

Traffic Impact Analysis



The Arbors at Stafford Senior Apartments

**S. Campus Blvd.
Stafford County, Virginia**

Prepared for:

Marlyn Development Corporation

Prepared: March 1st, 2023

Traffic Impact Analysis

The Arbors at Stafford – Senior Apartments S. Campus Blvd. and Old Potomac Church Rd.

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Prepared for:

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Executive Summary

This report summarizes the findings of the Traffic Impact Analysis (TIA) completed by Bowman for the proposed "The Arbors at Stafford" – Senior Apartments development located in Stafford County, Virginia. The purpose of this analysis is to determine the potential impact (if any) to the existing traffic operations of the surrounding roadway network caused by the proposed development.

Description of Proposed Development

The proposed development is to be located on the northwest corner of S. Campus Blvd. and Old Potomac Church Rd. intersection in Stafford County, Virginia. The proposed site will consist of a three-story senior living apartment building with 170 units.

Access to the proposed development is expected to be provided via one (1) proposed full-access driveway and one (1) gated emergency access-only driveway connecting to S. Campus Boulevard.

Scope of Work

The TIA scope of work for the proposed development was coordinated at a Pre-Scoping meeting with officials from the Virginia Department of Transportation (VDOT) and Stafford County on September 15, 2022. The purpose of this meeting was to discuss and agree upon major components of this study, including analyzing the following study intersections:

- Old Potomac Church Rd. and S. Campus Blvd. (Unsignalized)
- S. Campus Blvd. and US Route 1 (Unsignalized)
- Hospital Center Blvd. and US Route 1 (Signalized)
- Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd. (Unsignalized)
- Hospital Center Blvd. and Courthouse Rd. (Unsignalized)
- S. Campus Blvd. and Creek Ridge Drive/Site Driveway (Unsignalized)

It was agreed by VDOT and Stafford County that a background growth rate factor of 2.0 % per year will be used in the study area to grow 2022 traffic volumes to future conditions.

For the purposes of this study, it is anticipated that the proposed development will be constructed and fully operational by the end of the year 2025. Therefore, the following scenarios were evaluated as part of this study:

- Existing Conditions (2022)
- Future Conditions (2025) without the proposed development (No Build)
- Future Conditions (2025) with the proposed development (Build)

Programmed Improvements

It is Bowman's understanding that there are no proposed roadway improvements within the project vicinity.

Trip Generation

Trip generation for the proposed development was calculated based on the calculations and formulae contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*.

The proposed development is expected to generate 34 total trips (12 in and 22 out) during the morning peak hour, 43 total trips (24 in and 19 out) during the evening peak hour, and 551 total trips (275 in and 276 out) during an average weekday.

Capacity Analysis Results

To evaluate the traffic operations with the proposed development in place, capacity analyses were completed at the six (6) study intersections included in this report. The purpose for this analysis was to compare the results of the No Build and Build Conditions to identify areas impacted by the proposed development.

The results of the capacity analysis indicate that the proposed development is not projected to adversely impact any of the study intersections included in this report. There are no projected changes to levels of service for any turning movements or approaches from No Build to Build Conditions.

Additionally, the turning movements and approaches at the proposed site driveway are projected to operate at a LOS A under Build Conditions during both the morning and evening peak hours.

Auxiliary Turn Lane Warrant Evaluation

The results of the auxiliary turn lane warrant evaluation indicate that exclusive turn lanes into the proposed site driveway are not warranted under Build Conditions.

Conclusion

Based on the results of the analysis contained in this report, the addition of the site traffic associated with the proposed development is not expected to adversely impact the operations of the existing roadway network.

Introduction

This report summarizes the findings of the Traffic Impact Analysis (TIA) completed by Bowman for the proposed The Arbors at Stafford - Senior Apartments development located in Stafford County, Virginia.

The purpose of this analysis is to determine the potential impact (if any) to the existing traffic operations of the surrounding roadway network caused by the proposed development.

Background Information

The proposed development is to be located on the northwest corner of S. Campus Blvd. and Old Potomac Church Rd. intersection in Stafford County, Virginia. **Figure 1** depicts the site location.



Figure 1. Site Location

The Applicant is proposing to develop this site with a three-story senior living apartment building with 170 units. The conceptual plan for the proposed site is depicted in **Figure 2** and included in **Appendix A**.



Figure 2. Conceptual Plan

As shown in **Figure 2**, access to the proposed development is expected to be provided via one (1) proposed full-access driveway and one (1) gated emergency access-only driveway connecting to S. Campus Boulevard.

Scope of Work

The traffic impact analysis scope of work for the proposed development was coordinated at a Pre-Scoping meeting with officials from the Virginia Department of Transportation (VDOT) and Stafford County on September 15, 2022. During the Pre-Scoping meeting, items such as intersections to be analyzed, arrival/departure trip distribution, traffic growth factors, traffic count data, and site access were discussed. Some of the items discussed and agreed upon by all parties are the following:

Study Periods

- Existing Conditions (2022)
- Future Conditions (2025) without the proposed development (No Build)
- Future Conditions (2025) with the proposed development (Build)

Intersections to be analyzed

- Old Potomac Church Rd. and S. Campus Blvd. (Unsignalized)
- S. Campus Blvd. and US Route 1 (Unsignalized)

- Hospital Center Blvd. and US Route 1 (Signalized)
- Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd. (Unsignalized)
- Hospital Center Blvd. and Courthouse Rd. (Unsignalized)
- S. Campus Blvd. and Creek Ridge Drive/Site Driveway (Unsignalized)

Nearby Approved Developments

VDOT and Stafford County noted that the following developments in the surrounding study area have been approved and are to be included in the year 2025 background traffic volumes:

- Burns Property
- Courthouse Tracts

Since the time of the original meeting, the following nearby development has also been approved and will be included in the year 2025 background traffic volumes:

- Austin Ridge Logistics

Traffic Data

- Turning movement counts collected in 2022 at the US Route 1 and Hospital Center Blvd. intersection were supplied by VDOT.
- Turning movement counts at the remaining study intersections will be collected during the morning (7:00 AM – 9:00 AM) and evening (4:00 PM – 6:00 PM) peak periods.

Programmed Improvements

It is Bowman's understanding that there are no proposed roadway improvements within the project vicinity.

It was agreed by VDOT and Stafford County that a background growth rate factor of 2.0 % per year will be used in the study area to grow 2022 traffic volumes to Future Conditions. The approved VDOT Pre-Scope of Work Meeting Form is included in **Appendix B**.

Existing Roadway Network

US Route 1 within the identified study area is a four-lane undivided roadway with exclusive turning lanes, listed as a Principal Arterial on VDOT's Functional Classification Map. It has a north-south alignment and a posted speed limit of 35 mph to the north of its intersection with Hospital Center Blvd., a posted speed limit of 45 mph between Hospital Center Blvd. and S. Campus Blvd., and a posted speed limit of 50 mph to the south of its intersection with S. Campus Blvd.

S. Campus Blvd. within the identified study area is a two-lane undivided roadway, listed as a Local Road on VDOT's 2014 Functional Classification Map. It has an east-west alignment and a posted speed limit of 35 mph.

Hospital Entrance Rd. within the identified study area is a two-lane undivided roadway, listed as a Local Road on VDOT's 2014 Functional Classification Map. It has a north-south alignment and a statutory speed limit of 25 mph.

Old Potomac Church Rd. within the identified study area is a two-lane undivided roadway with no pavement markings, listed as a Local Road on VDOT's 2014 Functional Classification Map. It has a north-south alignment and a posted speed limit of 25 mph.

Hospital Center Blvd. within the identified study area is a four-lane divided roadway with exclusive turning lanes, listed as a Major Collector on VDOT's 2014 Functional Classification Map. It has an east-west alignment and a posted speed limit of 35 mph to the east of its intersection with US Route 1, and of 40 mph to the west of said intersection.

Courthouse Rd. within the identified study area is a four-lane undivided roadway listed as a Major Collector on VDOT's 2014 Functional Classification Map. It has an east-west alignment and a posted speed limit of 35 mph.

Existing Intersection Configuration

Old Potomac Church Rd. and S. Campus Blvd.

This is currently a three-legged unsignalized intersection where S. Campus Blvd. has an east-west alignment and Old Potomac Church Rd. has a north-south alignment, as shown on **Figure 3.**



Figure 3. Aerial of S. Campus Blvd. and Old Potomac Church Rd. Intersection

The eastbound approach is controlled by a stop sign and consists of one shared left turn/right turn lane. The northbound approach consists of one shared left turn/through lane. The southbound approach consists of one shared through/right turn lane.

S. Campus Blvd. and US Route 1

This is currently a three-legged unsignalized intersection where S. Campus Blvd. has an east-west alignment and US Route 1 has a north-south alignment, as shown on **Figure 4**.



Figure 4. Aerial of US Route 1 and S. Campus Blvd. Intersection

The westbound approach is controlled by a stop sign and consists of one shared left turn/right turn lane. The northbound approach consists of two through lanes and one exclusive right-turn lane. The southbound approach consists of one exclusive left-turn lane and two through lanes.

Hospital Center Blvd. and US Route 1

This is currently a four-legged signalized intersection where Hospital Center Blvd. has an east-west alignment and US Route 1 has a north-south alignment, as shown in **Figure 5**.

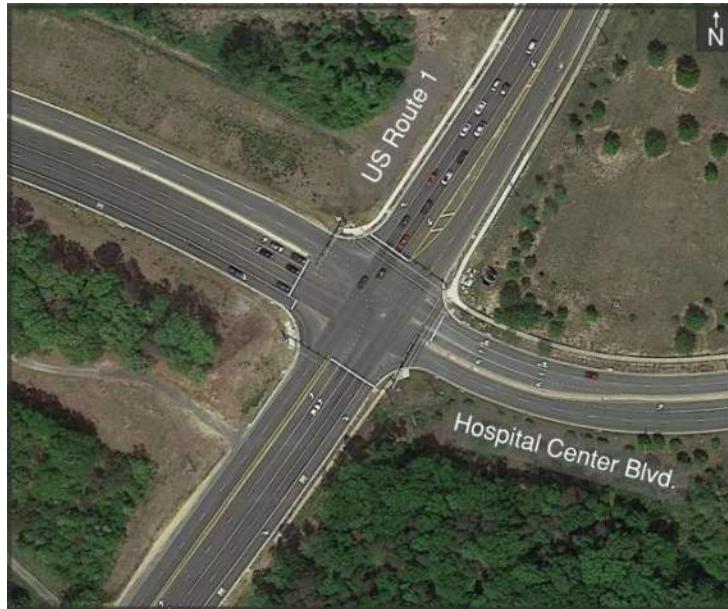


Figure 5. Aerial of Hospital Center Blvd. and US Route 1 Intersection

The eastbound approach consists of two exclusive left turn lanes, two through lanes, and one exclusive right turn lane. The westbound approach consists of one exclusive left turn lane, one through lane, and one shared through/right turn lane. The northbound approach consists of two exclusive left turn lanes, two through lanes, and one exclusive right turn lane. The southbound approach consists of one exclusive left turn lane, two through lanes, and one exclusive right turn lane.

Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd.

This is currently a four-legged unsignalized intersection where Hospital Center Blvd. has an east-west alignment, and Old Potomac Church Rd./Hospital Entrance Rd. have a north-south alignment, as shown in **Figure 6**.

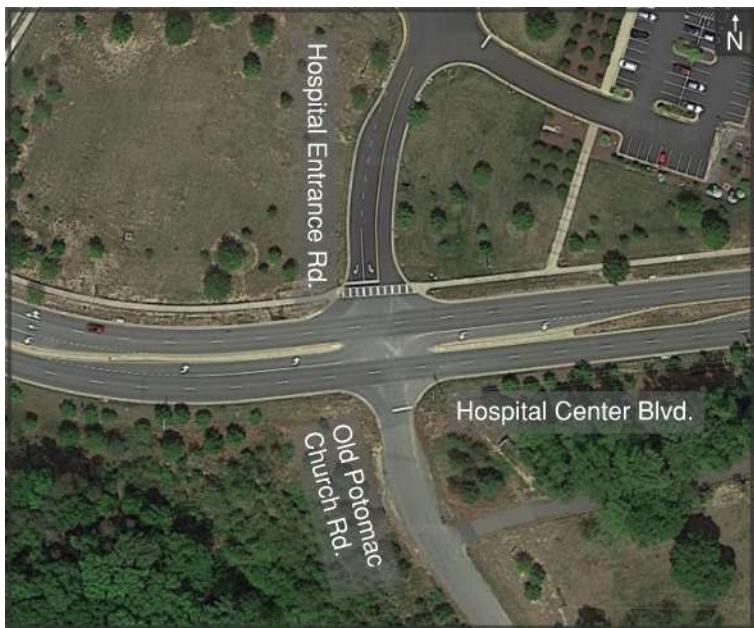


Figure 6. Aerial of Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd. Intersection

The eastbound and westbound approaches consist of one exclusive left turn lane, one through lane, and one shared through/right turn lane. The northbound approach is controlled by a stop sign and consists of one shared left turn/through/right turn lane. The southbound approach is controlled by a stop sign and consists of one exclusive left turn lane and one exclusive right turn lane.

Hospital Center Blvd. and Courthouse Rd.

This is currently a three-legged unsignalized intersection where Hospital Center Blvd. has an east-west alignment and Courthouse Rd. has a north-south alignment, as shown in **Figure 7**.



Figure 7. Aerial of Hospital Center Blvd. and Courthouse Rd. Intersection

The eastbound approach is controlled by a stop sign and consists of one exclusive left turn lane and one exclusive right turn lane. The northbound approach consists of one exclusive left turn lane and two through lanes. The southbound approach consists of two through lanes and one exclusive right turn lane.

Data Collection

Turning Movement Counts

Turning movement counts collected in 2022 at the US Route 1 and Hospital Center Blvd. intersection were supplied by VDOT as part of the Pre-Scoping process.

Turning movement counts at the remaining study intersections were collected during the morning (7:00 AM – 9:00 AM) and evening (4:00 PM – 6:00 PM) peak periods on Wednesday, October 12, 2022.

Copies of the turning movement counts are included in **Appendix C**.

Nearby Approved Developments

VDOT and Stafford County noted that the following developments in the surrounding study area have been approved and are to be included in the year 2025 background traffic volumes:

- Burns Property
- Courthouse Tracts

Since the time of the original coordination with VDOT and Stafford County, the following nearby development has also been approved and will be included in the year 2025 background traffic volumes:

- Austin Ridge Logistics

Traffic Forecast and Background Traffic

For the purposes of this analysis, it is anticipated that the proposed development will be constructed and fully operational by the end of the year 2025. The following scenarios were evaluated as part of this study:

- Existing Conditions (2022)
- Future Conditions (2025) without the proposed development (No Build)
- Future Conditions (2025) with the proposed development (Build)

The 2022 Existing Peak Hour Traffic Volumes are depicted on **Exhibit 1** in **Appendix D**.

As previously stated, a background growth rate factor of 2.0% per year was used in the study area to grow 2022 traffic volumes to future conditions. This growth rate factor was applied to project the 2022 Existing Peak Hour Traffic Volumes three (3) years to develop the 2025 Background Peak Hour Traffic Volumes, which are depicted on **Exhibit 2** in **Appendix D**.

The peak hour background trips from the approved developments outlined earlier in this report are depicted on **Exhibit 3** in **Appendix D**. The background development traffic information used to develop these background trips is included in **Appendix E**.

These background trips were then added to the 2025 Background Traffic Volumes to create the 2025 No Build Traffic Volumes, which are depicted on **Exhibit 4** in **Appendix D**.

Proposed Development

The applicant is proposing to develop this site with a three-story senior living apartment building with 170 units. Access to the proposed development is expected to be provided via one (1) proposed full-access driveway and one (1) gated emergency access-only driveway connecting to S. Campus Boulevard. The conceptual plan for the proposed site is included in **Appendix A**.

Trip Generation and Trip Distribution

The Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition* was used to determine the number of trips generated by the proposed land use of the site. **Table 1** outlines the projected morning and evening peak hour trip generation for the proposed development.

Table 1. Site Trip Generation

Development	Land Use	Size	Units	Weekday AM Peak Hour ⁽¹⁾			Weekday PM Peak Hour ⁽¹⁾			Average Weekday ⁽¹⁾		
				In	Out	Total	In	Out	Total	In	Out	Total
Senior Adult Housing - Multifamily	252	170	DU	12	22	34	24	19	43	275	276	551

(1) Based on the Institute of Transportation Engineers Trip Generation Manual, 11th Edition for Land Use 252.

As shown in **Table 1**, the proposed development is expected to generate 34 total trips (12 in and 22 out) during the morning peak hour, 43 total trips (24 in and 19 out) during the evening peak hour, and 551 total trips (275 in and 276 out) during an average weekday.

These traffic volumes were then distributed to the roadway network in accordance with the agreed upon trip distribution. The site trip distribution is depicted on **Exhibit 5** in **Appendix D**. The projected site trips were applied to the trip distribution and are depicted on **Exhibit 6** in **Appendix D**.

The site trips were added to the 2025 No Build Peak Hour Volumes to develop the 2025 Build Peak Hour Traffic Volumes, which are depicted on **Exhibit 7** in **Appendix D**.

Capacity Analysis

The study intersections were analyzed for each scenario following the Highway Capacity Manual (HCM 6th Edition) methodologies using the computer software package Synchro 11 with SimTraffic. The analysis uses capacity, Level of Service (LOS), and control delay as criteria for the performance of the intersections.

The analysis models were developed per the standards and requirements included in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) – Version 2.0.

Capacity, as defined by the HCM, is a measure of the maximum number of vehicles in an hour that can travel through an intersection or section of roadway under typical conditions. Level of Service (LOS) is a marker of the driving conditions and perception of drivers while traveling during the given time period. LOS ranges from LOS "A" which represents free-flow conditions, to LOS "F" which represents breakdown conditions. **Table 2** shows the LOS for intersections as defined by the HCM.

Table 2. HCM Level of Service Criteria

Unsignalized Intersections		Signalized Intersections	
Level of Service	Average Control Delay (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	≤10	A	≤10
B	>10-15	B	>10-20
C	>15-25	C	>20-35
D	>25-35	D	>35-55
E	>35-50	E	>55-80
F	≥50	F	≥80

The reported queues, or linear distance of delayed vehicles, for the intersection in this study are the maximum queues reported by SimTraffic after 10 runs of 60 minutes each with a 15-minute seeding time. They are reported to ensure that the storage lengths of lanes at the intersections are of adequate length and that queued vehicles will not interfere with free flow vehicles or adjacent intersections.

Capacity analyses were completed for the following scenarios for the morning and evening peak hours:

- Existing Conditions (2022)
- Future Conditions (2025) without the proposed development (No Build)
- Future Conditions (2025) with the proposed development (Build)

Capacity Analysis of Existing Conditions (Year 2022)

A capacity analysis under 2022 Existing Conditions was conducted for the study intersections previously described in this report. The Existing Conditions capacity analysis results are included in **Appendix F**.

Old Potomac Church Rd. and S. Campus Blvd.

Based on the results of the capacity analysis under Existing Conditions, the eastbound and northbound approaches at the intersection of Old Potomac Church Road and S. Campus Boulevard currently operate at an acceptable LOS A during both the morning and evening peak hours.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized on **Table 3**.

Table 3. 2022 Existing Conditions Capacity Analysis - Old Potomac Church Road and S. Campus Boulevard

INTERSECTION				AM Peak Hour			PM Peak Hour		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #1: Old Potomac Church Rd. and S Campus Blvd. (2022 Existing Conditions)	Approach	Movement	Storage (ft)						
	EB	Approach	630	9.4	A	54	9.1	A	33
	NB	Approach	390	7.3	A	--	7.3	A	3

*Extracted from SimTraffic simulation software

S. Campus Blvd. and US Route 1

Based on the results of the capacity analysis under Existing Conditions, the southbound left turn movement, and the westbound approach at the intersection of S. Campus Boulevard and US Route 1 currently operate at a LOS C or better during both the morning and evening peak hours.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for auxiliary lanes. The capacity analysis results are summarized in **Table 4**.

Table 4. 2022 Existing Conditions Capacity Analysis – S. Campus Boulevard and US Route 1

INTERSECTION				AM Peak Hour			PM Peak Hour		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #2: S Campus Blvd. and US Route 1 (2022 Existing Conditions)	Approach	Movement	Storage (ft)						
	WB	Approach	925	15.0	B	60	16.7	C	64
	SB	L	280	11.1	B	53	8.8	A	38

*Extracted from SimTraffic simulation software

Hospital Center Blvd. and US Route 1

Based on the results of the capacity analysis under Existing Conditions, the intersection of Hospital Center Boulevard and US Route 1 currently operates at an overall level of service "C" during the morning peak hour, and at an overall level of service "E" during the evening peak hour.

During the morning peak hour, the southbound left turn movement operates at a LOS F. The eastbound left turn movement, eastbound through movement, westbound turning movements and approach, southbound through movement, and southbound approach currently operate at a LOS E.

During the evening peak hour, the westbound and southbound left turn movements operate at a LOS F. The eastbound turning movements and approach, westbound approach, and southbound through movement currently operate at a LOS E.

All other turning movements and approaches currently operate at a LOS D or better during both the morning and evening peak hours.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized on **Table 5**.

Table 5. 2022 Existing Conditions Capacity Analysis - Hospital Center Boulevard and US Route 1

INTERSECTION				AM Peak Hour			PM Peak Hour		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #3: Hospital Center Blvd. and US Route 1 (2022 Existing Conditions)	Approach	Movement	Storage (ft)						
		L	565	61.1	E	157	76.0	E	170
		T	+1,000	55.3	E	173	55.7	E	208
		R	+1,000	7.9	A	95	77.0	E	608
	EB	Approach	--	37.0	D	--	70.7	E	--
		L	180	68.6	E	114	89.4	F	177
		T	390	58.8	E	159	49.5	D	225
		TR	390	59.2	E	182	49.6	D	172
	WB	Approach	--	60.8	E	--	64.0	E	--
		L	400	12.2	B	258	49.6	D	214
		T	+1,000	8.6	A	124	16.3	B	118
		R	565	1.7	A	28	4.2	A	34
	NB	Approach	--	9.2	A	--	28.8	C	--
		L	500	85.3	F	54	108.1	F	250
		T	+1,000	66.3	E	165	56.1	E	568
		R	510	32.1	C	72	10.9	B	110
	SB	Approach	--	57.8	E	--	54.9	D	--
		OVERALL		31.5	C	--	55.3	E	--

*Extracted from SimTraffic simulation software

Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd.

Based on the results of the capacity analysis under Existing Conditions, the eastbound and westbound left turn movements at the intersection of Hospital Center Boulevard and Old Potomac Church Road/Hospital Entrance Road currently operate at a LOS A during both the morning and evening peak hours.

The northbound approach and southbound turning movements and approach currently operate at a LOS C or better during both the morning and evening peak hours.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized on **Table 6**.

Table 6. 2022 Existing Conditions Capacity Analysis - Hospital Center Boulevard and Old Potomac Church Road/Hospital Entrance Road

INTERSECTION			AM Peak Hour			PM Peak Hour		
			Conditions			Conditions		
			DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #4: Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd. (2022 Existing Conditions)	Approach	Movement	Storage (ft)					
	EB	L	200	7.8	A	47	8.2	A
	WB	L	140	7.9	A	23	8.3	A
	NB	Approach	+1,000	13.5	B	60	15.6	C
	SB	L	190	14.5	B	31	18.3	C
		R	105	9.2	A	57	9.8	A
	Approach		--	9.6	A	--	10.6	B

*Extracted from SimTraffic simulation software

Hospital Center Blvd. and Courthouse Rd.

Based on the results of the capacity analysis under Existing Conditions, the northbound left turn at the intersection of Hospital Center Boulevard and Courthouse Road currently operates at a LOS A during both the morning and evening peak hours.

During the morning and evening peak hours, the eastbound left turn movement operates at a LOS F and a LOS E, respectively. The eastbound right turn movement and approach currently operate at a LOS D or better.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 7**.

Table 7. 2022 Existing Conditions Capacity Analysis - Hospital Center Boulevard and Courthouse Road

INTERSECTION			AM Peak Hour			PM Peak Hour		
			Conditions			Conditions		
			DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #5: Hospital Center Blvd. and Courthouse Rd. (2022 Existing Conditions)	Approach	Movement	Storage (ft)					
	EB	L	630	74.1	F	154	41.6	E
		R	630	11.0	B	86	11.1	B
	Approach		--	31.7	D	--	21.9	C
	NB	L	340	9.2	A	94	8.9	A

*Extracted from SimTraffic simulation software

Capacity Analysis Comparison – No Build vs. Build Conditions (Year 2025)

It is anticipated that the proposed development will be constructed and fully operational by the year 2025. Therefore, capacity analyses were conducted for the No Build and Build Conditions for the opening year 2025. The primary purpose for this approach was to compare the results in order to identify areas impacted by the proposed development.

The capacity analysis results are included in **Appendices G and H**.

Old Potomac Church Rd. and S. Campus Blvd.

Morning Peak Hour

Based on the results of the capacity analysis during the morning peak hour, the eastbound and northbound approaches at the intersection of Old Potomac Church Road and S. Campus Boulevard are projected to operate at a LOS A during both the No Build and Build Conditions.

There are no projected changes to levels of service from No Build to Build Conditions. All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 8**.

Table 8. 2025 AM Peak Hour Capacity Analysis – Old Potomac Church Road and S. Campus Boulevard

INTERSECTION				AM Peak (No Build)			AM Peak (Build)		
				Conditions			Conditions		
Intersection #1: Old Potomac Church Rd. and S Campus Blvd. (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)	DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
	EB	Approach	630	9.1	A	56	9.2	A	62
	NB	Approach	390	7.3	A	0	7.3	A	3

*Extracted from SimTraffic simulation software

Evening Peak Hour

Based on the results of the capacity analysis during the evening peak hour, the eastbound and northbound approaches at the intersection of Old Potomac Church Road and S. Campus Boulevard are projected to operate at a LOS A during both the No Build and Build Conditions.

There are no projected changes to levels of service from No Build to Build Conditions. All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 9**.

Table 9. 2025 PM Peak Hour Capacity Analysis – Old Potomac Church Road and S. Campus Boulevard

INTERSECTION				PM Peak (No Build)			PM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #1: Old Potomac Church Rd. and S Campus Blvd. (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)						
	EB	Approach	630	9.0	A	33	9.1	A	30
	NB	Approach	390	7.3	A	0	7.4	A	0

*Extracted from SimTraffic simulation software

S. Campus Blvd. and US Route 1

Morning Peak Hour

Based on the results of the capacity analysis during the morning peak hour, the southbound left turn movement at the intersection of S. Campus Boulevard and US Route 1 is projected to operate at a LOS B during both the No Build and Build Conditions.

There are no projected changes to levels of service from No Build to Build Conditions, and the westbound approach is projected to operate at a LOS C under both No Build and Build Conditions.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 10**.

Table 10. 2025 AM Peak Hour Capacity Analysis – S. Campus Boulevard and US Route 1

INTERSECTION				AM Peak (No Build)			AM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #2: S Campus Blvd. and US Route 1 (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)						
	WB	Approach	925	18.8	C	73	21.6	C	84
	SB	L	280	12.7	B	62	12.8	B	59

*Extracted from SimTraffic simulation software

Evening Peak Hour

Based on the results of the capacity analysis during the evening peak hour, the southbound left turn movement at the intersection of S. Campus Boulevard and US Route 1 is projected to operate at a LOS A during both the No Build and Build Conditions.

There are no projected changes to levels of service from No Build to Build Conditions, and the westbound approach is projected to operate at a LOS C under both No Build and Build Conditions.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 11**.

Table 11. 2025 PM Peak Hour Capacity Analysis – S. Campus Boulevard and US Route 1

INTERSECTION				PM Peak (No Build)			PM Peak (Build)		
				Conditions			Conditions		
Intersection #2: S Campus Blvd. and US Route 1 (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)	DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
	WB	Approach	925	22.1	C	64	24.3	C	84
	SB	L	280	9.6	A	38	9.7	A	28

*Extracted from SimTraffic simulation software

Hospital Center Blvd. and US Route 1

Morning Peak Hour

Based on the results of the capacity analysis during the morning peak hour, the intersection of Hospital Center Boulevard and US Route 1 is projected to operate at an acceptable overall level of service "D" during both the No Build and Build Conditions, with an increase in delay of only 0.1 seconds.

There are no projected changes to levels of service from No Build to Build Conditions.

The southbound left turn movement is projected to operate at a LOS F during both the No Build and Build Conditions, with no increase in delay. The eastbound left turn movement, the westbound turning movements and approach, and the southbound through movement, are projected to operate at a LOS E both during No Build and Build Conditions, with a maximum increase in delay of 0.5 seconds. All other turning movements and approaches are projected to operate at a LOS D or better during both the No Build and Build Conditions.

Based on the queue results from SimTraffic, the westbound left turn lane is projected to exceed the available storage for the auxiliary lane and spill back into the adjacent through lane during No Build Conditions.

The remaining queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 12**.

Table 12. 2025 AM Peak Hour Capacity Analysis – Hospital Center Boulevard and US Route 1

INTERSECTION			AM Peak (No Build)			AM Peak (Build)		
			Conditions			Conditions		
			DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #3: Hospital Center Blvd. and US Route 1 (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)					
	EB	L	565	58.5	E	203	58.5	E
		T	+1,000	53.9	D	251	54.0	D
		R	+1,000	11.6	B	180	11.6	B
		Approach	--	39.3	D	--	39.3	D
	WB	L	180	64.3	E	179	64.3	E
		T	390	57.1	E	240	57.6	E
		TR	390	57.7	E	241	58.2	E
		Approach	--	58.9	E	--	59.3	E
	NB	L	400	20.1	C	363	20.2	C
		T	+1,000	13.4	B	207	13.6	B
		R	565	3.0	A	48	3.1	A
		Approach	--	15.4	B	--	15.6	B
	SB	L	500	85.3	F	54	84.8	F
		T	+1,000	66.1	E	179	66.1	E
		R	510	35.2	D	161	35.0	D
		Approach	--	53.3	D	--	53.3	D
OVERALL			36.4	D	--	36.5	D	--

*Extracted from SimTraffic simulation software

Evening Peak Hour

Based on the results of the capacity analysis during the evening peak hour, the intersection of Hospital Center Boulevard and US Route 1 is projected to operate at an overall level of service "F" during both the No Build and Build Conditions, with an increase in delay of 1.3 seconds.

There are no projected changes to levels of service from No Build to Build Conditions.

The eastbound turning movements and approach, the westbound left turn movement and approach, and the southbound left turn movement, are projected to operate at a LOS F during both the No Build and Build Conditions, with minimal increases in delay (6.4 seconds maximum).

The westbound through movement, westbound through/right turn movement, southbound through movement, and southbound approach are projected to operate at a LOS E during both the No Build and Build Conditions, with minimal increases in delay (0.9 seconds maximum).

All other turning movements and approaches are projected to operate at a LOS D or better during both the No Build and Build Conditions.

The eastbound right turn queue, westbound left turn queue, southbound left turn queue, and southbound right turn queue are projected to exceed the available storage for the auxiliary lanes and spill back into the adjacent through lanes during both the No Build and Build Conditions.

All other queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 13**.

Table 13. 2025 PM Peak Hour Capacity Analysis – Hospital Center Boulevard and US Route 1

INTERSECTION				PM Peak (No Build)			PM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #3: Hospital Center Blvd. and US Route 1 (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)						
		L	565	81.6	F	337	81.6	F	372
		T	+1,000	138.2	F	1,722	144.6	F	1,541
		R	+1,000	236.6	F	1,715	238.5	F	1,545
	EB	Approach	--	180.9	F	--	183.7	F	--
		L	180	107.1	F	180	107.1	F	180
		T	390	67.7	E	385	68.5	E	388
		TR	390	68.1	E	344	69.0	E	341
	WB	Approach	--	80.6	F	--	81.1	F	--
		L	400	49.5	D	275	49.6	D	257
		T	+1,000	14.5	B	131	14.6	B	112
		R	565	2.7	A	50	2.7	A	53
	NB	Approach	--	31.1	C	--	31.3	C	--
		L	500	105.3	F	500	101.8	F	500
		T	+1,000	67.2	E	1,141	67.5	E	911
		R	510	11.0	B	510	11.0	B	510
	SB	Approach	--	61.2	E	--	61.5	E	--
		OVERALL		99.7	F	--	101.0	F	--

*Extracted from SimTraffic simulation software

Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd.

Morning Peak Hour

Based on the results of the capacity analysis during the morning peak hour, the eastbound and westbound left turn movements at the intersection of Hospital Center Boulevard and Old Potomac Church Road/Hospital Entrance Road are projected to operate at a LOS A during both the No Build and Build Conditions.

There are no projected changes to levels of service from No Build to Build Conditions.

The northbound approach and the southbound turning movements and approach are projected to operate at a LOS D or better during both the No Build and Build Conditions.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 14**.

Table 14. 2025 AM Peak Hour Capacity Analysis – Hospital Center Boulevard and Old Potomac Church Road/Hospital Entrance Road

INTERSECTION				AM Peak (No Build)			AM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #4: Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd. (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)						
	EB	L	200	9.8	A	100	9.8	A	119
	WB	L	140	8.2	A	25	8.3	A	23
	NB	Approach	+1,000	21.9	C	70	22.7	C	73
	SB	L	190	25.5	D	30	25.8	D	31
		R	105	9.8	A	58	9.8	A	63
		Approach	--	10.9	B	--	10.9	B	--

*Extracted from SimTraffic simulation software

Evening Peak Hour

Based on the results of the capacity analysis during the evening peak hour, the eastbound and westbound left turn movements at the intersection of Hospital Center Boulevard and Old Potomac Church Road/Hospital Entrance Road are projected to operate at a LOS B or better during both the No Build and Build Conditions.

