Traffic Impact Analysis

Granger Property

Albemarle County, Virginia

November 2023

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Executive Summary

This report summarizes the findings of the Traffic Impact Analysis (TIA) that was performed for the proposed neighborhood on the west side of the Sunset Avenue Extended at Jefferson Ridge Drive intersection in Albemarle County. The development plan includes 80 townhomes and 105 single-family homes.

The access plan includes one new full movement driveway on Sunset Avenue Extended aligned with Jefferson Ridge Drive. If approved, the project is expected to be complete in 2027. This study was developed in accordance with the County and VDOT TIA guidelines.

Site Location and Study Area

Based on the April 21 scope meeting with the County and VDOT, the following scenarios were analyzed:

- Existing 2023 traffic conditions
- No-build 2027 traffic conditions
- Build 2027 traffic conditions

The weekday AM and PM peak hours were studied for the following intersections:

- Old Lynchburg Road at Sunset Avenue Extended / Church Driveway
- Old Lynchburg Road / 5th Street Ext at Old Lynchburg Road / County Complex Driveway
- Sunset Avenue Extended at Country Green Road
- Old Lynchburg Road at Country Green Road
- Sunset Avenue Extended at Jefferson Ridge Drive / Site Driveway

Recommendations

Based on the results of this analysis, no off-site roadway improvements are warranted or recommended at the build-out of the proposed neighborhood. The future roundabout on Old Lynchburg Road / 5th Street Ext at Old Lynchburg Road / County Complex Driveway will significantly relieve congestion at that intersection. Therefore, many drivers who are currently making the southbound left-turn from Sunset Avenue onto Old Lynchburg Road will divert to the future roundabout, which will also provide significant relief to the Old Lynchburg Road at Sunset Avenue Extended / Church Driveway intersection.

Introduction

This report summarizes the findings of the TIA that was performed for the proposed neighborhood on the west side of the Sunset Avenue Extended at Jefferson Ridge Drive intersection in Albemarle County. The development plan includes 80 townhomes and 105 single-family homes.

The access plan includes one new full movement driveway on Sunset Avenue Extended aligned with Jefferson Ridge Drive. If approved, the project is expected to be complete in 2027. This study was developed in accordance with the County and VDOT TIA guidelines.

Scope of the Traffic Analysis

Based on the scoping meeting with the County and VDOT on April 21, the study area includes the following intersections:

- Old Lynchburg Road at Sunset Avenue Extended / Church Driveway
- Old Lynchburg Road / 5th Street Ext at Old Lynchburg Road / County Complex Driveway
- Sunset Avenue Extended at Country Green Road
- Old Lynchburg Road at Country Green Road
- Sunset Avenue Extended at Jefferson Ridge Drive / Site Driveway

Figure 1 shows the site location and study intersections and Figure 2 shows the preliminary site plan.

Figure 1: Site Location and Study Intersections

Figure 2: Conceptual Site Plan

Existing Conditions

Existing Roadway Network

Existing lane configurations and turn lane storage lengths were collected in the field by Gorove Slade. A description of the major roadways within the study area is presented below in Table 1. The existing lane configurations at the study intersections is illustrated in Figure 3.

Table 1: Existing Roadway Network

Roadway	RTE #	VDOT Classification	Legal/Design Speed Limit (mph)	AADT (vpd)
5th Street	631	Minor Arterial	35	14,000
Old Lynchburg Road (East of Sunset Avenue Extended)	631	Minor Arterial	40	9,400
Old Lynchburg Road (North of 5th Street)	780	Major Collector	35	4,300
Old Lynchburg Road (West of Sunset Avenue Extended)	631	Major Collector	40	3,400
Sunset Avenue Extended	875	Major Collector	30	1,800
Country Green Road	875	Major Collector	30	1,700

*VDOT 2021 ADT Traffic Data

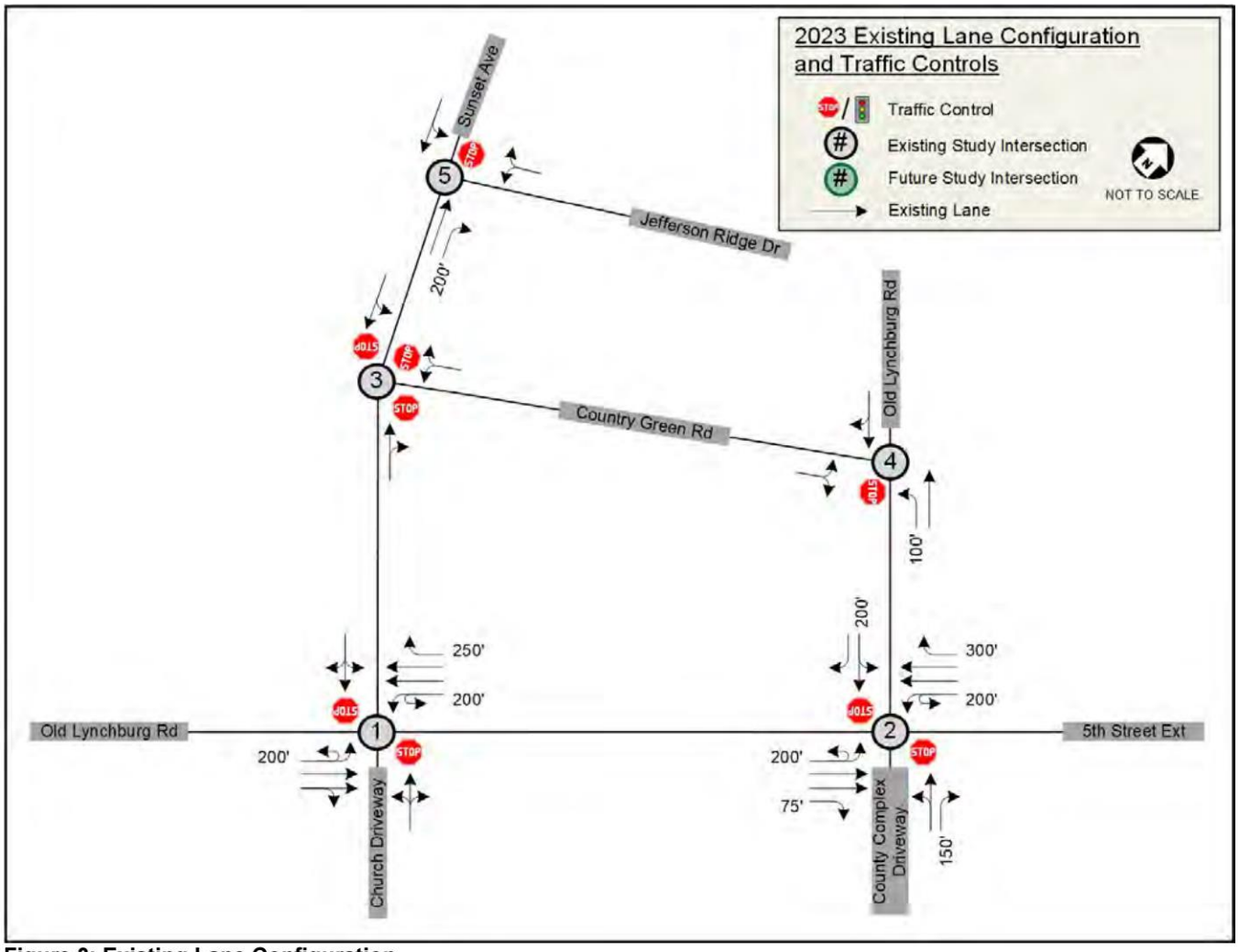

Figure 3: Existing Lane Configuration

Existing Traffic Volumes

The AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were conducted by Burns Services, Inc. on April 25:

- Old Lynchburg Road at Sunset Avenue Extended / Church Driveway
- Old Lynchburg Road / 5th Street Ext at Old Lynchburg Road / County Complex Driveway
- Sunset Avenue Extended at Country Green Road
- Old Lynchburg Road at Country Green Road
- Sunset Avenue Extended at Jefferson Ridge Drive

Some movements were increased to balance between intersections as necessary. The existing 2023 traffic volumes are shown in Figure 4, and the existing turning movement count data is included in the Appendix.

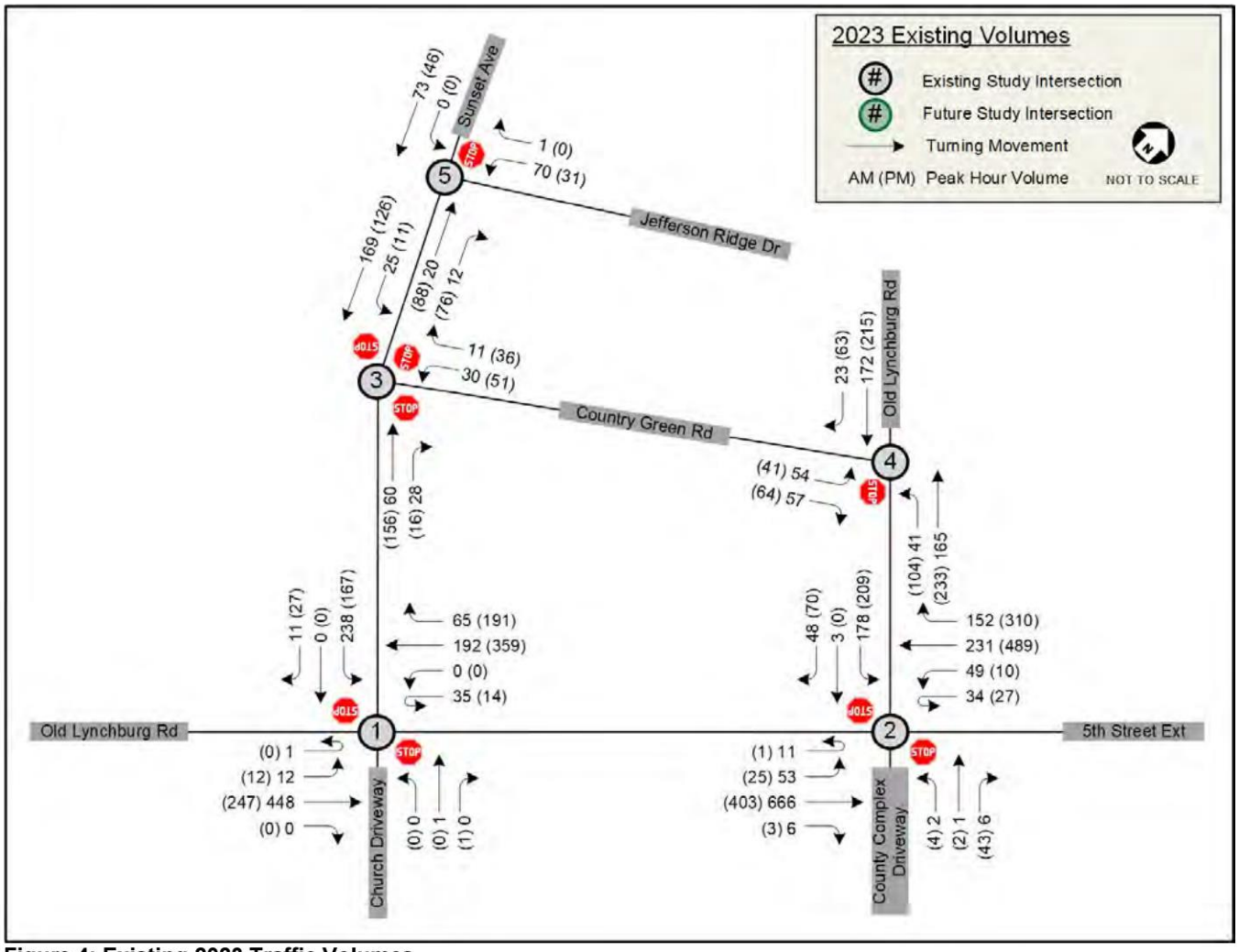

Figure 4: Existing 2023 Traffic Volumes

No-Build Conditions

In order to determine the traffic impact of the proposed neighborhood, a comparison of the future conditions of the study intersections must be made. This is achieved by analyzing the horizon year (2027) with and without the traffic generated by the proposed neighborhood. The future year condition without the development is called the no-build condition, and it its determined by projecting the existing traffic to the build-out year using an annualized growth rate and adding it the traffic from approved (but not yet built) developments in the study area.

Background Improvements

VDOT is planning to convert the existing intersection of Old Lynchburg Road / 5th Street Ext at Old Lynchburg Road / County Complex Driveway to a roundabout by the year 2027. The roundabout is included in all future conditions.

Approved Development Traffic

Based on discussions with the County and VDOT, one approved development is included in this analysis. Southwood Phase 2 is located south of I-64, southeast of Old Lynchburg Road and along Hickory Street. It is currently under construction, and expected to be fully built-out by 2030. The site plan includes replacing 341 existing mobile homes with 60 single-family homes,

419 low-rise apartments, 115 townhomes, 442 affordable housing units, 5,000 S.F. of office space, and 5,000 S.F. of retail space. Access to the site will mainly come from the Old Lynchburg Road at Hickory Street intersection.

The Southwood Phase 2 TIA was performed by Timmons Group and the trip generation, distribution and assignment can be found in the Appendix. Figure 5 shows the Southwood Phase 2 trips at the study intersections.

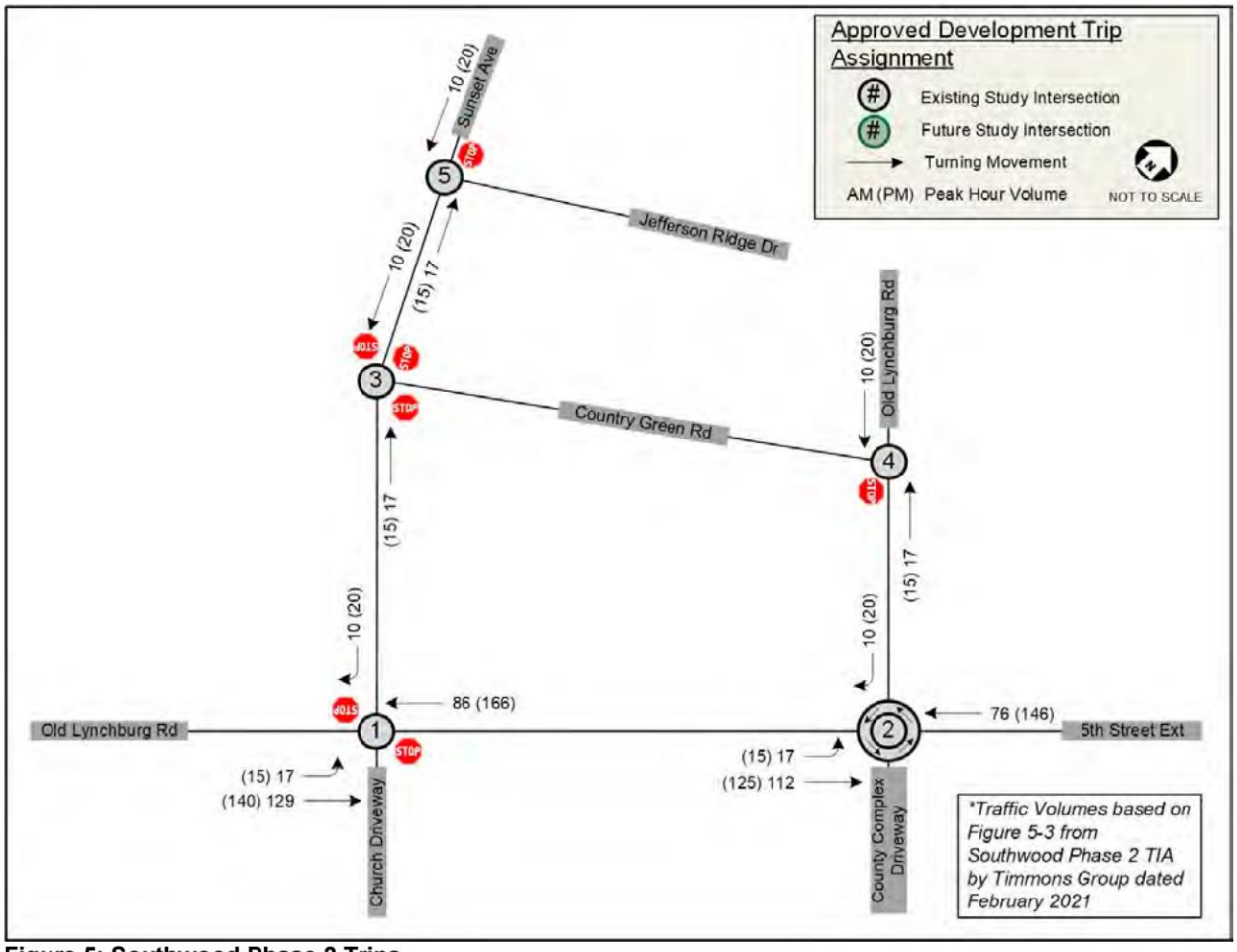

Figure 5: Southwood Phase 2 Trips

Volume Diversion Due to Future Roundabout

The future roundabout at the Old Lynchburg Road / 5th Street Extended at Old Lynchburg Road / County Complex Driveway intersection will provide significant relief to that intersection, and also change traffic patterns in this area. For example, we expect a significant number of drivers who are currently making the southbound left-turn movement from Sunset Avenue onto Old Lynchburg Road will divert to the roundabout because it will be much easier to turn left at the roundabout. For the purpose of this analysis, it was assumed that 60% of the southbound left-turn volume on Sunset Avenue will divert to the roundabout in the no-build condition. Figure 6 shows the anticipated volume diversion at the study intersections.

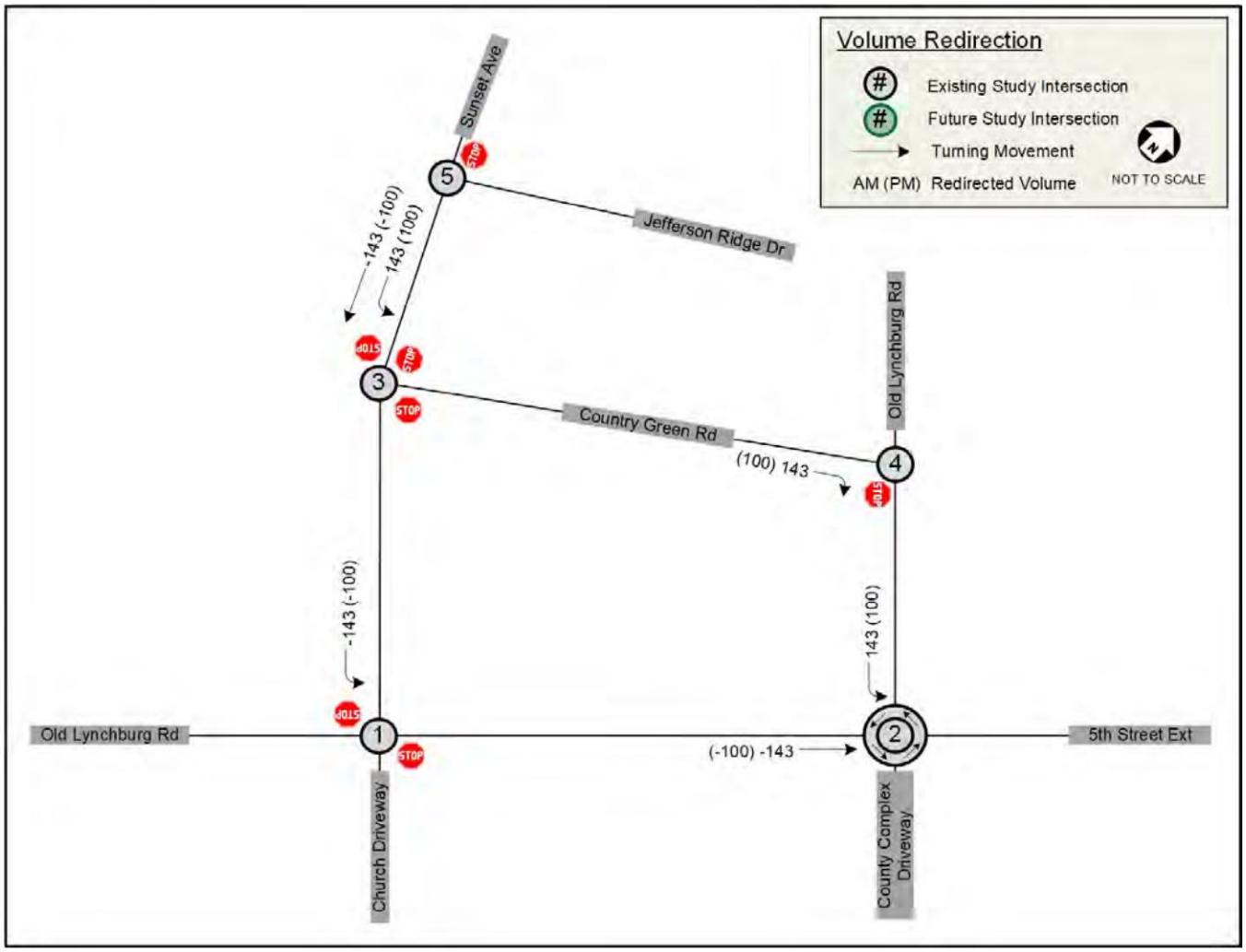

Figure 6: Volume Diversion Due to Future Roundabout

No-Build 2027 Traffic Volumes

Based on the TIA scope meeting with the County and VDOT, an annual traffic growth rate of 1.0% was applied to the existing traffic count volumes on Old Lynchburg Road for 4 years. Then, the 2027 approved development trips (Figure 5) and the volume diversion due to the roundabout (Figure 6) was added to estimate the no-build 2027 traffic volumes, which are shown in Figure 7.

