Proposed Commercial Development
33 South Washington Street – Binghamton, NY

The project site is bounded by South Washington Street on the west, Vestal Parkway (Route 434) on the north and Mary Street on the east. The existing development on the site includes the 2,650 SF Number 5 restaurant as well as a 2,500 SF building that is currently vacant, both of which front South Washington Street, with the rest of the site providing surface parking. Access to the site is provided via an exit only driveway to South Washington Street between the two existing buildings and a full access driveway to Mary Street.

The proposed redevelopment includes the two existing buildings (2,650 SF retail and 5,000 SF retail), a 3,000 SF convenience store with 6 fueling positions, a 1,500 SF coffee/donut shop with drive through operations and a 2,400 SF bank with drive through operations. Access to the development is proposed via conversion of the existing South Washington Street exit driveway to right out only, a full access driveway to Mary Street, and a two way cross connection to Vestal Road.

TRAFFIC IMPACT STUDY

Prepared in Accordance With
Chapter 5 of the NYSDOT Highway Design Manual (HDM)

Prepared By:

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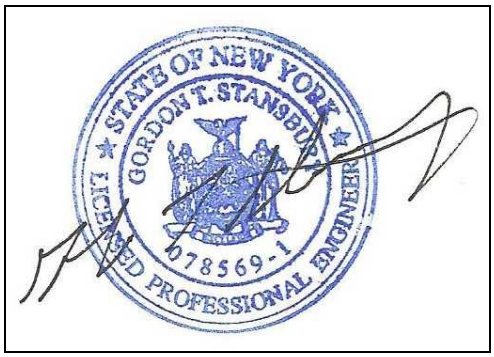
January 2020



Note: *It is a violation of law for any person, unless they are acting under the direction of a licensed professional engineer, architect, landscape architect, or land surveyor, to alter an item in any way. If an item bearing the stamp of a licensed professional is altered, the altering engineer, architect, landscape architect, or land surveyor shall stamp the document and include the notation "altered by" followed by their signature, the date of such alteration, and a specific description of the alteration.*

This report is based on the NYSDOT TIS Shell revised on 5/16/2014.

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1.0 Summary of Traffic Impacts

A. Acceptable overall Levels of Service will be maintained at the existing signalized intersections of South Washington Street with Vestal Parkway and Vestal Avenue, as well as the signalized intersection of Vestal Avenue with Mary Street through the potential full buildout of the site. The capacity analysis indicates that all unsignalized traffic movements at the site driveways and Mary Street/Vestal Parkway intersection will operate at Level of Service B or better during both peak hours.

There are some longer delays for the westbound left turn movement and northbound left/through movement at the intersection of Vestal Parkway with South Washington Street under the existing conditions that will continue through the build condition. With signal timing adjustments, the longer delays can be maintained at Level of Service E during both peak hours.

The following signal timing adjustments are recommended:

- Vestal Parkway @ South Washington Street
  - Shift 5 seconds of green time from the eastbound through phase to the north/south phase – Morning and Evening Peak Hours.
  - Shift 2 seconds of green time from the eastbound through phase to the westbound left turn phase – Morning Peak Hour.
- Vestal Avenue @ South Washington Street
  - Shift 5 seconds of green time from the north/south phase to the westbound through phase – Morning and Evening Peak Hours.

There are no other off-site mitigation measures recommended.

B. A crash analysis was performed per Highway Design Manual Chapter 5 which indicates that the three signalized intersections in the study area have accident rates above the statewide average rates for similar facilities. The analysis also shows higher than average accident rates for the study area roadway segments on South Washington Street, Vestal Avenue and Mary Street, however, these rates are skewed by the short segment lengths reviewed. Refer to Section 4.0 of this report.

2.0 Operational Data

2.1 Travel Speeds

The posted speed limit on all roadways in the study area is 30 mph. Speed data was taken from the NYSDOT Traffic Data Viewer website for Vestal Parkway which indicates that the 85th percentile speed passing through the study area is approximately 38 mph in both directions. A 35 mph operating speed is assumed on South Washington Street, Vestal Avenue and Mary Street.

2.2 Driveway Sight Distance

Sight lines looking south along South Washington Street from the proposed right out site driveway location, east/west along Vestal Avenue from the proposed cross access driveway, and north/south along Mary Street from the proposed full access driveway were collected for comparison to design standards in order to confirm that adequate sight lines are available for safe ingress and egress from the site.

The following table provides a summary of the recommended sight distances along South Washington Street, Vestal Avenue and Mary Street from the AASHTO A Policy on Design of Highways and Streets as well as the available sight distances based on field measurements. Operating speeds of 35 mph were used at all driveway locations.

Sight Distance Summary				
Location	**Operating Speed**	**Direction**	**AASHTO Recommended Sight Distance**	**Available Sight Distance**
South Washington Street @ Proposed Right Out Site Access Turning Right Out	35 mph	Looking Left	335 feet	1,000+ feet
Vestal Avenue @ Site Access Turning Left Out	35 mph	Looking Left Looking Right	390 feet 390 feet	650 feet 750 feet
Vestal Avenue @ Site Access Turning Right Out	35 mph	Looking Left	335 feet	650 feet
Mary Street @ Site Access Turning Left Out	35 mph	Looking Left Looking Right	390 feet 390 feet	180 feet 725 feet
Mary Street @ Site Access Turning Right Out	35 mph	Looking Left	335 feet	180 feet

There are adequate sight distances available looking left on South Washington Street, in both directions on Vestal Avenue, and looking right on Mary Street at the proposed driveway locations. While the sight distance looking left from the Mary Street driveway is limited to the distance to Vestal Parkway, vehicles are turning onto Mary Street at a much lower speed. There are no concerns with sight distances associated with safety for ingress and egress from the site.

3.0 Capacity Analysis

Capacity Analysis Overview

Capacity analyses performed in this report are consistent with the most recent version of the Highway Capacity Manual (HCM). The software used to perform this analysis is Synchro10 and Simtraffic10. As directed in the Synchro manuals, supplemental analyses were completed using Simtraffic, a microscopic simulation software that provides more accurate estimates for delay based on individual measurements of each vehicle passing through an intersection. It is recommended to use Simtraffic when over-capacity operations are projected in Synchro, especially at unsignalized intersections where Synchro has a tendency to overestimate side street delays.

The HCM quantifies the quality of traffic flow in terms of levels of service (LOS). There are six levels of service, with LOS A indicating very low levels of delays and LOS F indicating high levels of delays associated with congestion. These represent a qualitative measure of operational conditions within a traffic stream, and the perception of conditions by motorists and/or passengers. Levels of service and capacity for signalized intersections are calculated for each lane group (a lane group may be one or more movements), each intersection approach, and the intersection as a whole. The intersection level of service is merely a weighted average of the individual approaches and may not be considered a valid measure of the quality or acceptability of an intersection design since it can conceal poor operating conditions on individual approaches.

Levels of service at unsignalized intersections are only calculated for minor movements since the through movement on the major street is not affected by intersection traffic control. The level of service for signalized intersections and unsignalized intersections can be compared.

The corresponding level of service represents the congestion of the roadway.