There are no projected changes to levels of service from No Build to Build Conditions.

The northbound approach and the southbound turning movements and approach are projected to operate at a LOS D or better during both No Build and Build Conditions.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 15**.

Table 15. 2025 PM Peak Hour Capacity Analysis – Hospital Center Boulevard and Old Potomac Church Road/Hospital Entrance Road

INTERSECTION				PM Peak (No Build)			PM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #4: Hospital Center Blvd. and Old Potomac Church Rd./Hospital Entrance Rd. (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)						
	EB	L	200	11.2	B	84	11.2	B	90
	WB	L	140	8.7	A	25	8.8	A	26
	NB	Approach	+1,000	26.2	D	78	28.0	D	88
	SB	L	190	32.8	D	30	33.2	D	30
		R	105	10.4	B	56	10.4	B	60
		Approach	--	12.5	B	--	12.5	B	--

*Extracted from SimTraffic simulation software

Hospital Center Blvd. and Courthouse Rd.

Morning Peak Hour

Based on the results of the capacity analysis during the morning peak hour, the northbound left turn movement at the intersection of Hospital Center Boulevard and Courthouse Road is projected to operate at a LOS A during both the No Build and Build Conditions.

There are no projected changes to levels of service from No Build to Build Conditions.

The eastbound left turn movement and eastbound approach are projected to operate at a LOS F during both the No Build and Build Conditions, with increases in delay of 6.5 seconds and 2.3 seconds, respectively. The eastbound right turn movement is projected to operate at a LOS B.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 16**.

Table 16. 2025 AM Peak Hour Capacity Analysis – Hospital Center Boulevard and Courthouse Road

INTERSECTION				AM Peak (No Build)			AM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #5: Hospital Center Blvd. and Courthouse Rd. (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)						
	EB	L	630	168.0	F	289	174.5	F	245
		R	630	11.2	B	148	11.2	B	145
		Approach	--	62.8	F	--	65.1	F	--
	NB	L	340	9.4	A	121	9.4	A	120

*Extracted from SimTraffic simulation software

Evening Peak Hour

Based on the results of the capacity analysis during the evening peak hour, the northbound left turn movement at the intersection of Hospital Center Boulevard and Courthouse Road is projected to operate at a LOS A during both the No Build and Build Conditions.

There are no projected changes to levels of service from No Build to Build Conditions.

The eastbound left turn movement and eastbound approach are projected to operate at a LOS F during both the No Build and Build Conditions, with increases in delay of 2.7 seconds and 1.0 seconds, respectively. The eastbound right turn movement is projected to operate at a LOS B.

All other turning movements and approaches at the intersection are free-flowing, and therefore do not produce delay.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 17**.

Table 17. 2025 PM Peak Hour Capacity Analysis – Hospital Center Boulevard and Courthouse Road

INTERSECTION				PM Peak (No Build)			PM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #5: Hospital Center Blvd. and Courthouse Rd. (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)						
	EB	L	630	232.3	F	602	235.0	F	570
		R	630	12.3	B	392	12.3	B	254
		Approach	--	90.2	F	--	91.2	F	--
	NB	L	340	9.7	A	130	9.7	A	129

*Extracted from SimTraffic simulation software

S. Campus Blvd. and Creek Ridge Drive/Site Driveway

Morning Peak Hour

Based on the capacity analysis results during the morning peak hour, all approaches at the intersection of S. Campus Boulevard and Creek Ridge Drive/Site Driveway are projected to operate at a LOS A during the Build Conditions.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 18**.

Table 18. 2025 AM Peak Hour Capacity Analysis – S. Campus Boulevard and Creek Ridge Drive/Site Driveway

INTERSECTION				AM Peak (No Build)			AM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #6: S Campus Blvd. and Site Driveway/ Creek Ridge Dr. (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)				0.9	A	5
	EB	Approach	480				1.1	A	3
	WB	Approach	660				9.1	A	47
	NB	Approach	--				8.6	A	30

*Extracted from SimTraffic simulation software

Evening Peak Hour

Based on the capacity analysis results during the evening peak hour, all approaches at the intersection of S. Campus Boulevard and Creek Ridge Drive/Site Driveway are projected to operate at a LOS A during the Build Conditions.

The queue results from SimTraffic do not appear to exceed the available storage for the auxiliary lanes. The capacity analysis results are summarized in **Table 19**.

Table 19. 2025 PM Peak Hour Capacity Analysis – S. Campus Boulevard and Creek Ridge Drive/Site Driveway

INTERSECTION				PM Peak (No Build)			PM Peak (Build)		
				Conditions			Conditions		
				DELAY (S)	LOS	Maximum Queue (ft)*	DELAY (S)	LOS	Maximum Queue (ft)*
Intersection #6: S Campus Blvd. and Site Driveway/ Creek Ridge Dr. (2025 No Build Conditions vs. 2025 Build Conditions)	Approach	Movement	Storage (ft)				1.7	A	0
	EB	Approach	480				3.2	A	14
	WB	Approach	660				9.0	A	32
	NB	Approach	--				8.8	A	33

*Extracted from SimTraffic simulation software

Auxiliary Turn Lane Warrant Analysis

The forecasted left and right turn volumes into the proposed site driveway were evaluated to determine the need for the installation of exclusive turn lanes to access the site.

The Virginia Department of Transportation's 2022 Road Design Manual, Appendix F was utilized as the basis of the auxiliary turn lane warrant evaluation.

S. Campus Boulevard and Site Driveway Left Turn Lane Warrant

The calculated Build Conditions volumes displayed on **Exhibit 7 in Appendix D** were evaluated to determine the need for an eastbound left turn lane from S. Campus Boulevard into the proposed Site Driveway.

Figure 8 has been extracted from the 2022 VDOT Road Design Manual, Appendix F (Figure 3-8). This figure outlines the traffic volumes required to satisfy a left turn lane warrant on a two-lane highway with 30% left turns.

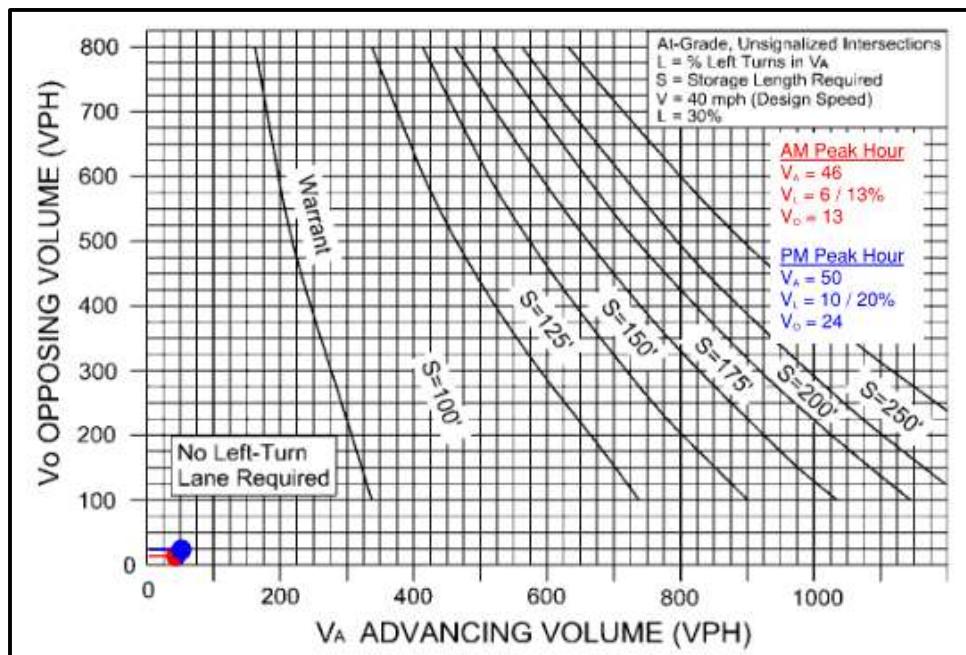


Figure 8. EB Left Turn Lane Warrant at S. Campus Blvd and Site Driveway

As shown in **Figure 8**, the installation of an eastbound left turn lane is not warranted at this location during the morning or evening peak hours.

S. Campus Boulevard and Site Driveway Right Turn Lane Warrant

The calculated Build Conditions volumes displayed on **Exhibit 7 in Appendix D** were evaluated to determine the need for a westbound right turn lane from S. Campus Boulevard into the proposed Site Driveway.

Figure 9 has been extracted from the 2022 VDOT Road Design Manual, Appendix F (Figure 3-26). This figure outlines the traffic volumes required to satisfy a right turn lane warrant at an intersection on a two-lane roadway.

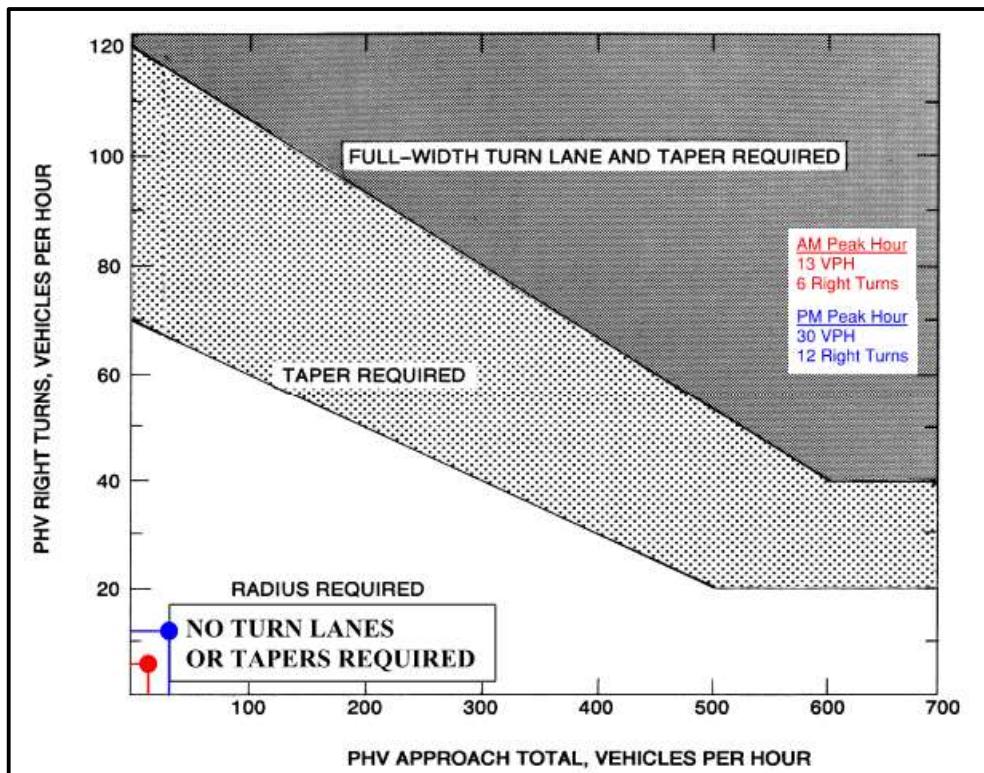


Figure 9. WB Right Turn Lane Warrant at S. Campus Blvd and Site Driveway

As shown in **Figure 9**, the installation of a westbound right turn lane is not warranted at this location during the morning or evening peak hours.

Summary

The Applicant is proposing to develop this site with a three-story senior living apartment building with 170 units.

The proposed development is expected to generate 34 total trips (12 in and 22 out) during the morning peak hour, 43 total trips (24 in and 19 out) during the evening peak hour, and 551 total trips (275 in and 276 out) during an average weekday.

To evaluate the traffic operations with the proposed development in place, capacity analyses were completed at the six (6) study intersections included in this report. The purpose for this analysis was to compare the results of the No Build and Build Conditions to identify areas impacted by the proposed development.

The results of the capacity analysis indicate that the proposed development is not projected to adversely impact any of the study intersections included in this report. There are no projected changes to levels of service for any turning movements or approaches from No Build to Build Conditions.

Additionally, the turning movements and approaches at the proposed site driveway are projected to operate at a LOS A under Build Conditions during both the morning and evening peak hours.

The results of the auxiliary turn lane warrant evaluation indicate that exclusive turn lanes into the proposed site driveway are not warranted under Build Conditions.

Conclusion

Based on the results of the analysis contained in this report, the addition of the site traffic associated with the proposed development is not expected to adversely impact the operations of the existing roadway network.

Appendix A

Conceptual Plan

**GENERALIZED DEVELOPMENT PLAN
THE ARBORORS AT STAFFORD
GENERALIZED DEVELOPMENT PLAN
STAFFORD COUNTY, VA**

AQUIA MAGISTERIAL

STAFFORD COUNTY, VA

GENERALIZED DEVELOPMENT PLAN

THE ARBORORS AT STAFFORD

GENERALIZED DEVELOPMENT PLAN

STAFFORD COUNTY, VA



WILLIAM S. PYLE

Lic. No. 037555

02/20/23

PROFESSIONAL ENGINEER

WILLIAM S. PYLE

Lic. No. 037555

02/20/23

PLAN STATUS

12/05/22 DRAFT SET

02/20/23 ISSUE TO CLIENT

DATE

DESCRIPTION

WSP

WSP

DESIGN

DRAWN

CHKD

SCALE H: 1' = 40'

V: N/A

JOB NO. 100447-01-001

DATE NOV 2022

FILE NO. 100447-D-ZP-001

SHEET 5 OF 11



Appendix B

Approved VDOT Pre-Scope of Work Meeting Form



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:	Bowman Consulting Group / Michael J. Young, P.E. 804-616-3260 myoung@bowman.com
Developer/Owner Name: Tele: E-mail:	Brian Staub / Marlyn Development Corporation bstaub@marlyndv.com

Project Information

Project Name:	The Arbors at Stafford - Senior Apartments		Locality/County:	Stafford County
Project Location: (Attach regional and site specific location map)	Located on the northwest corner of S Campus Boulevard and Old Potomac Church Road Intersection. Tax Map 39-16. Stafford County, VA. (See Figure 1)			
Submission Type	Comp Plan <input type="checkbox"/>	Rezoning <input checked="" type="checkbox"/>	Site Plan <input type="checkbox"/>	Subd Plat <input type="checkbox"/>
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	This project consists of the development of a three-story apartment building with 170 units for senior living. The proposed development is to be located on the northwest corner of the intersection of S Campus Boulevard and Old Potomac Church Road. Access to the development is expected to be provided via two (2) proposed full-access driveways connecting to S Campus Boulevard.			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential <input checked="" type="checkbox"/>	Commercial <input type="checkbox"/>	Mixed Use <input type="checkbox"/>	Other <input type="checkbox"/>
See Table 1 for Trip Generation calculations.	Residential Uses(s) Number of Units: 252 ITE LU Code(s): _____ Commercial Use(s) ITE LU Code(s): _____ Square Ft or Other Variable: _____	Other Use(s) ITE LU Code(s): _____ Independent Variable(s): _____		
Total Peak Hour Trip Projection:	Less than 100 <input checked="" type="checkbox"/>	100 – 499 <input type="checkbox"/>	500 – 999 <input type="checkbox"/>	1,000 or more <input type="checkbox"/>

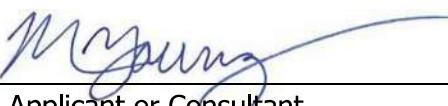
It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Traffic Impact Analysis Assumptions				
Study Period	Existing Year: 2022		Build-out Year: 2025	Design Year: N/A
Study Area Boundaries (Attach map)	North: Hospital Center Blvd		South: S Campus Boulevard	
	East: Old Potomac Church Road		West: Peake Lane	
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	N/A			
Consistency With Comprehensive Plan (Land use, transportation plan)	Yes			
Available Traffic Data (Historical, forecasts)	2021 ADT data from Virginia Roads (VDOT) TMCs at US 1 and Hospital Center Blvd (collected in June 2022)			
Trip Distribution See Figure 2 (Attach sketch)	Road Name:		Road Name: US Route 1 - 20% N / 30% S	
	Road Name:		Road Name: Hospital Center Blvd - 10% E / 40% W	
Annual Vehicle Trip Growth Rate:	2.0%	Peak Period for Study (check all that apply)		<input type="checkbox"/> AM <input checked="" type="checkbox"/> PM <input type="checkbox"/> SUN
		Peak Hour of the Generator		
Study Intersections and/or Road Segments (Attach additional sheets as necessary)	1. Old Potomac Church Rd and S Campus Blvd		6. Hospital Center Blvd and Old Potomac Church Rd/Hospital Entrance Rd	
	2. S Campus Blvd and US Route 1		7. Hospital Center Blvd and Courthouse Road	
	3. Hospital Center Blvd and US Route 1		8. S Campus Blvd and Full-Access Dwy #1	
	4.		9. S Campus Blvd and Full-Access Dwy #2	
	5. See Figure 1		10.	
Trip Adjustment Factors	Internal allowance: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Reduction: _____ % trips		Pass-by allowance: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Reduction: _____ % trips Per ITE rates.	
Software Methodology	<input checked="" type="checkbox"/> Synchro <input type="checkbox"/> HCS (v.2000/+) <input type="checkbox"/> aaSIDRA <input type="checkbox"/> CORSIM <input checked="" type="checkbox"/> Other <small>SimTraffic</small>			
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	Hospital Center Blvd and US Route 1			

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Improvement(s) Assumed or to be Considered	N/A
Background Traffic Studies Considered	Burns property (part of this project has already been constructed) Courthouse Tracts (Taco Bell and 7-11)
Plan Submission	<input type="checkbox"/> Master Development Plan (MDP) <input checked="" type="checkbox"/> Generalized Development Plan (GDP) <input type="checkbox"/> Preliminary/Sketch Plan <input type="checkbox"/> Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	<input checked="" type="checkbox"/> Queuing analysis <input type="checkbox"/> Actuation/Coordination <input type="checkbox"/> Weaving analysis <input type="checkbox"/> Merge analysis <input type="checkbox"/> Bike/Ped Accommodations <input type="checkbox"/> Intersection(s) <input type="checkbox"/> TDM Measures <input checked="" type="checkbox"/> Other <small>Crash Data</small>

NOTES on ASSUMPTIONS: _____

SIGNED:  DATE: 10/28/2022
 Applicant or Consultant

PRINT NAME: Michael Young, P.E.
 Applicant or Consultant

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

SCOPE OF WORK MEETING CONCLUSIONS**ADDITIONS TO THE VDOT REQUIRED ELEMENTS, CHANGES TO THE METHODOLOGY OR STANDARD ASSUMPTIONS, AND SIGNATURE PAGE**

Any additions to the VDOT Required Elements or changes to the Methodology or Standard Assumptions due to special circumstances that are approved by VDOT:

The applicant will contact VDOT and the locality prior to the preparation of the traffic impact analysis study in the event there are any substantial changes in the existing conditions that will affect the scope of the study.

AGREED: *M. Young* DATE: 10/28/2022
Applicant or Consultant

PRINT NAME: Michael Young, P.E.
Applicant or Consultant

SIGNED: *Carolyn Oster* DATE: _____
VDOT Representative

PRINT NAME: Carolyn Oster, P.E.
VDOT Representative

SIGNED: *michael zuraf* DATE: 11/17/2022
Local Government Representative

PRINT NAME: MICHAEL ZURAF
Local Government Representative

Carolyn Oster Digitally signed by
Carolyn Oster
Date: 2022.11.21
10:47:28 -05'00'



Intersections:

1. Old Potomac Church Rd and S Campus Blvd (Unsignalized)
2. S Campus Blvd and US Route 1 (Unsignalized)
3. Hospital Center Blvd and US Route 1 (Signalized)
4. Hospital Center Blvd and Old Potomac Church Rd / Hospital Entrance Rd (Unsignalized)
5. Hospital Center Blvd and Courthouse Road (Unsignalized)
6. S Campus Blvd and Full-Access Dwy #1 (Unsignalized)
7. S Campus Blvd and Full-Access Dwy #2 (Unsignalized)



Bowman

Site Location & Study Intersections
The Arbors at Stafford
Stafford County, VA

Figure 1



Bowman

Trip Distribution
The Arbors at Stafford
Stafford County, VA

Figure 2

Trip Generation (Per ITE Trip Generation Manual - 11th Edition)

Development	Land Use	Size	Units	Weekday AM Peak Hour ⁽¹⁾			Weekday PM Peak Hour ⁽¹⁾			Average Weekday ⁽¹⁾		
				In	Out	Total	In	Out	Total	In	Out	Total
Senior Adult Housing - Multifamily	252	170	DU	12	22	34	24	19	43	275	276	551

(1) Based on the Institute of Transportation Engineers Trip Generation Manual, 11th Edition for Land Use 252.

Bowman

Trip Generation
The Arbors at Stafford
Stafford County, VA

Table 1

Appendix C

Turning Movement Counts

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 1

Groups Printed- Cars

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total
07:00 AM	16	24	4	0	44	3	35	12	0	50	21	77	48	0	146	27	35	9	0	71	311
07:15 AM	20	36	2	0	58	7	44	13	0	64	12	83	52	0	147	46	37	24	0	107	376
07:30 AM	14	37	0	0	51	3	42	10	0	55	15	124	45	0	184	47	41	22	0	110	400
07:45 AM	11	54	5	0	70	7	51	10	0	68	23	94	45	0	162	42	76	26	0	144	444
Total	61	151	11	0	223	20	172	45	0	237	71	378	190	0	639	162	189	81	0	432	1531
08:00 AM	12	54	4	0	70	4	36	16	0	56	21	80	46	0	147	53	41	19	0	113	386
08:15 AM	13	47	5	0	65	5	46	10	0	61	17	79	34	0	130	45	56	16	0	117	373
08:30 AM	18	40	4	0	62	7	33	20	0	60	13	89	36	0	138	47	53	26	0	126	386
08:45 AM	14	47	6	0	67	4	38	15	0	57	16	78	27	0	121	35	36	38	0	109	354
Total	57	188	19	0	264	20	153	61	0	234	67	326	143	0	536	180	186	99	0	465	1499
09:00 AM	11	50	4	0	65	4	23	12	0	39	20	73	42	0	135	33	38	26	0	97	336
09:15 AM	9	48	6	0	63	10	37	9	0	56	13	62	41	0	116	44	28	22	0	94	329
09:30 AM	12	50	6	0	68	7	36	13	0	56	13	76	40	0	129	36	31	27	0	94	347
09:45 AM	11	42	8	0	61	5	35	12	0	52	14	47	44	0	105	34	50	33	0	117	335
Total	43	190	24	0	257	26	131	46	0	203	60	258	167	0	485	147	147	108	0	402	1347
10:00 AM	20	67	3	0	90	6	41	19	0	66	11	52	22	0	85	30	29	19	0	78	319
10:15 AM	9	52	8	0	69	5	34	8	0	47	14	60	28	0	102	27	27	19	0	73	291
10:30 AM	8	59	7	0	74	4	44	9	0	57	14	63	33	0	110	28	32	23	0	83	324
10:45 AM	12	51	8	0	71	8	41	11	0	60	13	70	36	0	119	36	30	25	0	91	341
Total	49	229	26	0	304	23	160	47	0	230	52	245	119	0	416	121	118	86	0	325	1275
11:00 AM	18	45	4	0	67	5	33	12	0	50	9	59	38	0	106	25	40	25	0	90	313
11:15 AM	18	73	6	0	97	9	37	12	0	58	9	65	27	0	101	32	40	21	0	93	349
11:30 AM	13	61	4	0	78	8	30	16	0	54	12	69	32	0	113	36	36	26	0	98	343
11:45 AM	15	68	6	0	89	7	36	18	0	61	17	65	34	0	116	49	42	25	0	116	382
Total	64	247	20	0	331	29	136	58	0	223	47	258	131	0	436	142	158	97	0	397	1387
12:00 PM	12	100	3	0	115	4	38	26	0	68	9	77	40	0	126	56	48	26	0	130	439
12:15 PM	16	99	4	0	119	5	34	11	0	50	11	103	32	0	146	49	38	23	0	110	425
12:30 PM	20	111	3	0	134	7	29	14	0	50	14	120	37	0	171	81	52	43	0	176	531
12:45 PM	28	111	6	0	145	10	19	13	0	42	17	119	29	0	165	89	63	96	0	248	600
Total	76	421	16	0	513	26	120	64	0	210	51	419	138	0	608	275	201	188	0	664	1995
01:00 PM	10	116	7	0	133	12	22	16	0	50	23	88	50	0	161	88	47	43	0	178	522
01:15 PM	19	110	8	0	137	6	31	7	0	44	13	97	40	0	150	85	48	51	0	184	515
01:30 PM	18	114	5	0	137	5	14	13	0	32	13	94	33	0	140	76	25	66	0	167	476
01:45 PM	18	128	11	0	157	17	17	17	0	51	13	125	28	0	166	69	43	60	0	172	546
Total	65	468	31	0	564	40	84	53	0	177	62	404	151	0	617	318	163	220	0	701	2059
02:00 PM	8	105	3	0	116	6	30	24	0	60	20	100	36	0	156	105	35	20	0	160	492
02:15 PM	19	146	5	0	170	6	17	18	0	41	12	109	33	0	154	81	59	23	0	163	528
02:30 PM	22	133	4	0	159	8	49	9	0	66	23	92	52	0	167	109	53	17	0	179	571
02:45 PM	16	167	8	0	191	9	41	21	0	71	15	85	32	0	132	116	46	28	0	190	584
Total	65	551	20	0	636	29	137	72	0	238	70	386	153	0	609	411	193	88	0	692	2175
03:00 PM	14	219	7	0	240	11	48	33	0	92	12	75	40	0	127	98	56	22	0	176	635
03:15 PM	22	168	6	0	196	8	45	23	0	76	19	83	45	0	147	119	50	18	0	187	606
03:30 PM	19	204	7	0	230	7	40	32	0	79	12	90	60	0	162	146	56	17	0	219	690
03:45 PM	26	224	10	0	260	4	38	23	0	65	16	79	64	0	159	151	64	26	0	241	725
Total	81	815	30	0	926	30	171	111	0	312	59	327	209	0	595	514	226	83	0	823	2656
04:00 PM	20	269	7	0	296	4	31	13	0	48	20	101	54	0	175	146	63	21	0	230	749
04:15 PM	16	234	11	0	261	7	42	25	0	74	16	72	68	0	156	139	60	20	0	219	710
04:30 PM	13	249	5	0	267	9	52	36	0	97	13	89	60	0	162	131	74	27	0	232	758
04:45 PM	9	321	4	0	334	3	36	24	0	63	15	96	59	0	170	143	62	24	0	229	796
Total	58	1073	27	0	1158	23	161	98	0	282	64	358	241	0	663	559	259	92	0	910	3013
05:00 PM	20	234	4	0	258	3	61	35	0	99	18	67	71	0	156	156	86	32	0	274	787
05:15 PM	13	247	5	0	265	3	44	32	0	79	19	84	65	0	168	158	67	27	0	252	764
05:30 PM	14	207	4	0	225	4	51	17	0	72	10	68	65	0	143	136	78	37	0	251	691
05:45 PM	19	159	4	0	182	5	47	10	0	62	13	83	57	0	153	125	66	42	0	233	630
Total	66	847	17	0	930	15	203	94	0	312	60	302	258	0	620	575	297	138	0	1010	2872
06:00 PM	21	178	4	0	203	3	44	16	0	63	17	65	32	0	114	109	53	34	0	196	576
06:15 PM	19	157	3	0	179	10	21	14	0	45	10	56	42	0	108	87	63	28	0	178	510
06:30 PM	7	137	4	0	148	5	29	8	0	42	13	59	41	0	113	95	58	42	0	195	498
06:45 PM	13	88	5	0	106	8	17	11	0	36	10	50	38	0	98	52	54	33	0	139	379
Total	60	560	16	0	636	26	111	49	0	186	50	230	153	0	433	343	228	137	0	708	1963

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 2

Groups Printed- Cars

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	745	5740	257	0	6742	307	1739	798	0	2844	713	3891	2053	0	6657	3747	2365	1417	0	7529	23772
Apprch %	11.1	85.1	3.8	0		10.8	61.1	28.1	0		10.7	58.4	30.8	0		49.8	31.4	18.8	0		
Total %	3.1	24.1	1.1	0	28.4	1.3	7.3	3.4	0	12	3	16.4	8.6	0	28	15.8	9.9	6	0	31.7	

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	20	36	2	58		7	44	13	64		12	83	52	147		46	37	24	107		376
07:30 AM	14	37	0	51		3	42	10	55		15	124	45	184		47	41	22	110		400
07:45 AM	11	54	5	70		7	51	10	68		23	94	45	162		42	76	26	144		444
08:00 AM	12	54	4	70		4	36	16	56		21	80	46	147		53	41	19	113		386
Total Volume	57	181	11	249		21	173	49	243		71	381	188	640		188	195	91	474		1606
% App. Total	22.9	72.7	4.4			8.6	71.2	20.2			11.1	59.5	29.4			39.7	41.1	19.2			
PHF	.713	.838	.550	.889		.750	.848	.766	.893		.772	.768	.904	.870		.887	.641	.875	.823		.904

Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	13	249	5	267		9	52	36	97		13	89	60	162		131	74	27	232		758
04:45 PM	9	321	4	334		3	36	24	63		15	96	59	170		143	62	24	229		796
05:00 PM	20	234	4	258		3	61	35	99		18	67	71	156		156	86	32	274		787
05:15 PM	13	247	5	265		3	44	32	79		19	84	65	168		158	67	27	252		764
Total Volume	55	1051	18	1124		18	193	127	338		65	336	255	656		588	289	110	987		3105
% App. Total	4.9	93.5	1.6			5.3	57.1	37.6			9.9	51.2	38.9			59.6	29.3	11.1			
PHF	.688	.819	.900	.841		.500	.791	.882	.854		.855	.875	.898	.965		.930	.840	.859	.901		.975

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 1

Groups Printed- Trucks

Start Time	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound						
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total	
07:00 AM	2	2	0	0	4	0	0	0	0	0	0	4	8	0	12	3	0	2	0	5	21	
07:15 AM	1	2	0	0	3	1	1	0	0	2	1	5	17	0	23	8	1	0	0	9	37	
07:30 AM	0	7	0	0	7	0	2	1	0	3	1	5	21	0	27	10	1	1	0	12	49	
07:45 AM	3	6	0	0	9	0	3	0	0	3	0	4	22	0	26	10	2	2	0	14	52	
Total	6	17	0	0	23	1	6	1	0	8	2	18	68	0	88	31	4	5	0	40	159	
08:00 AM	1	4	0	0	5	0	1	1	0	2	0	5	19	0	24	5	2	0	0	7	38	
08:15 AM	0	3	0	0	3	0	1	0	0	1	0	8	17	0	25	6	3	1	0	10	39	
08:30 AM	0	1	1	0	2	0	2	1	0	3	0	6	17	0	23	7	3	1	0	11	39	
08:45 AM	1	4	0	0	5	0	1	0	0	1	0	3	16	0	19	11	1	2	0	0	14	39
Total	2	12	1	0	15	0	5	2	0	7	0	22	69	0	91	29	9	4	0	42	155	
09:00 AM	2	2	2	0	6	0	0	2	0	2	2	6	17	0	25	7	0	3	0	10	43	
09:15 AM	0	2	0	0	2	2	2	1	0	5	1	4	15	0	20	10	1	3	0	14	41	
09:30 AM	1	9	0	0	10	1	0	3	0	4	2	9	19	0	30	7	2	1	0	10	54	
09:45 AM	3	2	0	0	5	0	0	3	0	3	3	8	0	14	15	1	1	0	0	17	39	
Total	6	15	2	0	23	3	2	9	0	14	8	22	59	0	89	39	4	8	0	51	177	
10:00 AM	1	6	1	0	8	3	1	0	0	4	0	4	24	0	28	11	0	1	0	12	52	
10:15 AM	3	2	0	0	5	0	2	1	0	3	0	8	20	0	28	10	1	1	0	12	48	
10:30 AM	1	3	1	0	5	0	2	1	0	3	1	0	8	0	9	9	0	1	0	10	27	
10:45 AM	2	3	0	0	5	0	0	0	0	0	1	5	14	0	20	11	3	2	0	0	16	41
Total	7	14	2	0	23	3	5	2	0	10	2	17	66	0	85	41	4	5	0	50	168	
11:00 AM	1	3	0	0	4	0	1	2	0	3	2	4	16	0	22	7	2	1	0	10	39	
11:15 AM	2	4	0	0	6	2	3	1	0	6	0	4	18	0	22	10	3	0	0	13	47	
11:30 AM	0	5	0	0	5	0	2	2	0	4	0	4	22	0	26	11	1	0	0	12	47	
11:45 AM	2	1	1	0	4	0	1	0	0	1	0	3	17	0	20	10	0	2	0	12	37	
Total	5	13	1	0	19	2	7	5	0	14	2	15	73	0	90	38	6	3	0	47	170	
12:00 PM	0	2	0	0	2	0	2	2	0	4	1	3	11	0	15	7	4	1	0	12	33	
12:15 PM	1	6	0	0	7	0	0	1	0	1	0	3	21	0	24	12	1	1	0	14	46	
12:30 PM	1	7	2	0	10	2	2	1	0	5	1	7	17	0	25	12	4	3	0	19	59	
12:45 PM	1	8	0	0	9	0	0	0	0	0	1	7	13	0	21	18	4	4	0	0	26	56
Total	3	23	2	0	28	2	4	4	0	10	3	20	62	0	85	49	13	9	0	71	194	
01:00 PM	2	8	0	0	10	0	1	2	0	3	0	11	27	0	38	12	1	10	0	23	74	
01:15 PM	2	5	0	0	7	1	1	0	0	2	1	8	6	0	15	15	4	5	0	24	48	
01:30 PM	0	7	0	0	7	1	1	1	0	3	0	4	11	0	15	11	0	4	0	15	40	
01:45 PM	0	7	0	0	7	0	0	0	0	0	0	7	16	0	23	7	1	2	0	10	40	
Total	4	27	0	0	31	2	3	3	0	8	1	30	60	0	91	45	6	21	0	72	202	
02:00 PM	2	4	0	0	6	1	0	0	0	1	0	5	20	0	25	7	2	0	0	9	41	
02:15 PM	1	9	0	0	10	0	2	0	0	2	1	3	14	0	18	9	2	0	0	11	41	
02:30 PM	0	6	1	0	7	1	0	1	0	2	1	9	18	0	28	9	0	1	0	10	47	
02:45 PM	1	4	0	0	5	0	0	1	0	1	1	8	9	0	18	9	0	2	0	11	35	
Total	4	23	1	0	28	2	2	2	0	6	3	25	61	0	89	34	4	3	0	41	164	
03:00 PM	0	5	0	0	5	0	1	2	0	3	1	10	13	0	24	9	1	0	0	10	42	
03:15 PM	0	8	0	0	8	1	4	3	0	8	0	4	8	0	12	9	3	1	0	13	41	
03:30 PM	0	6	0	0	6	0	1	0	0	1	0	3	9	0	12	6	0	1	0	7	26	
03:45 PM	0	8	0	0	8	0	1	1	0	2	0	2	2	0	4	5	1	2	0	8	22	
Total	0	27	0	0	27	1	7	6	0	14	1	19	32	0	52	29	5	4	0	38	131	
04:00 PM	0	12	0	0	12	0	1	1	0	2	0	1	5	0	6	10	3	1	0	14	34	
04:15 PM	0	9	1	0	10	0	1	0	0	1	0	1	4	0	5	5	0	0	5	21		
04:30 PM	0	5	0	0	5	0	0	1	0	1	0	2	6	0	8	8	5	1	1	0	7	21
04:45 PM	0	7	0	0	7	0	1	1	0	2	0	2	0	0	4	2	2	0	0	4	17	
Total	0	33	1	0	34	0	3	3	0	6	2	4	17	0	23	22	6	2	0	30	93	
05:00 PM	1	5	0	0	6	0	0	0	0	0	0	0	1	0	1	7	1	1	0	9	16	
05:15 PM	0	11	0	0	11	0	2	0	0	2	1	0	2	0	3	8	0	1	0	9	25	
05:30 PM	0	4	0	0	4	1	1	0	0	2	0	0	2	0	2	9	0	1	0	10	18	
05:45 PM	0	4	0	0	4	0	0	0	0	0	1	3	2	0	6	6	2	0	0	8	18	
Total	1	24	0	0	25	1	3	0	0	4	2	3	7	0	12	30	3	3	0	36	77	
06:00 PM	1	5	0	0	6	0	1	2	0	3	2	3	0	0	5	4	2	0	0	6	20	
06:15 PM	2	0	0	0	2	0	0	0	0	0	0	2	2	0	4	4	0	1	0	5	11	
06:30 PM	2	2	0	0	4	0	2	2	0	4	0	0	0	0	0	3	0	0	0	3	11	
06:45 PM	1	1	0	0	2	0	0	0	0	0	0	1	6	0	7	6	0	1	0	7	16	
Total	6	8	0	0	14	0	3	4	0	7	2	6	8	0	16	17	2	2	0	21	58	

