

STAFFORD ELEMENTARY SCHOOL #19

STAFFORD COUNTY, VIRGINIA

TRAFFIC IMPACT ANALYSIS

December 2023

Prepared for:

Stafford County Public Schools

TIMMONS GROUP

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1 EXECUTIVE SUMMARY

This study presents the findings of a traffic impact analysis (TIA) for the proposed development of Stafford Elementary School 19 on the existing campus of Brooke Point High School and Stafford Middle in Stafford County, VA. This TIA is based on counts completed on Thursday, September 28, 2023. The new Stafford Elementary School development includes a 1,070-student elementary school. The site is located along Black Hawk Drive, west of Courthouse Road, and south of Spartan Lane. This report addresses the associated traffic impacts on the surrounding roadway network. The study area shown in Figure 1-1 includes the following eight (8) intersections adjacent to the site:

1. Courthouse Road and Spartan Lane/Jennifer Lane (Unsignalized);
2. Spartan Lane and Spartan Lane Connector (Unsignalized);
3. Courthouse Road and Black Hawk Drive (Unsignalized);
4. Black Hawk Drive and Spartan Lane Connector (Unsignalized);
5. Black Hawk Drive and Bus Loop Entrance (Unsignalized);
6. Black Hawk Drive and Bus Loop Exit (Unsignalized);
7. Black Hawk Drive and Student Parking Lot Access (Unsignalized); and
8. Black Hawk Drive and Western High School Access/Dishpan Lane (Unsignalized).

The conceptual site plan is shown on Figure 2-1. Vehicle traffic will access the new elementary school via the existing western High School access while bus traffic will enter via the western High School Access and exit via the existing bus loop entrance.

The purpose of this analysis is to determine the impact of the proposed development on the surrounding roads where the site access points tie into the existing roadway network. Given the lack of administrative zoning action required for the development and the site generating less than 5,000 trips per day, the traffic study was scoped with Stafford County Public Schools to assist in determining any site entrance or frontage improvements required. This traffic impact analysis (TIA) has been prepared in accordance with VDOT TOSAM traffic engineering practices.

The following steps were taken to determine the potential traffic impacts associated with this project:

1. Data Collection – Traffic counts were conducted at the study intersections on Thursday, September 28, 2023 when public school was in session.
2. Traffic Growth – A 1.0% annual growth rate was applied to the study area road network based on previously approved studies in Stafford County. The growth rate was compounded annually for each future scenario. No background developments were included.
3. Trip Generation – Traffic generated by the proposed development was estimated using the 11th Edition of the Institute of Transportation Engineers' *Trip Generation Manual*. The number of students was used as the independent variable to determine the trip generation.
4. Traffic Distributions – The distribution of trips generated by the proposed development was based on the existing traffic volumes, the nature of use, the expected student population for the new elementary school, the density of surrounding residential development, and the roadway network.
5. Traffic Projections – Future traffic volumes were determined using the existing traffic counts, the 1.0% growth rate, and the trips generated by the site.
6. Traffic Analysis – The existing, background, and future traffic volumes at all existing intersections and proposed entrances were analyzed utilizing Synchro for unsignalized intersections.



1.1 PROPOSED DEVELOPMENT

The proposed development includes an elementary school that services 1,070 students. Stafford County Public Schools intends to pursue construction of the site within the next 3 years and the school will be operational by 2026. Since the exact timeline of construction and operation is not known at this time, a buildout year of 2026 was utilized to provide a conservative estimate.

To evaluate the impacts of the traffic generated by the proposed development, analyses were completed using traffic associated with the weekday AM and PM peak hour of the generator. According to Stafford County Public Schools, the elementary school starts at 8:30 AM and ends at 3:00 PM. The Stafford High School starts at 7:30 AM and ends at 2:00 PM. The AM peak hour was chosen to be 8:30 – 9:30 AM and the PM peak hour was chosen to be 2:30 PM to 3:30 PM.

As indicated in Table 1-1, on a typical weekday, the 1,070-student elementary school is anticipated to generate approximately 2,429 daily trips, 803 AM school peak hour trips, and 482 PM school peak hour trips.

Table 1-1: Trip Generation Summary

ITE CODE	AMOUNT	UNITS	ADT	WEEKDAY						
				AM PEAK HOUR			PM PEAK HOUR			
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Elementary School	525	1,070	Students	2,429	433	370	803	221	260	482

Based on the Institute of Transportation Engineers Trip Generation, 11th Edition. Assumes the AM and PM peak hours are based on the peak hours of the generator.



1.2 PRINCIPAL FINDINGS

Generally, there are no performance issues at any of the study intersections during the peak hours under existing and background conditions. All approaches operate at LOS C or better with all queues fitting within their existing storage.

With the addition of site traffic, the operational, queuing, and capacity deficiencies observed under existing/background conditions continue, with a limited number of movements absorbing a majority of the new traffic. Overall performance along the mainline Courthouse Road continues to operate at LOS B or better during both peaks. The eastbound approach of Spartan Lane at Courthouse Road worsens to LOS F in the AM peak. The eastbound approach of Black Hawk Drive at Courthouse Road worsens to LOS F in both peaks with significant queueing issues present. The southbound approach of the main Elementary School Access operates at LOS C in the AM peak and LOS B in the PM peak with significant queueing present during both peaks.

The following turn lane warrants were completed:

- Westbound right at the HS Bus Loop/Elementary School Entrance;
- Westbound right at the western High School Student Lot Access;
- Eastbound left at the western High School Student Lot Access;
- Westbound right at the eastern High School Student Lot Access;
- Westbound right at the Elementary School Bus Loop Entrance;
- Westbound right at Spartan Lane Connector; and
- Eastbound left at the Spartan Lane Connector.

As a result of the analysis, no turn lanes are warranted for any of the aforementioned movements with the exception of:

- A westbound right turn lane with 200' of storage at the HS Bus Loop/Elementary School Entrance; and
- A westbound right turn taper at the western High School Student Lot Access.

1.3 RECOMMENDATIONS

The turn lane warrant analysis recommends the installation of a westbound right turn lane along Black Hawk Drive at multiple entrances to the schools complex. Given that the existing configuration of the westbound lanes along Black Hawk Drive is a 2 lane approach with one through lane and one continuous right turn lane, there is no other recommended geometric improvement.

Based on the operational analysis, the queuing and delays associated with the additional elementary school traffic will introduce issues along Black Hawk Drive and the internal school access points but will not create any queueing or delay issues on Courthouse Road. Given that Black Hawk Drive currently operates with queuing and delay during the existing high school operations, this will extend the overall number of hours that operations are congested around the school. However, there are no operational improvements recommended at the site entrances or at off-site intersections.

It is recommended that all entrances be reviewed upon completion to ensure that bus drop off, parent drop off, student drivers, visitors, and teachers are provided with clear direction as to which entrance to utilize and to minimize operational congestion on a day-to-day basis.



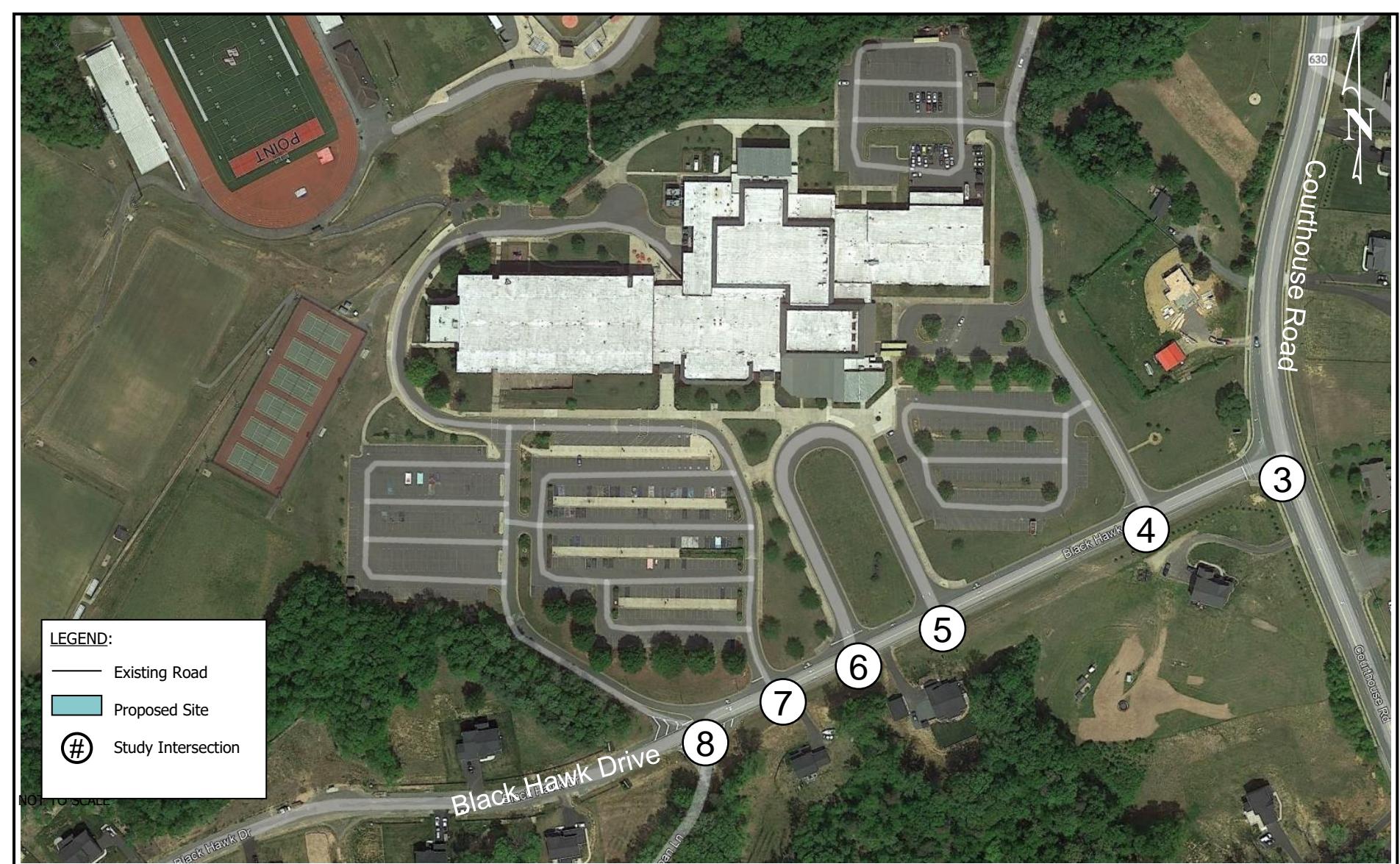
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Surrounding Roadway Network and Site Location
Elementary School 19
Stafford County, Virginia

Figure
1-1



2 BACKGROUND INFORMATION

2.1 STUDY AREA LIMITS

The study area shown in Figure 1-1 includes the following eight (8) intersections that are adjacent to the site:

1. Courthouse Road and Spartan Lane/Jennifer Lane (Unsignalized);
2. Spartan Lane and Spartan Lane Connector (Unsignalized);
3. Courthouse Road and Black Hawk Drive (Unsignalized);
4. Black Hawk Drive and Spartan Lane Connector (Unsignalized);
5. Black Hawk Drive and Bus Loop Entrance (Unsignalized);
6. Black Hawk Drive and Bus Loop Exit (Unsignalized);
7. Black Hawk Drive and Student Parking Lot Access (Unsignalized); and
8. Black Hawk Drive and Western High School Access/Dishpan Lane (Unsignalized).

DESCRIPTION OF DEVELOPMENT

The proposed development will consist of a 1,070-student elementary school. Car traffic will access the new elementary school via the existing Western High School access while bus traffic will utilize the Spartan Lane Connector/Spartan Lane intersection to enter and the existing Bus Loop Entrance to exit.

The conceptual site layout can be found in Figure 2-1.

2.2 EXISTING ROADWAY NETWORK

The existing intersection geometry for each of the eight (8) study intersections is shown on Figure 2-2. This includes the traffic control, lane geometry, and effective turn lane storage for all approaches.

Courthouse Road is a four-lane, undivided major collector road with a posted speed limit of 40 mph and a school zone speed limit of 25 mph. According to 2021 VDOT AADT traffic data, Courthouse Road services 6,100 vehicles per day in the vicinity of the site.

Black Hawk Drive is a two-lane, undivided non-VDOT classified roadway with a posted speed limit of 25 mph. According to 2021 VDOT AADT data, Black Hawk Drive services 2,100 vehicles per day.

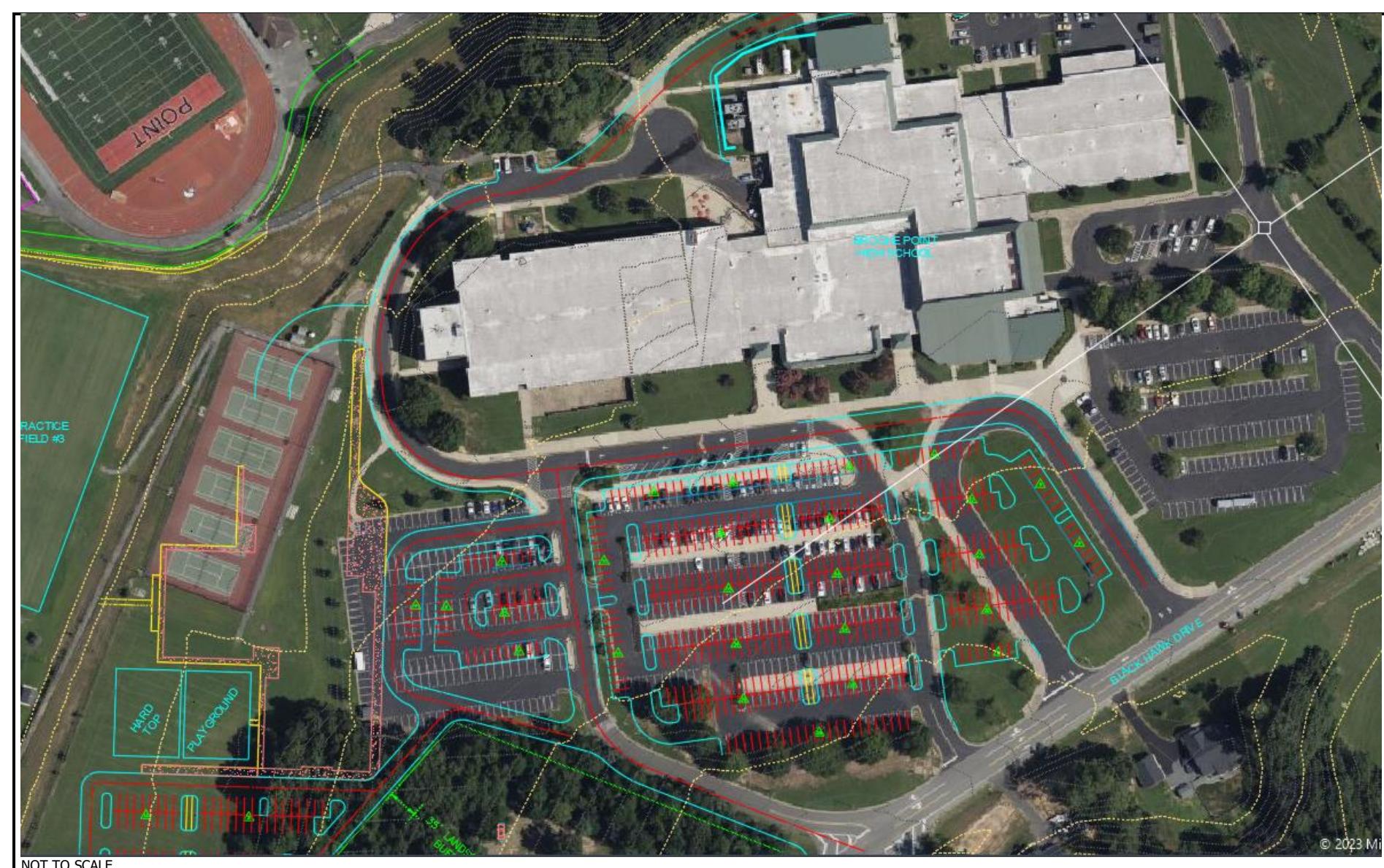
Spartan Lane is a two-lane, undivided, non-VDOT classified roadway with a posted speed limit of 25 mph. According to 2021 VDOT AADT data, Spartan Lane services 460 vehicles per day.

2.3 EXISTING TRAFFIC VOLUMES

Existing count data was obtained from a peak hour directional turning movement count at each of the two (2) study intersections noted above. The traffic counts were counted from 7:00 AM – 9:00 AM and 1:30 PM – 4:30 PM in five-minute intervals. Data collection was performed on a typical weekday when schools were in operation and no weather delays were present.

The peak hour counts included heavy vehicles by movement and pedestrian counts. The complete count data is provided in Appendix A.

The 2023 existing AM (8:30 – 9:30) and PM (2:30 – 3:30) peak hour volumes are summarized on Figure 2-3.



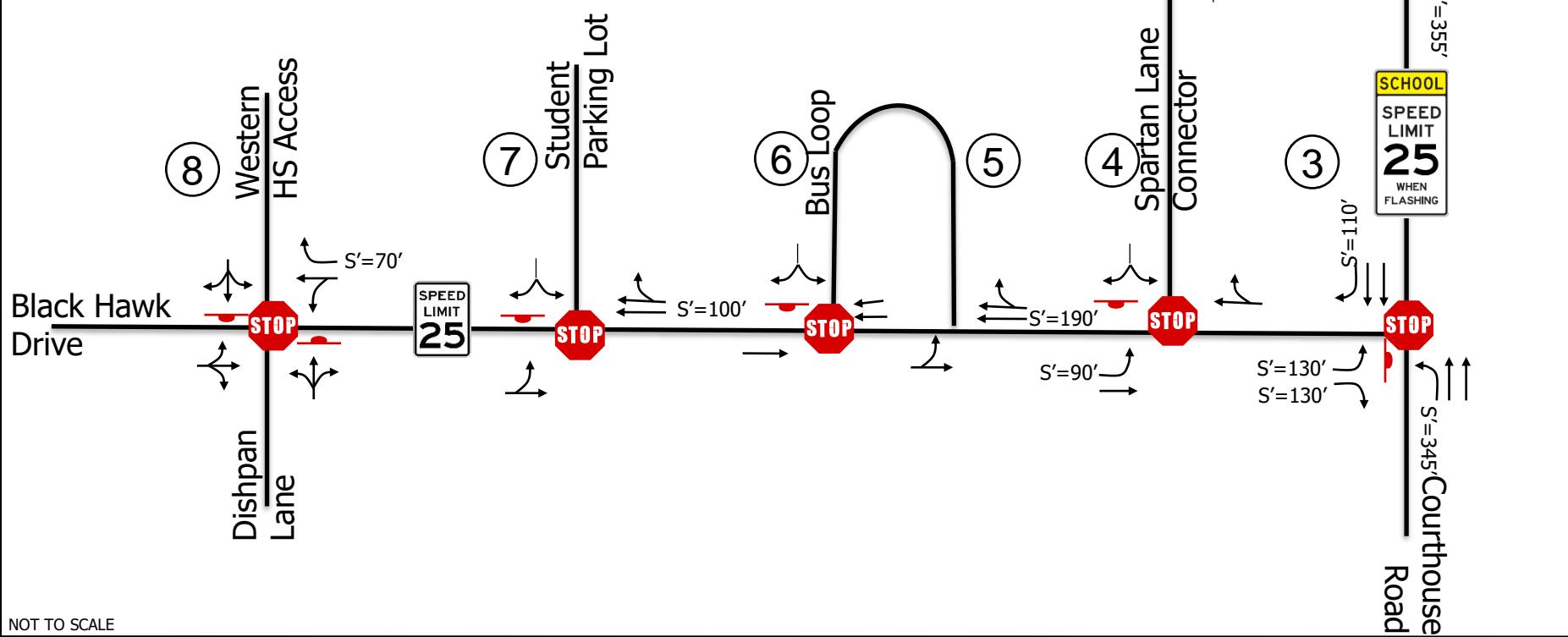
Preliminary Site Layout
Elementary School 19
Stafford County, Virginia

Figure
2-1

LEGEND:

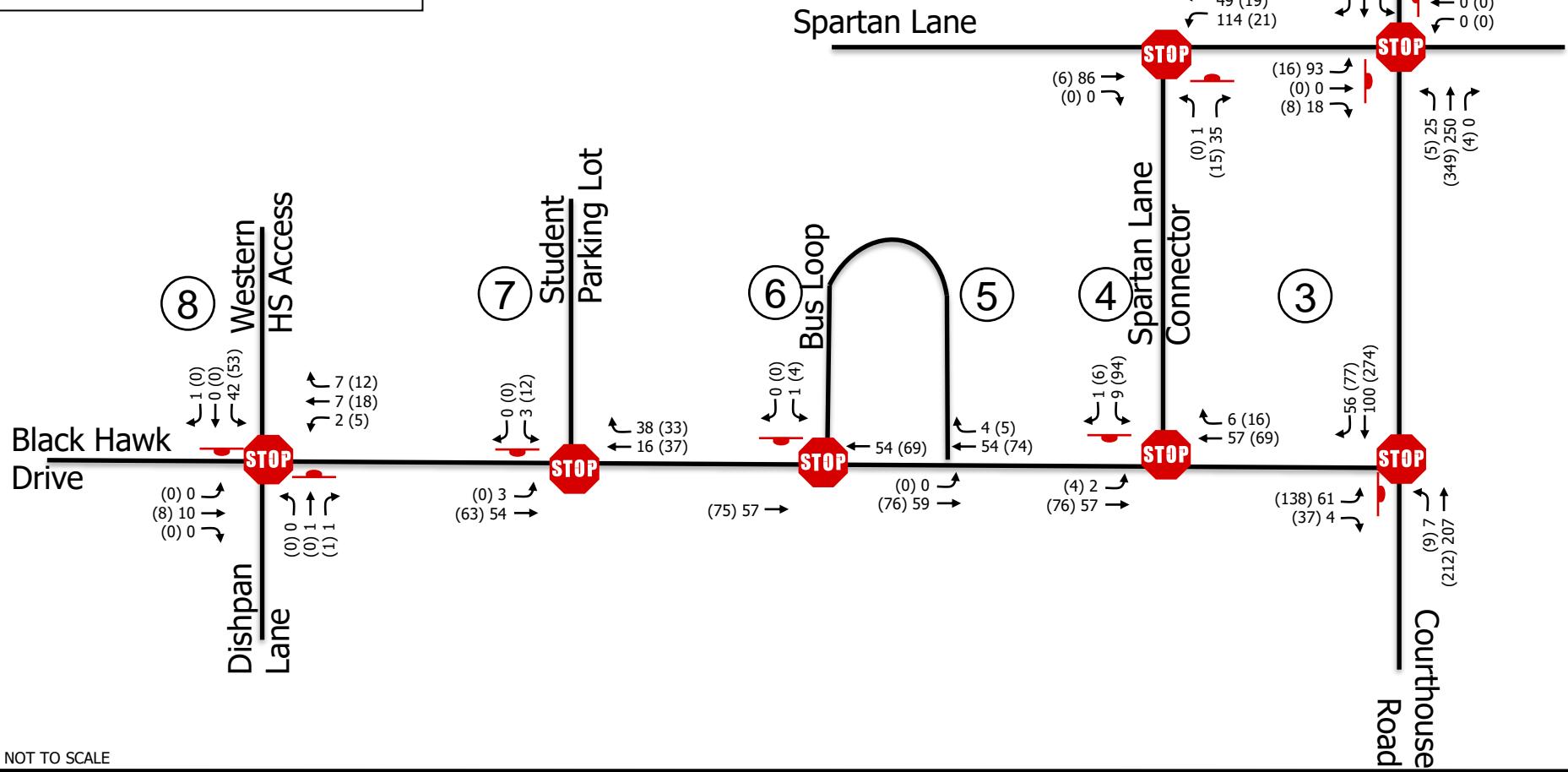
- Existing Road
- Lane Configuration
- STOP Stop Controlled Intersection
- Stop Sign Location
- S' Effective Storage Length (in ft)*

*According to TOSAM guidelines, effective storage equals the length of the full width storage plus $\frac{1}{2}$ the length of the taper



LEGEND:

- Existing Road
- ↔ Lane Configuration
- STOP Stop Controlled Intersection
- Stop Sign Location
- 00 AM Peak Hour Volumes
- (00) PM Peak Hour Volumes



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3 ANALYSIS OF EXISTING CONDITIONS

3.1 CAPACITY ANALYSES

Level of service calculations for the intersections within the study area were performed using SYNCHRO Version 11. SYNCHRO calculates delay based on techniques outlined in the Highway Capacity Manual (HCM) 6th Edition.

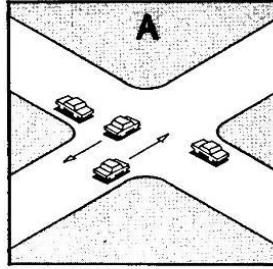
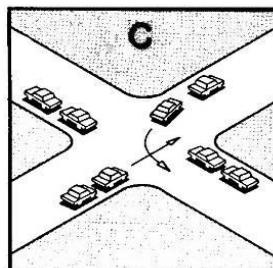
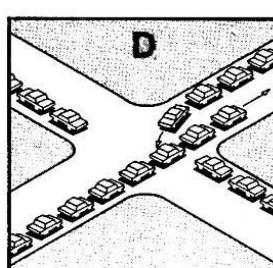
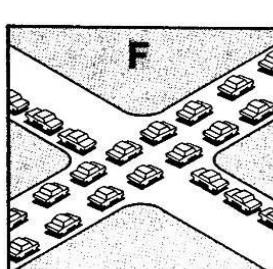
The eight (8) existing study intersections were analyzed using the 2023 existing volumes shown on Figure 2-3. These intersections, both signalized and unsignalized, were analyzed using SYNCHRO Version 11 based on HCM 6th edition methodologies with the following assumptions:

- 12-foot lane widths;
- No parking activity or bus stops;
- Peak hour factor (PHF) by total intersection was determined from the traffic counts for existing conditions analysis;
- For background analysis, the existing PHF was utilized or a PHF of 0.92, whichever was higher;
- For total analysis, the existing PHF was utilized or a PHF of 0.92, whichever was higher, with the exception of all movements entering or exiting the proposed site access road to the proposed school development. A PHF of 0.50 was utilized for these movements at the intersection of Black Hawk Drive/Courthouse Road and all study intersections on Black Hawk Drive; and
- Heavy vehicle (HV) percentages by movement as determined from the collected traffic data.

It should be noted that all references to AM and PM peak hour in this report refer to the school AM and the school PM peak hours, respectively, and not the overall roadway AM and PM peak hours.

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. The Highway Capacity Manual methodologies govern how the capacity analyses are conducted and how the results are interpreted. Levels of service (LOS) are determined for each part of the roadway network. The general standard for an overall intersection is LOS D representing acceptable results and the standard for individual traffic movements is LOS E. Table 3-1 shows in detail how each of these levels of service are interpreted.

Table 3-1: Level of Service Definitions

Level of Service	Roadway Segments or Controlled Access Highways	Intersections	
A	Free flow, low traffic density.	No vehicle waits longer than one signal indication.	
B	Delay is not unreasonable, stable traffic flow.	On a rare occasion motorists wait through more than one signal indication.	
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.	Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.	
D	Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.	Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.	
E	Actual capacity of the roadway involves delay to all motorists due to congestion.	Very long queues may create lengthy delays, especially for left-turning vehicles.	
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage area during part or all of an hour.	

SOURCE: "A Policy on Design of Urban Highways and Arterial Streets" - AASHTO, 1973 based upon material published in "Highway Capacity Manual", National Academy of Sciences, 1965.



For both unsignalized and signalized intersections, level of service is defined in terms of delay, a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Table 3-2 summarizes the delay associated with each LOS category:

Table 3-2: Unsignalized and Signalized Intersection Level of Service Criteria

Signalized Intersections		Unsignalized Intersections	
Level of Service	Control Delay per Vehicle (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	≤ 10	A	0 to 10
B	> 10 to ≤ 20	B	> 10 to ≤ 15
C	> 20 to ≤ 35	C	> 15 to ≤ 25
D	> 35 to ≤ 55	D	> 25 to ≤ 35
E	> 55 to ≤ 80	E	> 35 to ≤ 50
F	> 80	F	> 50

Source: Exhibit 16-2 and Exhibit 17-2 from TRB's "Highway Capacity Manual 2000"

3.2 2023 EXISTING TRAFFIC VOLUMES ANALYSIS

Table 3-3 summarizes the 2023 existing intersection LOS, delay, 95th percentile queue lengths (Synchro), and maximum queue lengths (SimTraffic) based on the 2023 existing intersection geometry (Figure 2-2) and 2023 existing peak hour traffic volumes shown on Figure 2-3. The corresponding SYNCHRO and SimTraffic reports are included in Appendix B. Note that the intersection numbers shown on the LOS, delay, and queue lengths summary tables correspond with the intersection numbers used in the SYNCHRO models and report figures.

As shown in Table 3-3, under 2023 existing conditions:

All 95th percentile and maximum queues are contained within the available storage at the unsignalized Intersections 1 through 8.

- At the unsignalized intersection of Courthouse Road and Spartan Lane/Jennifer Lane (Intersection 1), all movements operated at a LOS C or better during the AM and PM peak. All 95th percentile and maximum queues are contained within the available storage.
- At the unsignalized intersection of Spartan Lane and Spartan Lane Connector (Intersection 2), all movements operated at a LOS B or better during the AM and PM peak. All 95th percentile and maximum queues are contained within the available storage.
- At the unsignalized intersection of Courthouse Road and Black Hawk Drive (Intersection 3), all movements operated at a LOS C or better during the AM and PM peak. All 95th percentile and maximum queues are contained within the available storage.
- At the unsignalized intersection of Black Hawk Drive and Spartan Lane Connector (Intersection 4), all movements operated at a LOS B or better during the AM and PM peak. All 95th percentile and maximum queues are contained within the available storage.



- At the unsignalized intersections of Black Hawk Drive and the Bus Loop Entrance and Bus Loop Exit (Intersection 5 and 6), all movements operated at a LOS B or better during the AM and PM peak. All 95th percentile and maximum queues are contained within the available storage.
- At the unsignalized intersection of Black Hawk Drive and the Student Parking Lot (Intersection 7), all movements operated at a LOS A during the AM and PM peak. All 95th percentile and maximum queues are contained within the available storage.
- At the unsignalized intersection of Black Hawk Drive and Western HS Access/Dishpan Lane (Intersection 8), all movements operated at a LOS A during the AM and PM peak. All 95th percentile and maximum queues are contained within the available storage.



**Table 3-3: Intersection Level of Service, Delay, and Queue Summary
2023 Existing Traffic and Existing Geometry**

Intersection and Type of Control	Movement and Approach	Effective Turn Lane Storage (ft)	AM PEAK HOUR				PM PEAK HOUR			
			Delay ¹ (sec/veh)	LOS ¹	SYNCHRO 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	Delay ¹ (sec/veh)	LOS ¹	SYNCHRO 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)
1. Courthouse Road (N-S) and Spartan Lane (E)/Jennifer Lane (W) Unsignalized	EB L-T-R		19.1	C	63	165	13.8	B	10	58
	<i>EB Approach</i>		19.1	C	--	--	13.8	B	--	--
	WB L-T-R		9.5	A	0	50	9.4	A	0	31
	<i>WB Approach</i>		9.5	A	--	--	9.4	A	--	--
	NB Left	355	8.3	A	3	31	8.3	A	0	10
	NB Thru		0.0	A	0	0	0.0	A	0	0
	NB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>NB Approach</i>		1.1	A	--	--	0.2	A	--	--
	SB Left	165	7.9	A	0	15	8.1	A	0	24
	SB Thru		0.0	A	0	3	0.0	A	0	0
2. Spartan Lane (E-W) and Spartan Lane Connector (N) Unsignalized	SB Right	85	0.0	A	0	37	0.0	A	0	0
	<i>SB Approach</i>		0.1	A	--	--	0.2	A	--	--
	EB Thru-Right	200	0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Left-Thru		8.0	A	15	61	7.3	A	3	3
	<i>WB Approach</i>		5.8	A	--	--	4.3	A	--	--
3. Courthouse Road (N-S) and Black Hawk Drive (W) Unsignalized	NB Left-Right		10.5	B	8	79	8.4	A	3	26
	<i>NB Approach</i>		10.5	B	--	--	8.4	A	--	--
	EB Left	130	11.3	B	15	63	20.6	C	83	111
	EB Right	130	8.9	A	0	56	9.6	A	8	111
	<i>EB Approach</i>		11.2	B	--	--	18.3	B	--	--
	NB Left	345	7.9	A	0	35	8.3	A	3	36
	NB Thru		0.0	A	0	0	0.0	A	0	0
	<i>NB Approach</i>		0.4	A	--	--	0.6	A	--	--
4. Black Hawk Drive (E-W) and Spartan Lane Connector (N) Unsignalized	SB Thru		0.0	A	0	4	0.0	A	0	2
	SB Right	110	0.0	A	0	6	0.0	A	0	4
	<i>SB Approach</i>		0.0	A	--	--	0.0	A	--	--
	EB Left	90	7.5	A	0	6	7.6	A	0	12
	EB Thru		0.0	A	0	0	0.0	A	0	3
	<i>EB Approach</i>		0.3	A	--	--	0.4	A	--	--
5. Jennifer Lane (S) and Black Hawk Drive (W) Unsignalized	WB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right		9.8	A	3	32	12.5	B	30	87
	<i>SB Approach</i>		9.8	A	--	--	12.5	B	--	--



5. Black Hawk Drive (E-W) and Bus Loop Entrance (N) Unsignalized	EB Left-Thru	90	0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	0
	WB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
6. Black Hawk Drive (E-W) and Bus Loop Exit (N) Unsignalized	EB Thru		0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right		11.4	B	0	53	10.7	B	0	64
	<i>SB Approach</i>		11.4	B	--	--	10.7	B	--	--
7. Black Hawk Drive (E-W) and Student Parking Lot (N) Unsignalized	EB Left-Thru		7.4	A	0	9	0.0	A	0	0
	<i>EB Approach</i>		0.4	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	0
	WB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right		9.6	A	0	29	10.0	A	3	34
	<i>SB Approach</i>		9.6	A	--	--	10.0	A	--	--
8. Black Hawk Drive (E-W) and Western HS Access (N)/Dishpan Lane Unsignalized	EB L-T-R		0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Left-Thru		7.2	A	0	0	7.2	A	0	0
	WB Right	355	0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.8	A	--	--	0.9	A	--	--
	NB L-T-R	355	8.8	A	0	3	8.4	A	0	3
	<i>NB Approach</i>		8.8	A	--	--	8.4	A	--	--
	SB L-T-R	165	9.1	A	8	38	9.3	A	10	46
	<i>SB Approach</i>		9.1	A	--	--	9.3	A	--	--

¹ Overall intersection LOS and delay reported for signalized intersections only.



4 ANALYSIS OF BACKGROUND CONDITIONS WITHOUT DEVELOPMENT

To complete the analysis of the future background conditions (without development), the existing volumes were projected to 2026 using an annual growth rate.

4.1 FUTURE BACKGROUND TRAFFIC VOLUMES

An annual compounded growth rate of 1.0% was applied to the 2023 existing traffic volumes for the anticipated buildup period. The total background volumes (existing + 1% growth) can be found in Figure 4-1.

4.2 CAPACITY ANALYSES

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. The general standard for the overall intersection is LOS D representing acceptable results and the standard for individual traffic movements is LOS E. For detailed information about level of service definitions and criteria for unsignalized and signalized intersections, see Chapter 3 on capacity analysis.

It should be noted that all references to AM and PM peak hour in this report refer to the school AM and the school PM peak hours, respectively, and not the overall roadway AM and PM peak hours.

The eight (8) existing intersections used in the 2023 analysis above were analyzed using the 2026 background volumes shown on Figure 4-1. These unsignalized intersections were analyzed using SYNCHRO Version 11 based on HCM 6th methodologies using the assumptions listed in Chapter 3.

4.3 2026 BACKGROUND TRAFFIC VOLUMES ANALYSIS

Table 4-1 summarizes the 2026 background intersection LOS, delay, 95th percentile queue lengths (Synchro), and maximum queue lengths (SimTraffic) based on the 2023 existing intersection geometry (Figure 2-2) and 2026 background peak hour traffic volumes shown on Figure 4-1. The corresponding SYNCHRO and SimTraffic reports are included in Appendix C. Note that the intersection numbers shown on the LOS, delay, and queue lengths summary tables correspond with the intersection numbers used in the SYNCHRO models and report figures.

As shown in Table 4-1, under 2026 background conditions:

All 95th percentile and maximum queues are contained within the available storage at the unsignalized Intersections 1 through 8.

- At the unsignalized intersection of Courthouse Road and Spartan Lane/Jennifer Lane (Intersection 1), all movements continue to operate at a LOS C or better during the AM and PM peak.
- At the unsignalized intersection of Spartan Lane and Spartan Lane Connector (Intersection 2), all movements continue to operate at a LOS B or better during the AM and PM peak.
- At the unsignalized intersection of Courthouse Road and Black Hawk Drive (Intersection 3), all movements continue to operate at a LOS C or better during the AM and PM peak.
- At the unsignalized intersection of Black Hawk Drive and Spartan Lane Connector (Intersection 4), all movements continue to operate at a LOS B or better during the AM and PM peak.



- At the unsignalized intersections of Black Hawk Drive and the Bus Loop Entrance and Bus Loop Exit (Intersections 5 and 6), all movements continue to operate at a LOS B or better during the AM and PM peak.
- At the unsignalized intersections of Black Hawk Drive and Student Parking Lot (Intersection 7), all movements continue to operate at a LOS A during the AM and PM peak.
- At the unsignalized intersection of Black Hawk Drive and the Western HS Access/Dishpan Lane (Intersection 8), all movements continue to operate at a LOS A during the AM and PM peak.

