak-hour total trip generation prior to the projection of trips to the east gate.

Based on the trip distribution and routing estimates shown in Table 7 and utilized in the trip-assignment calculations in Table 8, an estimated 42 vehicles per day would use the east gate for travel to and from Brookmoor Estates via South Park Drive. This would translate to an average of 3.5 vehicles per hour (based on 42 trips per day divided by 12 hours per day – assuming for purposes of this hourly average, that the 42 trips all occur during 12 "daytime" hours). LSC estimates 312 daily vehicle trips (the balance of the total trips generated by the Brookmoor Estates subdivision at buildout) would use the existing Moveen Heights gated entry on Lake

Woodmoor Drive. Figure 6 graphically depicts the peak-hour volume estimates from Table 8 projected for the east gate.

Effect of Congestion at Woodmoor/Lake Woodmoor

The LSC projection is for 42 daily and four peak-hour vehicle trips to use South Park Drive.

EPC Staff asked whether a large fraction of Brookmoor's current traffic that turns west on Lake Woodmoor Drive (from Moveen Heights) would use the back gate. The shortest travel routes (time and distance) for the majority of trip destinations for exiting Brookmoor residents are via westbound Lake Woodmoor Drive from Moveen Heights. The majority of these trips turn left at Woodmoor/Lake Woodmoor (westbound to southbound) as part of the travel routes. If some residents do alter travel routes to avoid traffic congestion/delay, it would primarily be during peak traffic periods and not throughout the entire day, but this would be beneficial as it would remove trips from this periodically-congested intersection turning movement.

The left-turn delay at the Lake Woodmoor/Woodmoor intersection (resulting in calculated LOS F for this turning movement) is part of total travel time, and average delay is significantly higher during peak periods (school peak periods and the afternoon peak hour) than during other times of the day. LSC conducted a LOS analysis between and immediately following the AM periods of peak school traffic to compare the effect of peak school traffic on the intersection delay. This analysis was presented in section 3.9. This analysis showed significantly lower delay and better level of service outside of the AM peak school traffic period.

Use of the back gate to avoid Lake Woodmoor/Woodmoor despite the additional out of direction travel to access I-25 and areas west of I-25 translates not only to additional travel time due to additional distance, but also a travel route which passes through several additional signalized intersections along Highway 105 between Knollwood and Woodmoor Drive. Therefore, the attractiveness of a route shift to the back gate by most **exiting** Brookmoor residents will be significantly lower throughout most of the day/outside of peak periods at the Lake Woodmoor/Woodmoor intersection. The intersection level of service would have virtually no effect on Brookmoor **entering** traffic during peak **or** off-peak periods.

5.3 - "SENSITIVITY" ANALYSIS

In response to EPC staff questions stated in the previous section, the following is a "sensitivity analysis" which is essentially a "what-if" study.

Hypothetically assuming 100% of the Brookmoor residents will use the east gate to **exit** during the morning peak hour and for 2 hours up to and including the pm peak hour, the result would be 30 additional trips per day over the LSC estimates (13 in the AM peak hour and 9 vph for **each hour** between 4 and 6 pm). This would result in an "hypothetical high estimate" of 72 vehicle trips per day (42 plus 30) added with the PUD amendment.

SECTION 6 - RESULTING STUDY-AREA TRAFFIC VOLUMES AND LEVELS OF SERVICE

6.1 - SHORT- AND LONG-TERM TRAFFIC VOLUMES

Figures 4, 5, and 8 through 13 show turning-movement volumes at the study-area intersections which were used to analyze traffic operational performance. These figures are presented in sets of two with the first in each set showing the morning peak-hour volumes and the second in each set showing the afternoon peak-hour volumes.

- Figure 1 and 5 – current baseline volumes (Section 3.7).
- Figures 8 and 9 – current baseline volumes adjusted for the PUD Amendment.
- Figures 10 and 11 – 2040 baseline/background volumes
- Figures 12 and 13 – 2040 total volumes adjusted for gate opening

Also, Figure 6 (in section 3.8) presents a summary of the baseline and projected (with the PUD Amendment) entering and exiting peak-hour and daily traffic volumes at the Moveen Heights intersection with Lake Woodmoor Drive and at the intersection of South Park Drive/ Knollwood Drive. These were utilized in developing the volumes in Figures 8 through 13.

Not to scale

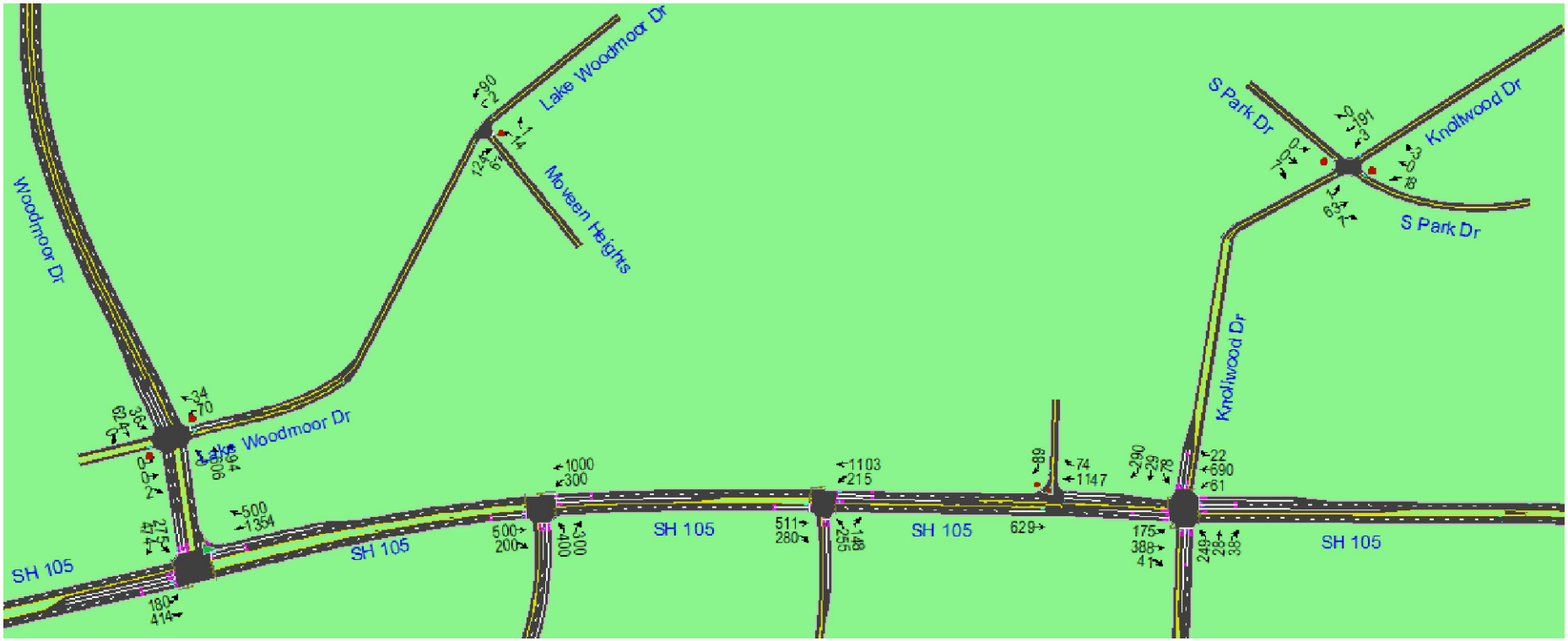

Figure 8

Current Baseline + Site (with Amendment) Traffic AM Peak Hour

Brookmoor Estates PUD Amendment (LSC # 174650)

LSC TRANSPORTATION CONSULTANTS, INC.

Not to scale

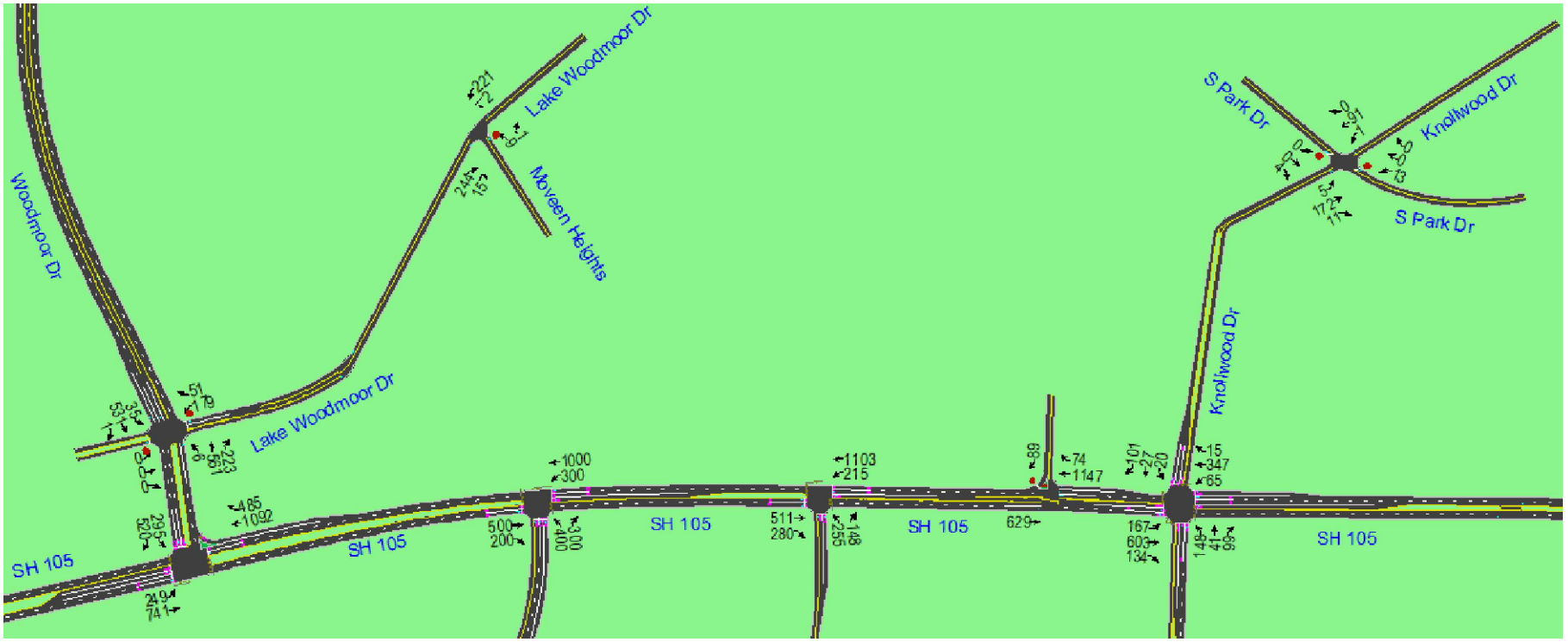

Figure 9

Current Baseline + Site (with Amendment) Traffic PM Peak Hour

Brookmoor Estates PUD Amendment (LSC # 174650)

LSC TRANSPORTATION CONSULTANTS, INC.

Not to scale

Figure 10

2040 Baseline Traffic AM Peak Hour

Brookmoor Estates PUD Amendment (LSC # 174650)

LSC TRANSPORTATION CONSULTANTS, INC.

Not to scale

Figure 11

2040 Baseline Traffic
PM Peak Hour

Brookmoor Estates PUD Amendment (LSC # 174650)

LSC TRANSPORTATION CONSULTANTS, INC.

Not to scale

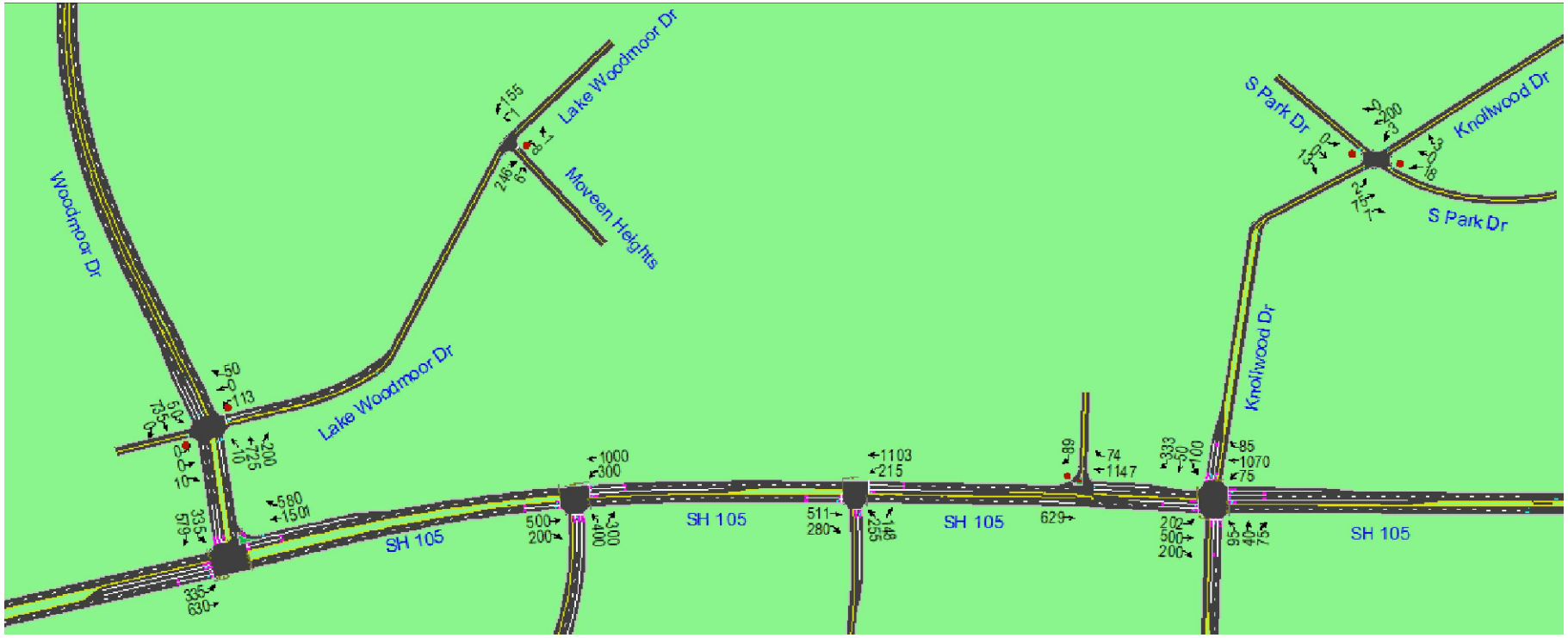

Figure 12

2040 Background + Site (with Amendment) Traffic AM Peak Hour

Brookmoor Estates PUD Amendment (LSC # 174650)

TRANSPORTATION CONSULTANTS, INC.

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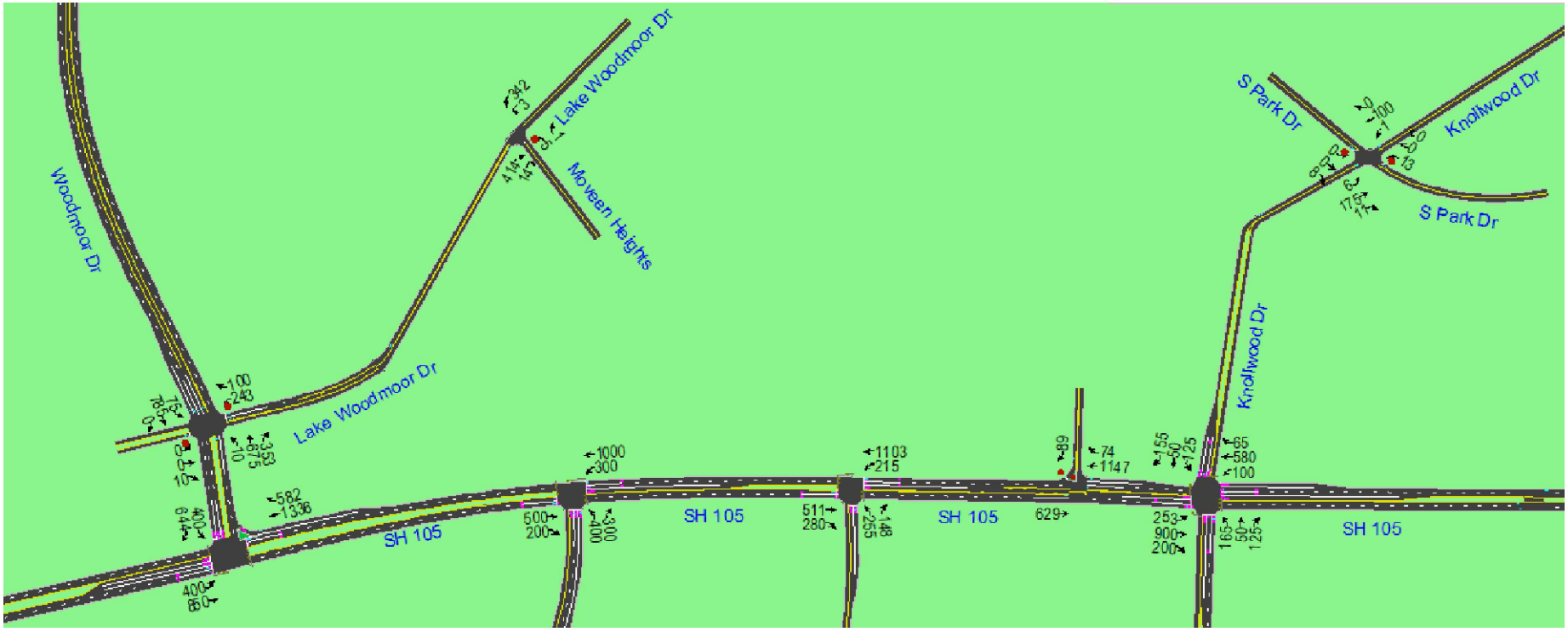

Figure 13

2040 Background + Site (with Amendment) Traffic PM Peak Hour

Brookmoor Estates PUD Amendment (LSC # 174650)

LSC TRANSPORTATION CONSULTANTS, INC.

6.2 - PROJECTED LEVELS OF SERVICE

Roadway Link Level of Service

Table 9 summarizes link levels of service for key roadways and segments in the vicinity of the study area. "Map 9: Existing and 2040 Traffic Volumes" of the El Paso County *Major Transportation Corridors Plan* (MTCP) reports existing and 2040 ADTs on major roadway segments in the area. Existing and projected 2040 ADT volumes were then compared to their corresponding *ECM* design ADTs by roadway classification to determine the "link LOS." Knollwood Boulevard and Lake Woodmoor Drive are shown well over the design ADTs based on "rural" designations.

Table 9: Link Levels of Service for Key Roadways and Segments

Roadway	Link Location	Segment	Through Lanes	Rural or Urban	2040 MTCP Classification	ECM Design ADT by Classificaton	ADTs		% of ECM Design ADT by Classification	
							Existing	2040	Existing	2040
Highway 105	East of	Woodmoor Drive	4	Urban	Principal Arterial	40,000	18,200	31,700	46%	79%
	West of						26,000	32,300	65%	81%
Highway 105	East of	Knollwood Boulevard	4	Urban	Principal Arterial	40,000	11,500	19,000	29%	48%
	West of						15,000	22,500	38%	56%
Knollwood Blvd.	North of	Knollwood Drive	2	Rural	Local	750	3,000	3,750	400%	500%
South Park Drive	West of	Knollwood Boulevard	2	Rural	Local	750	100	140	13%	19%
Lake Woodmoor Drive	Northeast of	Moveen Heights	2	Rural	Minor Collector	1,500	1,515	2,400	101%	160%
Lake Woodmoor Drive	East of	Woodmoor Drive	2	Rural	Minor Collector	1,500	4,820	7,730	321%	515%

Intersection Level of Service Analysis

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 3 (in Section 3.9) shows the level of service delay ranges or signalized and unsignalized intersections.

The following intersections were analyzed in Synchro using *signalized* method of analysis procedures from the *Highway Capacity Manual, 2010 Edition* to determine the projected control delay and corresponding levels of service for the key turning movements:

- Woodmoor Drive/Lake Woodmoor Drive (long-term alternative only)
- SH 105/Woodmoor Drive
- SH 105/Knollwood Drive

Two-way stop-sign-controlled (TWSC) intersection analysis included delay and LOS calculations for the major street approaches and the minor street approaches incur delay given the stop-sign

intersection control. The following intersections were analyzed in Synchro using the *unsignalized* method of analysis procedures from the *Highway Capacity Manual, 2010 Edition*:

- Knollwood Drive/South Park Drive
- Lake Woodmoor Drive/Moveen Heights

This analysis has been run for both background (without PUD amendment) and "Background + site" (with the PUD amendment) scenarios.

As presented in Table 10, the intersection of Woodmoor Drive/SH 105 is projected to operate at LOS C or better overall (entire intersection level of service) through the 2040 horizon year.

The westbound left-turn individual turning movement at the intersection of Lake Woodmoor Drive/Woodmoor Drive currently operates at LOS F during peak periods (during nearby school pickup and drop-off times and during the evening "commuter" peak hour). This report includes a signalized intersection level of service analysis (assuming the County converts this stop-sign-controlled intersection to a signalized intersection in the future) and the results project operation at LOS C or better overall (entire intersection level of service) through the 2040 horizon year. Additionally, ***all individual turning movements*** at this intersection would operate at LOS D or better, if the currently two-way stop-sign-controlled intersection of Lake Woodmoor Drive/Woodmoor Drive is converted to a signalized intersection in the long term.

Note: This project is not responsible for the construction of a traffic signal at this intersection.

Table 10: LOS Analysis Results (Part 1)

Analysis Scenario	SH 105 + Woodmoor Dr					Woodmoor Dr + Lake Woodmoor Dr				
	Traffic Control	Overall	EBL	SBR	SBL	Traffic Control	Overall	WBL	WBR	SBL
A.M. Peak Hour										
Short-Term Baseline	Signal	C	C	D	C	TWSC	-	F	B	A
Short-Term Baseline + Site										
2040 Background	TWSC[1]	C	B	D	D	TWSC	-	F	B	B
	Signal[2]					Signal	A	D		A
2040 Background + Site	TWSC[1]	C	B	D	D	TWSC	-	F	B	B
	Signal[2]					Signal	A	D		A
P.M. Peak Hour										
Short-Term Baseline	Signal	B	A	D	D	TWSC	-	F	B	B
Short-Term Baseline + Site										
2040 Background	TWSC[1]	C	B	D	D	TWSC	-	F	B	B
	Signal[2]					Signal	B	D	A	A
2040 Background + Site	TWSC[1]	C	B	D	D	TWSC	-	F	B	B
	Signal[2]					Signal	B	D	A	A

[1] Intersection of Lake Woodmoor/Woodmoor remains two-way stop sign-controlled (TWSC)

[2] Intersection of Lake Woodmoor/Woodmoor converted to signalized

Table 11 presents LOS analysis results for the following intersections:

- SH 105/Knollwood Drive (signalized)
- Lake Woodmoor Drive/Moveen Heights (two-way stop sign-controlled)
- Knollwood Drive/South Park Drive (two-way stop sign-controlled)

All individual turning movements at these three intersections currently operate and are projected to remain at LOS D or better through the 2040 horizon year. In particular, Knollwood/South park are predicted to remain at C or better.

The level of service essentially shows no change in level of service for area intersections when comparing background (without PUD amendment) and "Background + site" (with the PUD amendment).

Table 11: LOS Analysis Results (Part 2)

Analysis Scenario	SH 105 + Knollwood Dr						Lake Woodmoor + Moveen Hgts				Knollwood Dr + South Park Dr					
	Traffic Control	Overall	EBL	WBL	NBL	SBL	Traffic Control	Overall	NW	SW	Traffic Control	Overall	NW	NE	SW	SE
A.M. Peak Hour																
Short-Term Baseline	Signal	B	A	B	D	C	TWSC	-	A	A	TWSC	-	B	A	A	A
Short-Term Baseline + Site																
2040 Background		B	B	B	D	D			B	A			B	A	A	A
2040 Background + Site																
P.M. Peak Hour																
Short-Term Baseline	Signal	B	A	B	D	C	TWSC	-	B	A	TWSC	-	C	A	A	A
Short-Term Baseline + Site																
2040 Background		B	A	C	D	D			B	A			B	A	A	A
2040 Background + Site									C							

SECTION 7 - EVALUATION OF ROADWAY TECHNICAL CRITERIA AND CAPACITY – SOUTH PARK DRIVE

LSC has evaluated the projected traffic volumes on South Park Drive associated with the proposed PUD Amendment to determine if the roadway can accommodate the additional traffic. The following presents the detailed evaluation, but LSC finds that **the projected resulting total traffic volume on South Park Drive would remain within the carrying capacity of the roadway.**

7.1 - PROJECTED VOLUMES

Baseline

The projected background/baseline ADT on South Park Drive is estimated to be 95 vehicles per day where South Park meets Knollwood.

Brookmoor PUD Amendment Additional Trips

The proposed PUD Amendment to allow limited use of the east gate for residents only would add 42 **vehicles per day** to South Park Drive based on site generated estimate shown in Figure 6 (in section 3.8). Note (for comparison/for reference): Using the sensitivity analysis "hypothetical high" estimate rather than the Figure 6 estimate, the added number of trips to South Park Drive would be 72.