LOS for non-signalized Intersections

	LOS by Volume-to-Capacity Ratio (v/c)[a, b]	
Control Delay (s/veh)	v/c ≤1.0	v/c >1.0
≤10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

NOTE: [a, b] For approaches and intersection-wide assessment, LOS is defined solely by control delay.
2-way stop control - HCM 2010, Exhibit 19-1, p. 19-2

3.1 Growth Rates

The proposed commercial development is expected to be completed by 2021, therefore 2021 was chosen as the design year for the traffic study. In order to fully understand the impacts of the development on the adjacent roadway system, analysis of the operations immediately before the project completion must first be completed. The existing traffic volumes were first adjusted by a growth rate to account for any unknown development that may occur prior to completion of the project.

Historical traffic volumes along Vestal Parkway between Pennsylvania Avenue and the Binghamton City line, as well as on Vestal Avenue to the east and west of South Washington Street, were taken from the 2017 NYSDOT Traffic Volume Report and reviewed in order to identify an appropriate background growth rate. Long term growth rates in the area have been negative on Vestal Parkway and the western section of Vestal Avenue ranging between -0.9% per year to -1.5% per year between 2002 and 2017. Vestal Avenue to the east of South Washington Street has observed a positive growth rate of 1.4% per year between 2011 and 2017. In order to maintain a conservative analysis, a positive growth rate of +1.0% per year was chosen and used to grow the 2019 existing traffic volumes to the 2021 design year.

NYSDOT, BMTS and the City of Binghamton were contacted to identify any specific approved developments in the area that also need to be included in the traffic growth projections. None were identified.

3.2 Existing Volumes

AADT traffic volumes on Vestal Parkway (2009) and Vestal Avenue (2011 – East of South Washington Street, 2014 – West of South Washington Street) were obtained from the NYSDOT Traffic Data Viewer.

BMTS provided new traffic turning movement counts at the intersections of South Washington Street with Vestal Parkway and Vestal Avenue, and Vestal Avenue at Mary Street, that were collected in September 2019. The traffic counts were collected during the weekday morning (7-9am) and evening (4-6pm) peak travel periods to ensure that actual peak hours of the adjacent streets were captured. The traffic counts included separate heavy vehicle counts by movement and pedestrians. All area schools were in session. Based on the traffic counts collected, the morning peak hour occurred between 7:30-8:30am and evening peak hour occurred between 4:15-5:15pm.

Existing volumes based on the Traffic Data Viewer counts and a 1.0% annual growth rate are shown in the table below. Existing AADT and DHV volumes for South Washington Street and Mary Street were estimated assuming that the evening peak hour volumes were 9% of the total daily volumes.

Existing Traffic Volumes for Study Area (No Build)								
STREET NAME	EXISTING (2019)		ETC (2021)		ETC+20 (2041)		ETC+30 (2051)	
	AADT	DHV	AADT	DHV	AADT	DHV	AADT	DHV
Vestal Parkway	28,039	2,466	28,600	2,515	34,208	3,009	37,011	3,255
South Washington Street	11,789	1,061	12,025	1,082	14,382	1,294	15,561	1,401
Vestal Avenue (West of S. Washington)	9,358	1,359	9,545	1,386	11,417	1,658	12,353	1,794
Vestal Avenue (East of S. Washington)	3,245	310	3,310	316	3,959	378	4,283	409
Mary Street	1,889	170	1,927	173	2,304	207	2,493	224

The September turning movement counts were not adjusted by a seasonal adjustment factor of 1.078 for the weekday (Factor Group 30) since the volumes would be slightly decreased. The 2019 existing traffic volumes are shown in Figure 1. The 2021 background traffic volumes with 1.0% growth per year (2% total) are shown in Figure 2.

3.3 Projected Trip Generation & Distribution

The proposed development includes a 3,000 SF convenience store with 6 fueling positions, a 2,400 SF bank with drive through operations, a 1,500 SF coffee/donut shop with drive through operations, and 7,650 SF of retail space. Trips generated by the proposed development were estimated using the ITE Trip Generation, 10th Edition, which is the industry accepted standard for estimating traffic generated by new developments. Land Use 853 – Convenience Market with Gasoline Pumps, Land Use 912 – Drive-In Bank, Land Use Use 937 – Coffee/Donut Shop with Drive-Through Window and Land Use 820 – Shopping Center were used. Trips generated by the convenience store/gas station were estimated based on both square footage of the store and the number of fuel positions. The worst case estimates associated with number of fuel positions was used for the morning peak hour and square footage was used for the evening peak hour to provide the worst case estimates.

A 10% multi-use credit was applied to the overall trip generation estimate to account for patrons that will make multiple stops on the site in one vehicular trip. For example, a motorist might stop at the bank or coffee/donut shop before or after going to the gas station.

A significant portion of the traffic generated by the development will be drawn from traffic already passing the site on the study area roadways and is referred to as pass-by trips. Pass-by trips are vehicles that are already traveling through the study area but will now stop at the development on their way to anther destination, such as stopping on their way to or from work. Based on data from the ITE Trip Generation, the average pass-by trip percentage for convenience market/gas station is 63% during the morning peak hour and 66% during the evening peak hour. The pass-by percentage for a bank is between 29%-35% during the peak hours. A specialty use coffee/expresso stand may have a pass-by percentage as high as 83% while the average pass-by rate for retail is around 34% during the evening peak hour. A 60% pass-by credit was assumed for the convenience store and coffee/donut shop during both peak hours while a 30% pass-by credit was assumed for the bank and retail uses during both peak hours. The pass-by credits were applied after taking the multi-use credit to avoid compounding trip credits.

The following tables summarizes the trip generation estimate for the proposed commercial development at 33 South Washington Street in Binghamton, NY.

Trip Generation Summary				
	Morning Peak		Evening Peak	
	Entering	Exiting	Entering	Exiting
Convenience Store/Gas – 3,000 SF / 6 Fuel Positions	63	63	74	74
Bank – 2,400 SF	13	10	25	25
Coffee/Donut Shop – 1,500 SF	68	65	33	33
Retail – 7,650 SF	4	3	14	15
Total Individual Trips Generated	**148**	**141**	**146**	**147**
Multi-Use Credit – 10%	*-15*	*-14*	*-15*	*-14*
Total Trips Generated	**133**	**127**	**131**	**133**
Pass-by Trips – Convenience/Coffee 60%	*-70*	*-70*	*-58*	*-58*
Pass-by Trips – Bank/Retail 30%	*-4*	*4*	*-10*	*-10*
Total Pass-by Trips	***-74***	***-74***	***-68***	***-68***
Total New Trips Generated	**59**	**53**	**63**	**65**

Overall the proposed commercial development can be expected to be a moderate traffic generator with approximately 130 total trips entering and exiting during the peak hours. Approximately half of this traffic will be drawn from traffic already traveling on the study area roadways, therefore the actual increase in traffic expected is only approximately 60 vehicles entering and exiting the study area during the peak hours. The detailed trip generation estimates are attached.