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
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Groups Printed- Trucks

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	44	236	10	0	290	17	50	41	0	108	28	201	582	0	811	404	66	69	0	539	1748
Apprch %	15.2	81.4	3.4	0		15.7	46.3	38	0		3.5	24.8	71.8	0		75	12.2	12.8	0		
Total %	2.5	13.5	0.6	0	16.6	1	2.9	2.3	0	6.2	1.6	11.5	33.3	0	46.4	23.1	3.8	3.9	0	30.8	

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 09:30 AM																					
09:30 AM	1	9	0		10	1	0	3	4	2	9	19	30	7	2	1	10	54			
09:45 AM	3	2	0		5	0	0	3	3	3	3	8	14	15	1	1	17	39			
10:00 AM	1	6	1		8	3	1	0	4	0	4	24	28	11	0	1	12	52			
10:15 AM	3	2	0		5	0	2	1	3	0	8	20	28	10	1	1	12	48			
Total Volume	8	19	1		28	4	3	7	14	5	24	71	100	43	4	4	51	193			
% App. Total	28.6	67.9	3.6			28.6	21.4	50		5	24	71		84.3	7.8	7.8					
PHF	.667	.528	.250		.700	.333	.375	.583	.875	.417	.667	.740	.833	.717	.500	1.00	.750		.894		

Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 12:30 PM

12:30 PM	1	7	2	10		2	2	1	5	1	7	17	25	12	4	3	19	59			
12:45 PM	1	8	0	9		0	0	0	0	1	7	13	21	18	4	4	26	56			
01:00 PM	2	8	0	10		0	1	2	3	0	11	27	38	12	1	10	23	74			
01:15 PM	2	5	0	7		1	1	0	2	1	8	6	15	15	4	5	24	48			
Total Volume	6	28	2	36		3	4	3	10	3	33	63	99	57	13	22	92	237			
% App. Total	16.7	77.8	5.6			30	40	30		3	33.3	63.6		62	14.1	23.9					
PHF	.750	.875	.250	.900		.375	.500	.375	.500	.750	.750	.583	.651	.792	.813	.550	.885	.801			

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
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Groups Printed- Combined

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total
07:00 AM	18	26	4	0	48	3	35	12	0	50	21	81	56	0	158	30	35	11	0	76	332
07:15 AM	21	38	2	0	61	8	45	13	0	66	13	88	69	0	170	54	38	24	0	116	413
07:30 AM	14	44	0	0	58	3	44	11	0	58	16	129	66	0	211	57	42	23	0	122	449
07:45 AM	14	60	5	0	79	7	54	10	0	71	23	98	67	0	188	52	78	28	0	158	496
Total	67	168	11	0	246	21	178	46	0	245	73	396	258	0	727	193	193	86	0	472	1690
08:00 AM	13	58	4	0	75	4	37	17	0	58	21	85	65	0	171	58	43	19	0	120	424
08:15 AM	13	50	5	0	68	5	47	10	0	62	17	87	51	0	155	51	59	17	0	127	412
08:30 AM	18	41	5	0	64	7	35	21	0	63	13	95	53	0	161	54	56	27	0	137	425
Total	59	200	20	0	279	20	158	63	0	241	67	348	212	0	627	209	195	103	0	507	1654
09:00 AM	13	52	6	0	71	4	23	14	1	42	22	79	59	1	161	40	38	29	0	107	381
09:15 AM	9	50	6	0	65	12	39	10	0	61	14	66	56	0	136	54	29	25	0	108	370
09:30 AM	13	59	6	0	78	8	36	16	0	60	15	85	59	0	159	43	33	28	0	104	401
09:45 AM	14	44	8	0	66	5	35	15	0	55	17	50	52	0	119	49	51	34	0	134	374
Total	49	205	26	0	280	29	133	55	1	218	68	280	226	1	575	186	151	116	0	453	1526
10:00 AM	21	73	4	0	98	9	42	19	0	70	11	56	46	0	113	41	29	20	0	90	371
10:15 AM	12	54	8	0	74	5	36	9	0	50	14	68	48	0	130	37	28	20	0	85	339
10:30 AM	9	62	8	0	79	4	46	10	0	60	15	63	41	0	119	37	32	24	0	93	351
Total	56	243	28	0	327	26	165	49	0	240	54	262	185	0	501	162	122	91	0	375	1443
11:00 AM	19	48	4	0	71	5	34	14	0	53	11	63	54	0	128	32	42	26	0	100	352
11:15 AM	20	77	6	0	103	11	40	13	0	64	9	69	45	0	123	42	43	21	0	106	396
11:30 AM	13	66	4	0	83	8	32	18	0	58	12	73	54	0	139	47	37	26	0	110	390
11:45 AM	17	69	7	0	93	7	37	18	0	62	17	68	51	0	136	59	42	27	0	128	419
Total	69	260	21	0	350	31	143	63	0	237	49	273	204	0	526	180	164	100	0	444	1557
12:00 PM	12	102	3	0	117	4	40	28	0	72	10	80	51	0	141	63	52	27	0	142	472
12:15 PM	17	105	4	0	126	5	34	12	0	51	11	106	53	0	170	61	39	24	0	124	471
12:30 PM	21	118	5	0	144	9	31	15	0	55	15	127	54	0	196	93	56	46	0	195	590
Total	79	444	18	0	541	28	124	68	0	220	54	439	200	0	693	324	214	197	0	735	2189
01:00 PM	12	124	7	0	143	12	23	18	0	53	23	99	77	0	199	100	48	53	0	201	596
01:15 PM	21	115	8	0	144	7	32	7	0	46	14	105	46	0	165	100	52	56	0	208	563
01:30 PM	18	121	5	0	144	6	15	14	0	35	13	98	44	0	155	87	25	70	0	182	516
01:45 PM	18	135	11	0	164	17	17	17	0	51	13	132	44	0	189	76	44	62	0	182	586
Total	69	495	31	0	595	42	87	56	0	185	63	434	211	0	708	363	169	241	0	773	2261
02:00 PM	10	109	3	0	122	7	30	24	0	61	20	105	56	0	181	112	37	20	0	169	533
02:15 PM	20	155	5	0	180	6	19	18	0	43	13	112	47	0	172	90	61	23	0	174	569
02:30 PM	22	139	5	0	166	9	49	10	0	68	24	101	70	0	195	118	53	18	0	189	618
Total	69	574	21	0	664	31	139	74	0	244	73	411	214	0	698	445	197	91	0	733	2339
03:00 PM	14	224	7	0	245	11	49	35	0	95	13	85	53	0	151	107	57	22	0	186	677
03:15 PM	22	176	6	0	204	9	49	26	0	84	19	87	53	0	159	128	53	19	0	200	647
03:30 PM	19	210	7	0	236	7	41	32	0	80	12	93	69	0	174	152	56	18	0	226	716
03:45 PM	26	232	10	0	268	4	39	24	0	67	16	81	66	0	163	156	65	28	0	249	747
Total	81	842	30	0	953	31	178	117	0	326	60	346	241	0	647	543	231	87	0	861	2787
04:00 PM	20	281	7	0	308	4	32	14	0	50	20	102	59	0	181	156	66	22	0	244	783
04:15 PM	16	243	12	0	271	7	43	25	0	75	16	73	72	0	161	144	60	20	0	224	731
04:30 PM	13	254	5	0	272	9	52	37	0	98	13	91	66	0	170	136	75	28	0	239	779
04:45 PM	9	328	4	0	341	3	37	25	0	65	17	96	61	0	174	145	64	24	0	233	813
Total	58	1106	28	0	1192	23	164	101	0	288	66	362	258	0	686	581	265	94	0	940	3106
05:00 PM	21	239	4	0	264	3	61	35	0	99	18	67	72	0	157	163	87	33	0	283	803
05:15 PM	13	258	5	0	276	3	46	32	0	81	20	84	67	0	171	166	67	28	0	261	789
05:30 PM	14	211	4	0	229	5	52	17	0	74	10	68	67	0	145	145	78	38	0	261	709
05:45 PM	19	163	4	0	186	5	47	10	0	62	14	86	59	0	159	131	68	42	0	241	648
Total	67	871	17	0	955	16	206	94	0	316	62	305	265	0	632	605	300	141	0	1046	2949
06:00 PM	22	183	4	0	209	3	45	18	0	66	19	68	32	0	119	113	55	34	0	202	596
06:15 PM	21	157	3	0	181	10	21	14	0	45	10	58	44	0	112	91	63	29	0	183	521
06:30 PM	9	139	4	0	152	5	31	10	0	46	13	59	41	0	113	98	58	42	0	198	509
06:45 PM	14	89	5	0	108	8	17	11	0	36	10	51	44	0	105	58	54	34	0	146	395
Total	66	568	16	0	650	26	114	53	0	193	52	236	161	0	449	360	230	139	0	729	2021

Peggy Malone and Associates
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Groups Printed- Combined

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	789	5976	267	0	7032	324	1789	839	1	2953	741	4092	2635	1	7469	4151	2431	1486	0	8068	25522
Apprch %	11.2	85	3.8	0		11	60.6	28.4	0		9.9	54.8	35.3	0		51.5	30.1	18.4	0		
Total %	3.1	23.4	1	0	27.6	1.3	7	3.3	0	11.6	2.9	16	10.3	0	29.3	16.3	9.5	5.8	0	31.6	

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	21	38	2	61		8	45	13	66		13	88	69	170		54	38	24	116	413	
07:30 AM	14	44	0	58		3	44	11	58		16	129	66	211		57	42	23	122	449	
07:45 AM	14	60	5	79		7	54	10	71		23	98	67	188		52	78	28	158	496	
08:00 AM	13	58	4	75		4	37	17	58		21	85	65	171		58	43	19	120	424	
Total Volume	62	200	11	273		22	180	51	253		73	400	267	740		221	201	94	516	1782	
% App. Total	22.7	73.3	4			8.7	71.1	20.2			9.9	54.1	36.1			42.8	39	18.2			
PHF	.738	.833	.550	.864		.688	.833	.750	.891		.793	.775	.967	.877		.953	.644	.839	.816	.898	

Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

04:30 PM	13	254	5	272		9	52	37	98		13	91	66	170		136	75	28	239	779	
04:45 PM	9	328	4	341		3	37	25	65		17	96	61	174		145	64	24	233	813	
05:00 PM	21	239	4	264		3	61	35	99		18	67	72	157		163	87	33	283	803	
05:15 PM	13	258	5	276		3	46	32	81		20	84	67	171		166	67	28	261	789	
Total Volume	56	1079	18	1153		18	196	129	343		68	338	266	672		610	293	113	1016	3184	
% App. Total	4.9	93.6	1.6			5.2	57.1	37.6			10.1	50.3	39.6			60	28.8	11.1			
PHF	.667	.822	.900	.845		.500	.803	.872	.866		.850	.880	.924	.966		.919	.842	.856	.898	.979	

Directional Turning Movement Study

7-9 AM Weekday															County: Stafford		
Location: Hospital Center Blvd. / Old Potomac Church Rd. / Stafford Hospital Entrance													County: Stafford				
Date Surveyed: October 12, 2022													Weather: Sunny				
	Hospital Entrance				Old Potomac Church Rd.				Hospital Center Blvd.				Hospital Center Blvd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right	Ped's Across N Leg	Left	Thru	Right	Ped's Across S Leg	Left	Thru	Right	Ped's Across E Leg	Left	Thru	Right	Ped's Across W Leg	Int. Total
7:15	0	0	13	0	9	0	2	1	1	54	3	0	25	67	8	0	182
7:30	0	1	13	0	5	1	4	0	2	80	2	0	15	58	4	0	185
7:45	2	0	20	0	19	0	4	0	5	33	1	0	10	62	13	0	169
8:00	1	0	6	0	5	0	3	0	0	46	1	0	11	79	8	0	160
8:15	0	0	2	0	9	0	5	0	2	42	1	0	16	57	7	0	141
8:30	0	0	13	0	15	0	2	0	4	48	3	0	23	67	10	0	185
8:45	0	1	11	0	13	1	1	0	5	53	1	0	14	73	13	0	186
9:00	1	0	3	0	8	0	4	0	6	52	1	0	14	51	15	0	155
Total	4	2	81	0	83	2	25	1	25	408	13	0	128	514	78	0	1363
% Appr Total	4.6%	2.3%	93.1%		75.5%	1.8%	22.7%		5.6%	91.5%	2.9%		17.8%	71.4%	10.8%		
Heavy Vehicles	0	0	3		5	0	1		0	17	1		1	19	1		48
% Heavy Vehicles			3.7%		6.0%		4.0%		4.2%	7.7%			0.8%	3.7%	1.3%		3.5%
Heavy Vehicles (Trucks & Buses)																	
Location: Hospital Center Blvd. / Old Potomac Church Rd. / Stafford Hospital Entrance													County: Stafford				
Date Surveyed: October 12, 2022													Weather: Sunny				
	Hospital Entrance				Old Potomac Church Rd.				Hospital Center Blvd.				Hospital Center Blvd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Int. Total
7:15	0	0	0		0	0	0		0	1	1		1	7	0		10
7:30	0	0	0		0	0	0		0	3	0		0	0	0		3
7:45	0	0	0		0	0	0		0	2	0		0	4	0		6
8:00	0	0	1		0	0	1		0	1	0		0	4	0		7
8:15	0	0	0		0	0	0		0	4	0		0	1	1		6
8:30	0	0	1		3	0	0		0	6	0		0	0	0		10
8:45	0	0	0		2	0	0		0	0	0		0	2	0		4
9:00	0	0	1		0	0	0		0	0	0		0	1	0		2
Total	0	0	3		5	0	1		0	17	1		1	19	1		48

Directional Turning Movement Study

7-9 AM Weekday

Location: Old Potomac Church Rd. and South Campus Blvd.

County: Stafford

Date Surveyed: October 12, 2022

Weather: Sunny

	Old Potomac Church Rd.				Old Potomac Church Rd.				NA				S. Campus Blvd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right	Ped's Across N Leg	Left	Thru	Right	Ped's Across S Leg	Left	Thru	Right	Ped's Across E Leg	Left	Thru	Right	Ped's Across W Leg	Int. Total
7:15		9	0	0	0	8		0					3		1	0	21
7:30		4	3	0	0	4		0					7		0	0	18
7:45		15	2	0	0	17		0					3		1	0	38
8:00		6	1	0	1	7		0					1		2	0	18
8:15		10	0	0	0	10		0					4		0	0	24
8:30		8	3	0	0	11		0					3		5	0	30
8:45		17	4	0	0	13		0					1		3	0	38
9:00		15	6	0	2	9		0					2		1	0	35
Total		84	19	0	3	79		0					24		13	0	222
% Appr Total		81.6%	18.4%		3.7%	96.3%							64.9%		35.1%		
Heavy Vehicles		1	0		0	5							1		3		10
% Heavy Vehicles		1%			0%	6%										23%	4.5%

Heavy Vehicles (Trucks & Buses)

Location: Old Potomac Church Rd. and South Campus Blvd.

County: Stafford

Date Surveyed: October 12, 2022

Weather: Sunny

	Old Potomac Church Rd.				Old Potomac Church Rd.				NA				S. Campus Blvd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Int. Total
7:15		0	0		0	0							0		0		0
7:30		0	0		0	0							0		0		0
7:45		0	0		0	0							0		0		0
8:00		0	0		0	0							1		2		3
8:15		1	0		0	2							0		0		3
8:30		0	0		0	1							0		1		2
8:45		0	0		0	2							0		0		2
9:00		0	0		0	0							0		0		0
Total		1	0		0	5							1		3		10

Directional Turning Movement Study

7-9 AM Weekday

Location: US Route 1 and South Campus Blvd.

County: Stafford

Date Surveyed: October 12, 2022

Weather: Sunny

	US Route 1				US Route 1				South Campus Blvd.				NA				
	From North				From South				From East				From West				
End Time	Left	Thru	Right	Ped's Across N Leg	Left	Thru	Right	Ped's Across S Leg	Left	Thru	Right	Ped's Across E Leg	Left	Thru	Right	Ped's Across W Leg	Int. Total
7:15	15	104		0		191	1	0	1		13	0					325
7:30	3	110		0		233	6	0	3		9	0					364
7:45	6	110		0		268	5	0	2		11	0					402
8:00	1	129		0		263	3	0	5		8	0					409
8:15	2	116		0		211	3	0	2		7	0					341
8:30	5	110		0		281	16	0	6		4	0					422
8:45	6	106		0		223	15	0	3		4	0					357
9:00	6	114		0		209	17	0	4		10	0					360
Total	44	899		0		1879	66	0	26		66	0					2980
% Appr Total	4.7%	95.3%				96.6%	3.4%		28.3%		71.7%						
Heavy Vehicles	2	87				86	4		1		0						180
% Heavy Vehicles	4.5%	9.7%				4.6%	6.1%		3.8%								6.0%

Heavy Vehicles (Trucks & Buses)

Location: US Route 1 and South Campus Blvd.

County: Stafford

Date Surveyed: October 12, 2022

Weather: Sunny

	US Route 1				US Route 1				South Campus Blvd.				NA				
	From North				From South				From East				From West				
End Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Int. Total
7:15	0	15				15	0		0		0						30
7:30	0	10				12	0		0		0						22
7:45	1	8				8	0		0		0						17
8:00	1	6				9	2		0		0						18
8:15	0	12				3	1		0		0						16
8:30	0	14				11	1		0		0						26
8:45	0	10				14	0		1		0						25
9:00	0	12				14	0		0		0						26
Total	2	87				86	4		1		0						180

Directional Turning Movement Study

7-9 AM Weekday																	
Location: Courthouse Rd. and Hospital Center Blvd.								County: Stafford									
Date Surveyed: October 12, 2022								Weather: Sunny									
	NA				Hospital Center Blvd.				Courthouse Rd.				Courthouse Rd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right	Ped	Left	Thru	Right		Left	Thru	Right	Ped	Left	Thru	Right	Ped	Int. Total
7:15					8		42	0	53	105		0		143	8	0	359
7:30					13		49	0	60	152		0		85	14	0	373
7:45					21		27	0	27	72		0		26	10	0	183
8:00					26		21	0	31	72		0		21	16	0	187
8:15					19		24	0	36	88		0		30	16	0	213
8:30					20		22	0	33	71		0		50	13	0	209
8:45					14		35	1	39	40		0		23	17	0	168
9:00					11		32	0	29	36		0		22	20	0	150
Total					132		252	1	308	636		0		400	114	0	1842
% Appr Total					34.4%		65.6%		32.6%	67.4%				77.8%	22.2%		
Heavy Vehicles					9		18		15	38				32	2		114
% Heavy Vehicles					6.8%		7.1%		4.9%	6.0%				8.0%	1.8%		6.2%
Heavy Vehicles (Trucks & Buses)																	
Location: Courthouse Rd. and Hospital Center Blvd.								County: Stafford									
Date Surveyed: October 12, 2022								Weather: Sunny									
	NA				Hospital Center Blvd.				Courthouse Rd.				Courthouse Rd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Int. Total
7:15					1		7		6	7				21	0		42
7:30					0		0		2	16				6	0		24
7:45					4		4		0	6				1	0		15
8:00					1		4		0	1				1	1		8
8:15					0		1		1	2				1	1		6
8:30					0		0		5	5				2	0		12
8:45					2		2		1	1				0	0		6
9:00					1		0		0	0				0	0		1
Total					9		18		15	38				32	2		114

Directional Turning Movement Study

4-6 PM Weekday															County: Stafford		
Location: Hospital Center Blvd. / Old Potomac Church Rd. / Stafford Hospital Entrance													County: Stafford				
Date Surveyed: October 11, 2022													Weather: Sunny				
	Hospital Entrance				Old Potomac Church Rd.				Hospital Center Blvd.				Hospital Center Blvd.				
	From North			Ped's Across N Leg	From South			Ped's Across S Leg	From East			Ped's Across E Leg	From West				
End Time	Left	Thru	Right	Ped's Across N Leg	Left	Thru	Right	Ped's Across S Leg	Left	Thru	Right	Ped's Across E Leg	Left	Thru	Right	Ped's Across W Leg	Int. Total
16:15	1	0	14	0	6	1	1	0	4	84	1	0	5	75	10	0	202
16:30	0	0	11	0	8	0	4	0	3	102	3	0	5	96	11	0	243
16:45	0	0	7	0	5	1	4	0	3	89	1	0	4	83	16	0	213
17:00	0	1	13	0	11	0	4	0	6	72	3	0	5	96	4	0	215
17:15	3	1	18	0	12	0	4	0	5	98	1	0	5	95	15	0	257
17:30	0	1	17	0	15	1	4	0	2	63	1	0	11	88	13	0	216
17:45	2	0	16	0	11	0	0	0	2	42	0	0	9	84	7	0	173
18:00	1	1	6	0	4	0	1	0	1	40	0	0	5	59	8	0	126
Total	7	4	102	0	72	3	22	0	26	590	10	0	49	676	84	0	1645
% Appr Total	6.2%	3.5%	90.3%		74.2%	3.1%	22.7%		4.2%	94.2%	1.6%		6.1%	83.6%	10.4%		
Heavy Vehicles	0	0	0		2	0	0		0	8	0		0	4	2		16
% Heavy Vehicles					2.8%				1.4%				0.6%	2.4%			1.0%
Heavy Vehicles (Trucks & Buses)																	
Location: Hospital Center Blvd. / Old Potomac Church Rd. / Stafford Hospital Entrance															County: Stafford		
Date Surveyed: October 11, 2022													Weather: Sunny				
	Hospital Entrance				Old Potomac Church Rd.				Hospital Center Blvd.				Hospital Center Blvd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Int. Total
16:15	0	0	0		0	0	0		0	2	0		0	0	0		2
16:30	0	0	0		0	0	0		0	2	0		0	1	0		3
16:45	0	0	0		1	0	0		0	1	0		0	2	1		5
17:00	0	0	0		1	0	0		0	2	0		0	0	1		4
17:15	0	0	0		0	0	0		0	1	0		0	0	0		1
17:30	0	0	0		0	0	0		0	0	0		0	1	0		1
17:45	0	0	0		0	0	0		0	0	0		0	0	0		0
18:00	0	0	0		0	0	0		0	0	0		0	0	0		0
Total	0	0	0		2	0	0		0	8	0		0	4	2		16

Directional Turning Movement Study

4-6 PM Weekday

Location: Old Potomac Church Rd. and South Campus Blvd.

County: Stafford

Date Surveyed: October 11, 2022

Weather: Sunny

	Old Potomac Church Rd.				Old Potomac Church Rd.				NA				S. Campus Blvd.				
	From North			Ped's Across N Leg	From South			Ped's Across S Leg	From East			Ped's Across E Leg	From West			Ped's Across W Leg	
End Time	Left	Thru	Right	Ped's Across N Leg	Left	Thru	Right	Ped's Across S Leg	Left	Thru	Right	Ped's Across E Leg	Left	Thru	Right	Ped's Across W Leg	Int. Total
16:15		13	1	0	0	7		0					1		0	0	22
16:30		9	5	0	0	10		0					4		0	0	28
16:45		13	6	0	1	7		0					1		6	0	34
17:00		8	2	0	0	12		0					2		0	0	24
17:15		16	4	0	0	11		0					5		2	0	38
17:30		13	5	0	1	18		0					1		0	0	38
17:45		5	2	0	2	11		0					0		1	0	21
18:00		11	1	0	1	4		0					2		0	0	19
Total		88	26	0	5	80		0					16		9	0	224
% Appr Total		77.2%	22.8%		5.9%	94.1%							64.0%		36.0%		
Heavy Vehicles		2	0		0	1							1		0		4
% Heavy Vehicles		2%			0%	1%									0%		1.8%
Heavy Vehicles (Trucks & Buses)																	

Location: Old Potomac Church Rd. and South Campus Blvd.

County: Stafford

Date Surveyed: October 11, 2022

Weather: Sunny

	Old Potomac Church Rd.				Old Potomac Church Rd.				NA				S. Campus Blvd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Int. Total
16:15	0	0			0	0							0		0		0
16:30	0	0			0	0							0		0		0
16:45	1	0			0	0							1		0		2
17:00	1	0			0	1							0		0		2
17:15	0	0			0	0							0		0		0
17:30	0	0			0	0							0		0		0
17:45	0	0			0	0							0		0		0
18:00	0	0			0	0							0		0		0
Total	2	0			0	1							1		0		4

Directional Turning Movement Study

4-6 PM Weekday

Location: US Route 1 and South Campus Blvd.

County: Stafford

Date Surveyed: October 11, 2022

Weather: Sunny

	US Route 1				US Route 1				South Campus Blvd.				NA				
	From North				From South				From East				From West			Ped's Across W Leg	Int. Total
End Time	Left	Thru	Right	Ped's Across N Leg	Left	Thru	Right	Ped's Across S Leg	Left	Thru	Right	Ped's Across E Leg	Left	Thru	Right	Ped's Across W Leg	Int. Total
16:15	2	422		0		137	0	0	1		4	0					566
16:30	3	417		0		131	5	0	3		5	0					564
16:45	2	467		0		135	9	0	1		4	0					618
17:00	4	500		0		122	4	0	4		4	0					638
17:15	5	448		0		147	6	0	3		6	0					615
17:30	9	347		0		146	3	0	5		4	0					514
17:45	5	381		0		134	1	0	6		10	0					537
18:00	11	258		0		117	3	0	3		5	0					397
Total	41	3240		0		1069	31	0	26		42	0					4449
% Appr Total	1.2%	98.8%				97.2%	2.8%		38.2%		61.8%						
Heavy Vehicles	1	62				26	1		0		0						90
% Heavy Vehicles	2.4%	1.9%				2.4%	3.2%										2.0%

Heavy Vehicles (Trucks & Buses)

Location: US Route 1 and South Campus Blvd.