Resulting Total Volume

The estimated total (baseline plus Brookmoor PUD Amendment trips) following the proposed opening of the gate to resident vehicles only is projected to be about **137 vehicles per day.** Note (for comparison/for reference): The total based on the "sensitivity analysis" results (assuming more peak period trips) is projected to be 167 vehicles per day.

7.2 - CROSS SECTION AND CLASSIFICATION

El Paso County *ECM* Criteria

A summary of the *ECM* criteria relative to this PUD Amendment request:

1) El Paso County *ECM* does not include a "low-volume" Rural Local (paved) standard roadway classification, which would be more applicable to the current and projected ADT for South Park Drive; and
2) El Paso County does not provide alternate criteria to apply to additional traffic added to an "existing roadway" (versus new roadway construction as part of a new subdivision), as is the case in Teller County, for example.

3) The *El Paso County Road Inventory* book indicates that South Park Drive west of Knollwood is a 24-foot-wide, paved, Local roadway within a 60-foot right-of-way. This is consistent with many of the other roadways within Woodmoor.

South Park Drive is a local, secondary service roadway and the cross section is considered "rural" as it was not constructed with curb, gutter, and sidewalks as with an urban street cross section. Stormwater runoff is conveyed via roadside ditch sections rather than a storm-sewer system as with urban streets.

However, based on the residential lot sizes along South Park Drive, the development is more consistent with urban development (based on County guidelines). This inconsistency applies to the Woodmoor area in general. In Woodmoor, roads originally built with rural cross sections are serving urban-density development. The point is, this is an existing condition with respect to the character of the Woodmoor community and in many locations, Woodmoor's "rural" roads are carrying well above the current *ECM*-standard design ADT for a rural road with a comparable cross section/pavement width. This is reflected in the "percentage of *ECM* design ADT by classification" in Table 9 for Lake Woodmoor Drive and Knollwood Boulevard.

The excerpt from the El Paso County Road Inventory book (Figure 3 in Section 3) indicates that South Park Drive west of Knollwood is a **24-foot-wide**, paved, Local roadway within a 60-foot right-of-way. These dimensions are consistent with many of the other roadways within Woodmoor.

Current *ECM* criteria indicate standard Rural Local roadways, constructed to current *ECM* standards, have a design ADT of 750 vehicles per day. The County *ECM* does not provide a "low-volume" tier of the Rural Local (paved) standard roadway, which if available as a separate classification, would be more applicable to the current and projected ADT for South Park Drive. Such a classification, if available, could likely allow for a narrower-street paved width. For comparison, the County *ECM* does include an Urban Local Low-Volume classification (as a lower "tier" of Urban Local) which has a design ADT of 300 vehicles per day or lower.

Also, the County *ECM* criteria does not distinguish between new/existing roads, although the *MTCP* does consider the point at which existing roads (primarily major roads) should be upgraded. Although ideally all roads should meet current standards, it is not practical (or in many cases possible), to upgrade all existing roadways to existing standards even when new nearby development or general growth increases trips on an existing roadway. The magnitude of increase may not necessitate upgrade of the roadway to current standards. Also, as long as the resulting traffic volumes remain under a reasonable threshold level that the existing roadway can carry (within the planning horizon), the existing roadway usually remains as is. This is true of many County roads.

Teller County criteria has a provision for distinguishing between new road construction (often with new development) and use of existing County roads. This is a beneficial provision, as

sometimes it is not practical or reasonable to force upgrade of existing roadways simply because it was built under previous criteria.

Comparison to Roadway Criteria from Other Colorado Counties

LSC has researched and included roadway technical criteria for other Colorado Counties to assist with the determination of adequate roadway capacity. LSC has included these findings as follows:

Table 12 below presents extracts from roadway technical criteria for select local roads within some other Colorado counties. These have been provided for purposes of comparison to El Paso County. The following summarizes some **Teller** and **Douglas** County provisions that might apply to a situation similar to South Park drive.

Table 12: Comparison of Roadway Technical Criteria by County

Excerpts of Established Roadway Technical Criteria[1]
With Existing South Park Drive for Comparison to El Paso County Criteria and Local Road Criteria from Some Other Colorado Counties

Table 2-5: Roadway Design Standards for Rural Collectors and Locals (El Paso County)					South Park Dr	Teller County		County				
Criteria	Collectors		Local		Subject Roadway	Existing Roads	New Roads	Douglas		Jefferson	Summit	Larimer
	Major	Minor	Local	Gravel	Rural Local	Rural Local	Rural Local	Rural Type III[3]	Rural Type IV	Local Road	Low Volume	Local Road
Design Speed/Posted Speed (mph)	50 / 45	40 / 35	30 / 30	50 / 45	25	25 (Posted)	30 / 25	30 / 25	30 / 25	15-25 (Design)	20-25	25 / 25
Clear Zone	20'	14'	7'	12'	-	-	-	-	-	-	-	-
Minimum Centerline Curve Radius	930[2]	565'	300'	As Approved	200' - 225' (est.)	225'[3]	175'	225'	225'	198'	-	165'
Number of Through Lanes	2	2	2	2	2	2	2	2	2	2	-	2
Lane Width	12'	12'	12'	12'	-	12'	-	-	-	-	-	-
Right-of-Way	90'	80'	70[3]	70[3]	60'		60'	50'	50'	50'	50'	70'
Paved Width	32'	32'	28'	N/A	20' - 22'	24'	24'	20' (Asphalt[5])	24' (Gravel)	24'	20'	32'
Median Width	N/A	N/A	N/A	N/A	-	-	-	-	-	-	-	-
Outside Shoulder Width (Paved/Gravel)	8' (4' / 4')	6' (4' / 2')	4' (2' / 2')	4' (0' / 4')	No Shoulder	No Shoulder	2' - 4' (Gravel)	-	-	3' (Gravel)	1' (Gravel)	4'
Inside Shoulder Width (Paved/Gravel)	N/A	N/A	N/A	N/A	No Shoulder	No Shoulder	-	-	-	-	-	-
Design ADT	3,000	1,500	750	200	95/150	Not Specified	< 350	400	100	< 1,000	500	> 100
Design Vehicle	WB-67	WB-67	WB-50	WB-50	-	-	-	-	-	-	-	-
Access Permitted	No	Yes	Yes	Yes	-	-	-	-	-	-	-	-
Access Spacing	N/A	Frontage	Frontage	Frontage	-	-	-	-	-	-	-	-
Intersection Spacing	1/4 mile	660'	330'	330'	-	-	-	-	-	-	-	-
Parking Permitted	No	Yes	Yes	No	Yes	No[4]	One side	No	No	-	No[7]	-
Minimum Flowline Grade	1%	1%	1%	1%	-	-	-	-	-	-	-	-
Centerline Grade (Min - Max)	1-8%[1]	1-8%[1]	1-8%[1]	1-8%[1]	-	-	-	-	-	-	-	-
Intersection Grades (Min - Max)	1-4%	1-4%	1-4%	1-4%	-	-	-	-	-	-	-	-
Sidewalk	-	-	-	-	None	Not Required	Trail Required	-	-	-	-	-

[1] Excerpts from El Paso County criteria (*Engineering Criteria Manual*) and Local road criteria from some other Colorado counties
[2] 95 / 150 -- 95 vpd is the estimated current ADT and 150 vpd is the projected ADT w/ the proposed controlled-opening of the Brookmoor east gate to residents only
[3] 30-mph design speed
[4] Parking prohibited on local roadways
[5] Minimum lot size of 2.5 acres
[6] See Douglas County notes (bottom right)
[7] See Summit County note ("5507.01: Providing for Parking")

[7] Summit County Note

5507.01: Providing for Parking

Parking within County rights-of-way is illegal in Summit County, except in areas where it is expressly permitted between May 1st and October 1st by County approved signs. Only licensed, operable motor vehicles, as defined in Section 3815.01 and Chapter 15 of this Code, may park on County rights-of-way where parking is permitted during the summer months. No vehicle may remain parked in the right-of-way for a period longer than 7 consecutive days without being relocated. Permanent storage of motor vehicles in the right-of-way is prohibited. Adequate through access must be maintained in the traveled way at all times. It is the responsibility of every property owner to provide the minimum required off right-of-way parking necessary to accommodate their permitted use(s). Parking shall be prohibited at all times within 50-feet of intersections, as defined in Section 5106.03 of this Code. On-street parking presents particular difficulties during snow plowing season and the Sheriff's Department may order illegally parked cars to be towed at their discretion and the discretion of the Road & Bridge Director or the County Engineer. In addition, a plow operator may, at his discretion, decline to plow all or portions of a road if one (1) or more cars are parked so as to impede plowing.

[7] Douglas County Note

20' asphalt width, 2-3' gravel shoulders, 2-roadside ditches, total is 26' roadway.
20' asphalt width, 2-2' gutter pans, total is 24' fl-fl
20' asphalt width, composite shoulder & ditch and curb.

Teller County, Colorado

A comparison to the Teller County **existing** local road criteria shows some similarities. Teller County distinguishes existing versus new. Teller County "Existing Roadway" criteria call out a 24-foot pavement width, but on-street parking is prohibited. A design or "max" ADT is not specified. We are not recommending that parking be prohibited along South Park Drive.

The Teller County cross-section does not allow for on-street parking. However, observations indicate use of South Park Drive for on-street parking by adjacent residents is very limited/infrequent and is, therefore, de facto no parking. Also, the El Paso County Urban Local Low Volume criteria calls out a 24' paved width (plus curb and gutter) with on-street parking allowed and a max ADT of 300 vehicles per day. The posted limit is 20 mph on this classification of street. Although this type of street has curb and gutter instead of roadside ditch sections, a comparison can be drawn with respect to available street width and ADT and allowance for on street parking. Also, lots are typically much smaller so there is often more use of on street parking.

Douglas County and Summit County, Colorado

Both counties have established criteria for low-volume local roads with a paved width of 20 feet. The criteria indicate gravel shoulders of 2-3 feet and 1-foot, respectively. Neither allows on-street parking. The ADT range is 400-500 vehicles per day.

LSC Finding

Based on the above evaluation and projected resulting total volume on South Park Drive, the roadway will be able to accommodate the additional traffic associated with the PUD Amendment. The projected resulting total projected traffic volume on South Park Drive will remain within the carrying capacity of the roadway, even based on the conservatively high volume hypothetically assumed in the sensitivity analysis in section 5.3.

SECTION 8 - OTHER ANALYISIS/EVALUATION

EPC requested additional analysis of key intersections to determine if one or more traffic signals could be warranted or any other changes were needed. This section addresses these issues.

8.1 - WOODMOOR DRIVE/LAKE WOODMOOR DRIVE INTERSECTION

Striping & Laneage

Section 3.4 describes the existing striping and laneage at this intersection. **Consideration could be given to minor restriping of the acceleration/deceleration lane between the north and south park 'n ride access points** to remove (or restripe as a narrower taper/shoulder) what appears to be a right-turn lane. This lane could be interpreted as an extension of the right-turn lane approaching Highway 105 – in which case both this lane and the No. 2 southbound through lane direct traffic into one downstream lane. Also, as striped, the transition/redirect distance appears short, although the tire wear on the pavement suggests that drivers tend to drive over the solid white stripe to accomplish this transition.

As generally southbound traffic keeps right in order to turn right at SH 105/Woodmoor and left to either turn left onto Lake Woodmoor or Highway 105, striping modifications are unlikely to have a significant change in intersection capacity.

The northbound approach is two lanes. The outside lane functions both as a merge lane for traffic using the dual eastbound left-turn lane from SH 105 and as a continuous right-turn lane for access points (and the Lake Woodmoor intersection) between SH 105 and the north bank access (on the northeast corner of the intersection). **No changes to this turn-lane configuration are recommended, although when restriped consideration could be given to the use of a segment of short-dash, "drop lane" striping.**

Due to the gas station access on the corner, there does not appear to be an opportunity for the addition of a northbound dedicated right-turn bay on Woodmoor Drive approaching Lake Woodmoor Drive. This improvement could be added in the future if/when redevelopment of the corner parcel occurs. The responsibility could potentially be the entity that might redevelop that parcel, or the entity might provide ROW or other accommodation to allow this lane to be constructed by the County and/or by future development served by Lake Woodmoor Drive. This has little to do with the Brookmoor request to open the east gate.

Traffic-Signal Warrant Analysis

This analysis using the morning and evening peak-hour projected volumes is intended to provide an indication that a warrant **may be met** based on projected traffic volumes or might be close to being met. In order for a Four-Hour Vehicular Volume Traffic Signal Warrant to be satisfied, the volume

threshold would need to be met for two additional hours of the day. For example, the four-hour warrant would be satisfied with the volume thresholds met for the one hour in the morning, two hours (instead of the one-hour peak) during the afternoon peak period, and the mid-afternoon peak hour (school peak hour). Given the uses currently served by this intersection and to be served in the future (additional non-residential uses), it is likely that additional hourly periods (data points) would meet the warrant thresholds shown in the *Manual on Uniform Traffic Control Devices (MUTCD)*.

Analysis indicates that a traffic signal is likely to satisfy the *MUTCD* four-hour volume warrant in the future at the intersection of Woodmoor/Lake Woodmoor. This assessment is based on the projected 2040 peak-hour intersection volumes. Figure 14 shows the signal warrant analysis for 2040 baseline. Figure 7, previously presented in section 3, shows the chart for the current baseline. A four-hour volume warrant may be satisfied in the relatively short-term future based on extrapolated growth of the four hours of 2018 AM and PM count data.

It is important to note that the satisfaction of one, or more than one, of the *MUTCD* warrants does not indicate that County **will or must** install a signal at this intersection; rather, it indicates that installation of a signal could be an option to reduce intersection delay, mitigate a specific traffic safety issue, or other reason. Any consideration of signalization would likely be associated with the westbound left-turn movement (from the current Stop-Sign) from westbound Lake Woodmoor Drive to southbound Woodmoor Drive. The decision to signalize an intersection rests with the County, and the County may decide not to install a signal due to site-specific conditions, such as the proximity to the intersection of Highway 105/Woodmoor Drive and the T-intersection (w/west/fourth leg for transit only) configuration.

With respect to Brookmoor Estates, the estimated current Brookmoor volume represents about 11 percent of this turning movement during the morning peak hour and 4 percent during the afternoon peak hour (based on 2018 data). The opening of the back gate would likely result in for a minor reduction in this key left-turning movement volume. It would provide Brookmoor residents another option/alternative to this turning movement during peak periods at this intersection. However, the difference would not be significant enough to alter the overall outcome of the signal warrant analysis or the County's future decision to signalize or not signalize this intersection. The Brookmoor traffic would constitute **less than two percent** of the afternoon peak-hour volume for the westbound left-turning movement (based on 2040 projections).

8.2 - KNOLLWOOD DRIVE/KNOLLWOOD BOULEVARD

The estimated increase in traffic on Knollwood Drive south of South Park Drive is estimated to be **less than a five-percent increase** with the added trips associated with the opening of the gate. Therefore, per Appendix B of the *ECM*, further evaluation of the roadway segment is not necessary. This segment of Knollwood appears to have a cross section consistent with other roadways in Woodmoor. Although the increase due to PUD Amendment traffic is projected to be below the five percent *ECM* Appendix B threshold for inclusion in the study area, the intersection of Knollwood/SH 105 has been analyzed as part of the initial scope requested by the County for this study.

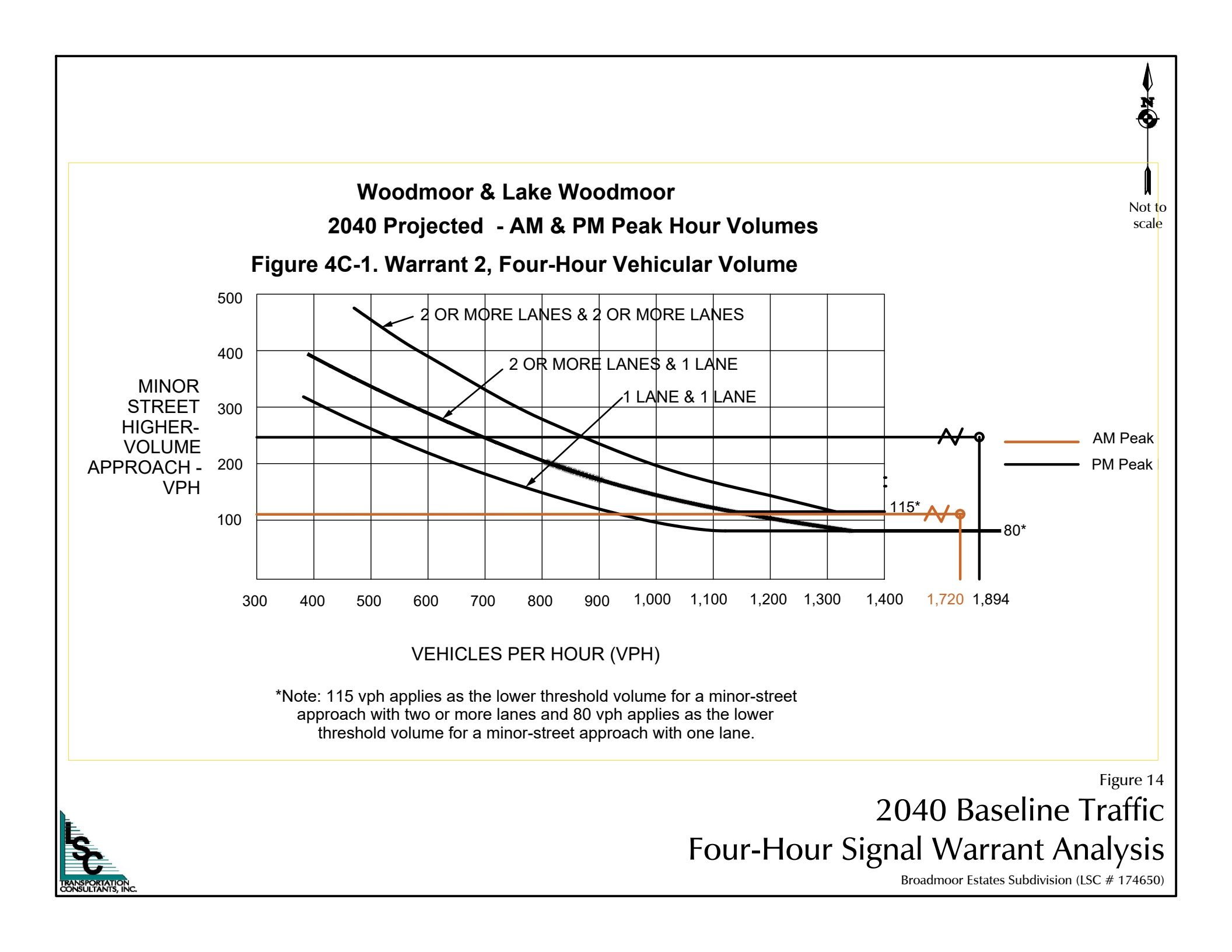

Figure 14

2040 Baseline Traffic
Four-Hour Signal Warrant Analysis

Broadmoor Estates Subdivision (LSC # 174650)

SECTION 9 - LSC FINDINGS AND RECOMMENDATIONS

9.1 - SUMMARY OF KEY FINDINGS & RECOMMENDATIONS

- The proposed PUD amendment would replace the existing east emergency-vehicle-only east gate with an RFID-controlled gate allowing passage of resident passenger vehicles and a secondary access for residents of Brookmoor Estates (resident passenger vehicles only).

- As the proposed modified gate connection will only be open to Brookmoor residents, the only additional users of the South Park Drive connection will be Brookmoor residents (not guests, vendors, etc.).

- South Park Drive will be able to accommodate the projected additional traffic associated with the requested PUD Amendment. The projected volume increase would not result in volume at levels on South Park that would create an over capacity condition or a traffic safety problem.

- The PUD Amendment would give Brookmoor residents another travel route option. This additional access and associated additional options for travel routes for residents would enhance safety (especially beneficial during peak periods).

- South Park Drive is a 24-foot-paved-width County Local roadway (although in some areas the roadway in its **current condition** has a narrower 20-22-foot width).

- The 2019 El Paso County Road Inventory book indicates that South Park Drive west of Knollwood was accepted as a County Road in 1980 as a **24-foot-wide**, paved, Local roadway within a 60-foot right-of-way. It would not be reasonable to require Brookmoor Estates to its original condition. With the next regularly scheduled County maintenance project, any portions of the street that have seen reduction in the paved width of the street over time (since originally accepted by EPC for maintenance) could be restored to a consistent 24-foot-wide pavement mat and verify the original depth of asphalt.

- The South Park Drive 24-foot rural cross section and 60-foot right of way is consistent with many other roadways within Woodmoor. Given this, the minimal traffic increase associated with the PUD Amendment, and the capacity of a 24-foot roadway, it would be unreasonable to require the applicant to upgrade South Park Drive to the current *ECM* Rural Local standard of 28-feet of pavement, 2-foot gravel shoulders each side, and 70-feet of right of way (which is not available).

- Post 25-mph speed-limit signs on South Park Drive.

9.2 - SUMMARY OF ANALYSIS RESULTS

- The community currently generates about **263 vehicle trips per day**, based on actual data collected.

- Based on ITE rates (Land Use 251) the community buildout trip-generation (all 59 homes) ITE trip-generation estimate shows 354 trips per day. The latter has been used in this report as required by County staff.

- Based on the trip distribution and routing estimates, an estimated 42 additional vehicle trips per day on South Park Drive would result from use the east gate for travel to and from the site via South Park Drive. LSC estimates 312 daily vehicle trips (the balance of the total ITE buildout trips to be generated by Brookmoor Estates at buildout) would use the existing Moveen Heights gated entry on Lake Woodmoor Drive.

- Based on the alternate analysis ("sensitivity" analysis) about 75 additional vehicle trips per day on South Park Drive would result from use the east gate for travel to and from the site via South Park Drive.

- Although Brookmoor will add trips to what would remain a cul-de-sac for the public street portion and the residents along South Park Drive, the projected average daily volume of about **137 vehicles per day** would be lower than the hypothetical volume of a typical cul-de-sac serving 25 dwelling units (the County maximum number of dwelling units on a cul-de-sac) - about 240 vehicles per day.

- Based on the alternate analysis ("sensitivity" analysis), the volume on South Park Drive would be 167 vehicle trips per day.

- South Park Drive is a 24-foot-paved-width County Local roadway (although some spot field measurements indicate the roadway in its **current condition** is a relatively narrow 20-22-foot width in spots). The anticipated total traffic volume with additional use allowed by Brookmoor residents will remain within a range that can be handled by a roadway of this width. Infrequent use of the public right-of-way for on-street parking generally allows for use of the entire roadway width for travel, allowing two moving passenger vehicles to pass each other in opposite directions of travel.

- Infrequently, with the occasional vehicle parked on the street or when pedestrians use the street, drivers may need to slow significantly or stop and wait for a vehicle in the opposite direction to pass. This is reasonable for a roadway of this length, function, and low volume.

- South Park Drive is similar to other roadways within Woodmoor – rural, relatively narrow 24-foot paved cross sections with no sidewalks, serving higher-than-rural housing density development.

9.3 - THE PUD AMENDMENT WOULD BE A BENEFIT RELATIVE TO TRAFFIC SAFETY IN THE REGION

- The projected volume increase would not result in volume at levels on South Park that would create an over capacity condition or a traffic safety problem.

- Allowing the connection (and associated increase in traffic on South Park) will have a benefit that far outweighs the marginal impact of an additional 42 vehicles per day.

- The PUD Amendment would result in more effective utilization of county road infrastructure (South Park Drive) to distribute peak traffic, improve circulation in the area and provide connectivity of roadways.

- The PUD Amendment would give Brookmoor residents another travel route option. This additional option would enhance safety, as it would likely provide an alternative (especially beneficial during peak periods) to the Moveen Heights/Lake Woodmoor route involving the westbound left turn at Woodmoor Drive. Providing alternatives for motorists to choose routes to avoid peak congestion and to select routes that, based on individual driver preferences/capabilities, are safer and/or more "user-friendly." Route choice will depend on driver preferences and factors such as balancing travel distance/time, tendency to avoid difficult turning movements or pockets of peak period congestion etc.

- The PUD Amendment will help the overall system by relieving – to a minor extent because the difference in volume isn't high – peak-period congestion and delay on intersection approaches/turning movements. Notably, the westbound left turn at Lake Woodmoor/Woodmoor during school peak travel times.

- This change would result in a reduction in trips currently traveling past the elementary school – again, to a minor extent, because the difference in volume is not high.

- It is not only reasonable, but prudent to allow this change to better utilize an existing County road. The Tri-lakes area is seeing nearly unprecedented growth and resulting increases traffic volumes. The area transportation infrastructure is seeing (and has seen) significantly increased demand. For example, between 2005 and 2018, Woodmoor Drive PM peak-hour traffic south of Lake Woodmoor has increased by a factor of 1.67 and the AM peak-hour traffic has increased by a factor of 1.4. It would be unrealistic and not in the overall best interest of the public not to allow this request simply to avoid **any** increase in traffic on South Park Drive. Any opportunity to optimize use of County road infrastructure while improving connectivity and provide route options to that will enhance safety.