Based on existing traffic patterns and population centers in the area, 36% of the new trips generated are expected to travel to/from the east on Vestal Parkway, 32% is expected to travel to/from the west on Vestal Parkway, 15% is expected to travel to/from the west on Vestal Avenue, 7% is expected to travel to/from the south on South Washington Street, 7% is expected to travel to/from the east and south on Mary Street and Vestal Avenue, and 3% is expected to travel to/from the north on South Washington Street. Separate pass-by trip distributions were developed for the morning and evening peak hours based on existing traffic patterns passing the site. The anticipated arrival/departure trip distribution for the morning peak hour is shown in Figure 3 and for the evening peak hour is shown in Figure 4. The trips generated by the development are shown in Figures 5 and 6, and the full build traffic volumes with the development are shown in Figure 7.

3.4 Internal Circulation, Parking, Deliveries

Traffic will circulate around the building in a counterclockwise direction using a 24-34 drive aisle to accommodate the drive through operations. Large trucks will enter the site via the cross driveway to Vestal Avenue and exit to Mary Street. While there is some potential conflict with traffic queuing at the coffee/donut shop drive through and blocking traffic exiting the bank drive through, conflicts are expected to be minor given that the coffee shop has higher traffic volumes in the morning and the bank has higher traffic volumes in the evening. The site includes 34 parking spaces as well as the 6 fueling spaces.

3.5 Traffic Control Device Data

There are three signalized intersections in the study area. The Vestal Parkway/South Washington Street signalized intersection is under NYSDOT jurisdiction (Signal #1010) and includes protected only eastbound/westbound left turn movements and a single north/south green phase. There is detection on all lanes approaching the intersection. The signalized intersections of Vestal Avenue with South Washington Street and Mary Street are both under City of Binghamton jurisdiction and operate as pretimed signals. Mary Street has right in/right out access only at Vestal Parkway. The unsignalized site driveways will all be stop controlled with free flow traffic movements on the main roadways.

3.6 Capacity Analysis for 2019 Existing Condition

Capacity analyses of the existing traffic operations was completed using Synchro10. The Synchro analysis indicates that the signalized intersections in the study area are operating at acceptable overall Levels of Service C or better during both peak hours. At the Vestal Parkway / South Washington Street intersection, there are longer delays with Level of Service E for the northbound left/through movement during the morning peak hour and the westbound left turn movement during the evening peak hour. The northbound left/through movement has failing level delays during the evening peak hour. All other signalized movements in the study area are operating at acceptable Levels of Service D or better during both peak hours.

The Synchro analysis shows long delays with Level of Service E for traffic turning right onto Vestal Parkway from Mary Street during both peak hours. The Synchro models tend to overestimate side street delays at stop controlled intersections, and the software manuals recommend a more detailed analysis using a microscopic simulation program such as Simtraffic10. Simtraffic provides a more realistic estimate of the side street delays using measured delays for each individual vehicle traveling through the intersection. The Simtraffic analysis indicates that the unsignalized movement operates at a Level of Service A during both peak hours.

The detailed Level of Service summary and capacity analysis printouts have been attached.

3.7 Capacity Analysis for 2021 Background Condition

Capacity analysis of the background traffic operations was completed using Synchro10 and Simtraffic10.

All results are consistent with the existing traffic operations with minor increases in average delay.

The detailed Level of Service summary and capacity analysis printouts have been attached.

3.8 Capacity Analysis for 2021 Full Build Condition

Capacity analysis of the build traffic operations was completed using Synchro10 and Simtraffic10.

Acceptable overall Levels of Service will be maintained at the existing signalized intersections of South Washington Street with Vestal Parkway and Vestal Avenue, as well as the signalized intersection of Vestal Avenue with Mary Street through the potential full buildout of the site. The capacity analysis indicates that all unsignalized traffic movements at the site driveways and Mary Street/Vestal Parkway intersection will operate at Level of Service B or better during both peak hours.

The existing longer delays at the Vestal Parkway / South Washington Street intersection will continue to degrade with the additional traffic generated by the proposed development. While Levels of Service are maintained during the evening peak hours, the analysis indicates that the northbound left/through movement will drop to LOS F and the westbound left movement will drop to LOS E during the morning peak hour.

The detailed Level of Service summary and capacity analysis printouts have been attached.

3.9 Mitigation Measures

There are some longer delays for the westbound left turn movement and northbound left/through movement at the intersection of Vestal Parkway with South Washington Street under the existing conditions that will continue to degrade through the build condition. With signal timing adjustments, the longer delays can be maintained at Level of Service E during both peak hours.

The following signal timing adjustments are recommended:

- Vestal Parkway @ South Washington Street
  - Shift 5 seconds of green time from the eastbound through phase to the north/south phase – Morning and Evening Peak Hours.
  - Shift 2 seconds of green time from the eastbound through phase to the westbound left turn phase – Morning Peak Hour.

- Vestal Avenue @ South Washington Street
  - Shift 5 seconds of green time from the north/south phase to the westbound through phase – Morning and Evening Peak Hours.

There are no other mitigation measures recommended.

4.0 Crash Analysis

The purpose of this crash analysis is to identify safety problems by studying and quantifying accidents within and immediately adjacent to the driveway, and identifying abnormal patterns and clusters. An accident cluster is defined as an abnormal occurrence of similar accident types occurring at approximately the same location or involving the same geometric features. The severity of the accidents should also be considered. A history of accidents is an indication that further analysis is required to determine the cause(s) of the accident(s) and to identify what actions, if any, could be taken to mitigate the accidents.

A crash analysis was performed per Highway Design Manual Chapter 5 which indicates that the three signalized intersections in the study area have accident rates above the statewide average rates for similar facilities. The analysis also shows higher than average accident rates for the study area roadway segments on South Washington Street, Vestal Avenue and Mary Street, however, these rates are skewed by the short segment length reviewed.

Existing Crash Data

An accident analysis was completed for the study area using history reports obtained for a three year period from June 2016 through May 2019. Over the three year period, there were 80 total accidents in the study area.

44 of the accidents occurred at the Vestal Parkway/South Washington Street intersection including 21 rearend accidents, 10 left turn accidents, 4 overtaking accidents, 2 right angle accidents, 2 fixed object accidents, 2 bicyclist accidents, 1 right turn accident, 1 backing accident, and 1 pedestrian accident. The collision diagram has been attached. There are 10 eastbound rearend or overtaking accidents, and 13 westbound rearend or overtaking accidents which makes up over half of the total accidents (52%). These accidents can be primarily attributed to the high through volumes on Route 434 and are consistent with typical signal related accidents on high volume corridors. Of all of the remaining accidents, there are no more than 2 of the same type of accident on any approach and no distinct clusters or patterns identified. Of the 44 total accidents, only 6 involved injuries and there were no fatalities.

15 of the accidents occurred at the Vestal Avenue/South Washington Street intersection including 5 overtaking accidents, 4 rearend accidents, 3 right angle accidents, 2 backing accidents, and 1 left turn accident. The collision diagram has been attached. The accidents are very evenly distributed with 3 to 4 accidents on each approach of the intersection. There was no more than 2 of the same type of accident on any approach and no distinct clusters or patterns identified. There was only 1 injury accident and no fatalities.