**Table 4-2: Intersection Level of Service, Delay, and Queue Summary
2026 Background Traffic Volumes**

Intersection and Type of Control	Movement and Approach	Effective Turn Lane Storage (ft)	AM PEAK HOUR				PM PEAK HOUR			
			Delay ¹ (sec/veh)	LOS ¹	SYNCHRO 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	Delay ¹ (sec/veh)	LOS ¹	SYNCHRO 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)
1. Courthouse Road (N-S) and Spartan Lane (E)/Jennifer Lane (W) Unsignalized	EB L-T-R		18.0	C	58	147	14.1	B	10	57
	<i>EB Approach</i>		18.0	C	--	--	14.1	B	--	--
	WB L-T-R		9.3	A	0	48	9.5	A	0	35
	<i>WB Approach</i>		9.3	A	--	--	9.5	A	--	--
	NB Left	355	8.2	A	3	26	8.3	A	0	14
	NB Thru		0.0	A	0	0	0.0	A	0	0
	NB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>NB Approach</i>		1.3	A	--	--	0.2	A	--	--
	SB Left	165	7.8	A	0	10	8.1	A	0	24
	SB Thru		0.0	A	0	5	0.0	A	0	0
2. Spartan Lane (E-W) and Spartan Lane Connector (N) Unsignalized	SB Right	85	0.0	A	0	34	0.0	A	0	0
	<i>SB Approach</i>		0.1	A	--	--	0.2	A	--	--
	EB Thru-Right	200	0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Left-Thru		7.9	A	15	51	7.3	A	3	6
	<i>WB Approach</i>		6.4	A	--	--	4.9	A	--	--
3. Courthouse Road (N-S) and Black Hawk Drive (W) Unsignalized	NB Left-Right		10.1	B	8	70	8.4	A	3	19
	<i>NB Approach</i>		10.1	B	--	--	8.4	A	--	--
	EB Left	130	11.3	B	18	71	20.1	C	83	102
	EB Right	130	8.9	A	0	56	9.6	A	8	91
	<i>EB Approach</i>		11.2	B	--	--	17.9	B	--	--
	NB Left	345	7.9	A	0	25	8.3	A	3	30
	NB Thru		0.0	A	0	0	0.0	A	0	0
	<i>NB Approach</i>		0.5	A	--	--	0.6	A	--	--
	SB Thru		0.0	A	0	0	0.0	A	0	2
4. Black Hawk Drive (E-W) and Spartan Lane Connector (N) Unsignalized	SB Right	110	0.0	A	0	2	0.0	A	0	2
	<i>SB Approach</i>		0.0	A	--	--	0.0	A	--	--
	EB Left	90	7.5	A	0	3	7.6	A	0	3
	EB Thru		0.0	A	0	0	0.0	A	0	11
	<i>EB Approach</i>		0.2	A	--	--	0.4	A	--	--
4. Black Hawk Drive (E-W) and Spartan Lane Connector (N) Unsignalized	WB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right	9.9	A	3	30		12.7	B	33	103
	<i>SB Approach</i>	9.9	A	--	--		12.7	B	--	--

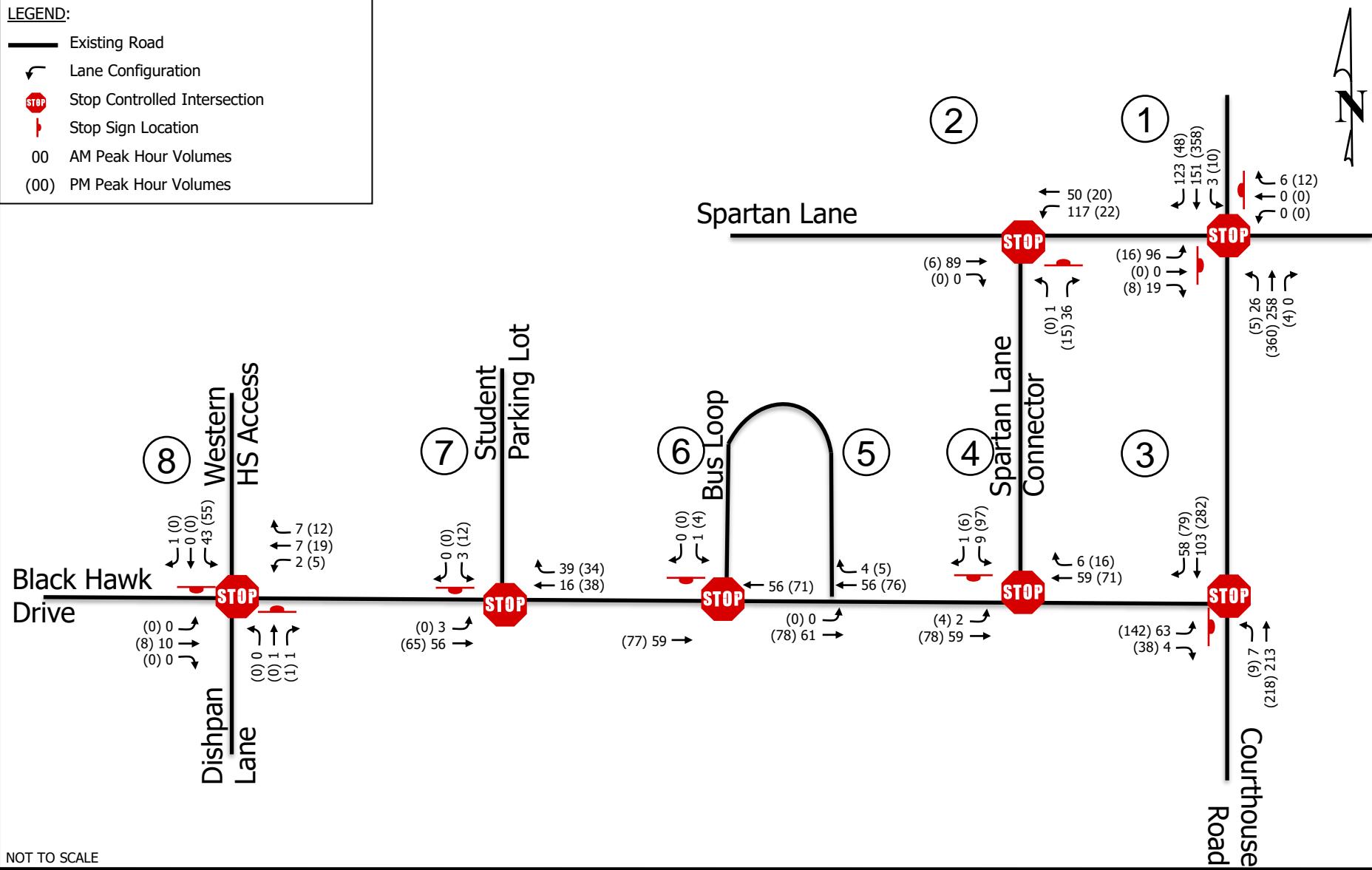


5. Black Hawk Drive (E-W) and Bus Loop Entrance (N) Unsignalized	EB Left-Thru	90	0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	0
	WB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
6. Black Hawk Drive (E-W) and Bus Loop Exit (N) Unsignalized	EB Thru		0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right		11.5	B	0	57	10.8	B	0	49
7. Black Hawk Drive (E-W) and Student Parking Lot (N) Unsignalized	EB Left-Thru		7.4	A	0	9	0.0	A	0	0
	<i>EB Approach</i>		0.4	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	0
	WB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
8. Black Hawk Drive (E-W) and Western HS Access (N)/Dishpan Lane Unsignalized	SB Left-Right		9.6	A	0	26	10.0	A	3	32
	<i>SB Approach</i>		9.6	A	--	--	10.0	A	--	--
	EB L-T-R		0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Left-Thru		7.2	A	0	3	7.2	A	0	0
	WB Right	355	0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.7	A	--	--	0.8	A	--	--
	NB L-T-R	355	8.8	A	0	3	8.4	A	0	2
	<i>NB Approach</i>		8.8	A	--	--	8.4	A	--	--
	SB L-T-R	165	9.1	A	8	46	9.3	A	10	55
	<i>SB Approach</i>		9.1	A	--	--	9.3	A	--	--

¹ Overall intersection LOS and delay reported for signalized intersections only.

LEGEND:

- Existing Road
- ↔ Lane Configuration
- STOP Stop Controlled Intersection
- Stop Sign Location
- 00 AM Peak Hour Volumes
- (00) PM Peak Hour Volumes



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5 TRIP GENERATION

Site traffic for the proposed Stafford County Elementary School #19 development was estimated based on the site characteristics and subsequently distributed to the surrounding roadway network.

5.1 SITE TRIP GENERATION

To evaluate the impacts of the traffic generated by the proposed development, analyses were completed using traffic associated with the weekday AM and PM peak hour of the generator. According to Stafford County Public Schools, the elementary school starts at 8:30 AM and ends at 3:00 PM.

As indicated in Table 5-1, on a typical weekday, the 964-student elementary school is anticipated to generate approximately 2,429 daily trips, 803 AM school peak hour trips, and 482 PM school peak hour trips.

The proposed development will be a 1,070-student elementary school. Stafford County Public Schools intends to pursue construction of the site within the next 3 years and the school will be operational by 2026.

Trip generation was completed using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th edition*.

Table 5-1: Trip Generation Summary

	ITE CODE	AMOUNT	UNITS	WEEKDAY						
				ADT	AM PEAK HOUR			PM PEAK HOUR		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Elementary School	525	1,070	Students	2,429	433	370	803	221	260	482

Based on the Institute of Transportation Engineers Trip Generation, 11th Edition. Assumes the AM and PM peak hours are based on the peak hours of the school day.

5.2 TRIP DISTRIBUTIONS

The distribution of external trips generated by the high school was estimated based on the existing travel patterns, the nature of the use, the 2023 traffic volumes, the expected draw area of the proposed elementary school, and local knowledge.

The following global distributions were assumed:

- 80% to/from the north on Courthouse Road and
- 20% to/from the south on Courthouse Road

Figure 5-2 shows the intersection trip distributions.



5.3 TRAFFIC ASSIGNMENT

The trip distribution percentages for the external trips from Figures 5-2 was applied to the trip generation table (Table 5-1) to distribute the external trips to the surrounding roadway network. The resulting site generated external trips are shown on Figure 5-3 for the proposed elementary school.

To generate the 2026 total future traffic volumes, the external site trips shown on Figure 5-3 were added to the background 2026 traffic volumes shown on Figure 4-1. The new future geometry can be found in Figure 5-1.

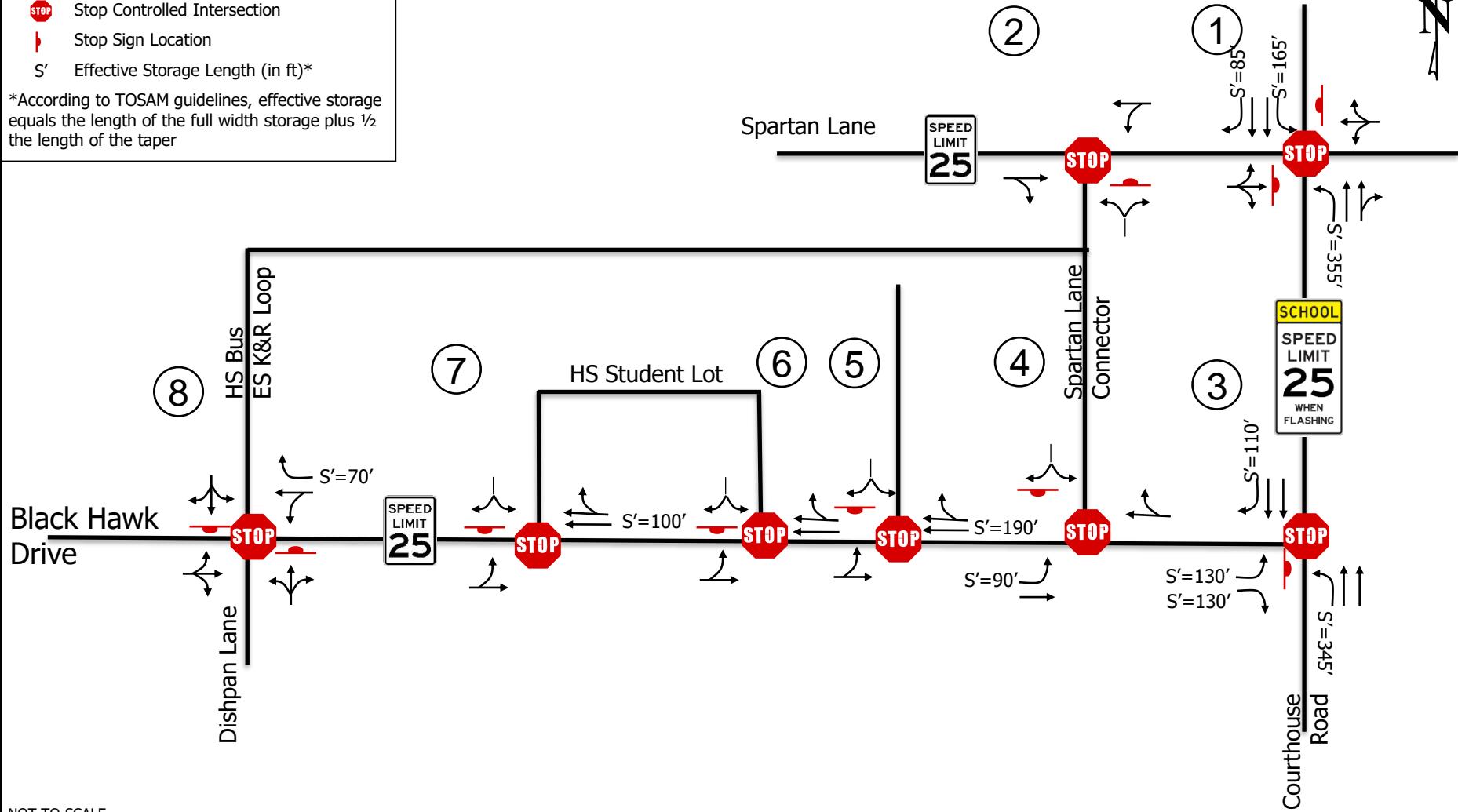
5.4 TRIP REDISTRIBUTION

With the new site layout and reassignment of the existing site driveways as shown in Figure 5-1, some traffic will be rerouted. The rerouted traffic can be found in Figure 5-4.

LEGEND:

- Existing Road
- Lane Configuration
- STOP Stop Controlled Intersection
- Stop Sign Location
- S' Effective Storage Length (in ft)*

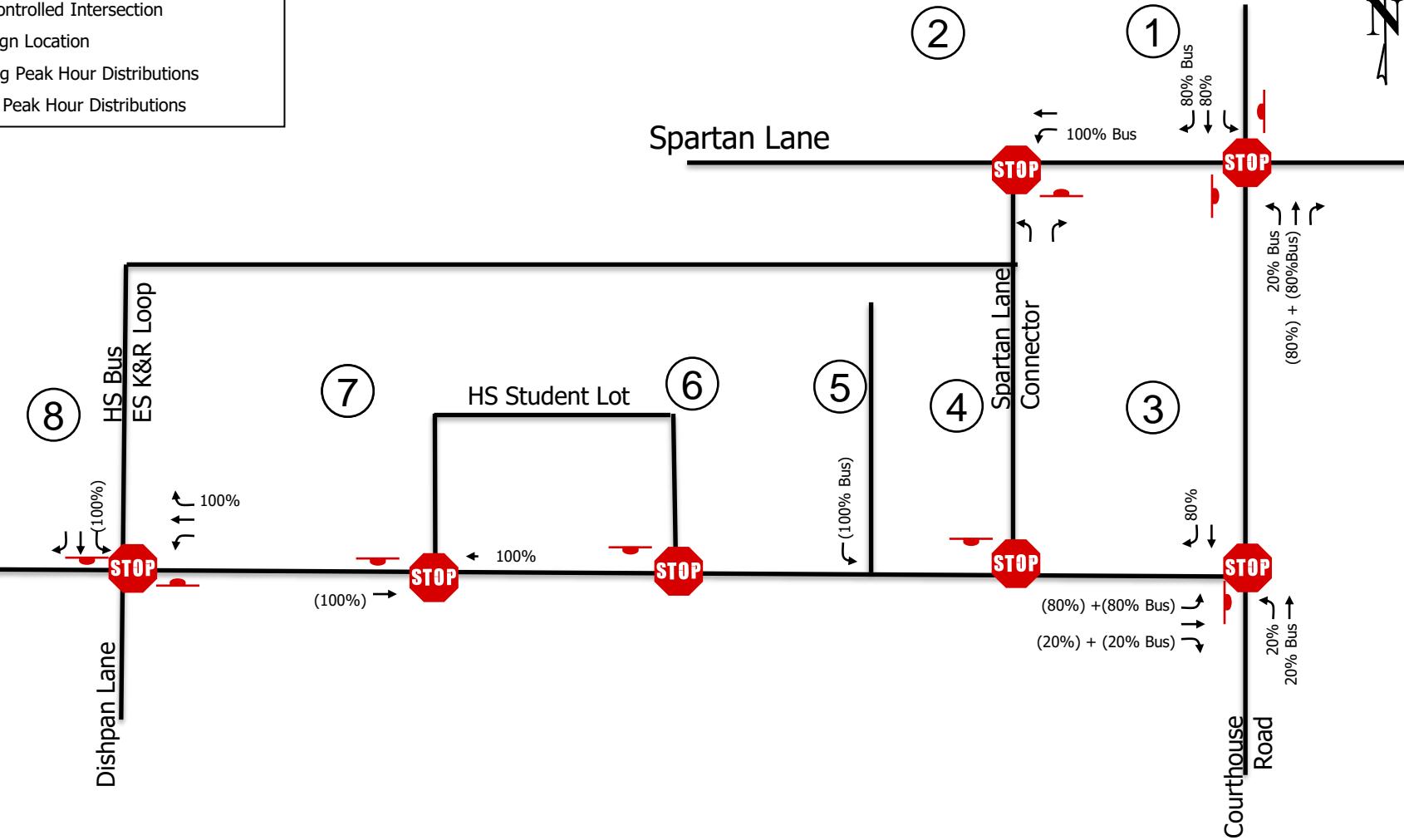
*According to TOSAM guidelines, effective storage equals the length of the full width storage plus ½ the length of the taper



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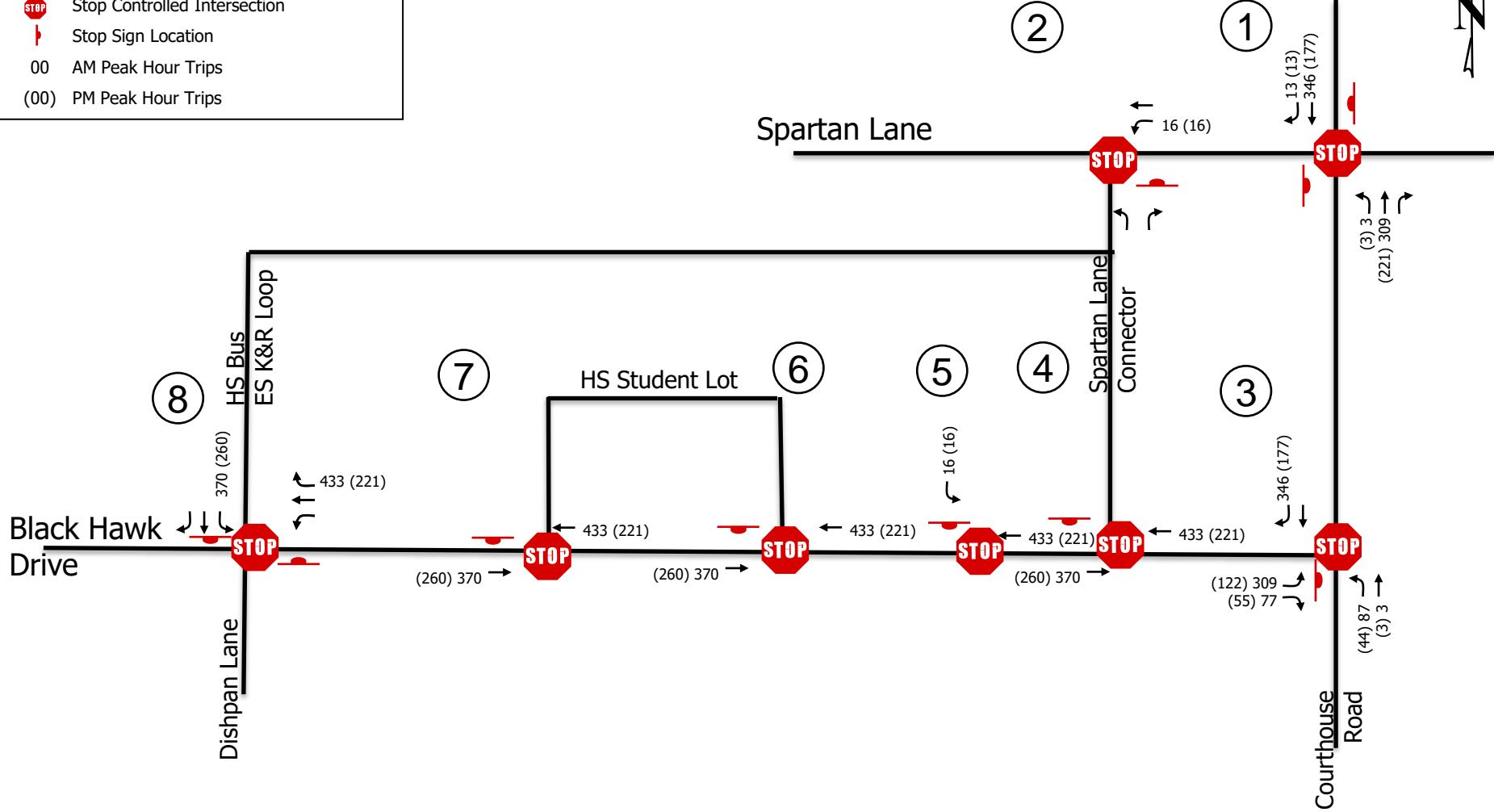
- Existing Road
- ↔ Lane Configuration
- STOP Stop Controlled Intersection
- Stop Sign Location
- 00% Entering Peak Hour Distributions
- (00%) Exiting Peak Hour Distributions



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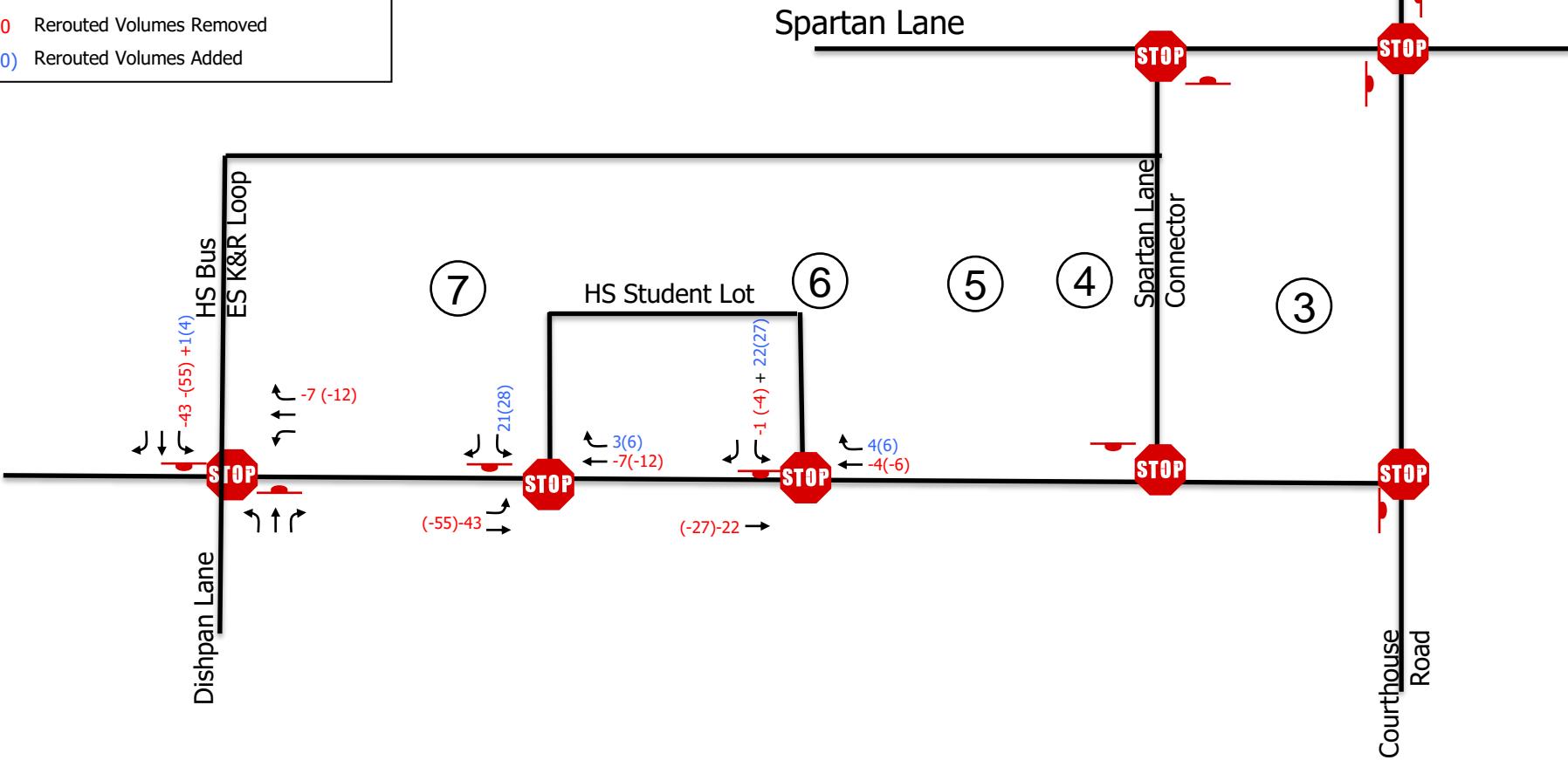
- Existing Road
- ↔ Lane Configuration
- STOP Stop Controlled Intersection
- Stop Sign Location
- 00 AM Peak Hour Trips
- (00) PM Peak Hour Trips



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LEGEND:

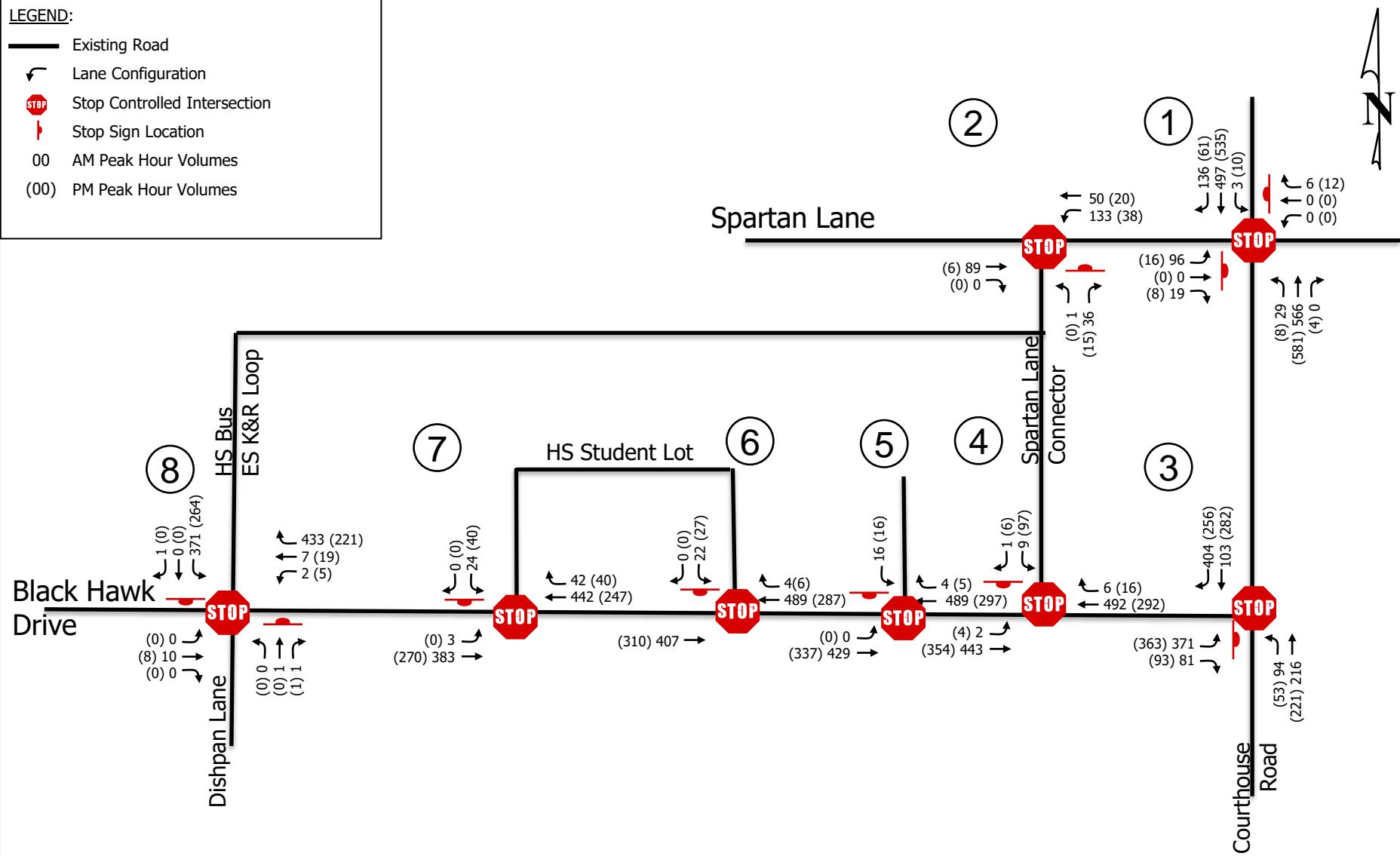
- Existing Road
- ↷ Lane Configuration
- STOP Stop Controlled Intersection
- ↑ Stop Sign Location
- 00 AM Peak Hour Volumes
- (00) PM Peak Hour Volumes
- 00 Rerouted Volumes Removed
- (00) Rerouted Volumes Added



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LEGEND:

- Existing Road
- ↔ Lane Configuration
- Stop Controlled Intersection
- Stop Sign Location
- 00 AM Peak Hour Volumes
- (00) PM Peak Hour Volumes



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6 ANALYSIS OF FUTURE CONDITIONS WITH DEVELOPMENT

To complete the analysis of 2026 future conditions (with the proposed development), the estimated site trips were added to the background 2026 traffic volumes. The projected volumes were then used to complete the capacity analysis. The 2026 total future volumes can be found in Figure 5-5.

6.1 CAPACITY ANALYSES

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. Levels of service (LOS) are determined for each part of the roadway network. The general standard for the overall intersection is LOS D representing acceptable results and the standard for individual traffic movements is LOS E. For detailed information about level of service definitions and criteria for unsignalized and signalized intersections, see Chapter 3 on capacity analyses.

The eight (8) existing intersections used in the existing 2023 and background 2026 analysis above were analyzed using the 2026 total future volumes shown on Figure 5-5 and the future geometry shown in Figure 5-1. These intersections, both signalized and unsignalized, were analyzed using SYNCHRO Version 11 based on HCM 6th edition methodologies using the assumptions listed in Chapter 3.

It should be noted that all references to AM and PM peak hour in this report refer to the school AM and the school PM peak hours, respectively, and not the overall roadway AM and PM peak hours.

For all the future analyses, the minimum peak hour factor is the existing PHF or 0.92, whichever is higher, with the exception of the following movements that directly correlate to traffic entering the school site and were analyzed with a PHF of 0.50 to simulate the condensed school peak.



6.2 2026 TOTAL FUTURE TRAFFIC VOLUMES ANALYSIS

Table 7-1 summarizes the 2026 total future intersection LOS, delay, 95th percentile queue lengths (Synchro), and maximum queue lengths (SimTraffic) based on the proposed intersection geometry and 2026 total future traffic volumes shown on Figure 5-6 and the geometry shown on Figure 5-1. The corresponding SYNCHRO and SimTraffic reports are included in Appendix D. Note that the intersection numbers shown on the LOS, delay, and queue length summary tables correspond with the intersection numbers used in the SYNCHRO models and report figures.

As shown in Table 4-1, under 2026 future conditions:

All 95th percentile and maximum queues are contained within the available storage at the unsignalized intersections 1 through 8.

- At the unsignalized intersection of Courthouse Road and Spartan Lane/Jennifer Lane (Intersection 1), the eastbound approach operates at LOS F during the AM peak with a delay of 168.3 sec/vehicle and a maximum queue of 251 feet (approx. 10 vehicles) and LOS C in the PM peak with a delay of 20.8 sec/vehicle and a maximum queue of 54 feet (approx. 2 vehicles).
- At the unsignalized intersection of Spartan Lane and Spartan Lane Connector (Intersection 2), all movements continue to operate at a LOS B or better during the AM and PM peak and all queues are less than 4 vehicles.
- At the unsignalized intersection of Courthouse Road and Black Hawk Drive (Intersection 3), the northbound and southbound movements continue to operate at a LOS B or better during the AM and PM peaks. The eastbound approach operates at LOS F during the AM peak with a delay of 557.7 sec/vehicle and a maximum queue of 207 feet (approx. 8 vehicles) and in the PM peak with a delay of 407.9 sec/vehicle and a maximum queue of 195 feet (approx. 8 vehicles). The eastbound and westbound queues exceed the existing provided storage with 95th percentile queues of 1,480 feet in the AM peak and 1,298 feet in the PM peak and create conflict with the subsequent intersections along Black Hawk Drive.
- At the unsignalized intersection of Black Hawk Drive and Spartan Lane Connector (Intersection 4), the eastbound and westbound movements continue to operate at a LOS B or better during the AM and PM peaks. The southbound approach operates at LOS F during the AM peak with a delay of 59.9 sec/vehicle and a maximum queue of 152 feet (approx. 7 vehicles) and LOS F in the PM peak with a delay of 169.2 sec/vehicle and maximum queue of 1326 feet (approx. 54 vehicles). The southbound queues and delay are due to the extended eastbound queues from intersection 3.
- At the unsignalized intersection of Black Hawk Drive and the Bus Loop Entrance (Intersection 5), the eastbound and westbound movements continue to operate at a LOS B or better. The southbound approach operates at LOS F during the AM peak with a delay of 86.5 sec/vehicle and a maximum queue of 129 feet (approx. 5 vehicles) and LOS D in the PM peak with a delay of 30.3 sec/vehicle and a maximum queue of 168 feet (approx. 7 vehicles). The queueing and delay of the southbound approach are impacted by the eastbound queue of vehicles leaving the school at Intersection 3.



- At the unsignalized intersection of Black Hawk Drive and the eastern Student Lot Access (Intersection 6), all movements continue to operate at a LOS C or better during the AM and PM peak. The southbound approach has a maximum queue of 284 feet (approx. 12 vehicles) in the AM peak and 154 feet (approx. 7 vehicles) in the PM peak.
- At the unsignalized intersection of Black Hawk Drive and the western Student Lot Access (Intersection 7) the eastbound and westbound movements continue to operate at a LOS A. The southbound approach operates at LOS F during the AM peak with a delay of 83.6 sec/vehicle and a maximum queue of 284 feet (approx. 11 vehicles) and LOS D in the PM peak with a delay of 28.6 sec/vehicle and a maximum queue of 154 feet (approx. 6 vehicles)
- At the unsignalized intersection of Black Hawk Drive and the Elementary School Access/Western High School Access (Intersection 8), the eastbound, westbound, and northbound approaches continue to operate at LOS A during both peaks with maximum queues of approximately one vehicle. The southbound approach operates at LOS C during the AM peak with a delay of 19.9 sec/vehicle and a maximum queue of 2,131 feet (approx. 86 vehicles) and LOS B during the PM peak with a delay of 13.4 sec/vehicle and a maximum queue of 378 feet (approx. 16 vehicles).

Table 7-1: Intersection Level of Service, Delay, and Queue Summary 2026 Total Future Traffic Volumes – Synchro

Intersection and Type of Control	Movement and Approach	Effective Turn Lane Storage (ft)	AM PEAK HOUR				PM PEAK HOUR			
			Delay ¹ (sec/veh)	LOS ¹	SYNCHRO 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	Delay ¹ (sec/veh)	LOS ¹	SYNCHRO 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)
1. Courthouse Road (N-S) and Spartan Lane (E)/Jennifer Lane (W) Unsignalized	EB L-T-R		168.3	F	293	251	20.8	C	15	54
	<i>EB Approach</i>		168.3	F	--	--	20.8	C	--	--
	WB L-T-R		10.6	B	0	51	10.3	B	3	34
	<i>WB Approach</i>		10.6	B	--	--	10.3	B	--	--
	NB Left	355	9.7	A	5	26	9.0	A	3	17
	NB Thru		0.0	A	0	0	0.0	A	0	0
	NB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>NB Approach</i>		0.8	A	--	--	0.2	A	--	--
	SB Left	165	8.7	A	0	18	8.8	A	0	26
	SB Thru		0.0	A	0	3	0.0	A	0	0
	SB Right	85	0.0	A	0	55	0.0	A	0	7
	<i>SB Approach</i>		0.0	A	--	--	0.1	A	--	--
2. Spartan Lane (E-W) and Spartan Lane Connector (N) Unsignalized	EB Thru-Right	200	0.0	A	0	0	0.0	A	0	0
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Left-Thru		7.9	A	15	60	7.3	A	3	3
	<i>WB Approach</i>		6.6	A	--	--	5.7	A	--	--
	NB Left-Right		10.1	B	8	88	8.4	A	3	23
	<i>NB Approach</i>		10.1	B	--	--	8.4	A	--	--
3. Courthouse Road (N-S) and Black Hawk Drive (W) Unsignalized	EB Left	130	677.4	F	1480	124	509.8	F	1298	124
	EB Right	130	9.7	A	15	207	10.3	B	20	195
	<i>EB Approach</i>		557.7	F	--	--	407.9	F	--	--
	NB Left	345	12.5	B	30	221	10.1	B	10	77
	NB Thru		0.0	A	0	37	0.0	A	0	0
	<i>NB Approach</i>		5.6	A	--	--	3.1	A	--	--
	SB Thru		0.0	A	0	12	0.0	A	0	4
	SB Right	110	0.0	A	0	71	0.0	A	0	33
	<i>SB Approach</i>		0.0	A	--	--	0.0	A	--	--
4. Black Hawk Drive (E-W) and Spartan Lane Connector (N) Unsignalized	EB Left	90	10.2	B	0	60	8.8	A	0	64
	EB Thru		0.0	A	0	294	0.0	A	0	294
	<i>EB Approach</i>		0.0	A	--	--	0.1	A	--	--
	WB Thru-Right		0.0	A	0	0	0.0	A	0	2
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right		59.9	F	20	152	169.2	F	268	1326
	<i>SB Approach</i>		59.9	F	--	--	169.2	F	--	--



5. Black Hawk Drive (E-W) and Bus Loop (N) Unsignalized	EB Left-Thru	90	0.0	A	0	164	0.0	A	0	155
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	0
	WB Thru-Right		0.0	A	0	0	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right		86.5	F	43	129	30.3	D	18	168
	<i>SB Approach</i>		86.5	F	--	--	30.3	D	--	--
6. Black Hawk Drive (E-W) and Student Parking Lot (N) Unsignalized	EB Left-Thru		0.0	A	0	132	0.0	A	0	122
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	7
	WB Thru-Right		0.0	A	0	18	0.0	A	0	11
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right		19.9	C	8	123	14.3	B	5	68
	<i>SB Approach</i>		19.9	C	--	--	14.3	B	--	--
7. Black Hawk Drive (E-W) and Student Parking Lot (N) Unsignalized	EB Left-Thru		10.0	A	0	96	0.0	A	0	77
	<i>EB Approach</i>		0.1	A	--	--	0.0	A	--	--
	WB Thru		0.0	A	0	0	0.0	A	0	7
	WB Thru-Right		0.0	A	0	56	0.0	A	0	44
	<i>WB Approach</i>		0.0	A	--	--	0.0	A	--	--
	SB Left-Right		83.6	F	60	284	28.6	D	38	154
	<i>SB Approach</i>		83.6	F	--	--	28.6	D	--	--
8. Black Hawk Drive (E-W) and Western HS Access (N)/Dishpan Lane Unsignalized	EB L-T-R		0.0	A	0	39	0.0	A	0	13
	<i>EB Approach</i>		0.0	A	--	--	0.0	A	--	--
	WB Left-Thru		7.2	A	0	6	7.2	A	0	0
	WB Right		0.0	A	0	24	0.0	A	0	0
	<i>WB Approach</i>		0.0	A	--	--	0.1	A	--	--
	NB L-T-R		13.2	B	0	4	8.4	A	0	2
	<i>NB Approach</i>		13.2	B	--	--	8.4	A	--	--
9. Black Hawk Drive (E-W) and Western HS Access (N)/Dishpan Lane Signalized	SB L-T-R		19.9	C	195	2131	13.4	B	88	378
	<i>SB Approach</i>		19.9	C	--	--	13.4	B	--	--

¹ Overall intersection LOS and delay reported for signalized intersections only.



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7 TURN LANE WARRANT ANALYSIS

Using the appropriate nomographs from Appendix F of the *Roadway Design Manual*, the following turn lane warrants were completed:

- Westbound right at the HS Bus Loop/Elementary School Entrance;
- Westbound right at the western High School Student Lot Access;
- Eastbound left at the western High School Student Lot Access;
- Westbound right at the eastern High School Student Lot Access;
- Westbound right at the Elementary School Bus Loop Entrance;
- Westbound right at Spartan Lane Connector; and
- Eastbound left at the Spartan Lane Connector.

As a result of the analysis, no turn lanes are warranted for any of the aforementioned movements with the exception of:

- A westbound right turn lane with 200' of storage at the HS Bus Loop/Elementary School Entrance; and
- A westbound right turn taper at the western High School Student Lot Access.

The nomographs can be found in Appendix E.

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8 CONCLUSIONS

Analyses were performed for the 2023 existing, the 2026 background volumes (including all background growth), and the 2026 total volumes, which includes site traffic generated by the Stafford County Elementary School #19 development. The following represents the findings and recommendations.