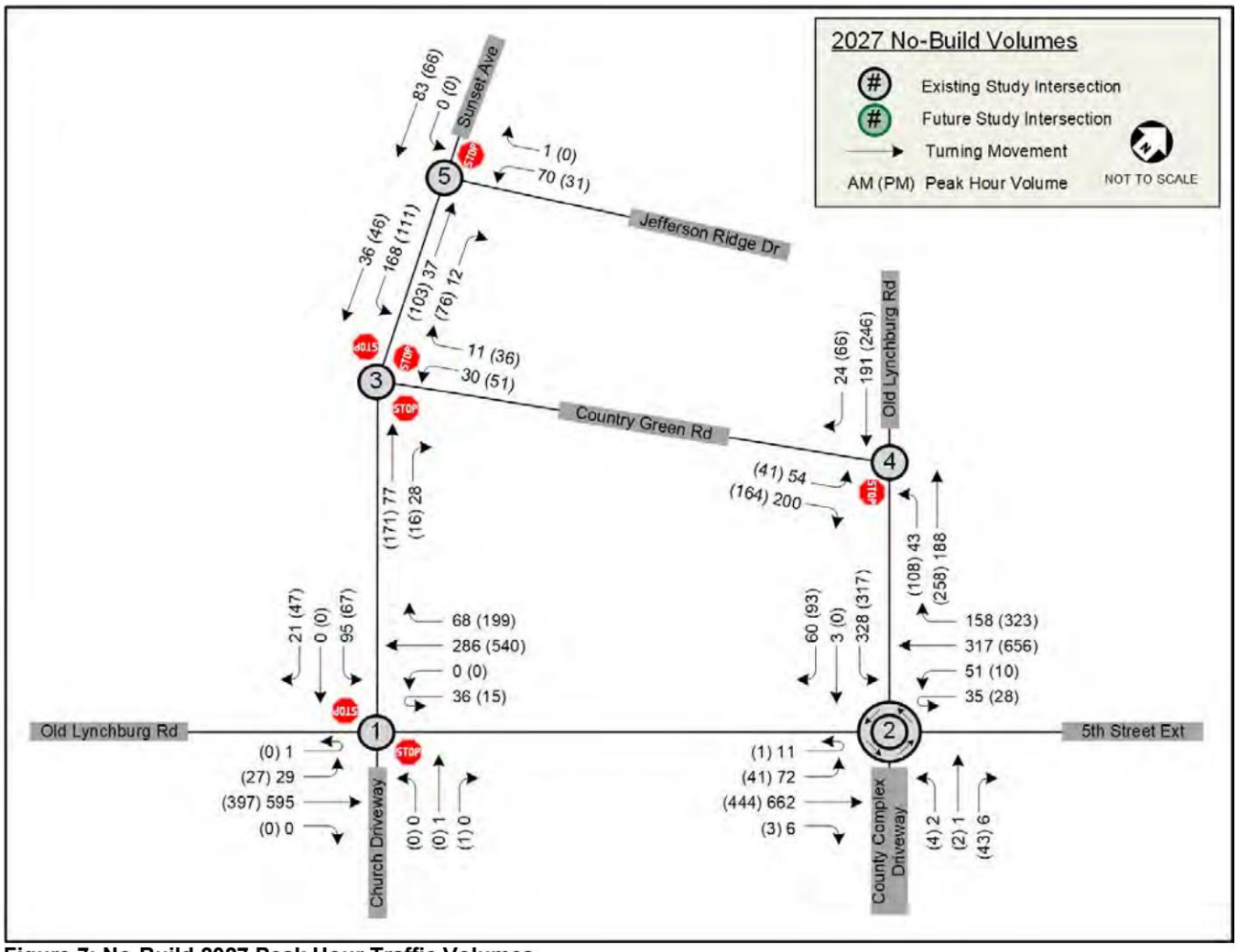

Figure 7: No-Build 2027 Peak Hour Traffic Volumes

Site Trip Generation

Table 2 shows the trip generation potential of the site based on the Institute of Transportation Engineer's (ITE) *Trip Generation Manual,* 11th Edition.

Table 2: Granger Property – ITE Trip Generation – 11th Edition

Land Use (ITE Land Use Code)	Size	Average Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
Single-Family Detached Housing (210)	105 lots	528	528	19	59	66	38
Single-Family Attached Housing (215)	80 townhomes	288	288	10	28	27	19
Total Trips		816	816	29	87	93	57
10% Pedestrian and Bicycle Trips		-81	-81	-3	-9	-9	-6
Vehicle Trips		**735**	**735**	**26**	**78**	**84**	**51**

The applicant expects many of the future residents of this neighborhood to walk or cycle to work – especially to UVA's Fontaine Research Park, which is less than one mile away. The development plan includes pedestrian and bicycle accommodations throughout the site, and residents will have easy access to Stribling Avenue to access the Research Park. Residents will also be able to walk or cycle to Jefferson Park Avenue, which is only 0.75 mile to the northeast of the site. Based on discussion with the County and VDOT at the TIA scope meeting, it was agreed that approximately 10% of the site trips will be pedestrian and bicycle trips.

Site Trip Distribution

The site trip distribution was determined based on discussions with the County and VDOT, a review of existing traffic patterns, surrounding land uses, and engineering judgement. The following trip distribution was applied:

- 70% to / from the east on 5th Street
- 20% to / from the northeast on Old Lynchburg Road
- 10% to / from the west on Old Lynchburg Road

Figure 8 shows the primary site trip distribution, and Figure 9 shows the primary site trip assignment.

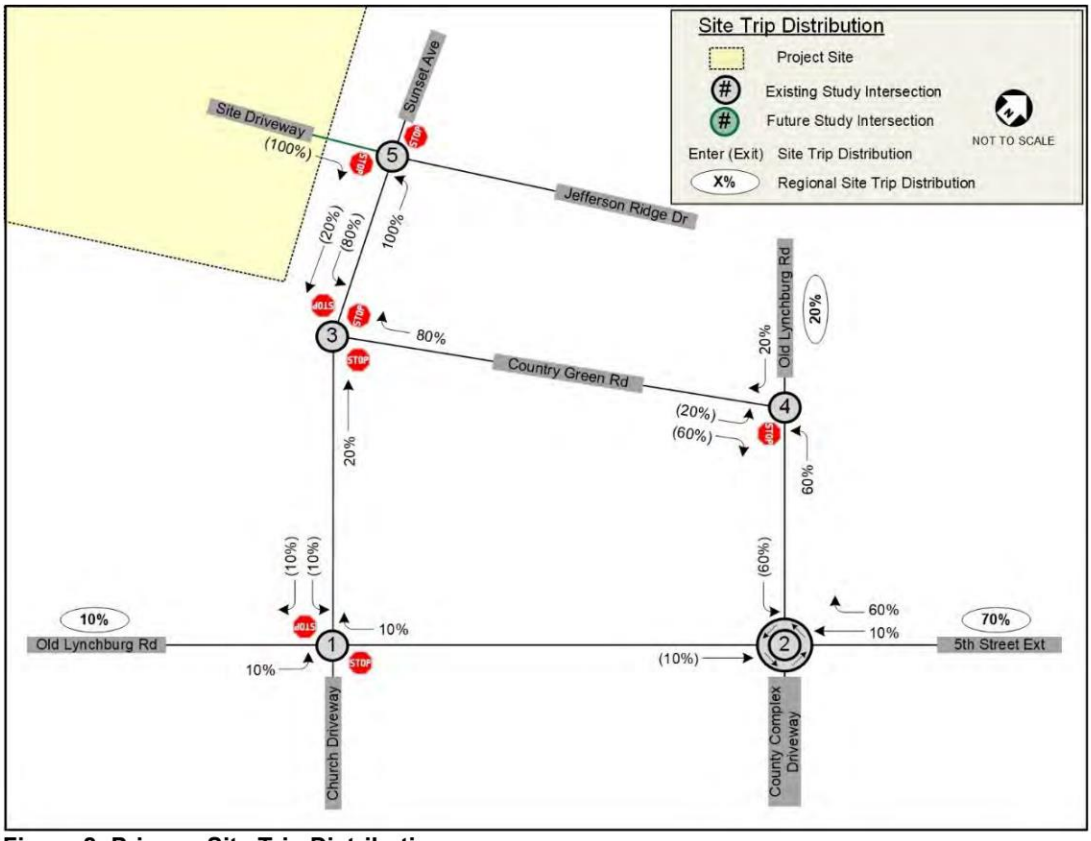

Figure 8: Primary Site Trip Distribution

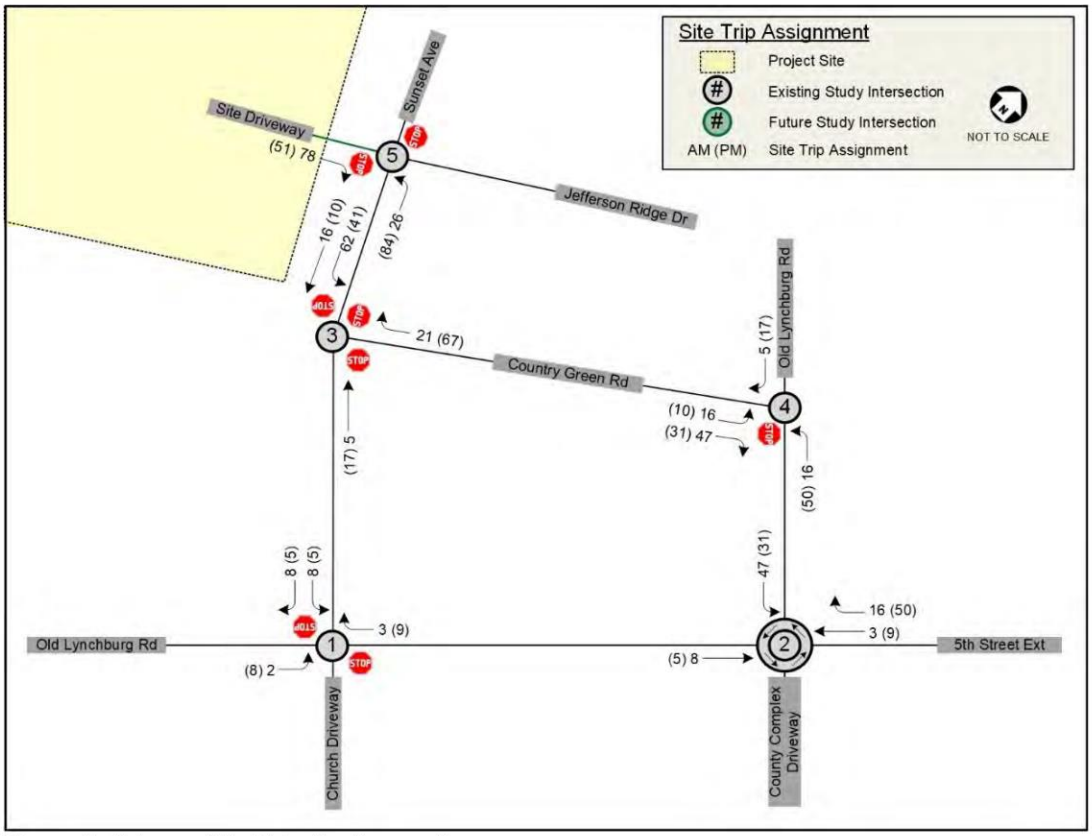

Figure 9: Primary Site Trip Assignment

Build 2027 Traffic Volumes

The build 2027 traffic volumes were determined by adding the no-build 2027 volumes (Figure 7) and the primary site trips (Figure 9) to estimate the build 2027 peak hour traffic volumes, which are shown in Figure 10.

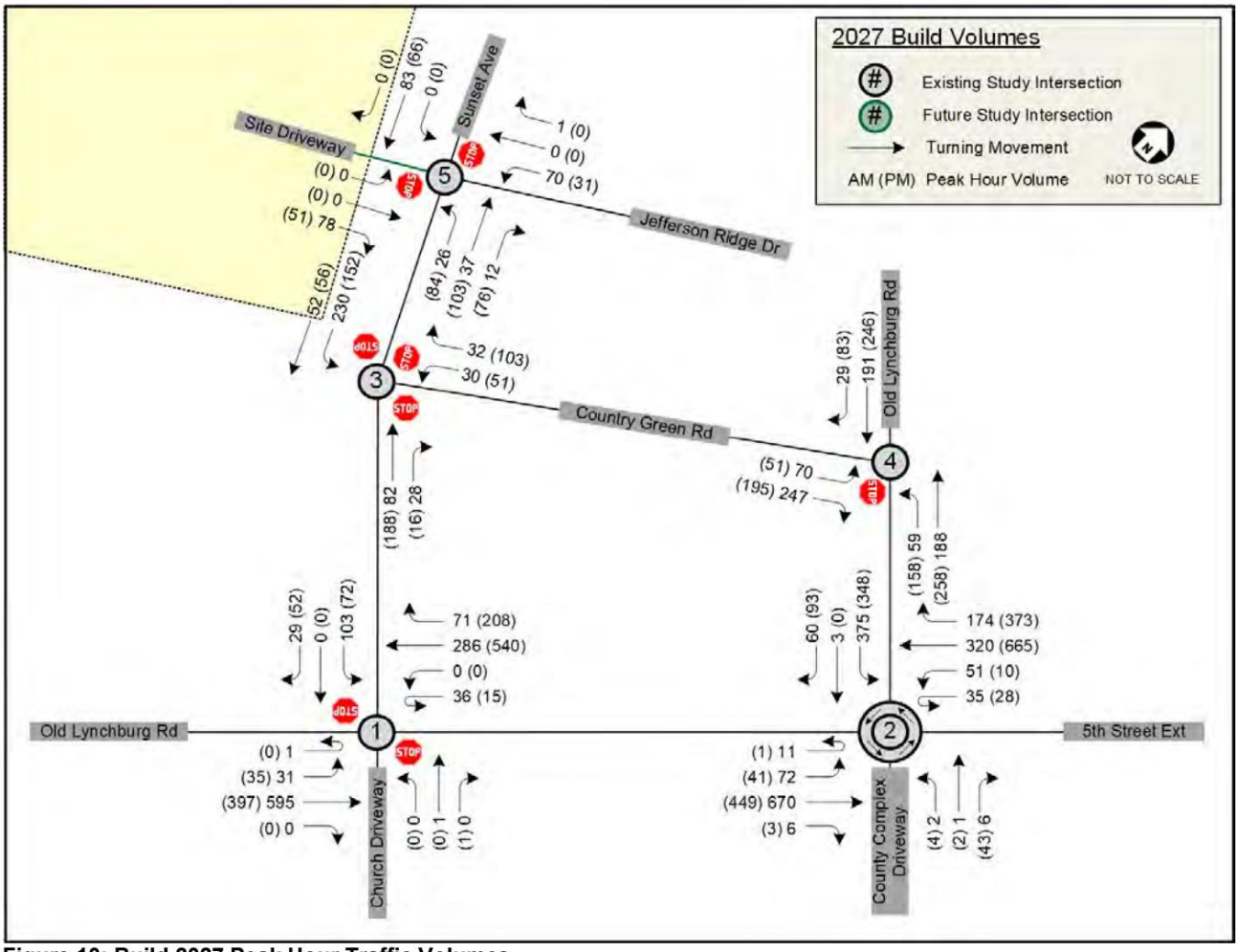

Figure 10: Build 2027 Peak Hour Traffic Volumes

Capacity Analysis

Capacity Analysis Procedure

Capacity analyses were performed at the study area intersections during the weekday AM and PM peak hours. Synchro, Version 11 was used to analyze the unsignalized study intersections based on the Highway Capacity Manual (HCM) methodology and include level of service, delay, and queue length comparisons for the turning movements analyzed. SIDRA, Version 9 was used to analyze the future roundabout on Old Lynchburg Road. For the purpose of this analysis, a peak hour factor of 0.92 for each approach was used for each study intersection only if the existing PHF was less than 0.92. Otherwise, the existing PHF was used.

Capacity Analysis Results

For unsignalized intersections, the average delays for the minor street left-turn movements are described as short delays (less than 25 seconds), moderate delays (between 25 and 50 seconds), and long delays (greater than 50 seconds). It is common for side street movements to experience long delays during peak hours at intersections with major thoroughfares. Capacity analysis results are summarized in Table 3 through Table 7.

Table 3: Level of Service Summary – Old Lynchburg Road at Sunset Avenue Extended / Church Driveway

Analysis Scenario	Lane Group	Lane Storage (ft.)	AM Peak Hour				PM Peak Hour			
			LOS	Delay (sec)	Queue (ft.)	Overall LOS	LOS	Delay (sec)	Queue (ft.)	Overall LOS
Existing (2023) Conditions	EBU/L	200	A	8.0	0		A	8.7	0	
	EBT/R	-	-	-	-		-	-	-	
	WBU/L	200	B	11.2	5		A	8.7	0	
	WBT	-	-	-	-	N/A	-	-	-	N/A
	WBR	250	-	-	-		-	-	-	
	NBL/T/R	-	C	21.9	0		A	9.0	0	
	SBL/T/R	-	F	73.9	250		C	20.3	60	
No-Build (2027) Conditions	EBU/L	200	A	8.2	3		A	9.4	3	
	EBT/R	-	-	-	-		-	-	-	
	WBU/L	200	B	11.9	5		A	9.7	3	
	WBT	-	-	-	-	N/A	-	-	-	N/A
	WBR	250	-	-	-		-	-	-	
	NBL/T/R	-	D	26.1	0		A	9.5	0	
	SBL/T/R	-	D	25.3	50		C	21.9	40	
Build (2027) Conditions	EBU/L	200	A	8.2	3		A	9.5	3	
	EBT/R	-	-	-	-		-	-	-	
	WBU/L	200	B	11.9	5		A	9.7	3	
	WBT	-	-	-	-	N/A	-	-	-	N/A
	WBR	250	-	-	-		-	-	-	
	NBL/T/R	-	D	26.3	0		A	9.5	0	
	SBL/T/R	-	D	26.6	60		C	23.4	48	

Capacity analysis indicates that the minor street left-turn movement currently operates with long delays during the AM peak hour and with short delays during the PM peak hour. Under no-build conditions, the minor street left-turn movement is expected to operate with moderate delays in the AM peak hour, and with short delays in the PM peak hour. The delay and queue for the

southbound left-turn movement on Sunset Avenue is expected to improve significantly as drivers divert to the future roundabout on Old Lynchburg Road.

Under build conditions, the minor street left-turn movement is expected to operate with moderate delays in the AM peak hour and with short delays in the PM peak hour with queue lengths of three vehicles or less.

No improvements are warranted or recommended at this intersection at build-out of the proposed neighborhood.

Table 4: Level of Service Summary – Old Lynchburg Road / 5th Street at Old Lynchburg Road / County Complex Driveway

Analysis Scenario	Lane Group	Lane Storage (ft.)	AM Peak Hour				PM Peak Hour			
			LOS	Delay (sec)	Queue (ft.)	Overall LOS	LOS	Delay (sec)	Queue (ft.)	Overall LOS
Existing (2023) Conditions	EBU/L	200	A	8.8	8	N/A	A	10.0	3	N/A
	EBT	-	-	-	-		-	-	-	
	EBR	75	-	-	-		-	-	-	
	WBU/L	200	B	12.7	18		A	9.7	5	
	WBT	-	-	-	-		-	-	-	
	WBR	300	-	-	-		-	-	-	
	NBL/T	-	F	56.3	5		D	25.5	3	
	NBR	150	B	11.3	0		A	9.8	5	
	SBL/T	200	F	$ 406.5	425		F	110.2	230	
	SBR	-	A	9.4	5		B	10.4	8	
No-Build (2027) Conditions *Roundabout*	EBU/L/T	-	C	15.4	92	B 13.2	A	9.3	38	C 17.8
	EBT/R	-	C	15.4	92		A	9.3	38	
	WBU/L/T	-	A	8.8	43		B	14.6	126	
	WBR	-	A	5.0	12		A	6.7	30	
	NBL/T/R	-	A	8.0	1		A	7.3	6	
	SBL/T/R	-	C	16.8	102		E	43.1	209	
Build (2027) Conditions *Roundabout*	EBU/L/T	-	C	17.5	102	B 15.0	A	9.9	40	C 21.2
	EBT/R	-	C	17.5	102		A	9.8	41	
	WBU/L/T	-	A	8.9	43		C	15.0	131	
	WBR	-	A	5.2	14		A	7.4	38	
	NBL/T/R	-	A	8.4	1		A	7.5	6	
	SBL/T/R	-	C	20.3	133		F	57.1	305	

Capacity analysis indicates that the minor street left-turn movement currently operates with long delays during the AM and PM peak hours.

The County and VDOT are planning to install a roundabout at this intersection. Under no-build conditions, the future roundabout is expected to operate at LOS B during the AM peak hour and LOS C during the PM peak hour, with all movements operating at LOS E or better. Note that the queue on the southbound approach is expected to improve significantly with the roundabout.

Under build conditions, the roundabout is expected to operate at LOS B during the AM peak hour and LOS C during the PM peak hour, with all movements operating at LOS F or better.

No improvements are warranted or recommended at this intersection at the build-out of the proposed neighborhood.

Table 5: Level of Service Summary – Sunset Avenue at Country Green Road

Analysis Scenario	Lane Group	Lane Storage (ft.)	AM Peak Hour				PM Peak Hour			
			LOS	Delay (sec)	Queue (ft.)	Overall LOS	LOS	Delay (sec)	Queue (ft.)	Overall LOS
Existing (2023) Conditions	WBL/R	-	A	8.2	5		A	8.2	10	
	NBT/R	-	A	7.7	10	A	A	8.5	23	A
	SBL/R	-	A	8.6	25	8.3	A	8.4	18	8.4
No-Build (2027) Conditions	WBL/R	-	A	8.3	5		A	8.4	10	
	NBT/R	-	A	7.9	13	A	A	8.7	25	A
	SBL/R	-	A	8.9	28	8.5	A	8.8	20	8.7
Build (2027) Conditions	WBL/R	-	A	8.5	8		A	9	20	
	NBT/R	-	A	8.1	13	A	A	9.4	30	A
	SBL/R	-	A	10	45	9.3	A	9.8	33	9.4

Capacity analysis indicates that this all-way Stop intersection currently operates at LOS A in the AM and PM peak hours. Under no-build conditions, the intersection is expected to continue to operate at LOS A in the AM and PM peak hours.