There were 4 accidents at the Vestal Avenue/Mary Street intersection including 3 rearend accidents and 1 right angle accident. The collision diagram has been attached. Given the low overall number of accidents, there are no distinct patterns or clusters identified. The accident rates are higher than the

statewide average due to the low overall existing traffic volumes traveling through the intersection. There was 1 injury accident and no fatalities.

There was 1 fixed object accident at the Vestal Parkway / Mary Street intersection. The collision diagram has been attached. The accident was property damage only with no injuries.

4 accidents occurred along Vestal Parkway including 1 overtaking accident, 1 fixed object accident, 1 pedestrian accident and 1 animal accident. The collision diagram has been attached. There are no distinct clusters or patterns identified. There was 1 injury accident and no fatalities.

4 accidents occurred along South Washington Street including 2 overtaking accidents, 1 left turn accident and 1 backing accident. The collision diagram has been attached. There are no distinct clusters or patterns identified. The accident rate is skewed by the short segment length evaluated. There were no injury accidents.

4 accidents occurred along Mary Street including 3 backing accidents and 1 rearend accident. The collision diagram has been attached. The backing accidents are associated traffic backing out of the post office parking onto Mary Street. There are no other distinct clusters or patterns identified. The accident rate is skewed by the short segment length evaluated and the low existing traffic volumes on Mary Street. There were no injury accidents.

2 accidents occurred along Vestal Avenue including 1 rearend accident and 1 sideswipe accident. The collision diagram has been attached. There are no distinct clusters or patterns identified. The accident rate is skewed by the short segment length evaluated. There were no injury accidents.

2 accidents occurred in area parking lots.

4.2 Compare Rates to Accepted Values

The following table provides a comparison of the existing accident rate to the statewide average rate for similar facilities:

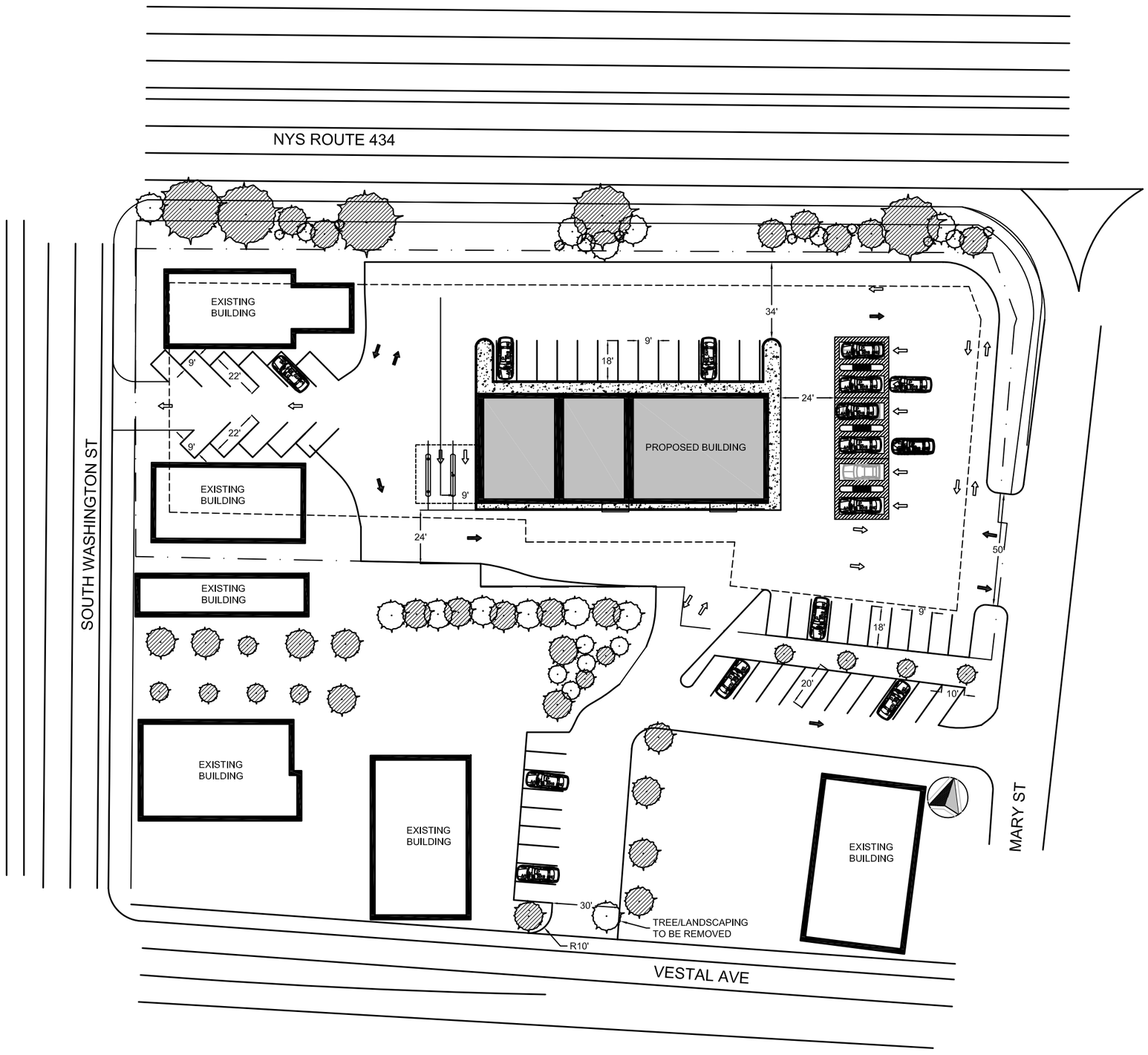
Intersection and Link Accident Rates		
Intersection / Link	**Calculated Intersection Accident Rate**	**Statewide Accident Rate for Similar Facilities**
Vestal Parkway @ S Washington Street	1.18 acc/mev	0.52 acc/mev
Vestal Avenue @ S Washington Street	0.90 acc/mev	0.52 acc/mev
Vestal Avenue @ Mary Street	0.70 acc/mev	0.52 acc/mev
Vestal Parkway @ Mary Street	0.03 acc/mev	0.12 acc/mev
Vestal Parkway – Mary to S. Washington	1.48 acc/mvm	3.65 acc/mvm
S. Washington – Vestal Pkwy to Vestal Ave	4.30 acc/mvm	3.22 acc/mvm
Vestal Avenue – S. Washington to Mary	6.1 acc/mvm	2.23 acc/mvm
Mary Street – Vestal Ave to Vestal Pkwy	28.4 acc/mvm	2.23 acc/mvm

Acc/mev = Accidents per million entering vehicles

APPENDIX A

Site Plan

FOR REVIEW NOT FOR CONSTRUCTION



NORTH

0 50 100 150

SCALE- 1:50

FOR REVIEW NOT FOR CONSTRUCTION

GRIFFITHS ENGINEERING
13 South Washington Street, Suite 1
Binghamton, New York 13903
Telephone (607) 724-2400
Fax (607) 724-2456

FOR REVIEW

Designed by: EVL
Drawn by: EVL
Ckd by: DG
Date: 12.19.2019
Project No. 2019-163
Rev.#
Plot scale: AS NOTED

UNAUTHORIZED ALTERATION OF THIS DRAWING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, SUBDIVISION 2.