8.1 PRINCIPAL FINDINGS

Generally, there are no performance issues at any of the study intersections during the peak hours under existing and background conditions. All approaches operate at LOS C or better with all queues fitting within their existing storage.

With the addition of site traffic, the operational, queuing, and capacity deficiencies observed under existing/background conditions continue, with a limited number of movements absorbing a majority of the new traffic. Overall performance along the mainline Courthouse Road continues to operate at LOS B or better during both peaks. The eastbound approach of Spartan Lane at Courthouse Road worsens to LOS F in the AM peak. The eastbound approach of Black Hawk Drive at Courthouse Road worsens to LOS F in both peaks with significant queueing issues present. The southbound approach of the main Elementary School Access operates at LOS C in the AM peak and LOS B in the PM peak with significant queueing present during both peaks.

The following turn lane warrants were completed:

- Westbound right at the HS Bus Loop/Elementary School Entrance;
- Westbound right at the western High School Student Lot Access;
- Eastbound left at the western High School Student Lot Access;
- Westbound right at the eastern High School Student Lot Access;
- Westbound right at the Elementary School Bus Loop Entrance;
- Westbound right at Spartan Lane Connector; and
- Eastbound left at the Spartan Lane Connector.

As a result of the analysis, no turn lanes are warranted for any of the aforementioned movements with the exception of:

- A westbound right turn lane with 200' of storage at the HS Bus Loop/Elementary School Entrance; and
- A westbound right turn taper at the western High School Student Lot Access.



8.2 RECOMMENDATIONS

The turn lane warrant analysis recommends the installation of a westbound right turn lane along Black Hawk Drive at multiple entrances to the schools complex. Given that the existing configuration of the westbound lanes along Black Hawk Drive is a 2 lane approach with one through lane and one continuous right turn lane, there is no other recommended geometric improvement.

Based on the operational analysis, the queuing and delays associated with the additional elementary school traffic will introduce issues along Black Hawk Drive and the internal school access points but will not create any queueing or delay issues on Courthouse Road. Given that Black Hawk Drive currently operates with queuing and delay during the existing high school operations, this will extend the overall number of hours that operations are congested around the school. However, there are no operational improvements recommended at the site entrances or at off-site intersections.

It is recommended that all entrances be reviewed upon completion to ensure that bus drop off, parent drop off, student drivers, visitors, and teachers are provided with clear direction as to which entrance to utilize and to minimize operational congestion on a day-to-day basis.



Appendix A

Traffic Count Data



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TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Entrance)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Bus Entrance Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	7	44	0	0	51	23	0	0	0	23	74
07:05 AM	0	0	0	0	0	5	78	0	0	83	41	0	0	0	41	124
07:10 AM	0	0	0	0	0	9	78	0	0	87	43	0	0	0	43	130
07:15 AM	0	0	0	0	0	4	83	0	0	87	53	0	0	0	53	140
07:20 AM	0	0	0	0	0	6	90	0	0	96	49	0	0	0	49	145
07:25 AM	0	0	0	0	0	6	85	0	0	91	64	0	0	0	64	155
07:30 AM	0	0	0	0	0	0	29	0	0	29	53	0	0	0	53	82
07:35 AM	0	0	0	0	0	0	13	0	0	13	16	0	0	0	16	29
07:40 AM	0	0	0	0	0	0	18	0	0	18	7	0	0	0	7	25
07:45 AM	0	0	0	0	0	1	10	0	0	11	18	0	0	0	18	29
07:50 AM	0	0	0	0	0	1	11	0	0	12	6	0	0	0	6	18
07:55 AM	0	0	0	0	0	0	9	0	0	9	15	0	0	0	15	24
Total	0	0	0	0	0	39	548	0	0	587	388	0	0	0	388	975
08:00 AM	0	0	0	0	0	0	7	1	0	8	5	0	0	0	5	13
08:05 AM	0	0	0	0	0	0	4	0	0	4	6	0	0	0	6	10
08:10 AM	0	0	0	0	0	0	3	0	0	3	6	0	0	0	6	9
08:15 AM	0	0	0	1	1	1	11	0	0	12	7	0	0	0	7	20
08:20 AM	0	0	0	0	0	0	1	0	0	1	6	0	0	0	6	7
08:25 AM	0	0	0	0	0	0	6	0	0	6	3	0	0	0	3	9
08:30 AM	0	0	0	0	0	0	5	0	0	5	7	0	0	0	7	12
08:35 AM	0	0	0	0	0	0	4	0	0	4	6	0	0	0	6	10
08:40 AM	0	0	0	0	0	0	2	0	0	2	3	0	0	0	3	5
08:45 AM	0	0	0	0	0	0	6	0	0	6	5	0	0	0	5	11
08:50 AM	0	0	0	0	0	0	9	0	0	9	6	0	0	0	6	15
08:55 AM	0	0	0	0	0	0	6	0	0	6	5	0	0	0	5	11
Total	0	0	0	1	1	1	64	1	0	66	65	0	0	0	65	132
09:00 AM	0	0	0	0	0	1	7	0	0	8	7	0	0	0	7	15
09:05 AM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	3
09:10 AM	0	0	0	0	0	1	7	0	0	8	10	0	0	0	10	18
09:15 AM	0	0	0	0	0	1	2	0	0	3	4	0	0	0	4	7
09:20 AM	0	0	0	0	0	1	2	0	0	3	2	0	0	0	2	5
09:25 AM	0	0	0	0	0	0	3	0	0	3	2	0	0	0	2	5
09:30 AM	0	0	0	0	0	2	4	0	0	6	5	0	0	0	5	11
09:35 AM	0	0	0	0	0	0	3	0	0	3	2	0	0	0	2	5
09:40 AM	0	0	0	0	0	0	2	0	0	2	3	0	0	0	3	5
09:45 AM	0	0	0	0	0	1	4	0	0	5	1	0	0	0	1	6



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Entrance)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Bus Entrance Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
09:50 AM	0	0	0	0	0	1	3	0	0	4	7	0	0	0	7	11
09:55 AM	0	0	0	0	0	0	5	0	0	5	3	0	0	0	3	8
Total	0	0	0	0	0	8	43	0	0	51	48	0	0	0	48	99
Grand Total	0	0	0	1	1	48	655	1	0	704	501	0	0	0	501	1206
Apprch %	0	0	0	100		6.8	93	0.1	0		100	0	0	0		
Total %	0	0	0	0.1	0.1	4	54.3	0.1	0	58.4	41.5	0	0	0	41.5	
Cars +	0	0	0	1	1	1	651	1	0	653	456	0	0	0	456	1110
% Cars +	0	0	0	100	100	2.1	99.4	100	0	92.8	91	0	0	0	91	92
Trucks	0	0	0	0	0	47	4	0	0	51	45	0	0	0	45	96
% Trucks	0	0	0	0	0	97.9	0.6	0	0	7.2	9	0	0	0	9	8



TRAFFIC DATA COLLECTION

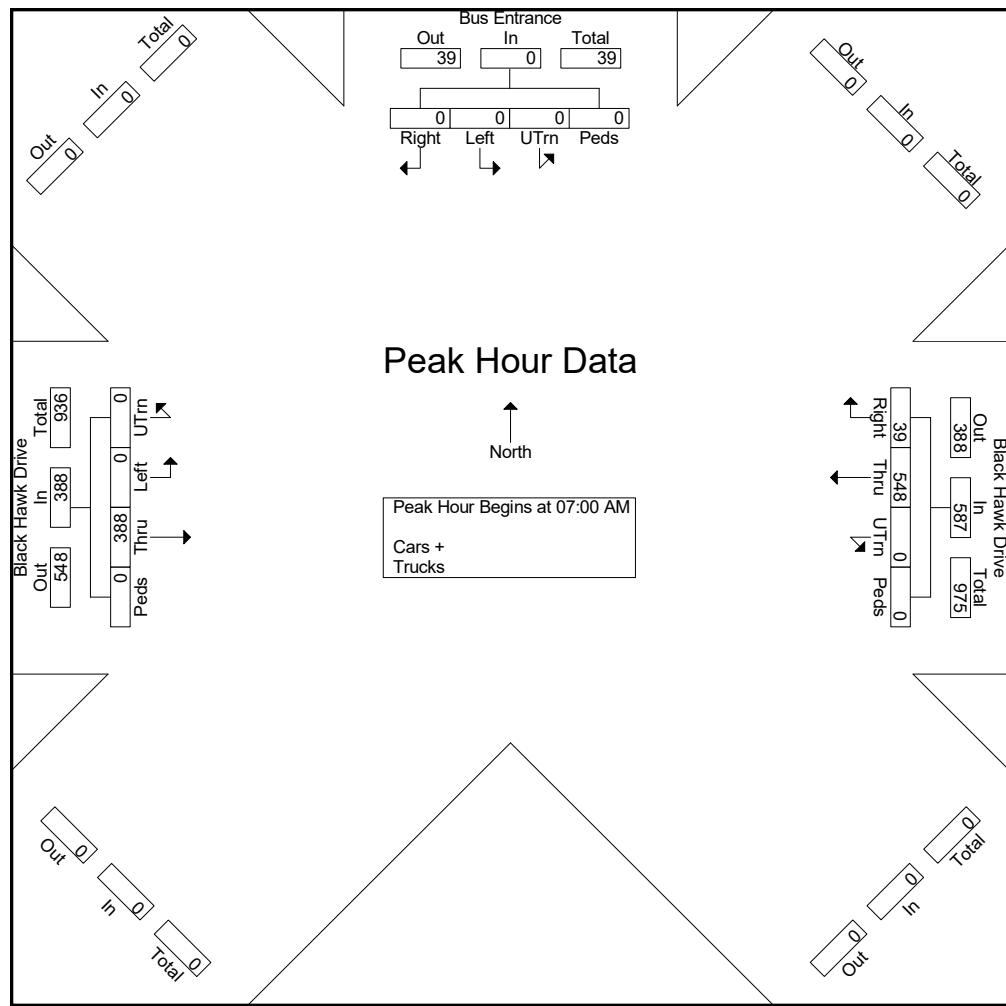
File Name : Stafford(Black Hawk and Bus Entrance)
 Site Code :
 Start Date : 9/28/2023
 Page No : 3

Start Time	Bus Entrance Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	0	0	0	0	0	7	44	0	0	51	23	0	0	0	23	74
07:05 AM	0	0	0	0	0	5	78	0	0	83	41	0	0	0	41	124
07:10 AM	0	0	0	0	0	9	78	0	0	87	43	0	0	0	43	130
07:15 AM	0	0	0	0	0	4	83	0	0	87	53	0	0	0	53	140
07:20 AM	0	0	0	0	0	6	90	0	0	96	49	0	0	0	49	145
07:25 AM	0	0	0	0	0	6	85	0	0	91	64	0	0	0	64	155
07:30 AM	0	0	0	0	0	0	29	0	0	29	53	0	0	0	53	82
07:35 AM	0	0	0	0	0	0	13	0	0	13	16	0	0	0	16	29
07:40 AM	0	0	0	0	0	0	18	0	0	18	7	0	0	0	7	25
07:45 AM	0	0	0	0	0	1	10	0	0	11	18	0	0	0	18	29
07:50 AM	0	0	0	0	0	1	11	0	0	12	6	0	0	0	6	18
07:55 AM	0	0	0	0	0	0	9	0	0	9	15	0	0	0	15	24
Total Volume	0	0	0	0	0	39	548	0	0	587	388	0	0	0	388	975
% App. Total	0	0	0	0	0	6.6	93.4	0	0	100	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.361	.507	.000	.000	.510	.505	.000	.000	.000	.505	.524



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Entrance)
Site Code :
Start Date : 9/28/2023
Page No : 4





TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Entrance)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Bus Entrance Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
01:30 PM	0	0	0	0	0	1	5	0	0	6	2	0	0	0	2	8
01:35 PM	0	0	0	2	2	2	5	0	0	7	3	0	0	0	3	12
01:40 PM	0	0	0	0	0	3	18	0	0	21	4	0	0	0	4	25
01:45 PM	0	0	0	2	2	5	20	0	0	25	4	0	0	0	4	31
01:50 PM	0	0	0	0	0	2	13	0	0	15	5	0	0	0	5	20
01:55 PM	0	0	0	0	0	1	19	1	0	21	5	0	0	0	5	26
Total	0	0	0	4	4	14	80	1	0	95	23	0	0	0	23	122
02:00 PM	0	0	0	0	0	0	11	0	0	11	54	0	0	0	54	65
02:05 PM	0	0	0	0	0	1	2	0	0	3	51	0	0	0	51	54
02:10 PM	0	0	0	0	0	1	19	0	1	21	78	0	0	0	78	99
02:15 PM	0	0	0	0	0	0	14	0	0	14	39	0	0	0	39	53
02:20 PM	0	0	0	0	0	0	5	0	0	5	15	0	0	0	15	20
02:25 PM	0	0	0	0	0	1	6	0	0	7	14	0	0	0	14	21
02:30 PM	0	0	0	0	0	1	6	0	0	7	12	0	0	0	12	19
02:35 PM	0	0	0	0	0	1	5	0	0	6	4	0	0	0	4	10
02:40 PM	0	0	0	0	0	0	5	0	0	5	10	0	0	0	10	15
02:45 PM	0	0	0	0	0	0	6	0	0	6	5	0	0	0	5	11
02:50 PM	0	0	0	0	0	0	6	0	0	6	2	0	0	0	2	8
02:55 PM	0	0	0	0	0	1	9	0	0	10	3	0	0	0	3	13
Total	0	0	0	0	0	6	94	0	1	101	287	0	0	0	287	388
03:00 PM	0	0	0	0	0	1	7	0	0	8	7	0	0	0	7	15
03:05 PM	0	0	0	0	0	0	6	0	0	6	12	0	0	0	12	18
03:10 PM	0	0	0	0	0	0	6	0	0	6	5	0	0	0	5	11
03:15 PM	0	0	0	0	0	1	6	0	0	7	6	0	0	0	6	13
03:20 PM	0	0	0	0	0	0	6	0	0	6	6	0	0	0	6	12
03:25 PM	0	0	0	0	0	0	6	0	0	6	4	0	0	0	4	10
03:30 PM	0	0	0	0	0	0	6	0	0	6	3	0	0	0	3	9
03:35 PM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	4
03:40 PM	0	0	0	0	0	0	9	0	0	9	7	0	0	0	7	16
03:45 PM	0	0	0	0	0	0	9	0	0	9	6	0	0	0	6	15
03:50 PM	0	0	0	0	0	0	4	0	0	4	5	0	0	0	5	9
03:55 PM	0	0	0	0	0	0	16	0	0	16	4	0	0	0	4	20
Total	0	0	0	0	0	2	84	0	0	86	66	0	0	0	66	152
04:00 PM	0	0	0	0	0	0	11	0	0	11	21	1	0	0	22	33
04:05 PM	0	0	0	0	0	1	5	0	0	6	14	0	0	0	14	20



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Entrance)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Bus Entrance Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					Int. Total
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	
04:10 PM	0	0	0	0	0	0	6	0	0	6	15	0	0	0	15	21
04:15 PM	0	0	0	0	0	0	6	0	0	6	4	0	0	0	4	10
04:20 PM	0	0	0	0	0	1	6	0	0	7	6	0	0	0	6	13
04:25 PM	0	0	0	0	0	0	13	0	0	13	6	0	0	0	6	19
Grand Total	0	0	0	4	4	24	305	1	1	331	442	1	0	0	443	778
Apprch %	0	0	0	100		7.3	92.1	0.3	0.3		99.8	0.2	0	0		
Total %	0	0	0	0.5	0.5	3.1	39.2	0.1	0.1	42.5	56.8	0.1	0	0	56.9	
Cars +	0	0	0	4	4	4	301	1	1	307	404	1	0	0	405	716
% Cars +	0	0	0	100	100	16.7	98.7	100	100	92.7	91.4	100	0	0	91.4	92
Trucks	0	0	0	0	0	20	4	0	0	24	38	0	0	0	38	62
% Trucks	0	0	0	0	0	83.3	1.3	0	0	7.3	8.6	0	0	0	8.6	8



TRAFFIC DATA COLLECTION

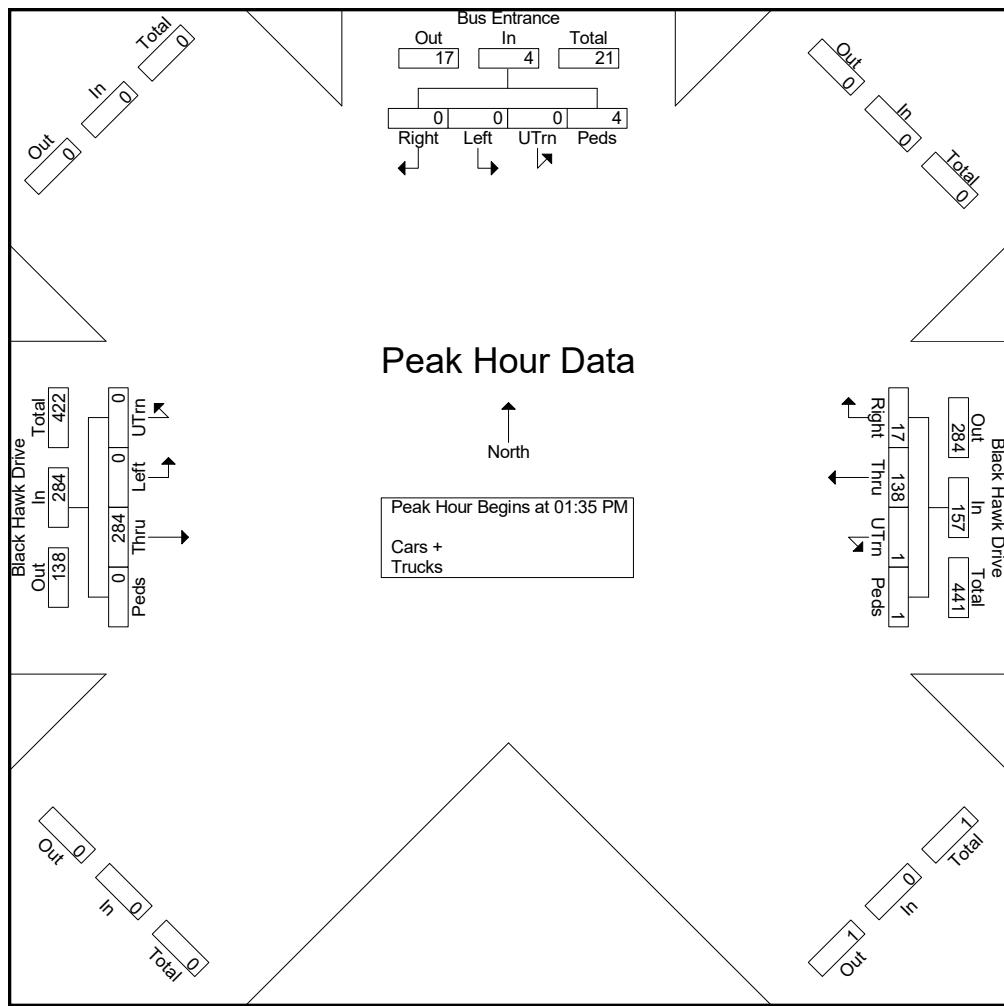
File Name : Stafford(Black Hawk and Bus Entrance)
 Site Code :
 Start Date : 9/28/2023
 Page No : 3

Start Time	Bus Entrance Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 01:30 PM to 04:25 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 01:35 PM																
01:35 PM	0	0	0	2	2	2	5	0	0	7	3	0	0	0	3	12
01:40 PM	0	0	0	0	0	3	18	0	0	21	4	0	0	0	4	25
01:45 PM	0	0	0	2	2	5	20	0	0	25	4	0	0	0	4	31
01:50 PM	0	0	0	0	0	2	13	0	0	15	5	0	0	0	5	20
01:55 PM	0	0	0	0	0	1	19	1	0	21	5	0	0	0	5	26
02:00 PM	0	0	0	0	0	0	11	0	0	11	54	0	0	0	54	65
02:05 PM	0	0	0	0	0	1	2	0	0	3	51	0	0	0	51	54
02:10 PM	0	0	0	0	0	1	19	0	1	21	78	0	0	0	78	99
02:15 PM	0	0	0	0	0	0	14	0	0	14	39	0	0	0	39	53
02:20 PM	0	0	0	0	0	0	5	0	0	5	15	0	0	0	15	20
02:25 PM	0	0	0	0	0	1	6	0	0	7	14	0	0	0	14	21
02:30 PM	0	0	0	0	0	1	6	0	0	7	12	0	0	0	12	19
Total Volume	0	0	0	4	4	17	138	1	1	157	284	0	0	0	284	445
% App. Total	0	0	0	100		10.8	87.9	0.6	0.6		100	0	0	0		
PHF	.000	.000	.000	.167	.167	.283	.575	.083	.083	.523	.303	.000	.000	.000	.303	.375



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Entrance)
Site Code :
Start Date : 9/28/2023
Page No : 4





TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Exit)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Bus Exit Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
07:00 AM	0	7	0	0	7	0	43	0	0	43	17	0	0	0	17	67
07:05 AM	0	2	0	0	2	0	78	0	0	78	38	0	0	0	38	118
07:10 AM	0	6	0	0	6	0	77	0	0	77	37	0	0	0	37	120
07:15 AM	0	9	0	0	9	0	82	0	0	82	43	0	0	0	43	134
07:20 AM	0	1	0	0	1	0	91	0	0	91	48	0	0	0	48	140
07:25 AM	0	6	0	0	6	0	82	1	0	83	61	0	0	0	61	150
07:30 AM	0	3	0	0	3	0	30	0	0	30	50	0	0	0	50	83
07:35 AM	0	2	0	0	2	0	14	0	0	14	14	0	0	0	14	30
07:40 AM	0	0	0	0	0	0	18	0	0	18	7	0	0	0	7	25
07:45 AM	0	1	0	0	1	0	10	0	0	10	17	0	0	0	17	28
07:50 AM	0	0	0	0	0	0	11	0	0	11	6	0	0	0	6	17
07:55 AM	0	1	0	0	1	0	9	0	0	9	14	0	0	0	14	24
Total	0	38	0	0	38	0	545	1	0	546	352	0	0	0	352	936
08:00 AM	0	0	0	0	0	0	7	0	0	7	6	0	0	0	6	13
08:05 AM	0	0	0	1	1	0	4	0	0	4	5	0	0	0	5	10
08:10 AM	0	0	0	0	0	0	3	0	0	3	6	0	0	0	6	9
08:15 AM	0	0	0	0	0	0	11	0	0	11	7	0	0	0	7	18
08:20 AM	0	0	0	0	0	0	1	0	0	1	6	0	0	0	6	7
08:25 AM	0	0	0	0	0	0	5	1	0	6	3	0	0	0	3	9
08:30 AM	0	0	0	0	0	0	5	0	0	5	7	0	0	0	7	12
08:35 AM	0	0	0	0	0	0	4	0	0	4	6	0	0	0	6	10
08:40 AM	0	0	0	0	0	0	2	0	0	2	3	0	0	0	3	5
08:45 AM	0	0	0	0	0	0	6	0	0	6	5	0	0	0	5	11
08:50 AM	0	0	0	0	0	0	9	0	0	9	6	0	0	0	6	15
08:55 AM	0	0	0	0	0	0	6	0	0	6	5	0	0	0	5	11
Total	0	0	0	1	1	0	63	1	0	64	65	0	0	0	65	130
09:00 AM	0	1	0	0	1	0	7	0	0	7	6	0	0	0	6	14
09:05 AM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	3
09:10 AM	0	0	0	0	0	0	7	0	0	7	9	0	0	0	9	16
09:15 AM	0	0	0	0	0	0	2	0	0	2	4	0	0	0	4	6
09:20 AM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	4
09:25 AM	0	0	0	0	0	0	3	0	0	3	2	0	0	0	2	5
09:30 AM	0	0	0	0	0	0	4	0	0	4	5	0	0	0	5	9
09:35 AM	0	0	0	0	0	0	3	0	0	3	2	0	0	0	2	5
09:40 AM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	4
09:45 AM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	5



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Exit)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Bus Exit Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
09:50 AM	0	0	0	0	0	0	3	0	0	3	7	0	0	0	7	10
09:55 AM	0	0	0	0	0	0	5	0	0	5	3	0	0	0	3	8
Total	0	1	0	0	1	0	43	0	0	43	45	0	0	0	45	89
Grand Total	0	39	0	1	40	0	651	2	0	653	462	0	0	0	462	1155
Apprch %	0	97.5	0	2.5		0	99.7	0.3	0		100	0	0	0		
Total %	0	3.4	0	0.1	3.5	0	56.4	0.2	0	56.5	40	0	0	0	40	
Cars +	0	1	0	1	2	0	648	2	0	650	457	0	0	0	457	1109
% Cars +	0	2.6	0	100	5	0	99.5	100	0	99.5	98.9	0	0	0	98.9	96
Trucks	0	38	0	0	38	0	3	0	0	3	5	0	0	0	5	46
% Trucks	0	97.4	0	0	95	0	0.5	0	0	0.5	1.1	0	0	0	1.1	4



TRAFFIC DATA COLLECTION

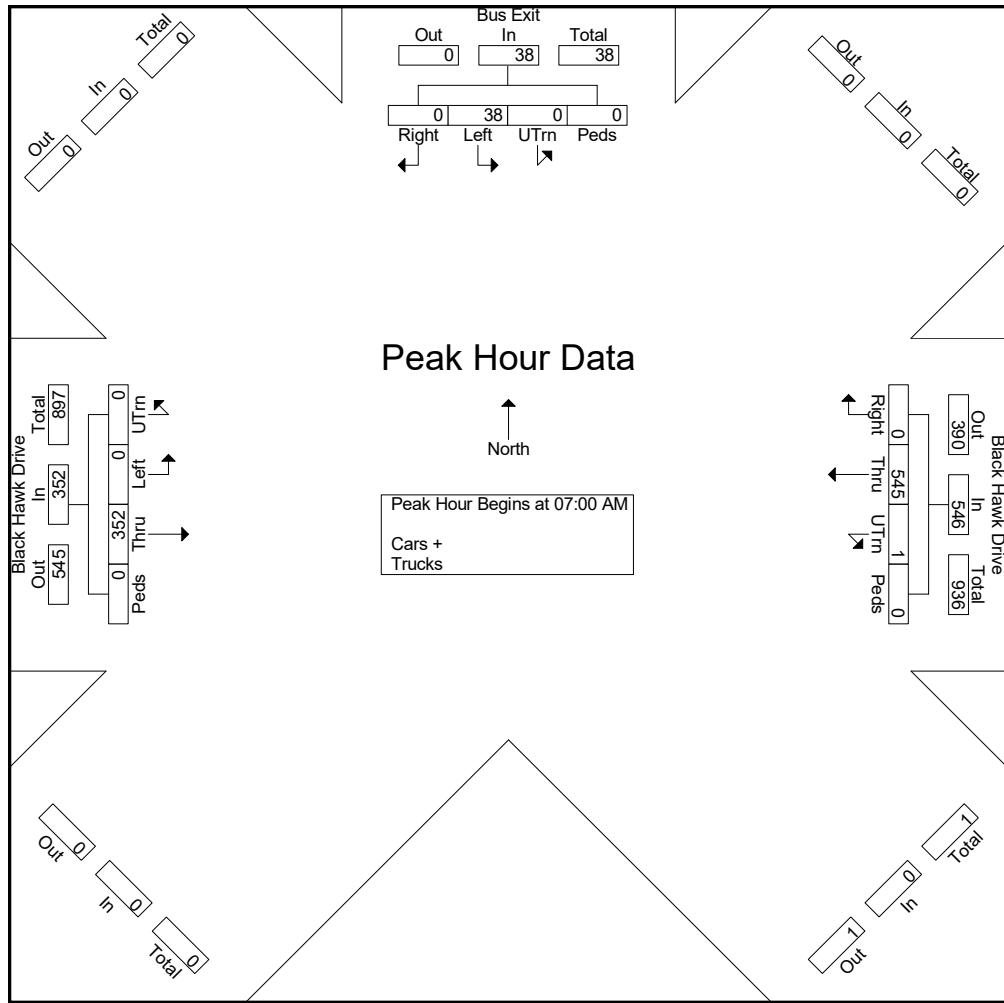
File Name : Stafford(Black Hawk and Bus Exit)
 Site Code :
 Start Date : 9/28/2023
 Page No : 3

Start Time	Bus Exit Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	0	7	0	0	7	0	43	0	0	43	17	0	0	0	17	67
07:05 AM	0	2	0	0	2	0	78	0	0	78	38	0	0	0	38	118
07:10 AM	0	6	0	0	6	0	77	0	0	77	37	0	0	0	37	120
07:15 AM	0	9	0	0	9	0	82	0	0	82	43	0	0	0	43	134
07:20 AM	0	1	0	0	1	0	91	0	0	91	48	0	0	0	48	140
07:25 AM	0	6	0	0	6	0	82	1	0	83	61	0	0	0	61	150
07:30 AM	0	3	0	0	3	0	30	0	0	30	50	0	0	0	50	83
07:35 AM	0	2	0	0	2	0	14	0	0	14	14	0	0	0	14	30
07:40 AM	0	0	0	0	0	0	18	0	0	18	7	0	0	0	7	25
07:45 AM	0	1	0	0	1	0	10	0	0	10	17	0	0	0	17	28
07:50 AM	0	0	0	0	0	0	11	0	0	11	6	0	0	0	6	17
07:55 AM	0	1	0	0	1	0	9	0	0	9	14	0	0	0	14	24
Total Volume	0	38	0	0	38	0	545	1	0	546	352	0	0	0	352	936
% App. Total	0	100	0	0	0	0	99.8	0.2	0	0	100	0	0	0	0	0
PHF	.000	.352	.000	.000	.352	.000	.499	.083	.000	.500	.481	.000	.000	.000	.481	.520



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Exit)
Site Code :
Start Date : 9/28/2023
Page No : 4





TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Exit)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Bus Exit Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
01:30 PM	0	0	0	0	0	1	4	0	0	5	2	0	0	0	2	7
01:35 PM	0	0	0	0	0	0	5	0	0	5	3	0	0	0	3	8
01:40 PM	0	0	0	0	0	0	18	0	0	18	4	0	0	0	4	22
01:45 PM	0	0	0	2	2	1	19	0	0	20	5	0	0	0	5	27
01:50 PM	0	0	0	0	0	0	15	0	0	15	5	0	0	0	5	20
01:55 PM	0	0	0	0	0	0	20	0	0	20	5	0	0	0	5	25
Total	0	0	0	2	2	2	81	0	0	83	24	0	0	0	24	109
02:00 PM	0	0	0	0	0	0	11	0	0	11	58	0	0	0	58	69
02:05 PM	0	17	0	0	17	0	2	0	0	2	31	0	0	0	31	50
02:10 PM	0	14	0	0	14	0	19	0	0	19	62	0	0	0	62	95
02:15 PM	0	0	0	0	0	0	14	0	0	14	39	0	0	0	39	53
02:20 PM	0	0	0	0	0	0	5	0	0	5	14	0	0	0	14	19
02:25 PM	0	1	0	0	1	0	6	0	0	6	13	0	0	0	13	20
02:30 PM	0	1	0	0	1	0	6	0	0	6	11	0	0	0	11	18
02:35 PM	0	0	0	0	0	0	5	0	0	5	5	0	0	0	5	10
02:40 PM	0	1	0	0	1	0	4	0	0	4	8	0	0	0	8	13
02:45 PM	0	0	0	0	0	0	6	0	0	6	5	0	0	0	5	11
02:50 PM	0	0	0	0	0	0	2	0	0	2	6	0	0	0	6	8
02:55 PM	0	0	0	0	0	0	8	0	0	8	3	0	0	0	3	11
Total	0	34	0	0	34	0	88	0	0	88	255	0	0	0	255	377
03:00 PM	0	1	0	0	1	0	8	0	0	8	6	0	0	0	6	15
03:05 PM	0	0	0	0	0	0	6	0	0	6	11	0	0	0	11	17
03:10 PM	0	0	0	0	0	0	6	0	0	6	6	0	0	0	6	12
03:15 PM	0	0	0	0	0	0	6	0	0	6	5	0	0	0	5	11
03:20 PM	1	1	0	0	2	0	6	0	0	6	5	0	0	0	5	13
03:25 PM	0	0	0	0	0	0	6	0	0	6	4	0	0	0	4	10
03:30 PM	0	0	0	0	0	0	6	0	0	6	3	0	0	0	3	9
03:35 PM	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	7
03:40 PM	0	0	0	0	0	0	9	0	0	9	7	0	0	0	7	16
03:45 PM	0	0	0	0	0	0	9	0	0	9	6	0	0	0	6	15
03:50 PM	0	0	0	0	0	0	4	0	0	4	5	0	0	0	5	9
03:55 PM	0	0	0	0	0	0	16	0	0	16	4	0	0	0	4	20
Total	1	2	0	0	3	0	88	0	0	88	63	0	0	0	63	154
04:00 PM	1	0	0	0	1	0	11	0	0	11	23	0	0	0	23	35
04:05 PM	1	0	0	0	1	0	5	0	0	5	13	0	0	0	13	19



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Exit)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Bus Exit Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					Int. Total
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	
04:10 PM	0	1	0	0	1	1	5	0	0	6	14	0	0	0	14	21
04:15 PM	0	0	0	0	0	0	6	0	0	6	4	0	0	0	4	10
04:20 PM	0	1	0	0	1	0	6	0	0	6	5	0	0	0	5	12
04:25 PM	0	0	0	0	0	0	13	0	0	13	6	0	0	0	6	19
Grand Total	3	38	0	2	43	3	303	0	0	306	407	0	0	0	407	756
Apprch %	7	88.4	0	4.7		1	99	0	0		100	0	0	0		
Total %	0.4	5	0	0.3	5.7	0.4	40.1	0	0	40.5	53.8	0	0	0	53.8	
Cars +	1	5	0	2	8	1	301	0	0	302	403	0	0	0	403	713
% Cars +	33.3	13.2	0	100	18.6	33.3	99.3	0	0	98.7	99	0	0	0	99	94.3
Trucks	2	33	0	0	35	2	2	0	0	4	4	0	0	0	4	43
% Trucks	66.7	86.8	0	0	81.4	66.7	0.7	0	0	1.3	1	0	0	0	1	5.7



TRAFFIC DATA COLLECTION

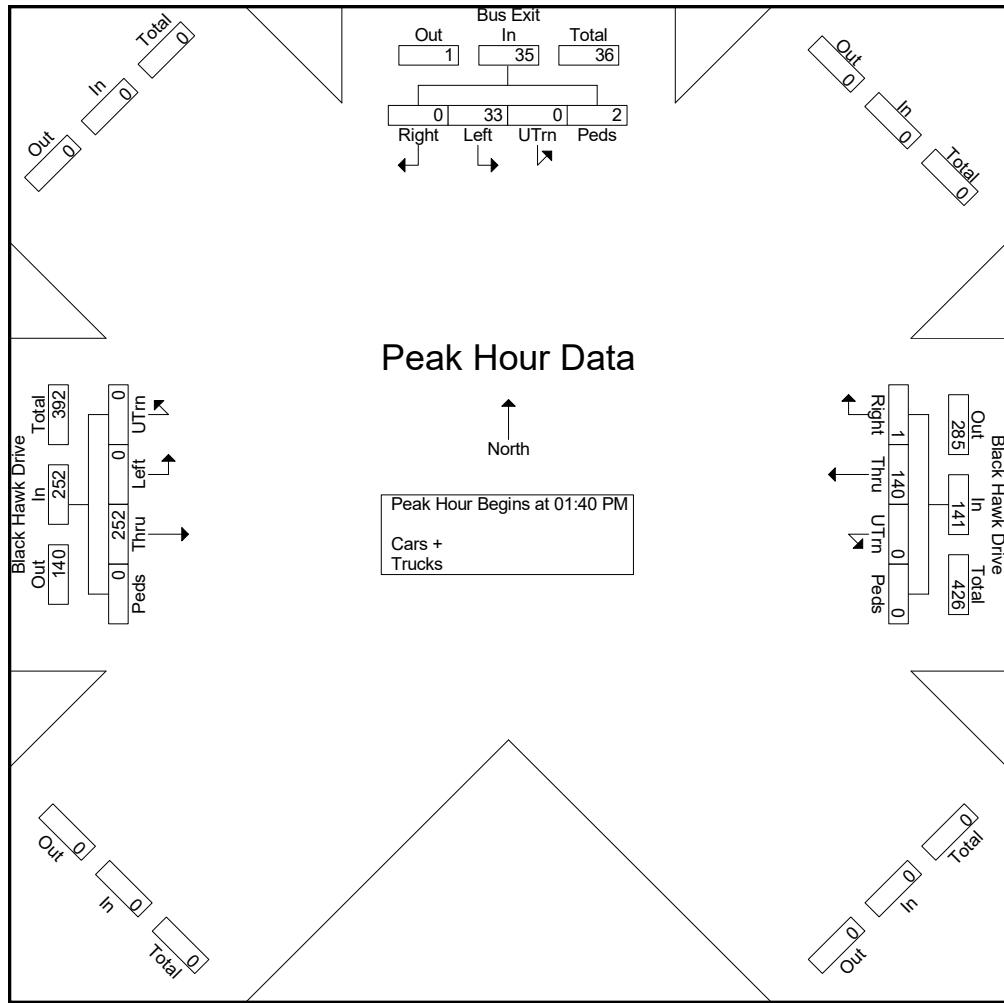
File Name : Stafford(Black Hawk and Bus Exit)
 Site Code :
 Start Date : 9/28/2023
 Page No : 3

Start Time	Bus Exit Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 01:30 PM to 04:25 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 01:40 PM																
01:40 PM	0	0	0	0	0	0	18	0	0	18	4	0	0	0	4	22
01:45 PM	0	0	0	2	2	1	19	0	0	20	5	0	0	0	5	27
01:50 PM	0	0	0	0	0	0	15	0	0	15	5	0	0	0	5	20
01:55 PM	0	0	0	0	0	0	20	0	0	20	5	0	0	0	5	25
02:00 PM	0	0	0	0	0	0	11	0	0	11	58	0	0	0	58	69
02:05 PM	0	17	0	0	17	0	2	0	0	2	31	0	0	0	31	50
02:10 PM	0	14	0	0	14	0	19	0	0	19	62	0	0	0	62	95
02:15 PM	0	0	0	0	0	0	14	0	0	14	39	0	0	0	39	53
02:20 PM	0	0	0	0	0	0	5	0	0	5	14	0	0	0	14	19
02:25 PM	0	1	0	0	1	0	6	0	0	6	13	0	0	0	13	20
02:30 PM	0	1	0	0	1	0	6	0	0	6	11	0	0	0	11	18
02:35 PM	0	0	0	0	0	0	5	0	0	5	5	0	0	0	5	10
Total Volume	0	33	0	2	35	1	140	0	0	141	252	0	0	0	252	428
% App. Total	0	94.3	0	5.7		0.7	99.3	0	0		100	0	0	0		
PHF	.000	.162	.000	.083	.172	.083	.583	.000	.000	.588	.339	.000	.000	.000	.339	.375



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Bus Exit)
Site Code :
Start Date : 9/28/2023
Page No : 4





TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Courthouse)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