Under build conditions, the intersection is expected to continue to operate at LOS A in the AM and PM peak hours.

No improvements are warranted or recommended at this intersection at build-out of the proposed neighborhood.

Table 6: Level of Service Summary – Old Lynchburg Road at Country Green

Analysis Scenario	Lane Group	Lane Storage (ft.)	AM Peak Hour				PM Peak Hour			
			LOS	Delay (sec)	Queue (ft.)	Overall LOS	LOS	Delay (sec)	Queue (ft.)	Overall LOS
Existing (2023) Conditions	EBL/R	-	B	11.8	18		B	14.6	25	
	NBL	100	A	7.8	3	N/A	A	8.2	8	N/A
	NBT	-	-	-	-		-	-	-	
	SBT/R	-	-	-	-		-	-	-	
No-Build (2027) Conditions	EBL/R	-	B	13.1	45		C	15.1	45	
	NBL	100	A	7.8	3	N/A	A	8.3	8	N/A
	NBT	-	-	-	-		-	-	-	
	SBT/R	-	-	-	-		-	-	-	
Build (2027) Conditions	EBL/R	-	C	15.0	68		C	19.0	73	
	NBL	100	A	7.9	5	N/A	A	8.5	13	N/A
	NBT	-	-	-	-		-	-	-	
	SBT/R	-	-	-	-		-	-	-	

Capacity analysis indicates that both left-turn movements currently operate with short delays in the AM and PM peak hours. Under no-build conditions, both left-turn movements are expected to continue to operate with short delays in the AM and PM peak hours.

Under build conditions, both left-turn movements are expected to continue to operate with short delays in the AM and PM peak hours.

No improvements are warranted or recommended at this intersection at build-out of the proposed neighborhood.

Table 7: Level of Service Summary – Sunset Avenue Extended at Jefferson Ridge Drive / Site Driveway

Analysis Scenario	Lane Group	Lane Storage (ft.)	AM Peak Hour				PM Peak Hour			
			LOS	Delay (sec)	Queue (ft.)	Overall LOS	LOS	Delay (sec)	Queue (ft.)	Overall LOS
Existing (2023) Conditions	WBL/T/R	-	A	9.5	8	N/A	A	9.5	3	N/A
	NBL/T	-	A	0	0		A	0	0	
	NBR	200	-	-	-		-	-	-	
	SBL/T/R	-	A	0	0		A	0	0	
No-Build (2027) Conditions	WBL/T/R	-	A	9.7	8	N/A	A	9.8	3	N/A
	NBL/T	-	A	0	0		A	0	0	
	NBR	200	-	-	-		-	-	-	
	SBL/T/R	-	A	0	0		A	0	0	
Build (2027) Conditions	EBL/T/R	-	A	9.1	8	N/A	A	8.8	5	N/A
	WBL/T/R	-	B	11.2	10		B	12.6	5	
	NBL/T	-	A	7.4	3		A	7.5	5	
	NBR	200	-	-	-		A	-	-	
	SBL/T/R	-	A	0	0		A	0	0	

Capacity analysis indicates that all left-turn movements currently operate with short delays in the AM and PM peak hours. Under no-build conditions, all left-turn movements are expected to continue to operate with short delays in the AM and PM peak hours.

Under build conditions, all left-turn movements are expected to continue to operate with short delays in the AM and PM peak hours.

No improvements are warranted or recommended at this intersection at build-out of the proposed neighborhood.

Turn Lane Warrant Analysis

Turn lane warrants were evaluated for the proposed site driveway on Sunset Avenue based on VDOT's Access Management Standards Appendix F. Below is a summary of the results and the turn lane warrant graphs are included in the Appendix.

Sunset Avenue Extended at Proposed Site Driveway:

- A southbound right-turn lane or taper on Sunset Avenue Extended is not warranted in either peak hour
- A northbound left-turn lane on Sunset Avenue Extended is not warranted in either peak hour

Recommendations

Based on the results of this analysis, no off-site roadway improvements are warranted or recommended at the build-out of the proposed neighborhood. The future roundabout on Old Lynchburg Road / 5th Street Ext at Old Lynchburg Road / County Complex Driveway will significantly relieve congestion at that intersection. Therefore, many drivers who are currently making the southbound left-turn from Sunset Avenue onto Old Lynchburg Road will divert to the future roundabout, which will also provide significant relief to the Old Lynchburg Road at Sunset Avenue Extended / Church Driveway intersection.

APPENDIX

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APPENDIX A: VDOT TIA SCOPE FORM

THIS IS A NOT A CHAPTER 527 STUDY

VDOT Virginia Department of Transportation	PRE-SCOPE OF WORK MEETING FORM Information on the Project Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information				
Consultant Name: Tele: E-mail:	Carl Hultgren, P.E., PTOE – Gorove Slade (804) 310-6040 ch@goroveslade.com			
Developer/Owner Name: Tele: E-mail:	Ashley Davies – Riverbend Development (434) 245-4971 ashley@riverbenddev.com			
Project Information				
Project Name:	Granger Property	Locality/County:	Albemarle County	
Project Location: (Attach regional and site specific location map)	Refer to Figure 1			
Submission Type	Comp Plan ☐	REZ/SUP ☒	Site Plan ☐	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The proposed neighborhood is anticipated to include up to 105 single family detached lots and 80 townhomes on the west side of Sunset Avenue, north of I-64. The proposed access plan includes one full-movement driveway on Sunset Avenue Extended.			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☒	Commercial ☐	Mixed Use ☐	Other
	Residential Uses(s) See Trip Table		**Commercial Use(s)** N/A	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☒	500 – 999 ☐	1,000 or more ☐

Traffic Impact Analysis Assumptions					
Study Period	Existing Year: 2023		Build-out Year: 2027		Design Year: 2027
Study Area Boundaries (Attach map)	North: Refer to Figure 1			South:	
	West:			East:	
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	Southwood TIA Roundabout on Old Lynchburg Road at 5th Street Extended in 2025				
Consistency With Comprehensive Plan (Land use, transportation plan)	Existing zoning is R1 Proposed zoning is PRD				
Available Traffic Data (Historical, forecasts)	Old Lynchburg Road – 7,900 vpd in 2016 / 9,400 vpd in 2021 Sunset Avenue Extended – 5,400 vpd in 2016 / 2,600 vpd in 2021				
Trip Distribution **(Please refer to attached Figure 1 in Supplement)**	Road Name: See Figure 1			Road Name:	
	Road Name:			Road Name:	
Annual Vehicle Trip Growth Rate: (See Note 3.)	1% on Old Lynchburg / 5th St 0% on Sunset Ave	Peak Period for Study (check all that apply)		☒ AM ☒ PM ☐ SAT	
		Peak Hour of Generator			
Study Intersections and/or Road Segments (Attach additional sheets as necessary) **(Please refer to attached Figure 1.)**	1.	Old Lynchburg Road at Sunset Avenue Extended		7.	
	2.	Old Lynchburg Road at 5th Street Extended		8.	
	3.	Sunset Avenue Extended at Country Green Road		9.	
	4.	Old Lynchburg Road at Country Green Road		10.	
	5.	Sunset Avenue Extended at Jefferson Ridge Drive / Site Driveway		11.	
	6.			12.	
Trip Adjustment Factors	Internal allowance ☐ Yes ☒ No Reduction: N/A			Pass-by allowance ☐ Yes ☒ No Reduction: N/A	
Software Methodology	☒ Synchro ☐ HCS (v.2000/+) ☐ SIDRA ☐ CORSIM ☐ Other _____				
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	Analysis Software: Synchro / SimTraffic 11				
Improvement(s) Assumed or to be Considered	The need for turn lanes and other off-site improvements will be determined based on the results of the TIA.				

Background Traffic Studies Considered	Southwood TIA 5th Street Corridor Study conducted by VDOT dated January 2021
Plan Submission	☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☒ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other (_____)

NOTES on ASSUMPTIONS:

1. The TIA will include three analysis scenarios:
   - Existing 2023 Conditions
   - No-Build 2027 Conditions
   - Build 2027 Conditions
2. 2023 existing "baseline" condition counts will be collected at the existing study intersections.
3. Existing peak hour factors will be based on the traffic counts and utilized on a by-intersection basis. Peak hour factors of 0.92 will be used for all future scenarios if the existing peak hour factor by intersection is less than 0.92.
4. Heavy vehicle percentages (HV%) will be based on count data.
5. HCM 6 methodology will be utilized where applicable; HCM 2000 methodology will be utilized if HCM 6 methodology is not applicable.
6. Turn lane warrants will be assessed at the proposed site driveways.
7. The capacity analysis will adhere to the guidelines set forth in TOSAM, Version 2.0.

Table 1: ITE Trip Generation – Typical Weekday – 11th Edition

Land Use (ITE Land Use Code)	Size	Average Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
Single-Family Detached Housing (210)	105 lots	528	528	19	59	66	38
Single-Family Attached Housing (215)	80 townhomes	288	288	10	28	27	19
Total		816	816	29	87	93	57
Bicycle & Pedestrian Reduction to/from UVA: 10%		-81	-81	-3	-9	-9	-6
Net New Vehicle Trips		**735**	**735**	**26**	**78**	**84**	**51**

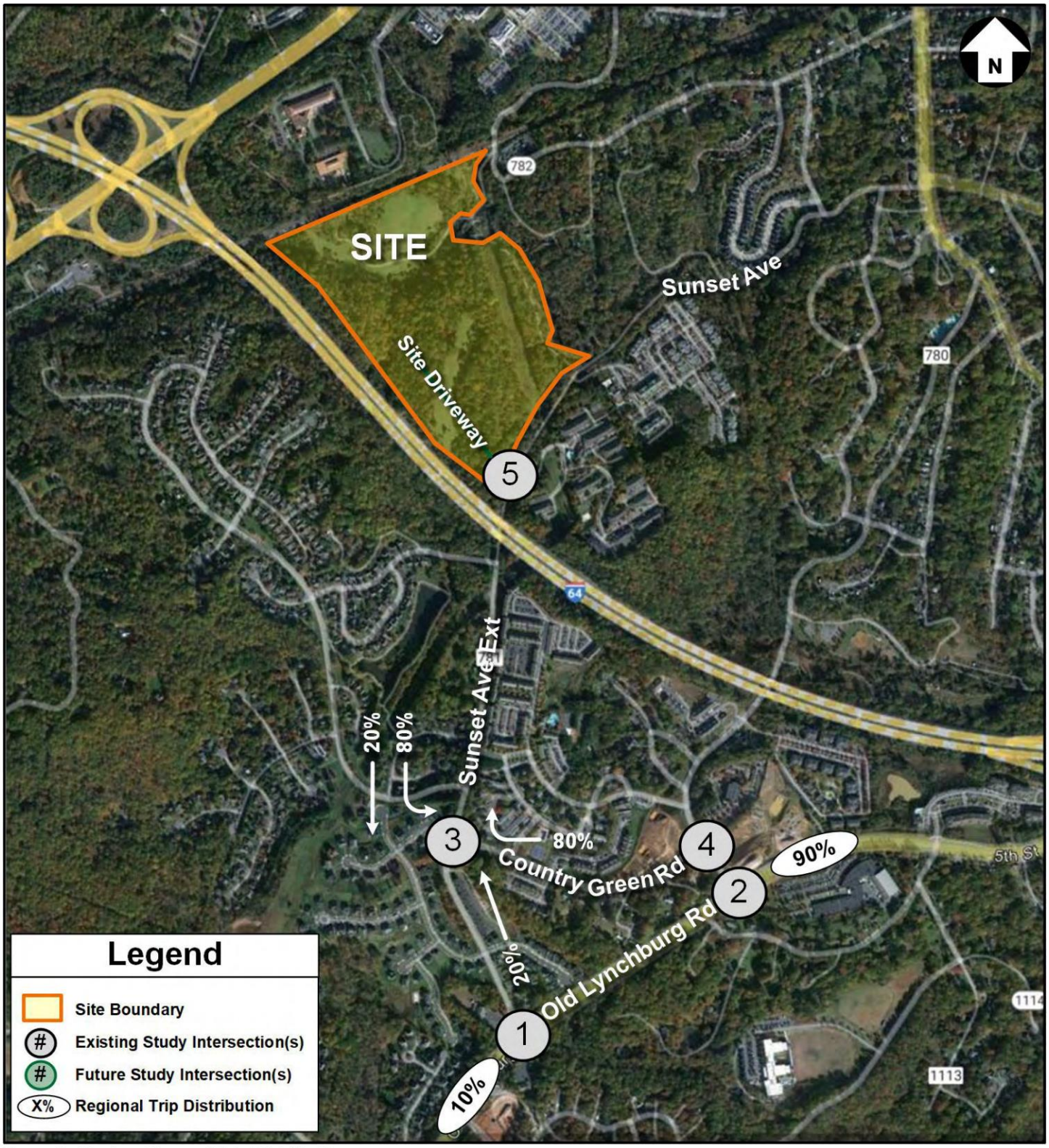


Figure 1: Site Location and Trip Distribution

APPENDIX B: TURNING MOVEMENT COUNT DATA

File Name : Charlottesville(Old Lynchburg Road and 5th Street)
Site Code :
Start Date : 4/25/2023
Page No : 1

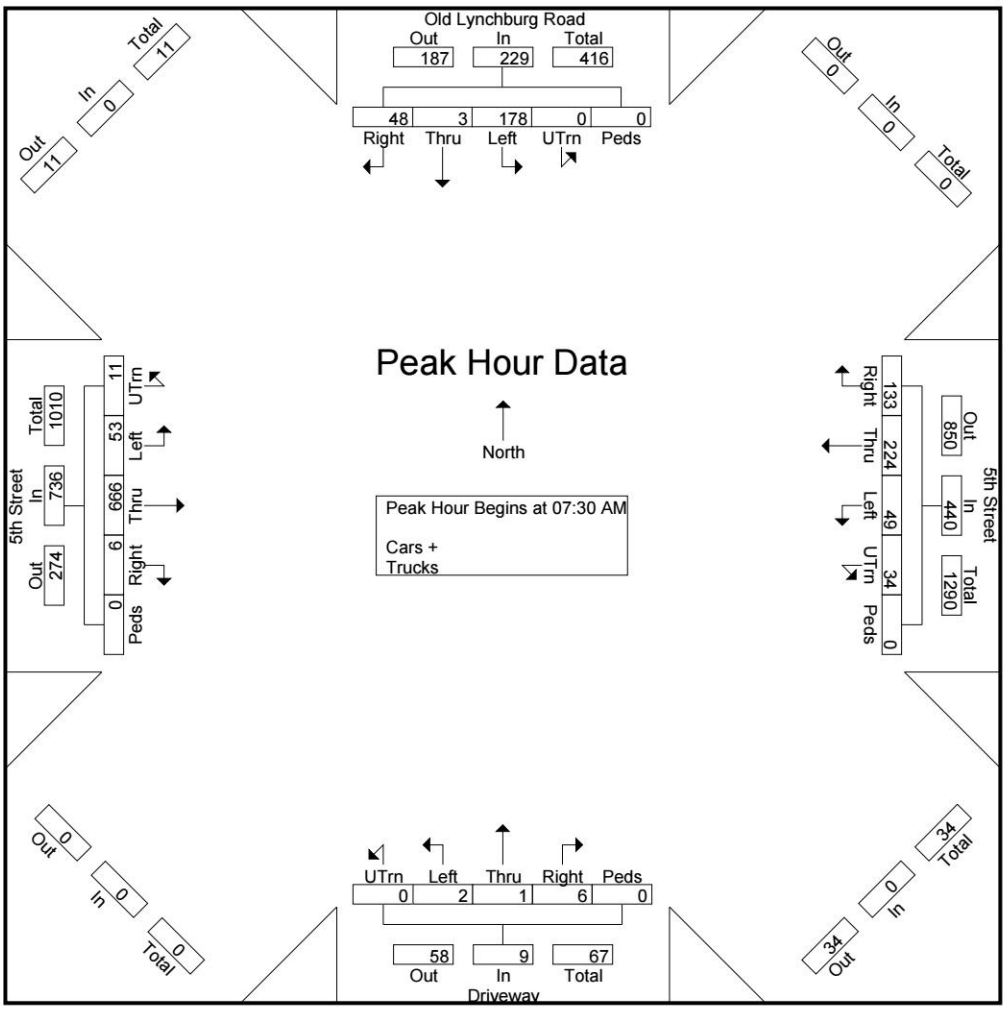
Groups Printed- Cars + - Trucks

	Old Lynchburg Road Southbound						5th Street Westbound						Driveway Northbound						5th Street Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
07:00 AM	3	0	35	0	0	38	18	34	4	5	0	61	0	0	0	0	0	0	0	79	3	0	0	82	181
07:15 AM	2	0	57	0	0	59	24	42	5	4	0	75	0	0	1	0	0	1	0	120	9	0	0	129	264
07:30 AM	10	0	44	0	0	54	32	36	7	8	0	83	2	0	0	0	0	2	1	179	12	0	0	192	331
07:45 AM	26	0	50	0	0	76	31	65	17	11	0	124	0	0	1	0	0	1	2	225	14	4	0	245	446
Total	41	0	186	0	0	227	105	177	33	28	0	343	2	0	2	0	0	4	3	603	38	4	0	648	1222
08:00 AM	6	1	36	0	0	43	39	64	6	7	0	116	2	0	0	0	0	2	2	129	16	5	0	152	313
08:15 AM	6	2	48	0	0	56	31	59	19	8	0	117	2	1	1	0	0	4	1	133	11	2	0	147	324
08:30 AM	4	0	42	0	0	46	42	53	17	3	0	115	4	1	0	0	0	5	1	125	17	1	0	144	310
08:45 AM	3	0	51	0	0	54	46	59	7	5	0	117	2	0	0	0	0	2	1	113	9	0	0	123	296
Total	19	3	177	0	0	199	158	235	49	23	0	465	10	2	1	0	0	13	5	500	53	8	0	566	1243
Grand Total	60	3	363	0	0	426	263	412	82	51	0	808	12	2	3	0	0	17	8	1103	91	12	0	1214	2465
Apprch %	14.1	0.7	85.2	0	0		32.5	51	10.1	6.3	0		70.6	11.8	17.6	0	0		0.7	90.9	7.5	1	0		
Total %	2.4	0.1	14.7	0	0	17.3	10.7	16.7	3.3	2.1	0	32.8	0.5	0.1	0.1	0	0	0.7	0.3	44.7	3.7	0.5	0	49.2	
Cars +	58	3	357	0	0	418	256	374	82	51	0	763	12	2	3	0	0	17	8	1068	87	12	0	1175	2373
% Cars +	96.7	100	98.3	0	0	98.1	97.3	90.8	100	100	0	94.4	100	100	100	0	0	100	100	96.8	95.6	100	0	96.8	96.3
Trucks	2	0	6	0	0	8	7	38	0	0	0	45	0	0	0	0	0	0	0	35	4	0	0	39	92
% Trucks	3.3	0	1.7	0	0	1.9	2.7	9.2	0	0	0	5.6	0	0	0	0	0	0	0	3.2	4.4	0	0	3.2	3.7

TRAFFIC DATA COLLECTION

File Name : Charlottesville(Old Lynchburg Road and 5th Street)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Old Lynchburg Road Southbound						5th Street Westbound						Driveway Northbound						5th Street Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:30 AM																									
07:30 AM	10	0	44	0	0	54	32	36	7	8	0	83	**2**	0	0	0	0	2	1	179	12	0	0	192	331
07:45 AM	**26**	0	**50**	0	0	**76**	31	**65**	17	**11**	0	**124**	0	0	**1**	0	0	1	**2**	**225**	14	4	0	**245**	**446**
08:00 AM	6	1	36	0	0	43	**39**	64	6	7	0	116	2	0	0	0	0	2	2	129	**16**	**5**	0	152	313
08:15 AM	6	**2**	48	0	0	56	31	59	**19**	8	0	117	2	**1**	1	0	0	**4**	1	133	11	2	0	147	324
Total Volume	48	3	178	0	0	229	133	224	49	34	0	440	6	1	2	0	0	9	6	666	53	11	0	736	1414
% App. Total	21	1.3	77.7	0	0		30.2	50.9	11.1	7.7	0		66.7	11.1	22.2	0	0		0.8	90.5	7.2	1.5	0		
PHF	.462	.375	.890	.000	.000	.753	.853	.862	.645	.773	.000	.887	.750	.250	.500	.000	.000	.563	.750	.740	.828	.550	.000	.751	.793



File Name : Charlottesville(Old Lynchburg Road and 5th Street)
Site Code :
Start Date : 4/25/2023
Page No : 1