TEST FIT AUTOTURN

33 S. WASHINGTON ST
BINGHAMTON, NY 13903
BROOME COUNTY

MIRABITO TEST FIT

Sheet reference number:
C-1

APPENDIX B

NYSDOT AADT Count Data

STATION: **910062**

New York State Department of Transportation

Traffic Count Hourly Report

ROUTE #: **NY 434** ROAD NAME: **434**
DIRECTION: Eastbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 30
DATE OF COUNT: 07/24/2009
NOTES LANE 1: Week 30-Eb Travel
NOTES LANE 2: Week 30-Eb Middle Lane
COUNT TAKEN BY: ORG CODE: TST INITIALS: JSV

FROM: **PENNSYLVANIA AVE OVER**
REC. SERIAL #: 2602
PLACEMENT: East of Penn Ave
@ REF MARKER: 434 91012020
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: SJW

TO: **RT 363 NORTH SHORE DR**
FUNC. CLASS: 12
NHS: yes
JURIS: NYSDOT
CC Stn:
BATCH ID: DOT-SJWr9ww30

COUNTY: **Broome**
CITY: **BINGHAMTON**
LION#:
BIN: 1013021
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
		AM												PM														
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T																											
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21	T																											
22	W																											
23	T																											
24	F															**1043**	**1193**	**1234**	**1201**	**954**	**747**	**707**	**616**	**507**	**384**			
25	S	**206**	**153**	**84**	**74**	**33**	**83**	**168**	**365**	**536**	**673**	**697**	**737**	**840**	**815**	**773**	**831**	**814**	**876**	**860**	**777**	**593**	**480**	**441**	**356**	12265	876	17
26	S	**200**	**159**	**92**	**53**	**54**	**49**	**118**	**241**	**288**	**467**	**580**	**629**	**743**	**740**	**742**	**884**	**836**	**721**	**621**	**609**	**522**	**402**	**292**	**226**	10268	884	15
27	M	**94**	**48**	**49**	**36**	**66**	**187**	**497**	**978**	**984**	**862**	**875**	**898**	**1035**	**1050**	**1106**	**1171**	**1257**	**1128**	**844**	**759**	**685**	**538**	**352**	**248**	15747	1257	16
28	T	**133**	**96**	**44**	**28**	**53**	**189**	**517**	**1014**	**964**	**875**	**896**	**958**	**1005**	**1050**	**1088**	**1195**	**1281**	**1254**	**900**	**755**	**745**	**584**	**393**	**293**	16310	1281	16
29	W	**150**	**88**	**42**	**35**	**62**	**200**	**490**	**999**	**945**	**827**	**900**	**953**	**1021**	**1028**	**1033**	**1193**	**1148**	**1160**	**934**	**795**	**726**	**568**	**322**	**268**	15887	1193	15
30	T	**112**	**92**	**45**	**27**	**48**	**210**	**490**	**1031**	**1009**	**891**	**836**	**976**	**1115**	**1118**	**1141**	**1204**	**1196**	**1318**	**957**	**900**	**820**	**612**	**436**	**339**	16923	1318	17
31	F	**148**	**118**	**58**	**36**	**55**	**188**	**450**	**887**	**925**																		

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

																									ADT
136	**98**	**47**	**32**	**54**	**197**	**489**	**982**	**965**	**864**	**877**	**946**	**1044**	**1062**	**1092**	**1191**	**1220**	**1215**	**909**	**802**	**744**	**576**	**376**	**287**	**16205**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
7	163	4	99	1220	8%	1.000	1.093	**AADT 14826**

New York State Department of Transportation

Traffic Count Hourly Report

ROUTE #: **NY 434** ROAD NAME: **434**
DIRECTION: Westbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 30
DATE OF COUNT: 07/24/2009
NOTES LANE 1: Week 30-Wb Travel
NOTES LANE 2: Week 30-Wb Middle Lane
COUNT TAKEN BY: ORG CODE: TST INITIALS: JSV

FROM: **PENNSYLVANIA AVE OVER**
REC. SERIAL #: 2562
PLACEMENT: East of Penn St
@ REF MARKER: 434 91012020
ADDL DATA: Class Speed
COUNT TYPE: VEHICLES
PROCESSED BY: ORG CODE: DOT INITIALS: SJW

TO: **RT 363 NORTH SHORE DR**
FUNC. CLASS: 12
NHS: yes
JURIS: NYSDOT
CC Stn:
BATCH ID: DOT-SJWr9ww30

COUNTY: **Broome**
CITY: **BINGHAMTON**
LION#:
BIN: 1013021
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
		AM												PM														
1	W																											
2	T																											
3	F																											
4	S																											
5	S																											
6	M																											
7	T																											
8	W																											
9	T																											
10	F																											
11	S																											
12	S																											
13	M																											
14	T																											
15	W																											
16	T																											
17	F																											
18	S																											
19	S																											
20	M																											
21	T																											
22	W																											
23	T																											
24	F															**885**	**942**	**942**	**790**	**577**	**465**	**375**	**355**	**316**	**253**			
25	S	**123**	**93**	**93**	**95**	**48**	**53**	**142**	**209**	**281**	**367**	**514**	**654**	**664**	**620**	**547**	**542**	**561**	**553**	**504**	**384**	**359**	**311**	**371**	**208**	8296	664	12
26	S	**152**	**106**	**92**	**97**	**43**	**38**	**102**	**103**	**165**	**310**	**343**	**466**	**595**	**531**	**511**	**488**	**455**	**458**	**387**	**332**	**323**	**251**	**174**	**120**	6642	595	12
27	M	**67**	**32**	**24**	**29**	**49**	**133**	**402**	**659**	**732**	**674**	**674**	**732**	**801**	**784**	**809**	**917**	**1014**	**867**	**625**	**415**	**335**	**294**	**169**	**147**	11384	1014	16
28	T	**67**	**45**	**38**	**16**	**43**	**107**	**398**	**690**	**733**	**658**	**710**	**755**	**780**	**818**	**857**	**955**	**1024**	**919**	**578**	**500**	**397**	**308**	**250**	**181**	11827	1024	16
29	W	**72**	**86**	**31**	**29**	**54**	**126**	**391**	**656**	**722**	**667**	**652**	**756**	**820**	**760**	**785**	**897**	**1026**	**911**	**616**	**433**	**407**	**267**	**171**	**144**	11479	1026	16
30	T	**83**	**60**	**29**	**22**	**42**	**124**	**410**	**643**	**718**	**659**	**686**	**765**	**871**	**762**	**834**	**920**	**1023**	**971**	**576**	**487**	**446**	**325**	**259**	**174**	11889	1023	16
31	F	**128**	**129**	**40**	**27**	**64**	**104**	**368**	**618**	**666**																		