County: Stafford

Date Surveyed: October 11, 2022

Weather: Sunny

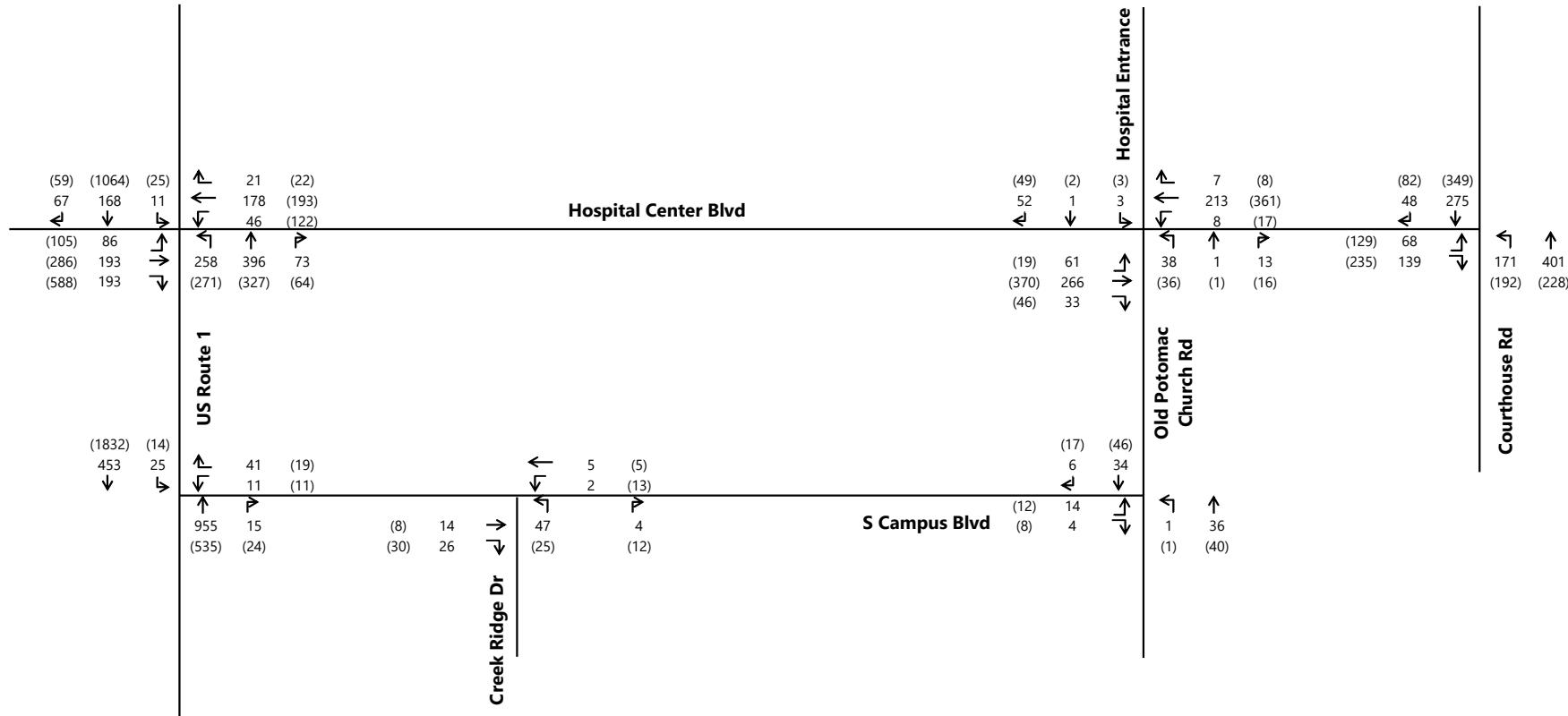
	US Route 1				US Route 1				South Campus Blvd.				NA				
	From North				From South				From East				From West				
End Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Int. Total
16:15	0	6				3	0		0		0						9
16:30	0	12				7	0		0		0						19
16:45	1	10				1	0		0		0						12
17:00	0	5				9	0		0		0						14
17:15	0	11				2	0		0		0						13
17:30	0	7				1	1		0		0						9
17:45	0	8				2	0		0		0						10
18:00	0	3				1	0		0		0						4
Total	1	62				26	1		0		0						90

Directional Turning Movement Study

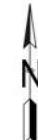
4-6 PM Weekday																	
Location: Courthouse Rd. and Hospital Center Blvd.								County: Stafford									
Date Surveyed: October 11, 2022								Weather: Sunny									
End Time	NA				Hospital Center Blvd.				Courthouse Rd.				Courthouse Rd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right	Ped's Across N Leg	Left	Thru	Right	Ped's Across S Leg	Left	Thru	Right	Ped's Across E Leg	Left	Thru	Right	Ped's Across W Leg	Int. Total
16:15					31		35	0	46	73		0		92	22	0	299
16:30					31		60	0	57	62		0		83	14	0	307
16:45					31		58	0	44	41		0		102	26	0	302
17:00					30		66	0	37	55		0		95	18	0	301
17:15					37		51	0	54	70		0		69	24	0	305
17:30					36		65	0	40	60		0		68	12	0	281
17:45					32		49	0	29	52		0		62	9	0	233
18:00					27		31	0	25	63		0		59	9	0	214
Total					255		415	0	332	476		0		630	134	0	2242
% Appr Total					38.1%		61.9%		41.1%	58.9%				82.5%	17.5%		
Heavy Vehicles					2		2		9	20				3	0		36
% Heavy Vehicles					0.8%		0.5%		2.7%	4.2%				0.5%			1.6%
Heavy Vehicles (Trucks & Buses)																	
Location: Courthouse Rd. and Hospital Center Blvd.								County: Stafford									
Date Surveyed: October 11, 2022								Weather: Sunny									
End Time	NA				Hospital Center Blvd.				Courthouse Rd.				Courthouse Rd.				
	From North				From South				From East				From West				
End Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Int. Total
16:15					0		0		3	14				0	0		17
16:30					1		1		3	1				0	0		6
16:45					0		0		1	0				2	0		3
17:00					1		0		2	1				0	0		4
17:15					0		0		0	3				1	0		4
17:30					0		1		0	1				0	0		2
17:45					0		0		0	0				0	0		0
18:00					0		0		0	0				0	0		0
Total					2		2		9	20				3	0		36

Appendix D

Traffic Volume and Traffic Distribution Exhibits



NOT TO SCALE



Legend

123 - AM Peak Hour Traffic Volumes

(123) - PM Peak Hour Traffic Volumes

Bowman

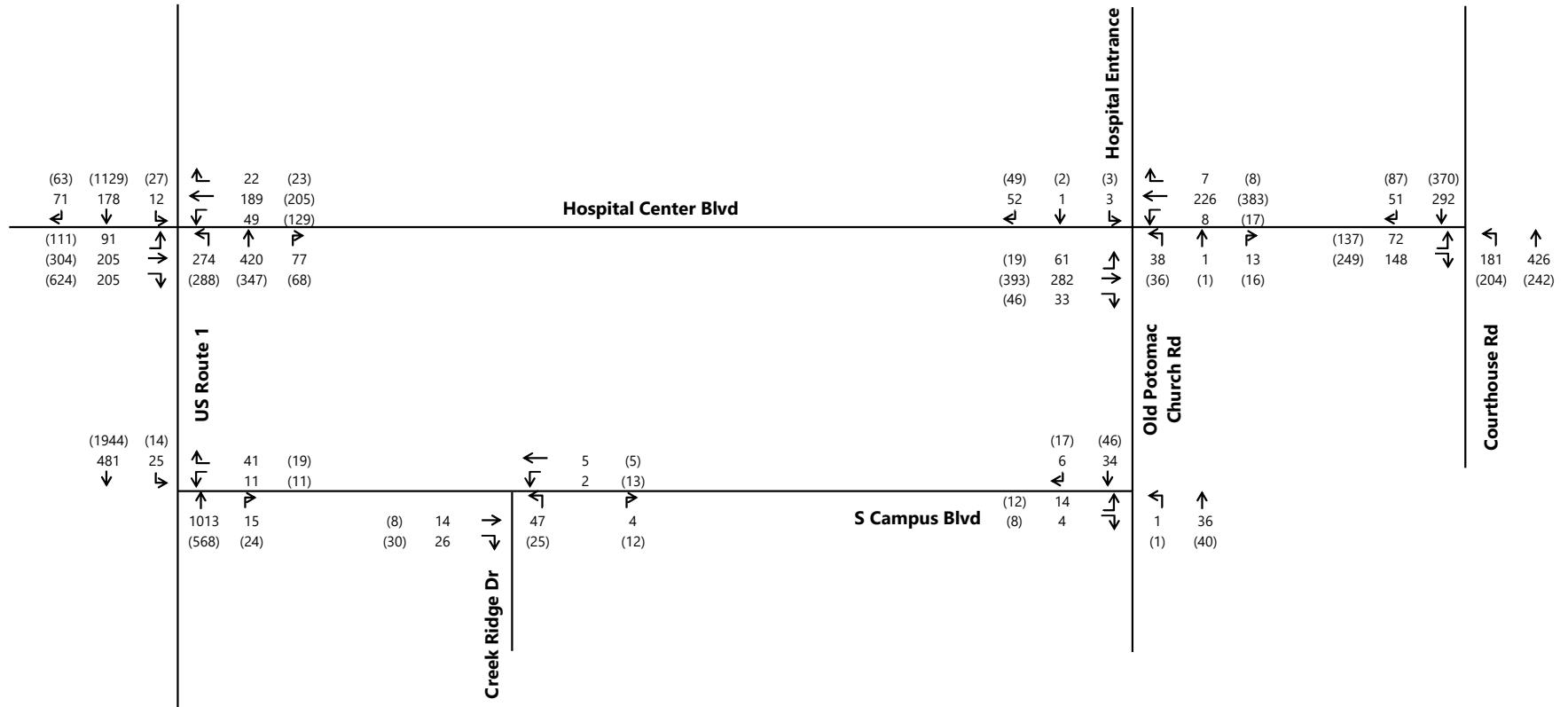
**2022 Existing
Peak Hour Traffic Volumes**

The Arbors at Stafford TIA
Stafford County, VA

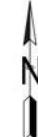
EXHIBIT

1

PROJECT NO.
100447-01-001



NOT TO SCALE



Legend

- 123 - AM Peak Hour Traffic Volumes
- (123) - PM Peak Hour Traffic Volumes

Bowman

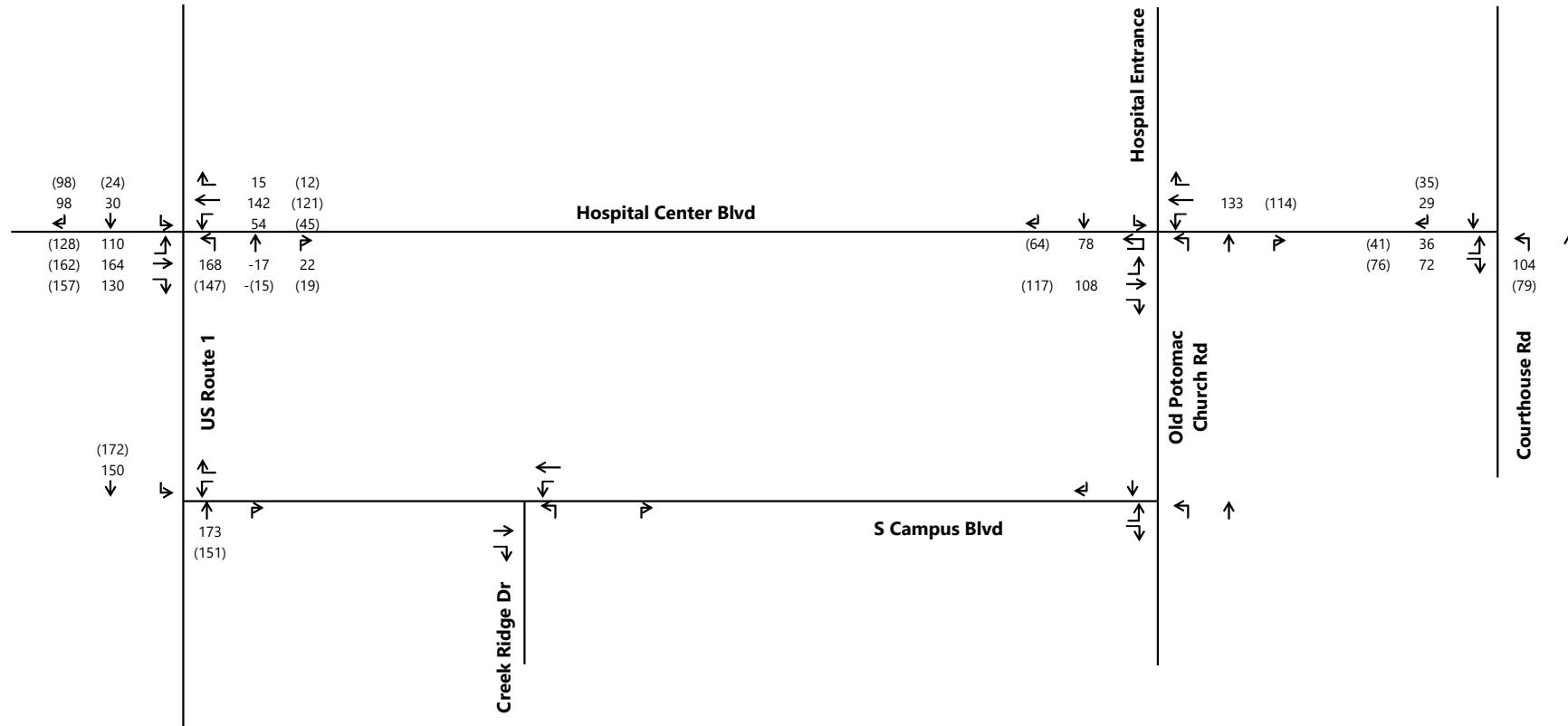
**2025 Background
Peak Hour Traffic Volumes**

The Arbors at Stafford TIA
Stafford County, VA

EXHIBIT

2

PROJECT NO.
100447-01-001



NOT TO SCALE



Legend

123 - AM Peak Hour Traffic Volumes

(123) - PM Peak Hour Traffic Volumes

Bowman

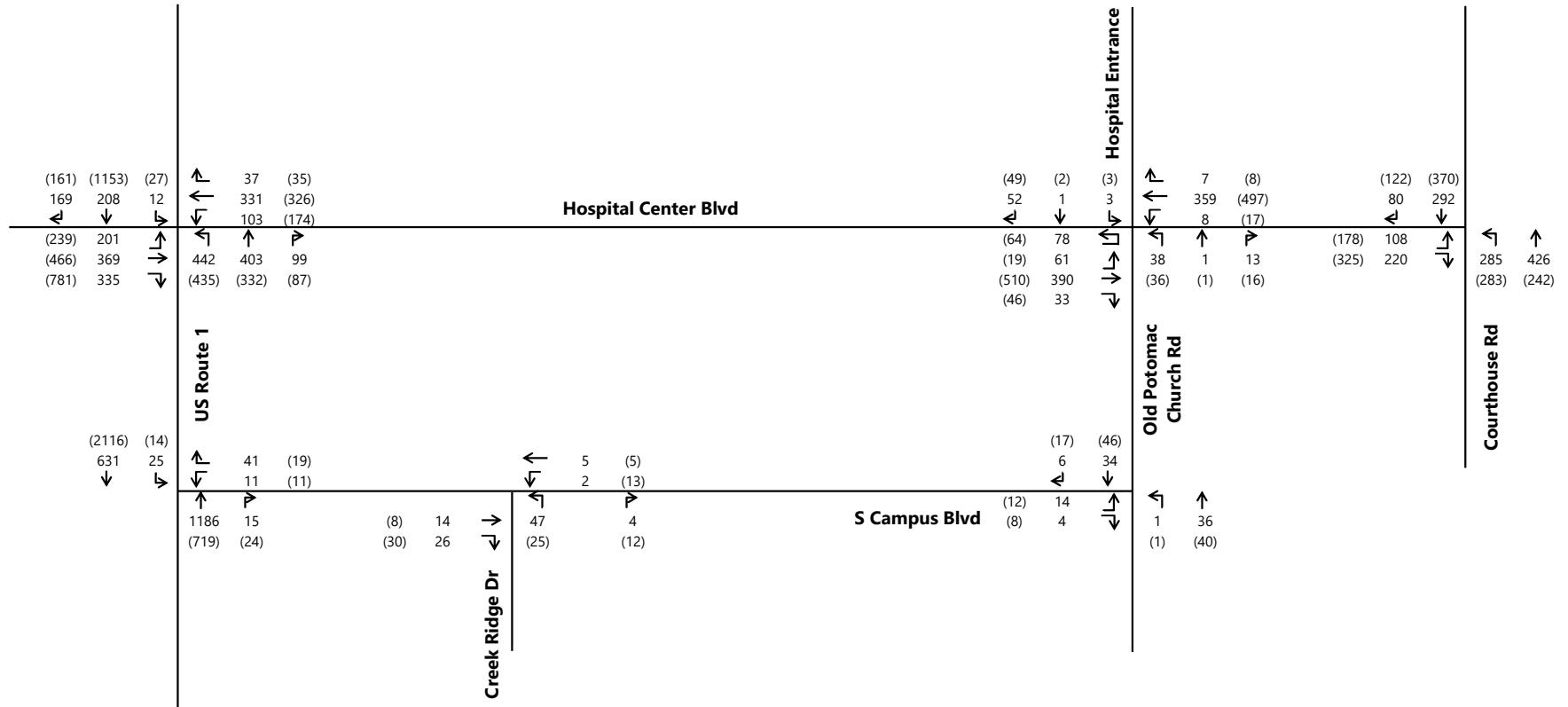
**Approved Background Development
Peak Hour Traffic Volumes**

The Arbors at Stafford TIA
Stafford County, VA

EXHIBIT

3

PROJECT NO.
100447-01-001



NOT TO SCALE



Legend

123 - AM Peak Hour Traffic Volumes

(123) - PM Peak Hour Traffic Volumes

Bowman

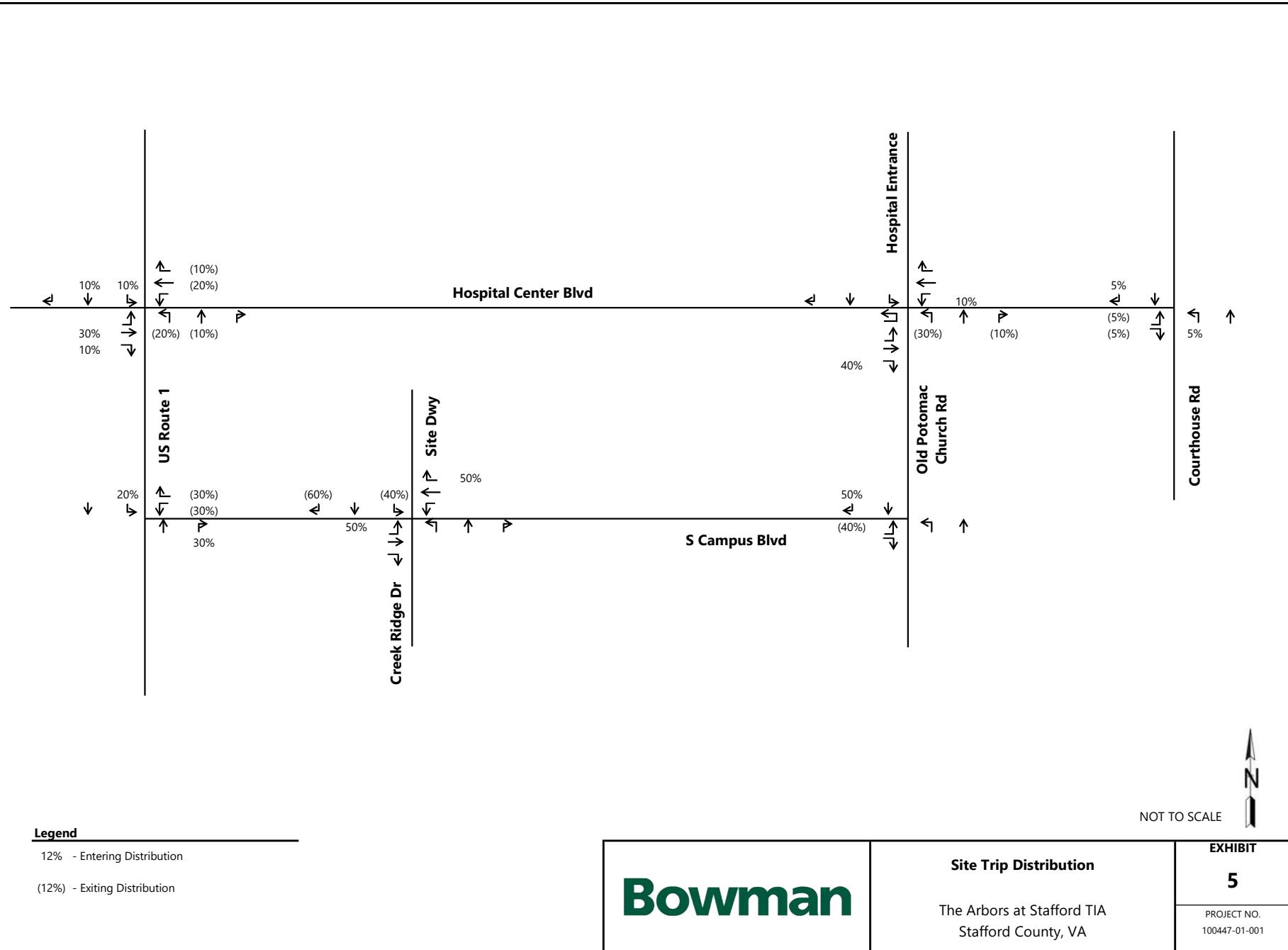
**2025 No Build
Peak Hour Traffic Volumes**

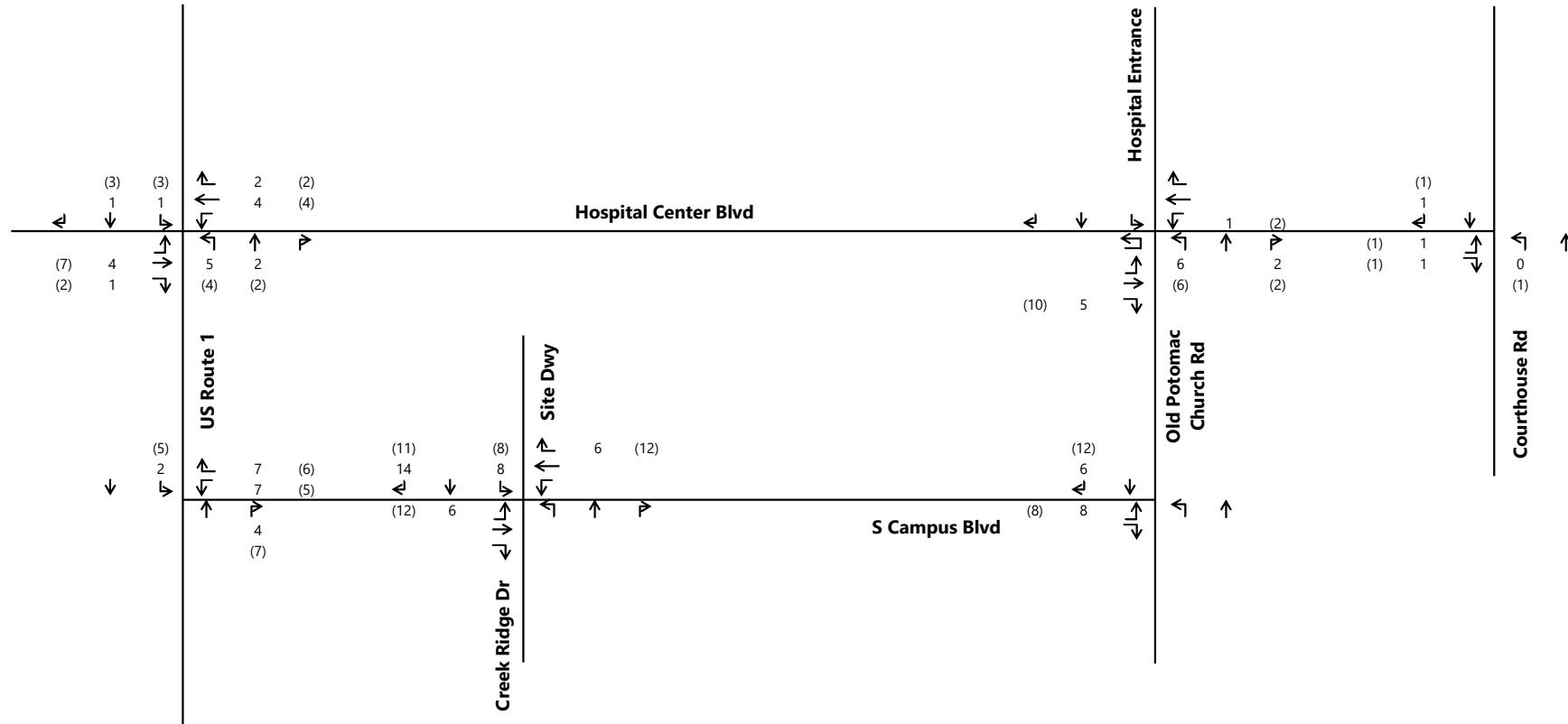
The Arbors at Stafford TIA
Stafford County, VA

EXHIBIT

4

PROJECT NO.
100447-01-001





NOT TO SCALE



Legend

123 - AM Peak Hour Traffic Volumes

(123) - PM Peak Hour Traffic Volumes

Bowman

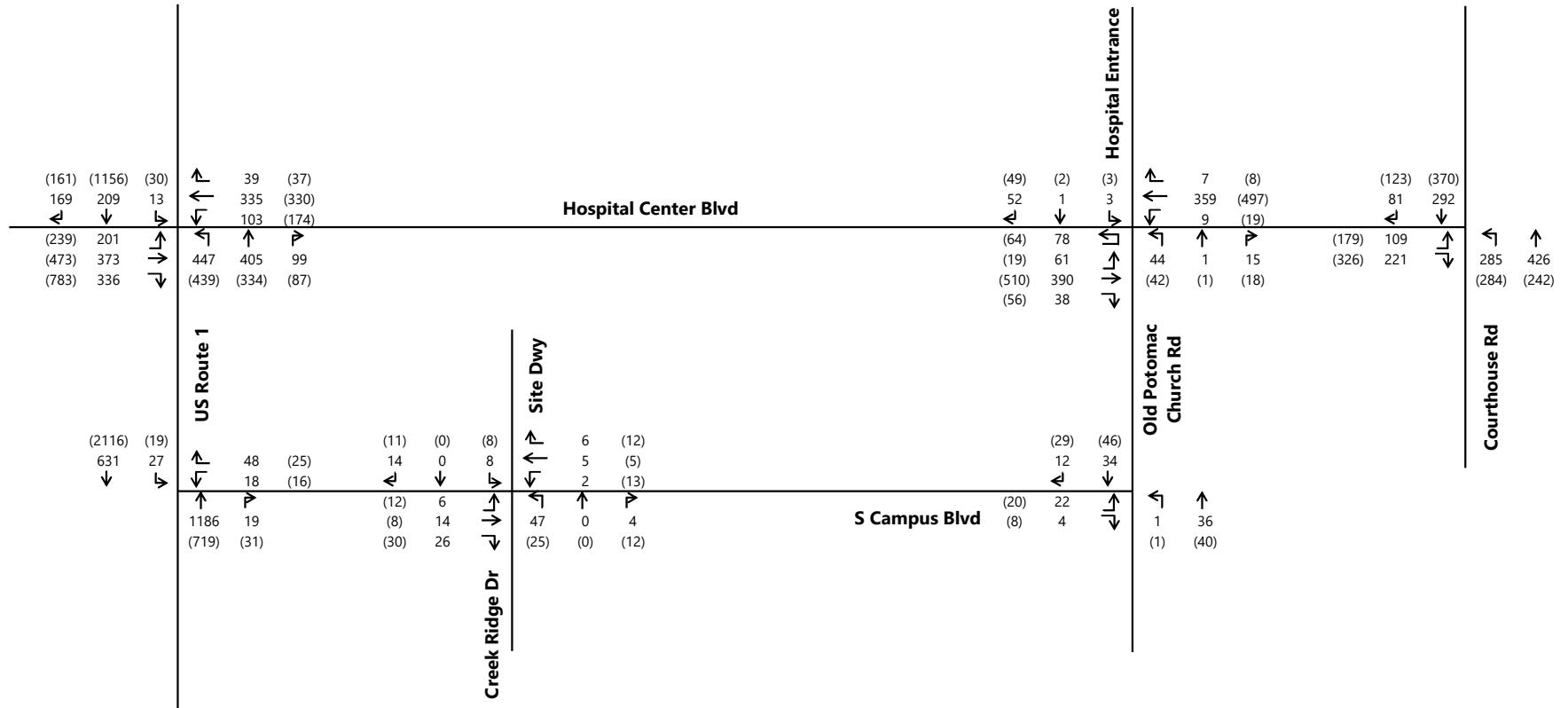
Site Trips

The Arbors at Stafford TIA
Stafford County, VA

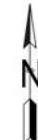
EXHIBIT

6

PROJECT NO.
100447-01-001



NOT TO SCALE



Legend

123 - AM Peak Hour Traffic Volumes

(123) - PM Peak Hour Traffic Volumes

Bowman

2025 Build
Peak Hour Traffic Volumes

The Arbors at Stafford TIA
Stafford County, VA

EXHIBIT

7

PROJECT NO.
100447-01-001

Appendix E

Background Development Information



REVISED

TRAFFIC IMPACT ANALYSIS

for the

BURNS PROPERTY

Rezoning

Stafford County, Virginia

prepared for:

Development Consulting Services, PLC
159 Lichfield Blvd., Suite 101
Fredericksburg, Virginia 22406
540-368-1327

prepared by:

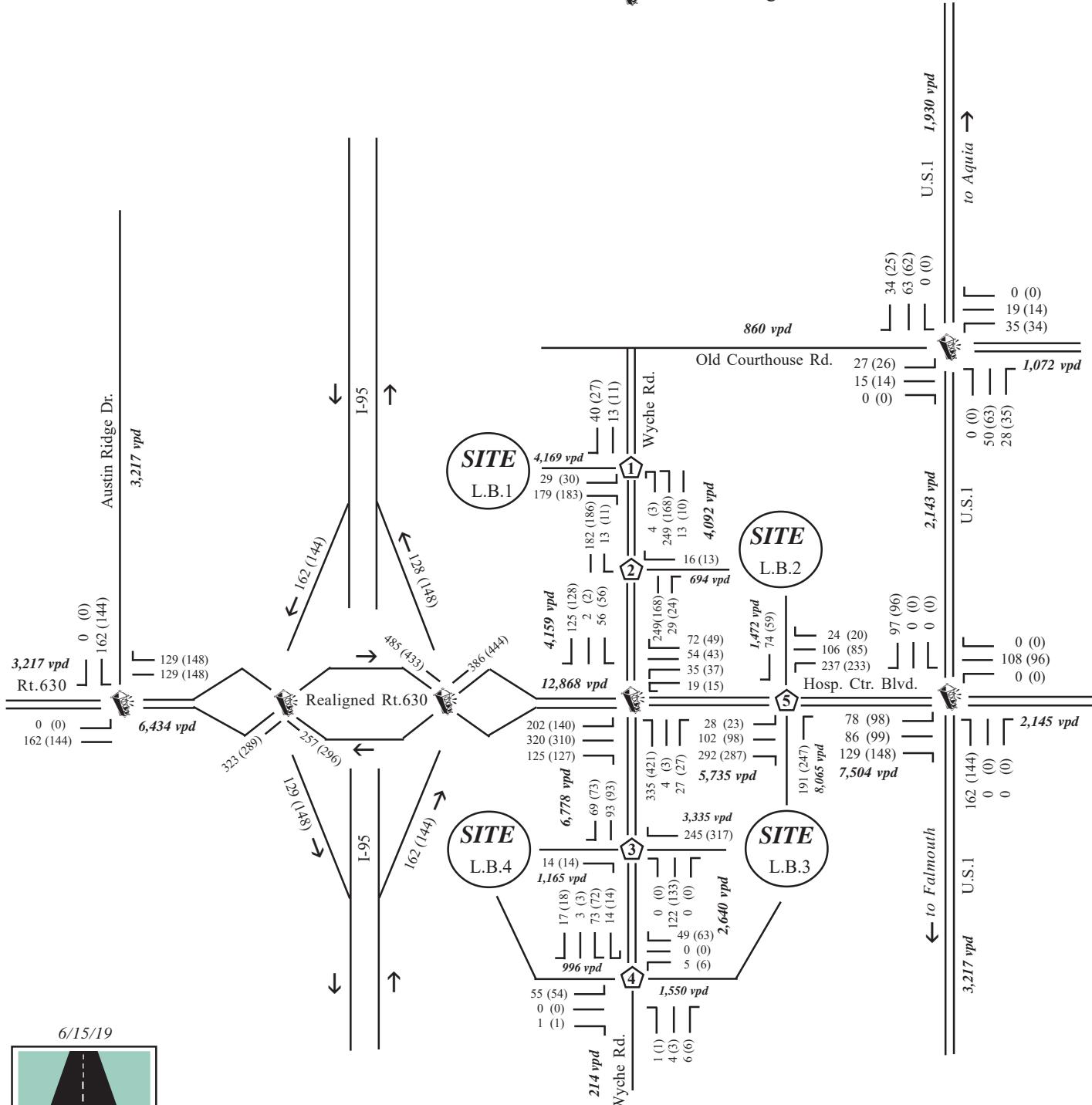
Vernon E. Torney, M.ASCE
President/Owner
VETTRA Company
703-590-4932

June 25, 2019

LEGEND

123 (123) = AM (PM) Peak Hour Traffic Volumes

1,224 vpd = Daily Traffic Volume (veh. per day)



Yr. 2026/2032 “Site” Daily and AM/PM Peak Hour Traffic Volumes

FIGURE

4



N
No Scale

July 17, 2020

Mr. Michael Zuraf, AICP
Stafford County
1300 Courthouse Road
Stafford, Virginia 22554
Phone: (540) 658-8668

Reference: **Courthouse Tracts – U.S. 1 at Hospital Center Boulevard**
Access Management Exception (AME) Request and Traffic Impact Analysis (TIA)

Dear Mr. Zuraf,

Ramey Kemp & Associates, Inc. (RKA) has performed this Traffic Impact Analysis (TIA) for the proposed convenience store with 16 fueling positions (f.p.) and fast-food restaurant located in the southwest quadrant of the U.S. 1 at Hospital Center Boulevard intersection. The proposed access plan includes one right-in / right-out driveway on U.S. 1, and one right-in / right-out driveway on Hospital Center Boulevard. If approved, the site is expected to be built in 2021. Figure 1 shows the site location and study intersections, and Figure 2 shows the conceptual site plan.

The purpose of this letter report is to provide the following:

- Trip generation calculations
- Evaluation of turn lane warrants for the proposed site driveways
- Capacity and queueing analysis of the study intersections

The original TIA was dated February 20. Following are responses to the TIA review comment provided by the County in a memo dated July 9:

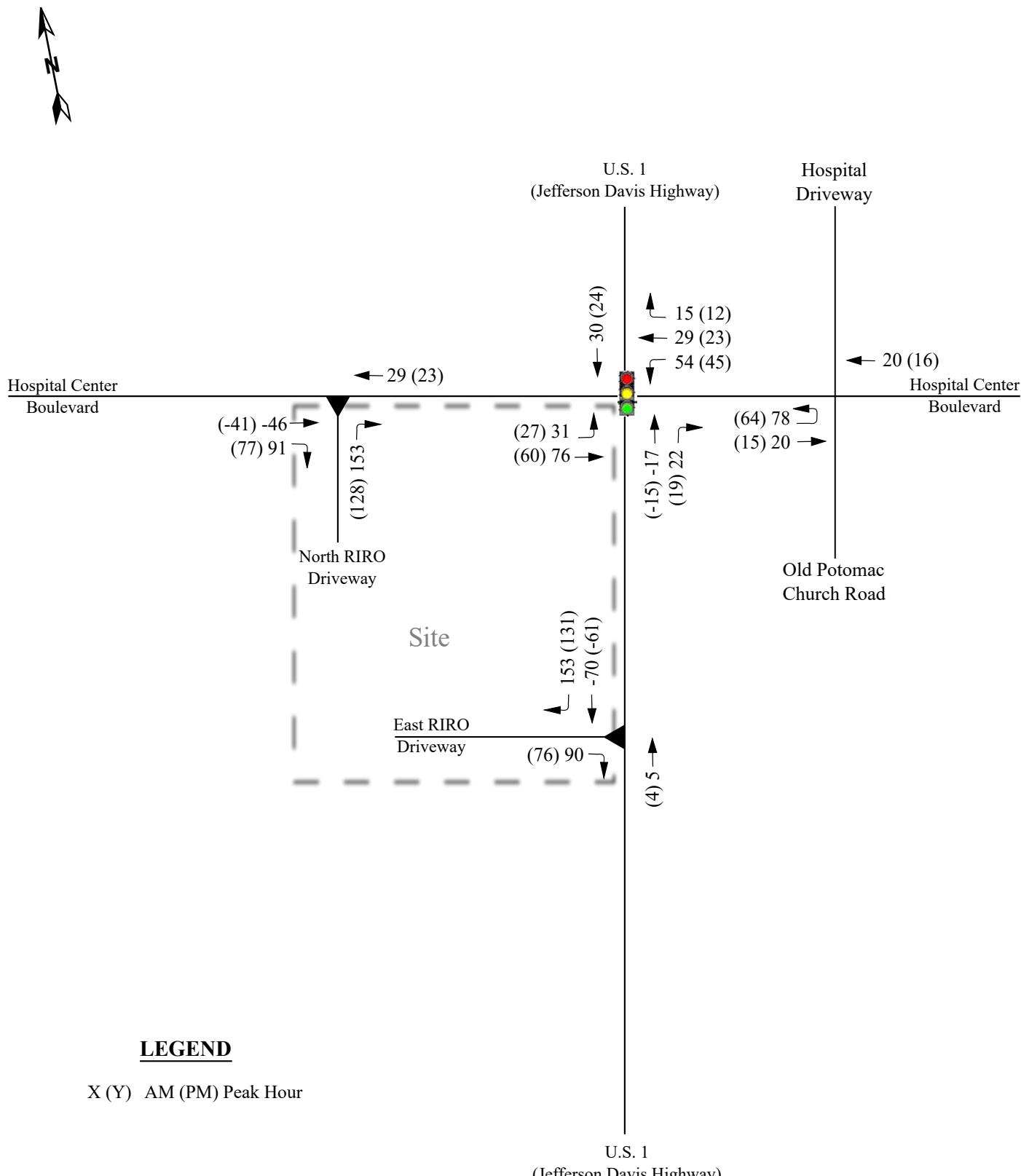
Comment: Please explain the jump from 804 to 1,228 in the eastbound right column in Table 2

Response: In the PM peak hour, Table 2 shows the eastbound through queue on Hospital Center Boulevard was projected to be 804 feet, and the eastbound right-turn queue was projected to be 1,228 feet, so the queue is not increasing from 804 feet to 1,228 feet. However, the queues reported for those movements were from Synchro, and have # symbols, so the queues reported now are from SimTraffic as directed by VDOT.