	Courthouse Road Southbound				Courthouse Road Northbound				Black Hawk Drive Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
07:00 AM	67	0	0	67	23	9	0	32	4	12	0	16	115
07:05 AM	74	9	1	84	19	15	0	34	6	40	0	46	164
07:10 AM	67	3	0	70	31	24	0	55	5	31	0	36	161
07:15 AM	72	5	0	77	21	26	0	47	11	44	0	55	179
07:20 AM	72	11	0	83	27	24	0	51	9	41	0	50	184
07:25 AM	85	9	0	94	33	11	0	44	17	49	0	66	204
07:30 AM	20	7	0	27	30	4	0	34	7	56	0	63	124
07:35 AM	11	6	0	17	42	4	0	46	6	21	0	27	90
07:40 AM	17	2	0	19	35	1	0	36	0	9	0	9	64
07:45 AM	13	9	0	22	28	0	0	28	2	12	0	14	64
07:50 AM	9	10	0	19	38	2	0	40	0	9	0	9	68
07:55 AM	9	5	0	14	26	1	0	27	1	13	0	14	55
Total	516	76	1	593	353	121	0	474	68	337	0	405	1472
08:00 AM	5	16	0	21	36	3	0	39	1	9	0	10	70
08:05 AM	4	9	0	13	46	0	0	46	1	3	0	4	63
08:10 AM	3	12	0	15	35	3	0	38	0	9	0	9	62
08:15 AM	10	12	0	22	32	1	0	33	1	6	0	7	62
08:20 AM	1	22	0	23	20	0	0	20	0	6	0	6	49
08:25 AM	6	16	0	22	20	0	0	20	1	3	0	4	46
08:30 AM	6	14	0	20	20	1	0	21	1	5	0	6	47
08:35 AM	3	3	0	6	14	1	0	15	1	8	0	9	30
08:40 AM	4	8	0	12	19	0	0	19	0	3	0	3	34
08:45 AM	4	6	0	10	24	1	0	25	0	5	0	5	40
08:50 AM	10	7	0	17	24	1	0	25	1	5	0	6	48
08:55 AM	5	7	0	12	17	0	0	17	0	4	0	4	33
Total	61	132	0	193	307	11	0	318	7	66	0	73	584
09:00 AM	8	3	0	11	16	0	0	16	0	7	0	7	34
09:05 AM	2	12	0	14	20	1	0	21	1	4	0	5	40
09:10 AM	6	12	0	18	22	1	0	23	0	9	2	11	52
09:15 AM	2	10	0	12	11	1	0	12	0	4	0	4	28
09:20 AM	3	9	0	12	15	0	0	15	0	3	0	3	30
09:25 AM	3	9	0	12	5	0	0	5	0	4	0	4	21
09:30 AM	7	9	0	16	12	0	0	12	0	5	0	5	33
09:35 AM	4	4	0	8	16	0	0	16	0	3	0	3	27
09:40 AM	3	5	0	8	14	0	0	14	1	4	1	6	28
09:45 AM	7	7	0	14	11	0	0	11	1	0	0	1	26
09:50 AM	3	6	0	9	15	0	0	15	3	4	0	7	31
09:55 AM	6	8	0	14	20	0	0	20	2	1	0	3	37
Total	54	94	0	148	177	3	0	180	8	48	3	59	387
Grand Total	631	302	1	934	837	135	0	972	83	451	3	537	2443
Apprch %	67.6	32.3	0.1		86.1	13.9	0		15.5	84	0.6		
Total %	25.8	12.4	0	38.2	34.3	5.5	0	39.8	3.4	18.5	0.1	22	
Cars +	587	294	1	882	823	132	0	955	75	413	2	490	2327
% Cars +	93	97.4	100	94.4	98.3	97.8	0	98.3	90.4	91.6	66.7	91.2	95.3
Trucks	44	8	0	52	14	3	0	17	8	38	1	47	116
% Trucks	7	2.6	0	5.6	1.7	2.2	0	1.7	9.6	8.4	33.3	8.8	4.7



TRAFFIC DATA COLLECTION

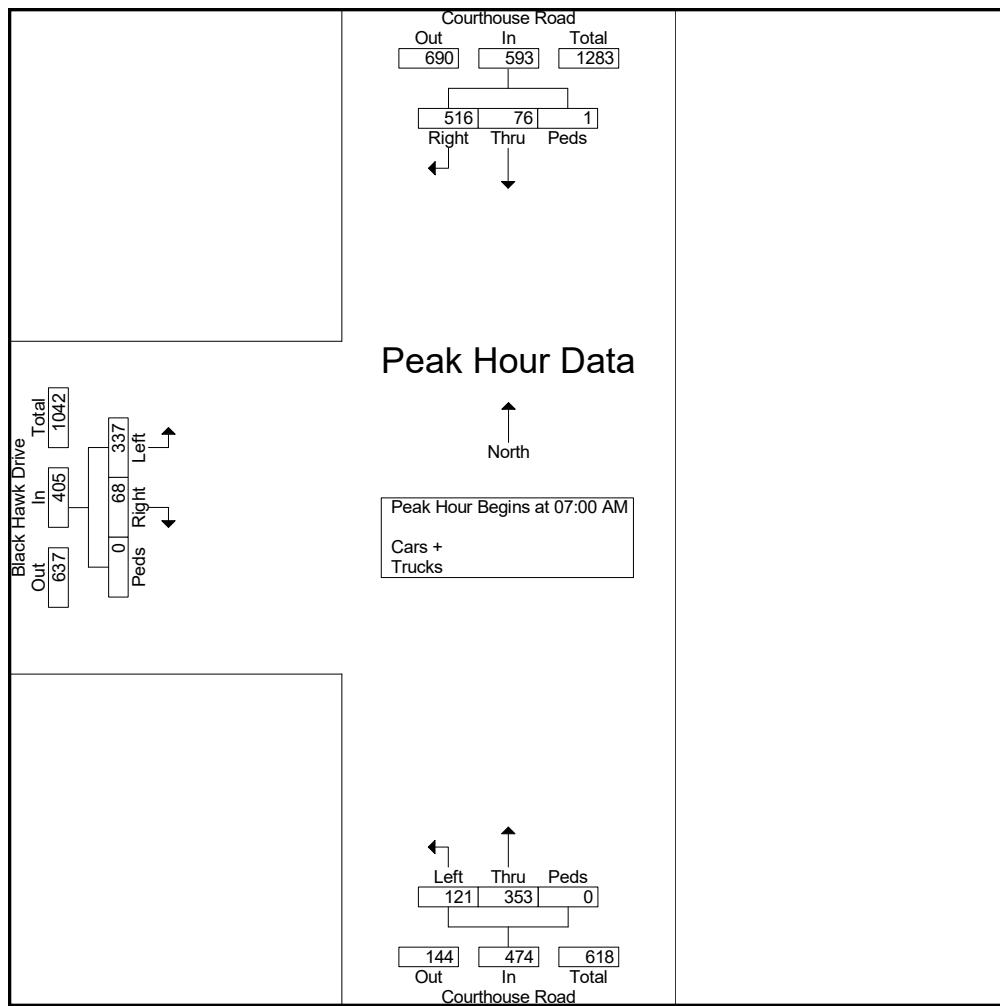
File Name : Stafford(Black Hawk and Courthouse)
 Site Code :
 Start Date : 9/28/2023
 Page No : 2

Start Time	Courthouse Road Southbound				Courthouse Road Northbound				Black Hawk Drive Eastbound				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	67	0	0	67	23	9	0	32	4	12	0	16	115
07:05 AM	74	9	1	84	19	15	0	34	6	40	0	46	164
07:10 AM	67	3	0	70	31	24	0	55	5	31	0	36	161
07:15 AM	72	5	0	77	21	26	0	47	11	44	0	55	179
07:20 AM	72	11	0	83	27	24	0	51	9	41	0	50	184
07:25 AM	85	9	0	94	33	11	0	44	17	49	0	66	204
07:30 AM	20	7	0	27	30	4	0	34	7	56	0	63	124
07:35 AM	11	6	0	17	42	4	0	46	6	21	0	27	90
07:40 AM	17	2	0	19	35	1	0	36	0	9	0	9	64
07:45 AM	13	9	0	22	28	0	0	28	2	12	0	14	64
07:50 AM	9	10	0	19	38	2	0	40	0	9	0	9	68
07:55 AM	9	5	0	14	26	1	0	27	1	13	0	14	55
Total Volume	516	76	1	593	353	121	0	474	68	337	0	405	1472
% App. Total	87	12.8	0.2		74.5	25.5	0		16.8	83.2	0		
PHF	.506	.576	.083	.526	.700	.388	.000	.718	.333	.501	.000	.511	.601



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Courthouse)
Site Code :
Start Date : 9/28/2023
Page No : 3





TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Courthouse)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Courthouse Road Southbound				Courthouse Road Northbound				Black Hawk Drive Eastbound				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
01:30 PM	7	0	0	7	15	1	0	16	1	1	0	2	25
01:35 PM	12	23	0	35	20	3	0	23	1	3	0	4	62
01:40 PM	18	22	0	40	16	3	0	19	0	3	0	3	62
01:45 PM	26	11	0	37	15	2	0	17	1	6	0	7	61
01:50 PM	25	5	0	30	27	5	0	32	1	6	0	7	69
01:55 PM	20	15	0	35	16	3	0	19	2	4	0	6	60
Total	108	76	0	184	109	17	0	126	6	23	0	29	339
02:00 PM	16	14	0	30	16	2	0	18	7	36	0	43	91
02:05 PM	13	10	0	23	16	1	0	17	12	62	0	74	114
02:10 PM	12	13	0	25	15	6	0	21	7	68	0	75	121
02:15 PM	13	15	0	28	18	3	0	21	14	34	0	48	97
02:20 PM	3	24	0	27	14	2	0	16	3	20	0	23	66
02:25 PM	9	19	0	28	18	2	0	20	4	16	0	20	68
02:30 PM	7	19	0	26	23	2	0	25	4	17	0	21	72
02:35 PM	7	27	0	34	18	1	0	19	8	21	0	29	82
02:40 PM	5	21	0	26	18	1	0	19	5	16	0	21	66
02:45 PM	7	22	0	29	22	0	0	22	3	11	0	14	65
02:50 PM	3	24	0	27	20	1	0	21	1	7	0	8	56
02:55 PM	10	14	0	24	13	0	0	13	4	11	0	15	52
Total	105	222	0	327	211	21	0	232	72	319	0	391	950
03:00 PM	7	26	0	33	18	1	0	19	1	10	0	11	63
03:05 PM	6	19	0	25	17	0	0	17	3	14	0	17	59
03:10 PM	6	29	0	35	21	2	0	23	2	10	0	12	70
03:15 PM	10	27	0	37	16	0	0	16	1	7	0	8	61
03:20 PM	4	21	0	25	14	1	0	15	3	8	0	11	51
03:25 PM	5	25	0	30	12	0	0	12	2	6	0	8	50
03:30 PM	6	20	0	26	24	1	0	25	2	2	0	4	55
03:35 PM	8	24	0	32	7	0	0	7	1	4	0	5	44
03:40 PM	9	36	0	45	10	3	0	13	0	11	0	11	69
03:45 PM	9	30	0	39	15	1	0	16	1	6	0	7	62
03:50 PM	5	24	0	29	12	2	0	14	1	5	0	6	49
03:55 PM	11	26	0	37	16	2	0	18	4	4	0	8	63
Total	86	307	0	393	182	13	0	195	21	87	0	108	696
04:00 PM	12	32	0	44	10	0	0	10	7	20	0	27	81
04:05 PM	8	38	0	46	26	0	0	26	1	17	0	18	90
04:10 PM	8	36	0	44	23	1	0	24	3	13	0	16	84



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Courthouse)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

	Courthouse Road Southbound				Courthouse Road Northbound				Black Hawk Drive Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
04:15 PM	8	38	0	46	14	1	0	15	3	5	0	8	69
04:20 PM	13	36	0	49	15	3	0	18	1	7	0	8	75
04:25 PM	15	39	0	54	6	4	0	10	1	7	0	8	72
Grand Total	363	824	0	1187	596	60	0	656	115	498	0	613	2456
Apprch %	30.6	69.4	0		90.9	9.1	0		18.8	81.2	0		
Total %	14.8	33.6	0	48.3	24.3	2.4	0	26.7	4.7	20.3	0	25	
Cars +	327	811	0	1138	585	59	0	644	108	456	0	564	2346
% Cars +	90.1	98.4	0	95.9	98.2	98.3	0	98.2	93.9	91.6	0	92	95.5
Trucks	36	13	0	49	11	1	0	12	7	42	0	49	110
% Trucks	9.9	1.6	0	4.1	1.8	1.7	0	1.8	6.1	8.4	0	8	4.5



TRAFFIC DATA COLLECTION

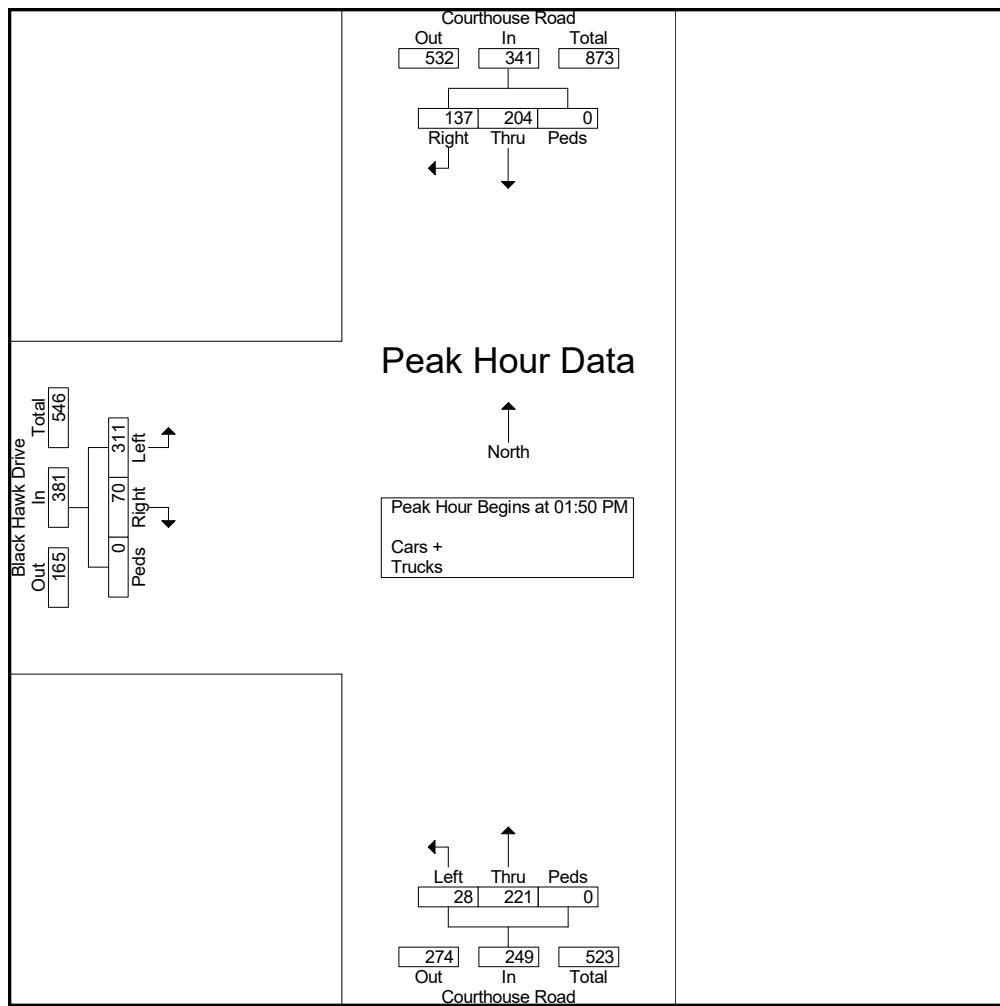
File Name : Stafford(Black Hawk and Courthouse)
 Site Code :
 Start Date : 9/28/2023
 Page No : 3

Start Time	Courthouse Road Southbound				Courthouse Road Northbound				Black Hawk Drive Eastbound				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
Peak Hour Analysis From 01:30 PM to 04:25 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 01:50 PM													
01:50 PM	25	5	0	30	27	5	0	32	1	6	0	7	69
01:55 PM	20	15	0	35	16	3	0	19	2	4	0	6	60
02:00 PM	16	14	0	30	16	2	0	18	7	36	0	43	91
02:05 PM	13	10	0	23	16	1	0	17	12	62	0	74	114
02:10 PM	12	13	0	25	15	6	0	21	7	68	0	75	121
02:15 PM	13	15	0	28	18	3	0	21	14	34	0	48	97
02:20 PM	3	24	0	27	14	2	0	16	3	20	0	23	66
02:25 PM	9	19	0	28	18	2	0	20	4	16	0	20	68
02:30 PM	7	19	0	26	23	2	0	25	4	17	0	21	72
02:35 PM	7	27	0	34	18	1	0	19	8	21	0	29	82
02:40 PM	5	21	0	26	18	1	0	19	5	16	0	21	66
02:45 PM	7	22	0	29	22	0	0	22	3	11	0	14	65
Total Volume	137	204	0	341	221	28	0	249	70	311	0	381	971
% App. Total	40.2	59.8	0		88.8	11.2	0		18.4	81.6	0		
PHF	.457	.630	.000	.812	.682	.389	.000	.648	.417	.381	.000	.423	.669



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Courthouse)
Site Code :
Start Date : 9/28/2023
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TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Eastern HS Access)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Eastern HS Access Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
07:00 AM	0	1	0	0	1	11	61	0	0	72	19	0	0	0	19	92
07:05 AM	1	1	0	0	2	13	78	0	0	91	44	0	0	0	44	137
07:10 AM	0	0	0	0	0	9	80	0	0	89	39	0	0	0	39	128
07:15 AM	0	1	0	0	1	7	91	0	0	98	56	1	0	0	57	156
07:20 AM	0	4	0	0	4	5	93	0	0	98	47	0	0	0	47	149
07:25 AM	0	4	0	0	4	5	89	0	0	94	58	1	0	0	59	157
07:30 AM	1	5	0	0	6	4	25	0	0	29	57	0	0	0	57	92
07:35 AM	0	0	0	0	0	2	13	0	0	15	23	0	0	0	23	38
07:40 AM	1	2	0	0	3	1	17	0	0	18	7	0	0	0	7	28
07:45 AM	1	0	0	0	1	2	10	0	0	12	17	0	0	0	17	30
07:50 AM	0	0	0	0	0	0	12	0	0	12	7	0	0	0	7	19
07:55 AM	0	0	0	0	0	1	9	0	0	10	14	0	0	0	14	24
Total	4	18	0	0	22	60	578	0	0	638	388	2	0	0	390	1050
08:00 AM	0	2	0	0	2	0	8	0	0	8	7	0	0	0	7	17
08:05 AM	0	0	0	1	1	0	4	0	0	4	5	0	0	0	5	10
08:10 AM	0	1	0	0	1	2	4	0	0	6	6	0	0	0	6	13
08:15 AM	0	0	0	0	0	0	11	0	0	11	7	0	0	0	7	18
08:20 AM	0	0	0	0	0	0	1	0	0	1	6	0	0	0	6	7
08:25 AM	1	0	0	0	1	0	6	0	0	6	3	1	0	0	4	11
08:30 AM	0	0	0	0	0	2	5	0	0	7	7	0	0	0	7	14
08:35 AM	0	2	0	0	2	0	4	0	0	4	6	0	0	0	6	12
08:40 AM	0	0	0	0	0	0	4	0	0	4	3	0	0	0	3	7
08:45 AM	0	1	0	0	1	1	4	0	0	5	4	1	0	0	5	11
08:50 AM	0	1	0	0	1	1	9	0	0	10	6	0	0	0	6	17
08:55 AM	0	0	0	0	0	0	6	0	0	6	4	0	0	0	4	10
Total	1	7	0	1	9	6	66	0	0	72	64	2	0	0	66	147
09:00 AM	0	1	0	0	1	0	8	0	0	8	8	0	0	0	8	17
09:05 AM	0	1	0	0	1	1	2	0	0	3	2	0	0	0	2	6
09:10 AM	0	0	0	0	0	0	7	0	0	7	9	1	0	0	10	17
09:15 AM	1	1	0	0	2	1	2	0	2	5	4	0	0	0	4	11
09:20 AM	0	1	0	0	1	0	3	0	0	3	1	0	0	0	1	5
09:25 AM	0	1	0	0	1	0	3	0	0	3	3	0	0	0	3	7
09:30 AM	0	1	0	0	1	1	6	0	0	7	5	0	0	0	5	13
09:35 AM	1	0	0	0	1	1	3	0	0	4	2	0	0	0	2	7
09:40 AM	0	2	0	0	2	2	1	0	0	3	3	0	0	0	3	8
09:45 AM	0	0	0	0	0	1	5	0	0	6	1	0	0	0	1	7



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Eastern HS Access)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Eastern HS Access Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
09:50 AM	0	0	0	0	0	0	4	0	0	4	7	0	0	0	7	11
09:55 AM	0	0	0	0	0	0	6	0	0	6	3	0	0	0	3	9
Total	2	8	0	0	10	7	50	0	2	59	48	1	0	0	49	118
Grand Total	7	33	0	1	41	73	694	0	2	769	500	5	0	0	505	1315
Apprch %	17.1	80.5	0	2.4		9.5	90.2	0	0.3		99	1	0	0		
Total %	0.5	2.5	0	0.1	3.1	5.6	52.8	0	0.2	58.5	38	0.4	0	0	38.4	
Cars +	7	33	0	1	41	73	647	0	2	722	456	5	0	0	461	1224
% Cars +	100	100	0	100	100	100	93.2	0	100	93.9	91.2	100	0	0	91.3	93.1
Trucks	0	0	0	0	0	0	47	0	0	47	44	0	0	0	44	91
% Trucks	0	0	0	0	0	0	6.8	0	0	6.1	8.8	0	0	0	8.7	6.9



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Eastern HS Access)

Site Code :

Start Date : 9/28/2023

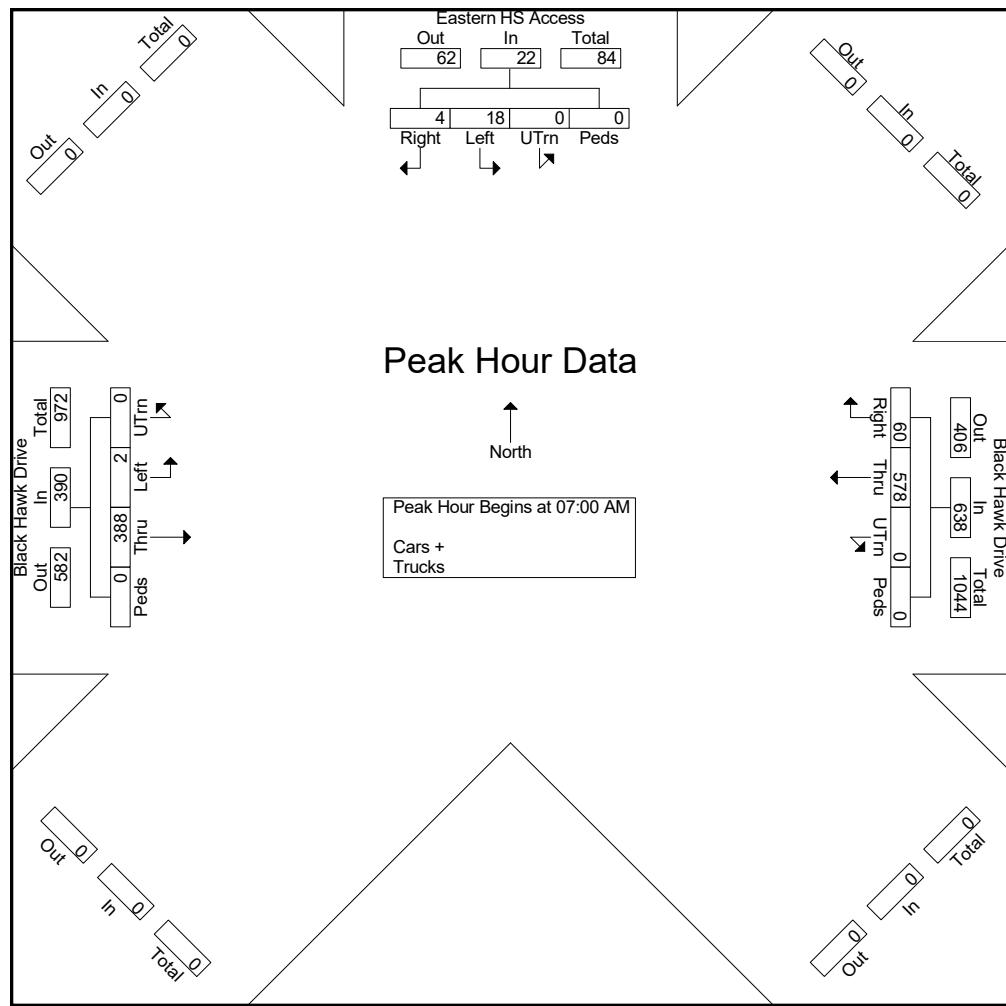
Page No : 3

Start Time	Eastern HS Access Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					Int. Total	
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total		
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	1	0	0	1	11	61	0	0	72	19	0	0	0	19	92	
07:05 AM	1	1	0	0	2	13	78	0	0	91	44	0	0	0	44	137	
07:10 AM	0	0	0	0	0	9	80	0	0	89	39	0	0	0	39	128	
07:15 AM	0	1	0	0	1	7	91	0	0	98	56	1	0	0	57	156	
07:20 AM	0	4	0	0	4	5	93	0	0	98	47	0	0	0	47	149	
07:25 AM	0	4	0	0	4	5	89	0	0	94	58	1	0	0	59	157	
07:30 AM	1	5	0	0	6	4	25	0	0	29	57	0	0	0	57	92	
07:35 AM	0	0	0	0	0	2	13	0	0	15	23	0	0	0	23	38	
07:40 AM	1	2	0	0	3	1	17	0	0	18	7	0	0	0	7	28	
07:45 AM	1	0	0	0	1	2	10	0	0	12	17	0	0	0	17	30	
07:50 AM	0	0	0	0	0	0	12	0	0	12	7	0	0	0	7	19	
07:55 AM	0	0	0	0	0	1	9	0	0	10	14	0	0	0	14	24	
Total Volume	4	18	0	0	22	60	578	0	0	638	388	2	0	0	390	1050	
% App. Total	18.2	81.8	0	0		9.4	90.6	0	0		99.5	0.5	0	0			
PHF	.333	.300	.000	.000	.306	.385	.518	.000	.000	.543	.557	.167	.000	.000	.551	.557	



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Eastern HS Access)
Site Code :
Start Date : 9/28/2023
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TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Eastern HS Access)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Eastern HS Access Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
01:30 PM	0	1	0	0	1	2	6	0	0	8	2	0	0	0	2	11
01:35 PM	0	0	0	0	0	3	10	0	0	13	3	0	0	0	3	16
01:40 PM	0	0	0	0	0	5	18	0	0	23	4	0	0	0	4	27
01:45 PM	0	3	0	0	3	4	24	0	0	28	4	0	0	0	4	35
01:50 PM	0	4	0	0	4	8	18	0	0	26	4	0	0	0	4	34
01:55 PM	3	1	0	0	4	9	17	0	0	26	4	1	0	0	5	35
Total	3	9	0	0	12	31	93	0	0	124	21	1	0	0	22	158
02:00 PM	0	7	0	0	7	6	12	0	0	18	38	5	0	0	43	68
02:05 PM	0	18	0	0	18	7	5	0	0	12	51	6	0	2	59	89
02:10 PM	2	3	0	0	5	4	16	0	0	20	71	5	0	0	76	101
02:15 PM	0	8	0	0	8	2	15	0	0	17	41	2	0	0	43	68
02:20 PM	1	5	0	0	6	1	4	0	0	5	15	1	0	0	16	27
02:25 PM	0	11	0	0	11	4	7	0	0	11	12	2	0	0	14	36
02:30 PM	3	10	0	0	13	5	4	0	0	9	11	1	0	0	12	34
02:35 PM	1	22	0	0	23	3	5	0	0	8	3	0	0	0	3	34
02:40 PM	0	13	0	0	13	1	5	0	0	6	9	2	0	0	11	30
02:45 PM	0	9	0	0	9	1	6	0	0	7	4	1	0	0	5	21
02:50 PM	0	6	0	0	6	0	2	0	0	2	6	0	0	0	6	14
02:55 PM	0	11	0	0	11	2	10	0	0	12	3	0	0	0	3	26
Total	7	123	0	0	130	36	91	0	0	127	264	25	0	2	291	548
03:00 PM	1	2	0	0	3	1	7	0	0	8	6	0	0	0	6	17
03:05 PM	0	4	0	0	4	0	6	0	0	6	13	0	0	0	13	23
03:10 PM	0	7	0	0	7	1	6	1	0	8	5	0	0	0	5	20
03:15 PM	0	3	0	0	3	2	7	0	0	9	6	0	0	0	6	18
03:20 PM	0	3	0	0	3	0	6	0	0	6	6	0	0	0	6	15
03:25 PM	1	4	0	0	5	0	5	0	0	5	4	0	0	0	4	14
03:30 PM	0	2	0	0	2	3	6	0	0	9	3	0	0	0	3	14
03:35 PM	0	3	0	0	3	2	6	0	0	8	1	0	0	0	1	12
03:40 PM	0	6	0	0	6	2	9	0	0	11	6	1	0	0	7	24
03:45 PM	0	2	0	0	2	1	9	0	0	10	5	0	0	0	5	17
03:50 PM	0	2	0	0	2	0	4	0	0	4	4	2	0	0	6	12
03:55 PM	2	4	0	0	6	0	14	0	0	14	4	0	0	0	4	24
Total	4	42	0	0	46	12	85	1	0	98	63	3	0	0	66	210
04:00 PM	0	2	0	0	2	2	11	0	0	13	20	0	0	0	20	35
04:05 PM	1	3	0	0	4	3	5	0	0	8	14	1	0	0	15	27



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Eastern HS Access)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Eastern HS Access Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					Int. Total
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	
04:10 PM	0	2	0	0	2	3	6	0	0	9	15	0	0	0	15	26
04:15 PM	0	3	0	0	3	3	6	0	0	9	4	0	0	0	4	16
04:20 PM	1	3	0	0	4	9	7	1	0	17	6	0	0	0	6	27
04:25 PM	1	0	0	0	1	6	12	0	0	18	6	0	0	0	6	25
Grand Total	17	187	0	0	204	105	316	2	0	423	413	30	0	2	445	1072
Apprch %	8.3	91.7	0	0		24.8	74.7	0.5	0		92.8	6.7	0	0.4		
Total %	1.6	17.4	0	0	19	9.8	29.5	0.2	0	39.5	38.5	2.8	0	0.2	41.5	
Cars +	17	175	0	0	192	92	292	2	0	386	377	29	0	2	408	986
% Cars +	100	93.6	0	0	94.1	87.6	92.4	100	0	91.3	91.3	96.7	0	100	91.7	92
Trucks	0	12	0	0	12	13	24	0	0	37	36	1	0	0	37	86
% Trucks	0	6.4	0	0	5.9	12.4	7.6	0	0	8.7	8.7	3.3	0	0	8.3	8



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Eastern HS Access)

Site Code :

Start Date : 9/28/2023

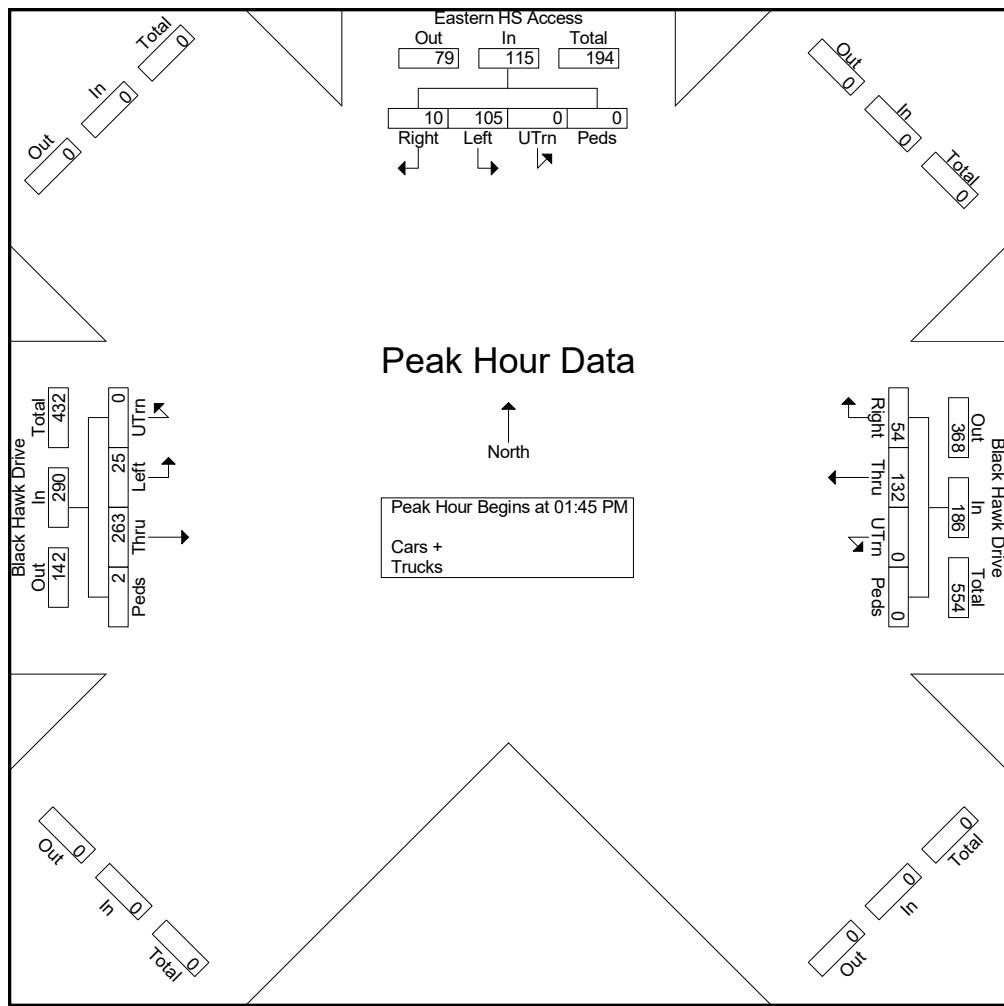
Page No : 3

Start Time	Eastern HS Access Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 01:30 PM to 04:25 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 01:45 PM																
01:45 PM	0	3	0	0	3	4	24	0	0	28	4	0	0	0	4	35
01:50 PM	0	4	0	0	4	8	18	0	0	26	4	0	0	0	4	34
01:55 PM	3	1	0	0	4	9	17	0	0	26	4	1	0	0	5	35
02:00 PM	0	7	0	0	7	6	12	0	0	18	38	5	0	0	43	68
02:05 PM	0	18	0	0	18	7	5	0	0	12	51	6	0	2	59	89
02:10 PM	2	3	0	0	5	4	16	0	0	20	71	5	0	0	76	101
02:15 PM	0	8	0	0	8	2	15	0	0	17	41	2	0	0	43	68
02:20 PM	1	5	0	0	6	1	4	0	0	5	15	1	0	0	16	27
02:25 PM	0	11	0	0	11	4	7	0	0	11	12	2	0	0	14	36
02:30 PM	3	10	0	0	13	5	4	0	0	9	11	1	0	0	12	34
02:35 PM	1	22	0	0	23	3	5	0	0	8	3	0	0	0	3	34
02:40 PM	0	13	0	0	13	1	5	0	0	6	9	2	0	0	11	30
Total Volume	10	105	0	0	115	54	132	0	0	186	263	25	0	2	290	591
% App. Total	8.7	91.3	0	0		29	71	0	0		90.7	8.6	0	0.7		
PHF	.278	.398	.000	.000	.417	.500	.458	.000	.000	.554	.309	.347	.000	.083	.318	.488



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Eastern HS Access)
Site Code :
Start Date : 9/28/2023
Page No : 4





TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Student Parking)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Student Parking Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					Int. Total
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	
07:00 AM	0	0	0	0	0	36	10	0	0	46	19	0	0	0	19	65
07:05 AM	0	0	0	0	0	61	20	0	0	81	36	0	0	0	36	117
07:10 AM	0	0	0	0	0	62	18	0	0	80	38	0	0	0	38	118
07:15 AM	0	0	0	0	0	61	19	0	0	80	41	1	0	0	42	122
07:20 AM	0	0	0	0	0	66	27	0	0	93	46	0	0	0	46	139
07:25 AM	0	0	0	0	0	60	22	0	0	82	60	0	0	0	60	142
07:30 AM	0	0	0	0	0	27	8	0	0	35	51	0	0	0	51	86
07:35 AM	0	0	0	0	0	12	1	0	0	13	12	0	0	0	12	25
07:40 AM	0	0	0	0	0	11	8	0	0	19	7	0	0	0	7	26
07:45 AM	0	0	0	0	0	6	4	0	0	10	17	0	0	0	17	27
07:50 AM	0	0	0	0	0	5	6	0	0	11	6	0	0	0	6	17
07:55 AM	0	0	0	0	0	6	3	0	0	9	14	0	0	0	14	23
Total	0	0	0	0	0	413	146	0	0	559	347	1	0	0	348	907
08:00 AM	0	0	0	0	0	3	3	0	0	6	6	0	0	0	6	12
08:05 AM	0	0	0	0	0	2	2	0	1	5	5	0	0	0	5	10
08:10 AM	0	0	0	0	0	3	1	0	0	4	7	0	0	0	7	11
08:15 AM	0	0	0	0	0	8	2	0	0	10	6	0	0	0	6	16
08:20 AM	0	0	0	0	0	2	0	0	0	2	6	0	0	0	6	8
08:25 AM	0	0	0	0	0	2	3	0	0	5	3	0	0	0	3	8
08:30 AM	0	1	0	0	1	4	1	0	0	5	6	0	0	0	6	12
08:35 AM	0	0	0	0	0	1	3	0	0	4	7	0	0	0	7	11
08:40 AM	0	0	0	0	0	2	0	0	0	2	2	0	0	0	2	4
08:45 AM	0	1	0	0	1	5	1	0	0	6	4	0	0	0	4	11
08:50 AM	0	1	0	0	1	2	7	0	0	9	5	1	0	0	6	16
08:55 AM	0	0	0	0	0	5	1	0	0	6	5	0	0	0	5	11
Total	0	3	0	0	3	39	24	0	1	64	62	1	0	0	63	130
09:00 AM	0	0	0	0	0	7	0	0	0	7	6	1	0	0	7	14
09:05 AM	0	0	0	1	1	1	0	0	0	1	2	0	0	0	2	4
09:10 AM	0	0	0	0	0	7	0	0	0	7	10	0	0	0	10	17
09:15 AM	0	0	0	0	0	0	2	0	0	2	4	0	0	0	4	6
09:20 AM	0	0	0	0	0	1	1	0	0	2	1	1	0	0	2	4
09:25 AM	0	0	0	0	0	3	0	0	0	3	2	0	0	0	2	5
09:30 AM	0	0	0	0	0	3	0	0	0	3	5	0	0	0	5	8
09:35 AM	0	0	0	0	0	3	1	0	0	4	2	0	0	0	2	6
09:40 AM	0	0	0	0	0	1	1	0	0	2	2	0	0	0	2	4
09:45 AM	0	0	0	0	0	2	2	0	0	4	1	0	0	0	1	5



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Student Parking)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Student Parking Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
09:50 AM	0	1	0	0	1	3	0	0	0	3	6	0	0	0	6	10
09:55 AM	0	0	0	0	0	4	1	0	0	5	3	0	0	0	3	8
Total	0	1	0	1	2	35	8	0	0	43	44	2	0	0	46	91
Grand Total	0	4	0	1	5	487	178	0	1	666	453	4	0	0	457	1128
Apprch %	0	80	0	20		73.1	26.7	0	0.2		99.1	0.9	0	0		
Total %	0	0.4	0	0.1	0.4	43.2	15.8	0	0.1	59	40.2	0.4	0	0	40.5	
Cars +	0	4	0	1	5	487	174	0	1	662	447	4	0	0	451	1118
% Cars +	0	100	0	100	100	100	97.8	0	100	99.4	98.7	100	0	0	98.7	99.1
Trucks	0	0	0	0	0	0	4	0	0	4	6	0	0	0	6	10
% Trucks	0	0	0	0	0	0	2.2	0	0	0.6	1.3	0	0	0	1.3	0.9