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	ADT
88	**80**	**34**	**24**	**51**	**115**	**394**	**653**	**714**	**664**	**680**	**752**	**818**	**781**	**821**	**922**	**1022**	**917**	**599**	**459**	**396**	**298**	**212**	**162**	**11656**

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED
7	163	4	99	1022	9%	1.000	1.093	**AADT 10664**

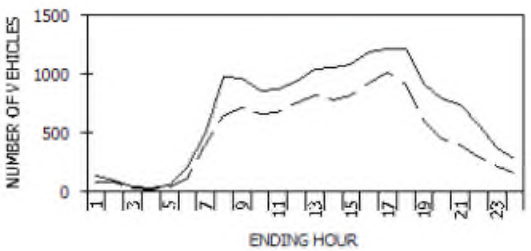
New York State Department of Transportation
Classification Count Average Weekday Data Report

ROUTE #:	NY 434	ROAD NAME: 434	YEAR: 2009	STATION:	910062
COUNTY NAME:	Broome		MONTH: July		
REGION CODE:	9				
FROM:	PENNSYLVANIA AVE OVER				
TO:	RT 363 NORTH SHORE DR				
REF-MARKER:	434 91012020				
END MILEPOINT:	0211101	NO. OF LANES: 6			
FUNC-CLASS:	12	HPMS NO:			
STATION NO:	0062	LION#:			
COUNT TAKEN BY:	ORG CODE: TST INITIALS: JSV				
PROCESSED BY:	ORG CODE: DOT INITIALS: SJW	BATCH ID: DOT-SJWr9ww30			

DIRECTION	East	West	TOTAL
NUMBER OF VEHICLES	16185	11651	27836
NUMBER OF AXLES	32654	23486	56140
% HEAVY VEHICLES (F4-F13)	3.32%	3.81%	3.52%
% TRUCKS AND BUSES (F3-F13)	18.60%	20.55%	19.41%
AXLE CORRECTION FACTOR	0.99	0.99	0.99

	VEHICLE CLASS	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	TOTAL
	NO. OF AXLES	2	2	2	2.5	2	3	4	3.5	5	6	5	6	8.75	
ENDING HOUR	1:00	1	116	14	0	3	0	0	0	0	0	0	0	0	**134**
	2:00	0	83	14	1	0	0	0	0	1	0	0	0	0	**99**
	3:00	1	38	6	0	1	0	0	0	0	0	0	0	0	**46**
	4:00	0	24	4	0	1	1	0	0	1	0	0	0	0	**31**
	5:00	0	45	8	0	0	0	0	0	1	0	0	0	0	**54**
	6:00	1	141	41	8	4	1	0	1	0	0	0	0	0	**197**
	7:00	5	374	86	6	15	0	0	2	1	0	0	0	0	**489**
	8:00	7	788	153	1	21	2	0	8	1	0	0	0	0	**981**
	9:00	4	752	161	5	32	2	0	8	1	1	0	0	0	**966**
	10:00	6	659	157	2	30	1	0	7	1	0	0	0	0	**863**
DIRECTION	11:00	7	682	150	2	24	1	0	7	2	0	0	0	0	**875**
East	12:00	7	732	170	2	25	2	0	7	1	0	0	0	0	**946**
	13:00	9	813	174	3	30	2	0	8	2	1	0	0	0	**1042**
	14:00	10	839	170	2	24	4	0	9	1	0	1	0	0	**1060**
	15:00	12	860	180	2	25	3	0	6	0	1	1	0	0	**1090**
	16:00	10	952	189	4	23	3	0	8	0	1	0	0	1	**1191**
	17:00	9	1006	173	3	15	2	0	11	0	1	0	0	0	**1220**
	18:00	13	1011	159	1	20	2	0	8	0	0	0	0	0	**1214**
	19:00	12	752	125	1	12	1	0	3	1	0	0	0	0	**907**
	20:00	11	666	110	1	8	1	0	4	0	0	0	0	0	**801**
	21:00	12	621	96	0	9	1	0	5	0	0	0	0	0	**744**
	22:00	7	491	68	0	6	1	0	1	0	0	0	0	0	**574**
	23:00	3	332	34	0	5	1	0	0	0	0	0	0	0	**375**
	24:00	2	249	31	0	3	0	0	1	0	0	0	0	0	**286**
	TOTAL VEHICLES	**149**	**13026**	**2473**	**44**	**336**	**31**	**0**	**104**	**14**	**5**	**2**	**0**	**1**	**16185**
	TOTAL AXLES	298	26052	4946	110	672	93	0	364	70	30	10	0	9	32654
ENDING HOUR	1:00	1	74	11	0	2	0	0	0	0	0	0	0	0	**88**
	2:00	1	68	8	0	1	0	0	0	0	1	0	0	0	**79**
	3:00	0	28	5	1	1	0	0	0	0	0	0	0	0	**35**
	4:00	0	20	3	0	0	0	0	0	0	0	0	0	0	**23**
	5:00	0	36	8	1	0	2	0	0	2	0	0	0	0	**49**
	6:00	2	78	26	2	4	2	0	0	2	0	0	0	0	**116**
	7:00	2	296	75	1	14	2	0	2	2	0	0	0	0	**394**
	8:00	3	521	104	4	17	2	1	1	1	0	0	0	0	**654**
	9:00	3	540	131	8	24	2	0	4	2	0	0	0	0	**714**
	10:00	3	494	132	4	23	2	1	4	2	0	0	0	0	**665**
	11:00	4	521	121	7	20	4	0	2	2	0	0	0	0	**681**
DIRECTION	12:00	4	583	135	4	19	2	1	2	2	0	0	0	0	**752**
West	13:00	4	650	140	4	14	2	0	3	0	0	0	0	0	**817**
	14:00	3	611	130	5	25	3	0	2	1	0	0	0	0	**780**
	15:00	5	639	141	6	24	3	0	2	1	0	0	0	0	**821**
	16:00	6	723	162	5	20	2	0	2	0	0	0	0	0	**920**
	17:00	6	835	156	4	17	1	0	2	0	0	0	0	0	**1021**
	18:00	8	746	140	5	14	1	0	4	0	0	0	0	0	**918**
	19:00	5	486	90	8	8	0	0	1	0	0	0	0	0	**598**
	20:00	5	368	72	4	8	0	0	1	0	0	0	0	0	**458**
	21:00	6	313	65	2	9	0	0	1	0	0	0	0	0	**396**
	22:00	6	239	45	0	7	0	0	0	0	0	0	0	0	**297**
	23:00	5	170	32	1	4	0	0	0	0	0	0	0	0	**212**
	24:00	2	134	18	2	5	0	0	1	1	0	0	0	0	**163**
	TOTAL VEHICLES	**84**	**9173**	**1950**	**78**	**280**	**30**	**3**	**34**	**18**	**1**	**0**	**0**	**0**	**11651**
	TOTAL AXLES	168	18346	3900	195	560	90	12	119	90	6	0	0	0	23486
	GRAND TOTAL VEHICLES	**233**	**22199**	**4423**	**122**	**616**	**61**	**3**	**138**	**32**	**6**	**2**	**0**	**1**	**27836**
	GRAND TOTAL AXLES	466	44398	8846	305	1232	183	12	483	160	36	10	0	9	56140