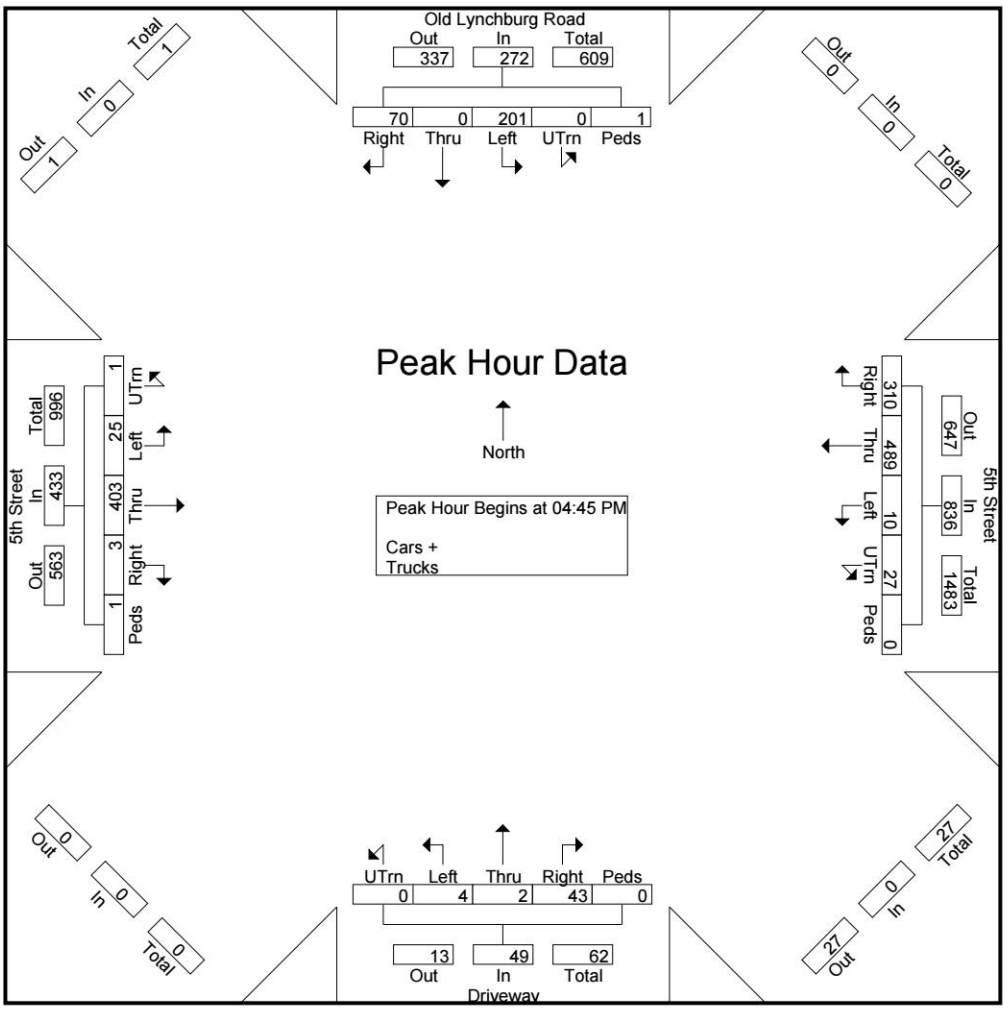
Groups Printed- Cars + - Trucks

	Old Lynchburg Road Southbound						5th Street Westbound						Driveway Northbound						5th Street Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
04:00 PM	11	2	55	0	0	68	60	102	1	6	0	169	11	1	0	0	0	12	1	82	4	2	0	89	338
04:15 PM	13	0	40	0	0	53	60	125	3	7	0	195	14	1	0	0	1	16	0	81	7	0	0	88	352
04:30 PM	22	1	48	0	0	71	64	97	3	5	0	169	14	2	0	0	2	18	0	100	4	0	0	104	362
04:45 PM	22	0	46	0	1	69	89	115	6	5	0	215	8	2	2	0	0	12	1	114	6	0	1	122	418
Total	68	3	189	0	1	261	273	439	13	23	0	748	47	6	2	0	3	58	2	377	21	2	1	403	1470
05:00 PM	20	0	54	0	0	74	60	125	2	10	0	197	19	0	0	0	0	19	2	110	7	0	0	119	409
05:15 PM	16	0	55	0	0	71	91	107	1	4	0	203	8	0	1	0	0	9	0	78	4	1	0	83	366
05:30 PM	12	0	46	0	0	58	70	142	1	8	0	221	8	0	1	0	0	9	0	101	8	0	0	109	397
05:45 PM	11	0	53	0	2	66	62	109	1	2	1	175	1	0	0	0	0	1	0	92	3	1	0	96	338
Total	59	0	208	0	2	269	283	483	5	24	1	796	36	0	2	0	0	38	2	381	22	2	0	407	1510
Grand Total	127	3	397	0	3	530	556	922	18	47	1	1544	83	6	4	0	3	96	4	758	43	4	1	810	2980
Apprch %	24	0.6	74.9	0	0.6		36	59.7	1.2	3	0.1		86.5	6.2	4.2	0	3.1		0.5	93.6	5.3	0.5	0.1		
Total %	4.3	0.1	13.3	0	0.1	17.8	18.7	30.9	0.6	1.6	0	51.8	2.8	0.2	0.1	0	0.1	3.2	0.1	25.4	1.4	0.1	0	27.2	
Cars +	125	3	390	0	3	521	551	917	18	46	1	1533	83	6	4	0	3	96	4	744	40	4	1	793	2943
% Cars +	98.4	100	98.2	0	100	98.3	99.1	99.5	100	97.9	100	99.3	100	100	100	0	100	100	100	98.2	93	100	100	97.9	98.8
Trucks	2	0	7	0	0	9	5	5	0	1	0	11	0	0	0	0	0	0	0	14	3	0	0	17	37
% Trucks	1.6	0	1.8	0	0	1.7	0.9	0.5	0	2.1	0	0.7	0	0	0	0	0	0	0	1.8	7	0	0	2.1	1.2

TRAFFIC DATA COLLECTION

File Name : Charlottesville(Old Lynchburg Road and 5th Street)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Old Lynchburg Road Southbound						5th Street Westbound						Driveway Northbound						5th Street Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:45 PM																									
04:45 PM	**22**	0	46	0	**1**	69	89	115	**6**	5	0	215	8	**2**	**2**	0	0	12	1	**114**	6	0	**1**	**122**	**418**
05:00 PM	20	0	54	0	0	**74**	60	125	2	**10**	0	197	**19**	0	0	0	0	**19**	**2**	110	7	0	0	119	409
05:15 PM	16	0	**55**	0	0	71	**91**	107	1	4	0	203	8	0	1	0	0	9	0	78	4	**1**	0	83	366
05:30 PM	12	0	46	0	0	58	70	**142**	1	8	0	**221**	8	0	1	0	0	9	0	101	**8**	0	0	109	397
Total Volume	70	0	201	0	1	272	310	489	10	27	0	836	43	2	4	0	0	49	3	403	25	1	1	433	1590
% App. Total	25.7	0	73.9	0	0.4		37.1	58.5	1.2	3.2	0		87.8	4.1	8.2	0	0		0.7	93.1	5.8	0.2	0.2		
PHF	.795	.000	.914	.000	.250	.919	.852	.861	.417	.675	.000	.946	.566	.250	.500	.000	.000	.645	.375	.884	.781	.250	.250	.887	.951



TRAFFIC DATA COLLECTION

File Name : Charlottesville(Old Lynchburg Road and Country Green Road)
Site Code :
Start Date : 4/25/2023
Page No : 1

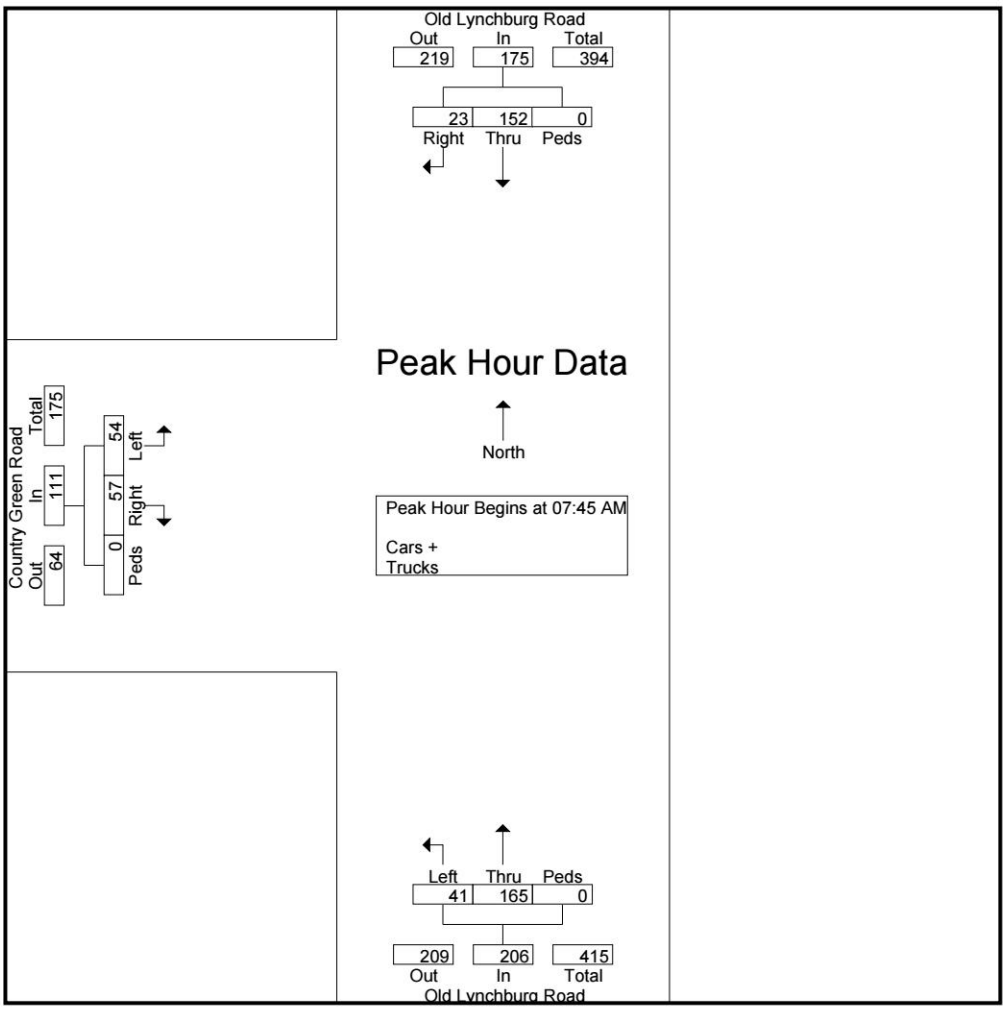
Groups Printed- Cars + - Trucks

	Old Lynchburg Road Southbound				Old Lynchburg Road Northbound				Country Green Road Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
07:00 AM	4	23	0	27	14	7	0	21	16	3	0	19	67
07:15 AM	0	46	0	46	20	12	0	32	20	15	0	35	113
07:30 AM	2	42	0	44	30	13	0	43	20	12	0	32	119
07:45 AM	7	45	0	52	37	9	0	46	19	18	0	37	135
Total	13	156	0	169	101	41	0	142	75	48	0	123	434
08:00 AM	6	32	0	38	50	7	0	57	10	8	0	18	113
08:15 AM	4	42	0	46	33	10	0	43	13	13	0	26	115
08:30 AM	6	33	0	39	45	15	0	60	15	15	0	30	129
08:45 AM	5	37	0	42	49	8	0	57	16	5	0	21	120
Total	21	144	0	165	177	40	0	217	54	41	0	95	477
Grand Total	34	300	0	334	278	81	0	359	129	89	0	218	911
Apprch %	10.2	89.8	0		77.4	22.6	0		59.2	40.8	0		
Total %	3.7	32.9	0	36.7	30.5	8.9	0	39.4	14.2	9.8	0	23.9	
Cars +	32	295	0	327	271	77	0	348	127	88	0	215	890
% Cars +	94.1	98.3	0	97.9	97.5	95.1	0	96.9	98.4	98.9	0	98.6	97.7
Trucks	2	5	0	7	7	4	0	11	2	1	0	3	21
% Trucks	5.9	1.7	0	2.1	2.5	4.9	0	3.1	1.6	1.1	0	1.4	2.3

TRAFFIC DATA COLLECTION

File Name : Charlottesville(Old Lynchburg Road and Country Green Road)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Old Lynchburg Road Southbound				Old Lynchburg Road Northbound				Country Green Road Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	**7**	**45**	0	**52**	37	9	0	46	**19**	**18**	0	**37**	**135**
08:00 AM	6	32	0	38	**50**	7	0	57	10	8	0	18	113
08:15 AM	4	42	0	46	33	10	0	43	13	13	0	26	115
08:30 AM	6	33	0	39	45	**15**	0	**60**	15	15	0	30	129
Total Volume	23	152	0	175	165	41	0	206	57	54	0	111	492
% App. Total	13.1	86.9	0		80.1	19.9	0		51.4	48.6	0		
PHF	.821	.844	.000	.841	.825	.683	.000	.858	.750	.750	.000	.750	.911



TRAFFIC DATA COLLECTION

File Name : Charlottesville(Old Lynchburg Road and Country Green Road)
Site Code :
Start Date : 4/25/2023
Page No : 1

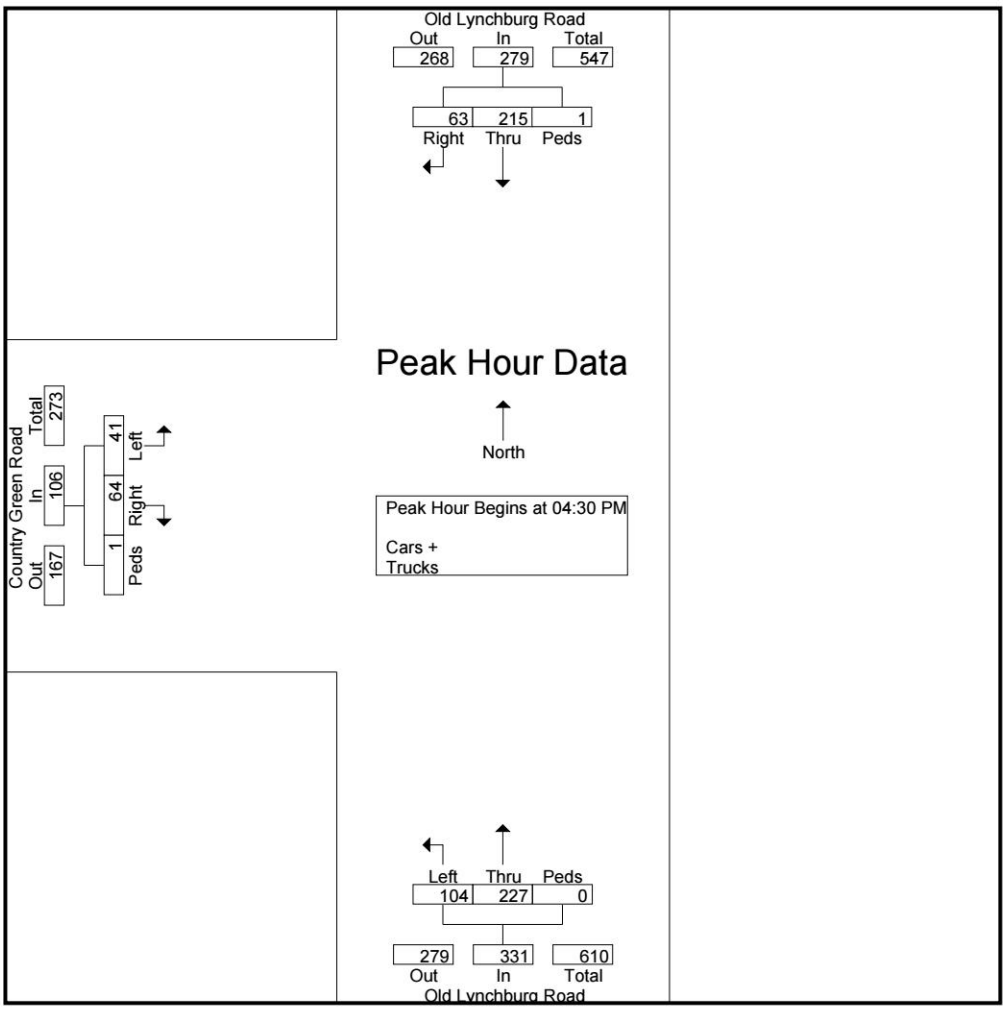
Groups Printed- Cars + - Trucks

	Old Lynchburg Road Southbound				Old Lynchburg Road Northbound				Country Green Road Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
04:00 PM	14	57	0	71	32	30	0	62	10	6	0	16	149
04:15 PM	8	40	0	48	47	22	0	69	15	5	0	20	137
04:30 PM	10	61	0	71	48	25	0	73	8	6	0	14	158
04:45 PM	16	50	0	66	66	31	0	97	27	15	0	42	205
Total	48	208	0	256	193	108	0	301	60	32	0	92	649
05:00 PM	16	50	1	67	47	22	0	69	20	14	0	34	170
05:15 PM	21	54	0	75	66	26	0	92	9	6	1	16	183
05:30 PM	10	52	0	62	59	22	0	81	9	4	1	14	157
05:45 PM	8	53	0	61	44	21	2	67	13	6	2	21	149
Total	55	209	1	265	216	91	2	309	51	30	4	85	659
Grand Total	103	417	1	521	409	199	2	610	111	62	4	177	1308
Apprch %	19.8	80	0.2		67	32.6	0.3		62.7	35	2.3		
Total %	7.9	31.9	0.1	39.8	31.3	15.2	0.2	46.6	8.5	4.7	0.3	13.5	
Cars +	102	414	1	517	406	194	2	602	105	62	4	171	1290
% Cars +	99	99.3	100	99.2	99.3	97.5	100	98.7	94.6	100	100	96.6	98.6
Trucks	1	3	0	4	3	5	0	8	6	0	0	6	18
% Trucks	1	0.7	0	0.8	0.7	2.5	0	1.3	5.4	0	0	3.4	1.4

TRAFFIC DATA COLLECTION

File Name : Charlottesville(Old Lynchburg Road and Country Green Road)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Old Lynchburg Road Southbound				Old Lynchburg Road Northbound				Country Green Road Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	10	**61**	0	71	48	25	0	73	8	6	0	14	158
04:45 PM	16	50	0	66	**66**	**31**	0	**97**	**27**	**15**	0	**42**	**205**
05:00 PM	16	50	**1**	67	47	22	0	69	20	14	0	34	170
05:15 PM	**21**	54	0	**75**	66	26	0	92	9	6	**1**	16	183
Total Volume	63	215	1	279	227	104	0	331	64	41	1	106	716
% App. Total	22.6	77.1	0.4		68.6	31.4	0		60.4	38.7	0.9		
PHF	.750	.881	.250	.930	.860	.839	.000	.853	.593	.683	.250	.631	.873



File Name : Charlottesville(Old Lynchburg Road and Sunset Avenue Extended)
Site Code :
Start Date : 4/25/2023
Page No : 1

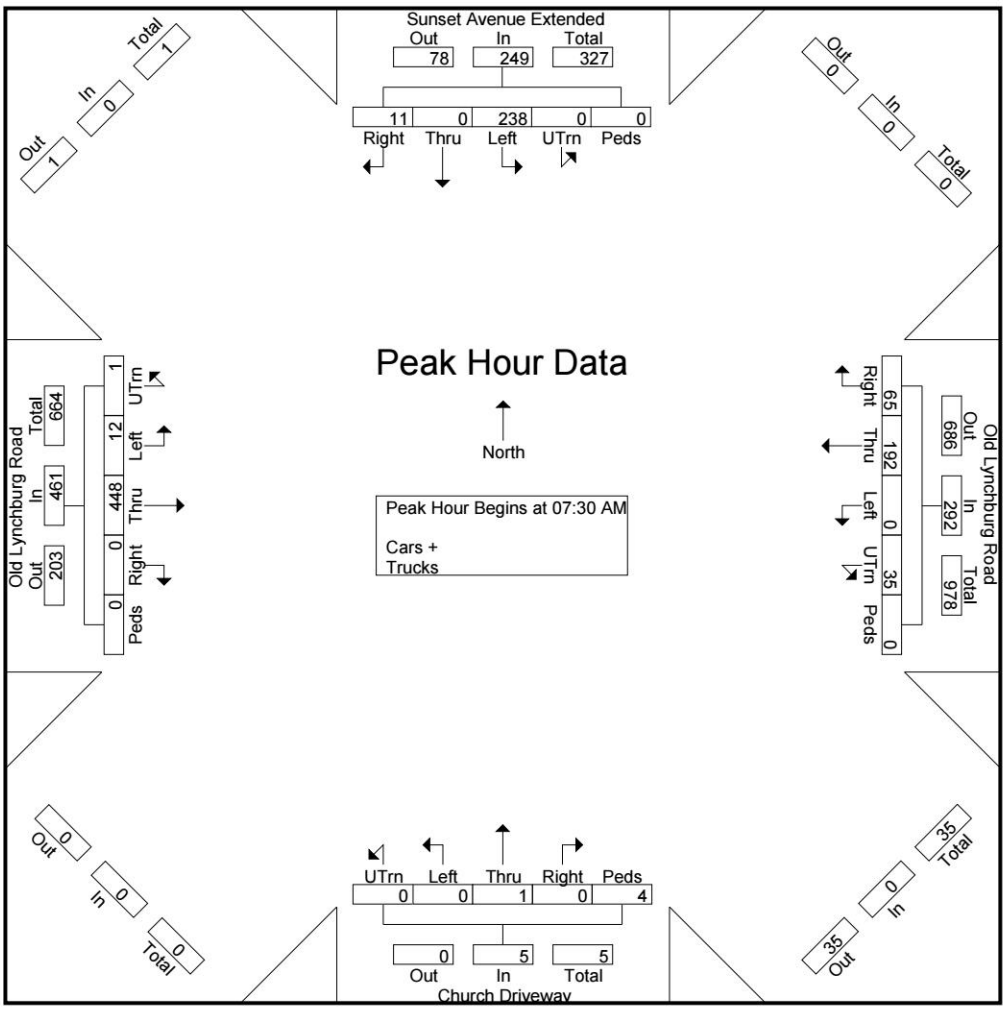
Groups Printed- Cars + - Trucks

	Sunset Avenue Extended Southbound						Old Lynchburg Road Westbound						Church Driveway Northbound						Old Lynchburg Road Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
07:00 AM	1	0	34	0	0	35	7	31	0	0	0	38	0	0	1	0	0	1	1	47	0	0	0	48	122
07:15 AM	1	0	46	0	0	47	11	30	0	0	0	41	0	0	0	0	0	0	0	84	3	0	0	87	175
07:30 AM	1	0	72	0	0	73	9	29	0	8	0	46	0	0	0	0	0	0	0	119	2	1	0	122	241
07:45 AM	6	0	71	0	0	77	18	55	0	25	0	98	0	0	0	0	1	1	0	140	5	0	0	145	321
Total	9	0	223	0	0	232	45	145	0	33	0	223	0	0	1	0	1	2	1	390	10	1	0	402	859
08:00 AM	1	0	44	0	0	45	20	56	0	2	0	78	0	0	0	0	3	3	0	96	3	0	0	99	225
08:15 AM	3	0	51	0	0	54	18	52	0	0	0	70	0	1	0	0	0	1	0	93	2	0	0	95	220
08:30 AM	2	0	61	0	0	63	26	31	0	1	0	58	0	0	0	0	0	0	0	76	2	1	0	79	200
08:45 AM	4	0	45	0	0	49	20	42	1	0	0	63	0	0	0	0	0	0	0	78	2	0	0	80	192
Total	10	0	201	0	0	211	84	181	1	3	0	269	0	1	0	0	3	4	0	343	9	1	0	353	837
Grand Total	19	0	424	0	0	443	129	326	1	36	0	492	0	1	1	0	4	6	1	733	19	2	0	755	1696
Apprch %	4.3	0	95.7	0	0		26.2	66.3	0.2	7.3	0		0	16.7	16.7	0	66.7		0.1	97.1	2.5	0.3	0		
Total %	1.1	0	25	0	0	26.1	7.6	19.2	0.1	2.1	0	29	0	0.1	0.1	0	0.2	0.4	0.1	43.2	1.1	0.1	0	44.5	
Cars +	16	0	412	0	0	428	119	296	1	36	0	452	0	1	1	0	4	6	1	705	19	2	0	727	1613
% Cars +	84.2	0	97.2	0	0	96.6	92.2	90.8	100	100	0	91.9	0	100	100	0	100	100	100	96.2	100	100	0	96.3	95.1
Trucks	3	0	12	0	0	15	10	30	0	0	0	40	0	0	0	0	0	0	0	28	0	0	0	28	83
% Trucks	15.8	0	2.8	0	0	3.4	7.8	9.2	0	0	0	8.1	0	0	0	0	0	0	0	3.8	0	0	0	3.7	4.9