- The safety and utilization of the system will be most prevalent during peak times. It is important to note that during off peak travel times, there would be less of a tendency to alter

travel route, for most Brookmoor residents. Moveen Heights to Woodmoor Drive is still the shortest distance to/from most destinations.

- Although the traffic will increase somewhat on South Park to achieve these benefits, there is available capacity.

* * * * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH/JAB:jas

Enclosures: Appendix A - Supplemental Tables
Appendix B - Vehicle Pavement Loading
Traffic Counts
Synchro LOS Reports

APPENDIX B – VEHICLE PAVEMENT LOADING

LSC has estimated the current 20-year Equivalent Single Axle Loading (ESAL) for South Park Drive and the estimated additional ESAL loading to be added by Brookmoor resident passenger vehicles with the proposed opening of the gate to resident passenger vehicles.

Typically, traffic volume impact on pavement is calculated using equivalent single-axle loads (ESAL). ESAL is the equivalent number of 18,000 lbf (pound force) single-axle loads that would produce the same amount of damage over the pavement design life. The equivalent axle loads are calculated for passenger vehicles, single unit trucks and multi-unit trucks. The total ESAL values are the cumulative ESAL data from all three vehicle types for the entire pavement life expectancy.

Appendix Tables B-1a through B-1g (at the end of this appendix) show the detailed calculations and Table B-2 below shows the summary of the results.

Table B-2: Brookmoor Estates - ESAL Calculation Summary

Brookmoor Estates **ESAL Calculation Summary**		
Current EPC Requirements	for classification:	ESAL Value
Currently Required Minimum ESAL	Rural Local	36500
Currently Required Minimum ESAL	Urban Local Low Volume*	36500
Estimated EPC Historical Requirement	Based on	ESAL Value
2001/2002 Hypothetical Min ESAL	Old CDOT Factors, Lower Truck %s	25425
Current and Projected	Based on	ESAL Value
Estimated Current South Park Drive ESAL	Rural Local Truck %s and 95 vpd ADT	5780
Estimated Current South Park Drive ESAL	Urban Local Low Volume* (95 ADT)	13,100
Estimated ESAL to be added by Brookmoor Traffic	Passenger Veh. Only (42** ADT)	920
Existing plus Added Brookmoor ESAL	Brookmoor plus worst case of above	14,020
Percent Increase (assuming Urban Local Low Vol*)		7%
Percent Increase (assuming Rural Local)		10%
2001/2002 Hypothetical Min ESAL	Old CDOT Factors, Lower Truck %s	25425
Excess "ESAL Capacity"		**11,405**
* Alternate estimate using Urban Local Low Volume roadway criteria		
**EB Directional only (26 vpd) x 2		LSC 4/16/2021

The summary table shows the current County minimum ESAL values for a Rural Local Roadway. The table also shows an estimate of the minimum ESAL from the 2001/2002 time period (20 years ago) – provided because criteria 20 to 25 years ago were not as conservative. South Park Drive was originally accepted by the County in 1980 and repaved in 2000. The table also presents the

estimated ESAL values on South Park Drive based on estimated current traffic volumes and current ESAL calculation factors. Additionally, the table presents estimated additional ESAL loading due to the projected volume that would be added by Brookmoor residents (passenger vehicles only).

The proposed opening of the gate to resident passenger vehicles would add a 20-year Equivalent Single Axle Loading (ESAL) of about 10-percent increase over the estimated current ESAL loading. The calculated ESAL, based on passenger vehicle loading (no trucks) to/from Brookmoor, is about 1,100. The estimated current ESAL loading on South Park by the approximately 100 vehicle trips per day is 5,780.

Also, the total estimated resulting ESAL loading on South Park Drive, based on the sum of estimated existing plus Brookmoor added traffic (14,020 ESAL), would be about 39 percent of the design ESAL value of a Rural Local Roadway (36,500) and 55 percent of the estimated historic design ESAL standard (20 years ago) – 25,425. Please refer to the attached ESAL calculation tables for additional detail.

In summary, the projected total traffic and associated ESAL loading for the PUD amendment would remain below the design ESAL for a Rural Local roadway (using past or present standards). The impact to pavement would be minimal as only Brookmoor passenger vehicles would be added.

Appendix A Supplemental Tables

TRANSPORTATION
CONSULTANTS, INC.

Appendix Table A-1

General Direction of Trip Origin/Destination	Trip Directional Distribution Percentages by Trip Purpose				Composite Directional Distribution Percentages (all trip purposes)	Percent Use the East Access by General Direction of Trip Origin/Destination				Percent of Trips Using East Gate (for each General Direction of Trip Origin/Destination)	
	Productions		Attractions			Households projected to Use East Gate (for each General Direction of Trip Origin/Destination)		Corresponding Percentage of Total Households			
	HBW	HBNW	HBNW	NHB		In	Out	In	Out	In	Out
I-25 South	54%	38%	31%	36%	41%	5	1	6%	2%	2%	1%
Downtown Monument	10%	20%	15%	20%	17%	0	0	0%	1%	0%	0%
I-25 North	25%	5%	5%	10%	11%	0	17	0%	10%	0%	1%
Woodmoor Drive North	3%	5%	10%	10%	6%	0	0	0%	0%	0%	0%
SH 83 (North)	2%	1%	1%	2%	1%	36	36	40%	60%	1%	1%
Hwy 105 (East)	2%	7%	15%	5%	6%	45	45	40%	75%	3%	5%
Knollwood S/O Hwy 105	1%	4%	3%	2%	3%	45	45	45%	75%	1%	2%
Jackson Creek Parkway South	3%	20%	20%	15%	15%	20	41	35%	65%	5%	10%
1 HBW = home-based work, HBNW = home-based non-work, NHB = non-home-based											
2 Product of Composite directional distribution percentages and percent of trips using east gate											

Appendix Table A-2: Trip Purpose Calculations and Estimate of Percent Resident Vehicle Trips

Per person by trip purpose

Total	**3.79**		**Percent of Total**		
Work	0.59	0.59	15.61%	0.52	25%
Family/Pers./Errands	1.61				
School/Church	0.36	2.15	56.88%	1.12	53%
Other	0.18			0.49	23%
Social/Rec.	1.04	1.04	27.51%		
Total		3.78	100.00%	2.13	1

Vehicle Occupancy by Trip Purpose

Work	1.18	1.13
Shop	1.82	
Fam/Pers/Errands	1.86	1.917854749
school/Churh	1.77	
Med/ dental	1.6	
Social/Rec - visit	2	2.135
social/rec other	2.18	

Calculation of Resident Percent of Total Brookmoor Trips

	% of person trips by type	occupancy rate	1st Column divided by occ. Rate	Percent of Veh. Trips by type	Productions percent of Total	**Percent of productions**
HBW	0.1889	1.13	0.167168142	27%	**74.90%**	36.16%
HBNW	0.5667	1.92	0.29515625	48%		63.84%
HBW attr	0.1333	1.75	0.076171429	12%		
NHB	0.111	1.41	0.078723404	13%		
	0.9999		0.617219224	1		
Resulting estimated Resident trip percentage of total trips					**75% of trip gen**	

Appendix B – Vehicle Pavement Loading

TRANSPORTATION
CONSULTANTS, INC.

APPENDIX B – VEHICLE PAVEMENT LOADING

LSC has estimated the current 20-year Equivalent Single Axle Loading (ESAL) for South Park Drive and the estimated additional ESAL loading to be added by Brookmoor resident passenger vehicles with the proposed opening of the gate to resident passenger vehicles.

Typically, traffic volume impact on pavement is calculated using equivalent single-axle loads (ESAL). ESAL is the equivalent number of 18,000 lbf (pound force) single-axle loads that would produce the same amount of damage over the pavement design life. The equivalent axle loads are calculated for passenger vehicles, single unit trucks and multi-unit trucks. The total ESAL values are the cumulative ESAL data from all three vehicle types for the entire pavement life expectancy.

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* Alternate estimate using Urban Local Low Volume roadway criteria		
		LSC
**EB Directional only (26 vpd) x 2		4/16/2021

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estimated ESAL values on South Park Drive based on estimated current traffic volumes and current ESAL calculation factors. Additionally, the table presents estimated additional ESAL loading due to the projected volume that would be added by Brookmoor residents (passenger vehicles only).

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Also, the total estimated resulting ESAL loading on South Park Drive, based on the sum of estimated existing plus Brookmoor added traffic (14,020 ESAL), would be about 39 percent of the design ESAL value of a Rural Local Roadway (36,500) and 55 percent of the estimated historic design ESAL standard (20 years ago) – 25,425. Please refer to the attached ESAL calculation tables for additional detail.

In summary, the projected total traffic and associated ESAL loading for the PUD amendment would remain below the design ESAL for a Rural Local roadway (using past or present standards). The impact to pavement would be minimal as only Brookmoor passenger vehicles would be added.

Appendix Tables B1a - B1g

Appendix Table B-1a
Brookmoor Estates
ESAL Calculation Table
Control Calculation
Urban Local (Low Volume)

Vehicle Type	Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	Vehicles in Single Lane	CDOT Factor	EDLA
Multi-Unit Trucks		0.75%	2	1.087	2.45
Single-Unit Trucks		2.25%	7	0.249	1.68
Passenger Cars/Pickup Trucks	97.00%	97.00%	291	0.003	0.87
Total					**5.00**
Calculated 20-Year 18-kip ESAL					**36,496**
ECM Minimum ESAL					**36,500**
Directional ADT	300				1.0001
ADT Value	300				

Source: LSC Transportation Consultants, Inc.

Appendix Table B-1b
Brookmoor Estates
ESAL Calculation Table
Control Calculation
Rural Local

Vehicle Type	Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	Vehicles in Single Lane	CDOT Factor	EDLA
Multi-Unit Trucks		0.75%	2	1.087	2.45
Single-Unit Trucks		2.25%	7	0.249	1.68
Passenger Cars/Pickup Trucks	97.00%	97.00%	291	0.003	0.87
Total					**5.00**
Calculated 20-Year 18-kip ESAL					**36,496**
ECM Minimum ESAL					**36,500**
Directional ADT	300				
ADT Value	600				

Source: LSC Transportation Consultants, Inc.

Appendix Table B-1c
Brookmoor Estates
ESAL Calculation Table
Hypothetical - 2001/2002 Control Calculation
Rural Local

Vehicle Type	Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	Vehicles in Single Lane	CDOT Factor (2002)	EDLA
Multi-Unit Trucks	0.25%	0.50%	2	1.000	1.88
Single-Unit Trucks	1.00%	2.00%	8	0.175	1.31
Passenger Cars/Pickup Trucks	98.50%	98.50%	369	0.0008	0.30
Total					**3.48**
Calculated 20-Year 18-kip ESAL					**25,426**
ECM Minimum ESAL					**N/A**
Directional ADT	375				
ADT Value	**750**				

Source: LSC Transportation Consultants, Inc.

Appendix Table B-1d
Brookmoor Estates
ESAL Calculation Table
Existing Volume
Urban Local (Low Volume)

Vehicle Type	Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	Vehicles in Single Lane	CDOT Factor	EDLA
Multi-Unit Trucks	1.00%	1.00%	1.0	1.087	1.03
Single-Unit Trucks	2.00%	2.00%	1.9	0.249	0.47
Passenger Cars/Pickup Trucks	97.00%	97.00%	92	0.003	0.28
Total					**1.78**
Calculated 20-Year 18-kip ESAL					**13,010**
ECM Minimum ESAL					**36,500**
Directional ADT	95				
ADT Value	95				

Source: LSC Transportation Consultants, Inc.

Appendix Table B-1e
Brookmoor Estates
ESAL Calculation Table
Existing Volume
Rural Local

Vehicle Type	Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	Vehicles in Single Lane	CDOT Factor	EDLA
Multi-Unit Trucks	1.00%	0.75%	0	1.087	0.39
Single-Unit Trucks	2.00%	2.25%	1	0.249	0.27
Passenger Cars/Pickup Trucks	97.00%	97.00%	46	0.003	0.14
Total					**0.79**
Calculated 20-Year 18-kip ESAL					**5,779**
ECM Minimum ESAL					**36,500**
Directional ADT	48				
ADT Value	95				

Source: LSC Transportation Consultants, Inc.

Appendix Table B-1f
Brookmoor Estates
ESAL Calculation Table
Added Volume by Brookmoor (Passenger Vehicles Only)
Urban Local (Low Volume)

Vehicle Type	Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	Vehicles in Single Lane	CDOT Factor	EDLA
Passenger Cars/Pickup Trucks	100.00%	100.00%	**42**	0.003	0.13
Total					**0.13**
Calculated 20-Year 18-kip ESAL					**920**
Directional ADT	**42**				
ADT Value	**42**				

Source: LSC Transportation Consultants, Inc.

Appendix Table B-1g
Brookmoor Estates
ESAL Calculation Table
Added Volume by Brookmoor (Passenger Vehicles Only)
Rural Local

Vehicle Type	Total Percent of One-Way ADT	Design Lane Percent of One-Way ADT	Vehicles in Single Lane	CDOT Factor	EDLA
Passenger Cars/Pickup Trucks	100.00%	100.00%	**26**	0.003	0.08
Total					**0.08**
Calculated 20-Year 18-kip ESAL					**569**
Directional ADT (higher of EB/WB)	**26**				
ADT Value	**42**				

Source: LSC Transportation Consultants, Inc.

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

AM PM Day of Week Wed Date 8/29/18 174650

Time		In		Out		Time		In		Out	
Start	End	EBR	WBL	NBL	NBR	Start	End	EBR	WBL	NBL	NBR
12:00	12:10					6:00	6:10			1	
12:10	12:20					6:10	6:20			111	
12:20	12:30					6:20	6:30				
12:30	12:40					6:30	6:40			1	
12:40	12:50					6:40	6:50				
12:50	1:00					6:50	7:00			11	
1:00	1:10					7:00	7:10			111	11
1:10	1:20					7:10	7:20			1	
1:20	1:30					7:20	7:30	1			
1:30	1:40					7:30	7:40				
1:40	1:50					7:40	7:50	1			
1:50	2:00					7:50	8:00			11	1
2:00	2:10					8:00	8:10			111	
2:10	2:20					8:10	8:20			1	
2:20	2:30					8:20	8:30	1		11	
2:30	2:40					8:30	8:40				1
2:40	2:50	1				8:40	8:50			11	1
2:50	3:00				1	8:50	9:00	11		1	
3:00	3:10					9:00	9:10	111			
3:10	3:20					9:10	9:20	1		11	
3:20	3:30					9:20	9:30	11	11	1	
3:30	3:40					9:30	9:40			1	
3:40	3:50					9:40	9:50			11	
3:50	4:00					9:50	10:00	1		1	
4:00	4:10					10:00	10:10	1			
4:10	4:20					10:10	10:20	1			1
4:20	4:30					10:20	10:30	11		11	
4:30	4:40					10:30	10:40	1		111	1
4:40	4:50			1		10:40	10:50	111			
4:50	5:00					10:50	11:00	11		1111	
5:00	5:10					11:00	11:10	11		1	
5:10	5:20					11:10	11:20	11		1	
5:20	5:30			1		11:20	11:30	1111	1	1	
5:30	5:40					11:30	11:40	1		11	
5:40	5:50			1		11:40	11:50	11			
5:50	6:00			1		11:50	12:00	11		1	1
		1	0	4	1			36	3	46	8

AM (PM) Day of Week Wed. Date 8/29/18 174650

Time		In		Out		Time		In		Out	
Start	End	EBR	WBL	NBL	NBR	Start	End	EBR	WBL	NBL	NBR
12:00	12:10			1		6:00	6:10	11			1
12:10	12:20			111		6:10	6:20				
12:20	12:30	11		1		6:20	6:30	11		11	
12:30	12:40				1	6:30	6:40	1		1	
12:40	12:50	11		11		6:40	6:50	1			
12:50	1:00	1		1111		6:50	7:00	1		1	
1:00	1:10	11		1		7:00	7:10				
1:10	1:20	1		11		7:10	7:20	11		1	
1:20	1:30	111			1	7:20	7:30	1			
1:30	1:40	1		1	1	7:30	7:40				
1:40	1:50	11		11		7:40	7:50	1			
1:50	2:00	1		1		7:50	8:00	1			
2:00	2:10	11		11	1	8:00	8:10				
2:10	2:20	1111				8:10	8:20	11		1	
2:20	2:30			1111		8:20	8:30	1			
2:30	2:40					8:30	8:40				
2:40	2:50	11	1	1	1	8:40	8:50	1			
2:50	3:00					8:50	9:00				
3:00	3:10	11		1	1	9:00	9:10	1			
3:10	3:20	1			1	9:10	9:20	1			
3:20	3:30	1		11		9:20	9:30				
3:30	3:40				1	9:30	9:40	1			
3:40	3:50	11		1		9:40	9:50				
3:50	4:00	1		11		9:50	10:00				
4:00	4:10				1	10:00	10:10				
4:10	4:20	11				10:10	10:20				
4:20	4:30	11				10:20	10:30				
4:30	4:40	1111		1		10:30	10:40				
4:40	4:50			1		10:40	10:50	1			
4:50	5:00		1			10:50	11:00				
5:00	5:10	1				11:00	11:10				
5:10	5:20	11				11:10	11:20				
5:20	5:30	1111		1		11:20	11:30				
5:30	5:40	1		1		11:30	11:40				
5:40	5:50	11		1		11:40	11:50				
5:50	6:00	11		11	1	11:50	12:00				

51 / 1 / 52 | 2 / 0 / 2 | 38 / 4 / 42 | 10 / 1 / 11

20 / 36 / 56 | 0 / 3 / 3 | 6 / 46 / 52 | 1 / 8 / 9

AM PM Day of Week Thurs Date 8/30/18 174650

Time		In		Out		Time		In		Out	
Start	End	EBR	WBL	NBL	NBR	Start	End	EBR	WBL	NBL	NBR
12:00	12:10					6:00	6:10			1	
12:10	12:20					6:10	6:20			1	
12:20	12:30					6:20	6:30				
12:30	12:40					6:30	6:40			111	
12:40	12:50					6:40	6:50			1	1
12:50	1:00					6:50	7:00				
1:00	1:10					7:00	7:10			1	1
1:10	1:20					7:10	7:20			1	
1:20	1:30					7:20	7:30			11	1
1:30	1:40					7:30	7:40	1		1	
1:40	1:50					7:40	7:50				
1:50	2:00					7:50	8:00	1	1	1	1
2:00	2:10					8:00	8:10	11			
2:10	2:20					8:10	8:20		1	1	1
2:20	2:30					8:20	8:30			1	1
2:30	2:40					8:30	8:40		1	1	
2:40	2:50		1			8:40	8:50	1		11	
2:50	3:00	1		1	1	8:50	9:00	1		111	
3:00	3:10					9:00	9:10	111		11	
3:10	3:20					9:10	9:20			1	1
3:20	3:30					9:20	9:30				
3:30	3:40					9:30	9:40	1			
3:40	3:50					9:40	9:50	111		1	
3:50	4:00					9:50	10:00	1			
4:00	4:10					10:00	10:10	X	1	111	11
4:10	4:20					10:10	10:20			11	
4:20	4:30		1		1	10:20	10:30			1111	
4:30	4:40					10:30	10:40	1			
4:40	4:50					10:40	10:50	1111		111	
4:50	5:00					10:50	11:00			111	
5:00	5:10					11:00	11:10	1			
5:10	5:20			1		11:10	11:20				
5:20	5:30			1		11:20	11:30	1			
5:30	5:40			1		11:30	11:40	11	1	1	
5:40	5:50			111		11:40	11:50	11		1	
5:50	6:00					11:50	12:00	1111	1	11	11
		1	2	7	2			30	6	43	11

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Time		In		Out		Time		In		Out	
Start	End	EBR	WBL	NBL	NBR	Start	End	EBR	WBL	NBL	NBR
12:00	12:10	4			1	6:00	6:10	1			
12:10	12:20			1		6:10	6:20	4	1	2	
12:20	12:30	2				6:20	6:30	1		1	
12:30	12:40	4		2		6:30	6:40	1		2	
12:40	12:50	1		1		6:40	6:50				
12:50	1:00	1		2		6:50	7:00	1			
1:00	1:10			4		7:00	7:10				
1:10	1:20	1		1	1	7:10	7:20	4		2	
1:20	1:30		1			7:20	7:30	1			
1:30	1:40	2		3	1	7:30	7:40	2		1	
1:40	1:50	1		2	1	7:40	7:50		1		
1:50	2:00				1	7:50	8:00	1		3	
2:00	2:10	5		2		8:00	8:10	1		1	
2:10	2:20	1		1		8:10	8:20				
2:20	2:30	2			1	8:20	8:30	1		1	
2:30	2:40	2	1	1		8:30	8:40	3			
2:40	2:50	1	1			8:40	8:50	2			
2:50	3:00	4	2	3		8:50	9:00				
3:00	3:10		1	1	1	9:00	9:10	4			
3:10	3:20	3		1	1	9:10	9:20				
3:20	3:30	4	1	2		9:20	9:30				
3:30	3:40	1		2		9:30	9:40				
3:40	3:50	3	1			9:40	9:50				
3:50	4:00	1				9:50	10:00				
4:00	4:10					10:00	10:10				
4:10	4:20	1	1	2		10:10	10:20				
4:20	4:30	2		1	2	10:20	10:30				
4:30	4:40	2				10:30	10:40				
4:40	4:50	1	1	1	2	10:40	10:50				
4:50	5:00	1		4		10:50	11:00	1			
5:00	5:10	3	1	3		11:00	11:10				
5:10	5:20	1		1		11:10	11:20				
5:20	5:30	1	1	1	1	11:20	11:30				
5:30	5:40					11:30	11:40				
5:40	5:50	5	1	1		11:40	11:50				
5:50	6:00	1		2	1	11:50	12:00				
		60	13	45	14			28	2	13	0
		1	2	7	2			30	6	43	11
		61	15	52	16			58	8	56	11

180426

	EBR	WBL	NBL	NBR
Wed	52	2	42	11
	56	3	52	9
	108	5	94	20
		113 IN		114 OUT
Thurs	60	15	52	16
	58	8	56	11
	118	23	108	27
		141 IN		135 OUT

LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210
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719-633-2868

File Name : Knollwood Blvd - Hwy 105 AM 10-18
Site Code : 174650
Start Date : 10/24/2018
Page No : 1

Groups Printed- Unshifted

	Knollwood Blvd Southbound				Hwy 105 Westbound				Knollwood Blvd Northbound				Hwy 105 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:30	0	0	3	0	5	50	0	0	10	2	1	0	1	12	3	0	87
06:45	2	1	19	0	7	126	4	0	44	1	11	0	19	30	4	0	268
Total	2	1	22	0	12	176	4	0	54	3	12	0	20	42	7	0	355
07:00	4	1	35	0	11	146	0	0	70	1	6	0	17	64	7	0	362
07:15	16	9	71	2	17	180	3	0	72	15	8	0	53	102	10	0	558
07:30	28	11	92	1	21	186	13	0	52	5	18	0	46	117	13	0	603
07:45	29	8	85	0	12	178	6	0	55	7	6	0	58	105	5	0	554
Total	77	29	283	3	61	690	22	0	249	28	38	0	174	388	35	0	2077
08:00	8	8	54	0	11	128	1	0	38	1	6	0	18	58	9	0	340
08:15	1	3	13	0	5	93	3	0	36	4	3	0	11	66	5	0	243
Grand Total	88	41	372	3	89	1087	30	0	377	36	59	0	223	554	56	0	3015
Apprch %	17.5	8.1	73.8	0.6	7.4	90.1	2.5	0	79.9	7.6	12.5	0	26.8	66.5	6.7	0	
Total %	2.9	1.4	12.3	0.1	3	36.1	1	0	12.5	1.2	2	0	7.4	18.4	1.9	0	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
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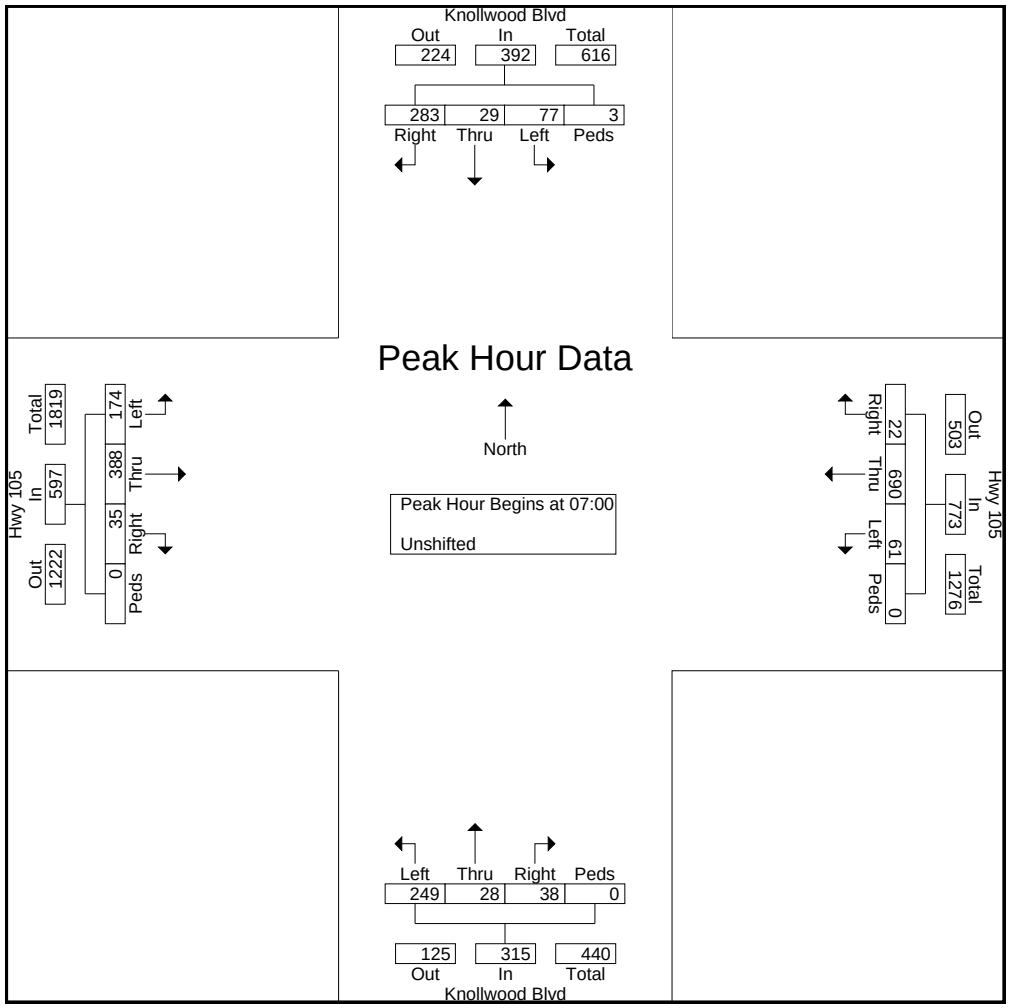
719-633-2868