TRAFFIC FLOW BY DIRECTION



--- East - -West

PEAK HOUR DATA

DIRECTION	HOUR	COUNT	2-WAY	HOUR	COUNT
East	**17**	**1220**	**A.M.**	**12**	**1698**
West	**17**	**1021**	**P.M.**	**17**	**2241**

VEHICLE CLASSIFICATION CODES:

F1. Motorcycles
F2. Autos*
F3. 2 Axle, 4-Tire Pickups, Vans, Motorhomes*
F4. Buses
F5. 2 Axle, 6-Tire Single Unit Trucks
F6. 3 Axle Single Unit Trucks
F7. 4 or More Axle Single Unit Trucks
F8. 4 or Less Axle Vehicles, One Unit is a Truck
F9. 5 Axle Double Unit Vehicles, One Unit is a Truck
F10. 6 or More Double Unit Vehicles, One Unit is a Truck
F11. 5 or Less Axle Multi-Unit Trucks
F12. 6 Axle Multi-Unit Trucks
F13. 7 or More Axle Multi-Unit Trucks

* INCLUDING THOSE HAULING TRAILERS

FUNCTIONAL CLASS CODES:

RURAL	URBAN	SYSTEM
01	11	PRINCIPAL ARTERIAL-INTERSTATE
02	12	PRINCIPAL ARTERIAL-EXPRESSWAY
02	14	PRINCIPAL ARTERIAL-OTHER
06	16	MINOR ARTERIAL
07	17	MAJOR COLLECTOR
08	17	MINOR COLLECTOR
09	19	LOCAL SYSTEM

SOURCE: NYSDOT DATA SERVICES BUREAU

New York State Department of Transportation
Speed Count Average Weekday Report

Date: 08/31/2009

Station:	910062	Start date:	Fri 07/24/2009 13:00	Count duration:	165 hours
Route #: NY 434	Road name: 434	End date:	Fri 07/31/2009 09:45	Functional class:	12
From:	PENNSYLVANIA AVE OVER	County:	Broome	Factor group:	30
To:	RT 363 NORTH SHORE DR	Town:	BINGHAMTON	Batch ID:	DOT-SJWr9ww30
Direction:	East	Speed limit:	30	Count taken by:	Org: TST Init: JSV
Lanes: 1, 2, 3		LION#:		Processed by:	Org: DOT Init: SJW

Speeds, mph

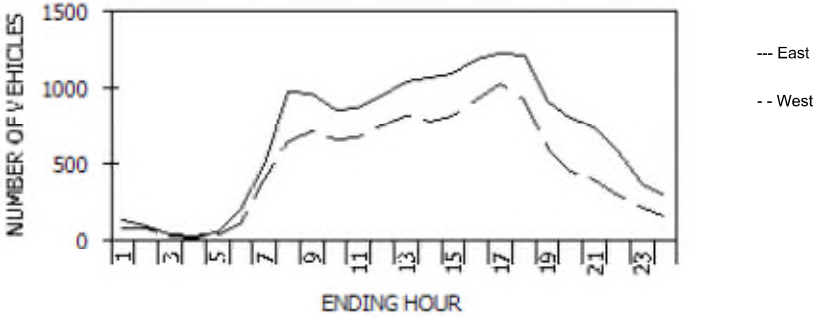
Hour	0.0-20.0	20.1-25.0	25.1-30.0	30.1-35.0	35.1-40.0	40.1-45.0	45.1-50.0	50.1-55.0	55.1-60.0	60.1-65.0	65.1-70.0	70.1-75.0	75.1-95.0	% Exc 45.0	% Exc 50.0	% Exc 55.0	% Exc 60.0	% Exc 65.0	Avg	50th%	85th%	Total
1:00	22	1	14	58	31	8	2	0	0	0	0	0	0	1.5	0.0	0.0	0.0	0.0	27.0	32.7	38.4	136
2:00	14	0	7	44	26	7	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	27.9	33.2	38.6	98
3:00	6	1	4	22	11	3	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	28.0	32.9	38.2	47
4:00	3	2	6	12	7	2	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	28.2	32.1	38.0	32
5:00	12	1	7	19	11	4	1	0	0	0	0	0	0	1.8	0.0	0.0	0.0	0.0	25.1	32.0	38.6	55
6:00	27	2	25	85	48	9	2	0	0	0	0	0	0	1.0	0.0	0.0	0.0	0.0	27.6	32.7	38.1	198
7:00	69	2	40	220	121	30	6	2	0	0	0	0	0	1.6	0.4	0.0	0.0	0.0	27.9	33.1	38.6	490
8:00	102	3	72	437	289	66	14	2	0	0	0	0	0	1.6	0.2	0.0	0.0	0.0	29.5	33.7	38.9	985
9:00	125	5	75	421	276	56	11	1	0	0	0	0	0	1.2	0.1	0.0	0.0	0.0	28.4	33.4	38.6	970
10:00	125	6	69	354	249	52	10	1	0	0	0	0	0	1.3	0.1	0.0	0.0	0.0	27.8	33.3	38.7	866
11:00	129	8	82	358	241	52	8	1	0	0	0	0	0	1.0	0.1	0.0	0.0	0.0	27.6	33.1	38.6	879
12:00	166	6	77	376	264	52	9	1	0	0	0	0	0	1.1	0.1	0.0	0.0	0.0	26.7	33.1	38.5	951
13:00	163	6	82	430	296	60	9	2	0	0	0	0	0	1.0	0.2	0.0	0.0	0.0	27.4	33.2	38.6	1048
14:00	167	8	91	466	267	56	9	1	0	0	0	0	0	0.9	0.1	0.0	0.0	0.0	27.2	32.9	38.3	1065
15:00	190	4	95	476	264	56	10	0	0	0	0	0	0	0.9	0.0	0.0	0.0	0.0	26.6	32.8	38.2	1095
16:00	180	4	83	503	334	73	16	1	0	0	0	0	0	1.4	0.1	0.0	0.0	0.0	27.7	33.3	38.7	1194
17:00	191	4	72	546	334	64	10	2	0	0	0	0	0	1.0	0.2	0.0	0.0	0.0	27.4	33.2	38.4	1223
18:00	169	4	55	544	358	72	14	3	0	0	0	0	0	1.4	0.2	0.0	0.0	0.0	28.2	33.6	38.7	1219
19:00	115	2	50	394	270	62	16	3	1	0	0	0	0	2.2	0.4	0.1	0.0	0.0	28.8	33.7	39.0	913
20:00	96	2	49	363	225	55	13	2	1	0	0	0	0	2.0	0.4	0.1	0.0	0.0	28.9	33.6	38.9	806
21:00	98	1	51	332	206	45	12	2	0	0	0	0	0	1.9	0.3	0.0	0.0	0.0	28.4	33.4	38.8	747
22:00	82	2	40	256	154	35	9	2	0	0	0	0	0	1.9	0.3	0.0	0.0	0.0	28.0	33.3	38.7	580
23:00	52	4	35	173	96	16	3	0	0	0	0	0	0	0.8	0.0	0.0	0.0	0.0	27.7	32.9	38.1	379
24:00	36	2	27	126	74	20	4	1	0	0	0	0	0	1.7	0.3	0.0	0.0	0.0	28.4	33.2	38.8	290
Avg. Daily Total	2339	80	1208	7015	4452	955	188	27	2	0	0	0	0	1.3	0.2	0.0	0.0	0.0	27.8	33.3	38.6	16266
Percent	14.4%	0.5%	7.4%	43.1%	27.4%	5.9%	1.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%									
Cum. Percent	14.4%	14.9%	22.3%	65.4%	92.8%	98.7%	99.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%									
Average hour	97	3	50	292	186	40	8	1	0	0	0	0	0									678