TRAFFIC DATA COLLECTION

File Name : Charlottesville(Old Lynchburg Road and Sunset Avenue Extended)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Sunset Avenue Extended Southbound						Old Lynchburg Road Westbound						Church Driveway Northbound						Old Lynchburg Road Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:30 AM																									
07:30 AM	1	0	**72**	0	0	73	9	29	0	8	0	46	0	0	0	0	0	0	0	119	2	**1**	0	122	241
07:45 AM	**6**	0	71	0	0	**77**	18	55	0	**25**	0	**98**	0	0	0	0	1	1	0	**140**	**5**	0	0	**145**	**321**
08:00 AM	1	0	44	0	0	45	**20**	**56**	0	2	0	78	0	0	0	0	**3**	**3**	0	96	3	0	0	99	225
08:15 AM	3	0	51	0	0	54	18	52	0	0	0	70	0	**1**	0	0	0	1	0	93	2	0	0	95	220
Total Volume	11	0	238	0	0	249	65	192	0	35	0	292	0	1	0	0	4	5	0	448	12	1	0	461	1007
% App. Total	4.4	0	95.6	0	0		22.3	65.8	0	12	0		0	20	0	0	80		0	97.2	2.6	0.2	0		
PHF	.458	.000	.826	.000	.000	.808	.813	.857	.000	.350	.000	.745	.000	.250	.000	.000	.333	.417	.000	.800	.600	.250	.000	.795	.784



File Name : Charlottesville(Old Lynchburg Road and Sunset Avenue Extended)
Site Code :
Start Date : 4/25/2023
Page No : 1

Groups Printed- Cars + - Trucks

	Sunset Avenue Extended Southbound						Old Lynchburg Road Westbound						Church Driveway Northbound						Old Lynchburg Road Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
04:00 PM	7	0	32	0	0	39	33	80	0	2	0	115	0	0	0	0	0	0	0	54	2	0	0	56	210
04:15 PM	6	0	23	0	0	29	47	89	0	3	0	139	0	0	0	0	1	1	0	60	4	0	0	64	233
04:30 PM	7	0	41	0	0	48	35	84	2	4	0	125	0	0	0	0	0	0	0	62	3	0	0	65	238
04:45 PM	9	0	41	0	0	50	38	92	0	2	0	132	1	0	0	0	0	1	0	77	3	0	0	80	263
Total	29	0	137	0	0	166	153	345	2	11	0	511	1	0	0	0	1	2	0	253	12	0	0	265	944
05:00 PM	5	0	46	0	0	51	40	94	0	9	0	143	0	0	0	0	0	0	0	62	3	0	0	65	259
05:15 PM	5	0	29	0	0	34	56	70	0	1	0	127	0	0	0	0	0	0	0	58	4	0	0	62	223
05:30 PM	8	0	51	0	0	59	57	91	0	2	0	150	0	0	0	0	0	0	0	50	2	0	0	52	261
05:45 PM	4	0	37	0	0	41	52	74	1	1	0	128	0	0	0	0	0	0	0	55	3	0	0	58	227
Total	22	0	163	0	0	185	205	329	1	13	0	548	0	0	0	0	0	0	0	225	12	0	0	237	970
Grand Total	51	0	300	0	0	351	358	674	3	24	0	1059	1	0	0	0	1	2	0	478	24	0	0	502	1914
Apprch %	14.5	0	85.5	0	0		33.8	63.6	0.3	2.3	0		50	0	0	0	50		0	95.2	4.8	0	0		
Total %	2.7	0	15.7	0	0	18.3	18.7	35.2	0.2	1.3	0	55.3	0.1	0	0	0	0.1	0.1	0	25	1.3	0	0	26.2	
Cars +	49	0	292	0	0	341	357	669	3	24	0	1053	1	0	0	0	1	2	0	468	24	0	0	492	1888
% Cars +	96.1	0	97.3	0	0	97.2	99.7	99.3	100	100	0	99.4	100	0	0	0	100	100	0	97.9	100	0	0	98	98.6
Trucks	2	0	8	0	0	10	1	5	0	0	0	6	0	0	0	0	0	0	0	10	0	0	0	10	26
% Trucks	3.9	0	2.7	0	0	2.8	0.3	0.7	0	0	0	0.6	0	0	0	0	0	0	0	2.1	0	0	0	2	1.4

TRAFFIC DATA COLLECTION

File Name : Charlottesville(Old Lynchburg Road and Sunset Avenue Extended)
Site Code :
Start Date : 4/25/2023
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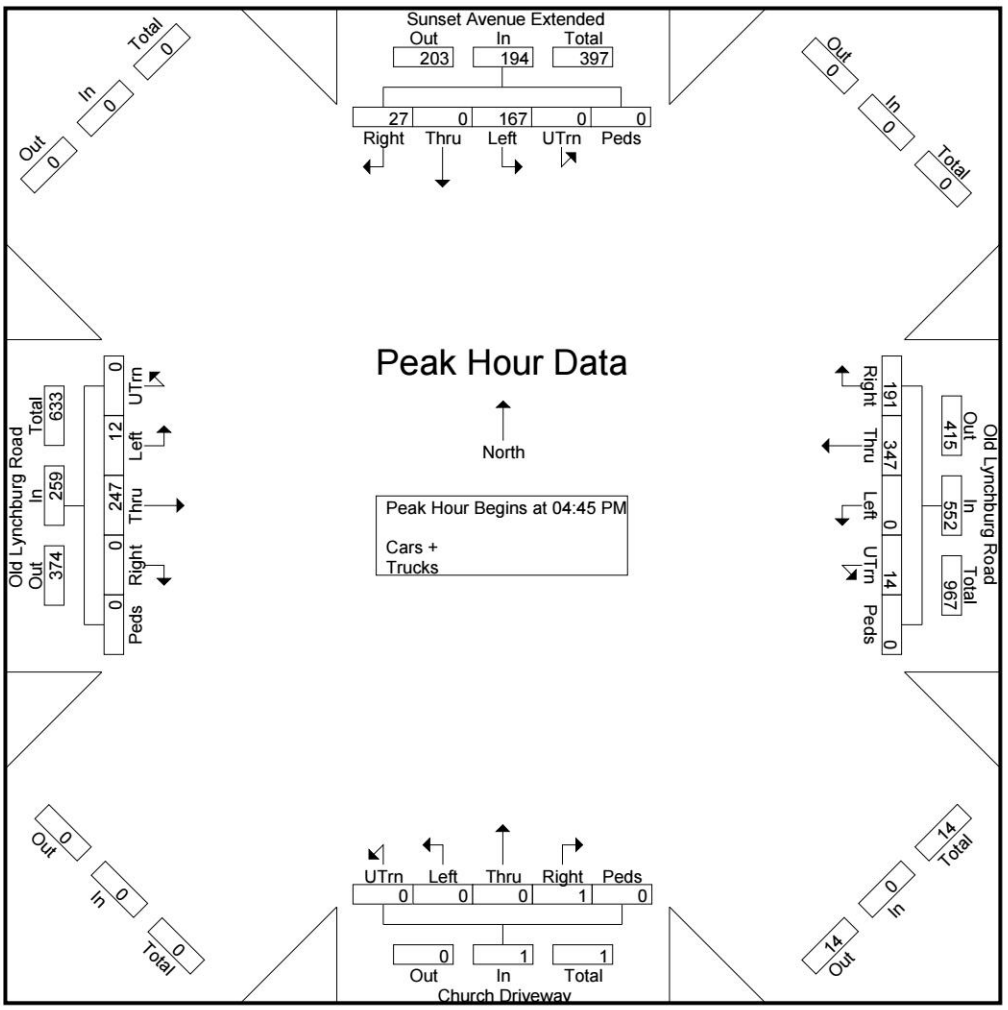
	Sunset Avenue Extended Southbound						Old Lynchburg Road Westbound						Church Driveway Northbound						Old Lynchburg Road Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:45 PM																									
04:45 PM	**9**	0	41	0	0	50	38	92	0	2	0	132	**1**	0	0	0	0	**1**	0	**77**	3	0	0	**80**	**263**
05:00 PM	5	0	46	0	0	51	40	**94**	0	**9**	0	143	0	0	0	0	0	0	0	62	3	0	0	65	259
05:15 PM	5	0	29	0	0	34	56	70	0	1	0	127	0	0	0	0	0	0	0	58	**4**	0	0	62	223
05:30 PM	8	0	**51**	0	0	**59**	**57**	91	0	2	0	**150**	0	0	0	0	0	0	0	50	2	0	0	52	261
Total Volume	27	0	167	0	0	194	191	347	0	14	0	552	1	0	0	0	0	1	0	247	12	0	0	259	1006
% App. Total	13.9	0	86.1	0	0		34.6	62.9	0	2.5	0		100	0	0	0	0		0	95.4	4.6	0	0		
PHF	.750	.000	.819	.000	.000	.822	.838	.923	.000	.389	.000	.920	.250	.000	.000	.000	.000	.250	.000	.802	.750	.000	.000	.809	.956



TRAFFIC DATA COLLECTION

File Name : Charlottesville(Sunset Avenue Exended and Country Green Road)
Site Code :
Start Date : 4/25/2023
Page No : 1

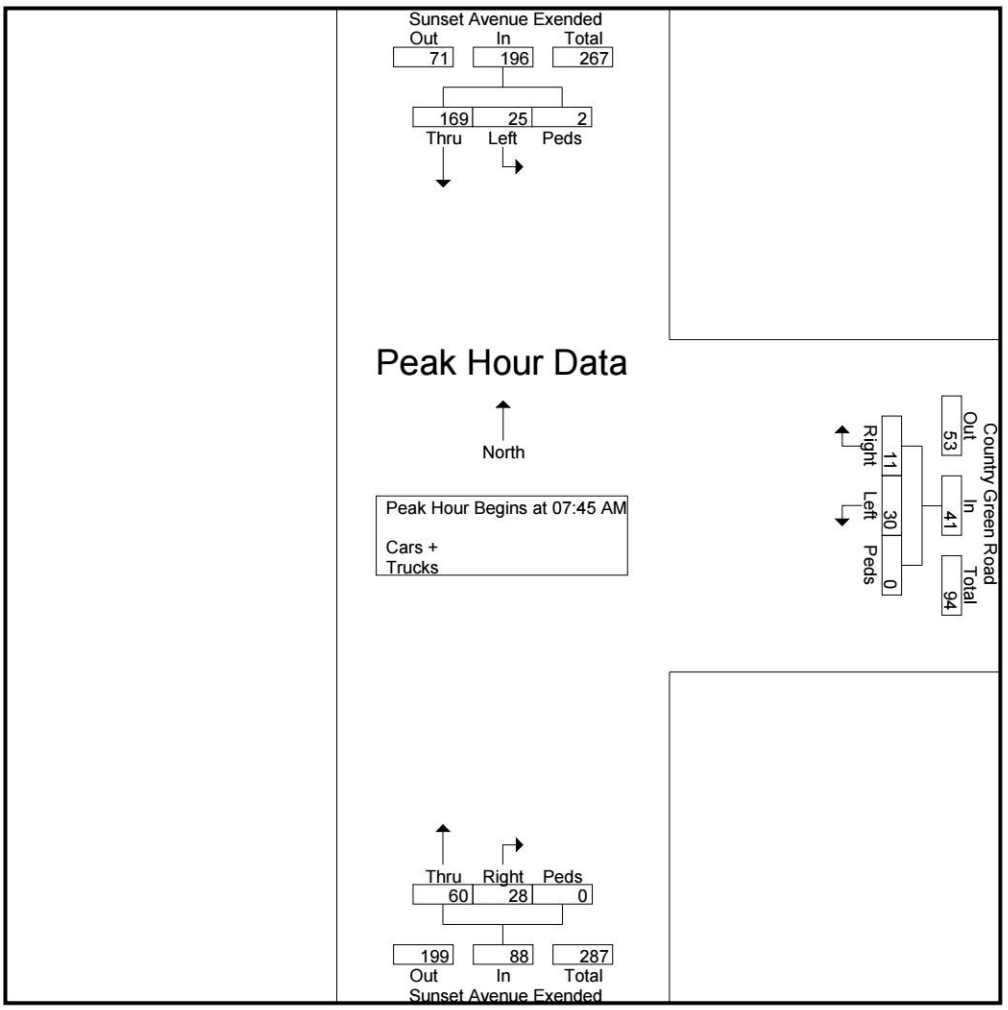
Groups Printed- Cars + - Trucks

	Sunset Avenue Exended Southbound				Country Green Road Westbound				Sunset Avenue Exended Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	35	3	0	38	1	3	0	4	2	6	0	8	50
07:15 AM	41	9	1	51	0	1	0	1	8	11	0	19	71
07:30 AM	54	3	0	57	0	1	0	1	6	9	1	16	74
07:45 AM	51	4	0	55	3	6	0	9	10	17	0	27	91
Total	181	19	1	201	4	11	0	15	26	43	1	70	286
08:00 AM	43	4	0	47	2	4	0	6	7	11	0	18	71
08:15 AM	35	12	2	49	3	14	0	17	5	16	0	21	87
08:30 AM	40	5	0	45	3	6	0	9	6	16	0	22	76
08:45 AM	33	11	0	44	3	5	0	8	2	14	0	16	68
Total	151	32	2	185	11	29	0	40	20	57	0	77	302
Grand Total	332	51	3	386	15	40	0	55	46	100	1	147	588
Apprch %	86	13.2	0.8		27.3	72.7	0		31.3	68	0.7		
Total %	56.5	8.7	0.5	65.6	2.6	6.8	0	9.4	7.8	17	0.2	25	
Cars +	322	50	3	375	12	32	0	44	45	93	1	139	558
% Cars +	97	98	100	97.2	80	80	0	80	97.8	93	100	94.6	94.9
Trucks	10	1	0	11	3	8	0	11	1	7	0	8	30
% Trucks	3	2	0	2.8	20	20	0	20	2.2	7	0	5.4	5.1

TRAFFIC DATA COLLECTION

File Name : Charlottesville(Sunset Avenue Exended and Country Green Road)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Sunset Avenue Exended Southbound				Country Green Road Westbound				Sunset Avenue Exended Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	**51**	4	0	**55**	**3**	6	0	9	**10**	**17**	0	**27**	**91**
08:00 AM	43	4	0	47	2	4	0	6	7	11	0	18	71
08:15 AM	35	**12**	**2**	49	3	**14**	0	**17**	5	16	0	21	87
08:30 AM	40	5	0	45	3	6	0	9	6	16	0	22	76
Total Volume	169	25	2	196	11	30	0	41	28	60	0	88	325
% App. Total	86.2	12.8	1		26.8	73.2	0		31.8	68.2	0		
PHF	.828	.521	.250	.891	.917	.536	.000	.603	.700	.882	.000	.815	.893



TRAFFIC DATA COLLECTION

File Name : Charlottesville(Sunset Avenue Exended and Country Green Road)
Site Code :
Start Date : 4/25/2023
Page No : 1

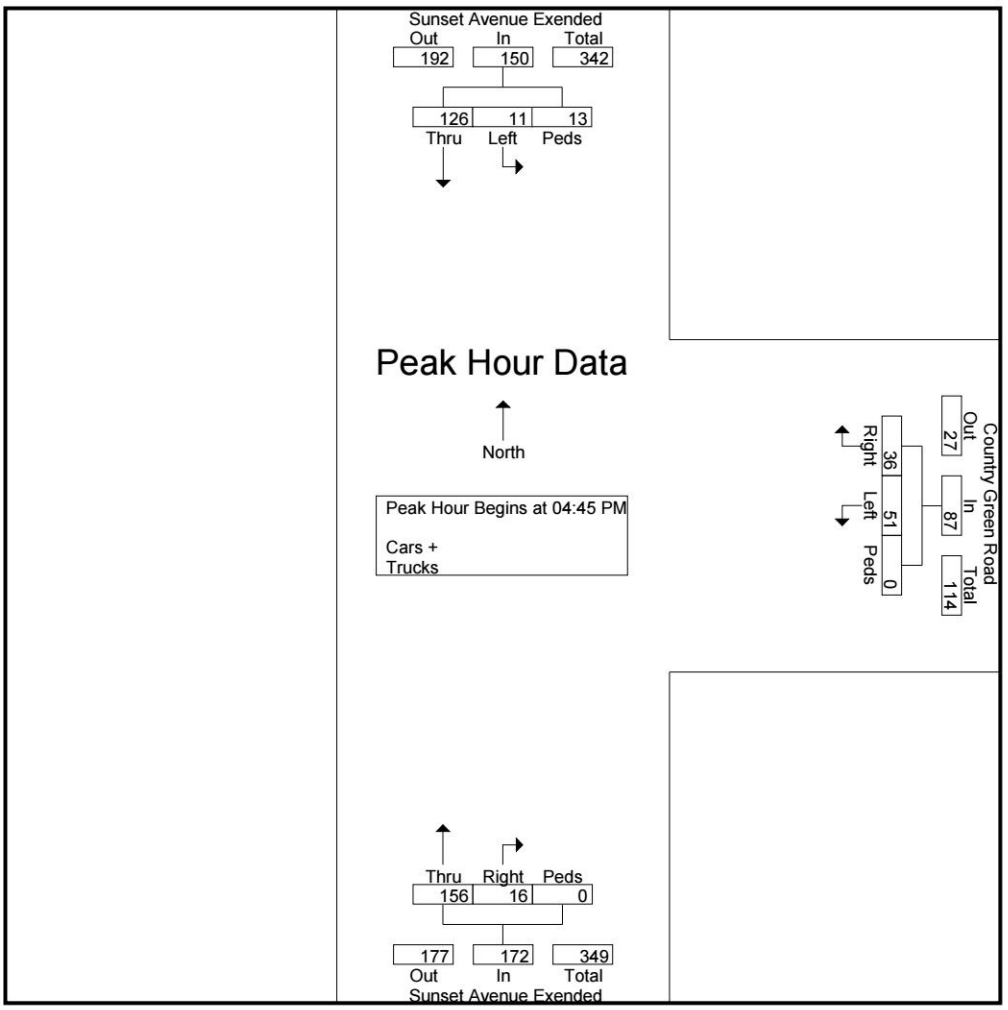
Groups Printed- Cars + - Trucks

	Sunset Avenue Exended Southbound				Country Green Road Westbound				Sunset Avenue Exended Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
04:00 PM	23	0	1	24	13	8	0	21	1	24	0	25	70
04:15 PM	22	5	0	27	4	7	0	11	2	30	0	32	70
04:30 PM	34	4	0	38	7	7	0	14	2	33	0	35	87
04:45 PM	26	5	6	37	10	13	0	23	9	31	0	40	100
Total	105	14	7	126	34	35	0	69	14	118	0	132	327
05:00 PM	25	1	4	30	7	15	0	22	6	29	0	35	87
05:15 PM	28	3	3	34	9	14	0	23	1	54	0	55	112
05:30 PM	47	2	0	49	10	9	0	19	0	42	0	42	110
05:45 PM	27	1	0	28	5	9	0	14	3	42	1	46	88
Total	127	7	7	141	31	47	0	78	10	167	1	178	397
Grand Total	232	21	14	267	65	82	0	147	24	285	1	310	724
Apprch %	86.9	7.9	5.2		44.2	55.8	0		7.7	91.9	0.3		
Total %	32	2.9	1.9	36.9	9	11.3	0	20.3	3.3	39.4	0.1	42.8	
Cars +	229	20	14	263	65	78	0	143	22	284	1	307	713
% Cars +	98.7	95.2	100	98.5	100	95.1	0	97.3	91.7	99.6	100	99	98.5
Trucks	3	1	0	4	0	4	0	4	2	1	0	3	11
% Trucks	1.3	4.8	0	1.5	0	4.9	0	2.7	8.3	0.4	0	1	1.5