Following are responses to the TIA review comment provided by VDOT in a letter dated May 12:

- 1) Site Plan: The channelizing island for the Route 1 entrance needs to be more restrictive for entering traffic. Ideally they would construct a median in Route 1.

Response: Understood – please refer to revised site plan.



LEGEND

X (Y) AM (PM) Peak Hour

U.S. 1
(Jefferson Davis Highway)

Moving forward. RKA RAMEY KEMP ASSOCIATES	Courthouse Tracts U.S. 1 at Hospital Center Boulevard Stafford County, Virginia	Total Site Trips
		Scale: Not to Scale Figure 11

Traffic Impact Analysis



Austin Ridge Logistics Center

Courthouse Road
Stafford County, Virginia

Prepared for:

NorthPoint Development, LLC

Prepared: March 8th, 2022

Revised: August 5th, 2022

Traffic Impact Analysis

Austin Ridge Logistics Center

Courthouse Road

Stafford, Virginia

Prepared: March 8th, 2022
Revised: August 5th, 2022

Prepared for:
NorthPoint Development, LLC

Prepared by:

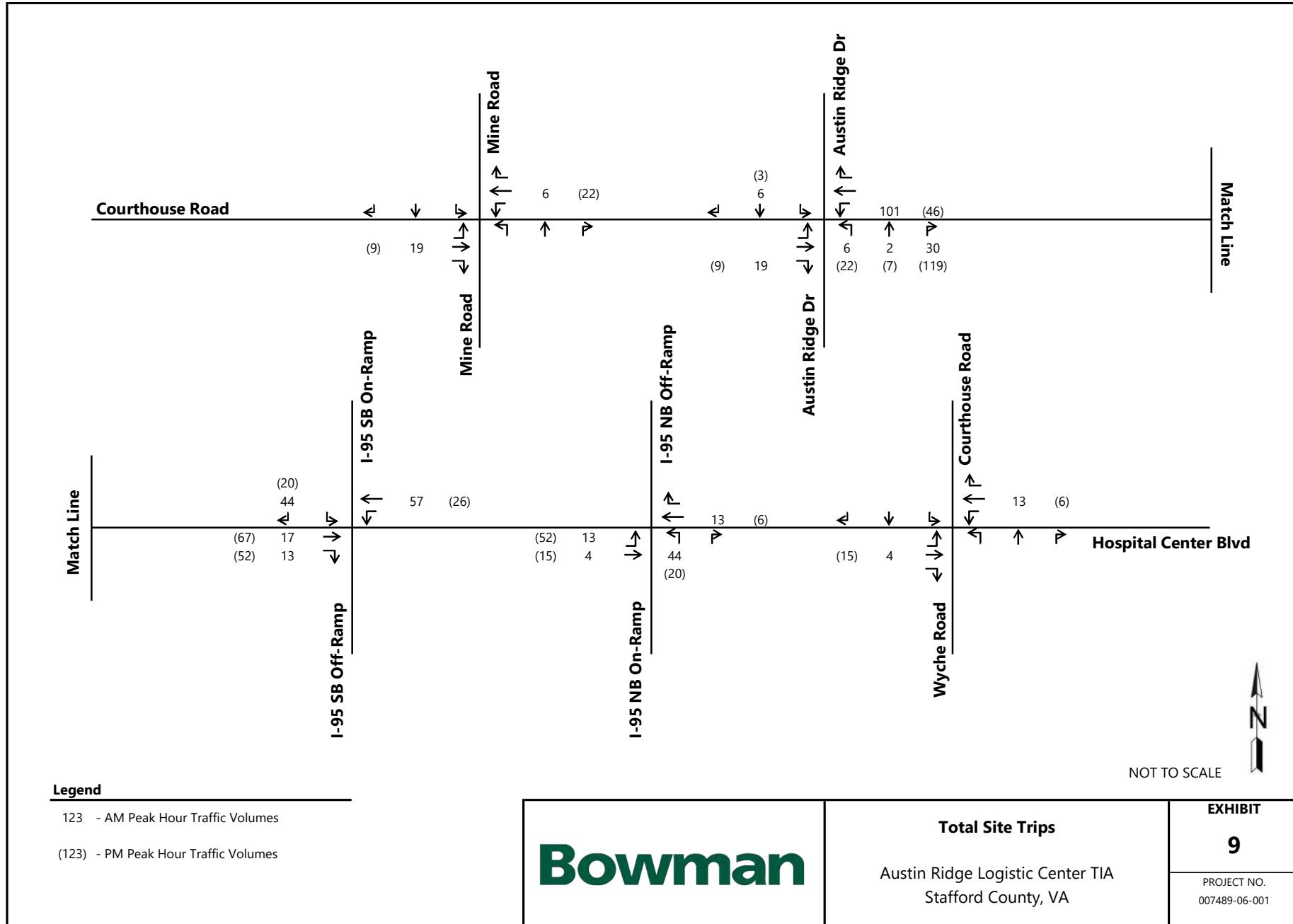
Bowman

Bowman Consulting Group, Ltd.



Traffic Project Manager: Michael Young, P.E.

Bowman Job # 007489-06-001



Appendix F

Existing (2022) Capacity Analysis

Lanes, Volumes, Timings

2022 Existing AM

1: Old Potomac Church Rd. & S Campus Rd.

11/01/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	4	1	36	34	6
Future Volume (vph)	14	4	1	36	34	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%			4%	-4%	
Link Speed (mph)	35			25	25	
Link Distance (ft)	832			335	1341	
Travel Time (s)	16.2			9.1	36.6	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	7%	50%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	4	1	36	34	6
Future Vol, veh/h	14	4	1	36	34	6
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	4	-4	-
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	7	50	0	0	0	0
Mvmt Flow	22	6	2	57	54	10
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	120	59	64	0	-	0
Stage 1	59	-	-	-	-	-
Stage 2	61	-	-	-	-	-
Critical Hdwy	7.27	7.1	4.1	-	-	-
Critical Hdwy Stg 1	6.27	-	-	-	-	-
Critical Hdwy Stg 2	6.27	-	-	-	-	-
Follow-up Hdwy	3.563	3.75	2.2	-	-	-
Pot Cap-1 Maneuver	841	881	1551	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	840	881	1551	-	-	-
Mov Cap-2 Maneuver	840	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	0.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1551	-	849	-	-	
HCM Lane V/C Ratio	0.001	-	0.034	-	-	
HCM Control Delay (s)	7.3	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Lanes, Volumes, Timings
2: US Route 1 & S Campus Rd.

2022 Existing AM

11/01/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	41	955	15	25	453
Future Volume (vph)	11	41	955	15	25	453
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	11
Grade (%)	-6%		-2%			-4%
Storage Length (ft)	0	0		150	280	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				0	
Link Speed (mph)	35		50			45
Link Distance (ft)	1374		774			964
Travel Time (s)	26.8		10.6			14.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	5%	13%	8%	9%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 36.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑	Y	Y	↑↑
Traffic Vol, veh/h	11	41	955	15	25	453
Future Vol, veh/h	11	41	955	15	25	453
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	280	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-6	-	-2	-	-	-4
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	13	8	9
Mvmt Flow	12	45	1038	16	27	492
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1338	519	0	0	1054	0
Stage 1	1038	-	-	-	-	-
Stage 2	300	-	-	-	-	-
Critical Hdwy	5.6	6.3	-	-	4.26	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.28	-
Pot Cap-1 Maneuver	229	553	-	-	622	-
Stage 1	434	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	219	553	-	-	622	-
Mov Cap-2 Maneuver	219	-	-	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	773	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	15	0		0.6		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	418	622	-	
HCM Lane V/C Ratio	-	-	0.135	0.044	-	
HCM Control Delay (s)	-	-	15	11.1	-	
HCM Lane LOS	-	-	C	B	-	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

Lanes, Volumes, Timings
3: US Route 1 & Hospital Center Blvd.

2022 Existing AM

11/01/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	86	193	193	46	178	21	258	396	73	11	168	67
Future Volume (vph)	86	193	193	46	178	21	258	396	73	11	168	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	11	11	11
Grade (%)	3%				-2%			4%			2%	
Storage Length (ft)	565		0	180		0	400		1000	500		510
Storage Lanes	2		1	1		0	2		1	1		1
Taper Length (ft)	0			0			0			0		
Right Turn on Red		Yes			Yes			Yes			Yes	
Link Speed (mph)		40			35			45			35	
Link Distance (ft)		841			512			1091			723	
Travel Time (s)		14.3			10.0			16.5			14.1	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	6%	2%	16%	2%	3%	5%	26%	5%	3%	0%	10%	9%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	28.0	27.0	28.0	34.0		27.0	38.0	28.0	26.0	37.0	22.0
Total Split (%)	18.3%	23.3%	22.5%	23.3%	28.3%		22.5%	31.7%	23.3%	21.7%	30.8%	18.3%
Maximum Green (s)	16.0	22.0	21.0	22.0	28.0		21.0	32.0	22.0	20.0	31.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	9.1	13.0	41.8	9.5	13.5		22.7	74.0	87.2	6.5	50.7	59.8
Actuated g/C Ratio	0.08	0.11	0.35	0.08	0.11		0.19	0.62	0.73	0.05	0.42	0.50
v/c Ratio	0.41	0.60	0.36	0.39	0.60		0.61	0.23	0.08	0.14	0.15	0.11
Control Delay	57.5	57.4	4.8	60.3	54.9		50.1	12.4	1.2	56.8	23.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	57.4	4.8	60.3	54.9		50.1	12.4	1.2	56.8	23.3	2.3
LOS	E	E	A	E	D		D	B	A	E	C	A
Approach Delay		35.9			55.9			24.7			19.1	
Approach LOS		D			E			C			B	
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green												

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 31.5

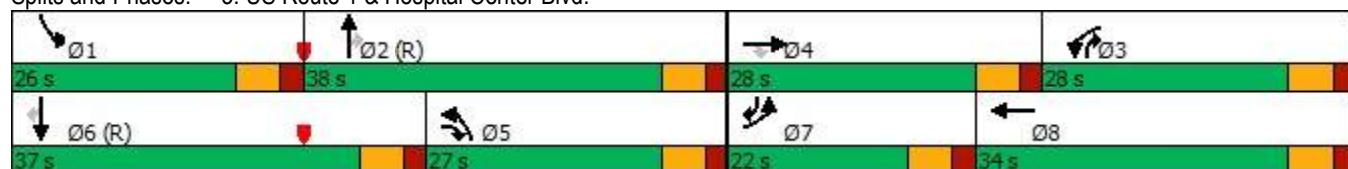
Intersection LOS: C

Intersection Capacity Utilization 43.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: US Route 1 & Hospital Center Blvd.



HCM 6th Signalized Intersection Summary
3: US Route 1 & Hospital Center Blvd.

2022 Existing AM

11/01/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑	↑	↑	↑↑	↑
Traffic Volume (veh/h)	86	193	193	46	178	21	258	396	73	11	168	67
Future Volume (veh/h)	86	193	193	46	178	21	258	396	73	11	168	67
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00			1.00	1.00		1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1758	1817	1610	1949	1934	1904	1420	1732	1761	1876	1728	1743
Adj Flow Rate, veh/h	101	227	227	54	209	25	304	466	86	13	198	79
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	6	2	16	2	3	5	26	5	3	0	10	9
Cap, veh/h	153	326	917	76	292	35	1516	2148	1036	21	285	198
Arrive On Green	0.05	0.09	0.09	0.04	0.09	0.09	0.58	0.65	0.65	0.01	0.09	0.09
Sat Flow, veh/h	3248	3453	1364	1856	3309	391	2624	3290	1493	1787	3284	1477
Grp Volume(v), veh/h	101	227	227	54	115	119	304	466	86	13	198	79
Grp Sat Flow(s), veh/h/ln	1624	1726	1364	1856	1837	1863	1312	1645	1493	1787	1642	1477
Q Serve(g_s), s	3.7	7.6	0.0	3.4	7.3	7.5	6.6	6.9	0.5	0.9	7.0	0.9
Cycle Q Clear(g_c), s	3.7	7.6	0.0	3.4	7.3	7.5	6.6	6.9	0.5	0.9	7.0	0.9
Prop In Lane	1.00			1.00			0.21	1.00		1.00	1.00	1.00
Lane Grp Cap(c), veh/h	153	326	917	76	162	165	1516	2148	1036	21	285	198
V/C Ratio(X)	0.66	0.70	0.25	0.71	0.71	0.72	0.20	0.22	0.08	0.62	0.69	0.40
Avail Cap(c_a), veh/h	433	633	1038	340	429	435	1516	2148	1036	298	848	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	52.7	7.7	56.9	53.2	53.3	12.1	8.4	1.6	59.0	53.2	26.2
Incr Delay (d2), s/veh	4.8	2.7	0.1	11.7	5.6	5.9	0.1	0.2	0.2	26.3	13.1	5.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.6	3.4	2.2	1.9	3.6	3.7	1.8	2.2	0.2	0.5	3.4	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.1	55.3	7.9	68.6	58.8	59.2	12.2	8.7	1.7	85.3	66.3	32.1
LnGrp LOS	E	E	A	E	E	E	B	A	A	F	E	C
Approach Vol, veh/h	555				288			856			290	
Approach Delay, s/veh	37.0				60.8			9.2			57.8	
Approach LOS	D				E			A			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R _c), s	7.4	84.4	10.9	17.3	75.3	16.4	11.6	16.6				
Change Period (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	20.0	32.0	22.0	22.0	21.0	31.0	16.0	28.0				
Max Q Clear Time (g_c+l1), s	2.9	8.9	5.4	9.6	8.6	9.0	5.7	9.5				
Green Ext Time (p_c), s	0.0	3.1	0.1	1.7	0.8	1.4	0.2	1.1				
Intersection Summary												
HCM 6th Ctrl Delay				31.5								
HCM 6th LOS				C								

Lanes, Volumes, Timings

2022 Existing AM

4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

11/01/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑			↓		↑	↑↑	↑
Traffic Volume (vph)	61	266	33	8	213	7	38	1	13	3	1	52
Future Volume (vph)	61	266	33	8	213	7	38	1	13	3	1	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	11	12	11
Grade (%)		2%			4%			-4%			1%	
Storage Length (ft)	200		0	140		0	0		0	0		105
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	0			0			25			25		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		512			1345			1341			290	
Travel Time (s)		10.0			26.2			36.6			7.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	6%	0%	0%	0%	14%	0%	0%	8%	0%	0%	2%

Shared Lane Traffic (%)

Sign Control	Free	Free	Stop	Stop
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Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 31.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Vol, veh/h	61	266	33	8	213	7	38	1	13	3	1	52
Future Vol, veh/h	61	266	33	8	213	7	38	1	13	3	1	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	200	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	4	-	-	-4	-	-	1	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	6	0	0	0	14	0	0	8	0	0	2
Mvmt Flow	65	283	35	9	227	7	40	1	14	3	1	55

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	234	0	0	318	0	0	563	683	159	521	697	117
Stage 1	-	-	-	-	-	-	431	431	-	249	249	-
Stage 2	-	-	-	-	-	-	132	252	-	272	448	-
Critical Hdwy	4.14	-	-	4.1	-	-	6.7	5.7	6.66	7.7	6.7	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	5.7	4.7	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.7	4.7	-	6.7	5.7	-
Follow-up Hdwy	2.22	-	-	2.2	-	-	3.5	4	3.38	3.5	4	3.32
Pot Cap-1 Maneuver	1331	-	-	1253	-	-	468	436	854	430	353	910
Stage 1	-	-	-	-	-	-	636	645	-	729	695	-
Stage 2	-	-	-	-	-	-	889	743	-	706	562	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1331	-	-	1253	-	-	420	412	854	404	333	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	412	-	404	333	-
Stage 1	-	-	-	-	-	-	605	613	-	693	690	-
Stage 2	-	-	-	-	-	-	828	738	-	660	534	-

Approach	EB	WB		NB		SB	
HCM Control Delay, s	1.3	0.3		13.5		9.6	
HCM LOS				B		A	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	481	1331	-	-	1253	-	-	384	910
HCM Lane V/C Ratio	0.115	0.049	-	-	0.007	-	-	0.011	0.061
HCM Control Delay (s)	13.5	7.8	-	-	7.9	-	-	14.5	9.2
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	0	0.2

Lanes, Volumes, Timings
5: Courthouse Rd. & Hospital Center Blvd.

2022 Existing AM

11/01/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	139	171	401	275	48
Future Volume (vph)	68	139	171	401	275	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	2%			0%	0%	
Storage Length (ft)	0	0	340			265
Storage Lanes	1	1	1			1
Taper Length (ft)	25		0			
Link Speed (mph)	35			35	35	
Link Distance (ft)	1690			586	601	
Travel Time (s)	32.9			11.4	11.7	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	9%	11%	5%	7%	11%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 30.8%

ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	7.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	68	139	171	401	275	48
Future Vol, veh/h	68	139	171	401	275	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	340	-	-	265
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	9	11	5	7	11	2
Mvmt Flow	92	188	231	542	372	65
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1105	186	437	0	-	0
Stage 1	372	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Critical Hdwy	7.38	7.32	4.2	-	-	-
Critical Hdwy Stg 1	6.38	-	-	-	-	-
Critical Hdwy Stg 2	6.38	-	-	-	-	-
Follow-up Hdwy	3.59	3.41	2.25	-	-	-
Pot Cap-1 Maneuver	172	789	1098	-	-	-
Stage 1	621	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	136	789	1098	-	-	-
Mov Cap-2 Maneuver	136	-	-	-	-	-
Stage 1	491	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	31.7	2.7	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1098	-	136	789	-	-
HCM Lane V/C Ratio	0.21	-	0.676	0.238	-	-
HCM Control Delay (s)	9.2	-	74.1	11	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.8	-	3.7	0.9	-	-

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3008	2983	3074	2958	2908	2983	2991
Vehs Exited	3026	2995	3087	2990	2929	3002	2997
Starting Vehs	76	67	59	89	79	69	63
Ending Vehs	58	55	46	57	58	50	57
Travel Distance (mi)	1601	1594	1644	1582	1547	1591	1608
Travel Time (hr)	60.4	61.1	62.0	61.4	58.6	60.8	61.3
Total Delay (hr)	16.3	17.1	16.7	17.5	15.8	16.8	16.7
Total Stops	1544	1586	1601	1614	1510	1550	1591
Fuel Used (gal)	55.6	56.4	57.8	56.1	54.5	56.4	56.5

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2940	2947	2919	2972
Vehs Exited	2938	2970	2936	2988
Starting Vehs	49	74	60	65
Ending Vehs	51	51	43	51
Travel Distance (mi)	1576	1585	1552	1588
Travel Time (hr)	59.5	60.6	59.4	60.5
Total Delay (hr)	15.8	16.9	16.5	16.6
Total Stops	1535	1549	1551	1563
Fuel Used (gal)	55.0	56.0	54.5	55.9

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information 1

Start Time 7:00

End Time 7:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	733	716	734	718	619	680	707
Vehs Exited	747	728	734	736	643	690	723
Starting Vehs	76	67	59	89	79	69	63
Ending Vehs	62	55	59	71	55	59	47
Travel Distance (mi)	391	396	392	393	339	366	387
Travel Time (hr)	14.6	15.3	14.4	14.9	12.9	13.7	14.0
Total Delay (hr)	3.9	4.3	3.6	4.1	3.5	3.6	3.4
Total Stops	364	386	352	375	341	364	361
Fuel Used (gal)	13.5	14.1	13.6	13.7	11.9	12.9	13.4

Interval #1 Information 1

Start Time 7:00

End Time 7:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	734	709	660	699
Vehs Exited	724	737	662	713
Starting Vehs	49	74	60	65
Ending Vehs	59	46	58	55
Travel Distance (mi)	385	382	348	378
Travel Time (hr)	14.4	14.7	13.4	14.2
Total Delay (hr)	3.7	4.2	3.7	3.8
Total Stops	375	368	355	362
Fuel Used (gal)	13.4	13.4	12.2	13.2

Interval #2 Information 2

Start Time 7:15

End Time 7:30

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	833	839	856	842	872	873	885
Vehs Exited	822	812	826	825	854	873	843
Starting Vehs	62	55	59	71	55	59	47
Ending Vehs	73	82	89	88	73	59	89
Travel Distance (mi)	437	436	449	452	457	459	451
Travel Time (hr)	17.3	16.6	17.1	18.0	17.7	18.7	18.2
Total Delay (hr)	5.1	4.5	4.6	5.3	5.0	6.0	5.5
Total Stops	454	450	436	476	461	447	492
Fuel Used (gal)	15.4	15.5	15.7	16.2	16.3	16.4	16.1

Interval #2 Information 2

Start Time 7:15

End Time 7:30

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	820	880	871	859
Vehs Exited	805	855	841	834
Starting Vehs	59	46	58	55
Ending Vehs	74	71	88	73
Travel Distance (mi)	444	460	467	451
Travel Time (hr)	17.7	18.2	18.2	17.8
Total Delay (hr)	5.3	5.4	5.3	5.2
Total Stops	473	474	460	460
Fuel Used (gal)	15.6	16.5	16.5	16.0

Interval #3 Information 3

Start Time 7:30

End Time 7:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	727	693	736	708	735	720	717
Vehs Exited	738	716	779	728	752	721	746
Starting Vehs	73	82	89	88	73	59	89
Ending Vehs	62	59	46	68	56	58	60
Travel Distance (mi)	391	376	406	375	395	391	405
Travel Time (hr)	14.4	14.6	15.6	14.7	15.0	14.7	15.7
Total Delay (hr)	3.8	4.3	4.5	4.2	4.1	3.8	4.5
Total Stops	361	381	417	404	385	396	393
Fuel Used (gal)	13.3	13.3	14.5	13.5	14.0	13.7	14.5

Interval #3 Information 3

Start Time 7:30

End Time 7:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	674	673	687	707
Vehs Exited	690	697	720	729
Starting Vehs	74	71	88	73
Ending Vehs	58	47	55	54
Travel Distance (mi)	374	380	372	386
Travel Time (hr)	14.1	14.2	14.1	14.7
Total Delay (hr)	3.8	3.7	3.7	4.0
Total Stops	348	361	379	385
Fuel Used (gal)	13.2	13.2	12.9	13.6

Interval #4 Information 4

Start Time 7:45

End Time 8:00

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	715	735	748	690	682	710	682
Vehs Exited	719	739	748	701	680	718	685
Starting Vehs	62	59	46	68	56	58	60
Ending Vehs	58	55	46	57	58	50	57
Travel Distance (mi)	382	386	397	362	357	376	365
Travel Time (hr)	14.0	14.5	14.9	13.7	13.1	13.7	13.4
Total Delay (hr)	3.5	4.0	4.0	3.8	3.3	3.4	3.3
Total Stops	365	369	396	359	323	343	345
Fuel Used (gal)	13.4	13.5	14.0	12.7	12.3	13.3	12.5

Interval #4 Information 4

Start Time 7:45

End Time 8:00

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	712	685	701	707
Vehs Exited	719	681	713	713
Starting Vehs	58	47	55	54
Ending Vehs	51	51	43	51
Travel Distance (mi)	375	362	366	373
Travel Time (hr)	13.3	13.6	13.8	13.8
Total Delay (hr)	3.0	3.6	3.8	3.6
Total Stops	339	346	357	355
Fuel Used (gal)	12.8	12.9	12.8	13.0

Intersection: 1: Old Potomac Church Rd. & S Campus Rd.

Movement	EB
Directions Served	LR
Maximum Queue (ft)	54
Average Queue (ft)	15
95th Queue (ft)	45
Link Distance (ft)	772
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: US Route 1 & S Campus Rd.

Movement	WB	NB	SB
Directions Served	LR	T	L
Maximum Queue (ft)	60	2	53
Average Queue (ft)	23	0	14
95th Queue (ft)	47	2	40
Link Distance (ft)	1284	730	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		280	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	112	157	173	134	95	114	159	182	231	258	111	124
Average Queue (ft)	12	63	88	42	36	38	66	75	96	128	49	48
95th Queue (ft)	60	125	151	103	74	86	124	140	190	219	96	100
Link Distance (ft)				778	778	778		414	414		998	998
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	565	565				180			400	400		
Storage Blk Time (%)								0				
Queuing Penalty (veh)								0				

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	28	54	165	133	72
Average Queue (ft)	5	10	69	21	24
95th Queue (ft)	17	34	133	79	58
Link Distance (ft)			666	666	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	1000	500		510	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	47	5	23	1	60	31	57
Average Queue (ft)	11	0	2	0	28	4	28
95th Queue (ft)	36	5	12	1	54	21	51
Link Distance (ft)		414		1286	1257	243	243
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		140				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Courthouse Rd. & Hospital Center Blvd.

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	L	T	R
Maximum Queue (ft)	154	86	94	3	10
Average Queue (ft)	52	44	33	0	0
95th Queue (ft)	118	75	72	4	7
Link Distance (ft)	1612	1612		550	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		340		265	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Lanes, Volumes, Timings

2022 Existing PM

1: Old Potomac Church Rd. & S Campus Rd.

10/24/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	8	1	40	46	17
Future Volume (vph)	12	8	1	40	46	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%			4%	-4%	
Link Speed (mph)	35			25	25	
Link Distance (ft)	829			335	1341	
Travel Time (s)	16.1			9.1	36.6	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	3%	4%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.5%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.5

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations

Traffic Vol, veh/h 12 8 1 40 46 17

Future Vol, veh/h 12 8 1 40 46 17

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 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 4 - - 4 -4 -

Peak Hour Factor 82 82 82 82 82 82

Heavy Vehicles, % 0 0 0 3 4 0

Mvmt Flow 15 10 1 49 56 21

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 118 67 77 0 - 0

Stage 1 67 - - - - -

Stage 2 51 - - - - -

Critical Hdwy 7.2 6.6 4.1 - - -

Critical Hdwy Stg 1 6.2 - - - - -

Critical Hdwy Stg 2 6.2 - - - - -

Follow-up Hdwy 3.5 3.3 2.2 - - -

Pot Cap-1 Maneuver 860 995 1535 - - -

Stage 1 947 - - - - -

Stage 2 966 - - - - -

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver 859 995 1535 - - -

Mov Cap-2 Maneuver 859 - - - - -

Stage 1 946 - - - - -

Stage 2 966 - - - - -

Approach EB NB SB

HCM Control Delay, s 9.1 0.2 0

HCM LOS A

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1535 - 909 - -

HCM Lane V/C Ratio 0.001 - 0.027 - -

HCM Control Delay (s) 7.3 0 9.1 - -

HCM Lane LOS A A A - -

HCM 95th %tile Q(veh) 0 - 0.1 - -

Lanes, Volumes, Timings
2: US Route 1 & S Campus Rd.

2022 Existing PM

11/01/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	19	535	24	14	1832
Future Volume (vph)	11	19	535	24	14	1832
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	11
Grade (%)	-6%		-2%			-4%
Storage Length (ft)	0	0		150	280	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				0	
Link Speed (mph)	35		50			45
Link Distance (ft)	1378		774			964
Travel Time (s)	26.8		10.6			14.6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	4%	0%	7%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 60.6%

ICU Level of Service B

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	↑↑	↑	↑	↑↑
Traffic Vol, veh/h	11	19	535	24	14	1832
Future Vol, veh/h	11	19	535	24	14	1832
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	280	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-6	-	-2	-	-	-4
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	4	0	7	2
Mvmt Flow	12	20	563	25	15	1928
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1557	282	0	0	588	0
Stage 1	563	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Critical Hdwy	5.6	6.3	-	-	4.24	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.27	-
Pot Cap-1 Maneuver	177	756	-	-	950	-
Stage 1	651	-	-	-	-	-
Stage 2	451	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	174	756	-	-	950	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	16.7	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	340	950	-	
HCM Lane V/C Ratio	-	-	0.093	0.016	-	
HCM Control Delay (s)	-	-	16.7	8.8	-	
HCM Lane LOS	-	-	C	A	-	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Lanes, Volumes, Timings
3: US Route 1 & Hospital Center Blvd.

2022 Existing PM

10/24/2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	105	286	588	122	193	22	271	327	64	25	1064	59
Future Volume (vph)	105	286	588	122	193	22	271	327	64	25	1064	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	11	11	11
Grade (%)	3%				-2%			4%			2%	
Storage Length (ft)	565		0	180		0	400		1000	500		510
Storage Lanes	2		1	1		0	2		1	1		1
Taper Length (ft)	0			0			0			0		
Right Turn on Red		Yes			Yes			Yes			Yes	
Link Speed (mph)		40			35			45			35	
Link Distance (ft)		841			512			1091			723	
Travel Time (s)		14.3			10.0			16.5			14.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	33.0	30.0	22.0	33.0		30.0	81.0	22.0	14.0	65.0	22.0
Total Split (%)	14.7%	22.0%	20.0%	14.7%	22.0%		20.0%	54.0%	14.7%	9.3%	43.3%	14.7%
Maximum Green (s)	16.0	27.0	24.0	16.0	27.0		24.0	75.0	16.0	8.0	59.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	10.2	18.0	55.0	16.1	23.9		31.0	89.4	107.9	7.4	60.9	71.1
Actuated g/C Ratio	0.07	0.12	0.37	0.11	0.16		0.21	0.60	0.72	0.05	0.41	0.47
v/c Ratio	0.48	0.71	0.97	0.69	0.40		0.43	0.17	0.06	0.32	0.81	0.08
Control Delay	73.8	72.7	66.6	82.6	56.1		56.0	15.9	0.2	79.0	45.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.8	72.7	66.6	82.6	56.1		56.0	15.9	0.2	79.0	45.0	0.2
LOS	E	E	E	F	E		E	B	A	E	D	A
Approach Delay		69.2			65.7			30.8			43.4	
Approach LOS		E			E			C			D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 150												
Actuated Cycle Length: 150												
Offset: 15 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Green												

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 51.2

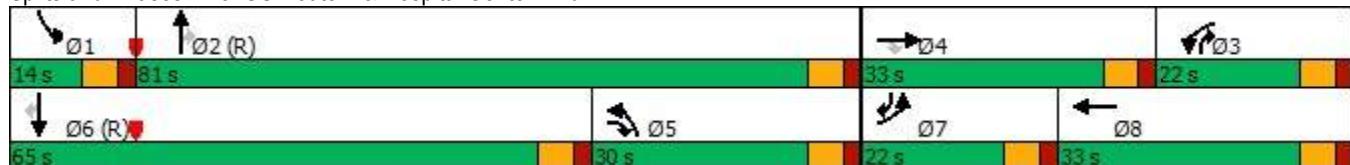
Intersection LOS: D

Intersection Capacity Utilization 87.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: US Route 1 & Hospital Center Blvd.



HCM 6th Signalized Intersection Summary
3: US Route 1 & Hospital Center Blvd.