TRAFFIC DATA COLLECTION

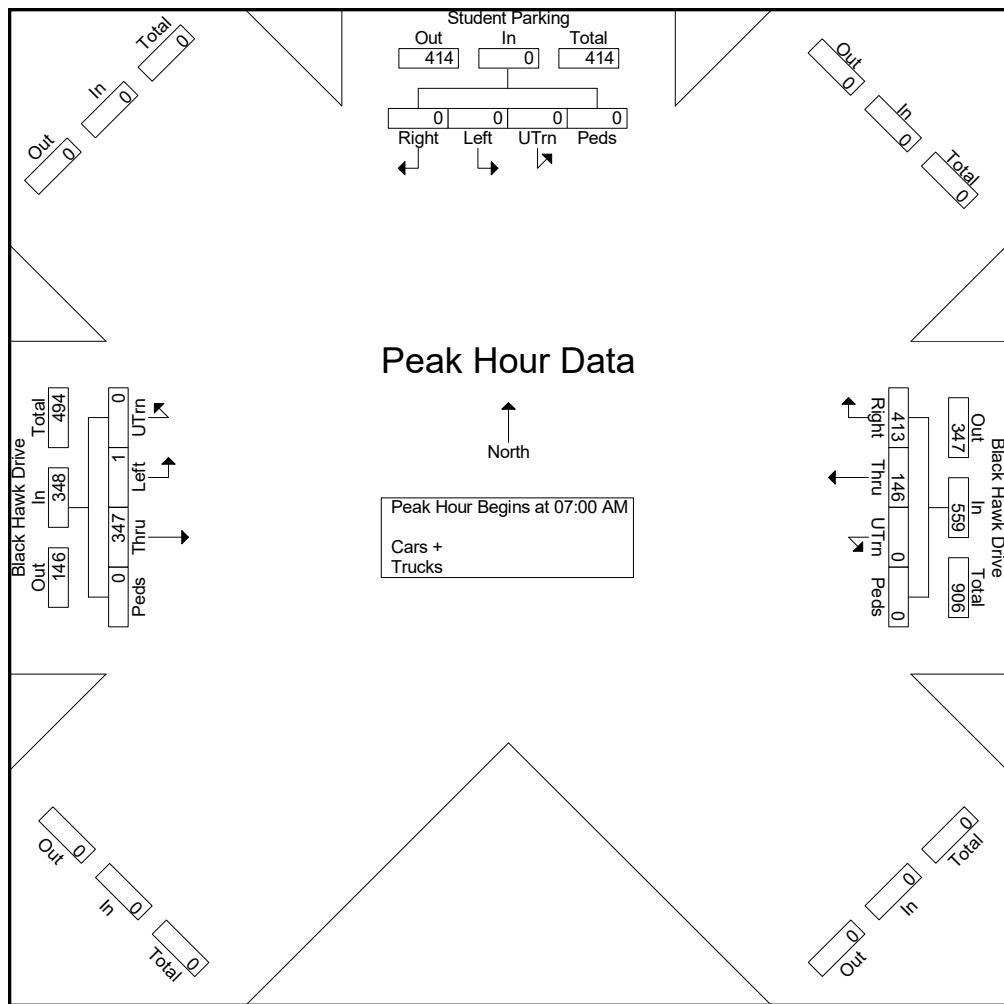
File Name : Stafford(Black Hawk and Student Parking)
 Site Code :
 Start Date : 9/28/2023
 Page No : 3

Start Time	Student Parking Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					Int. Total	
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total		
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	36	10	0	0	46	19	0	0	0	19	65	
07:05 AM	0	0	0	0	0	61	20	0	0	81	36	0	0	0	36	117	
07:10 AM	0	0	0	0	0	62	18	0	0	80	38	0	0	0	38	118	
07:15 AM	0	0	0	0	0	61	19	0	0	80	41	1	0	0	42	122	
07:20 AM	0	0	0	0	0	66	27	0	0	93	46	0	0	0	46	139	
07:25 AM	0	0	0	0	0	60	22	0	0	82	60	0	0	0	60	142	
07:30 AM	0	0	0	0	0	27	8	0	0	35	51	0	0	0	51	86	
07:35 AM	0	0	0	0	0	12	1	0	0	13	12	0	0	0	12	25	
07:40 AM	0	0	0	0	0	11	8	0	0	19	7	0	0	0	7	26	
07:45 AM	0	0	0	0	0	6	4	0	0	10	17	0	0	0	17	27	
07:50 AM	0	0	0	0	0	5	6	0	0	11	6	0	0	0	6	17	
07:55 AM	0	0	0	0	0	6	3	0	0	9	14	0	0	0	14	23	
Total Volume	0	0	0	0	0	413	146	0	0	559	347	1	0	0	348	907	
% App. Total	0	0	0	0	0	73.9	26.1	0	0	99.7	0.3	0	0	0			
PHF	.000	.000	.000	.000	.000	.521	.451	.000	.000	.501	.482	.083	.000	.000	.483	.532	



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Student Parking)
Site Code :
Start Date : 9/28/2023
Page No : 4





TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Student Parking)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Student Parking Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					Int. Total
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	
01:30 PM	0	0	0	0	0	3	1	0	0	4	2	0	0	0	2	6
01:35 PM	0	0	0	2	2	3	2	0	0	5	3	0	0	0	3	10
01:40 PM	0	0	0	0	0	8	8	0	0	16	5	0	0	0	5	21
01:45 PM	0	0	0	2	2	11	7	0	0	18	6	0	0	0	6	26
01:50 PM	0	0	0	0	0	11	5	0	0	16	5	0	0	0	5	21
01:55 PM	0	2	0	0	2	13	6	0	0	19	3	0	0	0	3	24
Total	0	2	0	4	6	49	29	0	0	78	24	0	0	0	24	108
02:00 PM	0	17	0	0	17	5	4	0	0	9	43	0	1	0	44	70
02:05 PM	0	7	0	0	7	4	0	0	2	6	24	0	0	0	24	37
02:10 PM	0	17	0	0	17	18	1	0	0	19	42	1	0	0	43	79
02:15 PM	0	4	0	0	4	13	1	0	0	14	33	0	0	0	33	51
02:20 PM	0	1	0	0	1	3	1	0	0	4	13	0	0	0	13	18
02:25 PM	0	1	0	0	1	5	2	0	0	7	12	0	0	0	12	20
02:30 PM	0	3	0	0	3	2	4	0	0	6	8	0	0	0	8	17
02:35 PM	0	3	0	0	3	2	3	0	0	5	2	0	0	0	2	10
02:40 PM	0	2	0	0	2	3	2	0	0	5	6	0	0	0	6	13
02:45 PM	0	1	0	0	1	2	4	0	0	6	4	0	0	0	4	11
02:50 PM	0	2	0	0	2	1	1	0	0	2	4	0	0	0	4	8
02:55 PM	0	0	0	0	0	3	5	0	0	8	3	0	0	0	3	11
Total	0	58	0	0	58	61	28	0	2	91	194	1	1	0	196	345
03:00 PM	0	1	0	0	1	6	2	0	0	8	5	0	0	0	5	14
03:05 PM	0	0	0	0	0	1	5	0	0	6	12	0	0	0	12	18
03:10 PM	0	0	0	0	0	4	2	0	0	6	6	0	0	0	6	12
03:15 PM	0	0	0	0	0	4	1	1	0	6	4	0	0	0	4	10
03:20 PM	0	0	0	0	0	4	3	0	0	7	5	0	0	0	5	12
03:25 PM	0	0	0	0	0	1	5	0	0	6	4	0	0	0	4	10
03:30 PM	0	1	0	0	1	2	4	0	0	6	2	0	0	0	2	9
03:35 PM	0	0	0	0	0	4	2	0	0	6	1	0	0	0	1	7
03:40 PM	0	3	0	0	3	6	3	0	0	9	4	0	0	0	4	16
03:45 PM	0	0	0	0	0	8	1	0	0	9	6	0	0	0	6	15
03:50 PM	0	3	0	0	3	2	2	0	0	4	2	0	0	0	2	9
03:55 PM	0	0	0	0	0	11	4	0	0	15	4	0	0	0	4	19
Total	0	8	0	0	8	53	34	1	0	88	55	0	0	0	55	151
04:00 PM	0	2	0	0	2	8	4	0	0	12	21	0	0	0	21	35
04:05 PM	0	1	0	0	1	4	2	0	0	6	12	0	0	0	12	19



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Student Parking)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Student Parking Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					Int. Total	
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total		
04:10 PM	0	0	0	0	0	3	2	0	0	5	14	0	0	0	0	14	19
04:15 PM	0	1	0	0	1	1	4	0	0	5	3	0	0	0	0	3	9
04:20 PM	0	0	0	0	0	4	3	0	0	7	5	0	0	0	0	5	12
04:25 PM	0	0	0	0	0	6	7	0	0	13	6	0	0	0	0	6	19
Grand Total	0	72	0	4	76	189	113	1	2	305	334	1	1	0	0	336	717
Apprch %	0	94.7	0	5.3		62	37	0.3	0.7		99.4	0.3	0.3	0	0		
Total %	0	10	0	0.6	10.6	26.4	15.8	0.1	0.3	42.5	46.6	0.1	0.1	0	46.9		
Cars +	0	72	0	4	76	188	110	1	2	301	330	1	1	0	0	332	709
% Cars +	0	100	0	100	100	99.5	97.3	100	100	98.7	98.8	100	100	0	98.8	98.9	
Trucks	0	0	0	0	0	1	3	0	0	4	4	0	0	0	0	4	8
% Trucks	0	0	0	0	0	0.5	2.7	0	0	1.3	1.2	0	0	0	0	1.2	1.1



TRAFFIC DATA COLLECTION

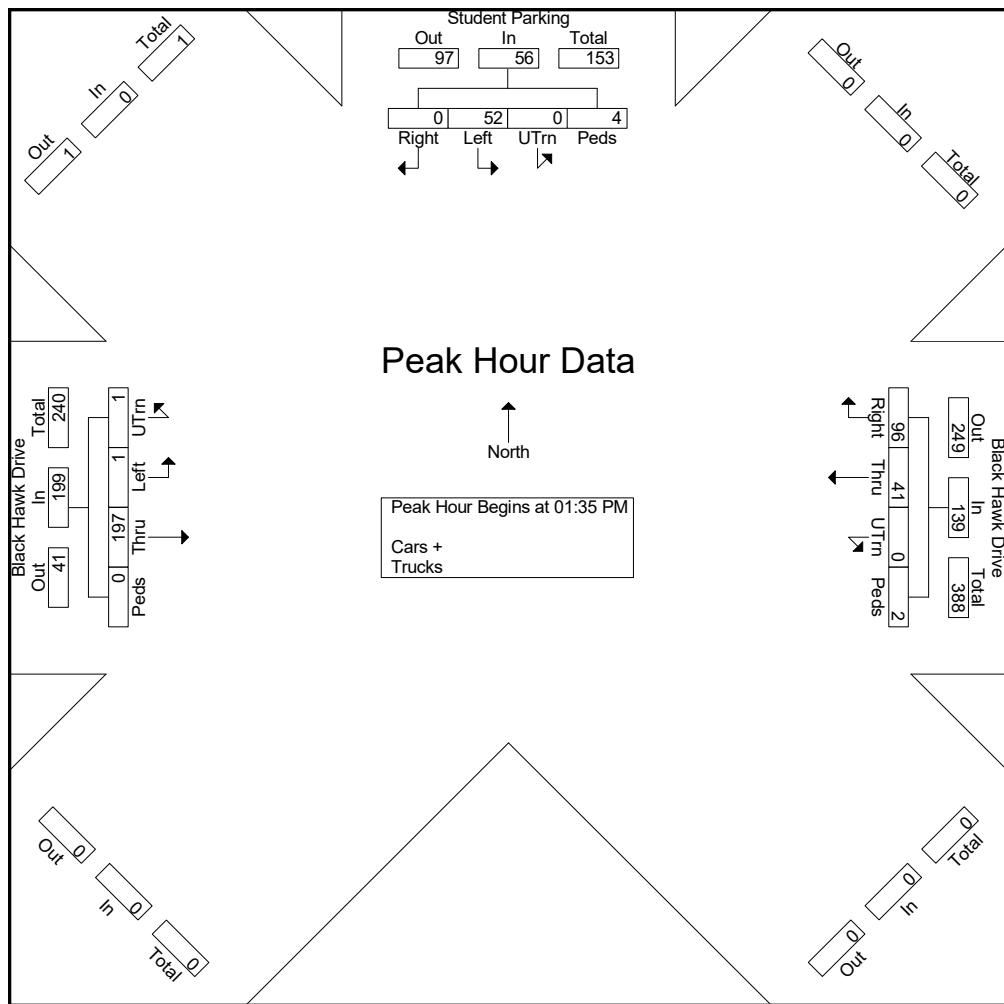
File Name : Stafford(Black Hawk and Student Parking)
 Site Code :
 Start Date : 9/28/2023
 Page No : 3

Start Time	Student Parking Southbound					Black Hawk Drive Westbound					Black Hawk Drive Eastbound					
	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 01:30 PM to 04:25 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 01:35 PM																
01:35 PM	0	0	0	2	2	3	2	0	0	5	3	0	0	0	3	10
01:40 PM	0	0	0	0	0	8	8	0	0	16	5	0	0	0	5	21
01:45 PM	0	0	0	2	2	11	7	0	0	18	6	0	0	0	6	26
01:50 PM	0	0	0	0	0	11	5	0	0	16	5	0	0	0	5	21
01:55 PM	0	2	0	0	2	13	6	0	0	19	3	0	0	0	3	24
02:00 PM	0	17	0	0	17	5	4	0	0	9	43	0	1	0	44	70
02:05 PM	0	7	0	0	7	4	0	0	2	6	24	0	0	0	24	37
02:10 PM	0	17	0	0	17	18	1	0	0	19	42	1	0	0	43	79
02:15 PM	0	4	0	0	4	13	1	0	0	14	33	0	0	0	33	51
02:20 PM	0	1	0	0	1	3	1	0	0	4	13	0	0	0	13	18
02:25 PM	0	1	0	0	1	5	2	0	0	7	12	0	0	0	12	20
02:30 PM	0	3	0	0	3	2	4	0	0	6	8	0	0	0	8	17
Total Volume	0	52	0	4	56	96	41	0	2	139	197	1	1	0	199	394
% App. Total	0	92.9	0	7.1		69.1	29.5	0	1.4		99	0.5	0.5	0		
PHF	.000	.255	.000	.167	.275	.444	.427	.000	.083	.610	.382	.083	.083	.000	.377	.416



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Student Parking)
Site Code :
Start Date : 9/28/2023
Page No : 4





TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Western HS Access)
 Site Code :
 Start Date : 9/28/2023
 Page No : 1

Groups Printed- Cars + - Trucks

	Western HS Access Southbound						Blackhawk Drive Westbound						Dishpan Lane Northbound						Blackhawk Drive Eastbound							
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total	
07:00 AM	0	0	17	0	1	18	8	1	0	0	0	9	0	0	0	0	0	0	0	1	0	0	2	3	30	
07:05 AM	0	0	36	0	1	37	18	0	0	1	0	19	1	0	0	0	0	0	1	0	0	0	0	0	57	
07:10 AM	0	0	38	0	0	38	18	0	0	0	0	18	0	0	0	0	0	0	0	1	0	0	0	0	57	
07:15 AM	0	0	41	0	3	44	16	0	0	0	0	16	1	0	0	0	0	0	1	0	0	0	0	0	61	
07:20 AM	0	0	46	0	2	48	26	1	0	0	0	27	0	0	0	0	0	0	0	0	2	0	0	0	27	
07:25 AM	0	0	60	0	0	60	21	0	0	1	0	22	0	0	0	0	0	0	0	0	0	0	0	0	82	
07:30 AM	0	0	49	0	0	49	9	0	0	0	0	9	1	0	0	0	0	0	1	0	1	0	1	0	2	61
07:35 AM	0	0	12	0	0	12	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	13	
07:40 AM	0	0	6	0	0	6	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	3	3	
07:45 AM	0	0	14	0	0	14	4	1	0	1	0	6	0	0	0	0	0	0	0	2	0	0	0	2		
07:50 AM	0	0	6	0	0	6	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0		
07:55 AM	0	0	12	0	0	12	3	0	0	0	0	3	1	0	0	0	0	1	0	1	0	0	0	1		
Total	0	0	337	0	7	344	135	3	0	3	0	141	4	0	0	0	0	4	0	8	0	1	5	14	503	
08:00 AM	0	0	6	0	0	6	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	9	
08:05 AM	0	0	5	0	0	5	1	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	8	
08:10 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3		
08:15 AM	0	0	4	0	0	4	2	0	0	0	0	2	0	0	0	0	1	1	0	2	0	0	0	2		
08:20 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6		
08:25 AM	0	0	1	0	0	1	1	2	0	0	0	3	1	0	0	0	0	1	0	1	0	0	0	1		
08:30 AM	0	0	4	0	0	4	1	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2		
08:35 AM	0	0	5	0	0	5	0	2	1	0	0	3	0	1	0	0	0	1	0	1	0	0	0	10		
08:40 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
08:45 AM	0	0	4	0	0	4	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5		
08:50 AM	0	0	4	0	0	4	5	2	1	0	0	8	0	0	0	0	1	1	0	2	0	0	1	16		
08:55 AM	0	0	4	0	0	4	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	6		
Total	0	0	48	0	0	48	12	9	2	1	0	24	1	1	0	0	2	4	0	12	0	2	1	15	91	



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Western HS Access)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Western HS Access Southbound						Blackhawk Drive Westbound						Dishpan Lane Northbound						Blackhawk Drive Eastbound						
	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
09:00 AM	1	0	7	0	3	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
09:05 AM	0	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
09:10 AM	0	0	5	0	1	6	0	0	0	0	0	0	0	1	0	0	0	0	1	0	4	0	0	1	12
09:15 AM	0	0	3	0	0	3	0	2	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	6
09:20 AM	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
09:25 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
09:30 AM	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5
09:35 AM	0	0	2	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
09:40 AM	0	0	2	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
09:45 AM	0	0	0	0	0	0	0	1	1	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	3
09:50 AM	1	0	5	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	7
09:55 AM	0	0	1	0	0	1	0	1	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	1	4
Total	2	0	33	0	5	40	2	5	1	0	0	8	3	0	0	0	0	3	0	8	0	0	1	9	60
Grand Total	2	0	418	0	12	432	149	17	3	4	0	173	8	1	0	0	2	11	0	28	0	3	7	38	654
Apprch %	0.5	0	96.8	0	2.8		86.1	9.8	1.7	2.3	0		72.7	9.1	0	0	18.2		0	73.7	0	7.9	18.4		
Total %	0.3	0	63.9	0	1.8	66.1	22.8	2.6	0.5	0.6	0	26.5	1.2	0.2	0	0	0.3	1.7	0	4.3	0	0.5	1.1	5.8	
Cars +	2	0	415	0	12	429	148	16	3	3	0	170	8	1	0	0	2	11	0	27	0	3	7	37	647
% Cars +	100	0	99.3	0	100	99.3	99.3	94.1	100	75	0	98.3	100	100	0	0	100	100	0	96.4	0	100	100	97.4	98.9
Trucks	0	0	3	0	0	3	1	1	0	1	0	3	0	0	0	0	0	0	0	1	0	0	0	1	7
% Trucks	0	0	0.7	0	0	0.7	0.7	5.9	0	25	0	1.7	0	0	0	0	0	0	0	3.6	0	0	0	2.6	1.1



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Western HS Access)
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	Western HS Access Southbound						Blackhawk Drive Westbound						Dishpan Lane Northbound						Blackhawk Drive Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:00 AM																									
07:00 AM	0	0	17	0	1	18	8	1	0	0	0	9	0	0	0	0	0	0	0	1	0	0	2	3	30
07:05 AM	0	0	36	0	1	37	18	0	0	1	0	19	1	0	0	0	0	1	0	0	0	0	0	0	57
07:10 AM	0	0	38	0	0	38	18	0	0	0	0	18	0	0	0	0	0	0	0	1	0	0	0	0	57
07:15 AM	0	0	41	0	3	44	16	0	0	0	0	16	1	0	0	0	0	1	0	0	0	0	0	0	61
07:20 AM	0	0	46	0	2	48	26	1	0	0	0	27	0	0	0	0	0	0	0	2	0	0	0	2	77
07:25 AM	0	0	60	0	0	60	21	0	0	1	0	22	0	0	0	0	0	0	0	0	0	0	0	0	82
07:30 AM	0	0	49	0	0	49	9	0	0	0	0	9	1	0	0	0	0	1	0	1	0	1	0	2	61
07:35 AM	0	0	12	0	0	12	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	13
07:40 AM	0	0	6	0	0	6	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	3	3	14
07:45 AM	0	0	14	0	0	14	4	1	0	1	0	6	0	0	0	0	0	0	0	2	0	0	0	2	22
07:50 AM	0	0	6	0	0	6	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	12
07:55 AM	0	0	12	0	0	12	3	0	0	0	0	3	1	0	0	0	0	1	0	1	0	0	0	1	17
Total Volume	0	0	337	0	7	344	135	3	0	3	0	141	4	0	0	0	0	4	0	8	0	1	5	14	503
% App. Total	0	0	98	0	2		95.7	2.1	0	2.1	0		100	0	0	0	0	0	57.1	0	7.1	35.7			
PHF	.000	.000	.468	.000	.194	.478	.433	.250	.000	.250	.000	.435	.333	.000	.000	.000	.000	.333	.000	.333	.000	.083	.139	.389	.511



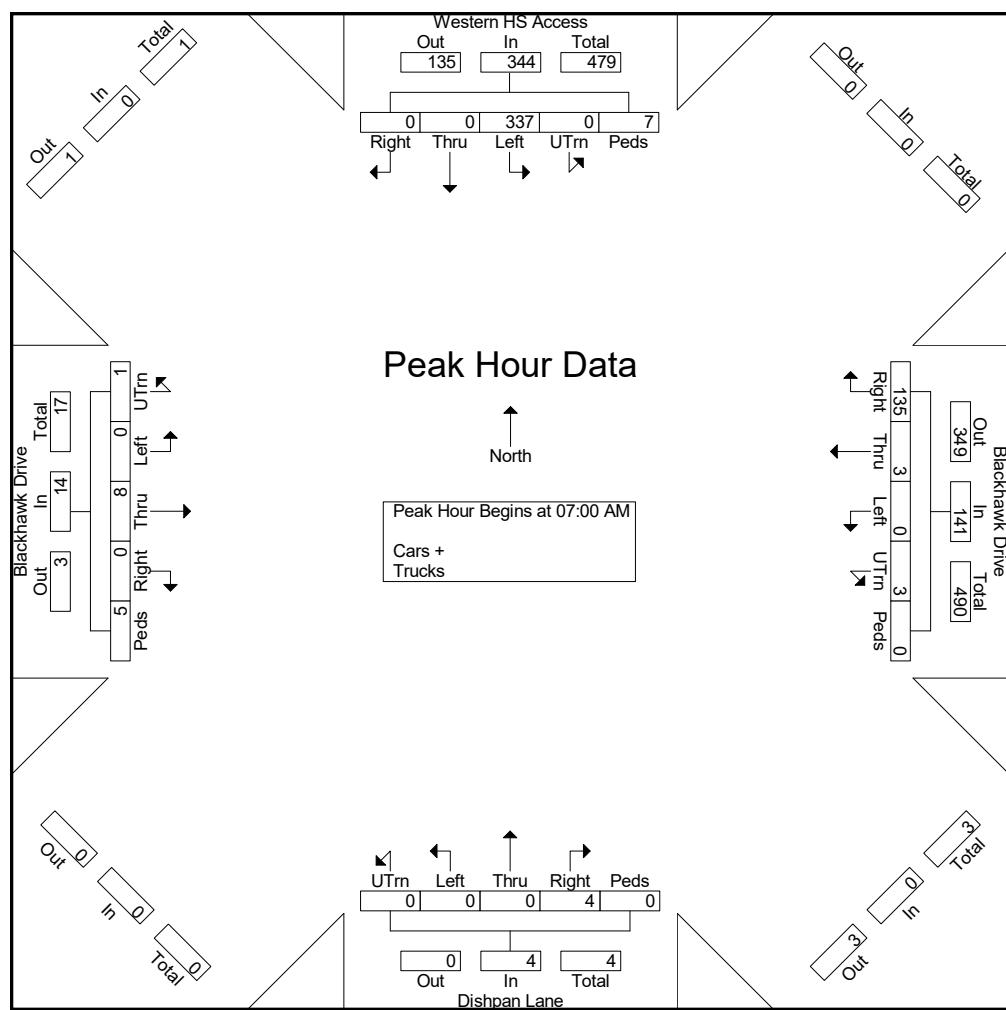
TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Western HS Access)

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Start Date : 9/28/2023

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TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Western HS Access)
 Site Code :
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Groups Printed- Cars + - Trucks

Start Time	Western HS Access Southbound						Blackhawk Drive Westbound						Dishpan Lane Northbound						Blackhawk Drive Eastbound						
	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
01:30 PM	0	0	2	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
01:35 PM	0	0	1	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	5
01:40 PM	0	0	0	0	0	0	6	1	0	2	0	9	1	0	0	0	0	0	1	0	2	0	0	0	12
01:45 PM	0	0	3	0	0	3	4	1	0	2	0	7	0	0	0	0	0	0	0	0	1	0	0	0	11
01:50 PM	0	0	4	0	0	4	1	2	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	9
01:55 PM	0	0	3	0	0	3	4	1	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	9
Total	0	0	13	0	0	13	18	5	0	7	0	30	1	0	0	0	0	1	0	5	0	0	0	5	49
02:00 PM	0	0	45	0	0	45	3	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	49
02:05 PM	0	0	21	0	2	23	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	5	8	31
02:10 PM	0	0	39	0	0	39	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	41
02:15 PM	0	0	31	0	0	31	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	33
02:20 PM	0	0	11	0	0	11	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	13
02:25 PM	0	0	10	0	0	10	0	2	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	2	14
02:30 PM	0	0	8	0	0	8	2	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	12
02:35 PM	0	0	1	0	1	2	0	2	1	0	0	3	1	0	0	0	0	1	0	0	0	0	1	1	7
02:40 PM	0	0	5	0	0	5	2	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	8
02:45 PM	0	0	4	0	0	4	2	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
02:50 PM	0	0	2	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	4
02:55 PM	0	0	4	0	0	4	0	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	8
Total	0	0	181	0	3	184	11	11	5	0	0	27	3	0	0	0	0	3	0	8	0	0	6	14	228
03:00 PM	0	0	4	0	0	4	1	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	7
03:05 PM	0	0	11	0	0	11	2	3	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	1	17
03:10 PM	0	0	5	0	0	5	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	7
03:15 PM	0	0	4	0	0	4	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	1	0	1	7



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Western HS Access)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Western HS Access Southbound						Blackhawk Drive Westbound						Dishpan Lane Northbound						Blackhawk Drive Eastbound							
	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total	
03:20 PM	0	0	3	0	0	3	1	1	0	0	0	2	0	0	0	0	1	1	0	1	0	1	2	4	10	
03:25 PM	0	0	2	0	0	2	2	3	0	0	0	5	0	0	0	0	0	0	0	2	0	0	0	0	2	9
03:30 PM	0	0	1	0	0	1	3	1	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0	0	0	6
03:35 PM	0	0	1	0	1	2	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	5
03:40 PM	0	0	3	0	0	3	2	1	0	0	0	3	0	0	0	0	0	0	1	1	0	0	0	0	2	8
03:45 PM	0	0	3	0	0	3	0	0	1	0	0	1	1	0	0	0	0	1	0	2	0	0	0	0	2	7
03:50 PM	0	0	1	0	0	1	1	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	4
03:55 PM	0	0	3	0	2	5	3	1	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0	1	10
Total	0	0	41	0	3	44	16	15	2	0	0	33	2	0	0	0	1	3	1	11	0	2	3	17	97	
04:00 PM	0	0	20	0	0	20	1	2	1	0	0	4	1	0	0	0	0	1	0	0	0	0	0	0	0	25
04:05 PM	0	0	11	0	0	11	0	1	1	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	14
04:10 PM	0	0	13	0	0	13	2	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	16
04:15 PM	0	1	3	0	0	4	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	8
04:20 PM	0	0	4	0	0	4	3	0	0	0	0	3	1	0	0	0	0	1	0	0	0	0	0	0	0	8
04:25 PM	0	0	6	0	0	6	5	1	1	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Grand Total	0	1	292	0	6	299	60	35	10	7	0	112	8	0	0	0	1	9	1	26	0	2	9	38	458	
Apprch %	0	0.3	97.7	0	2		53.6	31.2	8.9	6.2	0		88.9	0	0	0	11.1		2.6	68.4	0	5.3	23.7			
Total %	0	0.2	63.8	0	1.3	65.3	13.1	7.6	2.2	1.5	0	24.5	1.7	0	0	0	0.2	2	0.2	5.7	0	0.4	2	8.3		
Cars +	0	1	290	0	6	297	59	34	10	7	0	110	8	0	0	0	1	9	1	25	0	2	9	37	453	
% Cars +	0	100	99.3	0	100	99.3	98.3	97.1	100	100	0	98.2	100	0	0	0	100	100	100	96.2	0	100	100	97.4	98.9	
Trucks	0	0	2	0	0	2	1	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	5	
% Trucks	0	0	0.7	0	0	0.7	1.7	2.9	0	0	0	1.8	0	0	0	0	0	0	0	3.8	0	0	0	2.6	1.1	



TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Western HS Access)
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 Start Date : 9/28/2023
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	Western HS Access Southbound						Blackhawk Drive Westbound						Dishpan Lane Northbound						Blackhawk Drive Eastbound						
Start Time	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Right	Thru	Left	UTrn	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:00 AM																									
07:00 AM	0	0	17	0	1	18	8	1	0	0	0	9	0	0	0	0	0	0	0	1	0	0	2	3	30
07:05 AM	0	0	36	0	1	37	18	0	0	1	0	19	1	0	0	0	0	1	0	0	0	0	0	0	57
07:10 AM	0	0	38	0	0	38	18	0	0	0	0	18	0	0	0	0	0	0	0	1	0	0	0	0	57
07:15 AM	0	0	41	0	3	44	16	0	0	0	0	16	1	0	0	0	0	1	0	0	0	0	0	0	61
07:20 AM	0	0	46	0	2	48	26	1	0	0	0	27	0	0	0	0	0	0	0	2	0	0	0	2	77
07:25 AM	0	0	60	0	0	60	21	0	0	1	0	22	0	0	0	0	0	0	0	0	0	0	0	0	82
07:30 AM	0	0	49	0	0	49	9	0	0	0	0	9	1	0	0	0	0	1	0	1	0	1	0	2	61
07:35 AM	0	0	12	0	0	12	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	13
07:40 AM	0	0	6	0	0	6	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	3	3	14
07:45 AM	0	0	14	0	0	14	4	1	0	1	0	6	0	0	0	0	0	0	0	2	0	0	0	2	22
07:50 AM	0	0	6	0	0	6	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	12
07:55 AM	0	0	12	0	0	12	3	0	0	0	0	3	1	0	0	0	0	1	0	1	0	0	0	1	17
Total Volume	0	0	337	0	7	344	135	3	0	3	0	141	4	0	0	0	0	4	0	8	0	1	5	14	503
% App. Total	0	0	98	0	2		95.7	2.1	0	2.1	0		100	0	0	0	0	0	57.1	0	7.1	35.7			
PHF	.000	.000	.468	.000	.194	.478	.433	.250	.000	.250	.000	.435	.333	.000	.000	.000	.000	.333	.000	.333	.000	.083	.139	.389	.511



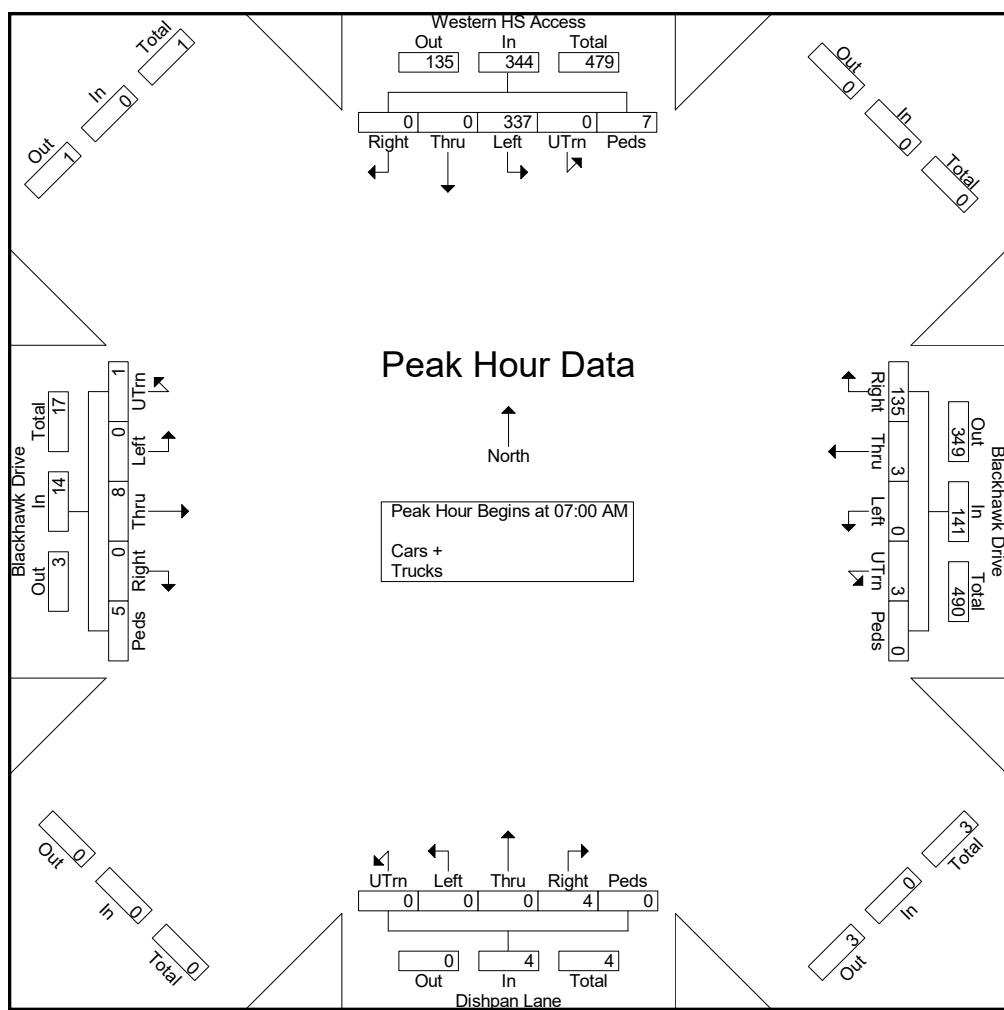
TRAFFIC DATA COLLECTION

File Name : Stafford(Black Hawk and Western HS Access)

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TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Courthouse)
 Site Code :
 Start Date : 9/28/2023
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Groups Printed- Cars + - Trucks

	Courthouse Road Southbound					Jennifer Lane Westbound					Courthouse Road Northbound					Spartan Drive 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	Int. Total
07:00 AM	1	7	1	0	9	1	0	3	0	4	0	31	0	0	31	1	0	0	0	1	45
07:05 AM	0	78	0	0	78	0	0	0	0	0	0	50	3	0	53	0	0	0	0	0	131
07:10 AM	2	90	0	0	92	0	0	1	0	1	0	64	0	0	64	0	0	1	2	3	160
07:15 AM	1	94	0	0	95	0	0	0	0	0	0	69	0	0	69	2	0	0	0	0	166
07:20 AM	1	98	1	0	100	0	0	2	0	2	0	53	2	0	55	0	0	0	0	0	157
07:25 AM	1	81	0	0	82	0	0	0	3	3	0	81	0	0	81	0	0	1	0	1	167
07:30 AM	2	30	0	0	32	3	0	0	0	3	1	92	1	0	94	0	0	0	0	0	129
07:35 AM	1	14	1	0	16	0	0	0	0	0	0	64	1	0	65	0	0	0	0	0	81
07:40 AM	2	12	2	0	16	3	0	0	0	3	0	43	0	0	43	1	0	1	0	2	64
07:45 AM	1	23	0	0	24	1	0	0	0	1	0	41	1	0	42	0	0	1	0	1	68
07:50 AM	4	29	1	0	34	0	0	0	0	0	0	50	2	0	52	0	0	1	0	1	87
07:55 AM	3	19	0	0	22	2	0	0	0	2	0	28	2	0	30	1	0	0	0	1	55
Total	19	575	6	0	600	10	0	6	3	19	1	666	12	0	679	5	0	5	2	12	1310
08:00 AM	3	16	0	0	19	2	0	0	0	2	0	50	1	0	51	0	0	1	0	1	73
08:05 AM	6	12	0	0	18	2	0	0	0	2	0	50	2	0	52	0	0	4	0	4	76
08:10 AM	2	14	0	0	16	1	0	0	0	1	0	35	2	0	37	0	0	1	0	1	55
08:15 AM	7	19	1	0	27	2	0	0	0	2	0	39	0	0	39	0	0	0	0	0	68
08:20 AM	6	29	2	0	37	1	0	0	0	1	0	32	2	0	34	0	0	1	0	1	73
08:25 AM	12	18	0	0	30	2	0	0	0	2	0	24	0	0	24	0	0	0	0	0	56
08:30 AM	11	19	1	0	31	0	0	0	0	0	0	21	1	0	22	0	0	0	0	0	53
08:35 AM	11	9	1	0	21	0	0	0	0	0	0	26	2	0	28	0	0	1	0	1	50
08:40 AM	8	10	0	0	18	0	0	0	0	0	0	23	1	0	24	0	0	1	0	1	43
08:45 AM	7	12	0	0	19	0	0	0	0	0	0	25	1	0	26	0	0	5	0	5	50
08:50 AM	11	13	0	0	24	0	0	0	0	0	0	28	4	0	32	0	0	4	0	4	60
08:55 AM	8	13	0	0	21	0	0	0	1	1	0	18	1	0	19	0	0	0	0	0	41
Total	92	184	5	0	281	10	0	0	1	11	0	371	17	0	388	0	0	18	0	18	698
09:00 AM	15	10	0	0	25	2	0	0	0	2	0	21	2	0	23	4	0	2	0	6	56
09:05 AM	10	17	0	0	27	2	0	0	0	2	0	17	3	0	20	4	0	27	0	31	80
09:10 AM	14	8	0	0	22	0	0	0	0	0	0	25	7	0	32	3	0	15	0	18	72
09:15 AM	12	15	1	0	28	0	0	0	1	1	0	15	2	0	17	5	0	18	0	23	69
09:20 AM	7	7	0	0	14	0	0	0	0	0	0	18	0	0	18	1	0	14	0	15	47
09:25 AM	5	14	0	0	19	2	0	0	0	2	0	13	1	0	14	1	0	6	0	7	42
09:30 AM	9	10	0	0	19	1	0	0	1	2	0	15	0	0	15	0	0	3	0	3	39
09:35 AM	0	6	0	0	6	1	0	0	0	1	0	17	0	0	17	0	1	6	1	8	32
09:40 AM	2	11	0	0	13	0	0	0	1	1	0	18	0	0	18	0	0	0	0	0	32
09:45 AM	2	10	1	0	13	1	0	1	0	2	0	12	0	0	12	0	0	4	0	4	31
09:50 AM	4	11	2	0	17	3	0	0	0	3	0	22	0	0	22	0	0	0	0	0	42
09:55 AM	3	14	0	0	17	2	0	0	0	2	1	19	0	0	20	1	0	3	0	4	43
Total	83	133	4	0	220	14	0	1	3	18	1	212	15	0	228	19	1	98	1	119	585
Grand Total	194	892	15	0	1101	34	0	7	7	48	2	1249	44	0	1295	24	1	121	3	149	2593
Apprch %	17.6	81	1.4	0	70.8	0	14.6	14.6			0.2	96.4	3.4	0	16.1	0.7	81.2	2			
Total %	7.5	34.4	0.6	0	42.5	1.3	0	0.3	0.3	1.9	0.1	48.2	1.7	0	49.9	0.9	0	4.7	0.1	5.7	
Cars +	178	844	12	0	1034	31	0	6	7	44	2	1203	42	0	1247	21	1	99	0	121	2446
% Cars +	91.8	94.6	80	0	93.9	91.2	0	85.7	100	91.7	100	96.3	95.5	0	96.3	87.5	100	81.8	0	81.2	94.3
Trucks	16	48	3	0	67	3	0	1	0	4	0	46	2	0	48	3	0	22	3	28	147
% Trucks	8.2	5.4	20	0	6.1	8.8	0	14.3	0	8.3	0	3.7	4.5	0	3.7	12.5	0	18.2	100	18.8	5.7



TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Courthouse)

Site Code :

Start Date : 9/28/2023

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	Courthouse Road Southbound					Jennifer Lane Westbound					Courthouse Road Northbound					Spartan Drive 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	Int. Total
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:05 AM																					
07:05 AM	0	78	0	0	78	0	0	0	0	0	0	50	3	0	53	0	0	0	0	0	131
07:10 AM	2	90	0	0	92	0	0	1	0	1	0	64	0	0	64	0	0	1	2	3	160
07:15 AM	1	94	0	0	95	0	0	0	0	0	0	69	0	0	69	2	0	0	0	0	166
07:20 AM	1	98	1	0	100	0	0	2	0	2	0	53	2	0	55	0	0	0	0	0	157
07:25 AM	1	81	0	0	82	0	0	0	3	3	0	81	0	0	81	0	0	1	0	1	167
07:30 AM	2	30	0	0	32	3	0	0	0	3	1	92	1	0	94	0	0	0	0	0	129
07:35 AM	1	14	1	0	16	0	0	0	0	0	0	64	1	0	65	0	0	0	0	0	81
07:40 AM	2	12	2	0	16	3	0	0	0	3	0	43	0	0	43	1	0	1	0	2	64
07:45 AM	1	23	0	0	24	1	0	0	0	1	0	41	1	0	42	0	0	1	0	1	68
07:50 AM	4	29	1	0	34	0	0	0	0	0	0	50	2	0	52	0	0	1	0	1	87
07:55 AM	3	19	0	0	22	2	0	0	0	2	0	28	2	0	30	1	0	0	0	1	55
08:00 AM	3	16	0	0	19	2	0	0	0	2	0	50	1	0	51	0	0	1	0	1	73
Total Volume	21	584	5	0	610	11	0	3	3	17	1	685	13	0	699	4	0	6	2	12	1338
% App. Total	3.4	95.7	0.8	0		64.7	0	17.6	17.6		0.1	98	1.9	0		33.3	0	50	16.7		
PHF	.438	.497	.208	.000	.508	.306	.000	.125	.083	.472	.083	.620	.361	.000	.620	.167	.000	.500	.083	.333	.668



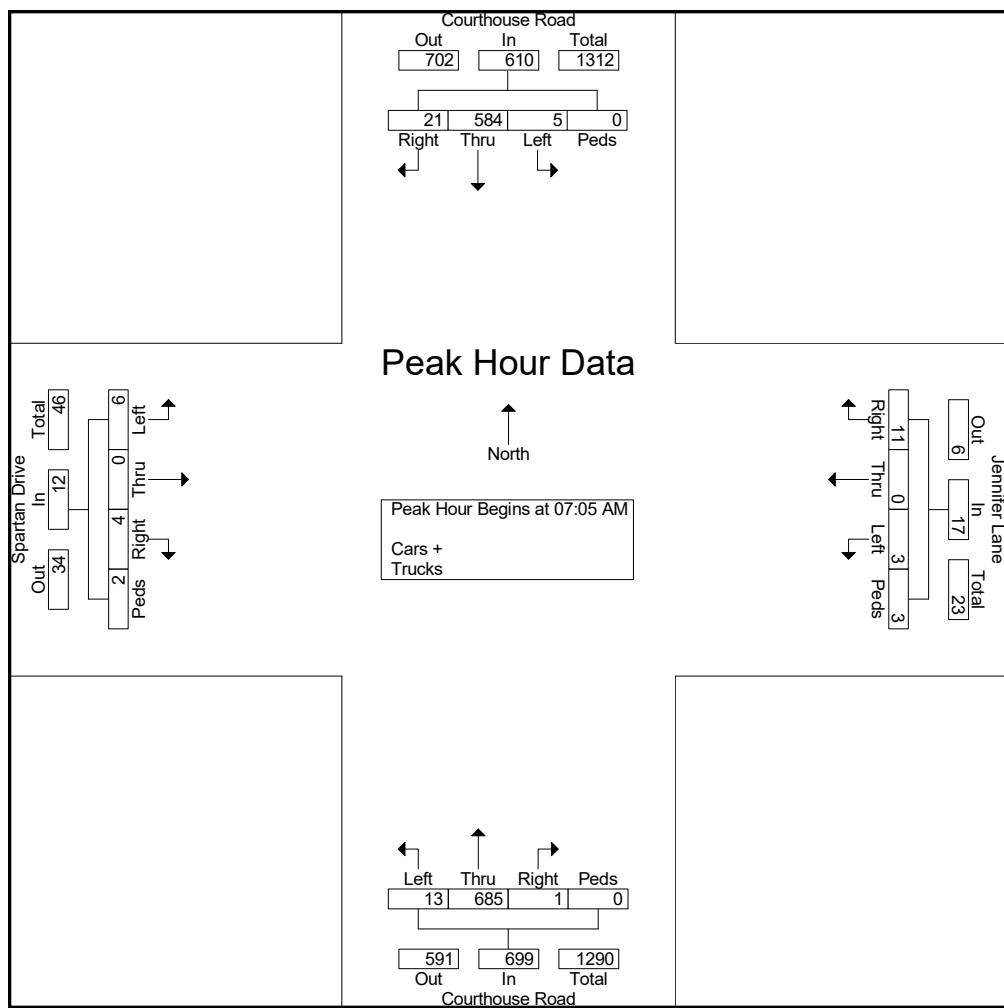
TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Courthouse)

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Start Date : 9/28/2023

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TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Courthouse)
 Site Code :
 Start Date : 9/28/2023
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Groups Printed- Cars + - Trucks

	Courthouse Road Southbound					Jennifer Lane Westbound					Courthouse Road Northbound					Spartan Drive 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	Int. Total
01:30 PM	0	7	2	0	9	1	0	0	0	1	0	17	0	0	17	0	0	0	0	0	27
01:35 PM	1	27	2	0	30	0	0	0	0	0	0	23	0	0	23	0	0	1	0	1	54
01:40 PM	2	32	1	0	35	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	56
01:45 PM	1	32	0	0	33	1	0	1	0	2	0	16	0	0	16	0	0	2	0	2	53
01:50 PM	1	27	1	0	29	0	0	1	0	1	0	33	0	0	33	0	0	2	0	2	65
01:55 PM	1	38	1	0	40	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	64
Total	6	163	7	0	176	2	0	2	0	4	0	134	0	0	134	0	0	5	0	5	319
02:00 PM	0	32	1	0	33	1	0	0	0	1	1	41	0	0	42	0	0	5	0	5	81
02:05 PM	1	28	0	0	29	2	0	1	0	3	1	72	0	0	73	1	0	3	0	4	109
02:10 PM	0	24	3	0	27	1	0	0	0	1	3	80	1	0	84	0	0	2	0	2	114
02:15 PM	1	31	0	0	32	2	0	2	0	4	0	63	0	0	63	0	0	2	0	2	101
02:20 PM	3	29	0	0	32	1	0	0	0	1	0	34	1	0	35	0	0	0	0	0	68
02:25 PM	3	28	0	0	31	1	0	0	0	1	0	33	0	0	33	0	0	3	0	3	68
02:30 PM	0	28	2	0	30	1	0	0	0	1	0	35	0	0	35	0	0	3	0	3	69
02:35 PM	3	31	0	0	34	2	0	0	0	2	0	44	0	0	44	3	0	3	0	6	86
02:40 PM	1	24	0	0	25	1	0	0	0	1	0	33	0	0	33	0	0	0	0	0	59
02:45 PM	0	25	0	0	25	0	0	0	0	0	0	34	0	0	34	0	0	3	2	5	64
02:50 PM	1	28	1	0	30	0	0	0	0	0	1	28	0	0	29	0	0	0	0	0	59
02:55 PM	3	24	0	0	27	0	0	0	0	0	1	25	0	0	26	0	0	0	0	0	53
Total	16	332	7	0	355	12	0	3	0	15	7	522	2	0	531	4	0	24	2	30	931
03:00 PM	7	34	1	0	42	1	0	0	0	1	0	29	1	0	30	0	0	0	0	0	73
03:05 PM	1	29	0	0	30	1	0	0	0	1	1	31	0	0	32	1	0	3	0	4	67
03:10 PM	8	30	4	0	42	2	0	0	0	2	0	28	0	0	28	0	0	1	0	1	73
03:15 PM	4	33	1	0	38	3	0	0	0	3	0	20	2	0	22	2	0	2	0	4	67
03:20 PM	10	30	1	0	41	1	0	0	0	1	1	22	2	0	25	0	0	1	0	1	68
03:25 PM	9	31	0	0	40	0	0	0	0	0	0	20	0	0	20	2	0	0	0	2	62
03:30 PM	6	30	3	0	39	0	0	0	0	0	0	21	2	0	23	0	0	4	0	4	66
03:35 PM	12	28	0	0	40	2	0	0	0	2	1	11	1	0	13	1	0	2	0	3	58
03:40 PM	4	43	2	0	49	1	0	0	0	1	0	16	0	0	16	1	0	1	0	2	68
03:45 PM	14	43	2	0	59	2	0	0	0	2	0	23	1	0	24	0	0	0	0	0	85
03:50 PM	9	24	2	0	35	0	0	0	0	0	0	17	1	0	18	4	0	4	0	8	61
03:55 PM	9	37	2	0	48	2	0	0	0	2	0	22	1	0	23	11	0	19	0	30	103
Total	93	392	18	0	503	15	0	0	0	15	3	260	11	0	274	22	0	37	0	59	851
04:00 PM	4	40	1	0	45	1	0	0	0	1	0	24	1	0	25	0	0	17	0	17	88
04:05 PM	4	37	1	0	42	2	0	0	0	2	0	40	0	0	40	5	1	15	0	21	105
04:10 PM	1	41	1	0	43	1	0	0	0	1	1	34	1	0	36	7	0	14	0	21	101



TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Courthouse)

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Start Date : 9/28/2023

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Groups Printed- Cars + - Trucks

	Courthouse Road Southbound					Jennifer Lane Westbound					Courthouse Road Northbound					Spartan Drive 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	Int. Total
04:15 PM	1	46	0	0	47	0	0	0	0	0	0	23	0	0	23	1	0	14	0	15	85
04:20 PM	1	41	3	0	45	0	0	0	0	0	0	25	0	0	25	4	0	14	0	18	88
04:25 PM	1	52	2	0	55	1	0	0	0	1	0	12	0	0	12	1	0	5	0	6	74
Grand Total	127	1144	40	0	1311	34	0	5	0	39	11	1074	15	0	1100	44	1	145	2	192	2642
Apprch %	9.7	87.3	3.1	0		87.2	0	12.8	0		1	97.6	1.4	0		22.9	0.5	75.5	1		
Total %	4.8	43.3	1.5	0	49.6	1.3	0	0.2	0	1.5	0.4	40.7	0.6	0	41.6	1.7	0	5.5	0.1	7.3	
Cars +	103	1098	40	0	1241	32	0	4	0	36	9	1026	12	0	1047	42	0	123	2	167	2491
% Cars +	81.1	96	100	0	94.7	94.1	0	80	0	92.3	81.8	95.5	80	0	95.2	95.5	0	84.8	100	87	94.3
Trucks	24	46	0	0	70	2	0	1	0	3	2	48	3	0	53	2	1	22	0	25	151
% Trucks	18.9	4	0	0	5.3	5.9	0	20	0	7.7	18.2	4.5	20	0	4.8	4.5	100	15.2	0	13	5.7



TRAFFIC DATA COLLECTION

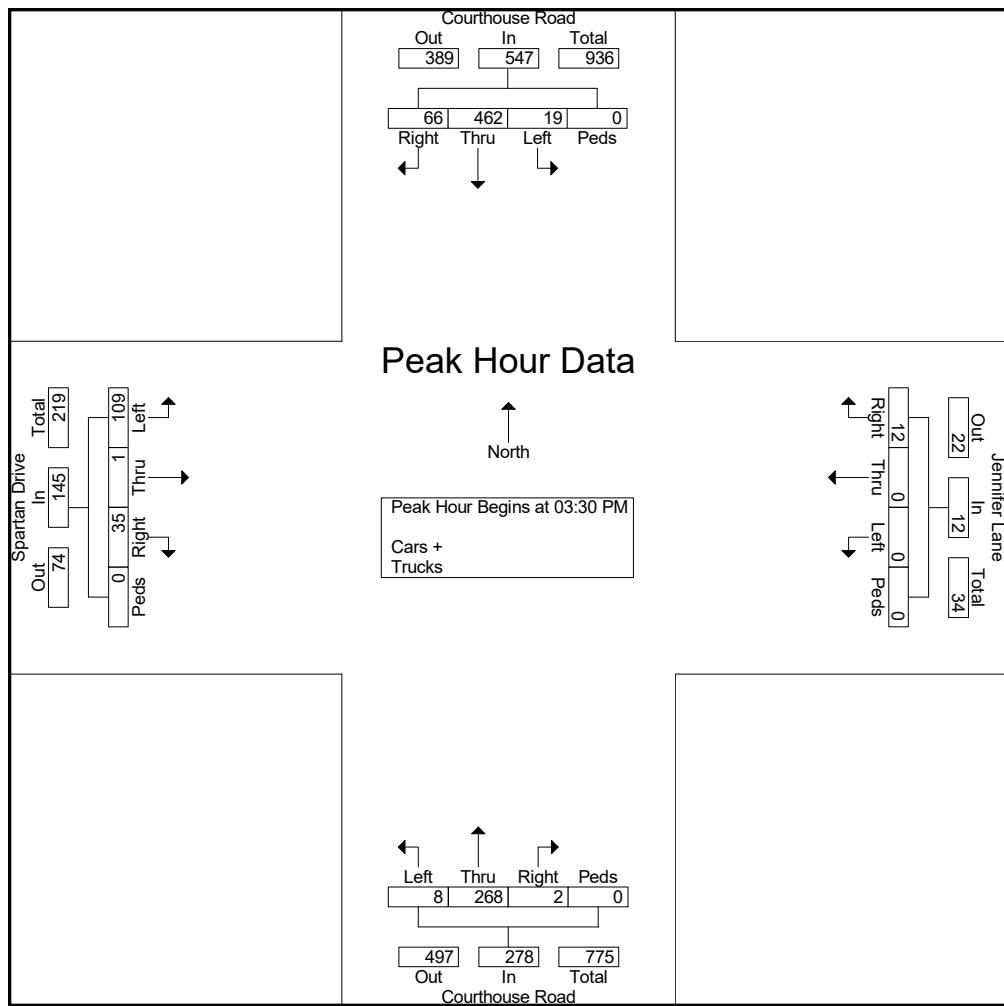
File Name : Stafford(Spartan and Courthouse)
 Site Code :
 Start Date : 9/28/2023
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	Courthouse Road Southbound					Jennifer Lane Westbound					Courthouse Road Northbound					Spartan Drive Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 01:30 PM to 04:25 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	6	30	3	0	39	0	0	0	0	0	0	21	2	0	23	0	0	4	0	4	66
03:35 PM	12	28	0	0	40	2	0	0	0	2	1	11	1	0	13	1	0	2	0	0	58
03:40 PM	4	43	2	0	49	1	0	0	0	1	0	16	0	0	16	1	0	1	0	0	68
03:45 PM	14	43	2	0	59	2	0	0	0	2	0	23	1	0	24	0	0	0	0	0	85
03:50 PM	9	24	2	0	35	0	0	0	0	0	0	17	1	0	18	4	0	4	0	0	61
03:55 PM	9	37	2	0	48	2	0	0	0	2	0	22	1	0	23	11	0	19	0	0	103
04:00 PM	4	40	1	0	45	1	0	0	0	1	0	24	1	0	25	0	0	17	0	0	88
04:05 PM	4	37	1	0	42	2	0	0	0	2	0	40	0	0	40	5	1	15	0	0	105
04:10 PM	1	41	1	0	43	1	0	0	0	1	1	34	1	0	36	7	0	14	0	0	101
04:15 PM	1	46	0	0	47	0	0	0	0	0	0	23	0	0	23	1	0	14	0	0	85
04:20 PM	1	41	3	0	45	0	0	0	0	0	0	25	0	0	25	4	0	14	0	0	88
04:25 PM	1	52	2	0	55	1	0	0	0	1	0	12	0	0	12	1	0	5	0	0	74
Total Volume	66	462	19	0	547	12	0	0	0	12	2	268	8	0	278	35	1	109	0	145	982
% App. Total	12.1	84.5	3.5	0		100	0	0	0		0.7	96.4	2.9	0		24.1	0.7	75.2	0		
PHF	.393	.740	.528	.000	.773	.500	.000	.000	.000	.500	.167	.558	.333	.000	.579	.265	.083	.478	.000	.403	.779



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TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Middle School Access)
 Site Code :
 Start Date : 9/28/2023
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Groups Printed- Cars + - Trucks

Start Time	Spartan Lane Westbound					Middle School Access Northbound					Spartan Lane Eastbound					Int. Total
	Thru	Left	UTrn	Peds	App. Total	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	
07:00 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
07:05 AM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
07:10 AM	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	3
07:15 AM	0	1	0	0	1	0	0	0	1	1	0	2	0	0	2	4
07:20 AM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
07:25 AM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
07:30 AM	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	3
07:35 AM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
07:40 AM	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	3
07:45 AM	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3
07:50 AM	5	2	0	0	7	0	0	0	0	0	0	0	0	0	0	7
07:55 AM	3	2	0	0	5	1	0	0	0	1	0	0	0	0	0	6
Total	20	11	0	0	31	3	0	0	1	4	0	5	0	0	5	40
08:00 AM	2	2	0	0	4	1	0	0	0	1	0	1	0	0	1	6
08:05 AM	3	4	0	0	7	3	0	0	0	3	0	0	0	0	0	10
08:10 AM	2	2	0	0	4	1	0	0	0	1	0	0	0	0	0	5
08:15 AM	2	3	0	0	5	1	0	0	0	1	0	0	0	0	0	6
08:20 AM	6	4	0	0	10	0	0	0	0	0	0	0	0	0	0	10
08:25 AM	5	7	0	0	12	0	0	0	0	0	0	0	0	0	0	12
08:30 AM	4	5	0	0	9	0	0	0	0	0	0	0	0	0	0	9
08:35 AM	4	12	0	0	16	1	0	0	0	1	0	0	0	0	0	17
08:40 AM	3	4	0	0	7	0	0	0	0	0	0	1	0	0	1	8
08:45 AM	0	9	0	0	9	5	0	0	0	5	0	2	0	0	2	16
08:50 AM	3	13	0	0	16	1	0	0	0	1	0	1	0	0	1	18
08:55 AM	2	17	0	0	19	1	0	0	0	1	0	0	0	0	0	20
Total	36	82	0	0	118	14	0	0	0	14	0	5	0	0	5	137
09:00 AM	4	10	0	0	14	0	0	0	0	0	1	26	0	0	27	41
09:05 AM	10	10	0	0	20	4	0	0	0	4	0	17	0	0	17	41
09:10 AM	8	18	0	0	26	6	0	0	0	6	2	15	0	0	17	49
09:15 AM	4	10	0	0	14	7	0	0	0	7	0	18	0	0	18	39
09:20 AM	2	6	0	0	8	2	0	0	0	2	0	6	0	0	6	16
09:25 AM	5	0	0	0	5	8	1	0	0	9	0	0	0	0	0	14
09:30 AM	5	3	0	0	8	4	0	0	0	4	0	1	0	0	1	13
09:35 AM	1	0	0	0	1	4	0	0	0	4	0	0	0	0	0	5
09:40 AM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	3
09:45 AM	1	1	0	0	2	1	0	0	0	1	0	2	0	0	2	5



TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Middle School Access)

Site Code :

Start Date : 9/28/2023

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Groups Printed- Cars + - Trucks

Start Time	Spartan Lane Westbound					Middle School Access Northbound					Spartan Lane Eastbound					
	Thru	Left	UTrn	Peds	App. Total	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	Int. Total
09:50 AM	3	0	0	0	3	1	0	0	1	2	0	0	0	0	0	5
09:55 AM	3	1	0	0	4	3	0	0	0	3	0	0	0	0	0	7
Total	46	61	0	0	107	41	1	0	1	43	3	85	0	0	88	238
Grand Total	102	154	0	0	256	58	1	0	2	61	3	95	0	0	98	415
Apprch %	39.8	60.2	0	0		95.1	1.6	0	3.3		3.1	96.9	0	0		
Total %	24.6	37.1	0	0	61.7	14	0.2	0	0.5	14.7	0.7	22.9	0	0	23.6	
Cars +	76	153	0	0	229	35	0	0	2	37	3	93	0	0	96	362
% Cars +	74.5	99.4	0	0	89.5	60.3	0	0	100	60.7	100	97.9	0	0	98	87.2
Trucks	26	1	0	0	27	23	1	0	0	24	0	2	0	0	2	53
% Trucks	25.5	0.6	0	0	10.5	39.7	100	0	0	39.3	0	2.1	0	0	2	12.8



TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Middle School Access)

Site Code :

Start Date : 9/28/2023

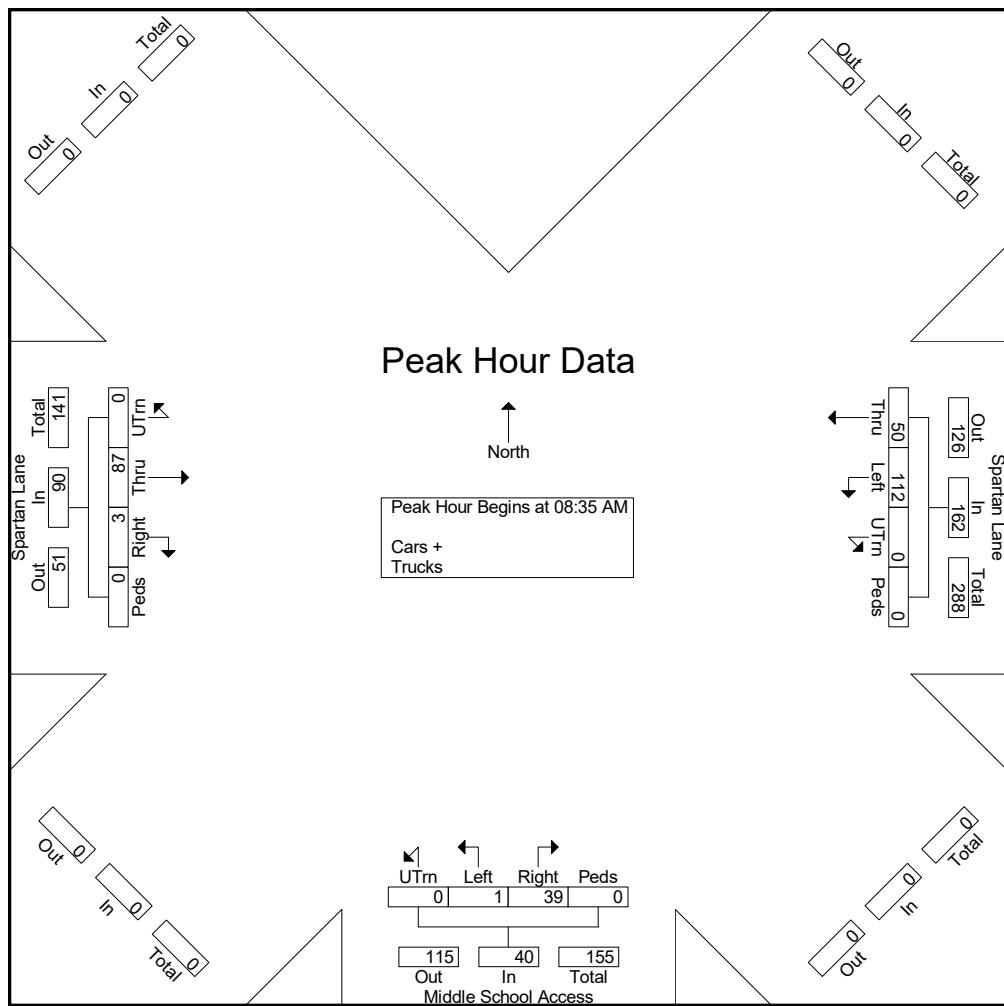
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Start Time	Spartan Lane Westbound					Middle School Access Northbound					Spartan Lane Eastbound					Int. Total	
	Thru	Left	UTrn	Peds	App. Total	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total		
Peak Hour Analysis From 07:00 AM to 09:55 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:35 AM																	
08:35 AM	4	12	0	0	16	1	0	0	0	1	0	0	0	0	0	17	
08:40 AM	3	4	0	0	7	0	0	0	0	0	0	1	0	0	0	8	
08:45 AM	0	9	0	0	9	5	0	0	0	5	0	2	0	0	0	16	
08:50 AM	3	13	0	0	16	1	0	0	0	1	0	1	0	0	0	18	
08:55 AM	2	17	0	0	19	1	0	0	0	1	0	0	0	0	0	20	
09:00 AM	4	10	0	0	14	0	0	0	0	0	1	26	0	0	0	41	
09:05 AM	10	10	0	0	20	4	0	0	0	4	0	17	0	0	0	41	
09:10 AM	8	18	0	0	26	6	0	0	0	6	2	15	0	0	0	49	
09:15 AM	4	10	0	0	14	7	0	0	0	7	0	18	0	0	0	39	
09:20 AM	2	6	0	0	8	2	0	0	0	2	0	6	0	0	0	16	
09:25 AM	5	0	0	0	5	8	1	0	0	9	0	0	0	0	0	14	
09:30 AM	5	3	0	0	8	4	0	0	0	4	0	1	0	0	1	13	
Total Volume	50	112	0	0	162	39	1	0	0	40	3	87	0	0	90	292	
% App. Total	30.9	69.1	0	0		97.5	2.5	0	0		3.3	96.7	0	0			
PHF	.417	.519	.000	.000	.519	.406	.083	.000	.000	.370	.125	.279	.000	.000	.278	.497	



TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Middle School Access)
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TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Middle School Access)
 Site Code :
 Start Date : 9/28/2023
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Groups Printed- Cars + - Trucks

Start Time	Spartan Lane Westbound					Middle School Access Northbound					Spartan Lane Eastbound					Int. Total
	Thru	Left	UTrn	Peds	App. Total	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:35 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	1
01:40 PM	0	2	0	0	2	1	1	0	0	2	0	0	0	0	0	4
01:45 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
01:50 PM	1	0	0	0	1	1	0	0	0	1	0	1	0	0	0	1
01:55 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	3	4	0	0	7	2	1	0	0	3	0	3	0	0	3	13
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	5
02:05 PM	1	0	0	0	1	3	0	0	0	3	0	1	0	0	0	1
02:10 PM	1	0	0	0	1	3	0	0	0	3	0	0	0	0	0	4
02:15 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
02:20 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
02:25 PM	2	2	0	0	4	1	0	0	0	1	0	3	0	0	3	8
02:30 PM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2
02:35 PM	1	1	0	0	2	5	0	0	0	5	0	0	0	0	0	7
02:40 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
02:45 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
02:50 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:55 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	9	7	0	0	16	16	0	0	0	16	0	11	0	0	11	43
03:00 PM	6	1	0	0	7	0	0	0	0	0	0	0	0	0	0	7
03:05 PM	1	0	0	0	1	3	0	0	0	3	0	2	0	0	2	6
03:10 PM	3	5	0	0	8	0	0	0	0	0	0	0	0	0	0	8
03:15 PM	1	2	0	0	3	1	0	0	0	1	0	2	0	0	2	6
03:20 PM	4	9	0	0	13	1	0	0	0	1	0	0	0	0	0	14
03:25 PM	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	3
03:30 PM	3	3	0	0	6	4	0	0	0	4	0	1	0	0	1	11
03:35 PM	7	8	0	0	15	1	0	1	0	2	0	2	0	0	2	19
03:40 PM	3	1	0	0	4	2	0	0	0	2	0	0	0	0	0	6
03:45 PM	6	8	0	0	14	0	0	0	0	0	1	0	0	0	1	15
03:50 PM	3	5	0	0	8	4	0	0	0	4	1	6	0	0	7	19
03:55 PM	3	10	0	0	13	8	0	0	0	8	0	25	0	0	25	46
Total	41	52	0	0	93	25	0	1	0	26	2	39	0	0	41	160
04:00 PM	3	2	0	0	5	13	0	0	0	13	0	21	0	0	21	39
04:05 PM	2	2	0	0	4	2	0	0	0	2	0	9	0	0	9	15



TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Middle School Access)

Site Code :

Start Date : 9/28/2023

Page No : 2

Groups Printed- Cars + - Trucks

Start Time	Spartan Lane Westbound					Middle School Access Northbound					Spartan Lane Eastbound					Int. Total
	Thru	Left	UTrn	Peds	App. Total	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total	
04:10 PM	1	0	0	0	1	4	0	0	0	4	0	4	0	0	4	9
04:15 PM	1	1	0	0	2	9	0	0	0	9	0	10	0	0	10	21
04:20 PM	1	0	0	0	1	11	0	0	0	11	0	5	0	0	5	17
04:25 PM	1	0	0	0	1	3	0	0	0	3	0	1	0	0	1	5
Grand Total	62	68	0	0	130	85	1	1	0	87	2	103	0	0	105	322
Apprch %	47.7	52.3	0	0		97.7	1.1	1.1	0		1.9	98.1	0	0		
Total %	19.3	21.1	0	0	40.4	26.4	0.3	0.3	0	27	0.6	32	0	0	32.6	
Cars +	36	68	0	0	104	60	1	1	0	62	2	102	0	0	104	270
% Cars +	58.1	100	0	0	80	70.6	100	100	0	71.3	100	99	0	0	99	83.9
Trucks	26	0	0	0	26	25	0	0	0	25	0	1	0	0	1	52
% Trucks	41.9	0	0	0	20	29.4	0	0	0	28.7	0	1	0	0	1	16.1



TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Middle School Access)

Site Code :

Start Date : 9/28/2023

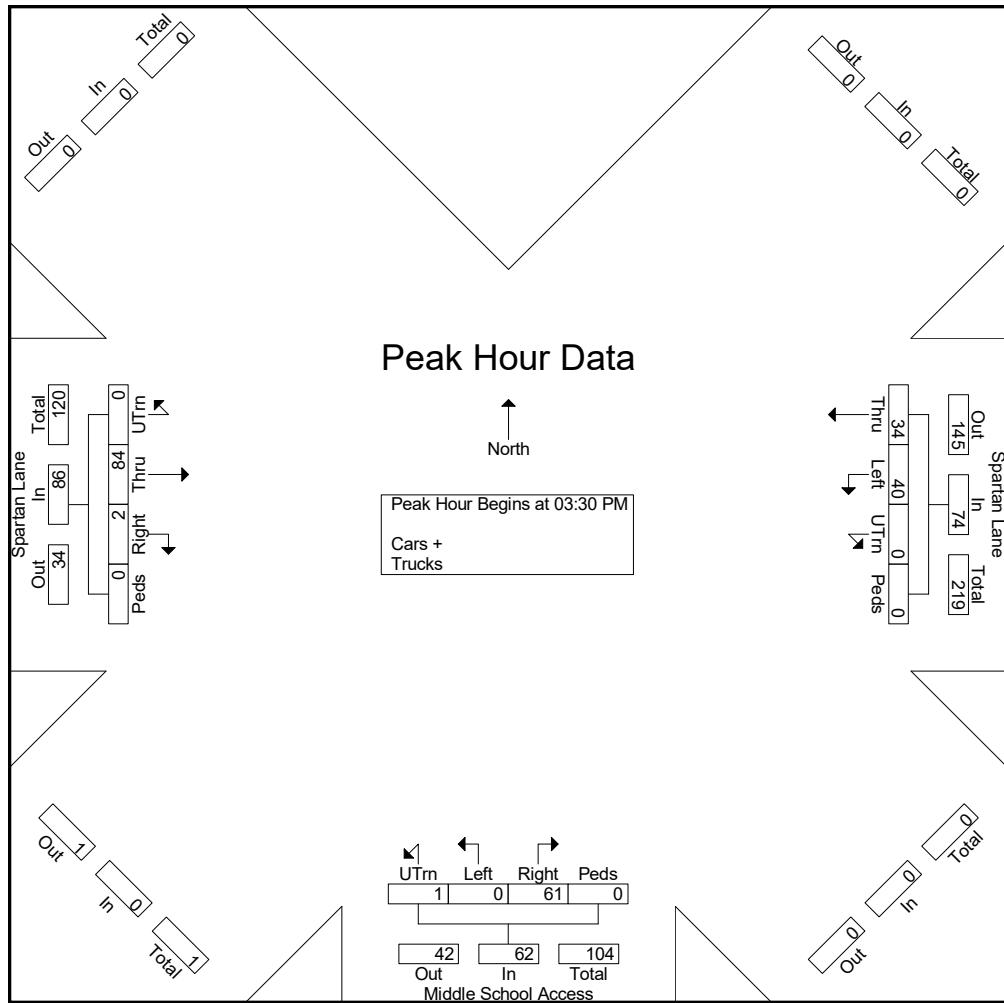
Page No : 3

Start Time	Spartan Lane Westbound					Middle School Access Northbound					Spartan Lane Eastbound					Int. Total	
	Thru	Left	UTrn	Peds	App. Total	Right	Left	UTrn	Peds	App. Total	Right	Thru	UTrn	Peds	App. Total		
Peak Hour Analysis From 01:30 PM to 04:25 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	3	3	0	0	6	4	0	0	0	4	0	1	0	0	1	11	
03:35 PM	7	8	0	0	15	1	0	1	0	2	0	2	0	0	2	19	
03:40 PM	3	1	0	0	4	2	0	0	0	2	0	0	0	0	0	6	
03:45 PM	6	8	0	0	14	0	0	0	0	0	1	0	0	0	1	15	
03:50 PM	3	5	0	0	8	4	0	0	0	4	1	6	0	0	7	19	
03:55 PM	3	10	0	0	13	8	0	0	0	8	0	25	0	0	25	46	
04:00 PM	3	2	0	0	5	13	0	0	0	13	0	21	0	0	21	39	
04:05 PM	2	2	0	0	4	2	0	0	0	2	0	9	0	0	9	15	
04:10 PM	1	0	0	0	1	4	0	0	0	4	0	4	0	0	4	9	
04:15 PM	1	1	0	0	2	9	0	0	0	9	0	10	0	0	10	21	
04:20 PM	1	0	0	0	1	11	0	0	0	11	0	5	0	0	5	17	
04:25 PM	1	0	0	0	1	3	0	0	0	3	0	1	0	0	1	5	
Total Volume	34	40	0	0	74	61	0	1	0	62	2	84	0	0	86	222	
% App. Total	45.9	54.1	0	0		98.4	0	1.6	0		2.3	97.7	0	0			
PHF	.405	.333	.000	.000	.411	.391	.000	.083	.000	.397	.167	.280	.000	.000	.287	.402	



TRAFFIC DATA COLLECTION

File Name : Stafford(Spartan and Middle School Access)
Site Code :
Start Date : 9/28/2023
Page No : 4



Appendix B

Synchro & SimTraffic Analysis of 2023 Existing Conditions



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Elementary School 19
1: Courthouse Road & Spartan Drive/Jennifer Lane

2023 AM Peak
HCM 6th TWSC

Intersection

Int Delay, s/veh 4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	93	0	18	0	0	6	25	250	0	3	147	119
Future Vol, veh/h	93	0	18	0	0	6	25	250	0	3	147	119
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	355	-	-	165	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	79	50	79	50	79	79	79	79	50
Heavy Vehicles, %	19	2	11	2	2	17	0	2	2	0	5	11
Mvmt Flow	186	0	36	0	0	8	50	316	0	4	186	238

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	452	610	93	517	848	158	424	0	0	316	0	0
Stage 1	194	194	-	416	416	-	-	-	-	-	-	-
Stage 2	258	416	-	101	432	-	-	-	-	-	-	-
Critical Hdwy	7.88	6.54	7.12	7.54	6.54	7.24	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.88	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.88	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.69	4.02	3.41	3.52	4.02	3.47	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	453	408	918	441	297	814	1146	-	-	1256	-	-
Stage 1	743	739	-	585	590	-	-	-	-	-	-	-
Stage 2	678	590	-	894	581	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	433	389	918	409	283	814	1146	-	-	1256	-	-
Mov Cap-2 Maneuver	433	389	-	409	283	-	-	-	-	-	-	-
Stage 1	710	737	-	559	564	-	-	-	-	-	-	-
Stage 2	642	564	-	856	579	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	19.1	9.5			1.1		0.1	
HCM LOS	C	A			A		A	
<hr/>								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1146	-	-	474	814	1256	-	-
HCM Lane V/C Ratio	0.044	-	-	0.468	0.009	0.003	-	-
HCM Control Delay (s)	8.3	-	-	19.1	9.5	7.9	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	0	0	-	-

Intersection						
Int Delay, s/veh	4.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↓	↔	
Traffic Vol, veh/h	86	0	114	49	1	35
Future Vol, veh/h	86	0	114	49	1	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	50	50	56	50	50
Heavy Vehicles, %	0	0	2	2	100	57
Mvmt Flow	154	0	228	88	2	70
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	154	0	697	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	543	-
Critical Hdwy	-	-	4.12	-	7.4	6.77
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	-	-	2.218	-	4.4	3.813
Pot Cap-1 Maneuver	-	-	1426	-	290	766
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	426	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1426	-	241	766
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	354	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	5.8	10.5			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	722	-	-	1426	-	
HCM Lane V/C Ratio	0.1	-	-	0.16	-	
HCM Control Delay (s)	10.5	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0.6	-	

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	61	4	7	207	100	56
Future Vol, veh/h	61	4	7	207	100	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	130	0	345	-	-	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	88	88	50
Heavy Vehicles, %	3	25	14	3	3	3
Mvmt Flow	122	8	14	235	114	112
Major/Minor						
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	260	57	226	0	-	0
Stage 1	114	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.86	7.4	4.38	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.55	2.34	-	-	-
Pot Cap-1 Maneuver	704	928	1257	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	696	928	1257	-	-	-
Mov Cap-2 Maneuver	696	-	-	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Approach						
Approach	EB	NB	SB			
HCM Control Delay, s	11.2	0.4	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1257	-	696	928	-	-
HCM Lane V/C Ratio	0.011	-	0.175	0.009	-	-
HCM Control Delay (s)	7.9	-	11.3	8.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.6	0	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗	↘		
Traffic Vol, veh/h	2	57	57	6	9	1
Future Vol, veh/h	2	57	57	6	9	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	5	11	0	0	0
Mvmt Flow	4	114	114	12	18	2
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	126	0	-	0	242	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1473	-	-	-	751	937
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	908	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1473	-	-	-	749	937
Mov Cap-2 Maneuver	-	-	-	-	749	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	908	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.3	0	9.8			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1473	-	-	-	764	
HCM Lane V/C Ratio	0.003	-	-	-	0.026	
HCM Control Delay (s)	7.5	-	-	-	9.8	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑		Y	
Traffic Vol, veh/h	0	57	54	0	1	0
Future Vol, veh/h	0	57	54	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	4	4	4	100	100
Mvmt Flow	0	114	108	0	2	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	222	54
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	114	-
Critical Hdwy	-	-	-	-	8.1	8.4
Critical Hdwy Stg 1	-	-	-	-	7.3	-
Critical Hdwy Stg 2	-	-	-	-	6.9	-
Follow-up Hdwy	-	-	-	-	4.45	4.25
Pot Cap-1 Maneuver	0	-	-	0	561	771
Stage 1	0	-	-	0	694	-
Stage 2	0	-	-	0	697	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	561	771
Mov Cap-2 Maneuver	-	-	-	-	561	-
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	697	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	11.4			
HCM LOS			B			
Minor Lane/Major Mvmt	EBT	WBT	SBLn1			
Capacity (veh/h)	-	-	561			
HCM Lane V/C Ratio	-	-	0.004			
HCM Control Delay (s)	-	-	11.4			
HCM Lane LOS	-	-	B			
HCM 95th %tile Q(veh)	-	-	0			

Elementary School 19
7: Black Hawk Drive & Student Parking Lot

2023 AM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	54	16	38	3	0
Future Vol, veh/h	3	54	16	38	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	2	2	2	2	2
Mvmt Flow	6	108	32	76	6	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	108	0	-	0	190	54
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	4.1	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.2	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1495	-	-	-	790	1002
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1495	-	-	-	787	1002
Mov Cap-2 Maneuver	-	-	-	-	787	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	905	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.4	0	9.6			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1495	-	-	-	787	
HCM Lane V/C Ratio	0.004	-	-	-	0.008	
HCM Control Delay (s)	7.4	0	-	-	9.6	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection

Int Delay, s/veh 6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↑	↑	↗	↔			↔		↔
Traffic Vol, veh/h	0	10	0	2	7	7	0	1	1	42	0	1
Future Vol, veh/h	0	10	0	2	7	7	0	1	1	42	0	1
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	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	73	73	73	50	73	50	50	50	50	50
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	20	0	3	10	14	0	2	2	84	0	2

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	24	0	0	20	0	0	44	50	20	38	36	10
Stage 1	-	-	-	-	-	-	20	20	-	16	16	-
Stage 2	-	-	-	-	-	-	24	30	-	22	20	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1604	-	-	1609	-	-	963	845	1064	972	860	1077
Stage 1	-	-	-	-	-	-	1004	883	-	1009	886	-
Stage 2	-	-	-	-	-	-	999	874	-	1002	883	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1604	-	-	1609	-	-	960	843	1064	967	858	1077
Mov Cap-2 Maneuver	-	-	-	-	-	-	960	843	-	967	858	-
Stage 1	-	-	-	-	-	-	1004	883	-	1009	884	-
Stage 2	-	-	-	-	-	-	995	872	-	998	883	-

Approach	EB	WB			NB			SB			
HCM Control Delay, s	0	0.8			8.8			9.1			
HCM LOS					A			A			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	941	1604	-	-	1609	-	-	969			
HCM Lane V/C Ratio	0.004	-	-	-	0.002	-	-	0.089			
HCM Control Delay (s)	8.8	0	-	-	7.2	0	-	9.1			
HCM Lane LOS	A	A	-	-	A	A	-	A			
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3			

Intersection: 1: Courthouse Road & Spartan Drive/Jennifer Lane

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	R
Maximum Queue (ft)	165	50	31	0	15	3	37
Average Queue (ft)	52	7	5	0	1	0	1
95th Queue (ft)	114	31	19	0	8	2	15
Link Distance (ft)	733	1063		2648		356	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			355		165		85
Storage Blk Time (%)							0
Queuing Penalty (veh)							0

Intersection: 2: Eastern HS Access & Spartan Drive

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	61	79
Average Queue (ft)	10	25
95th Queue (ft)	39	64
Link Distance (ft)	733	619
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Courthouse Road & Black Hawk Drive

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	L	T	R
Maximum Queue (ft)	63	56	35	4	6
Average Queue (ft)	27	6	2	0	0
95th Queue (ft)	54	31	15	4	4
Link Distance (ft)		123		2648	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		130		345	
Storage Blk Time (%)				110	
Queuing Penalty (veh)					

Intersection: 4: Black Hawk Drive & Eastern HS Access

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	6	32
Average Queue (ft)	0	8
95th Queue (ft)	5	30
Link Distance (ft)		512
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Black Hawk Drive & Bus Loop Entrance

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: Black Hawk Drive & Bus Loop Exit

Movement	SB
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	3
95th Queue (ft)	25
Link Distance (ft)	344
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Black Hawk Drive & Student Parking Lot

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	9	29
Average Queue (ft)	0	3
95th Queue (ft)	6	18
Link Distance (ft)	69	727
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Dishpan Lane/Western HS Access & Black Hawk Drive

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	3	38
Average Queue (ft)	0	21
95th Queue (ft)	2	45
Link Distance (ft)	625	342
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Elementary School 19
1: Courthouse Road & Spartan Drive/Jennifer Lane

2023 PM Peak
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↑	↑↓		↑	↑↓	↑
Traffic Vol, veh/h	16	0	8	0	0	12	5	349	4	10	347	47
Future Vol, veh/h	16	0	8	0	0	12	5	349	4	10	347	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	355	-	-	165	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	93	50	93	50	93	93	93	93	50
Heavy Vehicles, %	0	0	13	0	0	0	0	2	0	0	1	4
Mvmt Flow	32	0	16	0	0	13	10	375	4	11	373	94
Major/Minor												
Minor2		Minor1			Major1			Major2				
Conflicting Flow All	603	794	187	606	886	190	467	0	0	379	0	0
Stage 1	395	395	-	397	397	-	-	-	-	-	-	-
Stage 2	208	399	-	209	489	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.16	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.43	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	387	323	790	385	286	826	1105	-	-	1191	-	-
Stage 1	607	608	-	605	607	-	-	-	-	-	-	-
Stage 2	780	606	-	779	553	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	376	317	790	372	281	826	1105	-	-	1191	-	-
Mov Cap-2 Maneuver	376	317	-	372	281	-	-	-	-	-	-	-
Stage 1	602	603	-	600	602	-	-	-	-	-	-	-
Stage 2	761	601	-	756	548	-	-	-	-	-	-	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	13.8		9.4			0.2			0.2			
HCM LOS	B		A									
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	1105		-	-	456	826	1191	-	-			
HCM Lane V/C Ratio	0.009		-	-	0.105	0.016	0.009	-	-			
HCM Control Delay (s)	8.3		-	-	13.8	9.4	8.1	-	-			
HCM Lane LOS	A		-	-	B	A	A	-	-			
HCM 95th %tile Q(veh)	0		-	-	0.4	0	0	-	-			

Intersection						
Int Delay, s/veh	5.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↓	↔	
Traffic Vol, veh/h	6	0	21	19	0	15
Future Vol, veh/h	6	0	21	19	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	50	50	66	50	50
Heavy Vehicles, %	17	0	0	5	0	0
Mvmt Flow	9	0	42	29	0	30
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	9	0	122	9
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	113	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1624	-	878	1079
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1624	-	855	1079
Mov Cap-2 Maneuver	-	-	-	-	855	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	893	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	4.3	8.4			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1079	-	-	1624	-	
HCM Lane V/C Ratio	0.028	-	-	0.026	-	
HCM Control Delay (s)	8.4	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	138	37	9	212	274	77
Future Vol, veh/h	138	37	9	212	274	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	130	0	345	-	-	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	85	85	50
Heavy Vehicles, %	3	3	0	2	1	4
Mvmt Flow	276	74	18	249	322	154
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	483	161	476	0	-	0
Stage 1	322	-	-	-	-	-
Stage 2	161	-	-	-	-	-
Critical Hdwy	6.86	6.96	4.1	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	2.2	-	-	-
Pot Cap-1 Maneuver	510	852	1097	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	502	852	1097	-	-	-
Mov Cap-2 Maneuver	502	-	-	-	-	-
Stage 1	693	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	18.3	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1097	-	502	852	-	-
HCM Lane V/C Ratio	0.016	-	0.55	0.087	-	-
HCM Control Delay (s)	8.3	-	20.6	9.6	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	3.3	0.3	-	-

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗	↘		
Traffic Vol, veh/h	4	76	69	16	94	6
Future Vol, veh/h	4	76	69	16	94	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	152	138	32	188	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	170	0	-	0	322	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	168	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1407	-	-	-	672	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1407	-	-	-	668	892
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	862	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.4	0	12.5			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1407	-	-	-	678	
HCM Lane V/C Ratio	0.006	-	-	-	0.295	
HCM Control Delay (s)	7.6	-	-	-	12.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	1.2	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑		Y	
Traffic Vol, veh/h	0	75	69	0	4	0
Future Vol, veh/h	0	75	69	0	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	3	1	0	25	0
Mvmt Flow	0	150	138	0	8	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	288	69
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	150	-
Critical Hdwy	-	-	-	-	6.975	6.9
Critical Hdwy Stg 1	-	-	-	-	6.175	-
Critical Hdwy Stg 2	-	-	-	-	5.775	-
Follow-up Hdwy	-	-	-	-	3.7375	3.3
Pot Cap-1 Maneuver	0	-	-	0	638	986
Stage 1	0	-	-	0	816	-
Stage 2	0	-	-	0	818	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	638	986
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	818	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	10.7			
HCM LOS			B			
Minor Lane/Major Mvmt	EBT	WBT	SBLn1			
Capacity (veh/h)	-	-	638			
HCM Lane V/C Ratio	-	-	0.013			
HCM Control Delay (s)	-	-	10.7			
HCM Lane LOS	-	-	B			
HCM 95th %tile Q(veh)	-	-	0			

Elementary School 19
7: Black Hawk Drive & Student Parking Lot

2023 PM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	63	37	33	12	0
Future Vol, veh/h	0	63	37	33	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	0	126	74	66	24	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	140	0	-	0	233	70
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1456	-	-	-	750	985
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1456	-	-	-	750	985
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	905	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	10			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1456	-	-	-	750	
HCM Lane V/C Ratio	-	-	-	-	0.032	
HCM Control Delay (s)	0	-	-	-	10	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔	↑	↗	↔			↔		
Traffic Vol, veh/h	0	8	0	5	18	12	0	0	1	53	0	0
Future Vol, veh/h	0	8	0	5	18	12	0	0	1	53	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	78	78	78	50	78	50	50	50	50	92
Heavy Vehicles, %	0	13	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	0	16	0	6	23	24	0	0	2	106	0	0
Major/Minor												
Major1		Major2			Minor1			Minor2				
Conflicting Flow All	47	0	0	16	0	0	63	75	16	52	51	23
Stage 1	-	-	-	-	-	-	16	16	-	35	35	-
Stage 2	-	-	-	-	-	-	47	59	-	17	16	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1573	-	-	1615	-	-	936	819	1069	952	844	1060
Stage 1	-	-	-	-	-	-	1009	886	-	986	870	-
Stage 2	-	-	-	-	-	-	972	850	-	1008	886	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1573	-	-	1615	-	-	933	816	1069	947	841	1060
Mov Cap-2 Maneuver	-	-	-	-	-	-	933	816	-	947	841	-
Stage 1	-	-	-	-	-	-	1009	886	-	986	867	-
Stage 2	-	-	-	-	-	-	968	847	-	1006	886	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	0			0.9			8.4			9.3		
HCM LOS							A			A		
Minor Lane/Major Mvmt												
NBLn1		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1069	1573	-	-	1615	-	-	947				
HCM Lane V/C Ratio	0.002	-	-	-	0.004	-	-	0.112				
HCM Control Delay (s)	8.4	0	-	-	7.2	0	-	9.3				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4				

Intersection: 1: Courthouse Road & Spartan Drive/Jennifer Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	58	31	10	24
Average Queue (ft)	16	10	1	2
95th Queue (ft)	45	34	5	14
Link Distance (ft)	733	1063		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		355	165	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Eastern HS Access & Spartan Drive

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	26
Average Queue (ft)	0	7
95th Queue (ft)	3	23
Link Distance (ft)	733	619
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Courthouse Road & Black Hawk Drive

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	L	T	R
Maximum Queue (ft)	111	111	36	2	4
Average Queue (ft)	45	27	3	0	0
95th Queue (ft)	87	69	19	0	3
Link Distance (ft)		123		2648	
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	0	1			
Storage Bay Dist (ft)	130		345		110
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	1			

Intersection: 4: Black Hawk Drive & Eastern HS Access

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	12	3	87
Average Queue (ft)	1	0	35
95th Queue (ft)	8	3	66
Link Distance (ft)		283	512
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		90	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Black Hawk Drive & Bus Loop Entrance

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: Black Hawk Drive & Bus Loop Exit

Movement	SB
Directions Served	LR
Maximum Queue (ft)	64
Average Queue (ft)	5
95th Queue (ft)	30
Link Distance (ft)	344
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Black Hawk Drive & Student Parking Lot

Movement	SB
Directions Served	LR
Maximum Queue (ft)	34
Average Queue (ft)	8
95th Queue (ft)	30
Link Distance (ft)	727
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Dishpan Lane/Western HS Access & Black Hawk Drive

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	3	46
Average Queue (ft)	0	23
95th Queue (ft)	1	46
Link Distance (ft)	625	342
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1

Appendix C

Synchro & SimTraffic Analysis of 2026 Background Conditions (Growth Only)



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Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↑	↑↓		↑	↑↑	↑
Traffic Vol, veh/h	96	0	19	0	0	6	26	258	0	3	151	123
Future Vol, veh/h	96	0	19	0	0	6	26	258	0	3	151	123
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	355	-	-	165	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	92	50	92	50	92	92	92	92	50
Heavy Vehicles, %	19	2	11	2	2	17	0	2	2	0	5	11
Mvmt Flow	192	0	38	0	0	7	52	280	0	3	164	246
Major/Minor												
Minor2		Minor1			Major1			Major2				
Conflicting Flow All	414	554	82	472	800	140	410	0	0	280	0	0
Stage 1	170	170	-	384	384	-	-	-	-	-	-	-
Stage 2	244	384	-	88	416	-	-	-	-	-	-	-
Critical Hdwy	7.88	6.54	7.12	7.54	6.54	7.24	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.88	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.88	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.69	4.02	3.41	3.52	4.02	3.47	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	484	439	933	475	317	837	1160	-	-	1294	-	-
Stage 1	768	757	-	611	610	-	-	-	-	-	-	-
Stage 2	692	610	-	910	590	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	463	418	933	439	302	837	1160	-	-	1294	-	-
Mov Cap-2 Maneuver	463	418	-	439	302	-	-	-	-	-	-	-
Stage 1	733	755	-	584	583	-	-	-	-	-	-	-
Stage 2	656	583	-	871	589	-	-	-	-	-	-	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	18		9.3			1.3			0.1			
HCM LOS	C		A									
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	1160		-	-	505	837	1294	-	-			
HCM Lane V/C Ratio	0.045		-	-	0.455	0.008	0.003	-	-			
HCM Control Delay (s)	8.2		-	-	18	9.3	7.8	-	-			
HCM Lane LOS	A		-	-	C	A	A	-	-			
HCM 95th %tile Q(veh)	0.1		-	-	2.3	0	0	-	-			

Intersection						
Int Delay, s/veh	5.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	89	0	117	50	1	36
Future Vol, veh/h	89	0	117	50	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	50	50	92	50	50
Heavy Vehicles, %	0	0	2	2	100	57
Mvmt Flow	97	0	234	54	2	72
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	97	0	619	97
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	522	-
Critical Hdwy	-	-	4.12	-	7.4	6.77
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	-	-	2.218	-	4.4	3.813
Pot Cap-1 Maneuver	-	-	1496	-	327	828
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	438	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1496	-	274	828
Mov Cap-2 Maneuver	-	-	-	-	274	-
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	367	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	6.4	10.1			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	785	-	-	1496	-	
HCM Lane V/C Ratio	0.094	-	-	0.156	-	
HCM Control Delay (s)	10.1	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0.6	-	

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	63	4	7	213	103	58
Future Vol, veh/h	63	4	7	213	103	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	130	0	345	-	-	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	92	92	50
Heavy Vehicles, %	3	25	14	3	3	3
Mvmt Flow	126	8	14	232	112	116
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	256	56	228	0	-	0
Stage 1	112	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.86	7.4	4.38	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.55	2.34	-	-	-
Pot Cap-1 Maneuver	708	929	1254	-	-	-
Stage 1	897	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	700	929	1254	-	-	-
Mov Cap-2 Maneuver	700	-	-	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.2	0.5		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1254	-	700	929	-	-
HCM Lane V/C Ratio	0.011	-	0.18	0.009	-	-
HCM Control Delay (s)	7.9	-	11.3	8.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.7	0	-	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗	↘		
Traffic Vol, veh/h	2	59	59	6	9	1
Future Vol, veh/h	2	59	59	6	9	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	5	11	0	0	0
Mvmt Flow	4	118	118	12	18	2
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	130	0	-	0	250	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1468	-	-	-	743	932
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1468	-	-	-	741	932
Mov Cap-2 Maneuver	-	-	-	-	741	-
Stage 1	-	-	-	-	904	-
Stage 2	-	-	-	-	905	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.2	0	9.9			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1468	-	-	-	757	
HCM Lane V/C Ratio	0.003	-	-	-	0.026	
HCM Control Delay (s)	7.5	-	-	-	9.9	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑		Y	
Traffic Vol, veh/h	0	59	56	0	1	0
Future Vol, veh/h	0	59	56	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	4	4	4	100	100
Mvmt Flow	0	118	112	0	2	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	230	56
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	118	-
Critical Hdwy	-	-	-	-	8.1	8.4
Critical Hdwy Stg 1	-	-	-	-	7.3	-
Critical Hdwy Stg 2	-	-	-	-	6.9	-
Follow-up Hdwy	-	-	-	-	4.45	4.25
Pot Cap-1 Maneuver	0	-	-	0	554	768
Stage 1	0	-	-	0	690	-
Stage 2	0	-	-	0	693	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	554	768
Mov Cap-2 Maneuver	-	-	-	-	554	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	693	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	11.5			
HCM LOS			B			
Minor Lane/Major Mvmt	EBT	WBT	SBLn1			
Capacity (veh/h)	-	-	554			
HCM Lane V/C Ratio	-	-	0.004			
HCM Control Delay (s)	-	-	11.5			
HCM Lane LOS	-	-	B			
HCM 95th %tile Q(veh)	-	-	0			

Elementary School 19
7: Black Hawk Drive & Student Parking Lot

2026 AM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	56	16	39	3	0
Future Vol, veh/h	3	56	16	39	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	2	2	2	2	2
Mvmt Flow	6	112	32	78	6	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	110	0	-	0	195	55
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	4.1	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.2	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1493	-	-	-	785	1001
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1493	-	-	-	782	1001
Mov Cap-2 Maneuver	-	-	-	-	782	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	901	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.4	0	9.6			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1493	-	-	-	782	
HCM Lane V/C Ratio	0.004	-	-	-	0.008	
HCM Control Delay (s)	7.4	0	-	-	9.6	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↑	↑	↗	↔			↔		
Traffic Vol, veh/h	0	10	0	2	7	7	0	1	1	43	0	1
Future Vol, veh/h	0	10	0	2	7	7	0	1	1	43	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	92	92	92	50	92	50	50	50	50	50
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	20	0	2	8	14	0	2	2	86	0	2
Major/Minor												
Major1		Major2			Minor1			Minor2				
Conflicting Flow All	22	0	0	20	0	0	40	46	20	34	32	8
Stage 1	-	-	-	-	-	-	20	20	-	12	12	-
Stage 2	-	-	-	-	-	-	20	26	-	22	20	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1607	-	-	1609	-	-	969	850	1064	978	865	1080
Stage 1	-	-	-	-	-	-	1004	883	-	1014	890	-
Stage 2	-	-	-	-	-	-	1004	878	-	1002	883	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1607	-	-	1609	-	-	966	849	1064	974	864	1080
Mov Cap-2 Maneuver	-	-	-	-	-	-	966	849	-	974	864	-
Stage 1	-	-	-	-	-	-	1004	883	-	1014	889	-
Stage 2	-	-	-	-	-	-	1001	877	-	998	883	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	0			0.7			8.8			9.1		
HCM LOS							A			A		
Minor Lane/Major Mvmt												
NBLn1	944	1607	-	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	944	1607	-	-	-	1609	-	-	976			
HCM Lane V/C Ratio	0.004	-	-	-	-	0.001	-	-	0.09			
HCM Control Delay (s)	8.8	0	-	-	-	7.2	0	-	9.1			
HCM Lane LOS	A	A	-	-	-	A	A	-	A			
HCM 95th %tile Q(veh)	0	0	-	-	-	0	-	-	0.3			

Intersection: 1: Courthouse Road & Spartan Drive/Jennifer Lane

Movement	EB	WB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	T	R
Maximum Queue (ft)	147	48	26	0	10	5	1	34
Average Queue (ft)	50	6	4	0	1	0	0	2
95th Queue (ft)	104	29	17	0	7	4	1	18
Link Distance (ft)	733	1063		2648		356	356	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			355		165		85	
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Intersection: 2: Eastern HS Access & Spartan Drive

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	51	70
Average Queue (ft)	10	26
95th Queue (ft)	38	63
Link Distance (ft)	733	619
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Courthouse Road & Black Hawk Drive

Movement	EB	EB	NB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	71	56	25	2
Average Queue (ft)	28	7	1	0
95th Queue (ft)	56	33	9	0
Link Distance (ft)		123		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	130		345	110
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Black Hawk Drive & Eastern HS Access

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	3	30
Average Queue (ft)	0	8
95th Queue (ft)	3	29
Link Distance (ft)		512
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		90
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Black Hawk Drive & Bus Loop Entrance

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: Black Hawk Drive & Bus Loop Exit

Movement	SB
Directions Served	LR
Maximum Queue (ft)	57
Average Queue (ft)	3
95th Queue (ft)	23
Link Distance (ft)	344
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Black Hawk Drive & Student Parking Lot

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	9	26
Average Queue (ft)	0	3
95th Queue (ft)	6	19
Link Distance (ft)	69	727
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Dishpan Lane/Western HS Access & Black Hawk Drive

Movement	WB	NB	SB
Directions Served	LT	LTR	LTR
Maximum Queue (ft)	3	3	46
Average Queue (ft)	0	0	21
95th Queue (ft)	3	2	45
Link Distance (ft)	69	625	342
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Elementary School 19
1: Courthouse Road & Spartan Drive/Jennifer Lane

2026 PM Peak
HCM 6th TWSC

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↑	↑↓		↑	↑↑	↑
Traffic Vol, veh/h	16	0	8	0	0	12	5	360	4	10	358	48
Future Vol, veh/h	16	0	8	0	0	12	5	360	4	10	358	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	355	-	-	165	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	93	50	93	50	93	93	93	93	50
Heavy Vehicles, %	0	0	13	0	0	0	0	2	0	0	1	4
Mvmt Flow	32	0	16	0	0	13	10	387	4	11	385	96
Major/Minor												
Minor2		Minor1			Major1			Major2				
Conflicting Flow All	621	818	193	624	912	196	481	0	0	391	0	0
Stage 1	407	407	-	409	409	-	-	-	-	-	-	-
Stage 2	214	411	-	215	503	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.16	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.43	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	376	313	783	374	276	819	1092	-	-	1179	-	-
Stage 1	597	601	-	596	600	-	-	-	-	-	-	-
Stage 2	774	598	-	773	545	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	365	307	783	361	271	819	1092	-	-	1179	-	-
Mov Cap-2 Maneuver	365	307	-	361	271	-	-	-	-	-	-	-
Stage 1	592	596	-	591	595	-	-	-	-	-	-	-
Stage 2	755	593	-	750	540	-	-	-	-	-	-	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	14.1		9.5			0.2			0.2			
HCM LOS	B		A									
Minor Lane/Major Mvmt			NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		
Capacity (veh/h)	1092		-	-	444	819	1179	-	-	-		
HCM Lane V/C Ratio	0.009		-	-	0.108	0.016	0.009	-	-	-		
HCM Control Delay (s)	8.3		-	-	14.1	9.5	8.1	-	-	-		
HCM Lane LOS	A		-	-	B	A	A	-	-	-		
HCM 95th %tile Q(veh)	0		-	-	0.4	0	0	-	-	-		

Intersection						
Int Delay, s/veh	5.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↓	↔	
Traffic Vol, veh/h	6	0	22	20	0	15
Future Vol, veh/h	6	0	22	20	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	50	50	92	50	50
Heavy Vehicles, %	17	0	0	5	0	0
Mvmt Flow	7	0	44	22	0	30
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	7	0	117	7
Stage 1	-	-	-	-	7	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1627	-	884	1081
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	920	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1627	-	860	1081
Mov Cap-2 Maneuver	-	-	-	-	860	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	895	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	4.9	8.4			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1081	-	-	1627	-	
HCM Lane V/C Ratio	0.028	-	-	0.027	-	
HCM Control Delay (s)	8.4	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	142	38	9	218	282	79
Future Vol, veh/h	142	38	9	218	282	79
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	130	0	345	-	-	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	92	92	50
Heavy Vehicles, %	3	3	0	2	1	4
Mvmt Flow	284	76	18	237	307	158
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	462	154	465	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	155	-	-	-	-	-
Critical Hdwy	6.86	6.96	4.1	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	2.2	-	-	-
Pot Cap-1 Maneuver	526	861	1107	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	518	861	1107	-	-	-
Mov Cap-2 Maneuver	518	-	-	-	-	-
Stage 1	706	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	17.9	0.6		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1107	-	518	861	-	-
HCM Lane V/C Ratio	0.016	-	0.548	0.088	-	-
HCM Control Delay (s)	8.3	-	20.1	9.6	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	3.3	0.3	-	-

Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗	↘	↙	↙
Traffic Vol, veh/h	4	78	71	16	97	6
Future Vol, veh/h	4	78	71	16	97	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	156	142	32	194	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	174	0	-	0	330	158
Stage 1	-	-	-	-	158	-
Stage 2	-	-	-	-	172	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1403	-	-	-	665	887
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	858	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1403	-	-	-	661	887
Mov Cap-2 Maneuver	-	-	-	-	661	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	858	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.4	0	12.7			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1403	-	-	-	671	
HCM Lane V/C Ratio	0.006	-	-	-	0.307	
HCM Control Delay (s)	7.6	-	-	-	12.7	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	1.3	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑		Y	
Traffic Vol, veh/h	0	77	71	0	4	0
Future Vol, veh/h	0	77	71	0	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	3	1	0	25	0
Mvmt Flow	0	154	142	0	8	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	-	0	-	0	296	71
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	-	-	6.975	6.9
Critical Hdwy Stg 1	-	-	-	-	6.175	-
Critical Hdwy Stg 2	-	-	-	-	5.775	-
Follow-up Hdwy	-	-	-	-	3.7375	3.3
Pot Cap-1 Maneuver	0	-	-	0	630	983
Stage 1	0	-	-	0	812	-
Stage 2	0	-	-	0	814	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	630	983
Mov Cap-2 Maneuver	-	-	-	-	630	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	814	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	10.8			
HCM LOS			B			
Minor Lane/Major Mvmt	EBT	WBT	SBLn1			
Capacity (veh/h)	-	-	630			
HCM Lane V/C Ratio	-	-	0.013			
HCM Control Delay (s)	-	-	10.8			
HCM Lane LOS	-	-	B			
HCM 95th %tile Q(veh)	-	-	0			

Elementary School 19
7: Black Hawk Drive & Student Parking Lot

2026 PM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	65	38	34	12	0
Future Vol, veh/h	0	65	38	34	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	0	130	76	68	24	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	144	0	-	0	240	72
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1451	-	-	-	743	982
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1451	-	-	-	743	982
Mov Cap-2 Maneuver	-	-	-	-	743	-
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	901	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	10			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1451	-	-	-	743	
HCM Lane V/C Ratio	-	-	-	-	0.032	
HCM Control Delay (s)	0	-	-	-	10	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection

Int Delay, s/veh 6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	5	19	12	0	0	1	55	0	0
Future Vol, veh/h	0	8	0	5	19	12	0	0	1	55	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	92	92	92	50	92	50	50	50	50	50
Heavy Vehicles, %	0	13	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	0	16	0	5	21	24	0	0	2	110	0	0

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	45	0	0	16	0	0	59	71	16	48	47	21
Stage 1	-	-	-	-	-	-	16	16	-	31	31	-
Stage 2	-	-	-	-	-	-	43	55	-	17	16	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1576	-	-	1615	-	-	942	823	1069	958	849	1062
Stage 1	-	-	-	-	-	-	1009	886	-	991	873	-
Stage 2	-	-	-	-	-	-	976	853	-	1008	886	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1576	-	-	1615	-	-	940	821	1069	954	846	1062
Mov Cap-2 Maneuver	-	-	-	-	-	-	940	821	-	954	846	-
Stage 1	-	-	-	-	-	-	1009	886	-	991	870	-
Stage 2	-	-	-	-	-	-	973	850	-	1006	886	-

Approach	EB	WB			NB			SB			
HCM Control Delay, s	0	0.8			8.4			9.3			
HCM LOS					A			A			
<hr/>											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	1069	1576	-	-	1615	-	-	954			
HCM Lane V/C Ratio	0.002	-	-	-	0.003	-	-	0.115			
HCM Control Delay (s)	8.4	0	-	-	7.2	0	-	9.3			
HCM Lane LOS	A	A	-	-	A	A	-	A			
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4			

Intersection: 1: Courthouse Road & Spartan Drive/Jennifer Lane

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	57	35	14	24
Average Queue (ft)	17	11	1	3
95th Queue (ft)	45	35	8	17
Link Distance (ft)	733	1063		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		355	165	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Eastern HS Access & Spartan Drive

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	19
Average Queue (ft)	0	7
95th Queue (ft)	6	21
Link Distance (ft)	733	619
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Courthouse Road & Black Hawk Drive

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	L	T	R
Maximum Queue (ft)	102	91	30	2	2
Average Queue (ft)	45	23	3	0	0
95th Queue (ft)	85	62	19	2	2
Link Distance (ft)		123		2648	
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	0	1			
Storage Bay Dist (ft)	130		345		110
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	1			

Intersection: 4: Black Hawk Drive & Eastern HS Access

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	3	11	103
Average Queue (ft)	0	0	37
95th Queue (ft)	3	8	75
Link Distance (ft)		283	512
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		90	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Black Hawk Drive & Bus Loop Entrance

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: Black Hawk Drive & Bus Loop Exit

Movement	SB
Directions Served	LR
Maximum Queue (ft)	49
Average Queue (ft)	6
95th Queue (ft)	29
Link Distance (ft)	344
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Black Hawk Drive & Student Parking Lot

Movement	SB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	8
95th Queue (ft)	30
Link Distance (ft)	727
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Dishpan Lane/Western HS Access & Black Hawk Drive

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	2	55
Average Queue (ft)	0	26
95th Queue (ft)	1	49
Link Distance (ft)	625	342
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1

Appendix D

Synchro & SimTraffic Analysis of 2026 Total Conditions



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2026 Total Future AM Peak
1: Courthouse Road & Spartan Drive/Jennifer Lane

2026 AM Peak
HCM 6th TWSC

Intersection

Int Delay, s/veh 22.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	96	0	19	0	0	6	29	566	0	3	497	136
Future Vol, veh/h	96	0	19	0	0	6	29	566	0	3	497	136
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	355	-	-	165	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	92	50	92	50	92	92	92	92	50
Heavy Vehicles, %	19	2	11	2	2	17	0	2	2	0	5	11
Mvmt Flow	192	0	38	0	0	7	58	615	0	3	540	272

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	970	1277	270	1007	1549	308	812	0	0	615	0	0
Stage 1	546	546	-	731	731	-	-	-	-	-	-	-
Stage 2	424	731	-	276	818	-	-	-	-	-	-	-
Critical Hdwy	7.88	6.54	7.12	7.54	6.54	7.24	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.88	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.88	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.69	4.02	3.41	3.52	4.02	3.47	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 184	165	701	195	113	645	823	-	-	974	-	-
Stage 1	449	516	-	379	425	-	-	-	-	-	-	-
Stage 2	535	425	-	707	388	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 172	153	701	174	105	645	823	-	-	974	-	-
Mov Cap-2 Maneuver	~ 172	153	-	174	105	-	-	-	-	-	-	-
Stage 1	418	514	-	352	395	-	-	-	-	-	-	-
Stage 2	492	395	-	667	387	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	168.3	10.6			0.8		0	
HCM LOS	F	B						
<hr/>								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	823	-	-	196	645	974	-	-
HCM Lane V/C Ratio	0.07	-	-	1.173	0.01	0.003	-	-
HCM Control Delay (s)	9.7	-	-	168.3	10.6	8.7	-	-
HCM Lane LOS	A	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	11.7	0	0	-	-

Notes

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

2026 Total Future AM Peak
2: Eastern HS Access & Spartan Drive

2026 AM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	5.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↔	↔		
Traffic Vol, veh/h	89	0	133	50	1	36
Future Vol, veh/h	89	0	133	50	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	50	50	92	50	50
Heavy Vehicles, %	0	0	2	2	100	57
Mvmt Flow	97	0	266	54	2	72
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	97	0	683	97
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	586	-
Critical Hdwy	-	-	4.12	-	7.4	6.77
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	6.4	-
Follow-up Hdwy	-	-	2.218	-	4.4	3.813
Pot Cap-1 Maneuver	-	-	1496	-	296	828
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	404	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1496	-	242	828
Mov Cap-2 Maneuver	-	-	-	-	242	-
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	330	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	6.6	10.1			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	777	-	-	1496	-	
HCM Lane V/C Ratio	0.095	-	-	0.178	-	
HCM Control Delay (s)	10.1	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0.6	-	

2026 Total Future AM Peak
3: Courthouse Road & Black Hawk Drive

2026 AM Peak
HCM 6th TWSC

Intersection

Int Delay, s/veh 225.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	371	81	94	216	103	404
Future Vol, veh/h	371	81	94	216	103	404
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	130	0	345	-	-	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	92	92	50
Heavy Vehicles, %	3	25	14	3	3	3
Mvmt Flow	742	162	188	235	112	808

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	606	56	920	0	-
Stage 1	112	-	-	-	-
Stage 2	494	-	-	-	-
Critical Hdwy	6.86	7.4	4.38	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-
Follow-up Hdwy	3.53	3.55	2.34	-	-
Pot Cap-1 Maneuver	~ 426	929	667	-	-
Stage 1	897	-	-	-	-
Stage 2	~ 576	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	~ 306	929	667	-	-
Mov Cap-2 Maneuver	~ 306	-	-	-	-
Stage 1	~ 644	-	-	-	-
Stage 2	~ 576	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, \$ 557.7 5.6 0

HCM LOS F

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	667	-	306	929	-	-
HCM Lane V/C Ratio	0.282	-	2.425	0.174	-	-
HCM Control Delay (s)	12.5	\$ 677.4	9.7	-	-	-
HCM Lane LOS	B	-	F	A	-	-
HCM 95th %tile Q(veh)	1.2	-	59.2	0.6	-	-

Notes

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

2026 Total Future AM Peak
4: Black Hawk Drive & Eastern HS Access

2026 AM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗	↘		
Traffic Vol, veh/h	2	443	492	6	9	1
Future Vol, veh/h	2	443	492	6	9	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	5	11	0	0	0
Mvmt Flow	4	886	984	12	18	2
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	996	0	-	0	1884	990
Stage 1	-	-	-	-	990	-
Stage 2	-	-	-	-	894	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	703	-	-	-	79	302
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	403	-
Platoon blocked, %	-	-	-			
Mov Cap-1 Maneuver	703	-	-	-	79	302
Mov Cap-2 Maneuver	-	-	-	-	79	-
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	403	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	59.9			
HCM LOS			F			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	703	-	-	-	85	
HCM Lane V/C Ratio	0.006	-	-	-	0.235	
HCM Control Delay (s)	10.2	-	-	-	59.9	
HCM Lane LOS	B	-	-	-	F	
HCM 95th %tile Q(veh)	0	-	-	-	0.8	

2026 Total Future AM Peak
5: Black Hawk Drive & Bus Loop Entrance

2026 AM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	429	489	4	16	0
Future Vol, veh/h	0	429	489	4	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	5	4	100	2	2
Mvmt Flow	0	858	978	8	32	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	986	0	-	0	1840	493
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	858	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	699	-	-	-	74	523
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	414	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	699	-	-	-	74	523
Mov Cap-2 Maneuver	-	-	-	-	74	-
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	414	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	86.5			
HCM LOS			F			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	699	-	-	-	74	
HCM Lane V/C Ratio	-	-	-	-	0.432	
HCM Control Delay (s)	0	-	-	-	86.5	
HCM Lane LOS	A	-	-	-	F	
HCM 95th %tile Q(veh)	0	-	-	-	1.7	

2026 Total Future AM Peak
6: Black Hawk Drive

2026 AM Peak
HCM 6th TWSC

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
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Lane Configurations	
Traffic Vol, veh/h	0 407 485 4 22 0
Future Vol, veh/h	0 407 485 4 22 0
Conflicting Peds, #/hr	0 0 0 0 0 0
Sign Control	Free Free Free Free Stop Stop
RT Channelized	- None - None - None
Storage Length	- - - - 0 -
Veh in Median Storage, #	- 0 0 - 0 -
Grade, %	- 0 0 - 0 -
Peak Hour Factor	92 92 92 92 92 92
Heavy Vehicles, %	2 2 2 2 2 2
Mvmt Flow	0 442 527 4 24 0

Major/Minor	Major1	Major2	Minor2
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Conflicting Flow All	531 0 - 0 971 266
Stage 1	- - - - 529 -
Stage 2	- - - - 442 -
Critical Hdwy	4.13 - - - 6.63 6.93
Critical Hdwy Stg 1	- - - - 5.83 -
Critical Hdwy Stg 2	- - - - 5.43 -
Follow-up Hdwy	2.219 - - - 3.519 3.319
Pot Cap-1 Maneuver	1034 - - - 265 733
Stage 1	- - - - 556 -
Stage 2	- - - - 647 -
Platoon blocked, %	- - - - - -
Mov Cap-1 Maneuver	1034 - - - 265 733
Mov Cap-2 Maneuver	- - - - 265 -
Stage 1	- - - - 556 -
Stage 2	- - - - 647 -

Approach	EB	WB	SB
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HCM Control Delay, s	0 0 19.9
HCM LOS	C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1034 - - - 265				
HCM Lane V/C Ratio	- - - - 0.09				
HCM Control Delay (s)	0 - - - 19.9				
HCM Lane LOS	A - - - C				
HCM 95th %tile Q(veh)	0 - - - 0.3				

2026 Total Future AM Peak
7: Black Hawk Drive & Student Parking Lot

2026 AM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	383	442	42	24	0
Future Vol, veh/h	3	383	442	42	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	2	2	2	2	2
Mvmt Flow	6	766	884	84	48	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	968	0	-	0	1704	484
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	778	-
Critical Hdwy	4.1	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.2	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	720	-	-	-	91	530
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	452	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	720	-	-	-	90	530
Mov Cap-2 Maneuver	-	-	-	-	90	-
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	452	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	83.6			
HCM LOS			F			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	720	-	-	-	90	
HCM Lane V/C Ratio	0.008	-	-	-	0.533	
HCM Control Delay (s)	10	0	-	-	83.6	
HCM Lane LOS	B	A	-	-	F	
HCM 95th %tile Q(veh)	0	-	-	-	2.4	

Intersection

Int Delay, s/veh 9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	10	0	2	7	433	0	1	1	371	0	1
Future Vol, veh/h	0	10	0	2	7	433	0	1	1	371	0	1
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	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	92	92	92	50	92	50	50	50	50	50
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	20	0	2	8	866	0	2	2	742	0	2

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	874	0	0	20	0	0	466	898	20	34	32	8
Stage 1	-	-	-	-	-	-	20	20	-	12	12	-
Stage 2	-	-	-	-	-	-	446	878	-	22	20	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	781	-	-	1609	-	-	510	281	1064	978	865	1080
Stage 1	-	-	-	-	-	-	1004	883	-	1014	890	-
Stage 2	-	-	-	-	-	-	595	368	-	1002	883	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	781	-	-	1609	-	-	508	280	1064	968	862	1080
Mov Cap-2 Maneuver	-	-	-	-	-	-	508	280	-	968	862	-
Stage 1	-	-	-	-	-	-	1004	883	-	1014	887	-
Stage 2	-	-	-	-	-	-	592	367	-	998	883	-

Approach	EB	WB			NB			SB			
HCM Control Delay, s	0	0			13.2			19.9			
HCM LOS					B			C			
<hr/>											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	443	781	-	-	1609	-	-	968			
HCM Lane V/C Ratio	0.009	-	-	-	0.001	-	-	0.769			
HCM Control Delay (s)	13.2	0	-	-	7.2	0	-	19.9			
HCM Lane LOS	B	A	-	-	A	A	-	C			
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	7.8			

Intersection: 1: Courthouse Road & Spartan Drive/Jennifer Lane

Movement	EB	WB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	L	T	T	R
Maximum Queue (ft)	251	51	26	18	3	1	55
Average Queue (ft)	75	7	6	1	0	0	2
95th Queue (ft)	179	32	21	8	2	1	21
Link Distance (ft)	731	1063		356	356		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			355	165		85	
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Intersection: 2: Eastern HS Access & Spartan Drive

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	60	88
Average Queue (ft)	11	31
95th Queue (ft)	41	74
Link Distance (ft)	731	1416
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Courthouse Road & Black Hawk Drive