TRAFFIC DATA COLLECTION

File Name : Charlottesville(Sunset Avenue Exended and Country Green Road)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Sunset Avenue Exended Southbound				Country Green Road Westbound				Sunset Avenue Exended Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	26	**5**	**6**	37	**10**	13	0	**23**	**9**	31	0	40	100
05:00 PM	25	1	4	30	7	**15**	0	22	6	29	0	35	87
05:15 PM	28	3	3	34	9	14	0	23	1	**54**	0	**55**	**112**
05:30 PM	**47**	2	0	**49**	10	9	0	19	0	42	0	42	110
Total Volume	126	11	13	150	36	51	0	87	16	156	0	172	409
% App. Total	84	7.3	8.7		41.4	58.6	0		9.3	90.7	0		
PHF	.670	.550	.542	.765	.900	.850	.000	.946	.444	.722	.000	.782	.913



File Name : Charlottesville-Charlottesville(Sunset Avenue Exended and Jefferson Ridge Drive)
Site Code :
Start Date : 4/25/2023
Page No : 1

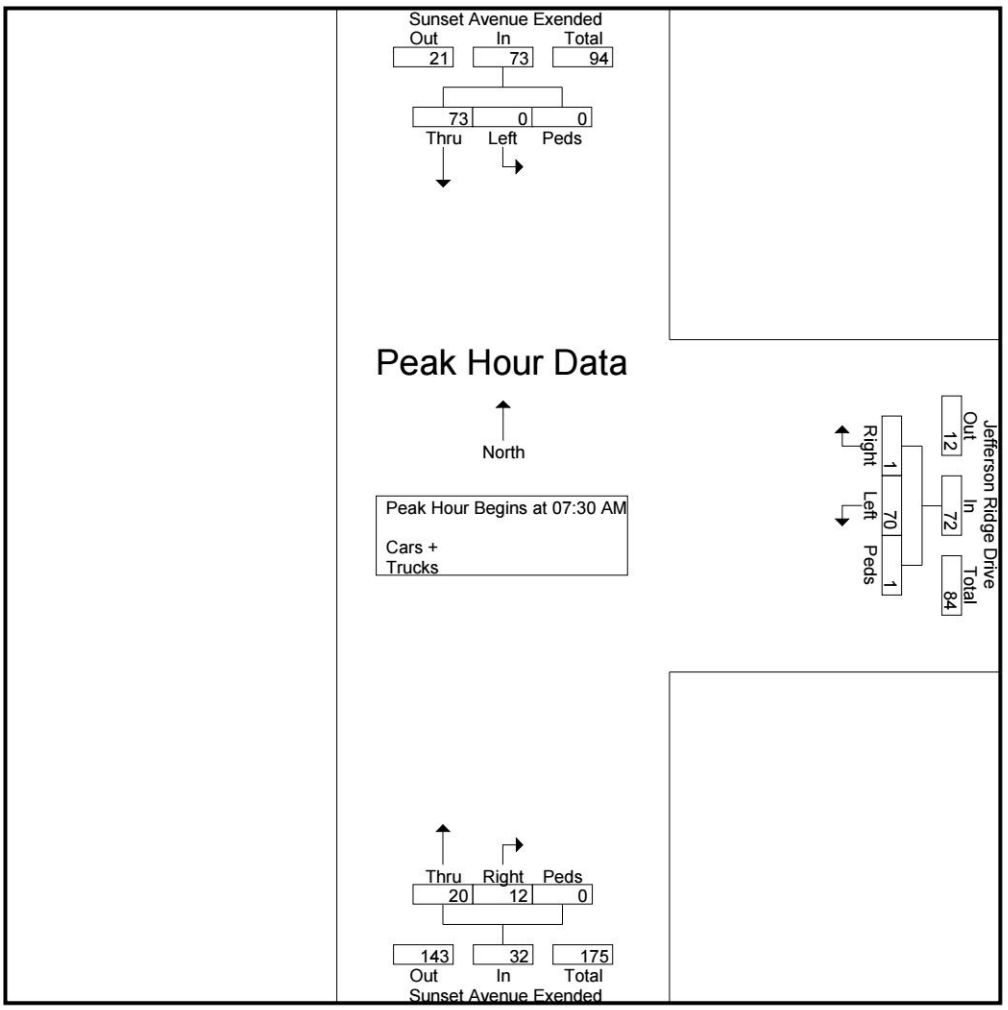
Groups Printed- Cars + - Trucks

	Sunset Avenue Exended Southbound				Jefferson Ridge Drive Westbound				Sunset Avenue Exended Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	9	1	0	10	0	11	0	11	4	5	1	10	31
07:15 AM	13	0	0	13	0	11	0	11	0	4	1	5	29
07:30 AM	17	0	0	17	0	23	0	23	3	2	0	5	45
07:45 AM	14	0	0	14	0	20	0	20	4	10	0	14	48
Total	53	1	0	54	0	65	0	65	11	21	2	34	153
08:00 AM	21	0	0	21	1	13	1	15	2	2	0	4	40
08:15 AM	21	0	0	21	0	14	0	14	3	6	0	9	44
08:30 AM	18	0	1	19	0	14	0	14	5	3	2	10	43
08:45 AM	11	0	2	13	0	14	1	15	2	9	1	12	40
Total	71	0	3	74	1	55	2	58	12	20	3	35	167
Grand Total	124	1	3	128	1	120	2	123	23	41	5	69	320
Apprch %	96.9	0.8	2.3		0.8	97.6	1.6		33.3	59.4	7.2		
Total %	38.8	0.3	0.9	40	0.3	37.5	0.6	38.4	7.2	12.8	1.6	21.6	
Cars +	116	0	3	119	1	118	2	121	23	32	5	60	300
% Cars +	93.5	0	100	93	100	98.3	100	98.4	100	78	100	87	93.8
Trucks	8	1	0	9	0	2	0	2	0	9	0	9	20
% Trucks	6.5	100	0	7	0	1.7	0	1.6	0	22	0	13	6.2

TRAFFIC DATA COLLECTION

File Name : Charlottesville-Charlottesville(Sunset Avenue Exended and Jefferson Ridge Drive)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Sunset Avenue Exended Southbound				Jefferson Ridge Drive Westbound				Sunset Avenue Exended Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	17	0	0	17	0	**23**	0	**23**	3	2	0	5	45
07:45 AM	14	0	0	14	0	20	0	20	**4**	**10**	0	**14**	**48**
08:00 AM	**21**	0	0	**21**	**1**	13	**1**	15	2	2	0	4	40
08:15 AM	21	0	0	21	0	14	0	14	3	6	0	9	44
Total Volume	73	0	0	73	1	70	1	72	12	20	0	32	177
% App. Total	100	0	0		1.4	97.2	1.4		37.5	62.5	0		
PHF	.869	.000	.000	.869	.250	.761	.250	.783	.750	.500	.000	.571	.922



File Name : Charlottesville-Charlottesville(Sunset Avenue Exended and Jefferson Ridge Drive)
Site Code :
Start Date : 4/25/2023
Page No : 1

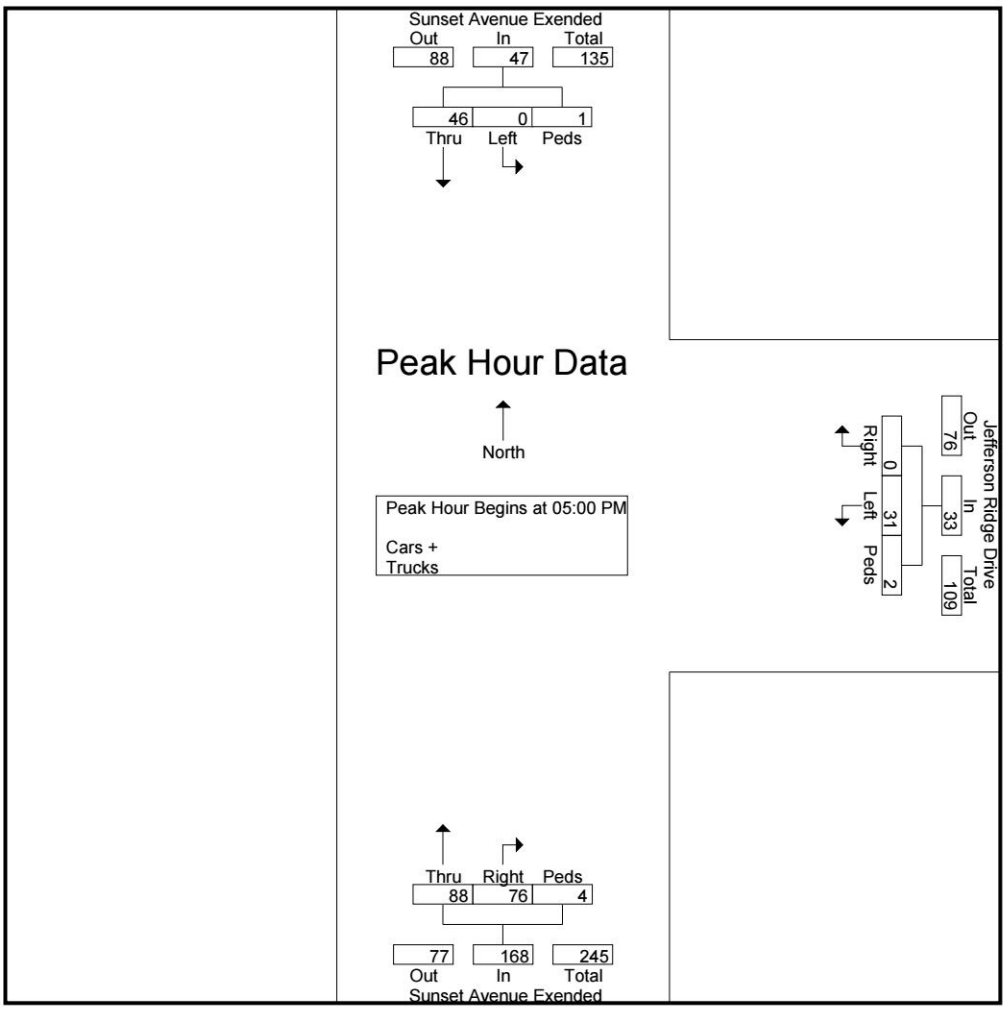
Groups Printed- Cars + - Trucks

	Sunset Avenue Exended Southbound				Jefferson Ridge Drive Westbound				Sunset Avenue Exended Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
04:00 PM	11	0	0	11	0	4	0	4	8	13	0	21	36
04:15 PM	7	0	0	7	1	7	2	10	12	14	0	26	43
04:30 PM	10	0	2	12	0	9	0	9	14	17	0	31	52
04:45 PM	10	0	0	10	0	13	0	13	18	13	0	31	54
Total	38	0	2	40	1	33	2	36	52	57	0	109	185
05:00 PM	15	0	1	16	0	4	1	5	20	17	0	37	58
05:15 PM	13	0	0	13	0	10	1	11	19	22	2	43	67
05:30 PM	9	0	0	9	0	10	0	10	21	25	1	47	66
05:45 PM	9	0	0	9	0	7	0	7	16	24	1	41	57
Total	46	0	1	47	0	31	2	33	76	88	4	168	248
Grand Total	84	0	3	87	1	64	4	69	128	145	4	277	433
Apprch %	96.6	0	3.4		1.4	92.8	5.8		46.2	52.3	1.4		
Total %	19.4	0	0.7	20.1	0.2	14.8	0.9	15.9	29.6	33.5	0.9	64	
Cars +	77	0	3	80	1	64	4	69	128	137	4	269	418
% Cars +	91.7	0	100	92	100	100	100	100	100	94.5	100	97.1	96.5
Trucks	7	0	0	7	0	0	0	0	0	8	0	8	15
% Trucks	8.3	0	0	8	0	0	0	0	0	5.5	0	2.9	3.5

TRAFFIC DATA COLLECTION

File Name : Charlottesville-Charlottesville(Sunset Avenue Exended and Jefferson Ridge Drive)
Site Code :
Start Date : 4/25/2023
Page No : 2

	Sunset Avenue Exended Southbound				Jefferson Ridge Drive Westbound				Sunset Avenue Exended Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	**15**	0	**1**	**16**	0	4	**1**	5	20	17	0	37	58
05:15 PM	13	0	0	13	0	**10**	1	**11**	19	22	**2**	43	**67**
05:30 PM	9	0	0	9	0	10	0	10	**21**	**25**	1	**47**	66
05:45 PM	9	0	0	9	0	7	0	7	16	24	1	41	57
Total Volume	46	0	1	47	0	31	2	33	76	88	4	168	248
% App. Total	97.9	0	2.1		0	93.9	6.1		45.2	52.4	2.4		
PHF	.767	.000	.250	.734	.000	.775	.500	.750	.905	.880	.500	.894	.925



APPENDIX C: SYNCHRO OUTPUT – EXISTING (2023) CONDITIONS

Intersection	
Int Delay, s/veh	18.8

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	1	12	448	0	35	0	192	65	0	1	0	238	0	11
Future Vol, veh/h	1	12	448	0	35	0	192	65	0	1	0	238	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	225	-	-	-	250	-	310	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	3	2	2	2	9	7	2	2	2	2	2	15
Mvmt Flow	1	15	574	0	45	0	246	83	0	1	0	305	0	14

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	246	329	0	0	574	574	0	0	819	1025	287	656	942	123
Stage 1	-	-	-	-	-	-	-	-	606	606	-	336	336	-
Stage 2	-	-	-	-	-	-	-	-	213	419	-	320	606	-
Critical Hdwy	6.44	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	7.2
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	2.52	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.45
Pot Cap-1 Maneuver	1001	1227	-	-	621	995	-	-	267	234	710	351	261	865
Stage 1	-	-	-	-	-	-	-	-	451	485	-	652	640	-
Stage 2	-	-	-	-	-	-	-	-	769	588	-	666	485	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	1205	1205	-	-	621	621	-	-	245	214	710	326	239	865
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	245	214	-	326	239	-
Stage 1	-	-	-	-	-	-	-	-	445	478	-	643	594	-
Stage 2	-	-	-	-	-	-	-	-	702	546	-	655	478	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.3	21.9	73.9
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	214	1205	-	-	621	-	-	335
HCM Lane V/C Ratio	0.006	0.014	-	-	0.072	-	-	0.953
HCM Control Delay (s)	21.9	8	-	-	11.2	-	-	73.9
HCM Lane LOS	C	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0	0	-	-	0.2	-	-	10

Intersection														
Int Delay, s/veh	52.7													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	11	53	666	6	34	49	231	152	2	1	6	178	3	48
Future Vol, veh/h	11	53	666	6	34	49	231	152	2	1	6	178	3	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	250	-	110	-	300	-	375	-	-	250	250	-	0
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	4	3	2	2	2	9	2	2	2	2	2	2	3
Mvmt Flow	14	67	843	8	43	62	292	192	3	1	8	225	4	61

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	292	484	0	0	843	851	0	0	1363	1699	422	1086	1515	146
Stage 1	-	-	-	-	-	-	-	-	1005	1005	-	502	502	-
Stage 2	-	-	-	-	-	-	-	-	358	694	-	584	1013	-
Critical Hdwy	6.44	4.18	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.96
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	2.52	2.24	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.33
Pot Cap-1 Maneuver	937	1061	-	-	419	783	-	-	107	91	580	~ 171	118	871
Stage 1	-	-	-	-	-	-	-	-	259	317	-	520	540	-
Stage 2	-	-	-	-	-	-	-	-	633	442	-	465	315	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	1026	1026	-	-	574	574	-	-	78	68	580	~ 135	89	871
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	78	68	-	~ 135	89	-
Stage 1	-	-	-	-	-	-	-	-	239	292	-	479	441	-
Stage 2	-	-	-	-	-	-	-	-	477	361	-	421	290	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	2.3	26.3	$ 323.3
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	74	580	1026	-	-	574	-	-	134	871
HCM Lane V/C Ratio	0.051	0.013	0.079	-	-	0.183	-	-	1.71	0.07
HCM Control Delay (s)	56.3	11.3	8.8	-	-	12.7	-	-	-$ 406.5	9.4
HCM Lane LOS	F	B	A	-	-	B	-	-	F	A
HCM 95th %tile Q(veh)	0.2	0	0.3	-	-	0.7	-	-	17	0.2

Notes

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

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	11	60	28	25	169
Future Vol, veh/h	30	11	60	28	25	169
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	20	20	7	2	2	3
Mvmt Flow	34	12	67	31	28	190
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	7.7	8.6
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	73%	13%
Vol Thru, %	68%	0%	87%
Vol Right, %	32%	27%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	88	41	194
LT Vol	0	30	25
Through Vol	60	0	169
RT Vol	28	11	0
Lane Flow Rate	99	46	218
Geometry Grp	1	1	1
Degree of Util (X)	0.112	0.063	0.249
Departure Headway (Hd)	4.074	4.913	4.116
Convergence, Y/N	Yes	Yes	Yes
Cap	865	733	865
Service Time	2.166	2.913	2.18
HCM Lane V/C Ratio	0.114	0.063	0.252
HCM Control Delay	7.7	8.2	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.2	1

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	57	41	165	172	23
Future Vol, veh/h	54	57	41	165	172	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	4	2	1	5
Mvmt Flow	59	63	45	181	189	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	473	202	214	0	-	0
Stage 1	202	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	550	839	1344	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	532	839	1344	-	-	-
Mov Cap-2 Maneuver	532	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1344	-	655	-	-
HCM Lane V/C Ratio	0.034	-	0.186	-	-
HCM Control Delay (s)	7.8	-	11.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	70	0	1	0	20	12	0	73	0
Future Vol, veh/h	0	0	0	70	0	1	0	20	12	0	73	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	-	-	-	-	-	-	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	22	2	100	6	2
Mvmt Flow	0	0	0	76	0	1	0	22	13	0	79	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	108	114	79	101	101	22	79	0	0	35	0	0
Stage 1	79	79	-	22	22	-	-	-	-	-	-	-
Stage 2	29	35	-	79	79	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	5.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	3.1	-	-
Pot Cap-1 Maneuver	871	776	981	880	789	1055	1519	-	-	1122	-	-
Stage 1	930	829	-	996	877	-	-	-	-	-	-	-
Stage 2	988	866	-	930	829	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	870	776	981	880	789	1055	1519	-	-	1122	-	-
Mov Cap-2 Maneuver	870	776	-	880	789	-	-	-	-	-	-	-
Stage 1	930	829	-	996	877	-	-	-	-	-	-	-
Stage 2	987	866	-	930	829	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.5	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1519	-	-	-	882	1122	-	-
HCM Lane V/C Ratio	-	-	-	-	0.087	-	-	-
HCM Control Delay (s)	0	-	-	0	9.5	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0	-	-

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	12	247	0	14	0	359	191	0	0	1	167	0	27
Future Vol, veh/h	12	247	0	14	0	359	191	0	0	1	167	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	-	250	-	310	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	3
Mvmt Flow	13	257	0	15	0	374	199	0	0	1	174	0	28

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	573	0	0	257	257	0	0	500	886	129	559	687	187
Stage 1	-	-	-	-	-	-	-	283	283	-	404	404	-
Stage 2	-	-	-	-	-	-	-	217	603	-	155	283	-
Critical Hdwy	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.96
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	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.33
Pot Cap-1 Maneuver	996	-	-	986	1305	-	-	454	282	897	412	368	820
Stage 1	-	-	-	-	-	-	-	700	676	-	594	598	-
Stage 2	-	-	-	-	-	-	-	765	487	-	832	676	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	996	-	-	985	985	-	-	429	274	897	403	358	820
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	429	274	-	403	358	-
Stage 1	-	-	-	-	-	-	-	691	667	-	586	589	-
Stage 2	-	-	-	-	-	-	-	728	480	-	820	667	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.2	9	20.3
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	897	996	-	-	985	-	-	434
HCM Lane V/C Ratio	0.001	0.013	-	-	0.015	-	-	0.466
HCM Control Delay (s)	9	8.7	-	-	8.7	-	-	20.3
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	2.4

Intersection														
Int Delay, s/veh	15.6													
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	1	25	403	3	27	10	489	310	4	2	43	209	0	70
Future Vol, veh/h	1	25	403	3	27	10	489	310	4	2	43	209	0	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	250	-	110	-	300	-	375	-	-	250	250	-	0
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	95	95
Heavy Vehicles, %	2	7	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	26	424	3	28	11	515	326	4	2	45	220	0	74

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	515	841	0	0	424	427	0	0	814	1397	212	860	1074	258
Stage 1	-	-	-	-	-	-	-	-	478	478	-	593	593	-
Stage 2	-	-	-	-	-	-	-	-	336	919	-	267	481	-
Critical Hdwy	6.44	4.24	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
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	2.52	2.27	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	677	759	-	-	773	1129	-	-	270	140	793	250	218	741
Stage 1	-	-	-	-	-	-	-	-	537	554	-	459	492	-
Stage 2	-	-	-	-	-	-	-	-	652	348	-	715	552	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	752	752	-	-	808	808	-	-	228	129	793	~ 218	200	741
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	228	129	-	~ 218	200	-
Stage 1	-	-	-	-	-	-	-	-	518	534	-	442	468	-
Stage 2	-	-	-	-	-	-	-	-	559	331	-	647	532	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	11.7	85.2
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	182	793	752	-	-	808	-	-	218	741
HCM Lane V/C Ratio	0.035	0.057	0.036	-	-	0.048	-	-	1.009	0.099
HCM Control Delay (s)	25.5	9.8	10	-	-	9.7	-	-	110.2	10.4
HCM Lane LOS	D	A	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.1	0.2	0.1	-	-	0.2	-	-	9.2	0.3