2022 Existing PM
10/24/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	105	286	588	122	193	22	271	327	64	25	1064	59
Future Volume (veh/h)	105	286	588	122	193	22	271	327	64	25	1064	59
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No									
Adj Sat Flow, veh/h/ln	1817	1832	1803	1949	1964	1979	1732	1791	1761	1817	1847	1847
Adj Flow Rate, veh/h	109	298	612	127	201	23	282	341	67	26	1108	61
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	156	627	620	151	725	82	723	1906	957	32	1239	625
Arrive On Green	0.05	0.18	0.18	0.08	0.21	0.21	0.23	0.56	0.56	0.02	0.35	0.35
Sat Flow, veh/h	3358	3481	1528	1856	3378	382	3199	3403	1493	1731	3509	1565
Grp Volume(v), veh/h	109	298	612	127	110	114	282	341	67	26	1108	61
Grp Sat Flow(s), veh/h/ln	1679	1741	1528	1856	1865	1895	1600	1701	1493	1731	1754	1565
Q Serve(g_s), s	4.8	11.5	25.7	10.1	7.4	7.5	11.2	7.4	0.4	2.2	44.8	1.5
Cycle Q Clear(g_c), s	4.8	11.5	25.7	10.1	7.4	7.5	11.2	7.4	0.4	2.2	44.8	1.5
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	156	627	620	151	401	407	723	1906	957	32	1239	625
V/C Ratio(X)	0.70	0.48	0.99	0.84	0.27	0.28	0.39	0.18	0.07	0.80	0.89	0.10
Avail Cap(c_a), veh/h	358	627	620	198	401	407	723	1906	957	92	1380	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.5	55.2	44.2	68.0	49.1	49.2	49.3	16.1	4.1	73.3	45.9	10.6
Incr Delay (d2), s/veh	5.5	0.6	32.8	21.5	0.4	0.4	0.3	0.2	0.1	34.8	10.2	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.2	5.1	13.4	5.7	3.5	3.6	4.5	2.8	0.5	1.3	21.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.0	55.7	77.0	89.4	49.5	49.6	49.6	16.3	4.2	108.1	56.1	10.9
LnGrp LOS	E	E	E	F	D	D	D	B	A	F	E	B
Approach Vol, veh/h	1019				351			690			1195	
Approach Delay, s/veh	70.7				64.0			28.8			54.9	
Approach LOS	E				E			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R _c), s	8.8	90.0	18.2	33.0	39.9	58.9	13.0	38.2				
Change Period (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	8.0	75.0	16.0	27.0	24.0	59.0	16.0	27.0				
Max Q Clear Time (g_c+l1), s	4.2	9.4	12.1	27.7	13.2	46.8	6.8	9.5				
Green Ext Time (p_c), s	0.0	2.4	0.1	0.0	0.7	6.2	0.2	1.0				
Intersection Summary												
HCM 6th Ctrl Delay				55.3								
HCM 6th LOS				E								

Lanes, Volumes, Timings

2022 Existing PM

4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

10/24/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	370	46	17	361	8	36	1	16	3	2	49
Future Volume (vph)	19	370	46	17	361	8	36	1	16	3	2	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	11	12	11
Grade (%)		2%			4%			-4%			1%	
Storage Length (ft)	200		0	140		0	0		0	0		105
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	0			0			25			25		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		512			1345			1341			290	
Travel Time (s)		10.0			26.2			36.6			7.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	4%	0%	2%	0%	6%	0%	0%	0%	0%	0%

Shared Lane Traffic (%)

Sign Control	Free	Free	Stop	Stop
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Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 32.1%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	370	46	17	361	8	36	1	16	3	2	49
Future Vol, veh/h	19	370	46	17	361	8	36	1	16	3	2	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	200	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	4	-	-	-4	-	-	1	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	1	4	0	2	0	6	0	0	0	0	0
Mvmt Flow	21	411	51	19	401	9	40	1	18	3	2	54

Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	410	0	0	462	0	0	719	927	231	692	948	205
Stage 1	-	-	-	-	-	-	479	479	-	444	444	-
Stage 2	-	-	-	-	-	-	240	448	-	248	504	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.82	5.7	6.5	7.7	6.7	7
Critical Hdwy Stg 1	-	-	-	-	-	-	5.82	4.7	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.82	4.7	-	6.7	5.7	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.56	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1160	-	-	1110	-	-	362	332	798	322	249	803
Stage 1	-	-	-	-	-	-	585	621	-	554	565	-
Stage 2	-	-	-	-	-	-	771	637	-	730	529	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1160	-	-	1110	-	-	326	320	798	306	240	803
Mov Cap-2 Maneuver	-	-	-	-	-	-	326	320	-	306	240	-
Stage 1	-	-	-	-	-	-	574	610	-	544	555	-
Stage 2	-	-	-	-	-	-	704	626	-	700	519	-

Approach	EB	WB		NB		SB			
HCM Control Delay, s	0.4	0.4		15.6		10.6			
HCM LOS				C		B			
<hr/>									
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	397	1160	-	-	1110	-	-	276	803
HCM Lane V/C Ratio	0.148	0.018	-	-	0.017	-	-	0.02	0.068
HCM Control Delay (s)	15.6	8.2	-	-	8.3	-	-	18.3	9.8
HCM Lane LOS	C	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.1	-	-	0.1	0.2

Lanes, Volumes, Timings
5: Courthouse Rd. & Hospital Center Blvd.

2022 Existing PM

10/24/2022



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	129	235	192	228	349	82
Future Volume (vph)	129	235	192	228	349	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	2%			0%	0%	
Storage Length (ft)	0	0	340			265
Storage Lanes	1	1	1			1
Taper Length (ft)	25		0			
Link Speed (mph)	35			35	35	
Link Distance (ft)	1690			586	601	
Travel Time (s)	32.9			11.4	11.7	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 37.4%

ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	129	235	192	228	349	82
Future Vol, veh/h	129	235	192	228	349	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	340	-	-	265
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	1	3	2	1	0
Mvmt Flow	130	237	194	230	353	83
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	856	177	436	0	-	0
Stage 1	353	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Critical Hdwy	7.24	7.12	4.16	-	-	-
Critical Hdwy Stg 1	6.24	-	-	-	-	-
Critical Hdwy Stg 2	6.24	-	-	-	-	-
Follow-up Hdwy	3.52	3.31	2.23	-	-	-
Pot Cap-1 Maneuver	270	830	1113	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	223	830	1113	-	-	-
Mov Cap-2 Maneuver	223	-	-	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	21.9	4.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1113	-	223	830	-	-
HCM Lane V/C Ratio	0.174	-	0.584	0.286	-	-
HCM Control Delay (s)	8.9	-	41.6	11.1	-	-
HCM Lane LOS	A	-	E	B	-	-
HCM 95th %tile Q(veh)	0.6	-	3.3	1.2	-	-

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:15	4:15	4:15	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3984	4114	4015	3994	3919	4055	4013
Vehs Exited	4005	4130	4029	4004	3895	4070	4006
Starting Vehs	123	102	120	125	86	129	112
Ending Vehs	102	86	106	115	110	114	119
Travel Distance (mi)	2432	2527	2447	2459	2366	2474	2408
Travel Time (hr)	111.0	114.9	112.1	112.3	106.5	114.7	112.4
Total Delay (hr)	45.1	46.2	45.9	45.3	42.5	47.8	47.3
Total Stops	2846	2999	2973	2977	2740	3033	2919
Fuel Used (gal)	97.1	100.8	97.6	97.7	93.6	99.1	96.4

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	4042	4117	4010	4026
Vehs Exited	4060	4098	4020	4032
Starting Vehs	115	99	124	108
Ending Vehs	97	118	114	105
Travel Distance (mi)	2476	2524	2442	2456
Travel Time (hr)	114.9	117.0	111.4	112.7
Total Delay (hr)	47.8	48.4	45.1	46.2
Total Stops	2939	2997	2906	2931
Fuel Used (gal)	99.2	100.6	97.0	97.9

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information 1

Start Time 4:30

End Time 4:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	980	1029	920	940	967	981	989
Vehs Exited	1013	1018	943	949	937	1004	999
Starting Vehs	123	102	120	125	86	129	112
Ending Vehs	90	113	97	116	116	106	102
Travel Distance (mi)	626	634	585	598	571	611	608
Travel Time (hr)	28.5	28.8	26.5	27.0	24.9	28.4	27.4
Total Delay (hr)	11.6	11.5	10.7	10.6	9.5	12.0	11.0
Total Stops	719	756	714	708	641	726	702
Fuel Used (gal)	25.4	25.3	23.3	23.8	22.5	24.7	24.3

Interval #1 Information 1

Start Time 4:30

End Time 4:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1004	995	960	980
Vehs Exited	1004	979	972	981
Starting Vehs	115	99	124	108
Ending Vehs	115	115	112	105
Travel Distance (mi)	621	602	589	604
Travel Time (hr)	28.7	28.1	26.3	27.5
Total Delay (hr)	11.9	11.7	10.4	11.1
Total Stops	741	716	686	714
Fuel Used (gal)	25.0	23.9	23.1	24.1

Interval #2 Information 2

Start Time 4:45

End Time 5:00

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1055	1064	1066	1056	1037	1057	1069
Vehs Exited	1026	1051	1027	1066	1044	1049	1059
Starting Vehs	90	113	97	116	116	106	102
Ending Vehs	119	126	136	106	109	114	112
Travel Distance (mi)	611	657	630	644	619	635	621
Travel Time (hr)	29.1	30.1	27.8	30.2	28.4	29.6	29.9
Total Delay (hr)	12.4	12.0	10.7	12.8	11.5	12.3	13.1
Total Stops	750	796	751	822	707	797	772
Fuel Used (gal)	24.4	26.3	24.7	25.7	24.5	25.3	25.2

Interval #2 Information 2

Start Time 4:45

End Time 5:00

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1075	1028	1030	1052
Vehs Exited	1093	1034	1037	1049
Starting Vehs	115	115	112	105
Ending Vehs	97	109	105	112
Travel Distance (mi)	652	623	618	631
Travel Time (hr)	30.6	28.5	28.0	29.2
Total Delay (hr)	12.8	11.5	11.3	12.1
Total Stops	784	703	743	763
Fuel Used (gal)	26.3	24.5	24.6	25.2

Interval #3 Information 3

Start Time 5:00

End Time 5:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	944	967	1040	980	990	984	963
Vehs Exited	962	1002	1063	975	973	986	955
Starting Vehs	119	126	136	106	109	114	112
Ending Vehs	101	91	113	111	126	112	120
Travel Distance (mi)	579	605	631	603	596	597	573
Travel Time (hr)	25.8	27.0	30.3	26.8	27.0	27.0	26.2
Total Delay (hr)	10.1	10.7	13.3	10.3	11.0	11.0	10.7
Total Stops	677	702	787	706	705	698	663
Fuel Used (gal)	22.7	23.8	25.3	23.7	23.8	23.6	22.5

Interval #3 Information 3

Start Time 5:00

End Time 5:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	975	1020	969	980
Vehs Exited	953	1007	964	985
Starting Vehs	97	109	105	112
Ending Vehs	119	122	110	108
Travel Distance (mi)	597	633	595	601
Travel Time (hr)	28.3	29.7	26.7	27.5
Total Delay (hr)	12.2	12.6	10.5	11.2
Total Stops	681	779	705	711
Fuel Used (gal)	24.0	25.6	23.7	23.9

Interval #4 Information 4

Start Time 5:15

End Time 5:30

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1005	1054	989	1018	925	1033	992
Vehs Exited	1004	1059	996	1014	941	1031	993
Starting Vehs	101	91	113	111	126	112	120
Ending Vehs	102	86	106	115	110	114	119
Travel Distance (mi)	616	631	601	614	580	632	605
Travel Time (hr)	27.6	29.0	27.4	28.3	26.1	29.6	28.9
Total Delay (hr)	11.0	12.0	11.2	11.6	10.5	12.5	12.5
Total Stops	700	745	721	741	687	812	782
Fuel Used (gal)	24.7	25.3	24.2	24.5	22.8	25.5	24.4

Interval #4 Information 4

Start Time 5:15

End Time 5:30

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	988	1074	1051	1010
Vehs Exited	1010	1078	1047	1018
Starting Vehs	119	122	110	108
Ending Vehs	97	118	114	105
Travel Distance (mi)	607	666	640	619
Travel Time (hr)	27.4	30.7	30.3	28.5
Total Delay (hr)	10.9	12.6	13.0	11.8
Total Stops	733	799	772	750
Fuel Used (gal)	23.9	26.7	25.7	24.8

Intersection: 1: Old Potomac Church Rd. & S Campus Rd.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	33	3
Average Queue (ft)	13	0
95th Queue (ft)	37	3
Link Distance (ft)	771	311
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: US Route 1 & S Campus Rd.

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	64	38
Average Queue (ft)	18	5
95th Queue (ft)	49	24
Link Distance (ft)	1284	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	280	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	142	170	208	184	608	177	225	172	192	214	113	118
Average Queue (ft)	22	83	129	100	318	105	86	86	94	119	48	42
95th Queue (ft)	85	145	197	178	537	175	166	146	166	183	94	94
Link Distance (ft)			778	778	778			414	414		998	998
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						0						
Storage Bay Dist (ft)	565	565				180			400	400		
Storage Blk Time (%)							2	0				
Queuing Penalty (veh)							2	0				

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	34	250	568	511	110
Average Queue (ft)	4	37	373	324	22
95th Queue (ft)	17	165	519	476	79
Link Distance (ft)			666	666	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)	1000	500		510	
Storage Blk Time (%)	0	1	0	0	
Queuing Penalty (veh)	0	0	0	0	

Intersection: 4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

Movement	EB	EB	EB	WB	NB	SB	SB
Directions Served	L	T	TR	L	LTR	LT	R
Maximum Queue (ft)	31	4	1	29	67	30	56
Average Queue (ft)	5	0	0	3	29	4	27
95th Queue (ft)	22	4	1	18	58	22	50
Link Distance (ft)		414	414		1256	243	243
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200			140			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Courthouse Rd. & Hospital Center Blvd.

Movement	EB	EB	NB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	189	165	86	7
Average Queue (ft)	82	65	38	0
95th Queue (ft)	156	125	70	4
Link Distance (ft)	1612	1612		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		340	265	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 3

Appendix G

No Build (2025) Capacity Analysis

Lanes, Volumes, Timings

2025 No Build AM

1: Old Potomac Church Rd. & S Campus Rd.

01/26/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	4	1	36	34	6
Future Volume (vph)	14	4	1	36	34	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%			4%	-4%	
Link Speed (mph)	35			25	25	
Link Distance (ft)	829			335	1341	
Travel Time (s)	16.1			9.1	36.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	50%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations

Traffic Vol, veh/h 14 4 1 36 34 6

Future Vol, veh/h 14 4 1 36 34 6

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 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 4 - - 4 -4 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 7 50 0 0 0 0

Mvmt Flow 15 4 1 39 37 7

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 82 41 44 0 - 0

Stage 1 41 - - - - -

Stage 2 41 - - - - -

Critical Hdwy 7.27 7.1 4.1 - - -

Critical Hdwy Stg 1 6.27 - - - - -

Critical Hdwy Stg 2 6.27 - - - - -

Follow-up Hdwy 3.563 3.75 2.2 - - -

Pot Cap-1 Maneuver 891 904 1577 - - -

Stage 1 960 - - - - -

Stage 2 960 - - - - -

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver 890 904 1577 - - -

Mov Cap-2 Maneuver 890 - - - - -

Stage 1 959 - - - - -

Stage 2 960 - - - - -

Approach EB NB SB

HCM Control Delay, s 9.1 0.2 0

HCM LOS A

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1577 - 893 - -

HCM Lane V/C Ratio 0.001 - 0.022 - -

HCM Control Delay (s) 7.3 0 9.1 - -

HCM Lane LOS A A A - -

HCM 95th %tile Q(veh) 0 - 0.1 - -



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	11	41	1186	15	25	631
Future Volume (vph)	11	41	1186	15	25	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	11
Grade (%)	-6%		-2%			-4%
Storage Length (ft)	0	0		150	280	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				0	
Link Speed (mph)	35		50		45	
Link Distance (ft)	1378		774		964	
Travel Time (s)	26.8		10.6		14.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	5%	13%	8%	9%
Shared Lane Traffic (%)						
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 42.8%

ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑	Y	Y	↑↑
Traffic Vol, veh/h	11	41	1186	15	25	631
Future Vol, veh/h	11	41	1186	15	25	631
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	280	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-6	-	-2	-	-	-4
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	13	8	9
Mvmt Flow	12	45	1289	16	27	686
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1686	645	0	0	1305	0
Stage 1	1289	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	5.6	6.3	-	-	4.26	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.28	-
Pot Cap-1 Maneuver	152	467	-	-	495	-
Stage 1	348	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	144	467	-	-	495	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	348	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	18.8	0		0.5		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	317	495	-	
HCM Lane V/C Ratio	-	-	0.178	0.055	-	
HCM Control Delay (s)	-	-	18.8	12.7	-	
HCM Lane LOS	-	-	C	B	-	
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-	

Lanes, Volumes, Timings
3: US Route 1 & Hospital Center Blvd.

2025 No Build AM

01/26/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	201	369	335	103	331	37	442	403	99	12	208	169
Future Volume (vph)	201	369	335	103	331	37	442	403	99	12	208	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	11	11	11
Grade (%)	3%				-2%			4%			2%	
Storage Length (ft)	565			0	180		0	400		1000	500	510
Storage Lanes	2			1	1		0	2		1	1	1
Taper Length (ft)	0				0			0			0	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			35			45			35	
Link Distance (ft)		1612			512			1091			1424	
Travel Time (s)		27.5			10.0			16.5			27.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	16%	2%	3%	5%	26%	5%	3%	0%	10%	9%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	24.0	29.0	41.0	24.0	29.0		41.0	57.0	24.0	10.0	26.0	24.0
Total Split (%)	20.0%	24.2%	34.2%	20.0%	24.2%		34.2%	47.5%	20.0%	8.3%	21.7%	20.0%
Maximum Green (s)	18.0	23.0	35.0	18.0	23.0		35.0	51.0	18.0	4.0	20.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	13.3	19.1	52.8	13.6	19.4		27.7	64.5	81.8	5.8	35.6	48.9
Actuated g/C Ratio	0.11	0.16	0.44	0.11	0.16		0.23	0.54	0.68	0.05	0.30	0.41
v/c Ratio	0.61	0.72	0.47	0.57	0.72		0.79	0.25	0.10	0.15	0.24	0.29
Control Delay	57.8	55.5	5.1	57.3	49.8		53.0	17.5	1.5	59.2	36.4	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	55.5	5.1	57.3	49.8		53.0	17.5	1.5	59.2	36.4	7.1
LOS	E	E	A	E	D		D	B	A	E	D	A
Approach Delay		37.3			51.4			32.4			24.4	
Approach LOS		D			D			C			C	
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green												

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 36.2

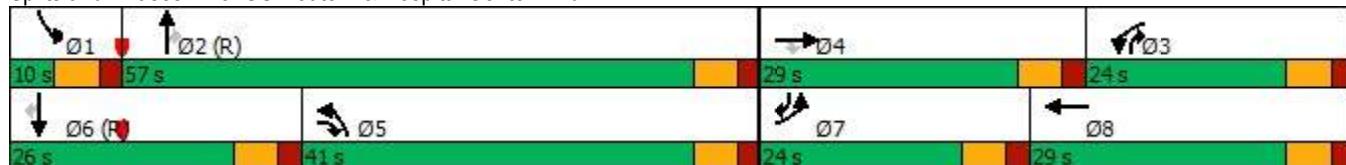
Intersection LOS: D

Intersection Capacity Utilization 54.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: US Route 1 & Hospital Center Blvd.



HCM 6th Signalized Intersection Summary
3: US Route 1 & Hospital Center Blvd.

2025 No Build AM
01/26/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	201	369	335	103	331	37	442	403	99	12	208	169
Future Volume (veh/h)	201	369	335	103	331	37	442	403	99	12	208	169
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No			No		No	
Adj Sat Flow, veh/h/ln	1758	1817	1610	1949	1934	1904	1420	1732	1761	1876	1728	1743
Adj Flow Rate, veh/h	218	401	364	112	360	40	480	438	108	13	226	184
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	2	16	2	3	5	26	5	3	0	10	9
Cap, veh/h	279	512	858	141	461	51	1261	1857	955	21	313	268
Arrive On Green	0.09	0.15	0.15	0.08	0.14	0.14	0.48	0.56	0.56	0.01	0.10	0.10
Sat Flow, veh/h	3248	3453	1364	1856	3336	368	2624	3290	1493	1787	3284	1477
Grp Volume(v), veh/h	218	401	364	112	197	203	480	438	108	13	226	184
Grp Sat Flow(s), veh/h/ln	1624	1726	1364	1856	1837	1867	1312	1645	1493	1787	1642	1477
Q Serve(g_s), s	7.9	13.4	0.0	7.1	12.4	12.6	14.0	8.0	0.6	0.9	8.0	3.2
Cycle Q Clear(g_c), s	7.9	13.4	0.0	7.1	12.4	12.6	14.0	8.0	0.6	0.9	8.0	3.2
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	279	512	858	141	254	258	1261	1857	955	21	313	268
V/C Ratio(X)	0.78	0.78	0.42	0.80	0.78	0.79	0.38	0.24	0.11	0.62	0.72	0.69
Avail Cap(c_a), veh/h	487	662	917	278	352	358	1261	1857	955	60	547	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.7	49.3	11.3	54.5	49.9	50.0	19.8	13.1	2.8	59.0	52.7	21.7
Incr Delay (d2), s/veh	4.8	4.6	0.3	9.8	7.2	7.6	0.2	0.3	0.2	26.3	13.4	13.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	3.4	6.0	4.7	3.7	6.2	6.4	4.1	2.8	0.5	0.5	3.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.5	53.9	11.6	64.3	57.1	57.7	20.0	13.4	3.0	85.3	66.1	35.2
LnGrp LOS	E	D	B	E	E	E	B	B	A	F	E	D
Approach Vol, veh/h	983				512			1026			423	
Approach Delay, s/veh	39.3				58.9			15.4			53.3	
Approach LOS	D				E			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R _c), s	7.4	73.7	15.1	23.8	63.7	17.5	16.3	22.6				
Change Period (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	4.0	51.0	18.0	23.0	35.0	20.0	18.0	23.0				
Max Q Clear Time (g_c+l1), s	2.9	10.0	9.1	15.4	16.0	10.0	9.9	14.6				
Green Ext Time (p_c), s	0.0	3.2	0.2	2.4	1.6	1.4	0.4	1.4				
Intersection Summary												
HCM 6th Ctrl Delay				36.4								
HCM 6th LOS				D								

Lanes, Volumes, Timings

2025 No Build AM

4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

01/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	78	61	390	33	8	359	7	38	1	13	3	1
Future Volume (vph)	78	61	390	33	8	359	7	38	1	13	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	11	11	11	11	12	12	12	11	12
Grade (%)												
									-4%			
Storage Length (ft)	200			0	140		0	0		0	0	
Storage Lanes	1			0	1		0	0		0	0	
Taper Length (ft)	0				0			25			25	
Link Speed (mph)				35			35			25		25
Link Distance (ft)				512			3047			1341		290
Travel Time (s)				10.0			59.4			36.6		7.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	6%	0%	0%	0%	14%	0%	0%	8%	0%	0%
Shared Lane Traffic (%)												
Sign Control				Free			Free			Stop		Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 37.8%

ICU Level of Service A

Analysis Period (min) 15



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	52
Future Volume (vph)	52
Ideal Flow (vphpl)	1900
Lane Width (ft)	11
Grade (%)	
Storage Length (ft)	105
Storage Lanes	0
Taper Length (ft)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.94
Heavy Vehicles (%)	2%
Shared Lane Traffic (%)	
Sign Control	
Intersection Summary	

Intersection

Int Delay, s/veh 3

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	78	61	390	33	8	359	7	38	1	13	3	1	52
Future Vol, veh/h	78	61	390	33	8	359	7	38	1	13	3	1	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Stop	Stop	Stop	Stop	Stop	Stop						
RT Channelized	-	-	-	None									
Storage Length	-	200	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	2	-	-	4	-	-	-4	-	-	1	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	6	0	0	0	14	0	0	8	0	0	2
Mvmt Flow	83	65	415	35	9	382	7	40	1	14	3	1	55

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	389	389	0	0	450	0	0	939	1136	225	908	1150	195
Stage 1	-	-	-	-	-	-	-	729	729	-	404	404	-
Stage 2	-	-	-	-	-	-	-	210	407	-	504	746	-
Critical Hdwy	6.4	4.14	-	-	4.1	-	-	6.7	5.7	6.66	7.7	6.7	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.7	4.7	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.7	4.7	-	6.7	5.7	-
Follow-up Hdwy	2.5	2.22	-	-	2.2	-	-	3.5	4	3.38	3.5	4	3.32
Pot Cap-1 Maneuver	823	1166	-	-	1121	-	-	273	262	779	222	188	809
Stage 1	-	-	-	-	-	-	-	453	507	-	586	589	-
Stage 2	-	-	-	-	-	-	-	815	658	-	509	406	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	905	905	-	-	1121	-	-	220	217	779	189	156	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	220	217	-	189	156	-
Stage 1	-	-	-	-	-	-	-	379	424	-	490	584	-
Stage 2	-	-	-	-	-	-	-	752	653	-	417	339	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0.2	21.9	10.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	268	905	-	-	1121	-	-	180	809
HCM Lane V/C Ratio	0.206	0.163	-	-	0.008	-	-	0.024	0.068
HCM Control Delay (s)	21.9	9.8	-	-	8.2	-	-	25.5	9.8
HCM Lane LOS	C	A	-	-	A	-	-	D	A
HCM 95th %tile Q(veh)	0.8	0.6	-	-	0	-	-	0.1	0.2

Lanes, Volumes, Timings
5: Courthouse Rd. & Hospital Center Blvd.

2025 No Build AM

01/26/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	1	1	1	2	2	1
Traffic Volume (vph)	108	220	285	426	292	80
Future Volume (vph)	108	220	285	426	292	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	2%			0%	0%	
Storage Length (ft)	0	0	340			265
Storage Lanes	1	1	1			1
Taper Length (ft)	25		0			
Link Speed (mph)	35			35	35	
Link Distance (ft)	3047			586	601	
Travel Time (s)	59.4			11.4	11.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	11%	5%	7%	11%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 39.8%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 16.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	108	220	285	426	292	80
Future Vol, veh/h	108	220	285	426	292	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	340	-	-	265
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	11	5	7	11	2
Mvmt Flow	117	239	310	463	317	87

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	1169	159	404	0	-	0
Stage 1	317	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Critical Hdwy	7.38	7.32	4.2	-	-	-
Critical Hdwy Stg 1	6.38	-	-	-	-	-
Critical Hdwy Stg 2	6.38	-	-	-	-	-
Follow-up Hdwy	3.59	3.41	2.25	-	-	-
Pot Cap-1 Maneuver	155	823	1130	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~113	823	1130	-	-	-
Mov Cap-2 Maneuver	~113	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	329	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	62.8	3.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
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Capacity (veh/h)	1130	-	113	823	-	-
HCM Lane V/C Ratio	0.274	-	1.039	0.291	-	-
HCM Control Delay (s)	9.4	-	168	11.2	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	1.1	-	6.9	1.2	-	-

Notes

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

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	3934	3930	3980	3917	3946	3942	3980
Vehs Exited	3940	3950	3973	3944	3958	3951	3977
Starting Vehs	112	116	102	133	105	102	116
Ending Vehs	106	96	109	106	93	93	119
Travel Distance (mi)	2586	2577	2606	2636	2593	2646	2650
Travel Time (hr)	103.4	103.9	104.8	105.0	108.3	107.1	108.1
Total Delay (hr)	31.6	32.3	32.3	31.7	36.2	33.6	34.4
Total Stops	2462	2487	2663	2560	2541	2584	2679
Fuel Used (gal)	91.0	91.4	91.6	92.6	92.9	93.6	93.9

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	3891	3862	3971	3934
Vehs Exited	3891	3877	3993	3945
Starting Vehs	99	112	117	106
Ending Vehs	99	97	95	95
Travel Distance (mi)	2551	2570	2631	2605
Travel Time (hr)	103.0	104.0	113.1	106.1
Total Delay (hr)	31.9	32.2	39.6	33.6
Total Stops	2468	2538	2694	2566
Fuel Used (gal)	90.2	90.9	95.2	92.3

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information 1

Start Time 7:00

End Time 7:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	967	985	957	953	967	931	907
Vehs Exited	962	977	960	956	961	935	923
Starting Vehs	112	116	102	133	105	102	116
Ending Vehs	117	124	99	130	111	98	100
Travel Distance (mi)	627	640	626	647	620	621	594
Travel Time (hr)	24.8	25.8	25.5	26.6	24.7	24.5	24.0
Total Delay (hr)	7.5	8.1	8.0	8.7	7.5	7.3	7.5
Total Stops	596	631	626	649	601	619	596
Fuel Used (gal)	21.8	22.4	22.3	22.8	21.7	21.7	20.9

Interval #1 Information 1

Start Time 7:00

End Time 7:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	955	940	959	949
Vehs Exited	952	968	959	955
Starting Vehs	99	112	117	106
Ending Vehs	102	84	117	104
Travel Distance (mi)	618	615	634	624
Travel Time (hr)	25.2	24.4	26.2	25.2
Total Delay (hr)	7.9	7.1	8.5	7.8
Total Stops	612	596	638	614
Fuel Used (gal)	21.8	21.7	22.9	22.0

Interval #2 Information 2

Start Time 7:15

End Time 7:30

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1090	1043	1054	1024	1068	1055	1142
Vehs Exited	1087	1047	1044	1046	1066	1039	1128
Starting Vehs	117	124	99	130	111	98	100
Ending Vehs	120	120	109	108	113	114	114
Travel Distance (mi)	718	682	698	689	707	715	741
Travel Time (hr)	29.4	27.3	27.7	27.7	30.1	28.5	29.5
Total Delay (hr)	9.4	8.3	8.3	8.5	10.5	8.8	9.0
Total Stops	664	664	727	666	711	652	749
Fuel Used (gal)	25.5	24.4	24.4	24.5	25.6	25.5	26.0

Interval #2 Information 2

Start Time 7:15

End Time 7:30

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1021	1020	1094	1057
Vehs Exited	1000	997	1080	1055
Starting Vehs	102	84	117	104
Ending Vehs	123	107	131	110
Travel Distance (mi)	659	692	732	703
Travel Time (hr)	26.6	28.4	31.5	28.7
Total Delay (hr)	8.2	9.1	11.0	9.1
Total Stops	617	680	759	687
Fuel Used (gal)	23.4	24.5	26.4	25.0

Interval #3 Information 3

Start Time 7:30

End Time 7:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	937	929	1009	927	996	941	955
Vehs Exited	970	971	1022	925	988	953	964
Starting Vehs	120	120	109	108	113	114	114
Ending Vehs	87	78	96	110	121	102	105
Travel Distance (mi)	636	616	643	631	645	627	651
Travel Time (hr)	24.9	23.7	25.7	24.3	27.6	25.5	27.2
Total Delay (hr)	7.2	6.7	7.8	6.8	9.6	8.0	8.9
Total Stops	601	550	649	599	616	627	655
Fuel Used (gal)	22.3	21.6	22.5	21.9	23.2	22.0	23.3

Interval #3 Information 3

Start Time 7:30

End Time 7:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	964	927	938	952
Vehs Exited	970	937	965	968
Starting Vehs	123	107	131	110
Ending Vehs	117	97	104	98
Travel Distance (mi)	638	602	625	631
Travel Time (hr)	25.7	25.1	27.6	25.7
Total Delay (hr)	8.0	8.4	10.1	8.1
Total Stops	601	605	647	616
Fuel Used (gal)	22.5	21.3	22.8	22.3

Interval #4 Information 4

Start Time 7:45

End Time 8:00

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	940	973	960	1013	915	1015	976
Vehs Exited	921	955	947	1017	943	1024	962
Starting Vehs	87	78	96	110	121	102	105
Ending Vehs	106	96	109	106	93	93	119
Travel Distance (mi)	605	640	639	669	621	684	664
Travel Time (hr)	24.4	27.1	25.9	26.4	25.9	28.7	27.4
Total Delay (hr)	7.5	9.2	8.1	7.7	8.6	9.5	8.9
Total Stops	601	642	661	646	613	686	679
Fuel Used (gal)	21.3	23.1	22.4	23.5	22.5	24.4	23.8

Interval #4 Information 4

Start Time 7:45

End Time 8:00

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	951	975	980	966
Vehs Exited	969	975	989	971
Starting Vehs	117	97	104	98
Ending Vehs	99	97	95	95
Travel Distance (mi)	636	661	640	646
Travel Time (hr)	25.5	26.1	27.8	26.5
Total Delay (hr)	7.8	7.5	10.0	8.5
Total Stops	638	657	650	645
Fuel Used (gal)	22.6	23.5	23.2	23.0

Intersection: 1: Old Potomac Church Rd. & S Campus Rd.

Movement	EB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	15
95th Queue (ft)	45
Link Distance (ft)	771
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: US Route 1 & S Campus Rd.

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	73	62
Average Queue (ft)	24	15
95th Queue (ft)	52	45
Link Distance (ft)	1284	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	169	203	251	222	180	179	240	241	332	363	207	148
Average Queue (ft)	59	103	141	106	66	83	117	128	167	205	64	65
95th Queue (ft)	134	169	221	193	135	151	198	206	287	327	146	129
Link Distance (ft)			1549	1549	1549			414	414		998	998
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	565	565				180			400	400		
Storage Blk Time (%)							0	2		0	0	0
Queuing Penalty (veh)							1	2		0	0	0

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	48	54	179	147	161
Average Queue (ft)	8	12	85	51	62
95th Queue (ft)	27	39	148	115	121
Link Distance (ft)		1366	1366		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	1000	500		510	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	UL	T	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	100	5	1	25	3	70	30	58
Average Queue (ft)	33	0	0	2	0	29	4	28
95th Queue (ft)	76	5	0	13	2	57	22	51
Link Distance (ft)		414	414		2960	1256	243	243
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200			140				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 5: Courthouse Rd. & Hospital Center Blvd.