File Name : Knollwood Blvd - Hwy 105 AM 10-18
Site Code : 174650
Start Date : 10/24/2018
Page No : 2

	Knollwood Blvd Southbound					Hwy 105 Westbound					Knollwood Blvd Northbound					Hwy 105 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. 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	4	1	35	0	40	11	146	0	0	157	70	1	6	0	77	17	64	7	0	88	362
07:15	16	9	71	**2**	98	17	180	3	0	200	**72**	**15**	8	0	**95**	53	102	10	0	165	558
07:30	28	**11**	**92**	1	**132**	**21**	**186**	**13**	0	**220**	52	5	**18**	0	75	46	**117**	**13**	0	**176**	**603**
07:45	**29**	8	85	0	122	12	178	6	0	196	55	7	6	0	68	**58**	105	5	0	168	554
Total Volume	77	29	283	3	392	61	690	22	0	773	249	28	38	0	315	174	388	35	0	597	2077
% App. Total	19.6	7.4	72.2	0.8		7.9	89.3	2.8	0		79	8.9	12.1	0		29.1	65	5.9	0		
PHF	.664	.659	.769	.375	.742	.726	.927	.423	.000	.878	.865	.467	.528	.000	.829	.750	.829	.673	.000	.848	.861



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545 E Pikes Peak Ave, Suite 210
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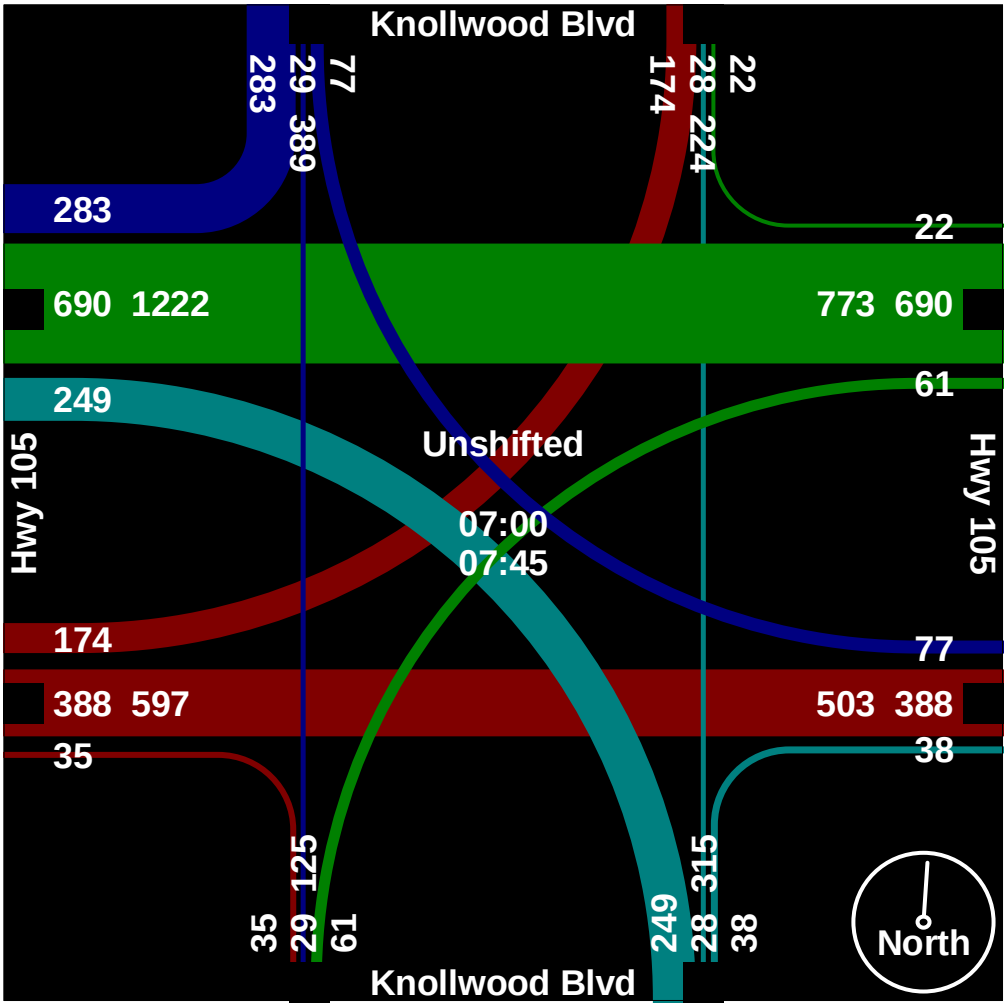
File Name : Knollwood Blvd - Hwy 105 AM 10-18
Site Code : 174650
Start Date : 10/24/2018
Page No : 3



LSC Transportation Consultants, Inc.

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

File Name : Knollwood Blvd - Hwy 105 PM 10-18
Site Code : 174650
Start Date : 10/30/2018
Page No : 1

Groups Printed- Unshifted

	Knollwood Blvd Southbound				Hwy 105 Westbound				Knollwood Blvd Northbound				Hwy 105 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	9	8	25	0	13	103	1	0	54	8	13	0	26	148	32	1	441
16:15	4	4	27	0	18	90	4	0	48	3	26	0	41	147	25	0	437
16:30	3	4	15	0	12	106	3	0	44	4	10	0	33	139	17	0	390
16:45	8	1	26	0	13	104	5	0	27	11	20	0	32	141	28	0	416
Total	24	17	93	0	56	403	13	0	173	26	69	0	132	575	102	1	1684
17:00	3	8	26	0	21	76	1	0	36	11	12	0	41	157	30	0	422
17:15	4	12	21	0	20	83	3	0	40	13	36	0	44	159	35	0	470
17:30	4	6	26	0	11	84	5	0	45	6	31	0	48	146	41	0	453
17:45	3	5	20	0	10	78	4	0	41	5	28	0	43	139	38	0	414
Total	14	31	93	0	62	321	13	0	162	35	107	0	176	601	144	0	1759
Grand Total	38	48	186	0	118	724	26	0	335	61	176	0	308	1176	246	1	3443
Apprch %	14	17.6	68.4	0	13.6	83.4	3	0	58.6	10.7	30.8	0	17.8	67.9	14.2	0.1	
Total %	1.1	1.4	5.4	0	3.4	21	0.8	0	9.7	1.8	5.1	0	8.9	34.2	7.1	0	

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545 E Pikes Peak Ave, Suite 210
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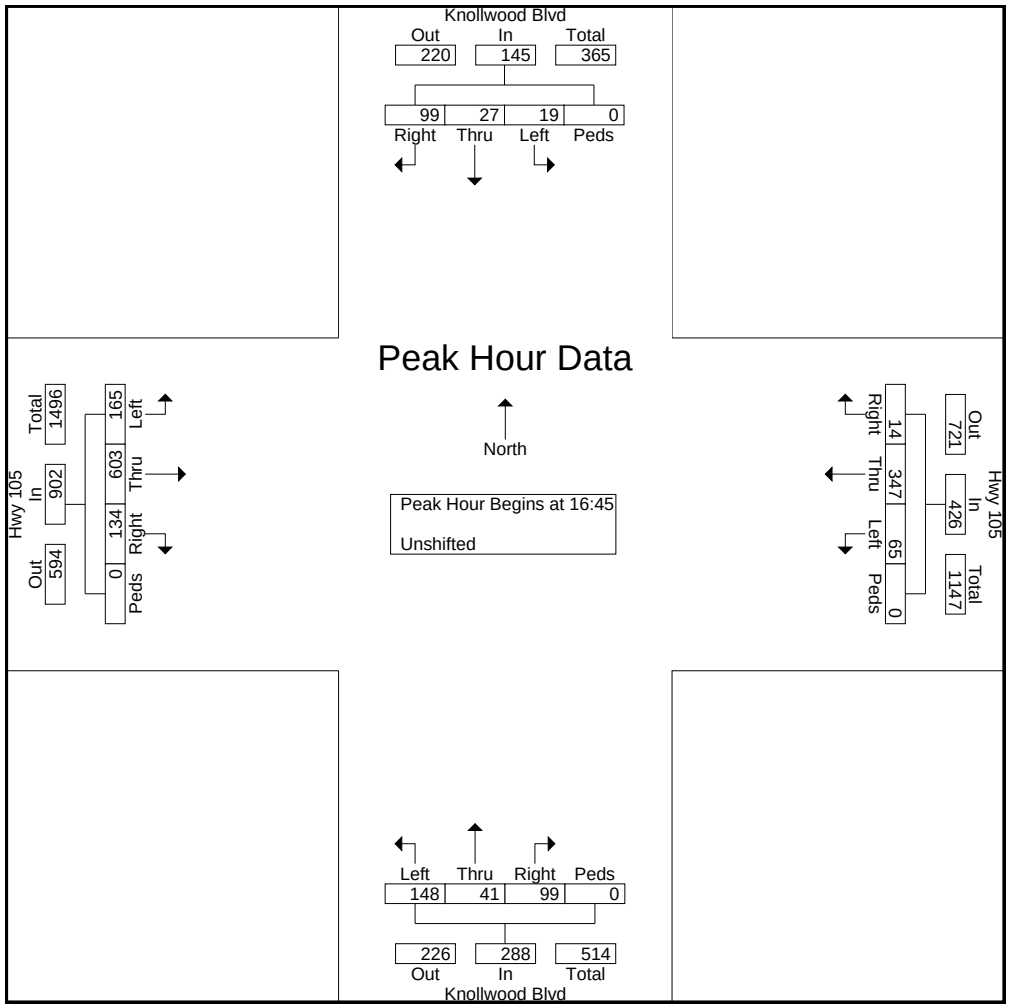
File Name : Knollwood Blvd - Hwy 105 PM 10-18
Site Code : 174650
Start Date : 10/30/2018
Page No : 2

	Knollwood Blvd Southbound					Hwy 105 Westbound					Knollwood Blvd Northbound					Hwy 105 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	**8**	1	**26**	0	35	13	**104**	**5**	0	**122**	27	11	20	0	58	32	141	28	0	201	416
17:00	3	8	26	0	**37**	**21**	76	1	0	98	36	11	12	0	59	41	157	30	0	228	422
17:15	4	**12**	21	0	37	20	83	3	0	106	40	**13**	**36**	0	**89**	44	**159**	35	0	**238**	**470**
17:30	4	6	26	0	36	11	84	5	0	100	**45**	6	31	0	82	**48**	146	**41**	0	235	453
Total Volume	19	27	99	0	145	65	347	14	0	426	148	41	99	0	288	165	603	134	0	902	1761
% App. Total	13.1	18.6	68.3	0		15.3	81.5	3.3	0		51.4	14.2	34.4	0		18.3	66.9	14.9	0		
PHF	.594	.563	.952	.000	.980	.774	.834	.700	.000	.873	.822	.788	.688	.000	.809	.859	.948	.817	.000	.947	.937



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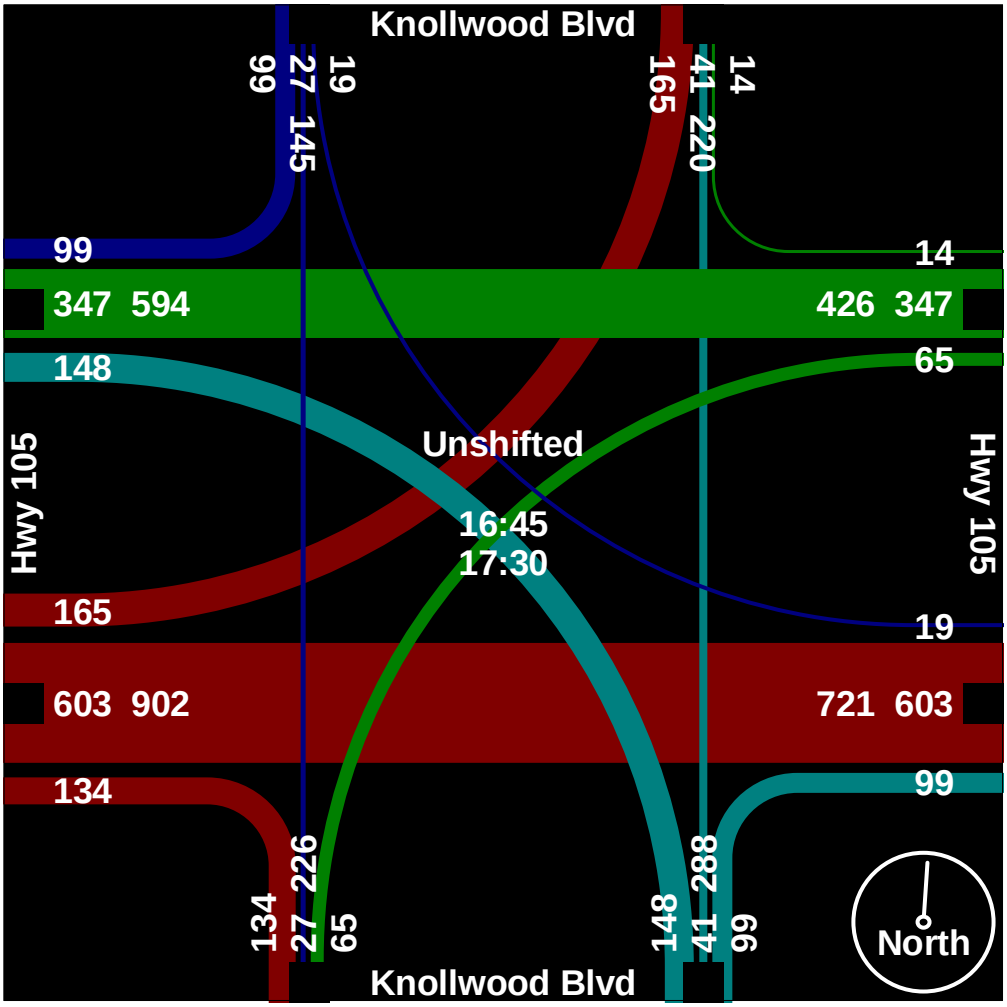
File Name : Knollwood Blvd - Hwy 105 PM 10-18
Site Code : 174650
Start Date : 10/30/2018
Page No : 3



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

File Name : Knollwood Blvd - South Park Dr AM
Site Code : 00174650
Start Date : 11/6/2018
Page No : 1

Groups Printed- Unshifted

	Knollwood Blvd Southbound				South Park Dr Westbound				Knollwood Blvd Northbound				South Park Dr Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:30	1	7	0	0	2	0	0	0	0	4	1	0	0	0	1	0	16
06:45	2	18	0	0	1	0	0	0	0	7	1	0	0	0	1	0	30
Total	3	25	0	0	3	0	0	0	0	11	2	0	0	0	2	0	46
07:00	0	50	0	0	4	0	2	0	0	11	0	0	0	0	1	0	68
07:15	2	62	0	0	4	0	1	0	0	12	0	0	0	0	2	0	83
07:30	1	48	0	0	4	0	0	0	0	22	4	0	0	0	0	0	79
07:45	0	31	0	0	6	0	0	0	0	18	3	0	0	0	1	0	59
Total	3	191	0	0	18	0	3	0	0	63	7	0	0	0	4	0	289
08:00	0	20	0	0	2	1	0	0	0	12	0	0	1	0	1	0	37
08:15	1	25	0	0	1	0	0	0	2	16	0	0	1	0	1	0	47
Grand Total	7	261	0	0	24	1	3	0	2	102	9	0	2	0	8	0	419
Apprch %	2.6	97.4	0	0	85.7	3.6	10.7	0	1.8	90.3	8	0	20	0	80	0	
Total %	1.7	62.3	0	0	5.7	0.2	0.7	0	0.5	24.3	2.1	0	0.5	0	1.9	0	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
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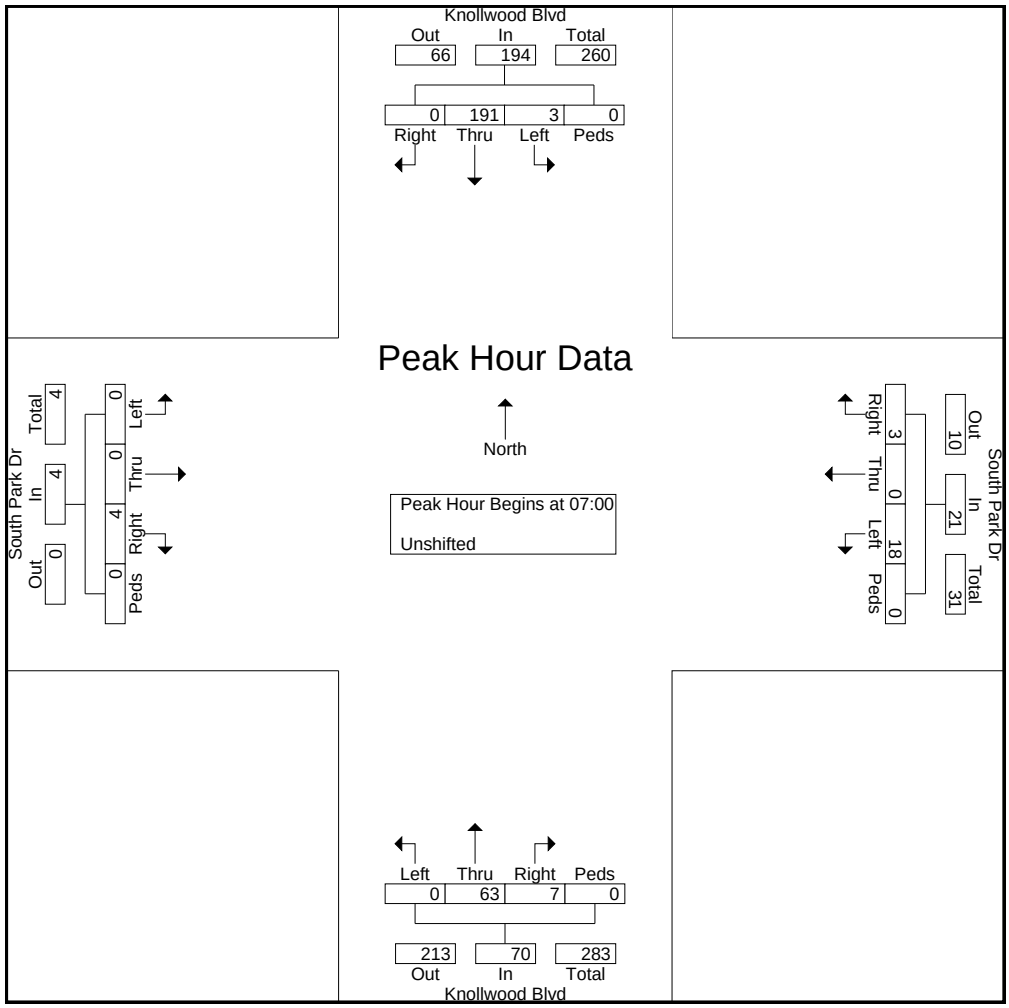
719-633-2868

File Name : Knollwood Blvd - South Park Dr AM
Site Code : 00174650
Start Date : 11/6/2018
Page No : 2

	Knollwood Blvd Southbound					South Park Dr Westbound					Knollwood Blvd Northbound					South Park Dr Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. 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	50	0	0	50	4	0	**2**	0	**6**	0	11	0	0	11	0	0	1	0	1	68
07:15	**2**	**62**	0	0	**64**	4	0	1	0	5	0	12	0	0	12	0	0	**2**	0	**2**	**83**
07:30	1	48	0	0	49	4	0	0	0	4	0	**22**	**4**	0	**26**	0	0	0	0	0	79
07:45	0	31	0	0	31	**6**	0	0	0	6	0	18	3	0	21	0	0	1	0	1	59
Total Volume	3	191	0	0	194	18	0	3	0	21	0	63	7	0	70	0	0	4	0	4	289
% App. Total	1.5	98.5	0	0		85.7	0	14.3	0		0	90	10	0		0	0	100	0		
PHF	.375	.770	.000	.000	.758	.750	.000	.375	.000	.875	.000	.716	.438	.000	.673	.000	.000	.500	.000	.500	.870



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

File Name : Knollwood Blvd - South Park Dr AM
Site Code : 00174650
Start Date : 11/6/2018
Page No : 3

LSC Transportation Consultants, Inc.