Notes

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

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	36	156	16	11	126
Future Vol, veh/h	51	36	156	16	11	126
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	2	2	8	4	2
Mvmt Flow	56	40	171	18	12	138
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	8.5	8.4
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	59%	8%
Vol Thru, %	91%	0%	92%
Vol Right, %	9%	41%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	172	87	137
LT Vol	0	51	11
Through Vol	156	0	126
RT Vol	16	36	0
Lane Flow Rate	189	96	151
Geometry Grp	1	1	1
Degree of Util (X)	0.224	0.122	0.184
Departure Headway (Hd)	4.268	4.589	4.408
Convergence, Y/N	Yes	Yes	Yes
Cap	843	783	816
Service Time	2.281	2.605	2.423
HCM Lane V/C Ratio	0.224	0.123	0.185
HCM Control Delay	8.5	8.2	8.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.9	0.4	0.7

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	64	104	233	215	63
Future Vol, veh/h	41	64	104	233	215	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	5	2	2	2	2
Mvmt Flow	47	74	120	268	247	72

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	791	283	319	0	-	0
Stage 1	283	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Critical Hdwy	6.42	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	358	749	1241	-	-	-
Stage 1	765	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	323	749	1241	-	-	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	604	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	2.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1241	-	494	-	-
HCM Lane V/C Ratio	0.096	-	0.244	-	-
HCM Control Delay (s)	8.2	-	14.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1	-	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	31	0	0	0	88	76	0	46	0
Future Vol, veh/h	0	0	0	31	0	0	0	88	76	0	46	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	-	-	-	-	-	-	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	5	2	2	8	2
Mvmt Flow	0	0	0	33	0	0	0	95	82	0	49	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	185	226	49	144	144	95	49	0	0	177	0	0
Stage 1	49	49	-	95	95	-	-	-	-	-	-	-
Stage 2	136	177	-	49	49	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	776	673	1020	825	747	962	1558	-	-	1399	-	-
Stage 1	964	854	-	912	816	-	-	-	-	-	-	-
Stage 2	867	753	-	964	854	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	776	673	1020	825	747	962	1558	-	-	1399	-	-
Mov Cap-2 Maneuver	776	673	-	825	747	-	-	-	-	-	-	-
Stage 1	964	854	-	912	816	-	-	-	-	-	-	-
Stage 2	867	753	-	964	854	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.5	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1558	-	-	-	825	1399	-	-
HCM Lane V/C Ratio	-	-	-	-	0.04	-	-	-
HCM Control Delay (s)	0	-	-	0	9.5	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

APPENDIX D: SYNCHRO AND SIDRA OUTPUT – NO-BUILD (2027) CONDITIONS

Intersection	
Int Delay, s/veh	3.2

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	1	29	595	0	36	0	286	68	0	1	0	95	0	21
Future Vol, veh/h	1	29	595	0	36	0	286	68	0	1	0	95	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	225	-	-	-	250	-	310	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	2	2	2	9	7	2	2	2	2	2	15
Mvmt Flow	1	32	647	0	39	0	311	74	0	1	0	103	0	23

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	311	385	0	0	647	647	0	0	947	1176	324	779	1102	156
Stage 1	-	-	-	-	-	-	-	-	713	713	-	389	389	-
Stage 2	-	-	-	-	-	-	-	-	234	463	-	390	713	-
Critical Hdwy	6.44	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	7.2
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	2.52	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.45
Pot Cap-1 Maneuver	911	1170	-	-	558	934	-	-	216	190	672	286	210	822
Stage 1	-	-	-	-	-	-	-	-	389	434	-	606	607	-
Stage 2	-	-	-	-	-	-	-	-	748	562	-	606	434	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	1158	1158	-	-	558	558	-	-	194	172	672	264	190	822
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	194	172	-	264	190	-
Stage 1	-	-	-	-	-	-	-	-	378	421	-	588	565	-
Stage 2	-	-	-	-	-	-	-	-	676	523	-	587	421	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.1	26.1	25.3
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	172	1158	-	-	558	-	-	301
HCM Lane V/C Ratio	0.006	0.028	-	-	0.07	-	-	0.419
HCM Control Delay (s)	26.1	8.2	-	-	11.9	-	-	25.3
HCM Lane LOS	D	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-	-	2

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	11	77	28	168	36
Future Vol, veh/h	30	11	77	28	168	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	20	20	7	2	2	3
Mvmt Flow	33	12	84	30	183	39
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.3	7.9	8.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	73%	82%
Vol Thru, %	73%	0%	18%
Vol Right, %	27%	27%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	105	41	204
LT Vol	0	30	168
Through Vol	77	0	36
RT Vol	28	11	0
Lane Flow Rate	114	45	222
Geometry Grp	1	1	1
Degree of Util (X)	0.133	0.062	0.263
Departure Headway (Hd)	4.207	4.972	4.264
Convergence, Y/N	Yes	Yes	Yes
Cap	857	724	834
Service Time	2.207	2.977	2.336
HCM Lane V/C Ratio	0.133	0.062	0.266
HCM Control Delay	7.9	8.3	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.2	1.1

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	200	43	188	191	24
Future Vol, veh/h	54	200	43	188	191	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	59	217	47	204	208	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	519	221	234	0	-	0
Stage 1	221	-	-	-	-	-
Stage 2	298	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	517	819	1322	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	498	819	1322	-	-	-
Mov Cap-2 Maneuver	498	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	753	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1322	-	720	-	-
HCM Lane V/C Ratio	0.035	-	0.383	-	-
HCM Control Delay (s)	7.8	-	13.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.8	-	-

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	70	0	1	0	37	12	0	83	0
Future Vol, veh/h	0	0	0	70	0	1	0	37	12	0	83	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	-	-	-	-	-	-	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	22	2	100	6	2
Mvmt Flow	0	0	0	76	0	1	0	40	13	0	90	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	137	143	90	130	130	40	90	0	0	53	0	0
Stage 1	90	90	-	40	40	-	-	-	-	-	-	-
Stage 2	47	53	-	90	90	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	5.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	3.1	-	-
Pot Cap-1 Maneuver	834	748	968	843	761	1031	1505	-	-	1102	-	-
Stage 1	917	820	-	975	862	-	-	-	-	-	-	-
Stage 2	967	851	-	917	820	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	833	748	968	843	761	1031	1505	-	-	1102	-	-
Mov Cap-2 Maneuver	833	748	-	843	761	-	-	-	-	-	-	-
Stage 1	917	820	-	975	862	-	-	-	-	-	-	-
Stage 2	966	851	-	917	820	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.7	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1505	-	-	-	845	1102	-	-
HCM Lane V/C Ratio	-	-	-	-	0.091	-	-	-
HCM Control Delay (s)	0	-	-	0	9.7	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0	-	-

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	27	397	0	15	0	540	199	0	0	1	67	0	47
Future Vol, veh/h	27	397	0	15	0	540	199	0	0	1	67	0	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	-	250	-	310	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	3
Mvmt Flow	28	414	0	16	0	563	207	0	0	1	70	0	49

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	770	0	0	414	414	0	0	784	1272	207	858	1065	282
Stage 1	-	-	-	-	-	-	-	470	470	-	595	595	-
Stage 2	-	-	-	-	-	-	-	314	802	-	263	470	-
Critical Hdwy	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.96
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	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.33
Pot Cap-1 Maneuver	840	-	-	785	1141	-	-	283	166	799	251	221	712
Stage 1	-	-	-	-	-	-	-	543	558	-	458	491	-
Stage 2	-	-	-	-	-	-	-	671	395	-	719	558	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	840	-	-	784	784	-	-	253	157	799	240	210	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	253	157	-	240	210	-
Stage 1	-	-	-	-	-	-	-	525	540	-	443	481	-
Stage 2	-	-	-	-	-	-	-	612	387	-	694	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.2	9.5	21.9
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	799	840	-	-	784	-	-	330
HCM Lane V/C Ratio	0.001	0.033	-	-	0.02	-	-	0.36
HCM Control Delay (s)	9.5	9.4	-	-	9.7	-	-	21.9
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-	-	1.6

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	36	171	16	111	46
Future Vol, veh/h	51	36	171	16	111	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	2	2	8	4	2
Mvmt Flow	55	39	186	17	121	50
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	8.7	8.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	59%	71%
Vol Thru, %	91%	0%	29%
Vol Right, %	9%	41%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	187	87	157
LT Vol	0	51	111
Through Vol	171	0	46
RT Vol	16	36	0
Lane Flow Rate	203	95	171
Geometry Grp	1	1	1
Degree of Util (X)	0.243	0.123	0.216
Departure Headway (Hd)	4.299	4.674	4.549
Convergence, Y/N	Yes	Yes	Yes
Cap	837	768	790
Service Time	2.316	2.697	2.568
HCM Lane V/C Ratio	0.243	0.124	0.216
HCM Control Delay	8.7	8.4	8.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1	0.4	0.8

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	164	108	258	246	66
Future Vol, veh/h	41	164	108	258	246	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	2	2
Mvmt Flow	45	178	117	280	267	72

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	817	303	339	0	-	0
Stage 1	303	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Critical Hdwy	6.42	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	346	730	1220	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	313	730	1220	-	-	-
Mov Cap-2 Maneuver	313	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	600	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.1	2.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1220	-	576	-	-
HCM Lane V/C Ratio	0.096	-	0.387	-	-
HCM Control Delay (s)	8.3	-	15.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.8	-	-

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	31	0	0	0	103	76	0	66	0
Future Vol, veh/h	0	0	0	31	0	0	0	103	76	0	66	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	-	-	-	-	-	-	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	5	2	2	8	2
Mvmt Flow	0	0	0	33	0	0	0	111	82	0	71	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	223	264	71	182	182	111	71	0	0	193	0	0
Stage 1	71	71	-	111	111	-	-	-	-	-	-	-
Stage 2	152	193	-	71	71	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	733	641	991	779	712	942	1529	-	-	1380	-	-
Stage 1	939	836	-	894	804	-	-	-	-	-	-	-
Stage 2	850	741	-	939	836	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	733	641	991	779	712	942	1529	-	-	1380	-	-
Mov Cap-2 Maneuver	733	641	-	779	712	-	-	-	-	-	-	-
Stage 1	939	836	-	894	804	-	-	-	-	-	-	-
Stage 2	850	741	-	939	836	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.8	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	-	779	1380	-	-
HCM Lane V/C Ratio	-	-	-	-	0.043	-	-	-
HCM Control Delay (s)	0	-	-	0	9.8	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

LANE LEVEL OF SERVICE

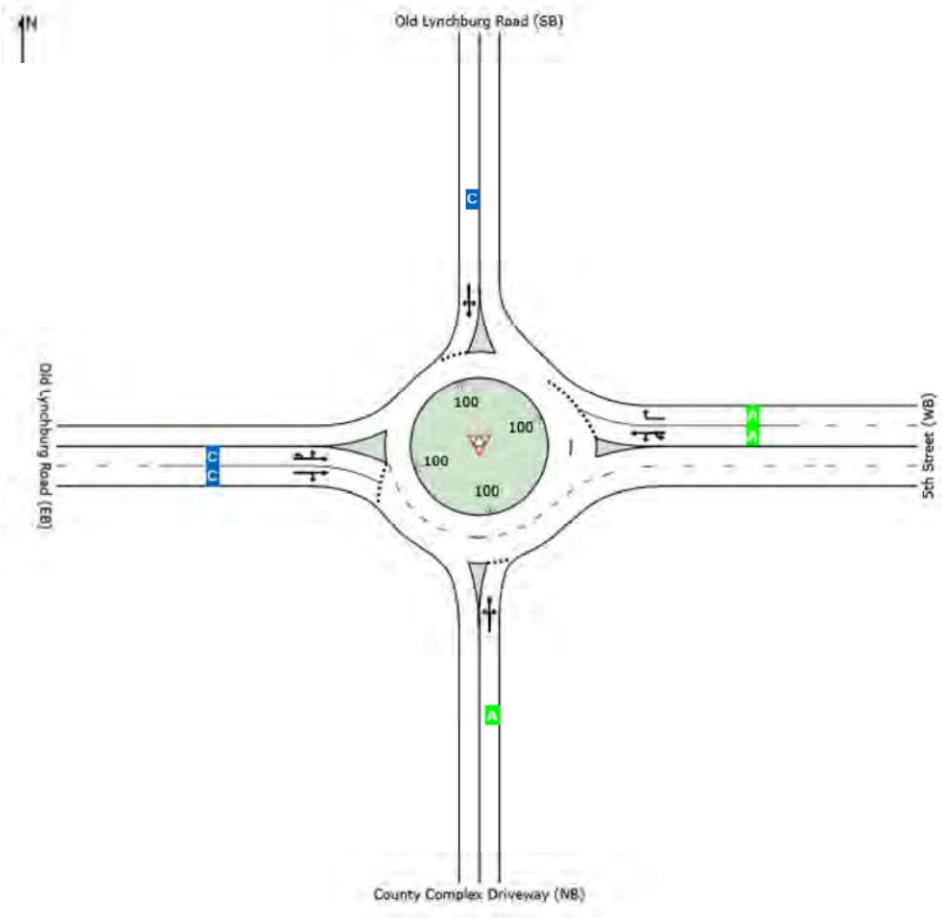
Lane Level of Service

Site: 101 [Granger Property NB 2027 AM]

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	A	C	C	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: 101 [Granger Property NB 2027 AM]

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: County Complex Driveway (NB)													
Lane 1[d]	10	2.0	466	0.021	100	8.0	LOS A	0.1	1.3	Full	1600	0.0	0.0
Approach	10	2.0		0.021		8.0	LOS A	0.1	1.3				
East: 5th Street (WB)													
Lane 1[d]	438	7.5	982	0.446	100	8.8	LOS A	1.6	42.7	Full	1600	0.0	0.0
Lane 2	172	2.0	1030	0.167	100	5.0	LOS A	0.5	12.4	Full	1600	0.0	0.0
Approach	610	6.0		0.446		7.7	LOS A	1.6	42.7				
North: Old Lynchburg Road (SB)													
Lane 1[d]	425	2.2	681	0.624	100	16.8	LOS C	4.0	102.1	Full	1600	0.0	0.0
Approach	425	2.2		0.624		16.8	LOS C	4.0	102.1				
West: Old Lynchburg Road (EB)													
Lane 1	408	3.2	690	0.591	100	15.4	LOS C	3.6	91.6	Full	1600	0.0	0.0
Lane 2[d]	409	3.0	691	0.591	100	15.4	LOS C	3.6	91.7	Full	1600	0.0	0.0
Approach	816	3.1		0.591		15.4	LOS C	3.6	91.7				
Intersection	1861	3.8		0.624		13.2	LOS B	4.0	102.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE LEVEL OF SERVICE

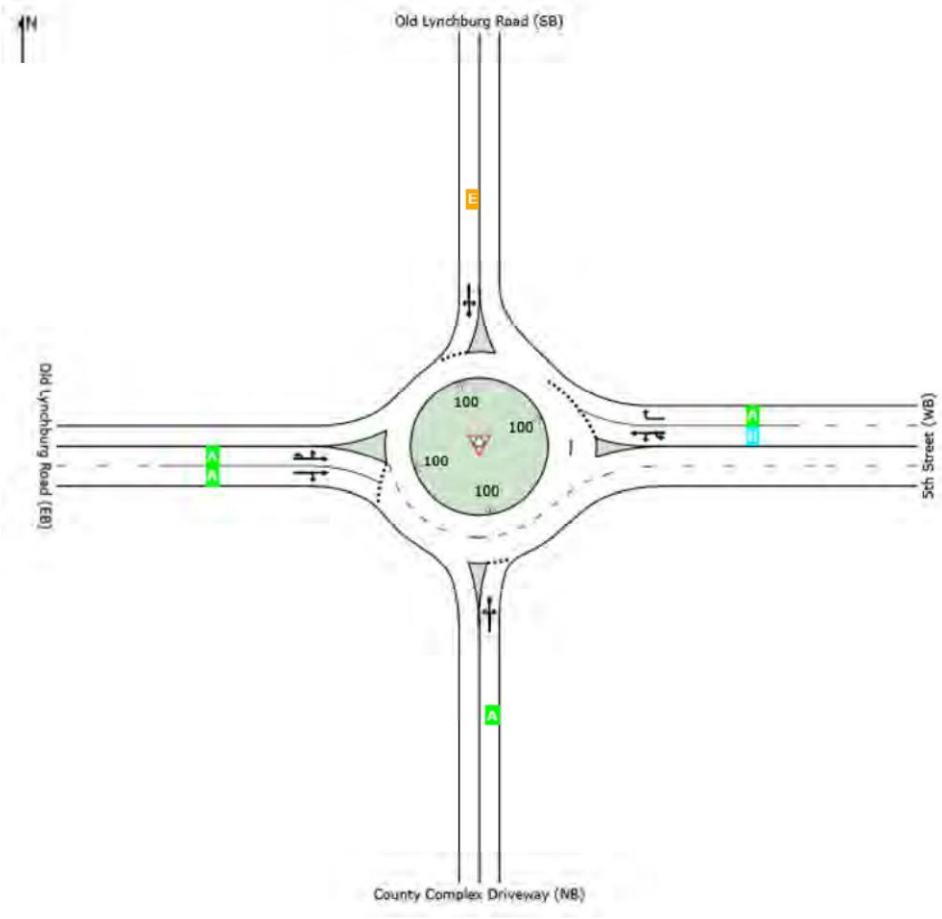
Lane Level of Service

Site: 101 [Granger Property NB 2027 PM]

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	B	E	A	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: 101 [Granger Property NB 2027 PM]

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: County Complex Driveway (NB)													
Lane 1[d]	53	2.0	580	0.092	100	7.3	LOS A	0.2	5.9	Full	1600	0.0	0.0
Approach	53	2.0		0.092		7.3	LOS A	0.2	5.9				
East: 5th Street (WB)													
Lane 1[d]	754	2.0	1066	0.708	100	14.6	LOS B	4.9	125.7	Full	1600	0.0	0.0
Lane 2	351	2.0	1063	0.330	100	6.7	LOS A	1.2	30.3	Full	1600	0.0	0.0
Approach	1105	2.0		0.708		12.1	LOS B	4.9	125.7				
North: Old Lynchburg Road (SB)													
Lane 1[d]	447	2.0	510	0.875	100	43.1	LOS E	8.2	209.1	Full	1600	0.0	0.0
Approach	447	2.0		0.875		43.1	LOS E	8.2	209.1				
West: Old Lynchburg Road (EB)													
Lane 1	265	2.8	740	0.357	100	9.3	LOS A	1.5	38.0	Full	1600	0.0	0.0
Lane 2[d]	267	2.0	747	0.357	100	9.3	LOS A	1.5	38.1	Full	1600	0.0	0.0
Approach	532	2.4		0.357		9.3	LOS A	1.5	38.1				
Intersection	2137	2.1		0.875		17.8	LOS C	8.2	209.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

APPENDIX E: SYNCHRO AND SIDRA OUTPUT – BUILD (2027) CONDITIONS

Intersection	
Int Delay, s/veh	3.7

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	1	31	595	0	36	0	286	71	0	1	0	103	0	29
Future Vol, veh/h	1	31	595	0	36	0	286	71	0	1	0	103	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	-	225	-	-	-	250	-	310	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	2	2	2	9	7	2	2	2	2	2	15
Mvmt Flow	1	34	647	0	39	0	311	77	0	1	0	112	0	32

Major/Minor	Major1				Major2				Minor1			Minor2		
Conflicting Flow All	311	388	0	0	647	647	0	0	951	1183	324	783	1106	156
Stage 1	-	-	-	-	-	-	-	-	717	717	-	389	389	-
Stage 2	-	-	-	-	-	-	-	-	234	466	-	394	717	-
Critical Hdwy	6.44	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	7.2
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	2.52	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.45
Pot Cap-1 Maneuver	911	1167	-	-	558	934	-	-	214	188	672	284	209	822
Stage 1	-	-	-	-	-	-	-	-	387	432	-	606	607	-
Stage 2	-	-	-	-	-	-	-	-	748	561	-	602	432	-
Platoon blocked, %			-	-			-	-						
Mov Cap-1 Maneuver	1155	1155	-	-	558	558	-	-	190	170	672	261	189	822
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	190	170	-	261	189	-
Stage 1	-	-	-	-	-	-	-	-	375	419	-	588	565	-
Stage 2	-	-	-	-	-	-	-	-	669	522	-	582	419	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.1	26.3	26.6
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	170	1155	-	-	558	-	-	307
HCM Lane V/C Ratio	0.006	0.03	-	-	0.07	-	-	0.467
HCM Control Delay (s)	26.3	8.2	-	-	11.9	-	-	26.6
HCM Lane LOS	D	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-	-	2.4

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	32	82	28	230	52
Future Vol, veh/h	30	32	82	28	230	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	20	20	7	2	2	3
Mvmt Flow	33	35	89	30	250	57
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.5	8.1	10
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	48%	82%
Vol Thru, %	75%	0%	18%
Vol Right, %	25%	52%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	110	62	282
LT Vol	0	30	230
Through Vol	82	0	52
RT Vol	28	32	0
Lane Flow Rate	120	67	307
Geometry Grp	1	1	1
Degree of Util (X)	0.145	0.093	0.375
Departure Headway (Hd)	4.361	4.983	4.408
Convergence, Y/N	Yes	Yes	Yes
Cap	824	720	821
Service Time	2.377	3.007	2.408
HCM Lane V/C Ratio	0.146	0.093	0.374
HCM Control Delay	8.1	8.5	10
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.3	1.8