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	L	T	R
Maximum Queue (ft)	289	148	121	2	21
Average Queue (ft)	122	55	52	0	1
95th Queue (ft)	273	105	95	2	9
Link Distance (ft)	2960	2960		549	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		340		265	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 3



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	8	1	40	46	17
Future Volume (vph)	12	8	1	40	46	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%			4%	-4%	
Link Speed (mph)	35			25	25	
Link Distance (ft)	829			335	1341	
Travel Time (s)	16.1			9.1	36.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	3%	4%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.5%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations

Traffic Vol, veh/h	12	8	1	40	46	17
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Future Vol, veh/h	12	8	1	40	46	17
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	-	-	-	-	-
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Veh in Median Storage, #	0	-	-	0	0	-
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Grade, %	4	-	-	4	-4	-
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Peak Hour Factor	92	92	92	92	92	92
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Heavy Vehicles, %	0	0	0	3	4	0
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Mvmt Flow	13	9	1	43	50	18
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Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	104	59	68	0	-	0
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Stage 1	59	-	-	-	-	-
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Stage 2	45	-	-	-	-	-
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Critical Hdwy	7.2	6.6	4.1	-	-	-
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Critical Hdwy Stg 1	6.2	-	-	-	-	-
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Critical Hdwy Stg 2	6.2	-	-	-	-	-
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Follow-up Hdwy	3.5	3.3	2.2	-	-	-
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Pot Cap-1 Maneuver	878	1006	1546	-	-	-
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Stage 1	956	-	-	-	-	-
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Stage 2	973	-	-	-	-	-
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Platoon blocked, %	-	-	-	-	-	-
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Mov Cap-1 Maneuver	877	1006	1546	-	-	-
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Mov Cap-2 Maneuver	877	-	-	-	-	-
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Stage 1	955	-	-	-	-	-
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Stage 2	973	-	-	-	-	-
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Approach	EB	NB	SB
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HCM Control Delay, s	9	0.2	0
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HCM LOS	A	-	-
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Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
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Capacity (veh/h)	1546	-	924	-	-
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HCM Lane V/C Ratio	0.001	-	0.024	-	-
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HCM Control Delay (s)	7.3	0	9	-	-
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HCM Lane LOS	A	A	A	-	-
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HCM 95th %tile Q(veh)	0	-	0.1	-	-
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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Volume (vph)	11	19	719	24	14	2116
Future Volume (vph)	11	19	719	24	14	2116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	11	11	11
Grade (%)	-6%		-2%			-4%
Storage Length (ft)	0	0		150	280	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				0	
Link Speed (mph)	35		50			45
Link Distance (ft)	1378		774			2055
Travel Time (s)	26.8		10.6			31.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	4%	0%	7%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 68.5%

ICU Level of Service C

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑	Y	Y	↑↑
Traffic Vol, veh/h	11	19	719	24	14	2116
Future Vol, veh/h	11	19	719	24	14	2116
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	280	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-6	-	-2	-	-	-4
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	4	0	7	2
Mvmt Flow	12	20	757	25	15	2227
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1901	379	0	0	782	0
Stage 1	757	-	-	-	-	-
Stage 2	1144	-	-	-	-	-
Critical Hdwy	5.6	6.3	-	-	4.24	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.27	-
Pot Cap-1 Maneuver	117	665	-	-	800	-
Stage 1	552	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	115	665	-	-	800	-
Mov Cap-2 Maneuver	115	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	387	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	22.1	0		0.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	242	800	-	
HCM Lane V/C Ratio	-	-	0.13	0.018	-	
HCM Control Delay (s)	-	-	22.1	9.6	-	
HCM Lane LOS	-	-	C	A	-	
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-	

Lanes, Volumes, Timings
3: US Route 1 & Hospital Center Blvd.

2025 No Build PM

01/26/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	239	466	781	174	326	35	435	332	87	27	1153	161
Future Volume (vph)	239	466	781	174	326	35	435	332	87	27	1153	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	11	11	11
Grade (%)	3%				-2%			4%			2%	
Storage Length (ft)	565		0	180		0	400		1000	500		510
Storage Lanes	2		1	1		0	2		1	1		1
Taper Length (ft)	0			0			0			0		
Right Turn on Red		Yes			Yes			Yes			Yes	
Link Speed (mph)		40			35			45			35	
Link Distance (ft)		1742			512			2055			1375	
Travel Time (s)		29.7			10.0			31.1			26.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	25.0	44.0	22.0	25.0		44.0	90.0	22.0	13.0	59.0	22.0
Total Split (%)	14.7%	16.7%	29.3%	14.7%	16.7%		29.3%	60.0%	14.7%	8.7%	39.3%	14.7%
Maximum Green (s)	16.0	19.0	38.0	16.0	19.0		38.0	84.0	16.0	7.0	53.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	14.9	19.0	63.0	16.0	20.1		38.0	89.2	107.6	6.6	53.0	67.9
Actuated g/C Ratio	0.10	0.13	0.42	0.11	0.13		0.25	0.59	0.72	0.04	0.35	0.45
v/c Ratio	0.74	1.09	1.14	0.98	0.81		0.57	0.17	0.08	0.38	1.00	0.23
Control Delay	79.5	128.2	115.8	124.0	72.0		52.1	14.8	1.0	84.6	74.9	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	128.2	115.8	124.0	72.0		52.1	14.8	1.0	84.6	74.9	7.4
LOS	E	F	F	F	E		D	B	A	F	E	A
Approach Delay		113.9			88.9			32.3			67.0	
Approach LOS		F			F			C			E	
Intersection Summary												
Area Type:	Other											
Cycle Length: 150												
Actuated Cycle Length: 150												
Offset: 15 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Green												

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 79.3

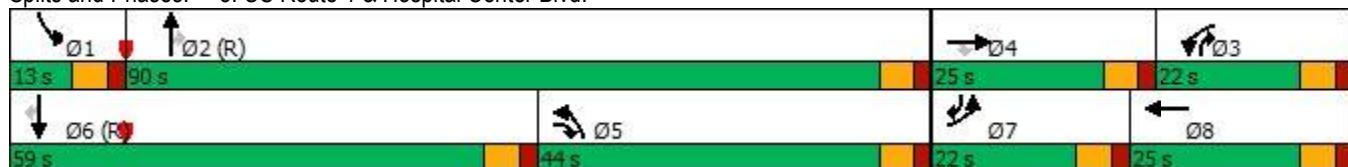
Intersection LOS: E

Intersection Capacity Utilization 104.9%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 3: US Route 1 & Hospital Center Blvd.



HCM 6th Signalized Intersection Summary
3: US Route 1 & Hospital Center Blvd.

2025 No Build PM
01/26/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑	↑↑		↑↑	↑↑	↑	↑	↑↑	↑
Traffic Volume (veh/h)	239	466	781	174	326	35	435	332	87	27	1153	161
Future Volume (veh/h)	239	466	781	174	326	35	435	332	87	27	1153	161
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No			No		No	
Adj Sat Flow, veh/h/ln	1817	1832	1803	1949	1964	1979	1732	1791	1761	1817	1847	1847
Adj Flow Rate, veh/h	249	485	814	181	340	36	453	346	91	28	1201	168
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	295	441	582	198	495	52	813	1995	1034	35	1237	690
Arrive On Green	0.09	0.13	0.13	0.11	0.15	0.15	0.25	0.59	0.59	0.02	0.35	0.35
Sat Flow, veh/h	3358	3481	1528	1856	3406	358	3199	3403	1493	1731	3509	1565
Grp Volume(v), veh/h	249	485	814	181	185	191	453	346	91	28	1201	168
Grp Sat Flow(s), veh/h/ln	1679	1741	1528	1856	1865	1899	1600	1701	1493	1731	1754	1565
Q Serve(g_s), s	11.0	19.0	19.0	14.5	14.1	14.3	18.5	7.0	0.6	2.4	50.5	3.3
Cycle Q Clear(g_c), s	11.0	19.0	19.0	14.5	14.1	14.3	18.5	7.0	0.6	2.4	50.5	3.3
Prop In Lane	1.00		1.00	1.00		0.19	1.00		1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	295	441	582	198	271	276	813	1995	1034	35	1237	690
V/C Ratio(X)	0.84	1.10	1.40	0.91	0.68	0.69	0.56	0.17	0.09	0.80	0.97	0.24
Avail Cap(c_a), veh/h	358	441	582	198	271	276	813	1995	1034	81	1240	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.4	65.5	46.4	66.3	60.8	60.9	48.6	14.3	2.5	73.2	47.8	10.1
Incr Delay (d2), s/veh	14.2	72.7	190.2	40.8	6.9	7.2	0.9	0.2	0.2	32.1	19.4	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	5.2	12.8	35.9	9.1	7.2	7.4	7.4	2.7	0.4	1.4	25.1	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	81.6	138.2	236.6	107.1	67.7	68.1	49.5	14.5	2.7	105.3	67.2	11.0
LnGrp LOS	F	F	F	F	E	E	D	B	A	F	E	B
Approach Vol, veh/h		1548			557			890			1397	
Approach Delay, s/veh		180.9			80.6			31.1			61.2	
Approach LOS		F			F			C			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R _c), s	9.0	94.0	22.0	25.0	44.1	58.9	19.2	27.8				
Change Period (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	84.0	16.0	19.0	38.0	53.0	16.0	19.0				
Max Q Clear Time (g_c+l1), s	4.4	9.0	16.5	21.0	20.5	52.5	13.0	16.3				
Green Ext Time (p_c), s	0.0	2.5	0.0	0.0	1.5	0.4	0.2	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			99.7									
HCM 6th LOS			F									

Lanes, Volumes, Timings

2025 No Build PM

4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

01/26/2023



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	64	19	510	46	17	497	8	36	1	16	3	2
Future Volume (vph)	64	19	510	46	17	497	8	36	1	16	3	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	11	11	11	11	12	12	12	11	12
Grade (%)												
Storage Length (ft)	200			0	140		0	0		0	0	
Storage Lanes	1			0	1		0	0		0	0	
Taper Length (ft)	0				0			25			25	
Link Speed (mph)				35			35			25		25
Link Distance (ft)				512			3069			1341		290
Travel Time (s)				10.0			59.8			36.6		7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	4%	0%	2%	0%	6%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control				Free			Free			Stop		Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.6%

ICU Level of Service A

Analysis Period (min) 15



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	49
Future Volume (vph)	49
Ideal Flow (vphpl)	1900
Lane Width (ft)	11
Grade (%)	
Storage Length (ft)	105
Storage Lanes	0
Taper Length (ft)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Shared Lane Traffic (%)	
Sign Control	

Intersection Summary

Intersection

Int Delay, s/veh 2.5

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	64	19	510	46	17	497	8	36	1	16	3	2	49
Future Vol, veh/h	64	19	510	46	17	497	8	36	1	16	3	2	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Stop	Stop	Stop	Stop	Stop	Stop						
RT Channelized	-	-	-	None									
Storage Length	-	200	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	2	-	-	4	-	-	-4	-	-	1	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	4	0	2	0	6	0	0	0	0	0
Mvmt Flow	70	21	554	50	18	540	9	39	1	17	3	2	53

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	549	549	0	0	604	0	0	1068	1346	302	1041	1367	275
Stage 1	-	-	-	-	-	-	-	761	761	-	581	581	-
Stage 2	-	-	-	-	-	-	-	307	585	-	460	786	-
Critical Hdwy	6.4	4.1	-	-	4.1	-	-	6.82	5.7	6.5	7.7	6.7	7
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.82	4.7	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.82	4.7	-	6.7	5.7	-
Follow-up Hdwy	2.5	2.2	-	-	2.2	-	-	3.56	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	653	1031	-	-	984	-	-	217	206	724	176	137	723
Stage 1	-	-	-	-	-	-	-	420	494	-	457	487	-
Stage 2	-	-	-	-	-	-	-	714	570	-	542	389	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	672	672	-	-	984	-	-	175	175	724	151	116	723
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	175	175	-	151	116	-
Stage 1	-	-	-	-	-	-	-	364	428	-	396	478	-
Stage 2	-	-	-	-	-	-	-	646	560	-	457	337	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.3	26.2	12.5
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	227	672	-	-	984	-	-	135	723
HCM Lane V/C Ratio	0.254	0.134	-	-	0.019	-	-	0.04	0.074
HCM Control Delay (s)	26.2	11.2	-	-	8.7	-	-	32.8	10.4
HCM Lane LOS	D	B	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	1	0.5	-	-	0.1	-	-	0.1	0.2

Lanes, Volumes, Timings
5: Courthouse Rd. & Hospital Center Blvd.

2025 No Build PM

01/26/2023



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	178	325	283	242	370	122
Future Volume (vph)	178	325	283	242	370	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	2%			0%	0%	
Storage Length (ft)	0	0	340			265
Storage Lanes	1	1	1			1
Taper Length (ft)	25		0			
Link Speed (mph)	35			35	35	
Link Distance (ft)	3069			586	601	
Travel Time (s)	59.8			11.4	11.7	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 45.8%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 31.6

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 178 325 283 242 370 122

Future Vol, veh/h 178 325 283 242 370 122

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 0 340 - - 265

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 2 - - 0 0 -

Peak Hour Factor 99 99 99 99 99 99

Heavy Vehicles, % 2 1 3 2 1 0

Mvmt Flow 180 328 286 244 374 123

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1068 187 497 0 - 0

Stage 1 374 - - - - -

Stage 2 694 - - - - -

Critical Hdwy 7.24 7.12 4.16 - - -

Critical Hdwy Stg 1 6.24 - - - - -

Critical Hdwy Stg 2 6.24 - - - - -

Follow-up Hdwy 3.52 3.31 2.23 - - -

Pot Cap-1 Maneuver 192 818 1056 - - -

Stage 1 639 - - - - -

Stage 2 423 - - - - -

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver ~ 140 818 1056 - - -

Mov Cap-2 Maneuver ~ 140 - - - - -

Stage 1 466 - - - - -

Stage 2 423 - - - - -

Approach EB NB SB

HCM Control Delay, s 90.2 5.2 0

HCM LOS F

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT SBR

Capacity (veh/h) 1056 - 140 818 - -

HCM Lane V/C Ratio 0.271 - 1.284 0.401 - -

HCM Control Delay (s) 9.7 - 232.3 12.3 - -

HCM Lane LOS A - F B - -

HCM 95th %tile Q(veh) 1.1 - 11.1 1.9 - -

Notes

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

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:15	4:15	4:15	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	4945	5057	5023	4995	4859	4834	4843
Vehs Exited	4888	4918	4947	4911	4818	4793	4798
Starting Vehs	231	227	186	172	207	175	214
Ending Vehs	288	366	262	256	248	216	259
Travel Distance (mi)	3732	3776	3765	3736	3656	3609	3639
Travel Time (hr)	341.7	346.5	301.6	259.8	328.9	247.6	338.8
Total Delay (hr)	239.7	243.1	198.8	157.7	228.9	148.9	239.5
Total Stops	5626	6656	5833	5454	5526	4863	5326
Fuel Used (gal)	182.2	183.1	173.8	161.6	176.8	156.4	179.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	4922	5007	4925	4939
Vehs Exited	4915	4883	4830	4869
Starting Vehs	237	230	225	208
Ending Vehs	244	354	320	278
Travel Distance (mi)	3709	3726	3677	3703
Travel Time (hr)	309.3	322.6	341.3	313.8
Total Delay (hr)	207.6	220.6	240.4	212.5
Total Stops	4868	6484	5846	5646
Fuel Used (gal)	174.0	177.2	180.0	174.5

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information 1

Start Time 4:30

End Time 4:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1211	1256	1216	1288	1236	1184	1290
Vehs Exited	1172	1184	1159	1200	1186	1164	1239
Starting Vehs	231	227	186	172	207	175	214
Ending Vehs	270	299	243	260	257	195	265
Travel Distance (mi)	907	919	891	942	906	881	956
Travel Time (hr)	57.1	66.0	56.7	52.0	56.4	46.2	62.4
Total Delay (hr)	32.4	40.9	32.5	26.4	31.6	22.0	36.3
Total Stops	1145	1476	1289	1277	1176	1098	1380
Fuel Used (gal)	38.0	40.1	37.3	37.2	37.2	34.6	40.5

Interval #1 Information 1

Start Time 4:30

End Time 4:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1250	1246	1245	1241
Vehs Exited	1236	1217	1222	1197
Starting Vehs	237	230	225	208
Ending Vehs	251	259	248	252
Travel Distance (mi)	936	938	924	920
Travel Time (hr)	62.1	65.1	56.6	58.1
Total Delay (hr)	36.5	39.3	31.4	32.9
Total Stops	1302	1606	1334	1309
Fuel Used (gal)	39.9	40.3	38.1	38.3

Interval #2 Information 2

Start Time 4:45

End Time 5:00

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1328	1333	1328	1272	1313	1286	1211
Vehs Exited	1298	1264	1270	1259	1262	1251	1212
Starting Vehs	270	299	243	260	257	195	265
Ending Vehs	300	368	301	273	308	230	264
Travel Distance (mi)	976	963	975	947	958	949	912
Travel Time (hr)	77.2	80.4	68.2	64.7	77.0	56.5	71.3
Total Delay (hr)	50.4	53.9	41.4	38.7	50.9	30.5	46.4
Total Stops	1400	1688	1470	1531	1534	1398	1148
Fuel Used (gal)	44.6	44.5	42.8	40.4	44.6	38.7	41.8

Interval #2 Information 2

Start Time 4:45

End Time 5:00

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1265	1338	1288	1297
Vehs Exited	1275	1299	1214	1260
Starting Vehs	251	259	248	252
Ending Vehs	241	298	322	286
Travel Distance (mi)	956	965	920	952
Travel Time (hr)	67.5	75.2	73.5	71.1
Total Delay (hr)	41.3	48.8	48.0	45.0
Total Stops	1252	1686	1501	1461
Fuel Used (gal)	41.8	43.7	42.1	42.5

Interval #3 Information 3

Start Time 5:00

End Time 5:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1209	1229	1270	1232	1188	1217	1183
Vehs Exited	1204	1225	1270	1249	1216	1207	1155
Starting Vehs	300	368	301	273	308	230	264
Ending Vehs	305	372	301	256	280	240	292
Travel Distance (mi)	916	941	951	951	916	912	883
Travel Time (hr)	97.9	99.2	82.3	66.7	94.6	65.5	94.6
Total Delay (hr)	72.8	73.5	56.5	40.6	69.6	40.7	70.5
Total Stops	1534	1748	1561	1425	1497	1268	1402
Fuel Used (gal)	48.3	48.5	45.4	41.7	47.2	40.4	46.9

Interval #3 Information 3

Start Time 5:00

End Time 5:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1183	1187	1195	1203
Vehs Exited	1178	1198	1204	1212
Starting Vehs	241	298	322	286
Ending Vehs	246	287	313	285
Travel Distance (mi)	894	909	919	919
Travel Time (hr)	83.4	81.2	97.9	86.3
Total Delay (hr)	58.8	56.5	72.7	61.2
Total Stops	1100	1537	1475	1455
Fuel Used (gal)	44.2	44.3	48.2	45.5

Interval #4 Information 4

Start Time 5:15

End Time 5:30

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1197	1239	1209	1203	1122	1147	1159
Vehs Exited	1214	1245	1248	1203	1154	1171	1192
Starting Vehs	305	372	301	256	280	240	292
Ending Vehs	288	366	262	256	248	216	259
Travel Distance (mi)	934	953	948	896	876	867	889
Travel Time (hr)	109.6	100.9	94.4	76.4	100.8	79.4	110.5
Total Delay (hr)	84.2	74.8	68.4	52.0	76.8	55.8	86.3
Total Stops	1547	1744	1513	1221	1319	1099	1396
Fuel Used (gal)	51.2	49.9	48.4	42.3	47.8	42.7	50.5

Interval #4 Information 4

Start Time 5:15

End Time 5:30

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1224	1236	1197	1194
Vehs Exited	1226	1169	1190	1202
Starting Vehs	246	287	313	285
Ending Vehs	244	354	320	278
Travel Distance (mi)	923	915	914	912
Travel Time (hr)	96.3	101.1	113.4	98.3
Total Delay (hr)	71.0	76.0	88.3	73.4
Total Stops	1214	1655	1536	1425
Fuel Used (gal)	48.1	49.0	51.6	48.2

Intersection: 1: Old Potomac Church Rd. & S Campus Rd.

Movement	EB
Directions Served	LR
Maximum Queue (ft)	33
Average Queue (ft)	13
95th Queue (ft)	37
Link Distance (ft)	771
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: US Route 1 & S Campus Rd.

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	64	38
Average Queue (ft)	17	7
95th Queue (ft)	45	27
Link Distance (ft)	1279	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	269	337	1699	1722	1715	180	385	344	257	275	131	118
Average Queue (ft)	88	150	1015	1248	1463	148	205	177	156	172	51	46
95th Queue (ft)	180	348	2055	2219	2069	209	368	297	236	252	103	98
Link Distance (ft)			1679	1679	1679			414	414		1974	1974
Upstream Blk Time (%)			7	41	52			1	0			
Queuing Penalty (veh)			0	0	0			3	0			
Storage Bay Dist (ft)	565	565				180			400	400		
Storage Blk Time (%)		0	4				20	12				
Queuing Penalty (veh)		0	9				32	21				

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	50	500	1141	1129	510
Average Queue (ft)	10	116	831	812	346
95th Queue (ft)	33	419	1284	1265	703
Link Distance (ft)		1318	1318		
Upstream Blk Time (%)		4	4		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)	1000	500		510	
Storage Blk Time (%)	0	46	41	1	
Queuing Penalty (veh)	1	13	66	7	

Intersection: 4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	TR	L	T	TR	LTR	LT	R
Maximum Queue (ft)	84	4	25	1	2	78	30	56
Average Queue (ft)	25	0	3	0	0	32	4	27
95th Queue (ft)	61	3	15	1	2	62	19	51
Link Distance (ft)		414		2979	2979	1254	243	243
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		140					
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 5: Courthouse Rd. & Hospital Center Blvd.

Movement	EB	EB	NB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	602	392	130	4
Average Queue (ft)	321	100	54	0
95th Queue (ft)	692	269	95	4
Link Distance (ft)	2979	2979		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		340	265	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 150

Appendix H

Build (2025) Capacity Analysis



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	4	1	36	34	12
Future Volume (vph)	22	4	1	36	34	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%			4%	-4%	
Link Speed (mph)	35			25	25	
Link Distance (ft)	673			335	1349	
Travel Time (s)	13.1			9.1	36.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	50%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.3%

ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	4	1	36	34	12
Future Vol, veh/h	22	4	1	36	34	12
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	4	-4	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	50	0	0	0	0
Mvmt Flow	24	4	1	39	37	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	85	44	50	0	-	0
Stage 1	44	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	7.27	7.1	4.1	-	-	-
Critical Hdwy Stg 1	6.27	-	-	-	-	-
Critical Hdwy Stg 2	6.27	-	-	-	-	-
Follow-up Hdwy	3.563	3.75	2.2	-	-	-
Pot Cap-1 Maneuver	887	901	1570	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	886	901	1570	-	-	-
Mov Cap-2 Maneuver	886	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	0.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1570	-	888	-	-	
HCM Lane V/C Ratio	0.001	-	0.032	-	-	
HCM Control Delay (s)	7.3	-	9.2	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	18	48	1186	19	27	631
Future Volume (vph)	18	48	1186	19	27	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-6%		-2%			-4%
Storage Length (ft)	0	0		150	300	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				0	
Link Speed (mph)	35		50			45
Link Distance (ft)	1523		774			986
Travel Time (s)	29.7		10.6			14.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	5%	13%	8%	9%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	43.4%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	48	1186	19	27	631
Future Vol, veh/h	18	48	1186	19	27	631
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	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-6	-	-2	-	-	-4
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	13	8	9
Mvmt Flow	20	52	1289	21	29	686
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1690	645	0	0	1310	0
Stage 1	1289	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Critical Hdwy	5.6	6.3	-	-	4.26	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.28	-
Pot Cap-1 Maneuver	151	467	-	-	493	-
Stage 1	348	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	142	467	-	-	493	-
Mov Cap-2 Maneuver	142	-	-	-	-	-
Stage 1	348	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	21.6	0		0.5		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	288	493	-	
HCM Lane V/C Ratio	-	-	0.249	0.06	-	
HCM Control Delay (s)	-	-	21.6	12.8	-	
HCM Lane LOS	-	-	C	B	-	
HCM 95th %tile Q(veh)	-	-	1	0.2	-	

Lanes, Volumes, Timings
3: US Route 1 & Hospital Center Blvd.

2025 Build AM

02/28/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	201	373	336	103	335	39	447	405	99	13	209	169
Future Volume (vph)	201	373	336	103	335	39	447	405	99	13	209	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	11	11	11
Grade (%)	3%				-2%				4%			2%
Storage Length (ft)	565			0	180		0	400		1000	500	510
Storage Lanes	2			1	1		0	2		1	1	1
Taper Length (ft)	0				0			0			0	
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			35			45			35	
Link Distance (ft)		1667			505			1091			1491	
Travel Time (s)		28.4			9.8			16.5			29.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	16%	2%	3%	5%	26%	5%	3%	0%	10%	9%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	24.0	29.0	41.0	24.0	29.0		41.0	57.0	24.0	10.0	26.0	24.0
Total Split (%)	20.0%	24.2%	34.2%	20.0%	24.2%		34.2%	47.5%	20.0%	8.3%	21.7%	20.0%
Maximum Green (s)	18.0	23.0	35.0	18.0	23.0		35.0	51.0	18.0	4.0	20.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	13.3	19.3	53.2	13.7	19.7		27.9	64.4	81.7	5.7	35.1	48.4
Actuated g/C Ratio	0.11	0.16	0.44	0.11	0.16		0.23	0.54	0.68	0.05	0.29	0.40
v/c Ratio	0.61	0.72	0.47	0.57	0.73		0.79	0.25	0.10	0.17	0.25	0.29
Control Delay	57.8	55.4	5.1	57.2	49.8		53.0	17.6	1.5	60.1	36.9	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	55.4	5.1	57.2	49.8		53.0	17.6	1.5	60.1	36.9	7.4
LOS	E	E	A	E	D		D	B	A	E	D	A
Approach Delay		37.3			51.4			32.5			24.9	
Approach LOS		D			D			C			C	
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green												

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 36.3

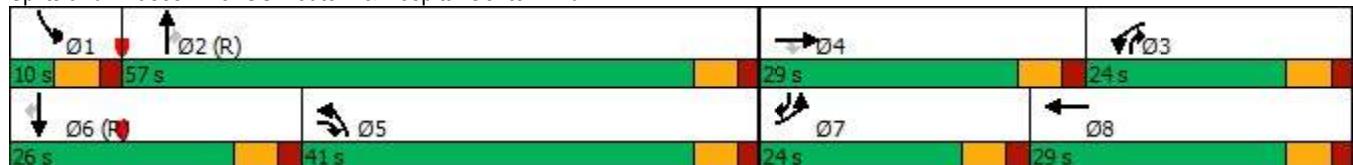
Intersection LOS: D

Intersection Capacity Utilization 54.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: US Route 1 & Hospital Center Blvd.



HCM 6th Signalized Intersection Summary
3: US Route 1 & Hospital Center Blvd.

2025 Build AM
02/28/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	201	373	336	103	335	39	447	405	99	13	209	169
Future Volume (veh/h)	201	373	336	103	335	39	447	405	99	13	209	169
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00			1.00	1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1758	1817	1610	1949	1934	1904	1420	1732	1761	1876	1728	1743
Adj Flow Rate, veh/h	218	405	365	112	364	42	486	440	108	14	227	184
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	2	16	2	3	5	26	5	3	0	10	9
Cap, veh/h	279	515	857	141	462	53	1258	1851	953	22	314	268
Arrive On Green	0.09	0.15	0.15	0.08	0.14	0.14	0.48	0.56	0.56	0.01	0.10	0.10
Sat Flow, veh/h	3248	3453	1364	1856	3321	381	2624	3290	1493	1787	3284	1477
Grp Volume(v), veh/h	218	405	365	112	200	206	486	440	108	14	227	184
Grp Sat Flow(s), veh/h/ln	1624	1726	1364	1856	1837	1865	1312	1645	1493	1787	1642	1477
Q Serve(g_s), s	7.9	13.6	0.0	7.1	12.6	12.8	14.2	8.1	0.6	0.9	8.1	3.2
Cycle Q Clear(g_c), s	7.9	13.6	0.0	7.1	12.6	12.8	14.2	8.1	0.6	0.9	8.1	3.2
Prop In Lane	1.00			1.00			0.20	1.00		1.00		1.00
Lane Grp Cap(c), veh/h	279	515	857	141	256	259	1258	1851	953	22	314	268
V/C Ratio(X)	0.78	0.79	0.43	0.80	0.78	0.79	0.39	0.24	0.11	0.63	0.72	0.69
Avail Cap(c_a), veh/h	487	662	915	278	352	357	1258	1851	953	60	547	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.7	49.2	11.3	54.5	49.9	50.0	20.0	13.3	2.8	59.0	52.7	21.6
Incr Delay (d2), s/veh	4.8	4.8	0.3	9.8	7.7	8.2	0.2	0.3	0.2	25.8	13.4	13.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	3.4	6.1	4.7	3.7	6.3	6.5	4.1	2.9	0.5	0.6	3.9	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.5	54.0	11.6	64.3	57.6	58.2	20.2	13.6	3.1	84.8	66.1	35.0
LnGrp LOS	E	D	B	E	E	E	C	B	A	F	E	D
Approach Vol, veh/h	988				518			1034			425	
Approach Delay, s/veh	39.3				59.3			15.6			53.3	
Approach LOS	D				E			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R _c), s	7.5	73.5	15.1	23.9	63.5	17.5	16.3	22.7				
Change Period (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	4.0	51.0	18.0	23.0	35.0	20.0	18.0	23.0				
Max Q Clear Time (g_c+l1), s	2.9	10.1	9.1	15.6	16.2	10.1	9.9	14.8				
Green Ext Time (p_c), s	0.0	3.2	0.2	2.3	1.7	1.4	0.4	1.4				
Intersection Summary												
HCM 6th Ctrl Delay				36.5								
HCM 6th LOS				D								

Lanes, Volumes, Timings

2025 Build AM

4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

02/28/2023



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	78	61	390	38	9	359	7	44	1	15	3	1
Future Volume (vph)	78	61	390	38	9	359	7	44	1	15	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	11	11	11	11	12	12	12	11	12
Grade (%)												
									-4%			1%
Storage Length (ft)	200			0	140		0	0		0	0	
Storage Lanes	1			0	1		0	0		0	0	
Taper Length (ft)	0				0			25			25	
Link Speed (mph)				35			35			25		25
Link Distance (ft)				505			3031			1349		290
Travel Time (s)				9.8			59.0			36.8		7.9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	6%	0%	0%	0%	14%	0%	0%	8%	0%	0%
Shared Lane Traffic (%)												
Sign Control				Free			Free			Stop		Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 37.9%

ICU Level of Service A

Analysis Period (min) 15



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	52
Future Volume (vph)	52
Ideal Flow (vphpl)	1900
Lane Width (ft)	11
Grade (%)	
Storage Length (ft)	105
Storage Lanes	0
Taper Length (ft)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.94
Heavy Vehicles (%)	2%
Shared Lane Traffic (%)	
Sign Control	

Intersection Summary

Intersection

Int Delay, s/veh 3.2

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	78	61	390	38	9	359	7	44	1	15	3	1	52
Future Vol, veh/h	78	61	390	38	9	359	7	44	1	15	3	1	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Stop	Stop	Stop	Stop	Stop	Stop						
RT Channelized	-	-	-	None									
Storage Length	-	200	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	2	-	-	4	-	-	-4	-	-	1	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	6	0	0	0	14	0	0	8	0	0	2
Mvmt Flow	83	65	415	40	10	382	7	47	1	16	3	1	55

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	389	389	0	0	455	0	0	943	1140	228	910	1157	195
Stage 1	-	-	-	-	-	-	-	731	731	-	406	406	-
Stage 2	-	-	-	-	-	-	-	212	409	-	504	751	-
Critical Hdwy	6.4	4.14	-	-	4.1	-	-	6.7	5.7	6.66	7.7	6.7	7.04
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.7	4.7	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.7	4.7	-	6.7	5.7	-
Follow-up Hdwy	2.5	2.22	-	-	2.2	-	-	3.5	4	3.38	3.5	4	3.32
Pot Cap-1 Maneuver	823	1166	-	-	1116	-	-	272	261	776	221	186	809
Stage 1	-	-	-	-	-	-	-	452	506	-	585	588	-
Stage 2	-	-	-	-	-	-	-	814	657	-	509	404	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	905	905	-	-	1116	-	-	219	216	776	187	154	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	219	216	-	187	154	-
Stage 1	-	-	-	-	-	-	-	378	423	-	489	583	-
Stage 2	-	-	-	-	-	-	-	750	651	-	416	338	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0.2	22.7	10.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	267	905	-	-	1116	-	-	177	809
HCM Lane V/C Ratio	0.239	0.163	-	-	0.009	-	-	0.024	0.068
HCM Control Delay (s)	22.7	9.8	-	-	8.3	-	-	25.8	9.8
HCM Lane LOS	C	A	-	-	A	-	-	D	A
HCM 95th %tile Q(veh)	0.9	0.6	-	-	0	-	-	0.1	0.2



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	109	221	285	426	292	81
Future Volume (vph)	109	221	285	426	292	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	2%			0%	0%	
Storage Length (ft)	0	0	340			265
Storage Lanes	1	1	1			1
Taper Length (ft)	25		0			
Link Speed (mph)	35			35	35	
Link Distance (ft)	3031			586	601	
Travel Time (s)	59.0			11.4	11.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	11%	5%	7%	11%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 39.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 17.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	109	221	285	426	292	81
Future Vol, veh/h	109	221	285	426	292	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	340	-	-	265
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	9	11	5	7	11	2
Mvmt Flow	118	240	310	463	317	88

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1169	159	405	0	-	0
Stage 1	317	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Critical Hdwy	7.38	7.32	4.2	-	-	-
Critical Hdwy Stg 1	6.38	-	-	-	-	-
Critical Hdwy Stg 2	6.38	-	-	-	-	-
Follow-up Hdwy	3.59	3.41	2.25	-	-	-
Pot Cap-1 Maneuver	155	823	1129	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~112	823	1129	-	-	-
Mov Cap-2 Maneuver	~112	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	329	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	65.1	3.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1129	-	112	823	-	-
HCM Lane V/C Ratio	0.274	-	1.058	0.292	-	-
HCM Control Delay (s)	9.4	-	174.5	11.2	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	1.1	-	7.1	1.2	-	-

Notes

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

Lanes, Volumes, Timings
6: Creek Ridge Dr./Site Dwy. & S Campus Blvd.