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

File Name : Knollwood Blvd - South Park Dr PM
Site Code : 00174650
Start Date : 11/15/2018
Page No : 1

Groups Printed- Unshifted

	Knollwood Blvd Southbound				South Park Dr Westbound				Knollwood Blvd Northbound				South Park Dr Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	0	25	0	0	0	0	0	0	1	40	0	0	0	0	1	0	67
16:15	0	18	0	0	2	0	0	0	2	23	2	0	0	0	2	0	49
16:30	1	23	0	0	1	0	0	0	1	31	5	0	0	0	1	0	63
16:45	0	23	1	0	2	0	0	0	1	32	5	0	1	0	0	0	65
Total	1	89	1	0	5	0	0	0	5	126	12	0	1	0	4	0	244
17:00	0	30	0	0	1	0	0	0	0	38	2	0	0	0	0	0	71
17:15	0	23	0	0	5	0	0	0	1	47	3	0	0	0	2	0	81
17:30	1	20	0	0	4	0	0	0	1	44	4	0	0	0	0	0	74
17:45	0	18	0	0	3	0	0	0	1	42	2	0	0	0	0	0	66
Total	1	91	0	0	13	0	0	0	3	171	11	0	0	0	2	0	292
Grand Total	2	180	1	0	18	0	0	0	8	297	23	0	1	0	6	0	536
Apprch %	1.1	98.4	0.5	0	100	0	0	0	2.4	90.5	7	0	14.3	0	85.7	0	
Total %	0.4	33.6	0.2	0	3.4	0	0	0	1.5	55.4	4.3	0	0.2	0	1.1	0	

LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210
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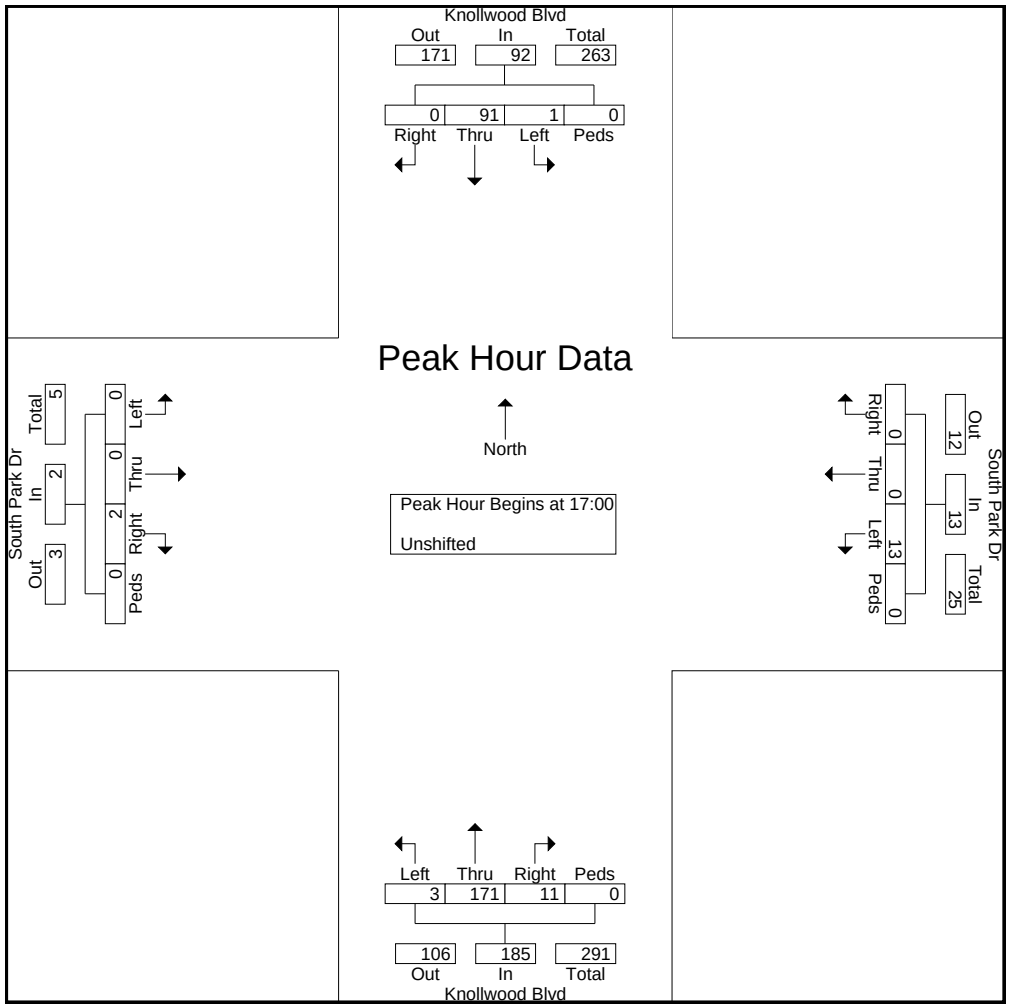
719-633-2868

File Name : Knollwood Blvd - South Park Dr PM
Site Code : 00174650
Start Date : 11/15/2018
Page No : 2

	Knollwood Blvd Southbound					South Park Dr Westbound					Knollwood Blvd Northbound					South Park Dr Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	**30**	0	0	**30**	1	0	0	0	1	0	38	2	0	40	0	0	0	0	0	71
17:15	0	23	0	0	23	**5**	0	0	0	**5**	**1**	**47**	3	0	**51**	0	0	**2**	0	**2**	**81**
17:30	**1**	20	0	0	21	4	0	0	0	4	1	44	**4**	0	49	0	0	0	0	0	74
17:45	0	18	0	0	18	3	0	0	0	3	1	42	2	0	45	0	0	0	0	0	66
Total Volume	1	91	0	0	92	13	0	0	0	13	3	171	11	0	185	0	0	2	0	2	292
% App. Total	1.1	98.9	0	0		100	0	0	0		1.6	92.4	5.9	0		0	0	100	0		
PHF	.250	.758	.000	.000	.767	.650	.000	.000	.000	.650	.750	.910	.688	.000	.907	.000	.000	.250	.000	.250	.901



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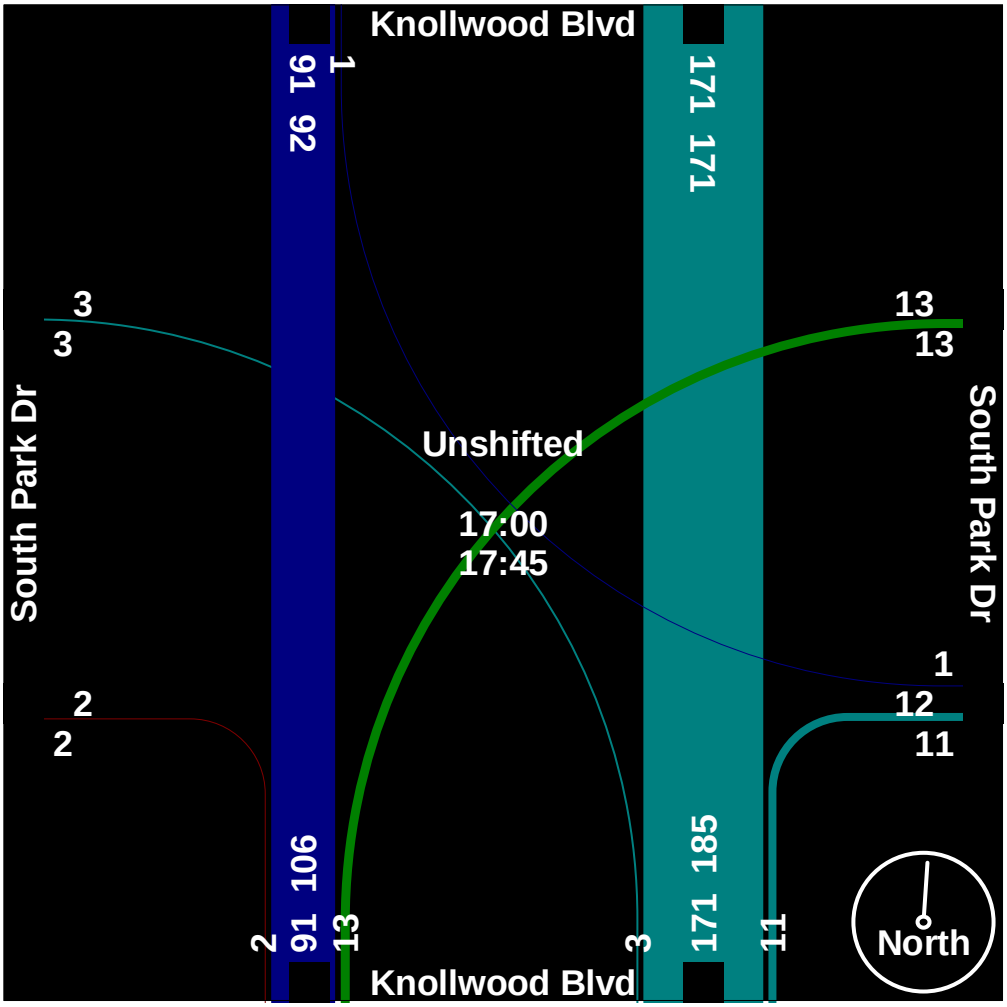
719-633-2868

File Name : Knollwood Blvd - South Park Dr PM
Site Code : 00174650
Start Date : 11/15/2018
Page No : 3



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545 E Pikes Peak Ave, Suite 210
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719-633-2868

File Name : Woodmoor Dr - Hwy 105 AM
Site Code : 174650
Start Date : 11/1/2018
Page No : 1

Groups Printed- Unshifted

	Woodmoor Dr Southbound				Hwy 105 Westbound				Northbound				Hwy 105 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:30	8	0	57	0	0	166	46	0	0	0	0	0	14	52	0	0	343
06:45	29	0	58	0	0	170	137	0	0	0	0	0	47	48	0	0	489
Total	37	0	115	0	0	336	183	0	0	0	0	0	61	100	0	0	832
07:00	88	0	125	0	0	221	204	0	0	0	0	0	69	76	0	0	783
07:15	104	0	111	0	0	324	108	0	0	0	0	0	46	128	0	0	821
07:30	53	0	101	0	0	387	92	0	0	0	0	0	30	94	0	0	757
07:45	30	0	135	0	0	421	94	0	0	0	0	0	35	116	0	0	831
Total	275	0	472	0	0	1353	498	0	0	0	0	0	180	414	0	0	3192
08:00	30	0	68	0	0	288	73	0	0	0	0	0	27	92	0	0	578
08:15	22	0	85	0	0	206	73	0	0	0	0	0	36	122	0	0	544
Grand Total	364	0	740	0	0	2183	827	0	0	0	0	0	304	728	0	0	5146
Apprch %	33	0	67	0	0	72.5	27.5	0	0	0	0	0	29.5	70.5	0	0	
Total %	7.1	0	14.4	0	0	42.4	16.1	0	0	0	0	0	5.9	14.1	0	0	

LSC Transportation Consultants, Inc.
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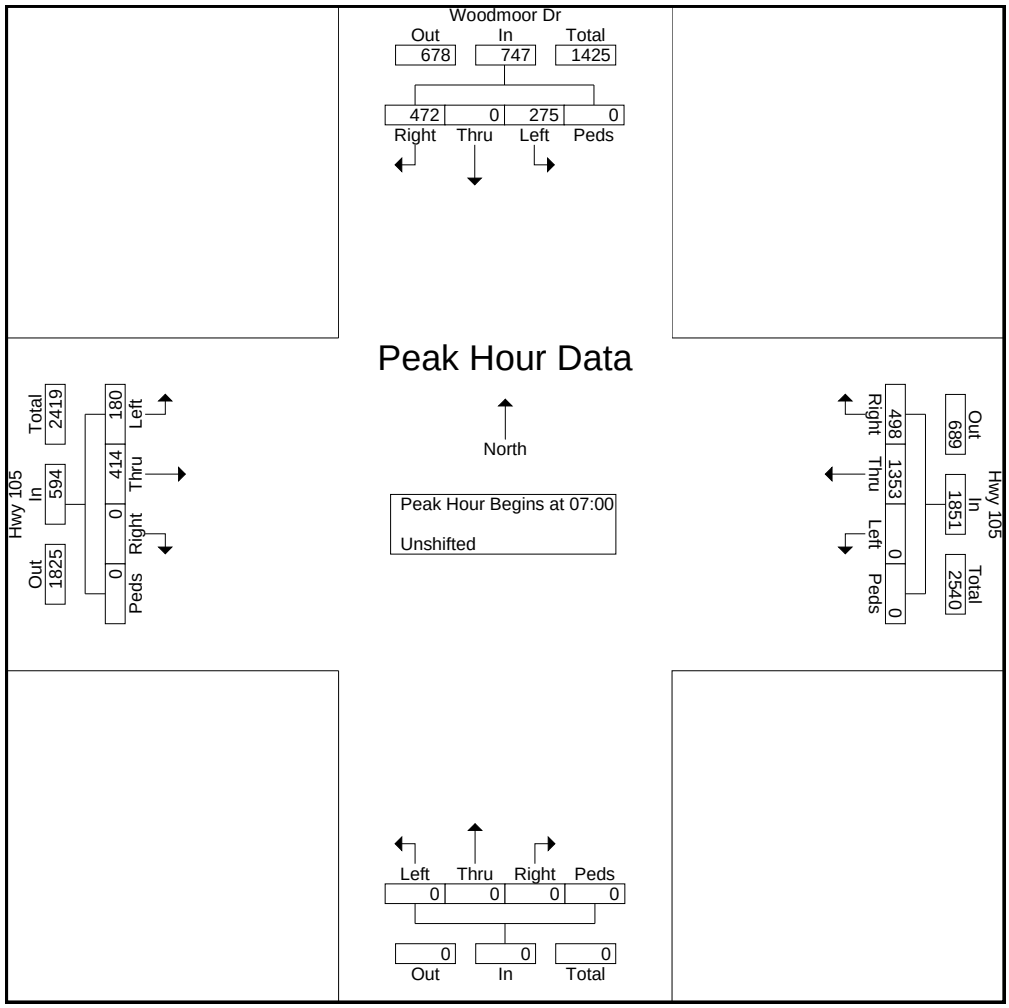
719-633-2868

File Name : Woodmoor Dr - Hwy 105 AM
Site Code : 174650
Start Date : 11/1/2018
Page No : 2

	Woodmoor Dr Southbound					Hwy 105 Westbound					Northbound					Hwy 105 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. 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	88	0	125	0	213	0	221	**204**	0	425	0	0	0	0	0	**69**	76	0	0	145	783
07:15	**104**	0	111	0	**215**	0	324	108	0	432	0	0	0	0	0	46	**128**	0	0	**174**	821
07:30	53	0	101	0	154	0	387	92	0	479	0	0	0	0	0	30	94	0	0	124	757
07:45	30	0	**135**	0	165	0	**421**	94	0	**515**	0	0	0	0	0	35	116	0	0	151	**831**
Total Volume	275	0	472	0	747	0	1353	498	0	1851	0	0	0	0	0	180	414	0	0	594	3192
% App. Total	36.8	0	63.2	0		0	73.1	26.9	0		0	0	0	0		30.3	69.7	0	0		
PHF	.661	.000	.874	.000	.869	.000	.803	.610	.000	.899	.000	.000	.000	.000	.000	.652	.809	.000	.000	.853	.960



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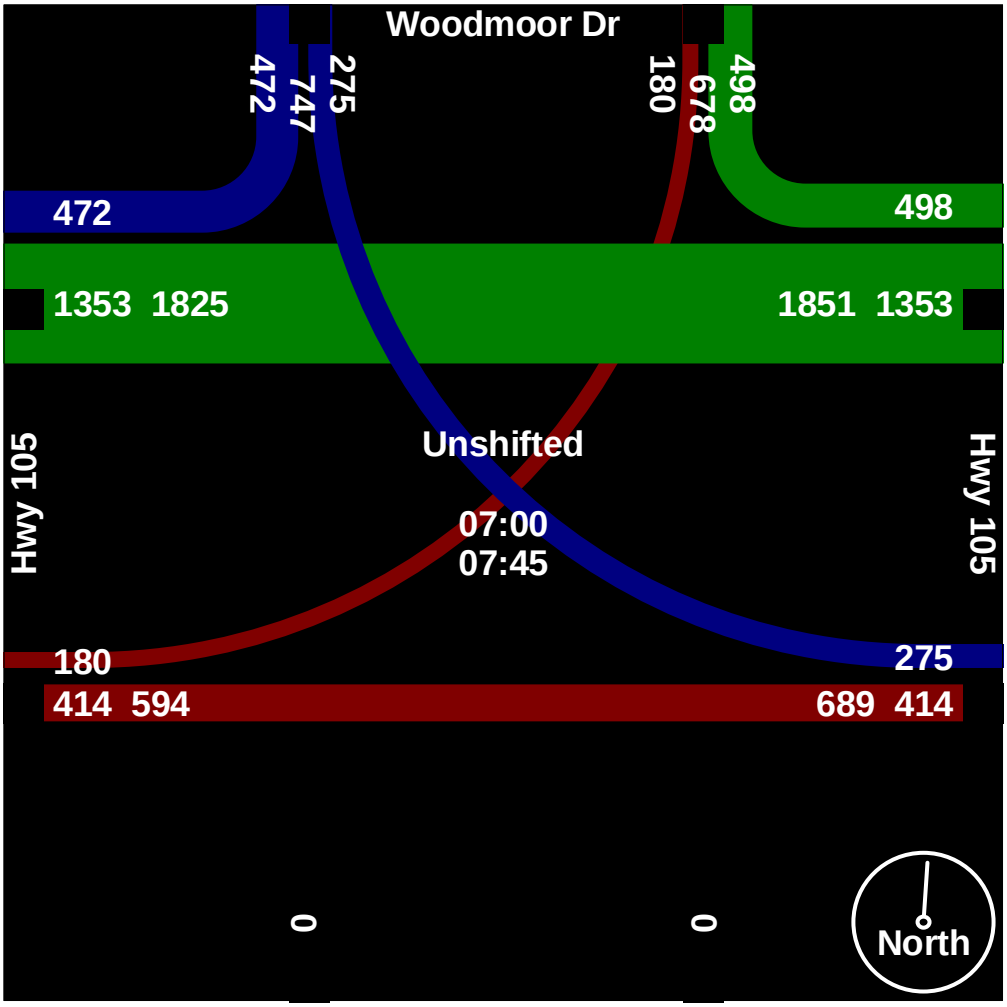
File Name : Woodmoor Dr - Hwy 105 AM
Site Code : 174650
Start Date : 11/1/2018
Page No : 3



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545 E Pikes Peak Ave, Suite 210
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719-633-2868

File Name : Woodmoor Dr - Hwy 105 PM
Site Code : 00174650
Start Date : 11/6/2018
Page No : 1

Groups Printed- Unshifted

	Woodmoor Dr Southbound				Hwy 105 Westbound				Northbound				Hwy 105 Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	75	0	141	0	0	277	104	0	0	0	0	0	62	160	0	0	819
16:15	43	0	122	0	0	280	109	0	0	0	0	0	64	158	0	0	776
16:30	66	0	142	0	0	269	112	0	0	0	0	0	64	162	0	0	815
16:45	75	0	127	0	0	278	110	0	0	0	0	0	60	199	0	0	849
Total	259	0	532	0	0	1104	435	0	0	0	0	0	250	679	0	0	3259
17:00	85	0	127	0	0	269	126	0	0	0	0	0	76	202	0	0	885
17:15	70	0	125	0	0	275	135	0	0	0	0	0	48	178	0	0	831
17:30	59	0	110	0	0	232	122	0	0	0	0	0	57	147	0	0	727
17:45	36	0	93	0	0	269	101	0	0	0	0	0	47	163	0	0	709
Total	250	0	455	0	0	1045	484	0	0	0	0	0	228	690	0	0	3152
Grand Total	509	0	987	0	0	2149	919	0	0	0	0	0	478	1369	0	0	6411
Apprch %	34	0	66	0	0	70	30	0	0	0	0	0	25.9	74.1	0	0	
Total %	7.9	0	15.4	0	0	33.5	14.3	0	0	0	0	0	7.5	21.4	0	0	

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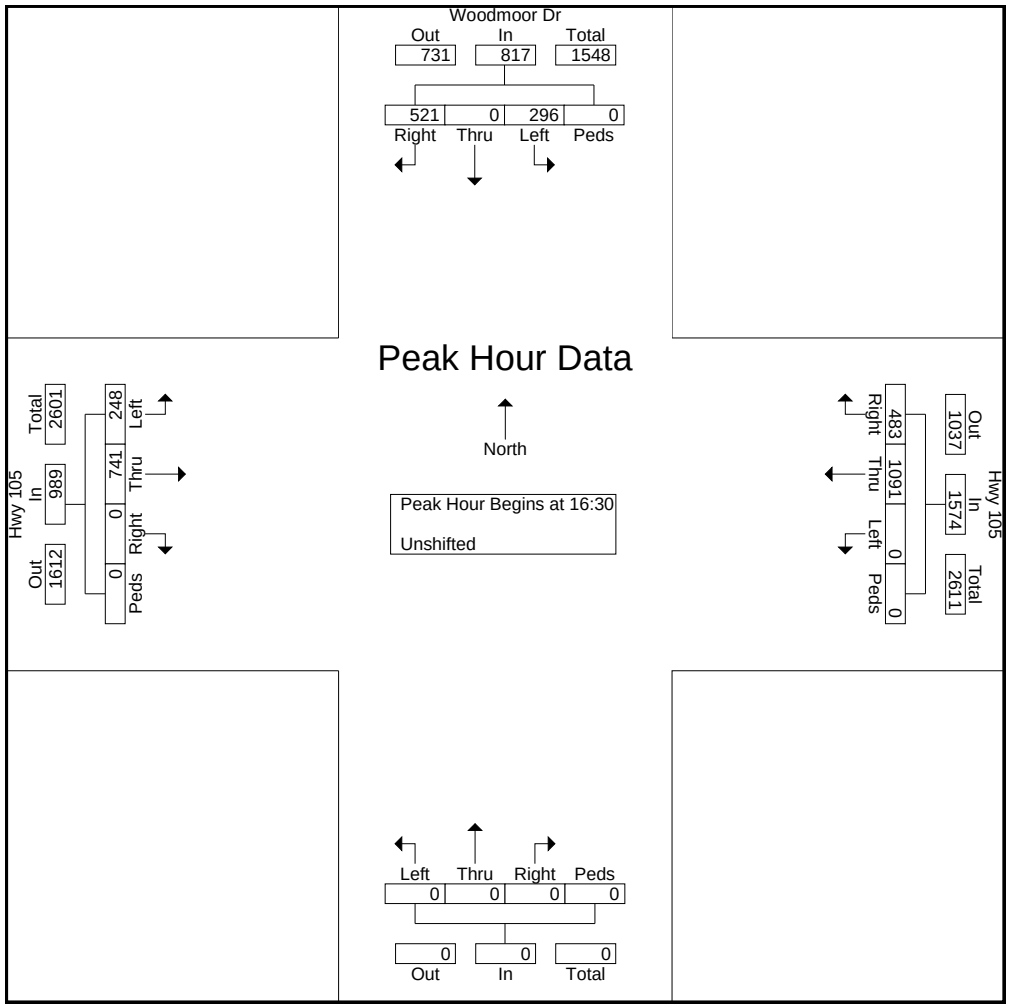
719-633-2868

File Name : Woodmoor Dr - Hwy 105 PM
Site Code : 00174650
Start Date : 11/6/2018
Page No : 2

	Woodmoor Dr Southbound					Hwy 105 Westbound					Northbound					Hwy 105 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	66	0	**142**	0	208	0	269	112	0	381	0	0	0	0	0	64	162	0	0	226	815
16:45	75	0	127	0	202	0	**278**	110	0	388	0	0	0	0	0	60	199	0	0	259	849
17:00	**85**	0	127	0	**212**	0	269	126	0	395	0	0	0	0	0	**76**	**202**	0	0	**278**	**885**
17:15	70	0	125	0	195	0	275	**135**	0	**410**	0	0	0	0	0	48	178	0	0	226	831
Total Volume	296	0	521	0	817	0	1091	483	0	1574	0	0	0	0	0	248	741	0	0	989	3380
% App. Total	36.2	0	63.8	0		0	69.3	30.7	0		0	0	0	0		25.1	74.9	0	0		
PHF	.871	.000	.917	.000	.963	.000	.981	.894	.000	.960	.000	.000	.000	.000	.000	.816	.917	.000	.000	.889	.955



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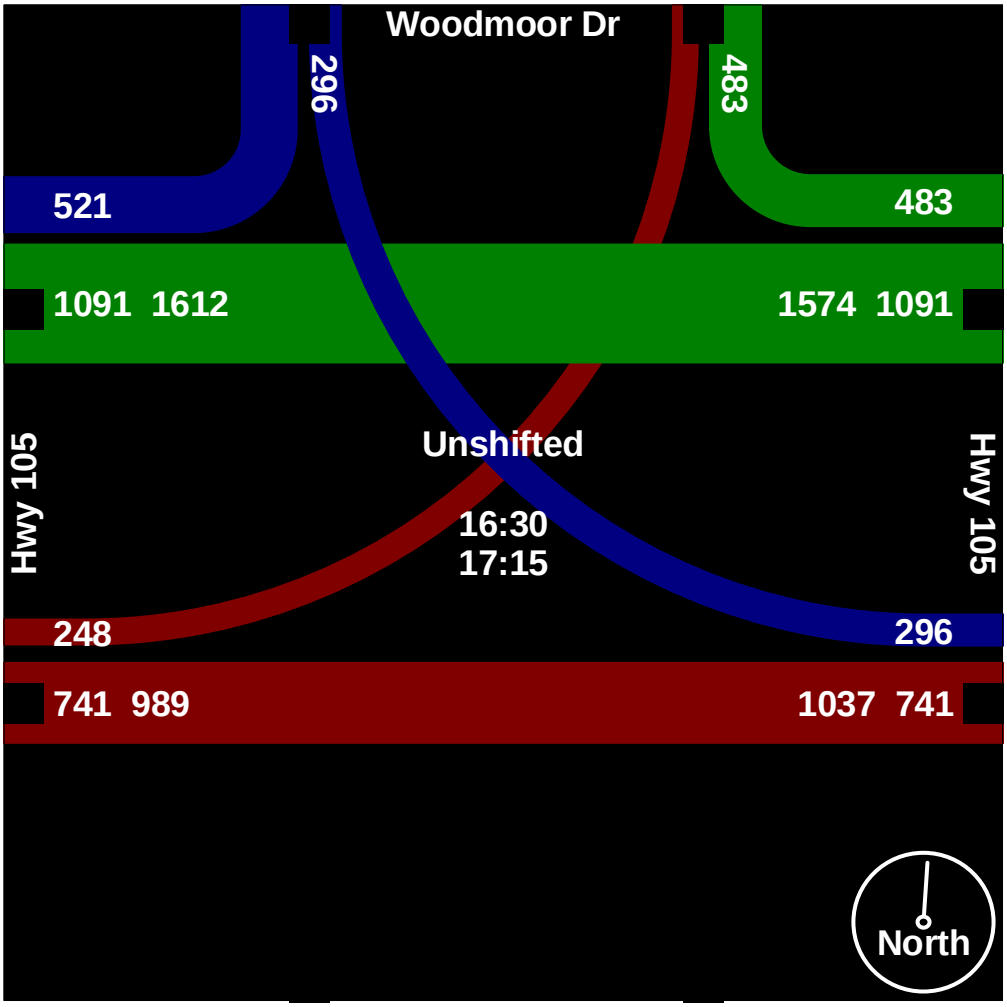
File Name : Woodmoor Dr - Hwy 105 PM
Site Code : 00174650
Start Date : 11/6/2018
Page No : 3



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET:
E/W STREET:
CITY:
COUNTY:

File Name : Woodmoor Dr - Lake Woodmoor Dr AM
Site Code : 00164800
Start Date : 3/8/2018
Page No : 1