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	70	247	59	188	191	29
Future Vol, veh/h	70	247	59	188	191	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	5
Mvmt Flow	76	268	64	204	208	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	556	224	240	0	-	0
Stage 1	224	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	492	815	1315	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	468	815	1315	-	-	-
Mov Cap-2 Maneuver	468	-	-	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	727	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	1.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1315	-	700	-	-
HCM Lane V/C Ratio	0.049	-	0.492	-	-
HCM Control Delay (s)	7.9	-	15	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.7	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↗		↕	
Traffic Vol, veh/h	0	0	78	70	0	1	26	37	12	0	83	0
Future Vol, veh/h	0	0	78	70	0	1	26	37	12	0	83	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	-	-	-	-	-	-	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	22	2	100	6	2
Mvmt Flow	0	0	85	76	0	1	28	40	13	0	90	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	193	199	90	229	186	40	90	0	0	53	0	0
Stage 1	90	90	-	96	96	-	-	-	-	-	-	-
Stage 2	103	109	-	133	90	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	5.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	3.1	-	-
Pot Cap-1 Maneuver	767	697	968	726	708	1031	1505	-	-	1102	-	-
Stage 1	917	820	-	911	815	-	-	-	-	-	-	-
Stage 2	903	805	-	870	820	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	755	684	968	653	695	1031	1505	-	-	1102	-	-
Mov Cap-2 Maneuver	755	684	-	653	695	-	-	-	-	-	-	-
Stage 1	900	820	-	894	800	-	-	-	-	-	-	-
Stage 2	885	790	-	794	820	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	11.2	2.6	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1505	-	-	968	656	1102	-	-
HCM Lane V/C Ratio	0.019	-	-	0.088	0.118	-	-	-
HCM Control Delay (s)	7.4	0	-	9.1	11.2	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.4	0	-	-

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	35	397	0	15	0	540	208	0	0	1	72	0	52
Future Vol, veh/h	35	397	0	15	0	540	208	0	0	1	72	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	-	250	-	310	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	3
Mvmt Flow	36	414	0	16	0	563	217	0	0	1	75	0	54

Major/Minor	Major1			Major2				Minor1			Minor2		
Conflicting Flow All	780	0	0	414	414	0	0	800	1298	207	874	1081	282
Stage 1	-	-	-	-	-	-	-	486	486	-	595	595	-
Stage 2	-	-	-	-	-	-	-	314	812	-	279	486	-
Critical Hdwy	4.14	-	-	6.44	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.96
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	2.22	-	-	2.52	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.33
Pot Cap-1 Maneuver	833	-	-	785	1141	-	-	276	160	799	244	216	712
Stage 1	-	-	-	-	-	-	-	531	549	-	458	491	-
Stage 2	-	-	-	-	-	-	-	671	390	-	704	549	-
Platoon blocked, %		-	-			-	-						
Mov Cap-1 Maneuver	833	-	-	784	784	-	-	243	150	799	232	203	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	243	150	-	232	203	-
Stage 1	-	-	-	-	-	-	-	508	525	-	438	481	-
Stage 2	-	-	-	-	-	-	-	607	382	-	673	525	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	9.5	23.4
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	799	833	-	-	784	-	-	323
HCM Lane V/C Ratio	0.001	0.044	-	-	0.02	-	-	0.4
HCM Control Delay (s)	9.5	9.5	-	-	9.7	-	-	23.4
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-	-	1.9

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	103	188	16	152	56
Future Vol, veh/h	51	103	188	16	152	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	2	2	8	4	2
Mvmt Flow	55	112	204	17	165	61
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9	9.4	9.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	33%	73%
Vol Thru, %	92%	0%	27%
Vol Right, %	8%	67%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	204	154	208
LT Vol	0	51	152
Through Vol	188	0	56
RT Vol	16	103	0
Lane Flow Rate	222	167	226
Geometry Grp	1	1	1
Degree of Util (X)	0.281	0.217	0.299
Departure Headway (Hd)	4.554	4.666	4.765
Convergence, Y/N	Yes	Yes	Yes
Cap	787	768	753
Service Time	2.591	2.706	2.804
HCM Lane V/C Ratio	0.282	0.217	0.3
HCM Control Delay	9.4	9	9.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.8	1.3

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	195	158	258	246	83
Future Vol, veh/h	51	195	158	258	246	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	2	2
Mvmt Flow	55	212	172	280	267	90

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	936	312	357	0	-	0
Stage 1	312	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.42	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	294	721	1202	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	252	721	1202	-	-	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1202	-	520	-	-
HCM Lane V/C Ratio	0.143	-	0.514	-	-
HCM Control Delay (s)	8.5	-	19	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.9	-	-

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	51	31	0	0	84	103	76	0	66	0
Future Vol, veh/h	0	0	51	31	0	0	84	103	76	0	66	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	-	-	-	-	-	-	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	5	2	2	8	2
Mvmt Flow	0	0	55	33	0	0	90	111	82	0	71	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	403	444	71	390	362	111	71	0	0	193	0	0
Stage 1	71	71	-	291	291	-	-	-	-	-	-	-
Stage 2	332	373	-	99	71	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	558	508	991	569	565	942	1529	-	-	1380	-	-
Stage 1	939	836	-	717	672	-	-	-	-	-	-	-
Stage 2	681	618	-	907	836	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	530	474	991	510	527	942	1529	-	-	1380	-	-
Mov Cap-2 Maneuver	530	474	-	510	527	-	-	-	-	-	-	-
Stage 1	876	836	-	669	627	-	-	-	-	-	-	-
Stage 2	635	577	-	857	836	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	12.6	2.4	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	991	510	1380	-	-
HCM Lane V/C Ratio	0.059	-	-	0.055	0.065	-	-	-
HCM Control Delay (s)	7.5	0	-	8.8	12.6	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0.2	0	-	-

LANE LEVEL OF SERVICE

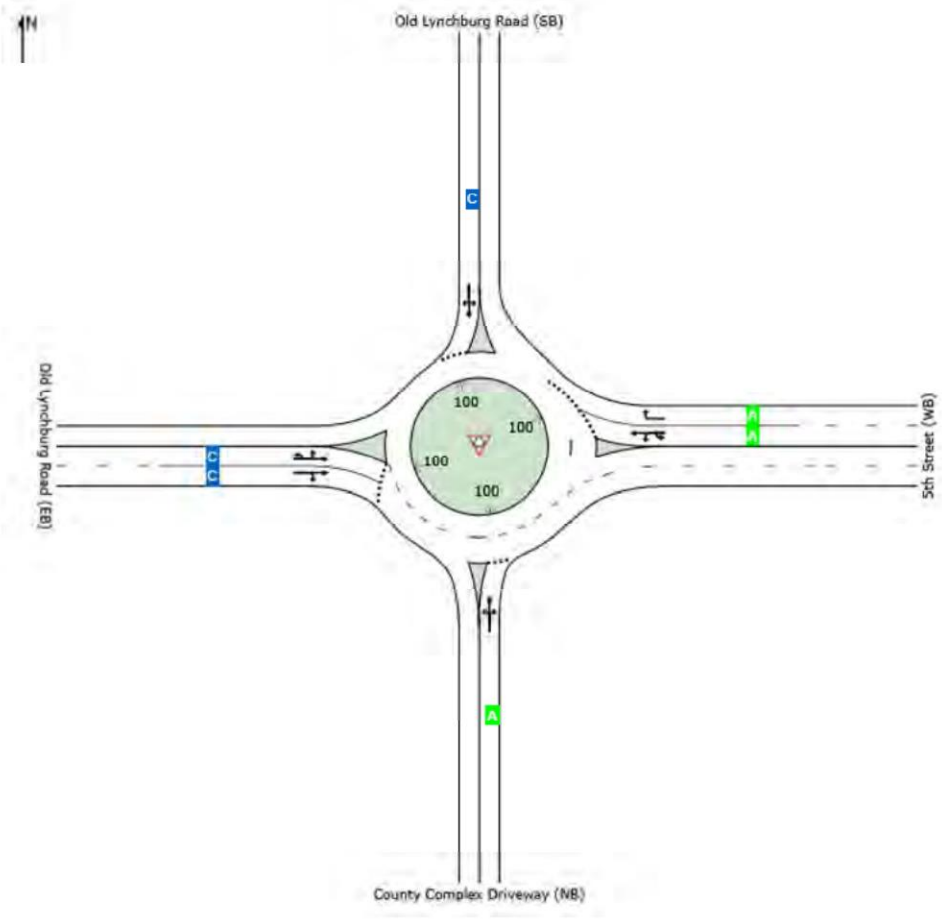
Lane Level of Service

Site: 101 [Granger Property B 2027 AM]

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	A	C	C	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: 101 [Granger Property B 2027 AM]

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: County Complex Driveway (NB)													
Lane 1[d]	10	2.0	446	0.022	100	8.4	LOS A	0.1	1.3	Full	1600	0.0	0.0
Approach	10	2.0		0.022		8.4	LOS A	0.1	1.3				
East: 5th Street (WB)													
Lane 1[d]	441	7.5	982	0.449	100	8.9	LOS A	1.6	43.2	Full	1600	0.0	0.0
Lane 2	189	2.0	1030	0.184	100	5.2	LOS A	0.5	14.0	Full	1600	0.0	0.0
Approach	630	5.9		0.449		7.8	LOS A	1.6	43.2				
North: Old Lynchburg Road (SB)													
Lane 1[d]	476	2.1	679	0.702	100	20.3	LOS C	5.2	133.2	Full	1600	0.0	0.0
Approach	476	2.1		0.702		20.3	LOS C	5.2	133.2				
West: Old Lynchburg Road (EB)													
Lane 1	412	3.2	655	0.629	100	17.5	LOS C	4.0	101.5	Full	1600	0.0	0.0
Lane 2[d]	413	3.0	656	0.629	100	17.5	LOS C	4.0	101.6	Full	1600	0.0	0.0
Approach	825	3.1		0.629		17.5	LOS C	4.0	101.6				
Intersection	1941	3.7		0.702		15.0	LOS B	5.2	133.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE LEVEL OF SERVICE

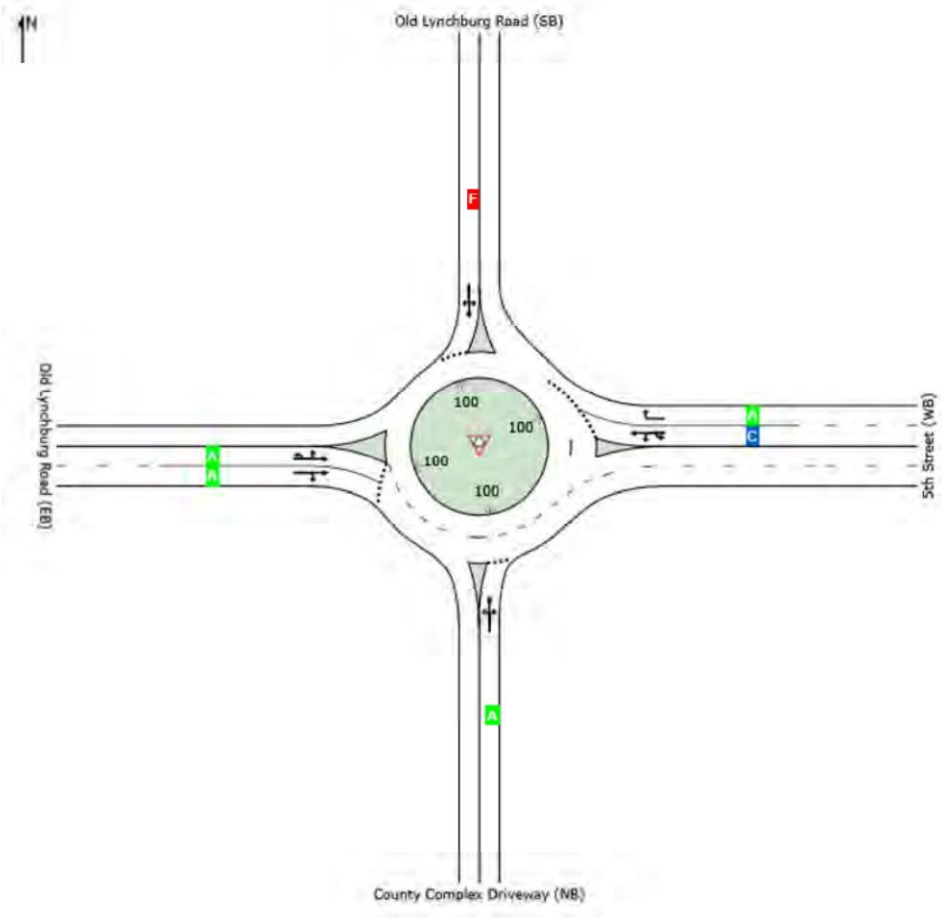
Lane Level of Service

Site: 101 [Granger Property B 2027 PM]

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	B	F	A	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: 101 [Granger Property B 2027 PM]

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: County Complex Driveway (NB)													
Lane 1[d]	53	2.0	564	0.094	100	7.5	LOS A	0.2	6.0	Full	1600	0.0	0.0
Approach	53	2.0		0.094		7.5	LOS A	0.2	6.0				
East: 5th Street (WB)													
Lane 1[d]	764	2.0	1066	0.717	100	15.0	LOS C	5.1	130.7	Full	1600	0.0	0.0
Lane 2	405	2.0	1063	0.382	100	7.4	LOS A	1.5	37.6	Full	1600	0.0	0.0
Approach	1170	2.0		0.717		12.4	LOS B	5.1	130.7				
North: Old Lynchburg Road (SB)													
Lane 1[d]	480	2.0	505	0.951	100	57.1	LOS F	12.0	305.1	Full	1600	0.0	0.0
Approach	480	2.0		0.951		57.1	LOS F	12.0	305.1				
West: Old Lynchburg Road (EB)													
Lane 1	267	2.8	715	0.374	100	9.9	LOS A	1.6	40.3	Full	1600	0.0	0.0
Lane 2[d]	270	2.0	721	0.374	100	9.8	LOS A	1.6	40.5	Full	1600	0.0	0.0
Approach	537	2.4		0.374		9.8	LOS A	1.6	40.5				
Intersection	2240	2.1		0.951		21.2	LOS C	12.0	305.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

APPENDIX F: VDOT TURN LANE WARRANTS

VIRGINIA DEPARTMENT OF TRANSPORTATION
COMMERCIAL ENTRANCE DESIGN

General Project Information *Enter a value for all input cells*

Project Name: Granger Property

County: Albemarle County

Reviewer: Build 2027 AM Peak Hour Date: 8/22/2023

Adjacent Roadway Data

Adjacent Road Name: Sunset Avenue Number of Lanes: 2

Posted Speed: 30 mph * Classification: Urban Collector

AADT: 1800 VPD D: N/A k: N/A *enter N/A if factors are unknown*

*Use Design Speed if available

Trip Generation

Generated Trips: 1632 VPD % Trucks in Entrance: 2 %

Right In: 0 VPH Advancing Volume: 75 VPH

Left In: 26 VPH 35% Opposing Volume: 83 VPH**

**Also used as Approaching Volume for Rt. Turns

Entrance Criteria Entrance is a Standard Commercial Entrance

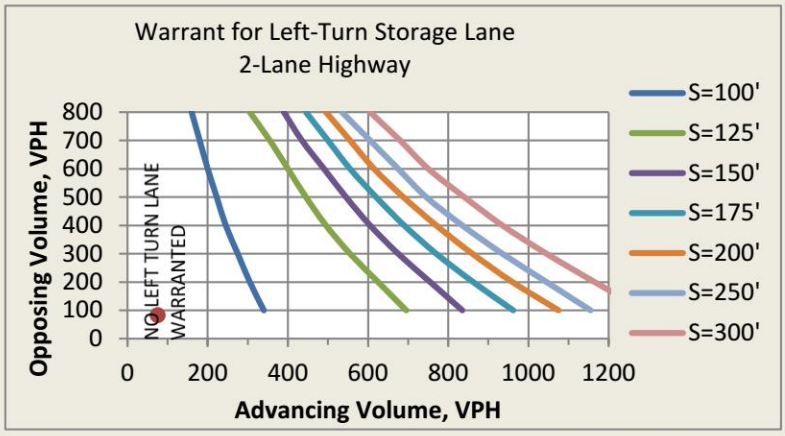
Entrance Type: Full Access Entrance

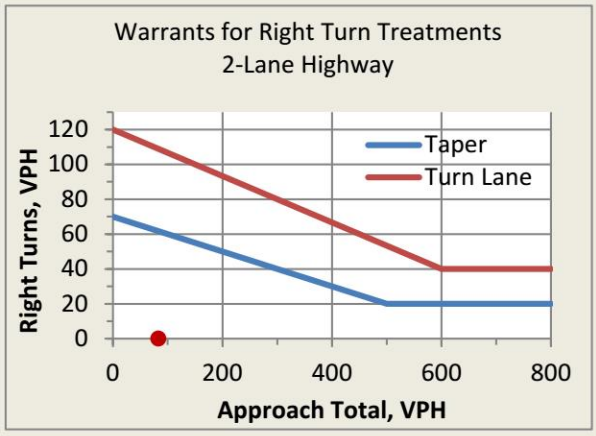
Minimum Spacing: **225** ft SDL: **335** ft SDR: **335** ft

Left Turn Lane Warrant: Advancing Volume ≥ 340 VPH **No Left Turn Lane**

Right Turn Taper Warrant: Rt. Turn Volume ≥ 62 VPH **No Taper Required**

Right Turn Lane Warrant: Rt. Turn Volume ≥ 109 VPH **No Right Turn Lane Required**





1. The minimum warranted left turn lane length shall be 100' for speeds ≤ 40 mph and 200' for speeds ≥ 45 mph
2. Left turn lanes with high truck volume shall be increased as calculated and tabulated below:

Left Turn Storage Length Increase Required for Truck Ratio (in Feet)						
S = 100'	S = 125'	S = 150'	S = 175'	S = 200'	S = 250'	S = 300'
0	0	0	0	0	0	0

Version 2.1 -Based on July 2012 Appendix F - VDOT Road Design Manual 8-1-12

VIRGINIA DEPARTMENT OF TRANSPORTATION
COMMERCIAL ENTRANCE DESIGN

General Project Information *Enter a value for all input cells*

Project Name: Granger Property

County: Albemarle County

Reviewer: Build 2027 PM Peak Hour Date: 8/22/2023

Adjacent Roadway Data

Adjacent Road Name: Sunset Avenue Number of Lanes: 2

Posted Speed: 30 mph * Classification: Urban Collector

AADT: 1800 VPD D: N/A k: N/A *enter N/A if factors are unknown*

*Use Design Speed if available

Trip Generation

Generated Trips: 1632 VPD % Trucks in Entrance: 2 %

Right In: 0 VPH Advancing Volume: 263 VPH

Left In: 84 VPH 32% Opposing Volume: 66 VPH**

**Also used as Approaching Volume for Rt. Turns

Entrance Criteria Entrance is a Standard Commercial Entrance

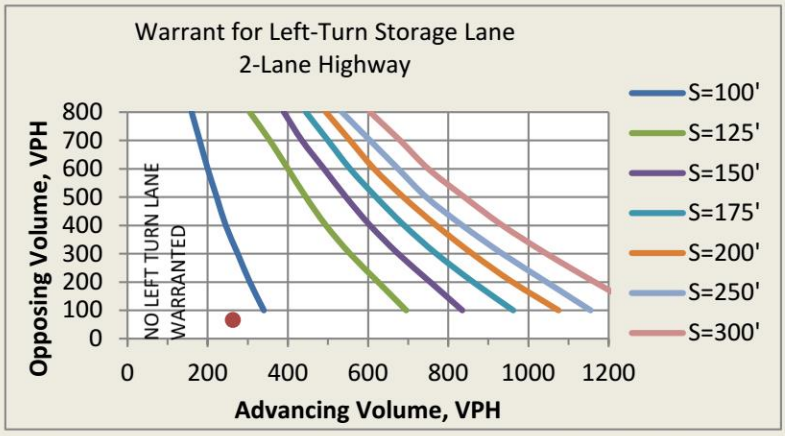
Entrance Type: Full Access Entrance

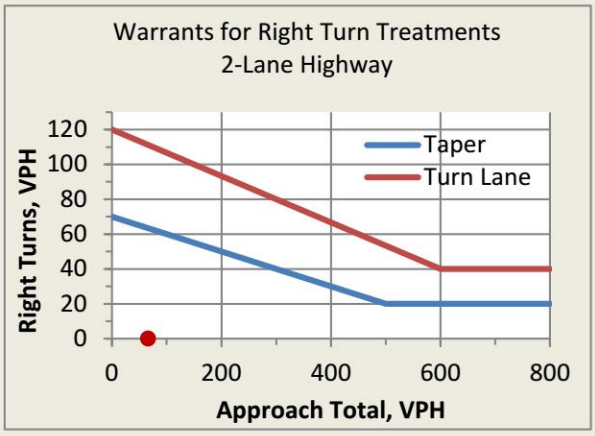
Minimum Spacing: **225** ft SDL: **335** ft SDR: **335** ft

Left Turn Lane Warrant: Advancing Volume ≥ 340 VPH **No Left Turn Lane**

Right Turn Taper Warrant: Rt. Turn Volume ≥ 63 VPH **No Taper Required**

Right Turn Lane Warrant: Rt. Turn Volume ≥ 111 VPH **No Right Turn Lane Required**





1. The minimum warranted left turn lane length shall be 100' for speeds ≤ 40 mph and 200' for speeds ≥ 45 mph
2. Left turn lanes with high truck volume shall be increased as calculated and tabulated below:

Left Turn Storage Length Increase Required for Truck Ratio (in Feet)						
S = 100'	S = 125'	S = 150'	S = 175'	S = 200'	S = 250'	S = 300'
0	0	0	0	0	0	0

Version 2.1 -Based on July 2012 Appendix F - VDOT Road Design Manual 8-1-12