2025 Build AM

02/28/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	14	26	2	5	6	47	0	4	8	0	14
Future Volume (vph)	6	14	26	2	5	6	47	0	4	8	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	12	12	12
Grade (%)		5%			-4%			0%			0%	
Storage Length (ft)	0		75	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1523			673			249			217	
Travel Time (s)		29.7			13.1			6.8			5.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	20.0%						ICU Level of Service A					
Analysis Period (min)	15											

Intersection																			
Int Delay, s/veh	5.4																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR							
Lane Configurations																			
Traffic Vol, veh/h	6	14	26	2	5	6	47	0	4	8	0	14							
Future Vol, veh/h	6	14	26	2	5	6	47	0	4	8	0	14							
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0							
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop							
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None							
Storage Length	-	-	75	-	-	-	-	-	-	-	-	-							
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-							
Grade, %	-	5	-	-	-4	-	-	0	-	-	0	-							
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2							
Mvmt Flow	7	15	28	2	5	7	51	0	4	9	0	15							
Major/Minor																			
Major1		Major2			Minor1			Minor2											
Conflicting Flow All	12	0	0	43	0	0	49	45	15	58	70	9							
Stage 1	-	-	-	-	-	-	29	29	-	13	13	-							
Stage 2	-	-	-	-	-	-	20	16	-	45	57	-							
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22							
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-							
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-							
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318							
Pot Cap-1 Maneuver	1607	-	-	1566	-	-	951	847	1065	939	821	1073							
Stage 1	-	-	-	-	-	-	988	871	-	1007	885	-							
Stage 2	-	-	-	-	-	-	999	882	-	969	847	-							
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-							
Mov Cap-1 Maneuver	1607	-	-	1566	-	-	934	843	1065	931	817	1073							
Mov Cap-2 Maneuver	-	-	-	-	-	-	934	843	-	931	817	-							
Stage 1	-	-	-	-	-	-	984	868	-	1003	884	-							
Stage 2	-	-	-	-	-	-	984	881	-	961	844	-							
Approach																			
EB			WB			NB			SB										
HCM Control Delay, s	0.9		1.1			9.1			8.6										
HCM LOS	A						A												
Minor Lane/Major Mvmt																			
NBLn1		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1											
Capacity (veh/h)	943	1607	-	-	1566	-	-	1017											
HCM Lane V/C Ratio	0.059	0.004	-	-	0.001	-	-	0.024											
HCM Control Delay (s)	9.1	7.2	0	-	7.3	0	-	8.6											
HCM Lane LOS	A	A	A	-	A	A	-	A											
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1											

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	6:45	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	4028	4015	4040	3989	4030	4012	4014
Vehs Exited	4000	4045	4072	3971	4040	4020	4028
Starting Vehs	100	130	123	102	109	114	119
Ending Vehs	128	100	91	120	99	106	105
Travel Distance (mi)	2695	2716	2674	2671	2745	2714	2709
Travel Time (hr)	108.8	110.0	105.5	107.8	109.4	108.5	107.9
Total Delay (hr)	33.5	34.4	30.8	33.2	33.0	32.5	32.3
Total Stops	2690	2740	2642	2704	2721	2732	2685
Fuel Used (gal)	95.2	96.1	93.8	93.8	96.5	95.3	96.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	4072	3979	3964	4011
Vehs Exited	4092	3971	3966	4020
Starting Vehs	101	103	103	103
Ending Vehs	81	111	101	100
Travel Distance (mi)	2734	2680	2688	2703
Travel Time (hr)	110.1	107.8	108.3	108.4
Total Delay (hr)	34.0	33.0	33.5	33.0
Total Stops	2762	2683	2697	2703
Fuel Used (gal)	96.0	94.7	94.9	95.2

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information 1

Start Time 7:00

End Time 7:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	972	994	954	994	967	923	976
Vehs Exited	971	1017	990	1007	968	947	987
Starting Vehs	100	130	123	102	109	114	119
Ending Vehs	101	107	87	89	108	90	108
Travel Distance (mi)	638	686	633	670	647	627	665
Travel Time (hr)	25.1	28.1	24.5	27.2	25.8	24.9	26.0
Total Delay (hr)	7.3	8.9	6.8	8.4	7.8	7.5	7.4
Total Stops	642	704	610	676	609	612	657
Fuel Used (gal)	22.5	24.5	22.3	23.5	22.3	21.8	23.7

Interval #1 Information 1

Start Time 7:00

End Time 7:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1004	991	980	976
Vehs Exited	1021	961	986	985
Starting Vehs	101	103	103	103
Ending Vehs	84	133	97	98
Travel Distance (mi)	667	655	654	654
Travel Time (hr)	26.5	26.3	26.1	26.1
Total Delay (hr)	7.9	8.0	7.9	7.8
Total Stops	661	637	657	648
Fuel Used (gal)	22.9	23.1	22.9	22.9

Interval #2 Information 2

Start Time 7:15

End Time 7:30

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1082	1059	1072	1034	1071	1116	1073
Vehs Exited	1066	1070	1045	997	1066	1078	1066
Starting Vehs	101	107	87	89	108	90	108
Ending Vehs	117	96	114	126	113	128	115
Travel Distance (mi)	731	719	710	685	723	735	711
Travel Time (hr)	29.0	29.2	28.3	28.1	29.3	29.2	28.0
Total Delay (hr)	8.5	9.2	8.4	8.9	9.1	8.6	8.2
Total Stops	731	714	704	712	750	747	707
Fuel Used (gal)	25.7	25.6	24.7	24.2	25.8	25.8	24.9

Interval #2 Information 2

Start Time 7:15

End Time 7:30

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1069	1096	1088	1072
Vehs Exited	1036	1090	1059	1059
Starting Vehs	84	133	97	98
Ending Vehs	117	139	126	116
Travel Distance (mi)	718	743	760	723
Travel Time (hr)	29.8	29.6	31.3	29.2
Total Delay (hr)	9.8	8.7	10.2	9.0
Total Stops	730	735	789	733
Fuel Used (gal)	25.3	26.0	27.1	25.5

Interval #3 Information 3

Start Time 7:30

End Time 7:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	968	976	1032	957	976	965	953
Vehs Exited	978	967	1041	985	976	988	972
Starting Vehs	117	96	114	126	113	128	115
Ending Vehs	107	105	105	98	113	105	96
Travel Distance (mi)	654	646	680	652	673	675	654
Travel Time (hr)	27.2	25.7	27.0	25.8	26.4	27.6	26.8
Total Delay (hr)	8.9	7.8	8.0	7.8	7.7	8.7	8.3
Total Stops	635	644	681	638	659	685	663
Fuel Used (gal)	23.3	22.5	23.9	22.8	23.7	23.9	23.3

Interval #3 Information 3

Start Time 7:30

End Time 7:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1012	898	944	965
Vehs Exited	1028	934	964	984
Starting Vehs	117	139	126	116
Ending Vehs	101	103	106	101
Travel Distance (mi)	699	609	633	657
Travel Time (hr)	28.0	24.8	25.2	26.5
Total Delay (hr)	8.6	7.8	7.6	8.1
Total Stops	726	611	625	656
Fuel Used (gal)	24.9	21.8	22.5	23.3

Interval #4 Information 4

Start Time 7:45

End Time 8:00

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1006	986	982	1004	1016	1008	1012
Vehs Exited	985	991	996	982	1030	1007	1003
Starting Vehs	107	105	105	98	113	105	96
Ending Vehs	128	100	91	120	99	106	105
Travel Distance (mi)	672	666	650	664	703	678	678
Travel Time (hr)	27.6	27.0	25.7	26.7	27.9	26.7	27.0
Total Delay (hr)	8.8	8.5	7.6	8.1	8.3	7.8	8.3
Total Stops	682	678	647	678	703	688	658
Fuel Used (gal)	23.7	23.5	22.9	23.4	24.7	23.8	24.2

Interval #4 Information 4

Start Time 7:45

End Time 8:00

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	987	994	952	993
Vehs Exited	1007	986	957	992
Starting Vehs	101	103	106	101
Ending Vehs	81	111	101	100
Travel Distance (mi)	651	672	642	668
Travel Time (hr)	25.9	27.1	25.6	26.7
Total Delay (hr)	7.7	8.4	7.8	8.1
Total Stops	645	700	626	669
Fuel Used (gal)	22.9	23.8	22.5	23.5

Intersection: 1: Old Potomac Church Rd. & S Campus Blvd.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	62	3
Average Queue (ft)	19	0
95th Queue (ft)	50	3
Link Distance (ft)	612	310
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: US Route 1 & S Campus Blvd.

Movement	WB	NB	SB
Directions Served	LR	R	L
Maximum Queue (ft)	84	2	59
Average Queue (ft)	28	0	15
95th Queue (ft)	59	2	43
Link Distance (ft)	1420		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150	300	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	158	184	233	227	162	170	265	266	345	351	242	179
Average Queue (ft)	57	98	136	104	67	77	125	134	166	204	70	70
95th Queue (ft)	130	163	207	188	128	149	210	217	290	319	166	141
Link Distance (ft)			1604	1604	1604			407	407		998	998
Upstream Blk Time (%)								0	0			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	565	565				180			400	400		
Storage Blk Time (%)								0	3		0	0
Queuing Penalty (veh)								1	3		0	0

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	55	45	164	147	149
Average Queue (ft)	9	12	87	52	58
95th Queue (ft)	31	37	144	117	110
Link Distance (ft)		1434	1434		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	1000	500		510	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	UL	T	TR	L	TR	LTR	LT	R
Maximum Queue (ft)	119	31	1	23	4	73	31	63
Average Queue (ft)	36	1	0	2	0	34	3	28
95th Queue (ft)	85	24	1	12	3	61	17	53
Link Distance (ft)		407	407		2946	1266	243	243
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200			140				
Storage Blk Time (%)	0	0						
Queuing Penalty (veh)	0	0						

Intersection: 5: Courthouse Rd. & Hospital Center Blvd.

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	L	T	R
Maximum Queue (ft)	245	145	120	2	24
Average Queue (ft)	106	58	51	0	1
95th Queue (ft)	209	105	95	2	11
Link Distance (ft)	2946	2946		550	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		340		265	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Creek Ridge Dr./Site Dwy. & S Campus Blvd.

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	4	5	3	47	30
Average Queue (ft)	0	0	0	20	16
95th Queue (ft)	3	5	0	38	39
Link Distance (ft)	1420		612	196	186
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		75			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 4



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	8	1	40	46	29
Future Volume (vph)	20	8	1	40	46	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%			4%	-4%	
Link Speed (mph)	35			25	25	
Link Distance (ft)	671			335	1341	
Travel Time (s)	13.1			9.1	36.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	3%	4%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 14.2%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	20	8	1	40	46	29
Future Vol, veh/h	20	8	1	40	46	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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	4	-4	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	3	4	0
Mvmt Flow	22	9	1	43	50	32

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	111	66	82	0	-
Stage 1	66	-	-	-	-
Stage 2	45	-	-	-	-
Critical Hdwy	7.2	6.6	4.1	-	-
Critical Hdwy Stg 1	6.2	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	869	996	1528	-	-
Stage 1	948	-	-	-	-
Stage 2	973	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	868	996	1528	-	-
Mov Cap-2 Maneuver	868	-	-	-	-
Stage 1	947	-	-	-	-
Stage 2	973	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1528	-	901	-	-
HCM Lane V/C Ratio	0.001	-	0.034	-	-
HCM Control Delay (s)	7.4	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	25	719	31	19	2116
Future Volume (vph)	16	25	719	31	19	2116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-6%		-2%			-4%
Storage Length (ft)	0	0		150	300	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				0	
Link Speed (mph)	35		50			45
Link Distance (ft)	1536		774			2077
Travel Time (s)	29.9		10.6			31.5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	4%	0%	7%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 68.5%

ICU Level of Service C

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑	Y	Y	↑↑
Traffic Vol, veh/h	16	25	719	31	19	2116
Future Vol, veh/h	16	25	719	31	19	2116
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	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-6	-	-2	-	-	-4
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	4	0	7	2
Mvmt Flow	17	26	757	33	20	2227
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1911	379	0	0	790	0
Stage 1	757	-	-	-	-	-
Stage 2	1154	-	-	-	-	-
Critical Hdwy	5.6	6.3	-	-	4.24	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	4.6	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.27	-
Pot Cap-1 Maneuver	116	665	-	-	794	-
Stage 1	552	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	113	665	-	-	794	-
Mov Cap-2 Maneuver	113	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	24.3	0		0.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	229	794	-	
HCM Lane V/C Ratio	-	-	0.188	0.025	-	
HCM Control Delay (s)	-	-	24.3	9.7	-	
HCM Lane LOS	-	-	C	A	-	
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-	

Lanes, Volumes, Timings
3: US Route 1 & Hospital Center Blvd.

2025 Build PM
02/28/2023

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	239	473	783	174	330	37	439	334	87	30	1156	161
Future Volume (vph)	239	473	783	174	330	37	439	334	87	30	1156	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	11	11	11
Grade (%)	3%				-2%			4%			2%	
Storage Length (ft)	565		0	180		0	400		1000	500		510
Storage Lanes	2		1	1		0	2		1	1		1
Taper Length (ft)	0			0			0			0		
Right Turn on Red		Yes			Yes			Yes			Yes	
Link Speed (mph)		40			35			45			35	
Link Distance (ft)		1559			512			2077			1418	
Travel Time (s)		26.6			10.0			31.5			27.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0		10.0	22.0	22.0	10.0	22.0	22.0
Total Split (s)	22.0	25.0	44.0	22.0	25.0		44.0	90.0	22.0	13.0	59.0	22.0
Total Split (%)	14.7%	16.7%	29.3%	14.7%	16.7%		29.3%	60.0%	14.7%	8.7%	39.3%	14.7%
Maximum Green (s)	16.0	19.0	38.0	16.0	19.0		38.0	84.0	16.0	7.0	53.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Min	None	None	C-Min	None
Act Effct Green (s)	14.9	19.0	63.0	16.0	20.1		38.0	89.2	107.6	6.7	53.0	67.9
Actuated g/C Ratio	0.10	0.13	0.42	0.11	0.13		0.25	0.59	0.72	0.04	0.35	0.45
v/c Ratio	0.74	1.11	1.15	0.98	0.82		0.57	0.17	0.08	0.42	1.01	0.23
Control Delay	79.5	133.4	116.9	124.0	73.0		52.2	14.8	1.0	86.9	75.4	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	133.4	116.9	124.0	73.0		52.2	14.8	1.0	86.9	75.4	7.5
LOS	E	F	F	F	E		D	B	A	F	E	A
Approach Delay		116.1			89.4			32.5			67.6	
Approach LOS		F			F			C			E	
Intersection Summary												
Area Type:	Other											
Cycle Length: 150												
Actuated Cycle Length: 150												
Offset: 15 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Green												

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 80.4

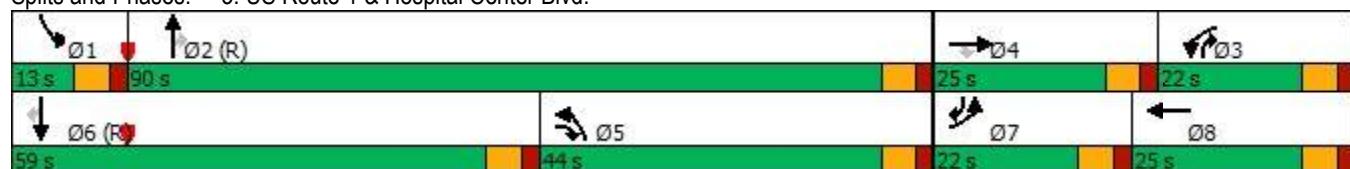
Intersection LOS: F

Intersection Capacity Utilization 105.1%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 3: US Route 1 & Hospital Center Blvd.



HCM 6th Signalized Intersection Summary
3: US Route 1 & Hospital Center Blvd.

2025 Build PM
02/28/2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	239	473	783	174	330	37	439	334	87	30	1156	161
Future Volume (veh/h)	239	473	783	174	330	37	439	334	87	30	1156	161
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No			No		No	
Adj Sat Flow, veh/h/ln	1817	1832	1803	1949	1964	1979	1732	1791	1761	1817	1847	1847
Adj Flow Rate, veh/h	249	493	816	181	344	39	457	348	91	31	1204	168
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	295	441	581	198	491	55	812	1987	1031	39	1238	690
Arrive On Green	0.09	0.13	0.13	0.11	0.15	0.15	0.25	0.58	0.58	0.02	0.35	0.35
Sat Flow, veh/h	3358	3481	1528	1856	3380	381	3199	3403	1493	1731	3509	1565
Grp Volume(v), veh/h	249	493	816	181	189	194	457	348	91	31	1204	168
Grp Sat Flow(s), veh/h/ln	1679	1741	1528	1856	1865	1895	1600	1701	1493	1731	1754	1565
Q Serve(g_s), s	11.0	19.0	19.0	14.5	14.4	14.6	18.7	7.1	0.6	2.7	50.7	3.3
Cycle Q Clear(g_c), s	11.0	19.0	19.0	14.5	14.4	14.6	18.7	7.1	0.6	2.7	50.7	3.3
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	295	441	581	198	271	275	812	1987	1031	39	1238	690
V/C Ratio(X)	0.84	1.12	1.40	0.91	0.70	0.71	0.56	0.18	0.09	0.79	0.97	0.24
Avail Cap(c_a), veh/h	358	441	581	198	271	275	812	1987	1031	81	1240	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.4	65.5	46.5	66.3	60.9	61.0	48.7	14.5	2.5	73.0	47.8	10.1
Incr Delay (d2), s/veh	14.2	79.1	192.1	40.8	7.5	7.9	0.9	0.2	0.2	28.9	19.7	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	5.2	13.2	36.1	9.1	7.4	7.6	7.4	2.7	0.4	1.5	25.3	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	81.6	144.6	238.5	107.1	68.5	69.0	49.6	14.6	2.7	101.8	67.5	11.0
LnGrp LOS	F	F	F	F	E	E	D	B	A	F	E	B
Approach Vol, veh/h		1558				564			896		1403	
Approach Delay, s/veh		183.7				81.1			31.3		61.5	
Approach LOS		F				F			C		E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R _c), s	9.4	93.6	22.0	25.0	44.1	58.9	19.2	27.8				
Change Period (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	84.0	16.0	19.0	38.0	53.0	16.0	19.0				
Max Q Clear Time (g_c+l1), s	4.7	9.1	16.5	21.0	20.7	52.7	13.0	16.6				
Green Ext Time (p_c), s	0.0	2.5	0.0	0.0	1.5	0.2	0.2	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			101.0									
HCM 6th LOS			F									

Lanes, Volumes, Timings

2025 Build PM

4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

02/28/2023



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	64	19	510	56	19	497	8	42	1	18	3	2
Future Volume (vph)	64	19	510	56	19	497	8	42	1	18	3	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	11	11	11	11	12	12	12	11	12
Grade (%)												
									-4%			1%
Storage Length (ft)	200			0	140		0	0		0	0	
Storage Lanes	1			0	1		0	0		0	0	
Taper Length (ft)	0				0			25			25	
Link Speed (mph)				35			35			25		25
Link Distance (ft)				512			3035			1341		290
Travel Time (s)				10.0			59.1			36.6		7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	4%	0%	2%	0%	6%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control				Free			Free			Stop		Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 39.4%

ICU Level of Service A

Analysis Period (min) 15



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	49
Future Volume (vph)	49
Ideal Flow (vphpl)	1900
Lane Width (ft)	11
Grade (%)	
Storage Length (ft)	105
Storage Lanes	0
Taper Length (ft)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Shared Lane Traffic (%)	
Sign Control	
Intersection Summary	

Intersection

Int Delay, s/veh 2.7

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	64	19	510	56	19	497	8	42	1	18	3	2	49
Future Vol, veh/h	64	19	510	56	19	497	8	42	1	18	3	2	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Stop	Stop	Stop	Stop	Stop	Stop						
RT Channelized	-	-	-	None									
Storage Length	-	200	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	2	-	-	4	-	-	-4	-	-	1	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	4	0	2	0	6	0	0	0	0	0
Mvmt Flow	70	21	554	61	21	540	9	46	1	20	3	2	53

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	549	549	0	0	615	0	0	1080	1358	308	1047	1384	275
Stage 1	-	-	-	-	-	-	-	767	767	-	587	587	-
Stage 2	-	-	-	-	-	-	-	313	591	-	460	797	-
Critical Hdwy	6.4	4.1	-	-	4.1	-	-	6.82	5.7	6.5	7.7	6.7	7
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.82	4.7	-	6.7	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.82	4.7	-	6.7	5.7	-
Follow-up Hdwy	2.5	2.2	-	-	2.2	-	-	3.56	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	653	1031	-	-	974	-	-	213	203	718	175	134	723
Stage 1	-	-	-	-	-	-	-	418	491	-	453	484	-
Stage 2	-	-	-	-	-	-	-	709	568	-	542	384	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	672	672	-	-	974	-	-	172	172	718	150	113	723
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	172	172	-	150	113	-
Stage 1	-	-	-	-	-	-	-	362	425	-	392	473	-
Stage 2	-	-	-	-	-	-	-	640	556	-	455	333	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.3	28	12.5
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	222	672	-	-	974	-	-	133	723
HCM Lane V/C Ratio	0.299	0.134	-	-	0.021	-	-	0.041	0.074
HCM Control Delay (s)	28	11.2	-	-	8.8	-	-	33.2	10.4
HCM Lane LOS	D	B	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	1.2	0.5	-	-	0.1	-	-	0.1	0.2



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	179	326	284	242	370	123
Future Volume (vph)	179	326	284	242	370	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	2%			0%	0%	
Storage Length (ft)	0	0	340			265
Storage Lanes	1	1	1			1
Taper Length (ft)	25		0			
Link Speed (mph)	35			35	35	
Link Distance (ft)	3035			586	601	
Travel Time (s)	59.1			11.4	11.7	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 45.9%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Int Delay, s/veh 32

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
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Traffic Vol, veh/h	179	326	284	242	370	123
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Future Vol, veh/h	179	326	284	242	370	123
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Conflicting Peds, #/hr	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free
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RT Channelized	-	None	-	None	-	None
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Storage Length	0	0	340	-	-	265
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Veh in Median Storage, #	0	-	-	0	0	-
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Grade, %	2	-	-	0	0	-
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Peak Hour Factor	99	99	99	99	99	99
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Heavy Vehicles, %	2	1	3	2	1	0
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Mvmt Flow	181	329	287	244	374	124
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Major/Minor	Minor2	Major1	Major2			
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Conflicting Flow All	1070	187	498	0	-	0
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Stage 1	374	-	-	-	-	-
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Stage 2	696	-	-	-	-	-
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Critical Hdwy	7.24	7.12	4.16	-	-	-
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Critical Hdwy Stg 1	6.24	-	-	-	-	-
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Critical Hdwy Stg 2	6.24	-	-	-	-	-
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Follow-up Hdwy	3.52	3.31	2.23	-	-	-
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Pot Cap-1 Maneuver	192	818	1055	-	-	-
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Stage 1	639	-	-	-	-	-
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Stage 2	422	-	-	-	-	-
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Platoon blocked, %	-	-	-	-	-	-
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Mov Cap-1 Maneuver	~ 140	818	1055	-	-	-
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Mov Cap-2 Maneuver	~ 140	-	-	-	-	-
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Stage 1	465	-	-	-	-	-
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Stage 2	422	-	-	-	-	-
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Approach	EB	NB	SB			
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HCM Control Delay, s	91.2	5.2	0			
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HCM LOS	F					
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Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
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Capacity (veh/h)	1055	-	140	818	-	-
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HCM Lane V/C Ratio	0.272	-	1.291	0.403	-	-
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HCM Control Delay (s)	9.7	-	235	12.3	-	-
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HCM Lane LOS	A	-	F	B	-	-
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HCM 95th %tile Q(veh)	1.1	-	11.2	2	-	-
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Notes

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

Lanes, Volumes, Timings
6: Creek Ridge Dr./Site Dwy. & S Campus Blvd.

2025 Build PM

02/28/2023



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	8	30	13	5	12	25	0	12	8	0	11
Future Volume (vph)	12	8	30	13	5	12	25	0	12	8	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	10	10	10	12	12	12
Grade (%)		5%			-4%			0%			0%	
Storage Length (ft)	0		75	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)	1536				671			242			228	
Travel Time (s)	29.9				13.1			6.6			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control	Free			Free				Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	20.0%				ICU Level of Service A							
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	12	8	30	13	5	12	25	0	12	8	0	11
Future Vol, veh/h	12	8	30	13	5	12	25	0	12	8	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	75	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	5	-	-	-4	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	9	33	14	5	13	27	0	13	9	0	12
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	18	0	0	42	0	0	81	81	9	98	108	12
Stage 1	-	-	-	-	-	-	35	35	-	40	40	-
Stage 2	-	-	-	-	-	-	46	46	-	58	68	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1599	-	-	1567	-	-	907	809	1073	884	782	1069
Stage 1	-	-	-	-	-	-	981	866	-	975	862	-
Stage 2	-	-	-	-	-	-	968	857	-	954	838	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1599	-	-	1567	-	-	885	795	1073	862	769	1069
Mov Cap-2 Maneuver	-	-	-	-	-	-	885	795	-	862	769	-
Stage 1	-	-	-	-	-	-	973	859	-	967	854	-
Stage 2	-	-	-	-	-	-	949	849	-	935	831	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	1.7		3.2		9		8.8					
HCM LOS					A		A					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	938	1599	-	-	1567	-	-	971				
HCM Lane V/C Ratio	0.043	0.008	-	-	0.009	-	-	0.021				
HCM Control Delay (s)	9	7.3	0	-	7.3	0	-	8.8				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:15	4:15	4:15	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	4939	4933	4886	4950	4915	4867	5010
Vehs Exited	4934	4891	4823	4868	4892	4846	4972
Starting Vehs	230	221	201	216	214	208	208
Ending Vehs	235	263	264	298	237	229	246
Travel Distance (mi)	3693	3629	3612	3643	3634	3593	3689
Travel Time (hr)	360.0	342.3	308.1	271.4	270.8	316.8	342.9
Total Delay (hr)	258.3	242.9	208.9	171.3	171.3	218.2	241.5
Total Stops	5252	4721	5348	5114	4895	4842	5779
Fuel Used (gal)	185.4	180.3	171.5	163.3	163.3	172.7	181.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	4871	4812	5013	4918
Vehs Exited	4910	4787	4980	4888
Starting Vehs	270	219	252	219
Ending Vehs	231	244	285	250
Travel Distance (mi)	3625	3561	3722	3640
Travel Time (hr)	414.0	366.0	300.3	329.3
Total Delay (hr)	314.4	268.1	197.7	229.3
Total Stops	5332	5165	5259	5170
Fuel Used (gal)	197.3	183.0	173.1	177.2

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information 1

Start Time 4:30

End Time 4:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1249	1255	1217	1227	1244	1215	1273
Vehs Exited	1207	1207	1187	1216	1244	1185	1223
Starting Vehs	230	221	201	216	214	208	208
Ending Vehs	272	269	231	227	214	238	258
Travel Distance (mi)	924	903	880	907	933	904	921
Travel Time (hr)	67.8	63.0	52.6	55.9	51.3	54.5	59.1
Total Delay (hr)	42.4	38.2	28.5	31.0	25.7	29.7	33.9
Total Stops	1394	1211	1110	1212	1236	1175	1326
Fuel Used (gal)	40.9	39.6	36.4	37.4	37.4	37.4	38.9

Interval #1 Information 1

Start Time 4:30

End Time 4:45

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1229	1215	1239	1231
Vehs Exited	1198	1200	1229	1210
Starting Vehs	270	219	252	219
Ending Vehs	301	234	262	246
Travel Distance (mi)	909	892	908	908
Travel Time (hr)	77.6	55.2	59.7	59.7
Total Delay (hr)	52.5	30.7	34.6	34.7
Total Stops	1365	1146	1261	1240
Fuel Used (gal)	43.4	37.3	38.7	38.7

Interval #2 Information 2

Start Time 4:45

End Time 5:00

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1319	1247	1266	1267	1346	1270	1295
Vehs Exited	1302	1259	1238	1210	1288	1246	1298
Starting Vehs	272	269	231	227	214	238	258
Ending Vehs	289	257	259	284	272	262	255
Travel Distance (mi)	962	931	932	914	949	910	949
Travel Time (hr)	85.8	82.8	71.1	64.2	66.0	68.9	82.4
Total Delay (hr)	59.2	57.3	45.4	39.3	40.0	43.9	56.2
Total Stops	1340	1171	1349	1351	1294	1167	1611
Fuel Used (gal)	46.2	45.2	42.3	40.2	41.4	40.9	45.3

Interval #2 Information 2

Start Time 4:45

End Time 5:00

Total Time (min) 15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	1290	1301	1305	1291
Vehs Exited	1315	1233	1273	1266
Starting Vehs	301	234	262	246
Ending Vehs	276	302	294	272
Travel Distance (mi)	947	924	960	938
Travel Time (hr)	105.2	75.3	72.9	77.5
Total Delay (hr)	79.2	49.8	46.5	51.7
Total Stops	1458	1328	1314	1338
Fuel Used (gal)	50.8	42.8	43.7	43.9

Interval #3 Information 3

Start Time 5:00

End Time 5:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1184	1224	1227	1219	1183	1153	1225
Vehs Exited	1216	1212	1224	1235	1177	1194	1210
Starting Vehs	289	257	259	284	272	262	255
Ending Vehs	257	269	262	268	278	221	270
Travel Distance (mi)	901	893	916	917	865	870	903
Travel Time (hr)	97.4	93.7	81.6	72.3	69.7	85.9	94.0
Total Delay (hr)	72.6	69.3	56.6	47.0	46.0	62.0	69.2
Total Stops	1221	1146	1403	1336	1175	1141	1425
Fuel Used (gal)	47.9	46.7	44.4	42.4	40.2	44.3	47.1

Interval #3 Information 3

Start Time 5:00

End Time 5:15

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1172	1136	1193	1192
Vehs Exited	1210	1167	1237	1207
Starting Vehs	276	302	294	272
Ending Vehs	238	271	250	258
Travel Distance (mi)	896	864	907	893
Travel Time (hr)	110.3	107.8	76.8	89.0
Total Delay (hr)	85.7	84.2	51.8	64.4
Total Stops	1400	1329	1282	1285
Fuel Used (gal)	50.7	48.9	43.1	45.6

Interval #4 Information 4

Start Time 5:15

End Time 5:30

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	1187	1207	1176	1237	1142	1229	1217
Vehs Exited	1209	1213	1174	1207	1183	1221	1241
Starting Vehs	257	269	262	268	278	221	270
Ending Vehs	235	263	264	298	237	229	246
Travel Distance (mi)	906	902	884	905	886	910	917
Travel Time (hr)	109.0	102.8	102.6	79.0	83.7	107.5	107.5
Total Delay (hr)	84.1	78.1	78.3	54.0	59.6	82.5	82.2
Total Stops	1297	1193	1486	1215	1190	1359	1417
Fuel Used (gal)	50.5	48.7	48.4	43.3	44.3	50.2	50.4

Interval #4 Information 4

Start Time 5:15

End Time 5:30

Total Time (min) 15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	1180	1160	1276	1198
Vehs Exited	1187	1187	1241	1205
Starting Vehs	238	271	250	258
Ending Vehs	231	244	285	250
Travel Distance (mi)	872	881	947	901
Travel Time (hr)	120.9	127.7	90.9	103.2
Total Delay (hr)	96.9	103.5	64.8	78.4
Total Stops	1109	1362	1402	1303
Fuel Used (gal)	52.3	54.1	47.5	49.0

Intersection: 1: Old Potomac Church Rd. & S Campus Blvd.

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	16
95th Queue (ft)	39
Link Distance (ft)	599
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: US Route 1 & S Campus Blvd.

Movement	WB	NB	SB
Directions Served	LR	R	L
Maximum Queue (ft)	84	2	28
Average Queue (ft)	23	0	8
95th Queue (ft)	59	2	28
Link Distance (ft)	1430		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150	300	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	227	372	1518	1541	1545	180	388	341	243	257	110	112
Average Queue (ft)	93	161	1073	1305	1427	150	208	181	148	165	48	45
95th Queue (ft)	195	388	1900	2008	1774	210	374	298	225	240	94	94
Link Distance (ft)			1496	1496	1496			414	414		1989	1989
Upstream Blk Time (%)			6	57	70			2	0			
Queuing Penalty (veh)			0	0	0			5	0			
Storage Bay Dist (ft)	565	565				180			400	400		
Storage Blk Time (%)	0	0	4			18		10				
Queuing Penalty (veh)	0	0	11			30		18				

Intersection: 3: US Route 1 & Hospital Center Blvd.

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	53	500	911	896	510
Average Queue (ft)	8	87	645	624	266
95th Queue (ft)	32	345	990	968	639
Link Distance (ft)		1360	1360		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	1000	500		510	
Storage Blk Time (%)	0	31	24	1	
Queuing Penalty (veh)	0	9	39	4	

Intersection: 4: Old Potomac Church Rd. /Hospital Entrance Rd. & Hospital Center Blvd.

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	UL	T	TR	L	T	TR	LTR	LT	R
Maximum Queue (ft)	90	8	3	26	17	6	88	30	60
Average Queue (ft)	24	0	0	4	1	0	36	5	27
95th Queue (ft)	63	6	2	18	13	4	72	22	52
Link Distance (ft)	414	414		2949	2949	1256	243	243	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200			140					
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 5: Courthouse Rd. & Hospital Center Blvd.

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	L	T	R
Maximum Queue (ft)	497	254	129	4	18
Average Queue (ft)	279	92	52	0	1
95th Queue (ft)	570	199	94	2	11
Link Distance (ft)	2949	2949		553	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		340		265	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Creek Ridge Dr./Site Dwy. & S Campus Blvd.

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	14	32	33
Average Queue (ft)	1	16	11
95th Queue (ft)	7	35	30
Link Distance (ft)	599	192	189
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 117