Groups Printed- VEHICLES

	Woodmoor Dr Southbound				Lake Woodmoor Dr Westbound				Woodmoor Dr Northbound				Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	4	72	0	0	4	0	7	0	0	89	1	0	0	0	2	0	179
07:05 AM	3	65	0	0	4	0	3	0	0	96	3	0	0	0	0	0	174
07:10 AM	2	94	0	0	3	0	0	0	0	59	4	0	0	0	0	0	162
07:15 AM	4	79	0	0	3	0	2	0	0	73	5	0	0	0	0	0	166
07:20 AM	3	46	0	0	5	0	5	0	0	71	6	0	0	0	0	0	136
07:25 AM	2	42	0	0	5	0	7	0	0	54	10	0	0	0	0	0	120
07:30 AM	3	65	0	0	4	0	2	0	0	24	11	0	0	0	0	0	109
07:35 AM	7	47	0	0	4	0	2	0	0	31	7	0	0	0	0	0	98
07:40 AM	1	25	0	0	10	0	0	0	0	20	10	0	0	0	0	0	66
07:45 AM	3	38	0	0	10	0	1	0	0	27	11	0	0	0	0	0	90
07:50 AM	3	27	0	0	5	0	3	0	0	25	14	0	0	0	0	0	77
07:55 AM	1	24	0	0	10	0	1	0	0	37	10	0	0	0	0	0	83
Total	36	624	0	0	67	0	33	0	0	606	92	0	0	0	2	0	1460
08:00 AM	0	22	0	0	7	0	1	0	0	27	8	0	0	0	0	0	65
08:05 AM	6	28	0	0	7	0	0	0	0	21	7	0	0	0	0	0	69
08:10 AM	0	37	0	0	8	0	2	0	0	30	10	0	0	0	0	0	87
08:15 AM	2	23	0	0	7	0	0	0	0	22	9	0	0	0	0	0	63
08:20 AM	7	21	0	0	5	0	2	0	0	25	21	0	0	0	0	0	81
08:25 AM	5	22	0	0	6	0	0	0	0	21	12	0	0	0	0	0	66
08:30 AM	12	34	0	0	12	0	5	0	0	27	14	0	0	0	0	0	104
08:35 AM	8	30	0	0	24	0	9	0	0	18	17	0	0	0	0	0	106
08:40 AM	1	16	0	0	17	0	6	0	0	32	9	0	0	0	0	0	81
08:45 AM	7	22	0	0	10	0	4	0	0	48	19	0	0	0	0	0	110
08:50 AM	5	21	0	0	7	0	3	0	0	36	9	0	0	0	0	0	81
08:55 AM	2	26	0	0	16	0	5	0	0	36	6	0	0	0	0	0	91
Total	55	302	0	0	126	0	37	0	0	343	141	0	0	0	0	0	1004
09:00 AM	3	25	0	0	13	0	2	0	0	32	8	0	0	0	0	0	83
09:05 AM	4	32	0	0	13	0	2	0	0	22	9	0	0	0	0	0	82
09:10 AM	1	24	0	0	13	0	3	0	0	18	13	0	0	0	0	0	72
Grand Total	99	1007	0	0	232	0	77	0	0	1021	263	0	0	0	2	0	2701
Apprch %	9.0	91.0	0.0	0.0	75.1	0.0	24.9	0.0	0.0	79.5	20.5	0.0	0.0	0.0	100.0	0.0	
Total %	3.7	37.3	0.0	0.0	8.6	0.0	2.9	0.0	0.0	37.8	9.7	0.0	0.0	0.0	0.1	0.0	

LSC Transportation Consultants, Inc.
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719-633-2868

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

Groups Printed- Unshifted

	Woodmoor Dr Southbound					Lake Woodmoor Dr Westbound					Woodmoor Dr Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	6	173	1	0	180	46	0	23	0	69	2	144	53	0	199	1	0	3	0	4	452
16:15	10	116	0	0	126	39	0	5	0	44	0	125	60	0	185	0	0	0	0	0	355
16:30	8	165	1	0	174	37	0	5	0	42	1	113	39	0	153	0	0	2	0	2	371
16:45	15	132	0	0	147	41	0	12	0	53	0	93	63	0	156	0	0	0	0	0	356
Total	39	586	2	0	627	163	0	45	0	208	3	475	215	0	693	1	0	5	0	6	1534
17:00	11	143	1	0	155	52	0	16	0	68	4	126	55	0	185	0	0	4	0	4	412
17:15	7	129	0	0	136	40	0	8	0	48	0	116	64	0	180	0	0	0	0	0	364
17:30	8	146	0	0	154	46	0	11	0	57	2	149	51	1	203	0	0	2	0	2	416
17:45	9	113	0	0	122	40	0	16	0	56	0	170	50	0	220	0	0	0	0	0	398
Total	35	531	1	0	567	178	0	51	0	229	6	561	220	1	788	0	0	6	0	6	1590

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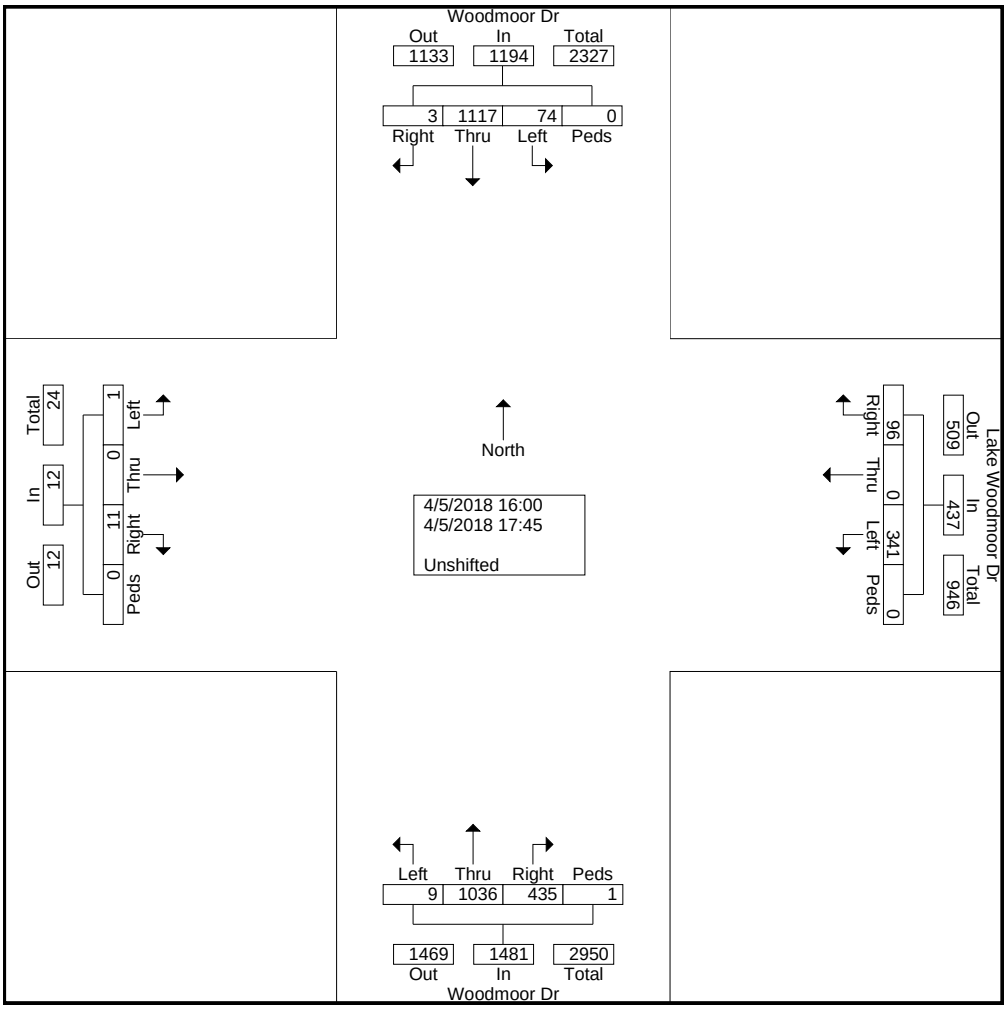
719-633-2868

Groups Printed- Unshifted

	Woodmoor Dr Southbound					Lake Woodmoor Dr Westbound					Woodmoor Dr Northbound					Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Grand Total	74	1117	3	0	1194	341	0	96	0	437	9	1036	435	1	1481	1	0	11	0	12	3124
Apprch %	6.2	93.6	0.3	0		78	0	22	0		0.6	70	29.4	0.1		8.3	0	91.7	0		
Total %	2.4	35.8	0.1	0	38.2	10.9	0	3.1	0	14	0.3	33.2	13.9	0	47.4	0	0	0.4	0	0.4	



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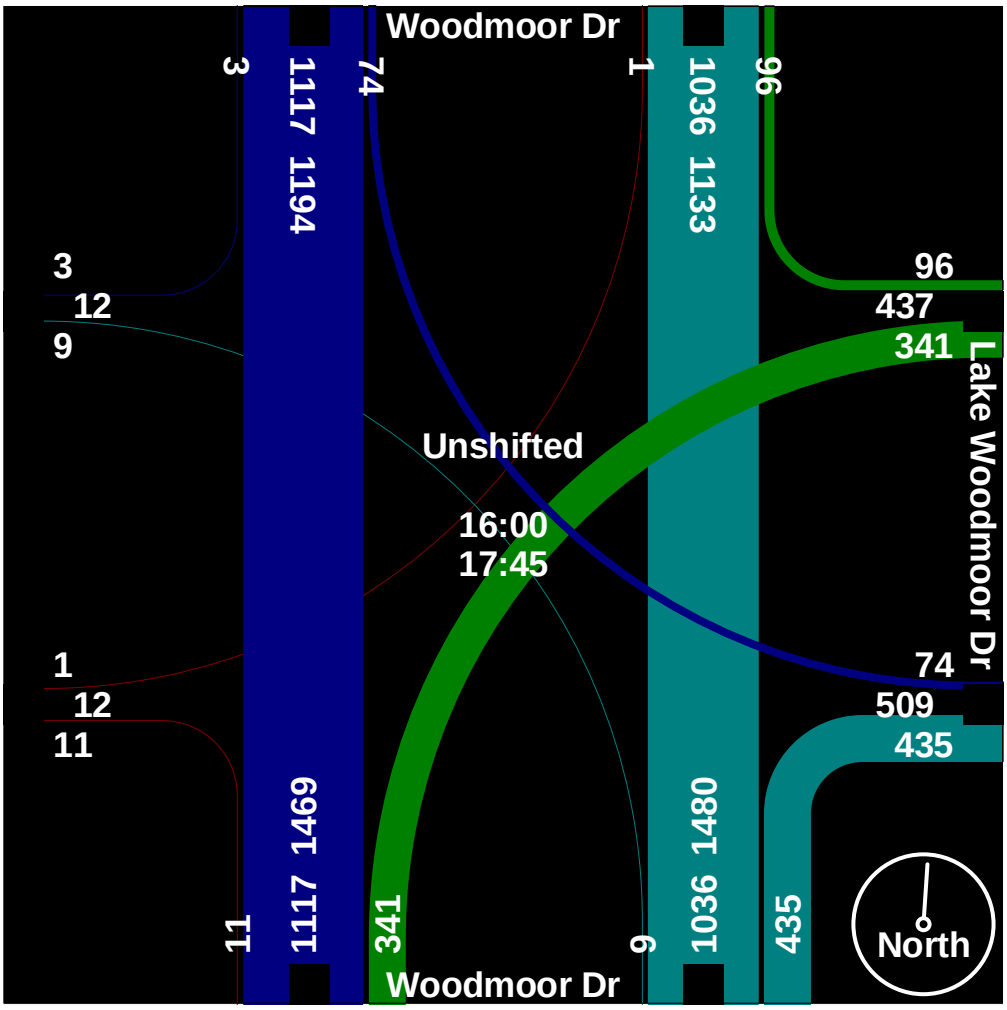

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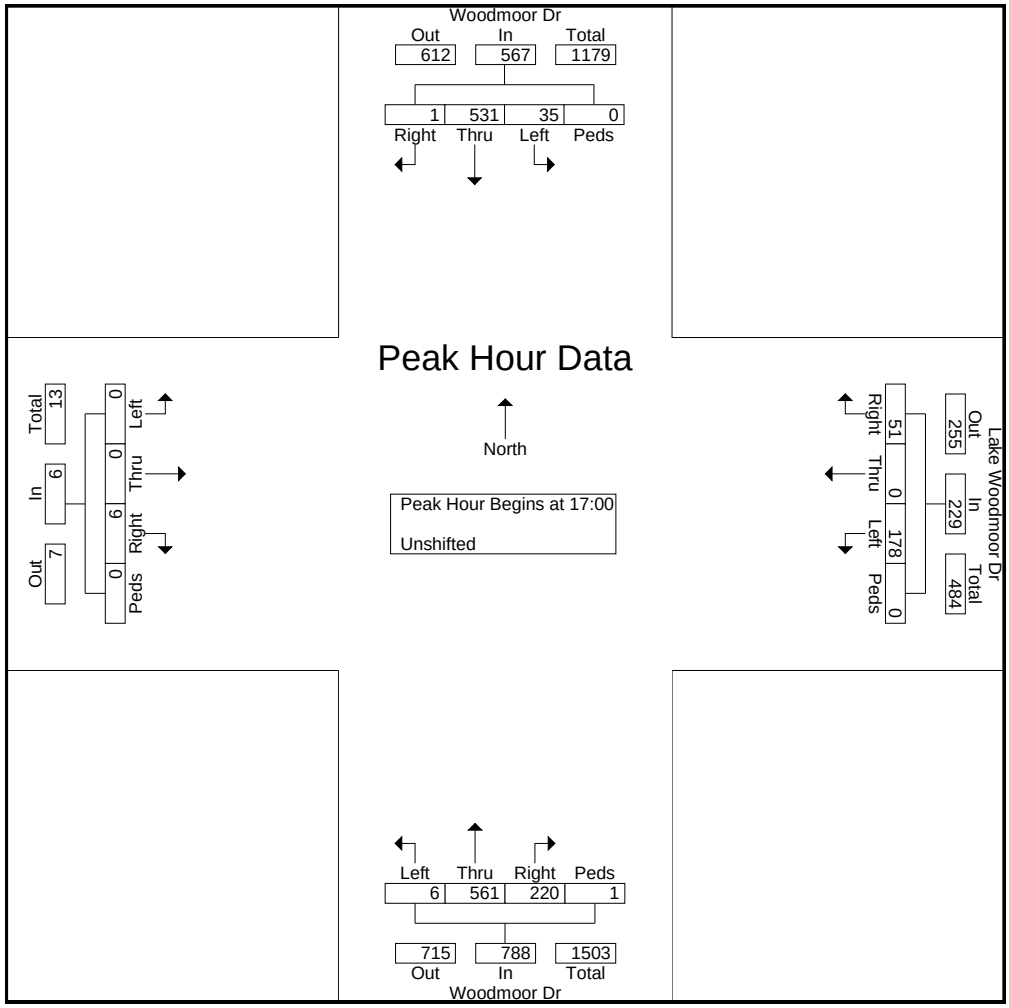
Colorado Springs, CO 80905
719-633-2868

	Woodmoor Dr Southbound					Lake Woodmoor Dr Westbound					Woodmoor Dr Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	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 5:00:00 PM																					
5:00:00 PM	**11**	143	**1**	0	**155**	**52**	0	**16**	0	**68**	**4**	126	55	0	185	0	0	**4**	0	**4**	412
5:15:00 PM	7	129	0	0	136	40	0	8	0	48	0	116	**64**	0	180	0	0	0	0	0	364
5:30:00 PM	8	**146**	0	0	154	46	0	11	0	57	2	149	51	**1**	203	0	0	2	0	2	**416**
5:45:00 PM	9	113	0	0	122	40	0	16	0	56	0	**170**	50	0	**220**	0	0	0	0	0	398
Total Volume	35	531	1	0	567	178	0	51	0	229	6	561	220	1	788	0	0	6	0	6	1590
% App. Total	6.2	93.7	0.2	0		77.7	0	22.3	0		0.8	71.2	27.9	0.1		0	0	100	0		
PHF	.795	.909	.250	.000	.915	.856	.000	.797	.000	.842	.375	.825	.859	.250	.895	.000	.000	.375	.000	.375	.956



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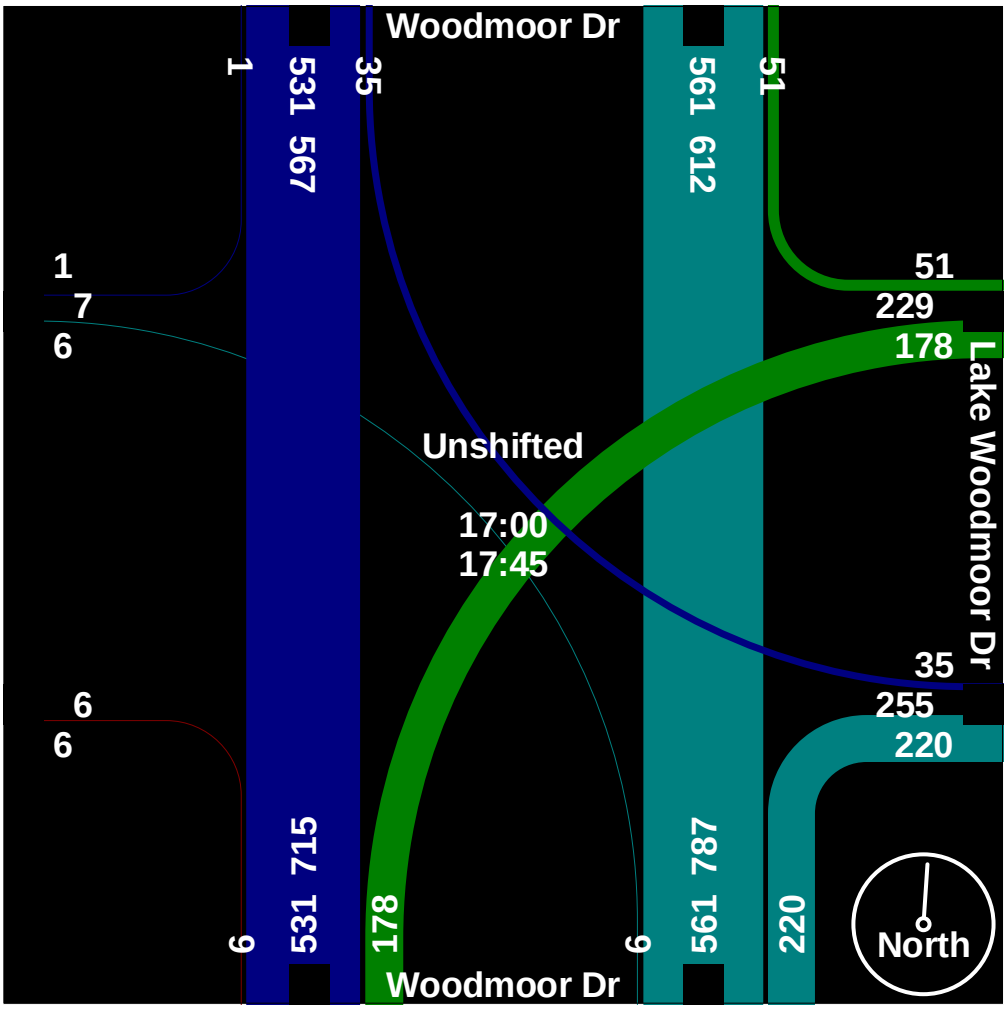

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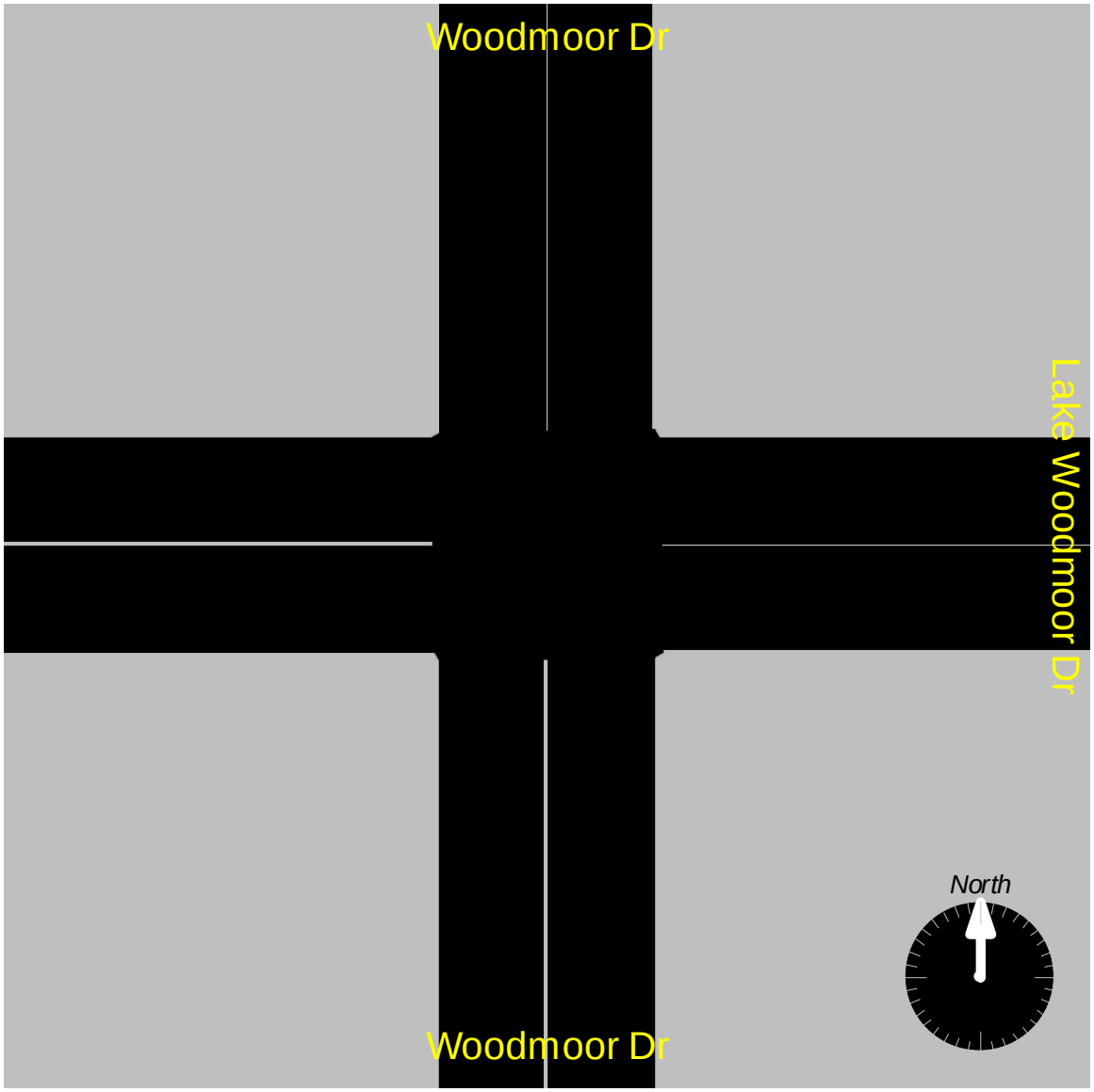
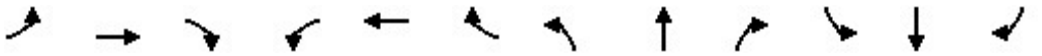


Levels of Service

TRANSPORTATION
CONSULTANTS, INC.