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	124	207	221	37	12	71
Average Queue (ft)	106	132	53	1	0	10
95th Queue (ft)	150	245	153	35	5	43
Link Distance (ft)		124		1501	2648	
Upstream Blk Time (%)	32	41				
Queuing Penalty (veh)	0	241				
Storage Bay Dist (ft)	130		345		110	
Storage Blk Time (%)	32	41	0	0		0
Queuing Penalty (veh)	33	198	0	0		0

Intersection: 4: Black Hawk Drive & Eastern HS Access

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	60	294	152
Average Queue (ft)	3	186	66
95th Queue (ft)	28	404	191
Link Distance (ft)		276	1631
Upstream Blk Time (%)		29	
Queuing Penalty (veh)		183	
Storage Bay Dist (ft)	90		
Storage Blk Time (%)	0	49	
Queuing Penalty (veh)	0	1	

Intersection: 5: Black Hawk Drive & Bus Loop Entrance

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	164	129
Average Queue (ft)	83	36
95th Queue (ft)	193	114
Link Distance (ft)	121	1103
Upstream Blk Time (%)	29	
Queuing Penalty (veh)	130	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Black Hawk Drive

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	132	18	123
Average Queue (ft)	59	1	43
95th Queue (ft)	143	9	120
Link Distance (ft)	85	121	358
Upstream Blk Time (%)	25		
Queuing Penalty (veh)	143		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Black Hawk Drive & Student Parking Lot

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	96	56	284
Average Queue (ft)	36	5	114
95th Queue (ft)	97	29	308
Link Distance (ft)	67	85	692
Upstream Blk Time (%)	21	0	
Queuing Penalty (veh)	121	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Dishpan Lane/Western HS Access & Black Hawk Drive

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	39	6	24	4	2131
Average Queue (ft)	3	0	1	0	744
95th Queue (ft)	21	3	10	1	2215
Link Distance (ft)	1061	67	67	625	2334
Upstream Blk Time (%)			0		13
Queuing Penalty (veh)			0		0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 1050

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↑	↑↓		↑	↑↑	↑
Traffic Vol, veh/h	16	0	8	0	0	12	8	581	4	10	535	61
Future Vol, veh/h	16	0	8	0	0	12	8	581	4	10	535	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	355	-	-	165	-	85
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	93	50	93	50	93	93	93	93	50
Heavy Vehicles, %	0	0	13	0	0	0	0	2	0	0	1	4
Mvmt Flow	32	0	16	0	0	13	16	625	4	11	575	122

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	942	1258	288	969	1378	315	697	0	0	629	0	0
Stage 1	597	597	-	659	659	-	-	-	-	-	-	-
Stage 2	345	661	-	310	719	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.16	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.43	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	221	172	677	211	146	687	909	-	-	963	-	-
Stage 1	461	495	-	424	464	-	-	-	-	-	-	-
Stage 2	649	463	-	681	436	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	212	167	677	202	142	687	909	-	-	963	-	-
Mov Cap-2 Maneuver	212	167	-	202	142	-	-	-	-	-	-	-
Stage 1	453	490	-	416	456	-	-	-	-	-	-	-
Stage 2	626	455	-	657	431	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	20.8	10.3			0.2		0.1	
HCM LOS	C	B						
<hr/>								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	909	-	-	275	687	963	-	-
HCM Lane V/C Ratio	0.018	-	-	0.175	0.019	0.011	-	-
HCM Control Delay (s)	9	-	-	20.8	10.3	8.8	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.1	0	-	-

2026 Total Future PM Peak
2: Eastern HS Access & Spartan Drive

2026 PM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↓	↔	
Traffic Vol, veh/h	6	0	38	20	0	15
Future Vol, veh/h	6	0	38	20	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	50	50	92	50	50
Heavy Vehicles, %	17	0	0	5	0	0
Mvmt Flow	7	0	76	22	0	30
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	7	0	181	7
Stage 1	-	-	-	-	7	-
Stage 2	-	-	-	-	174	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1627	-	813	1081
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	861	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1627	-	775	1081
Mov Cap-2 Maneuver	-	-	-	-	775	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	821	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	5.7	8.4			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1081	-	-	1627	-	
HCM Lane V/C Ratio	0.028	-	-	0.047	-	
HCM Control Delay (s)	8.4	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

2026 Total Future PM Peak
3: Courthouse Road & Black Hawk Drive

2026 PM Peak
HCM 6th TWSC

Intersection

Int Delay, s/veh 179.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	363	93	53	221	282	256
Future Vol, veh/h	363	93	53	221	282	256
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	130	0	345	-	-	110
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	50	92	92	50
Heavy Vehicles, %	3	3	0	2	1	4
Mvmt Flow	726	186	106	240	307	512

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	639	154	819	0	-
Stage 1	307	-	-	-	-
Stage 2	332	-	-	-	-
Critical Hdwy	6.86	6.96	4.1	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-
Follow-up Hdwy	3.53	3.33	2.2	-	-
Pot Cap-1 Maneuver	~ 406	861	818	-	-
Stage 1	~ 717	-	-	-	-
Stage 2	~ 696	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	~ 353	861	818	-	-
Mov Cap-2 Maneuver	~ 353	-	-	-	-
Stage 1	~ 624	-	-	-	-
Stage 2	~ 696	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, \$ 407.9 3.1 0

HCM LOS F

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	818	-	353	861	-	-
HCM Lane V/C Ratio	0.13	-	2.057	0.216	-	-
HCM Control Delay (s)	10.1	\$ 509.8	10.3	-	-	-
HCM Lane LOS	B	-	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	51.9	0.8	-	-

Notes

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

2026 Total Future PM Peak
4: Black Hawk Drive & Eastern HS Access

2026 PM Peak
HCM 6th TWSC

Intersection

Int Delay, s/veh 22.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	4	354	292	16	97	6
Future Vol, veh/h	4	354	292	16	97	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	90	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	708	584	32	194	12

Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	616	0	-	0	1324	600
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	724	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	964	-	-	-	~ 172	501
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	480	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	964	-	-	-	~ 171	501
Mov Cap-2 Maneuver	-	-	-	-	~ 171	-
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	480	-

Approach EB WB SB

HCM Control Delay, s	0.1	0	169.2
HCM LOS		F	

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	964	-	-	-	178
HCM Lane V/C Ratio	0.008	-	-	-	1.157
HCM Control Delay (s)	8.8	-	-	-	169.2
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	10.7

Notes

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

2026 Total Future PM Peak
5: Black Hawk Drive & Bus Loop Entrance

2026 PM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	337	297	5	16	0
Future Vol, veh/h	0	337	297	5	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	674	594	10	32	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	604	0	-	0	1273	302
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	674	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	984	-	-	-	174	700
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	510	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	984	-	-	-	174	700
Mov Cap-2 Maneuver	-	-	-	-	174	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	510	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	30.3			
HCM LOS			D			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	984	-	-	-	174	
HCM Lane V/C Ratio	-	-	-	-	0.184	
HCM Control Delay (s)	0	-	-	-	30.3	
HCM Lane LOS	A	-	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	0.7	

2026 Total Future PM Peak
6: Black Hawk Drive

2026 PM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	310	287	6	27	0
Future Vol, veh/h	0	310	287	6	27	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	337	312	7	29	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	319	0	-	0	653	160
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	337	-
Critical Hdwy	4.13	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1239	-	-	-	416	857
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1239	-	-	-	416	857
Mov Cap-2 Maneuver	-	-	-	-	416	-
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	722	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	14.3			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1239	-	-	-	416	
HCM Lane V/C Ratio	-	-	-	-	0.071	
HCM Control Delay (s)	0	-	-	-	14.3	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

2026 Total Future PM Peak
7: Black Hawk Drive & Student Parking Lot

2026 PM Peak
HCM 6th TWSC

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	270	247	40	40	0
Future Vol, veh/h	0	270	247	40	40	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	50	50	50
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	0	540	494	80	80	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	574	0	-	0	1074	287
Stage 1	-	-	-	-	534	-
Stage 2	-	-	-	-	540	-
Critical Hdwy	4.1	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1009	-	-	-	231	716
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	588	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1009	-	-	-	231	716
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	588	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	28.6			
HCM LOS			D			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1009	-	-	-	231	
HCM Lane V/C Ratio	-	-	-	-	0.346	
HCM Control Delay (s)	0	-	-	-	28.6	
HCM Lane LOS	A	-	-	-	D	
HCM 95th %tile Q(veh)	0	-	-	-	1.5	

Intersection

Int Delay, s/veh 7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	5	19	221	0	0	1	264	0	0
Future Vol, veh/h	0	8	0	5	19	221	0	0	1	264	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	92	92	92	50	92	50	50	50	50	50
Heavy Vehicles, %	0	13	0	0	6	0	0	0	0	0	0	0
Mvmt Flow	0	16	0	5	21	442	0	0	2	528	0	0

Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	463	0	0	16	0	0	268	489	16	48	47	21
Stage 1	-	-	-	-	-	-	16	16	-	31	31	-
Stage 2	-	-	-	-	-	-	252	473	-	17	16	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1109	-	-	1615	-	-	689	482	1069	958	849	1062
Stage 1	-	-	-	-	-	-	1009	886	-	991	873	-
Stage 2	-	-	-	-	-	-	757	562	-	1008	886	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1109	-	-	1615	-	-	687	480	1069	953	846	1062
Mov Cap-2 Maneuver	-	-	-	-	-	-	687	480	-	953	846	-
Stage 1	-	-	-	-	-	-	1009	886	-	991	870	-
Stage 2	-	-	-	-	-	-	754	560	-	1006	886	-

Approach	EB	WB			NB		SB		
HCM Control Delay, s	0	0.1			8.4		13.4		
HCM LOS					A		B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1069	1109	-	-	1615	-	-	953
HCM Lane V/C Ratio	0.002	-	-	-	0.003	-	-	0.554
HCM Control Delay (s)	8.4	0	-	-	7.2	0	-	13.4
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	3.5

Intersection: 1: Courthouse Road & Spartan Drive/Jennifer Lane

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	R
Maximum Queue (ft)	54	34	17	26	7
Average Queue (ft)	17	11	2	4	0
95th Queue (ft)	46	35	10	19	0
Link Distance (ft)	731	1063			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		355	165	85	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 2: Eastern HS Access & Spartan Drive

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	23
Average Queue (ft)	0	8
95th Queue (ft)	3	26
Link Distance (ft)	731	1416
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Courthouse Road & Black Hawk Drive

Movement	EB	EB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	124	195	77	4	4	33
Average Queue (ft)	102	116	19	0	0	3
95th Queue (ft)	152	228	57	3	2	18
Link Distance (ft)	124		2648	2648		
Upstream Blk Time (%)	24	30				
Queuing Penalty (veh)	0	186				
Storage Bay Dist (ft)	130		345		110	
Storage Blk Time (%)	24	30				
Queuing Penalty (veh)	31	150				

Intersection: 4: Black Hawk Drive & Eastern HS Access

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	64	294	1326
Average Queue (ft)	4	120	512
95th Queue (ft)	30	340	1330
Link Distance (ft)		276	1631
Upstream Blk Time (%)		16	
Queuing Penalty (veh)		86	
Storage Bay Dist (ft)	90		
Storage Blk Time (%)	0	31	
Queuing Penalty (veh)	0	2	

Intersection: 5: Black Hawk Drive & Bus Loop Entrance

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	155	168
Average Queue (ft)	43	43
95th Queue (ft)	143	141
Link Distance (ft)	121	1103
Upstream Blk Time (%)	11	
Queuing Penalty (veh)	39	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Black Hawk Drive

Movement	EB	WB	WB	SB
Directions Served	LT	T	TR	LR
Maximum Queue (ft)	122	7	11	68
Average Queue (ft)	22	0	0	21
95th Queue (ft)	86	7	6	58
Link Distance (ft)	85	121	121	358
Upstream Blk Time (%)	6			
Queuing Penalty (veh)	29			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Black Hawk Drive & Student Parking Lot

Movement	EB	WB	WB	SB
Directions Served	LT	T	TR	LR
Maximum Queue (ft)	77	7	44	154
Average Queue (ft)	10	0	3	36
95th Queue (ft)	52	7	19	115
Link Distance (ft)	67	85	85	692
Upstream Blk Time (%)	4			
Queuing Penalty (veh)	19			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Dishpan Lane/Western HS Access & Black Hawk Drive

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	13	2	378
Average Queue (ft)	1	0	88
95th Queue (ft)	9	1	283
Link Distance (ft)	1061	625	2334
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 542

Appendix E

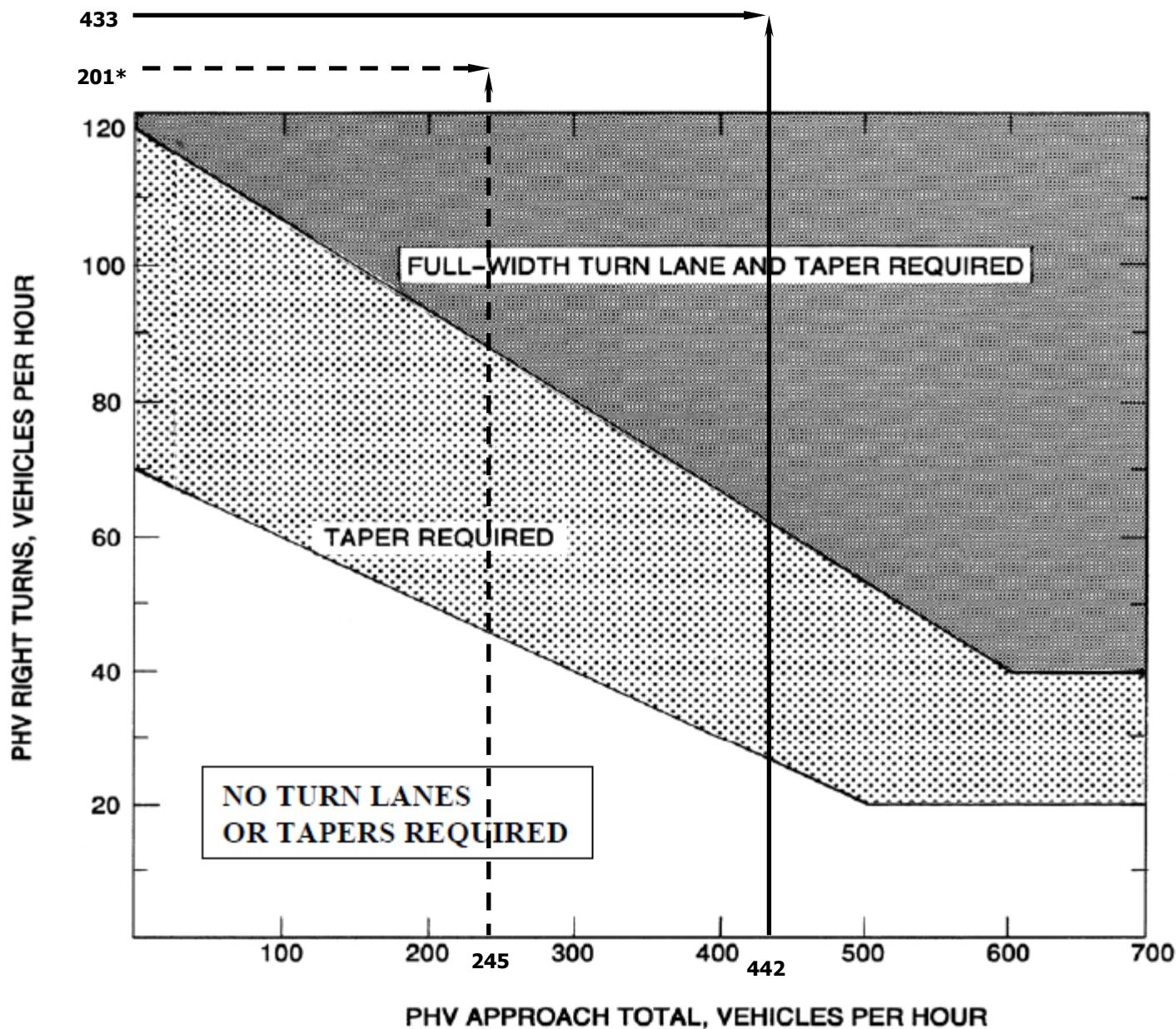
Turn Lane Nomographs



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GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F



RIGHT TURN LANE WARRANTED

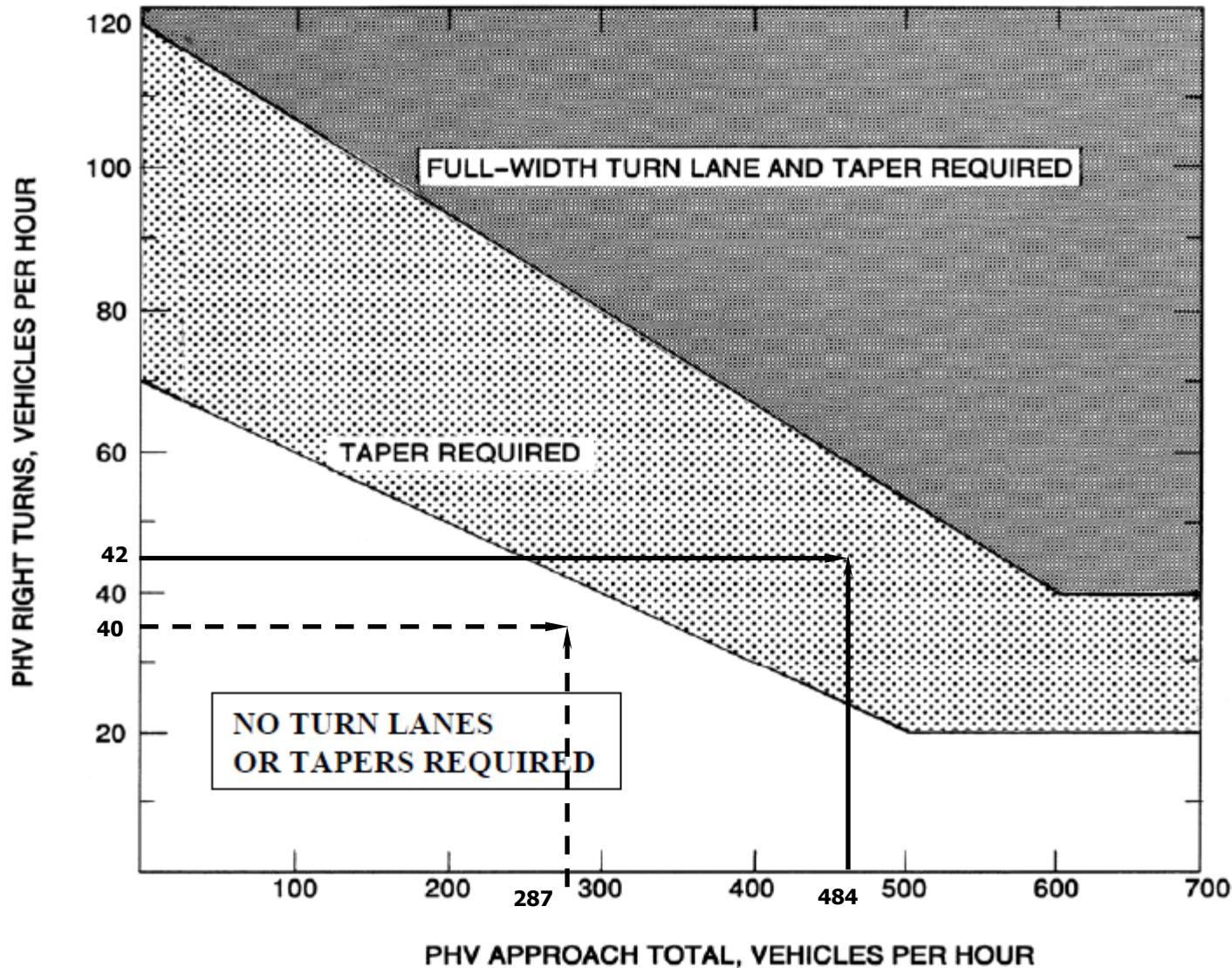
LEGEND

- AM Peak Hour
- - - PM Peak Hour
- 30* Adjusted Right Turns

Adjustment for Right Turns:

For posted speeds ≤ 45 mph, PHV right turns > 40 , and PHV total < 300 .
 Adjusted right turns = PHV right turns - 20.

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F

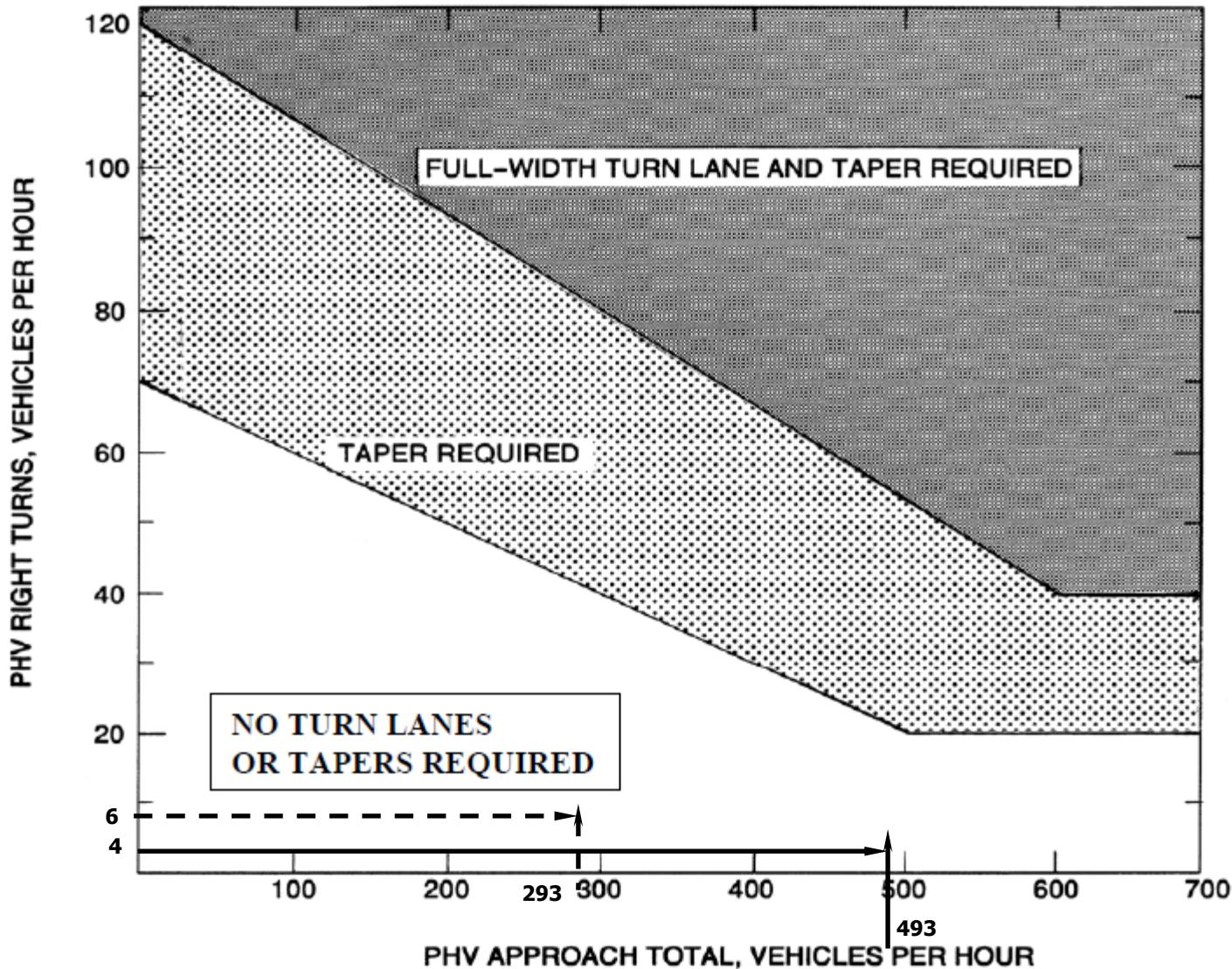


RIGHT TURN TAPER WARRANTED

LEGEND

- AM Peak Hour
- - - PM Peak Hour

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F

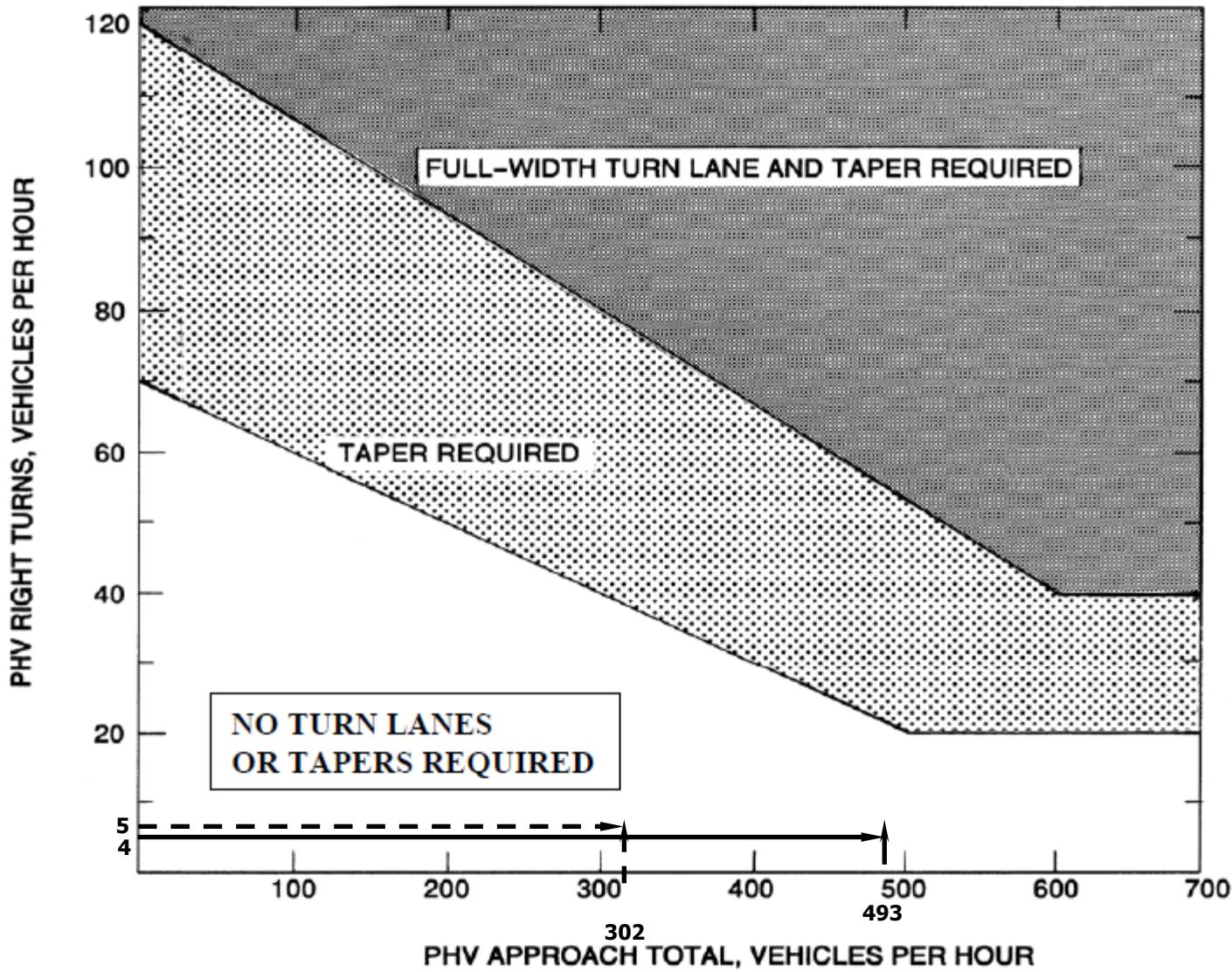


NO RIGHT TURN LANE OR TAPER WARRANTED

LEGEND

- AM Peak Hour
- - - PM Peak Hour

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F

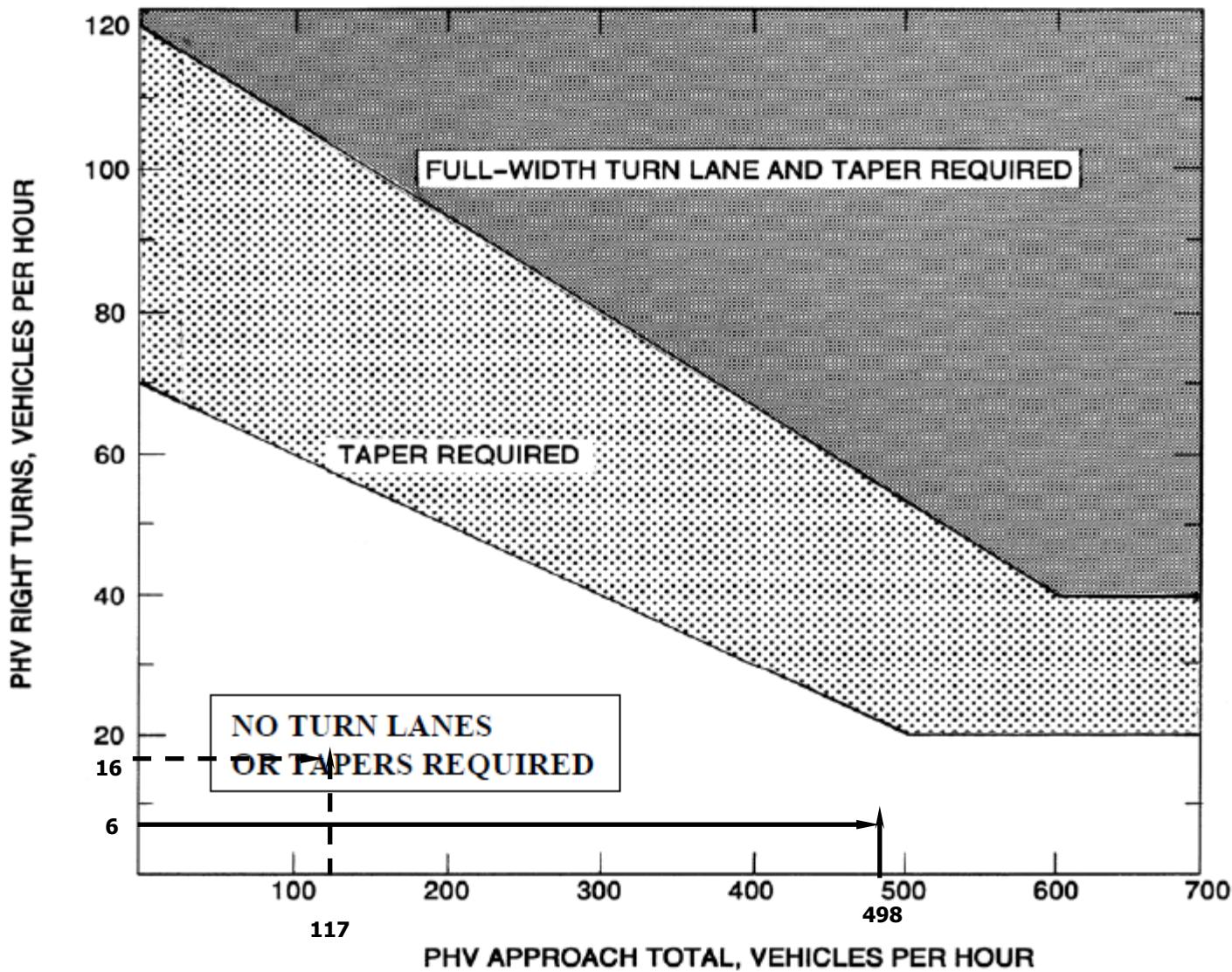


NO RIGHT TURN LANE OR TAPER WARRANTED

LEGEND

- AM Peak Hour
- - - PM Peak Hour

GUIDELINES FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)
FIGURE 3-26 VDOT ROAD DESIGN MANUAL APPENDIX F

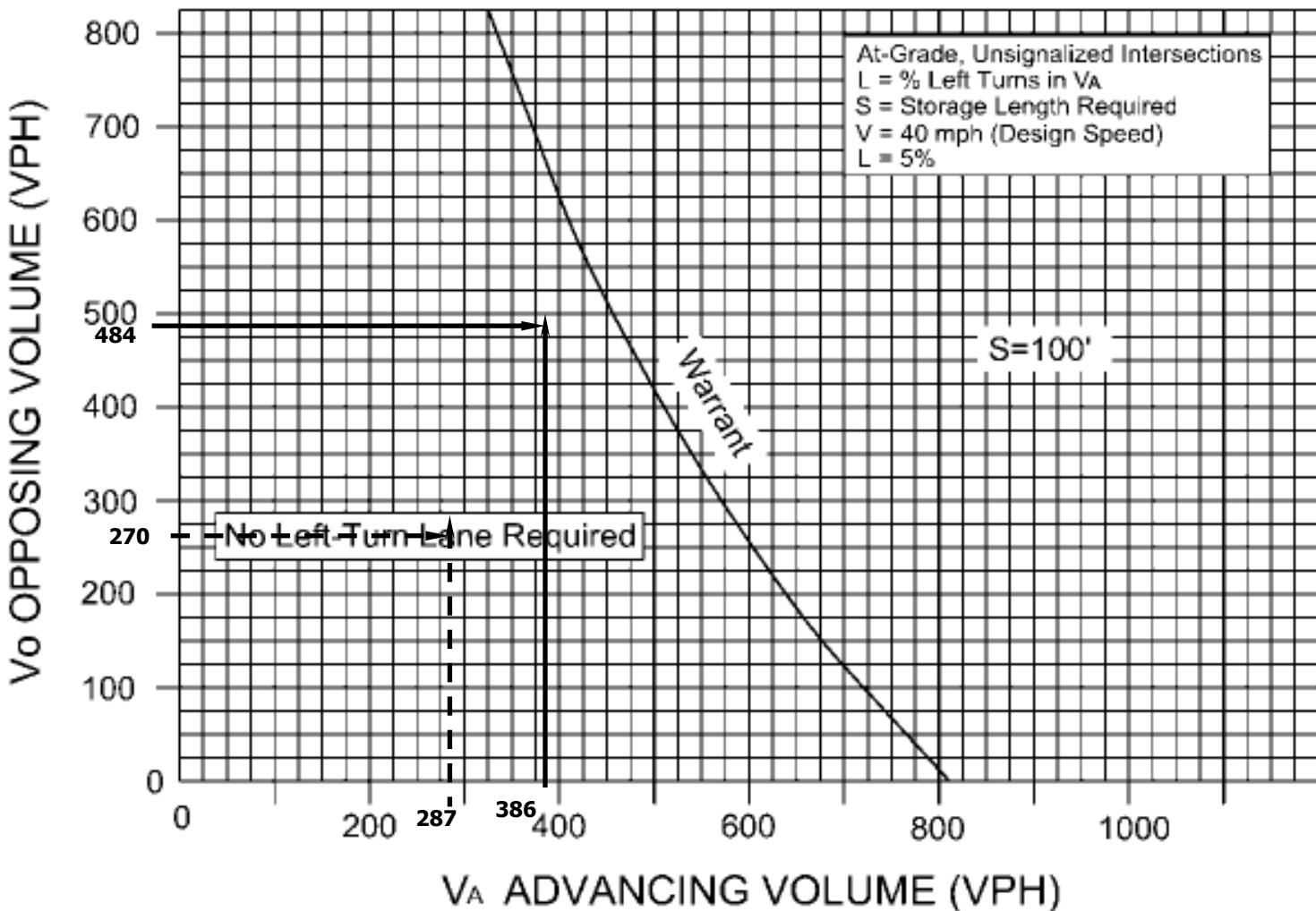


NO RIGHT TURN LANE OR TAPER WARRANTED

LEGEND

- AM Peak Hour
- - - PM Peak Hour

**WARRANT FOR LEFT-TURN STORAGE LANES
ON TWO-LANE HIGHWAYS (40 MPH)**
FIGURE 3-4 VDOT ROAD DESIGN MANUAL APPENDIX F

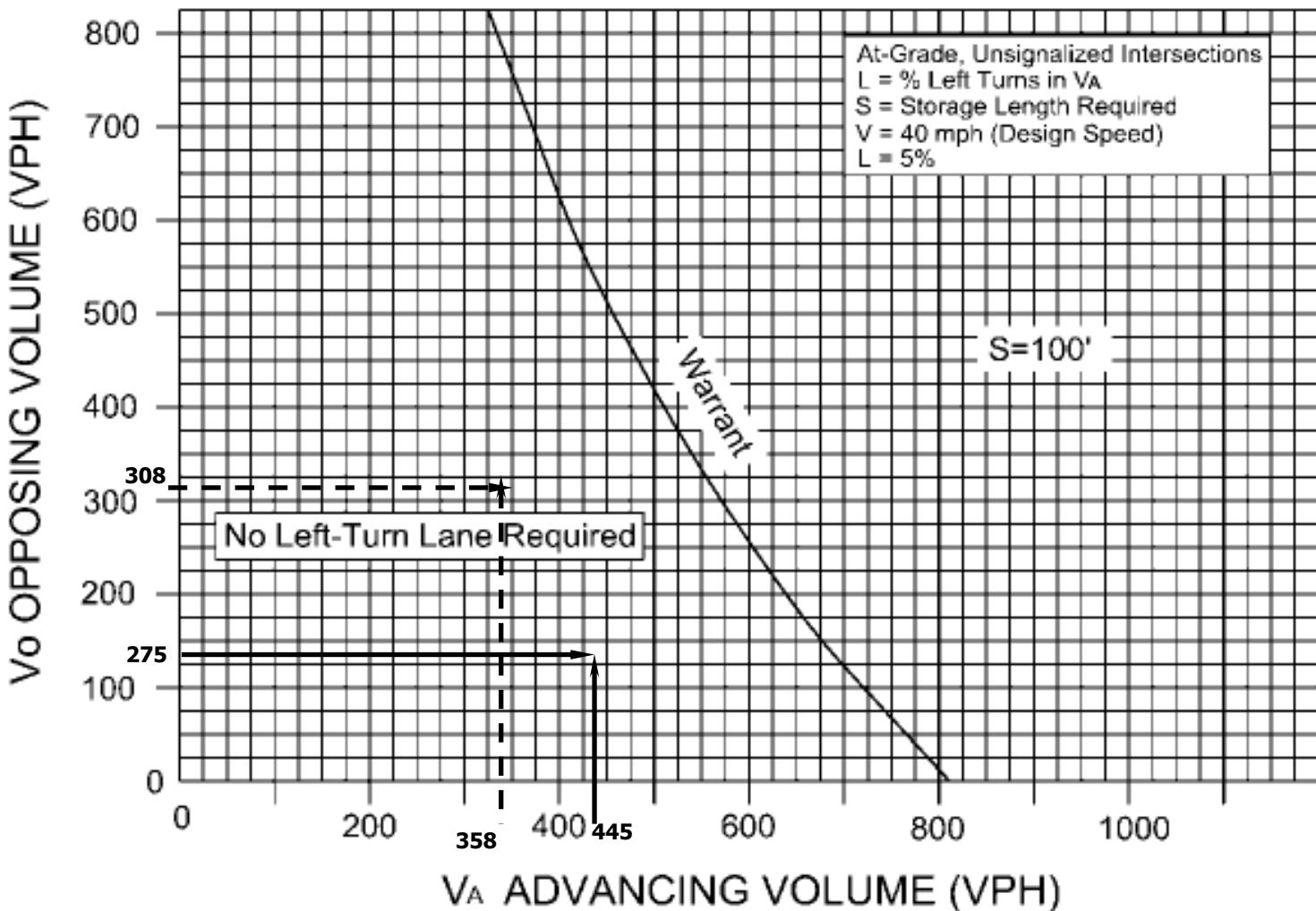


LEGEND

- AM Peak Hour
- - - PM Peak Hour

NO LEFT TURN LANE WARRANTED

**WARRANT FOR LEFT-TURN STORAGE LANES
ON TWO-LANE HIGHWAYS (40 MPH)**
FIGURE 3-4 VDOT ROAD DESIGN MANUAL APPENDIX F



LEGEND

- AM Peak Hour
- - - PM Peak Hour

NO LEFT TURN LANE WARRANTED