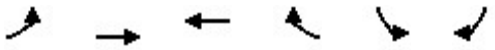


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	388	41	61	690	22	249	28	38	77	29	283
Future Volume (vph)	174	388	41	61	690	22	249	28	38	77	29	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	480		0	480		250	225		150	100		100
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.263			0.500			0.732			0.735		
Satd. Flow (perm)	490	1863	1583	931	3539	1583	1364	1863	1583	1369	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			73			85			301
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		350			892			688			748	
Travel Time (s)		5.3			13.5			15.6			17.0	
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.83	0.83	0.83	0.74	0.74	0.74
Adj. Flow (vph)	205	456	48	69	784	25	300	34	46	104	39	382
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	456	48	69	784	25	300	34	46	104	39	382
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	L NA	L NA	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	26.0	26.0	26.0	26.0	26.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (s)	14.0	59.0	59.0	45.0	45.0	45.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	15.6%	65.6%	65.6%	50.0%	50.0%	50.0%	34.4%	34.4%	34.4%	34.4%	34.4%	34.4%
Maximum Green (s)	10.0	53.0	53.0	39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	26.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	57.8	55.8	55.8	42.8	42.8	42.8	23.2	23.2	23.2	23.2	23.2	23.2
Actuated g/C Ratio	0.64	0.62	0.62	0.48	0.48	0.48	0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.46	0.39	0.05	0.16	0.47	0.03	0.85	0.07	0.10	0.30	0.08	0.61
Control Delay	6.9	6.5	0.5	16.5	17.9	0.1	54.7	24.1	1.9	28.2	24.2	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	6.5	0.5	16.5	17.9	0.1	54.7	24.1	1.9	28.2	24.2	11.0
LOS	A	A	A	B	B	A	D	C	A	C	C	B
Approach Delay		6.2			17.3			45.6			15.4	
Approach LOS		A			B			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 49 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Knollwood Dr & SH 105

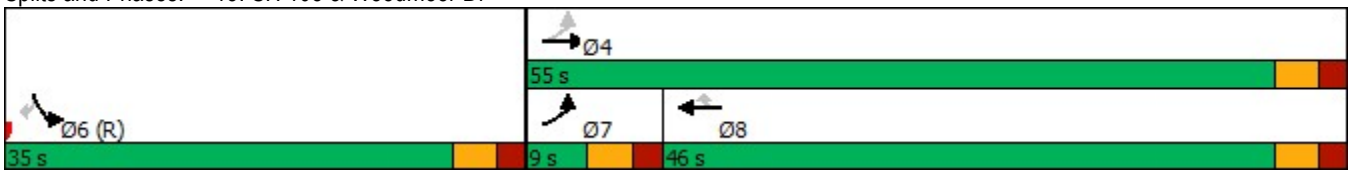


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	180	414	1353	500	275	475
Future Volume (vph)	180	414	1353	500	275	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			310	0	0
Storage Lanes	2			1	2	1
Taper Length (ft)	60				40	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.087				0.950	
Satd. Flow (perm)	314	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				556		108
Link Speed (mph)		45	45		30	
Link Distance (ft)		1430	956		362	
Travel Time (s)		21.7	14.5		8.2	
Peak Hour Factor	0.85	0.85	0.90	0.90	0.87	0.87
Adj. Flow (vph)	212	487	1503	556	316	546
Shared Lane Traffic (%)						
Lane Group Flow (vph)	212	487	1503	556	316	546
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	9.0	55.0	46.0	46.0	35.0	35.0
Total Split (%)	10.0%	61.1%	51.1%	51.1%	38.9%	38.9%
Maximum Green (s)	4.0	50.0	41.0	41.0	30.0	30.0
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		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	50.0	50.0	41.0	41.0	30.0	30.0
Actuated g/C Ratio	0.56	0.56	0.46	0.46	0.33	0.33
v/c Ratio	0.68	0.25	0.93	0.54	0.28	0.91
Control Delay	21.6	10.7	32.9	4.4	22.8	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	10.7	32.9	4.4	22.8	45.0
LOS	C	B	C	A	C	D
Approach Delay		14.0	25.2		36.9	
Approach LOS		B	C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 13: SH 105 & Woodmoor Dr



Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	2	71	0	34	0	606	94	36	624	0
Future Vol, veh/h	0	0	2	71	0	34	0	606	94	36	624	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	-	-	-	120	-	0	-	-	-	110	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	83	83	83	89	89	89	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	86	0	41	0	681	106	52	904	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1349	1795	452	1290	-	394	904	0	0	787	0	0
Stage 1	1008	1008	-	734	-	-	-	-	-	-	-	-
Stage 2	341	787	-	556	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	109	80	555	121	0	605	748	-	-	828	-	-
Stage 1	258	316	-	378	0	-	-	-	-	-	-	-
Stage 2	647	401	-	483	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	97	75	555	114	-	605	748	-	-	828	-	-
Mov Cap-2 Maneuver	97	75	-	114	-	-	-	-	-	-	-	-
Stage 1	258	296	-	378	-	-	-	-	-	-	-	-
Stage 2	603	401	-	448	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	70	0	0.5
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	748	-	-	555	114	605	828	-	-
HCM Lane V/C Ratio	-	-	-	0.009	0.75	0.068	0.063	-	-
HCM Control Delay (s)	0	-	-	11.5	98	11.4	9.6	-	-
HCM Lane LOS	A	-	-	B	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	4.2	0.2	0.2	-	-

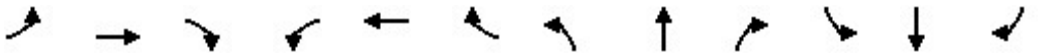
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	64	7	3	192	0	0	0	4	18	0	3
Future Vol, veh/h	0	64	7	3	192	0	0	0	4	18	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	88	88	88	67	67	67	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	128	14	3	218	0	0	0	6	24	0	4

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	218	0	0	142	0	0	361	366	218	362	359	135
Stage 1	-	-	-	-	-	-	224	224	-	135	135	-
Stage 2	-	-	-	-	-	-	137	142	-	227	224	-
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	1352	-	-	1441	-	-	595	562	822	594	568	914
Stage 1	-	-	-	-	-	-	779	718	-	868	785	-
Stage 2	-	-	-	-	-	-	866	779	-	776	718	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1352	-	-	1441	-	-	591	561	822	589	567	914
Mov Cap-2 Maneuver	-	-	-	-	-	-	591	561	-	589	567	-
Stage 1	-	-	-	-	-	-	779	717	-	868	785	-
Stage 2	-	-	-	-	-	-	862	779	-	769	717	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0	0.1	9.4	11.1
HCM LOS			A	B

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	621	1352	-	-	1441	-	-	822
HCM Lane V/C Ratio	0.044	-	-	-	0.002	-	-	0.007
HCM Control Delay (s)	11.1	0	-	-	7.5	0	-	9.4
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

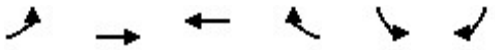


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	603	134	65	347	14	148	41	99	19	27	99
Future Volume (vph)	165	603	134	65	347	14	148	41	99	19	27	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	480		0	480		250	225		150	100		100
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.483			0.424			0.739			0.724		
Satd. Flow (perm)	900	1863	1583	790	3539	1583	1377	1863	1583	1349	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141			65			122			101
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		350			892			688			760	
Travel Time (s)		5.3			13.5			15.6			17.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.81	0.81	0.81	0.98	0.98	0.98
Adj. Flow (vph)	174	635	141	75	399	16	183	51	122	19	28	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	635	141	75	399	16	183	51	122	19	28	101
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	L NA	L NA	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.0	26.0	26.0	26.0	26.0	26.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	64.0	64.0	43.0	43.0	43.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	13.0%	64.0%	64.0%	43.0%	43.0%	43.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Maximum Green (s)	9.0	58.0	58.0	37.0	37.0	37.0	31.0	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	72.3	70.3	70.3	57.5	57.5	57.5	18.7	18.7	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.72	0.70	0.70	0.58	0.58	0.58	0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.24	0.49	0.12	0.17	0.20	0.02	0.71	0.15	0.31	0.08	0.08	0.27
Control Delay	5.4	7.6	2.1	13.8	11.8	0.0	52.3	32.2	7.8	30.8	31.0	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	7.6	2.1	13.8	11.8	0.0	52.3	32.2	7.8	30.8	31.0	8.0
LOS	A	A	A	B	B	A	D	C	A	C	C	A
Approach Delay		6.3			11.8			34.2			15.3	
Approach LOS		A			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Knollwood Dr & SH 105

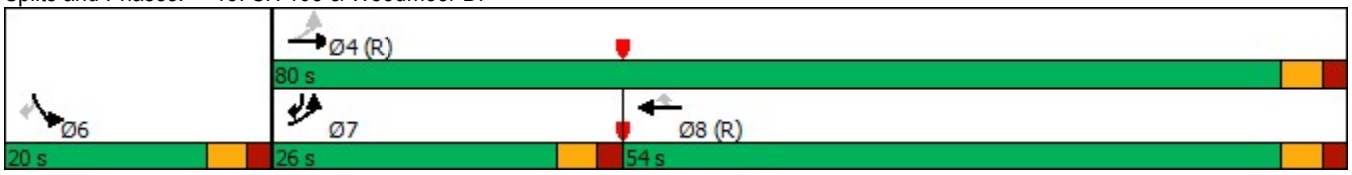


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	249	741	1091	486	296	521
Future Volume (vph)	249	741	1091	486	296	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			310	0	0
Storage Lanes	2			1	2	1
Taper Length (ft)	60				40	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.143				0.950	
Satd. Flow (perm)	517	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				506		49
Link Speed (mph)		45	45		30	
Link Distance (ft)		1430	956		362	
Travel Time (s)		21.7	14.5		8.2	
Peak Hour Factor	0.89	0.89	0.96	0.96	0.96	0.96
Adj. Flow (vph)	280	833	1136	506	308	543
Shared Lane Traffic (%)						
Lane Group Flow (vph)	280	833	1136	506	308	543
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases	4			8		6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	7
Switch Phase						
Minimum Initial (s)	8.0	20.0	20.0	20.0	8.0	8.0
Minimum Split (s)	15.0	26.0	26.0	26.0	15.0	15.0
Total Split (s)	26.0	80.0	54.0	54.0	20.0	26.0
Total Split (%)	26.0%	80.0%	54.0%	54.0%	20.0%	26.0%
Maximum Green (s)	21.0	75.0	49.0	49.0	15.0	21.0
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
Lead-Lag Optimize?	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	None
Act Effct Green (s)	75.0	75.0	51.4	51.4	15.0	38.6
Actuated g/C Ratio	0.75	0.75	0.51	0.51	0.15	0.39
v/c Ratio	0.30	0.31	0.62	0.48	0.60	0.85
Control Delay	4.3	4.4	23.7	6.7	45.1	38.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	4.4	23.7	6.7	45.1	38.8
LOS	A	A	C	A	D	D
Approach Delay		4.4	18.4		41.1	
Approach LOS		A	B		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 19.5		Intersection LOS: B	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 13: SH 105 & Woodmoor Dr



Intersection	
Int Delay, s/veh	65.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	180	0	51	6	561	224	35	531	1
Future Vol, veh/h	0	0	0	180	0	51	6	561	224	35	531	1
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	-	-	-	120	-	0	-	-	-	110	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	84	84	84	69	69	69	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	214	0	61	9	813	325	38	584	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1085	1816	292	1362	-	569	585	0	0	1138	0	0
Stage 1	660	660	-	994	-	-	-	-	-	-	-	-
Stage 2	425	1156	-	368	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	171	77	704	~ 107	0	465	986	-	-	610	-	-
Stage 1	418	458	-	263	0	-	-	-	-	-	-	-
Stage 2	578	269	-	624	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	139	70	704	~ 100	-	465	986	-	-	610	-	-
Mov Cap-2 Maneuver	139	70	-	~ 100	-	-	-	-	-	-	-	-
Stage 1	406	430	-	256	-	-	-	-	-	-	-	-
Stage 2	488	261	-	585	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	$ 482.8	0.1	0.7
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	986	-	-	-	100	465	610	-	-
HCM Lane V/C Ratio	0.009	-	-	-	2.143	0.131	0.063	-	-
HCM Control Delay (s)	8.7	0.1	-	0	$ 615.7	13.9	11.3	-	-
HCM Lane LOS	A	A	-	A	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	18.6	0.4	0.2	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	172	11	1	91	0	0	0	2	13	0	0
Future Vol, veh/h	3	172	11	1	91	0	0	0	2	13	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	65	65	65	91	91	91	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	688	44	2	140	0	0	0	2	17	0	0

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	140	0	0	732	0	0	878	900	140	879	878	710
Stage 1	-	-	-	-	-	-	144	144	-	734	734	-
Stage 2	-	-	-	-	-	-	734	756	-	145	144	-
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	1443	-	-	873	-	-	268	278	908	268	287	434
Stage 1	-	-	-	-	-	-	859	778	-	412	426	-
Stage 2	-	-	-	-	-	-	412	416	-	858	778	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1443	-	-	873	-	-	265	274	908	264	282	434
Mov Cap-2 Maneuver	-	-	-	-	-	-	265	274	-	264	282	-
Stage 1	-	-	-	-	-	-	847	776	-	406	420	-
Stage 2	-	-	-	-	-	-	406	410	-	854	776	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.1	0.1	9	19.6
HCM LOS			A	C

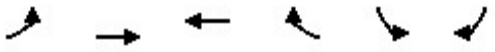
Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	264	1443	-	-	873	-	-	908
HCM Lane V/C Ratio	0.064	0.008	-	-	0.002	-	-	0.002
HCM Control Delay (s)	19.6	7.5	0	-	9.1	0	-	9
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	388	41	61	690	22	249	28	38	78	29	290
Future Volume (vph)	175	388	41	61	690	22	249	28	38	78	29	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	480		0	480		250	225		150	100		100
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.263			0.500			0.732			0.735		
Satd. Flow (perm)	490	1863	1583	931	3539	1583	1364	1863	1583	1369	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			73			85			301
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		350			892			688			757	
Travel Time (s)		5.3			13.5			15.6			17.2	
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.83	0.83	0.83	0.74	0.74	0.74
Adj. Flow (vph)	206	456	48	69	784	25	300	34	46	105	39	392
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	456	48	69	784	25	300	34	46	105	39	392
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	L NA	L NA	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	26.0	26.0	26.0	26.0	26.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (s)	14.0	59.0	59.0	45.0	45.0	45.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	15.6%	65.6%	65.6%	50.0%	50.0%	50.0%	34.4%	34.4%	34.4%	34.4%	34.4%	34.4%
Maximum Green (s)	10.0	53.0	53.0	39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	26.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	57.8	55.8	55.8	42.8	42.8	42.8	23.2	23.2	23.2	23.2	23.2	23.2
Actuated g/C Ratio	0.64	0.62	0.62	0.48	0.48	0.48	0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.47	0.39	0.05	0.16	0.47	0.03	0.85	0.07	0.10	0.30	0.08	0.62
Control Delay	7.0	6.5	0.5	16.5	17.9	0.1	54.7	24.1	1.9	28.3	24.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	6.5	0.5	16.5	17.9	0.1	54.7	24.1	1.9	28.3	24.2	11.8
LOS	A	A	A	B	B	A	D	C	A	C	C	B
Approach Delay		6.3			17.3			45.6			15.9	
Approach LOS		A			B			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 49 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 18.2		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Knollwood Dr & SH 105

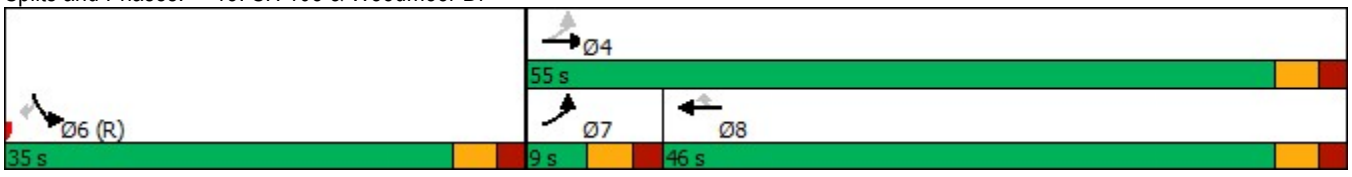


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	180	414	1354	500	275	474
Future Volume (vph)	180	414	1354	500	275	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			310	0	0
Storage Lanes	2			1	2	1
Taper Length (ft)	60				40	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.087				0.950	
Satd. Flow (perm)	314	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				556		108
Link Speed (mph)		45	45		30	
Link Distance (ft)		1430	956		362	
Travel Time (s)		21.7	14.5		8.2	
Peak Hour Factor	0.85	0.85	0.90	0.90	0.87	0.87
Adj. Flow (vph)	212	487	1504	556	316	545
Shared Lane Traffic (%)						
Lane Group Flow (vph)	212	487	1504	556	316	545
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	9.0	55.0	46.0	46.0	35.0	35.0
Total Split (%)	10.0%	61.1%	51.1%	51.1%	38.9%	38.9%
Maximum Green (s)	4.0	50.0	41.0	41.0	30.0	30.0
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		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	50.0	50.0	41.0	41.0	30.0	30.0
Actuated g/C Ratio	0.56	0.56	0.46	0.46	0.33	0.33
v/c Ratio	0.68	0.25	0.93	0.54	0.28	0.91
Control Delay	21.6	10.7	33.0	4.3	22.8	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	10.7	33.0	4.3	22.8	44.8
LOS	C	B	C	A	C	D
Approach Delay		14.0	25.3		36.7	
Approach LOS		B	C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 13: SH 105 & Woodmoor Dr



Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	2	70	0	34	0	606	94	36	624	0
Future Vol, veh/h	0	0	2	70	0	34	0	606	94	36	624	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	-	-	-	120	-	0	-	-	-	110	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	83	83	83	89	89	89	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	84	0	41	0	681	106	52	904	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1349	1795	452	1290	-	394	904	0	0	787	0	0
Stage 1	1008	1008	-	734	-	-	-	-	-	-	-	-
Stage 2	341	787	-	556	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	109	80	555	121	0	605	748	-	-	828	-	-
Stage 1	258	316	-	378	0	-	-	-	-	-	-	-
Stage 2	647	401	-	483	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	97	75	555	114	-	605	748	-	-	828	-	-
Mov Cap-2 Maneuver	97	75	-	114	-	-	-	-	-	-	-	-
Stage 1	258	296	-	378	-	-	-	-	-	-	-	-
Stage 2	603	401	-	448	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	68.4	0	0.5
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	748	-	-	555	114	605	828	-	-
HCM Lane V/C Ratio	-	-	-	0.009	0.74	0.068	0.063	-	-
HCM Control Delay (s)	0	-	-	11.5	96.1	11.4	9.6	-	-
HCM Lane LOS	A	-	-	B	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	4.1	0.2	0.2	-	-

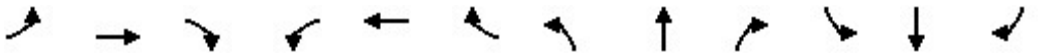
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	63	7	3	191	0	0	0	7	18	0	3
Future Vol, veh/h	1	63	7	3	191	0	0	0	7	18	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	88	88	88	67	67	67	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	126	14	3	217	0	0	0	10	24	0	4

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	217	0	0	140	0	0	362	367	217	365	360	133
Stage 1	-	-	-	-	-	-	223	223	-	137	137	-
Stage 2	-	-	-	-	-	-	139	144	-	228	223	-
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	1353	-	-	1443	-	-	594	562	823	591	567	916
Stage 1	-	-	-	-	-	-	780	719	-	866	783	-
Stage 2	-	-	-	-	-	-	864	778	-	775	719	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1353	-	-	1443	-	-	590	560	823	582	565	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	560	-	582	565	-
Stage 1	-	-	-	-	-	-	778	718	-	864	781	-
Stage 2	-	-	-	-	-	-	859	776	-	764	718	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.1	0.1	9.4	11.1
HCM LOS			A	B

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	614	1353	-	-	1443	-	-	823
HCM Lane V/C Ratio	0.045	0.001	-	-	0.002	-	-	0.013
HCM Control Delay (s)	11.1	7.7	0	-	7.5	0	-	9.4
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

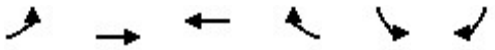


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	603	134	65	347	15	148	41	99	20	27	101
Future Volume (vph)	167	603	134	65	347	15	148	41	99	20	27	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	480		0	480		250	225		150	100		100
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.483			0.424			0.739			0.724		
Satd. Flow (perm)	900	1863	1583	790	3539	1583	1377	1863	1583	1349	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141			65			122			103
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		350			892			688			760	
Travel Time (s)		5.3			13.5			15.6			17.3	
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.81	0.81	0.81	0.98	0.98	0.98
Adj. Flow (vph)	176	635	141	75	399	17	183	51	122	20	28	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	635	141	75	399	17	183	51	122	20	28	103
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	L NA	L NA	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.0	26.0	26.0	26.0	26.0	26.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	64.0	64.0	43.0	43.0	43.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	13.0%	64.0%	64.0%	43.0%	43.0%	43.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Maximum Green (s)	9.0	58.0	58.0	37.0	37.0	37.0	31.0	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	72.3	70.3	70.3	57.4	57.4	57.4	18.7	18.7	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.72	0.70	0.70	0.57	0.57	0.57	0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.24	0.49	0.12	0.17	0.20	0.02	0.71	0.15	0.31	0.08	0.08	0.27
Control Delay	5.4	7.6	2.0	13.9	11.9	0.1	52.3	32.2	7.8	31.0	31.0	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	7.6	2.0	13.9	11.9	0.1	52.3	32.2	7.8	31.0	31.0	8.0
LOS	A	A	A	B	B	A	D	C	A	C	C	A
Approach Delay		6.3			11.8			34.2			15.3	
Approach LOS		A			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Knollwood Dr & SH 105

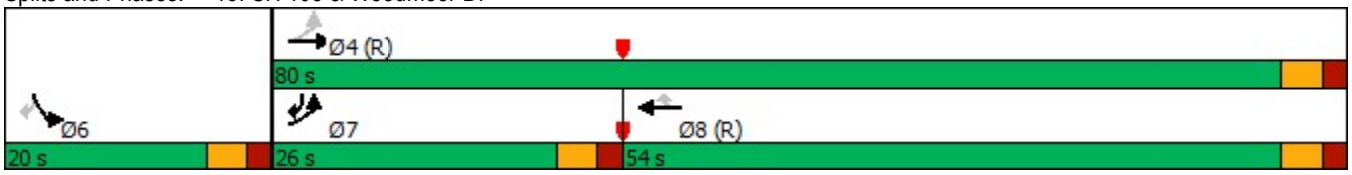


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	249	741	1092	485	295	520
Future Volume (vph)	249	741	1092	485	295	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			310	0	0
Storage Lanes	2			1	2	1
Taper Length (ft)	60				40	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.142				0.950	
Satd. Flow (perm)	513	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				505		48
Link Speed (mph)		45	45		30	
Link Distance (ft)		1430	956		362	
Travel Time (s)		21.7	14.5		8.2	
Peak Hour Factor	0.89	0.89	0.96	0.96	0.96	0.96
Adj. Flow (vph)	280	833	1138	505	307	542
Shared Lane Traffic (%)						
Lane Group Flow (vph)	280	833	1138	505	307	542
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases	4			8		6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	7
Switch Phase						
Minimum Initial (s)	8.0	20.0	20.0	20.0	8.0	8.0
Minimum Split (s)	15.0	26.0	26.0	26.0	15.0	15.0
Total Split (s)	26.0	80.0	54.0	54.0	20.0	26.0
Total Split (%)	26.0%	80.0%	54.0%	54.0%	20.0%	26.0%
Maximum Green (s)	21.0	75.0	49.0	49.0	15.0	21.0
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
Lead-Lag Optimize?	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	None
Act Effct Green (s)	75.0	75.0	51.4	51.4	15.0	38.6
Actuated g/C Ratio	0.75	0.75	0.51	0.51	0.15	0.39
v/c Ratio	0.30	0.31	0.63	0.48	0.60	0.85
Control Delay	4.3	4.4	23.7	6.7	45.1	38.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	4.4	23.7	6.7	45.1	38.9
LOS	A	A	C	A	D	D
Approach Delay		4.4	18.4		41.1	
Approach LOS		A	B		D	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 19.4	Intersection LOS: B
Intersection Capacity Utilization 70.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 13: SH 105 & Woodmoor Dr



Intersection	
Int Delay, s/veh	23.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	179	0	51	6	561	223	35	531	1
Future Vol, veh/h	0	0	0	179	0	51	6	561	223	35	531	1
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	-	-	-	120	-	0	-	-	-	110	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	92	92	92	93	93	93	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	195	0	55	6	603	240	38	577	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	967	1508	289	1100	-	422	578	0	0	843	0	0
Stage 1	653	653	-	735	-	-	-	-	-	-	-	-
Stage 2	314	855	-	365	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	209	120	708	~ 167	0	580	992	-	-	789	-	-
Stage 1	423	462	-	377	0	-	-	-	-	-	-	-
Stage 2	671	373	-	627	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	180	113	708	~ 159	-	580	992	-	-	789	-	-
Mov Cap-2 Maneuver	180	113	-	~ 159	-	-	-	-	-	-	-	-
Stage 1	418	440	-	372	-	-	-	-	-	-	-	-
Stage 2	600	369	-	597	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	158.6	0.1	0.6
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	992	-	-	-	159	580	789	-	-
HCM Lane V/C Ratio	0.007	-	-	-	1.224	0.096	0.048	-	-
HCM Control Delay (s)	8.7	0.1	-	0	200.4	11.9	9.8	-	-
HCM Lane LOS	A	A	-	A	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	11	0.3	0.2	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	172	11	1	91	0	0	0	4	13	0	0
Future Vol, veh/h	5	172	11	1	91	0	0	0	4	13	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	65	65	65	91	91	91	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	688	44	2	140	0	0	0	4	17	0	0

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	140	0	0	732	0	0	894	916	140	896	894	710
Stage 1	-	-	-	-	-	-	144	144	-	750	750	-
Stage 2	-	-	-	-	-	-	750	772	-	146	144	-
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	1443	-	-	873	-	-	262	272	908	261	280	434
Stage 1	-	-	-	-	-	-	859	778	-	403	419	-
Stage 2	-	-	-	-	-	-	403	409	-	857	778	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1443	-	-	873	-	-	257	265	908	254	273	434
Mov Cap-2 Maneuver	-	-	-	-	-	-	257	265	-	254	273	-
Stage 1	-	-	-	-	-	-	838	776	-	393	409	-
Stage 2	-	-	-	-	-	-	393	399	-	851	776	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.2	0.1	9	20.2
HCM LOS			A	C

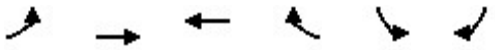
Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	254	1443	-	-	873	-	-	908
HCM Lane V/C Ratio	0.066	0.014	-	-	0.002	-	-	0.005
HCM Control Delay (s)	20.2	7.5	0	-	9.1	0	-	9
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	500	200	75	1070	85	95	40	75	100	50	325
Future Volume (vph)	200	500	200	75	1070	85	95	40	75	100	50	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	480		0	480		250	225		150	100		100
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.175			0.469			0.722			0.730		
Satd. Flow (perm)	326	1863	1583	874	3539	1583	1345	1863	1583	1360	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			211			89			85			249
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		350			892			688			771	
Travel Time (s)		5.3			13.5			15.6			17.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	526	211	79	1126	89	100	42	79	105	53	342
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	526	211	79	1126	89	100	42	79	105	53	342
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	L NA	L NA	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	26.0	26.0	26.0	26.0	26.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (s)	14.0	59.0	59.0	45.0	45.0	45.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	15.6%	65.6%	65.6%	50.0%	50.0%	50.0%	34.4%	34.4%	34.4%	34.4%	34.4%	34.4%
Maximum Green (s)	10.0	53.0	53.0	39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	26.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	66.7	64.7	64.7	51.3	51.3	51.3	14.3	14.3	14.3	14.3	14.3	14.3
Actuated g/C Ratio	0.74	0.72	0.72	0.57	0.57	0.57	0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.54	0.39	0.18	0.16	0.56	0.09	0.47	0.14	0.24	0.49	0.18	0.74
Control Delay	10.9	3.2	0.3	13.2	15.3	3.5	39.7	30.6	7.9	40.3	31.3	20.1
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	10.9	3.2	0.3	13.2	15.3	3.5	39.7	30.6	7.9	40.3	31.3	20.1
LOS	B	A	A	B	B	A	D	C	A	D	C	C
Approach Delay		4.3			14.3			26.6			25.6	
Approach LOS		A			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 49 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Knollwood Dr & SH 105

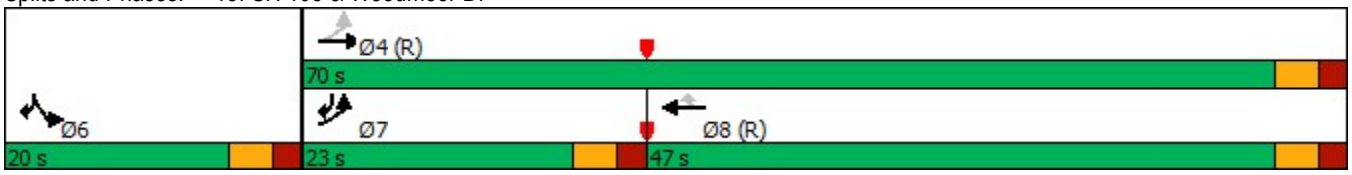


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	335	630	1500	580	335	585
Future Volume (vph)	335	630	1500	580	335	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			310	0	0
Storage Lanes	2			1	2	1
Taper Length (ft)	60				40	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.085				0.950	
Satd. Flow (perm)	307	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				587		10
Link Speed (mph)		45	45		30	
Link Distance (ft)		1430	956		362	
Travel Time (s)		21.7	14.5		8.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	353	663	1579	611	353	616
Shared Lane Traffic (%)						
Lane Group Flow (vph)	353	663	1579	611	353	616
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pt+ov
Protected Phases	7	4	8		6	6 7
Permitted Phases	4			8		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6 7
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	70.0	47.0	47.0	20.0	
Total Split (%)	25.6%	77.8%	52.2%	52.2%	22.2%	
Maximum Green (s)	18.0	65.0	42.0	42.0	15.0	
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)	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		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	C-Max	None	
Act Effct Green (s)	65.0	65.0	42.3	42.3	15.0	37.7
Actuated g/C Ratio	0.72	0.72	0.47	0.47	0.17	0.42
v/c Ratio	0.42	0.26	0.95	0.58	0.62	0.92
Control Delay	11.1	4.6	35.4	5.2	40.1	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	4.6	35.4	5.2	40.1	46.2
LOS	B	A	D	A	D	D
Approach Delay		6.8	27.0		44.0	
Approach LOS		A	C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 43 (48%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 26.0		Intersection LOS: C	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 13: SH 105 & Woodmoor Dr



Intersection	
Int Delay, s/veh	20.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	120	0	50	10	725	200	50	735	0
Future Vol, veh/h	0	0	10	120	0	50	10	725	200	50	735	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	-	-	-	-	-	0	-	-	-	110	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	26	126	0	53	11	763	211	53	774	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1284	1876	387	1384	1771	487	774	0	0	974	0	0
Stage 1	880	880	-	891	891	-	-	-	-	-	-	-
Stage 2	404	996	-	493	880	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	122	71	611	~ 103	82	526	837	-	-	704	-	-
Stage 1	308	363	-	304	359	-	-	-	-	-	-	-
Stage 2	594	320	-	526	363	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	101	64	611	~ 91	74	526	837	-	-	704	-	-
Mov Cap-2 Maneuver	101	64	-	~ 91	74	-	-	-	-	-	-	-
Stage 1	299	336	-	295	348	-	-	-	-	-	-	-
Stage 2	519	310	-	465	336	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	223.7	0.2	0.7
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	837	-	-	611	91	526	704	-	-
HCM Lane V/C Ratio	0.013	-	-	0.043	1.388	0.1	0.075	-	-
HCM Control Delay (s)	9.4	0.1	-	11.2	$ 311.7	12.6	10.5	-	-
HCM Lane LOS	A	A	-	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	9.4	0.3	0.2	-	-

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

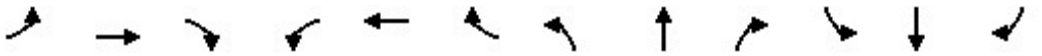
Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	4	18	0	3	0	75	7	3	200	0
Future Vol, veh/h	0	0	4	18	0	3	0	75	7	3	200	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	4	19	0	3	0	79	7	3	211	0

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	3	0	0	4	0	0	148	44	2	85	43	2
Stage 1	-	-	-	-	-	-	40	40	-	2	2	-
Stage 2	-	-	-	-	-	-	108	4	-	83	41	-
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	1619	-	-	1618	-	-	820	848	1082	901	849	1082
Stage 1	-	-	-	-	-	-	975	862	-	1021	894	-
Stage 2	-	-	-	-	-	-	897	892	-	925	861	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1619	-	-	1618	-	-	655	838	1082	823	839	1082
Mov Cap-2 Maneuver	-	-	-	-	-	-	655	838	-	823	839	-
Stage 1	-	-	-	-	-	-	975	852	-	1021	894	-
Stage 2	-	-	-	-	-	-	686	892	-	824	851	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0	6.2	9.7	10.8
HCM LOS			A	B

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	839	1619	-	-	1618	-	-	854
HCM Lane V/C Ratio	0.255	-	-	-	0.012	-	-	0.101
HCM Control Delay (s)	10.8	0	-	-	7.3	0	-	9.7
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	1	0	-	-	0	-	-	0.3

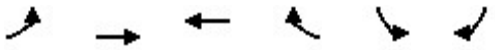


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	900	200	100	580	65	165	50	125	125	50	150
Future Volume (vph)	250	900	200	100	580	65	165	50	125	125	50	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	480		0	480		250	225		150	100		100
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.368			0.247			0.722			0.722		
Satd. Flow (perm)	685	1863	1583	460	3539	1583	1345	1863	1583	1345	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			210			68			126			158
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		350			892			688			765	
Travel Time (s)		5.3			13.5			15.6			17.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	947	211	105	611	68	174	53	132	132	53	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	947	211	105	611	68	174	53	132	132	53	158
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	L NA	L NA	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

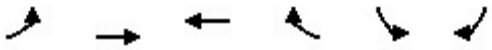
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.0	26.0	26.0	26.0	26.0	26.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	64.0	64.0	43.0	43.0	43.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	13.0%	64.0%	64.0%	43.0%	43.0%	43.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Maximum Green (s)	9.0	58.0	58.0	37.0	37.0	37.0	31.0	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	72.6	70.6	70.6	56.3	56.3	56.3	18.4	18.4	18.4	18.4	18.4	18.4
Actuated g/C Ratio	0.73	0.71	0.71	0.56	0.56	0.56	0.18	0.18	0.18	0.18	0.18	0.18
v/c Ratio	0.43	0.72	0.18	0.41	0.31	0.07	0.70	0.15	0.34	0.53	0.15	0.38
Control Delay	6.3	10.9	0.6	21.8	13.5	4.0	52.6	32.6	8.7	43.5	32.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	10.9	0.6	21.8	13.5	4.0	52.6	32.6	8.7	43.5	32.6	7.7
LOS	A	B	A	C	B	A	D	C	A	D	C	A
Approach Delay		8.5			13.8			33.5			25.4	
Approach LOS		A			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 94.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Knollwood Dr & SH 105



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	400	850	1335	585	400	645
Future Volume (vph)	400	850	1335	585	400	645
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			310	0	0
Storage Lanes	2			1	2	1
Taper Length (ft)	60				40	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.078				0.950	
Satd. Flow (perm)	282	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				549		17
Link Speed (mph)		45	45		30	
Link Distance (ft)		1430	956		362	
Travel Time (s)		21.7	14.5		8.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	421	895	1405	616	421	679
Shared Lane Traffic (%)						
Lane Group Flow (vph)	421	895	1405	616	421	679
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases	4			8		6



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	7
Switch Phase						
Minimum Initial (s)	8.0	20.0	20.0	20.0	8.0	8.0
Minimum Split (s)	15.0	26.0	26.0	26.0	15.0	15.0
Total Split (s)	27.0	78.0	51.0	51.0	22.0	27.0
Total Split (%)	27.0%	78.0%	51.0%	51.0%	22.0%	27.0%
Maximum Green (s)	22.0	73.0	46.0	46.0	17.0	22.0
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
Lead-Lag Optimize?	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	None
Act Effct Green (s)	73.0	73.0	46.0	46.0	17.0	44.0
Actuated g/C Ratio	0.73	0.73	0.46	0.46	0.17	0.44
v/c Ratio	0.47	0.35	0.86	0.60	0.72	0.96
Control Delay	16.1	5.3	33.6	8.8	47.2	53.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	5.3	33.6	8.8	47.2	53.7
LOS	B	A	C	A	D	D
Approach Delay		8.8	26.0		51.2	
Approach LOS		A	C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 27.1		Intersection LOS: C	
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 13: SH 105 & Woodmoor Dr

Intersection	
Int Delay, s/veh	141.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	250	0	100	10	675	355	75	785	0
Future Vol, veh/h	0	0	10	250	0	100	10	675	355	75	785	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	-	-	-	120	-	0	-	-	-	110	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	263	0	105	11	711	374	79	826	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1362	2091	413	1491	-	543	826	0	0	1085	0	0
Stage 1	984	984	-	920	-	-	-	-	-	-	-	-
Stage 2	378	1107	-	571	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	107	52	588	~ 86	0	484	800	-	-	639	-	-
Stage 1	267	325	-	292	0	-	-	-	-	-	-	-
Stage 2	616	284	-	473	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	74	44	588	~ 74	-	484	800	-	-	639	-	-
Mov Cap-2 Maneuver	74	44	-	~ 74	-	-	-	-	-	-	-	-
Stage 1	257	285	-	281	-	-	-	-	-	-	-	-
Stage 2	463	273	-	407	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	$ 909.9	0.2	1
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	800	-	-	588	74	484	639	-	-
HCM Lane V/C Ratio	0.013	-	-	0.018	3.556	0.217	0.124	-	-
HCM Control Delay (s)	9.6	0.2	-	11.2	$ 1268	14.5	11.4	-	-
HCM Lane LOS	A	A	-	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	27.3	0.8	0.4	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	175	11	1	100	0	0	0	2	13	0	0
Future Vol, veh/h	3	175	11	1	100	0	0	0	2	13	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	184	12	1	105	0	0	0	2	14	0	0

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	105	0	0	196	0	0	303	309	105	304	303	190
Stage 1	-	-	-	-	-	-	107	107	-	196	196	-
Stage 2	-	-	-	-	-	-	196	202	-	108	107	-
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	1486	-	-	1377	-	-	649	605	949	648	610	852
Stage 1	-	-	-	-	-	-	898	807	-	806	739	-
Stage 2	-	-	-	-	-	-	806	734	-	897	807	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1486	-	-	1377	-	-	648	603	949	645	608	852
Mov Cap-2 Maneuver	-	-	-	-	-	-	648	603	-	645	608	-
Stage 1	-	-	-	-	-	-	896	806	-	804	738	-
Stage 2	-	-	-	-	-	-	804	733	-	894	806	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.1	0.1	8.8	10.7
HCM LOS			A	B

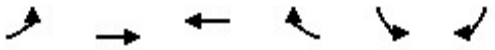
Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	645	1486	-	-	1377	-	-	949
HCM Lane V/C Ratio	0.021	0.002	-	-	0.001	-	-	0.002
HCM Control Delay (s)	10.7	7.4	0	-	7.6	0	-	8.8
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	500	200	75	1070	85	95	40	75	100	50	330
Future Volume (vph)	200	500	200	75	1070	85	95	40	75	100	50	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	480		0	480		250	225		150	100		100
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.175			0.469			0.722			0.730		
Satd. Flow (perm)	326	1863	1583	874	3539	1583	1345	1863	1583	1360	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			211			89			85			249
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		350			892			688			763	
Travel Time (s)		5.3			13.5			15.6			17.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	526	211	79	1126	89	100	42	79	105	53	347
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	526	211	79	1126	89	100	42	79	105	53	347
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	L NA	L NA	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

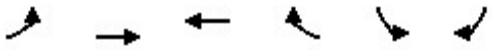
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	26.0	26.0	26.0	26.0	26.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (s)	14.0	59.0	59.0	45.0	45.0	45.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	15.6%	65.6%	65.6%	50.0%	50.0%	50.0%	34.4%	34.4%	34.4%	34.4%	34.4%	34.4%
Maximum Green (s)	10.0	53.0	53.0	39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	26.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	66.5	64.5	64.5	51.2	51.2	51.2	14.5	14.5	14.5	14.5	14.5	14.5
Actuated g/C Ratio	0.74	0.72	0.72	0.57	0.57	0.57	0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.54	0.39	0.18	0.16	0.56	0.09	0.46	0.14	0.24	0.48	0.18	0.75
Control Delay	10.9	3.3	0.3	13.2	15.3	3.6	39.4	30.4	7.8	39.9	31.1	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	3.3	0.3	13.2	15.3	3.6	39.4	30.4	7.8	39.9	31.1	20.8
LOS	B	A	A	B	B	A	D	C	A	D	C	C
Approach Delay		4.3			14.4			26.4			25.8	
Approach LOS		A			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 49 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Knollwood Dr & SH 105



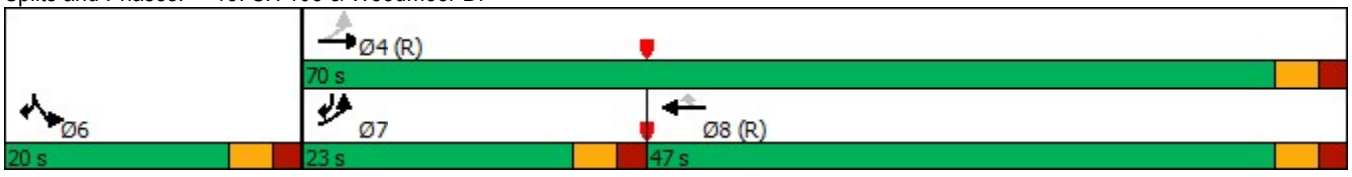
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	335	630	1500	580	335	585
Future Volume (vph)	335	630	1500	580	335	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			310	0	0
Storage Lanes	2			1	2	1
Taper Length (ft)	60				40	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.085				0.950	
Satd. Flow (perm)	307	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				587		10
Link Speed (mph)		45	45		30	
Link Distance (ft)		1430	956		362	
Travel Time (s)		21.7	14.5		8.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	353	663	1579	611	353	616
Shared Lane Traffic (%)						
Lane Group Flow (vph)	353	663	1579	611	353	616
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pt+ov
Protected Phases	7	4	8		6	6 7
Permitted Phases	4			8		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6 7
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	70.0	47.0	47.0	20.0	
Total Split (%)	25.6%	77.8%	52.2%	52.2%	22.2%	
Maximum Green (s)	18.0	65.0	42.0	42.0	15.0	
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)	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		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	C-Max	None	
Act Effct Green (s)	65.0	65.0	42.3	42.3	15.0	37.7
Actuated g/C Ratio	0.72	0.72	0.47	0.47	0.17	0.42
v/c Ratio	0.42	0.26	0.95	0.58	0.62	0.92
Control Delay	11.1	4.6	35.4	5.2	40.1	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	4.6	35.4	5.2	40.1	46.2
LOS	B	A	D	A	D	D
Approach Delay		6.8	27.0		44.0	
Approach LOS		A	C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 43 (48%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 26.0		Intersection LOS: C	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 13: SH 105 & Woodmoor Dr



Intersection	
Int Delay, s/veh	20

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	119	0	50	10	725	200	50	735	0
Future Vol, veh/h	0	0	10	119	0	50	10	725	200	50	735	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	-	-	-	-	-	0	-	-	-	110	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	38	38	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	26	125	0	53	11	763	211	53	774	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1284	1876	387	1384	1771	487	774	0	0	974	0	0
Stage 1	880	880	-	891	891	-	-	-	-	-	-	-
Stage 2	404	996	-	493	880	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	122	71	611	~ 103	82	526	837	-	-	704	-	-
Stage 1	308	363	-	304	359	-	-	-	-	-	-	-
Stage 2	594	320	-	526	363	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	101	64	611	~ 91	74	526	837	-	-	704	-	-
Mov Cap-2 Maneuver	101	64	-	~ 91	74	-	-	-	-	-	-	-
Stage 1	299	336	-	295	348	-	-	-	-	-	-	-
Stage 2	519	310	-	465	336	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	220.1	0.2	0.7
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	837	-	-	611	91	526	704	-	-
HCM Lane V/C Ratio	0.013	-	-	0.043	1.377	0.1	0.075	-	-
HCM Control Delay (s)	9.4	0.1	-	11.2	$ 307.3	12.6	10.5	-	-
HCM Lane LOS	A	A	-	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	9.3	0.3	0.2	-	-

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

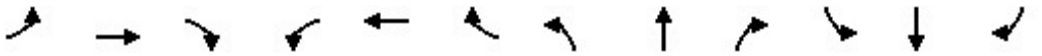
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	75	7	3	200	0	0	0	7	18	0	3
Future Vol, veh/h	1	75	7	3	200	0	0	0	7	18	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	79	7	3	211	0	0	0	7	19	0	3

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	211	0	0	86	0	0	303	305	211	306	302	83
Stage 1	-	-	-	-	-	-	217	217	-	85	85	-
Stage 2	-	-	-	-	-	-	86	88	-	221	217	-
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	1360	-	-	1510	-	-	649	608	829	646	611	976
Stage 1	-	-	-	-	-	-	785	723	-	923	824	-
Stage 2	-	-	-	-	-	-	922	822	-	781	723	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1360	-	-	1510	-	-	645	606	829	639	609	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	645	606	-	639	609	-
Stage 1	-	-	-	-	-	-	784	722	-	922	823	-
Stage 2	-	-	-	-	-	-	918	821	-	773	722	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.1	0.1	9.4	10.5
HCM LOS			A	B

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	672	1360	-	-	1510	-	-	829
HCM Lane V/C Ratio	0.033	0.001	-	-	0.002	-	-	0.009
HCM Control Delay (s)	10.5	7.6	0	-	7.4	0	-	9.4
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

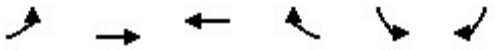


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	900	200	100	580	65	165	50	125	125	50	150
Future Volume (vph)	250	900	200	100	580	65	165	50	125	125	50	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	480		0	480		250	225		150	100		100
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.368			0.247			0.722			0.722		
Satd. Flow (perm)	685	1863	1583	460	3539	1583	1345	1863	1583	1345	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			210			68			126			158
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		350			892			688			752	
Travel Time (s)		5.3			13.5			15.6			17.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	947	211	105	611	68	174	53	132	132	53	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	947	211	105	611	68	174	53	132	132	53	158
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	L NA	L NA	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4

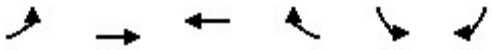
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	6.0	20.0	20.0	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.0	26.0	26.0	26.0	26.0	26.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	64.0	64.0	43.0	43.0	43.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	13.0%	64.0%	64.0%	43.0%	43.0%	43.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Maximum Green (s)	9.0	58.0	58.0	37.0	37.0	37.0	31.0	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	72.6	70.6	70.6	56.3	56.3	56.3	18.4	18.4	18.4	18.4	18.4	18.4
Actuated g/C Ratio	0.73	0.71	0.71	0.56	0.56	0.56	0.18	0.18	0.18	0.18	0.18	0.18
v/c Ratio	0.43	0.72	0.18	0.41	0.31	0.07	0.70	0.15	0.34	0.53	0.15	0.38
Control Delay	6.3	10.9	0.6	21.8	13.5	4.0	52.6	32.6	8.7	43.5	32.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	10.9	0.6	21.8	13.5	4.0	52.6	32.6	8.7	43.5	32.6	7.7
LOS	A	B	A	C	B	A	D	C	A	D	C	A
Approach Delay		8.5			13.8			33.5			25.4	
Approach LOS		A			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 94.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Knollwood Dr & SH 105



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	400	850	1336	585	400	645
Future Volume (vph)	400	850	1336	585	400	645
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			310	0	0
Storage Lanes	2			1	2	1
Taper Length (ft)	60				40	
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.078				0.950	
Satd. Flow (perm)	282	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				549		17
Link Speed (mph)		45	45		30	
Link Distance (ft)		1430	956		362	
Travel Time (s)		21.7	14.5		8.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	421	895	1406	616	421	679
Shared Lane Traffic (%)						
Lane Group Flow (vph)	421	895	1406	616	421	679
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		36	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases	4			8		6



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	7
Switch Phase						
Minimum Initial (s)	8.0	20.0	20.0	20.0	8.0	8.0
Minimum Split (s)	15.0	26.0	26.0	26.0	15.0	15.0
Total Split (s)	27.0	78.0	51.0	51.0	22.0	27.0
Total Split (%)	27.0%	78.0%	51.0%	51.0%	22.0%	27.0%
Maximum Green (s)	22.0	73.0	46.0	46.0	17.0	22.0
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
Lead-Lag Optimize?	Yes		Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	Max	None
Act Effct Green (s)	73.0	73.0	46.0	46.0	17.0	44.0
Actuated g/C Ratio	0.73	0.73	0.46	0.46	0.17	0.44
v/c Ratio	0.47	0.35	0.86	0.60	0.72	0.96
Control Delay	16.1	5.3	33.6	8.8	47.2	53.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	5.3	33.6	8.8	47.2	53.7
LOS	B	A	C	A	D	D
Approach Delay		8.8	26.1		51.2	
Approach LOS		A	C		D	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 27.2	Intersection LOS: C
Intersection Capacity Utilization 85.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 13: SH 105 & Woodmoor Dr

Intersection	
Int Delay, s/veh	140.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	249	0	100	10	675	355	75	785	0
Future Vol, veh/h	0	0	10	249	0	100	10	675	355	75	785	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	-	-	-	120	-	0	-	-	-	110	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	262	0	105	11	711	374	79	826	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1362	2091	413	1491	-	543	826	0	0	1085	0	0
Stage 1	984	984	-	920	-	-	-	-	-	-	-	-
Stage 2	378	1107	-	571	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	107	52	588	~ 86	0	484	800	-	-	639	-	-
Stage 1	267	325	-	292	0	-	-	-	-	-	-	-
Stage 2	616	284	-	473	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	74	44	588	~ 74	-	484	800	-	-	639	-	-
Mov Cap-2 Maneuver	74	44	-	~ 74	-	-	-	-	-	-	-	-
Stage 1	257	285	-	281	-	-	-	-	-	-	-	-
Stage 2	463	273	-	407	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	$ 904.3	0.2	1
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	800	-	-	588	74	484	639	-	-
HCM Lane V/C Ratio	0.013	-	-	0.018	3.542	0.217	0.124	-	-
HCM Control Delay (s)	9.6	0.2	-	11.2	$ 1261.7	14.5	11.4	-	-
HCM Lane LOS	A	A	-	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	27.1	0.8	0.4	-	-

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

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	175	11	1	100	0	0	0	4	13	0	0
Future Vol, veh/h	5	175	11	1	100	0	0	0	4	13	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	184	12	1	105	0	0	0	4	14	0	0

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	105	0	0	196	0	0	307	313	105	309	307	190
Stage 1	-	-	-	-	-	-	107	107	-	200	200	-
Stage 2	-	-	-	-	-	-	200	206	-	109	107	-
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	1486	-	-	1377	-	-	645	602	949	643	607	852
Stage 1	-	-	-	-	-	-	898	807	-	802	736	-
Stage 2	-	-	-	-	-	-	802	731	-	896	807	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1486	-	-	1377	-	-	642	599	949	638	604	852
Mov Cap-2 Maneuver	-	-	-	-	-	-	642	599	-	638	604	-
Stage 1	-	-	-	-	-	-	894	806	-	799	733	-
Stage 2	-	-	-	-	-	-	799	728	-	891	806	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.2	0.1	8.8	10.8
HCM LOS			A	B

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	638	1486	-	-	1377	-	-	949
HCM Lane V/C Ratio	0.021	0.004	-	-	0.001	-	-	0.004
HCM Control Delay (s)	10.8	7.4	0	-	7.6	0	-	8.8
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0