	Avg. Speed	50th% Speed	85th% Speed
East	27.8	33.3	38.6
West	25.5	29.8	38.1

Peak Hour Data

Direction	Hour	Count	2-way	Hour	Count
East	17	1223	A.M.	12	1703
West	17	1027	P.M.	17	2250

TRAFFIC FLOW BY DIRECTION



New York State Department of Transportation
Speed Count Average Weekday Report

Date: 08/31/2009

Station:	910062	Start date:	Fri 07/24/2009 13:00	Count duration:	165 hours
Route #: NY 434	Road name: 434	End date:	Fri 07/31/2009 09:45	Functional class:	12
From:	PENNSYLVANIA AVE OVER	County:	Broome	Factor group:	30
To:	RT 363 NORTH SHORE DR	Town:	BINGHAMTON	Batch ID:	DOT-SJWr9ww30
Direction:	West	Speed limit:	30	Count taken by:	Org: TST Init: JSV
Lanes: 1, 2, 3		LION#:		Processed by:	Org: DOT Init: SJW

Speeds, mph

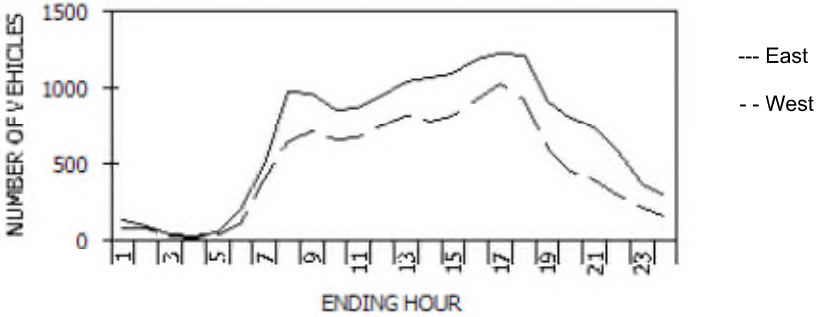
Hour	0.0-20.0	20.1-25.0	25.1-30.0	30.1-35.0	35.1-40.0	40.1-45.0	45.1-50.0	50.1-55.0	55.1-60.0	60.1-65.0	65.1-70.0	70.1-75.0	75.1-95.0	% Exc 45.0	% Exc 50.0	% Exc 55.0	% Exc 60.0	% Exc 65.0	Avg	50th%	85th%	Total
1:00	0	4	22	35	20	4	1	0	0	0	0	0	0	1.2	0.0	0.0	0.0	0.0	31.8	32.5	38.1	86
2:00	2	3	18	31	20	5	2	0	0	0	0	0	0	2.5	0.0	0.0	0.0	0.0	31.3	32.9	38.8	81
3:00	0	2	8	14	8	2	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	31.7	32.6	38.1	34
4:00	0	0	5	10	6	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	32.3	32.8	37.4	21
5:00	2	2	17	20	8	1	1	0	0	0	0	0	0	2.0	0.0	0.0	0.0	0.0	29.5	31.2	36.5	51
6:00	4	6	26	40	29	8	1	0	0	0	0	0	0	0.9	0.0	0.0	0.0	0.0	30.6	32.7	38.7	114
7:00	23	33	96	119	83	33	6	1	0	0	0	0	0	1.8	0.3	0.0	0.0	0.0	29.2	31.9	38.9	394
8:00	80	94	148	155	106	59	11	1	0	0	0	0	0	1.8	0.2	0.0	0.0	0.0	26.4	30.2	38.8	654
9:00	98	101	165	160	123	60	9	0	0	0	0	0	0	1.3	0.0	0.0	0.0	0.0	25.9	29.9	38.5	716
10:00	72	95	167	166	111	48	7	0	0	0	0	0	0	1.1	0.0	0.0	0.0	0.0	26.6	30.0	38.0	666
11:00	78	100	170	164	117	47	5	0	0	0	0	0	0	0.7	0.0	0.0	0.0	0.0	26.3	29.8	37.9	681
12:00	111	115	162	162	134	60	8	0	0	0	0	0	0	1.1	0.0	0.0	0.0	0.0	25.5	29.7	38.4	752
13:00	136	130	176	184	130	54	10	1	0	0	0	0	0	1.3	0.1	0.0	0.0	0.0	24.9	29.2	37.8	821
14:00	128	132	191	162	113	51	5	1	0	0	0	0	0	0.8	0.1	0.0	0.0	0.0	24.7	28.5	37.4	783
15:00	151	121	182	170	134	57	7	1	0	0	0	0	0	1.0	0.1	0.0	0.0	0.0	24.5	28.9	37.9	823
16:00	217	144	168	171	152	62	8	0	0	0	0	0	0	0.9	0.0	0.0	0.0	0.0	23.2	28.0	37.8	922
17:00	292	164	184	172	141	64	10	0	0	0	0	0	0	1.0	0.0	0.0	0.0	0.0	22.0	26.6	37.2	1027
18:00	235	136	164	164	140	69	12	0	0	0	0	0	0	1.3	0.0	0.0	0.0	0.0	22.8	27.8	38.0	920
19:00	61	72	145	148	115	49	7	0	0	0	0	0	0	1.2	0.0	0.0	0.0	0.0	27.2	30.7	38.6	597
20:00	28	44	119	144	84	34	5	0	0	0	0	0	0	1.1	0.0	0.0	0.0	0.0	28.7	31.4	38.3	458
21:00	22	43	105	118	75	26	6	1	0	0	0	0	0	1.8	0.3	0.0	0.0	0.0	28.8	31.2	38.3	396
22:00	8	27	91	96	54	18	3	0	0	0	0	0	0	1.0	0.0	0.0	0.0	0.0	29.7	31.2	37.9	297
23:00	3	16	67	74	38	10	2	0	0	0	0	0	0	1.0	0.0	0.0	0.0	0.0	30.3	31.3	37.5	210
24:00	3	10	46	62	30	9	1	0	0	0	0	0	0	0.6	0.0	0.0	0.0	0.0	30.5	31.8	37.7	161
Avg. Daily Total	1754	1594	2642	2741	1971	830	127	6	0	0	0	0	0	1.1	0.1	0.0	0.0	0.0	25.5	29.8	38.1	11665
Percent	15.0%	13.7%	22.6%	23.5%	16.9%	7.1%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%									
Cum. Percent	15.0%	28.7%	51.4%	74.8%	91.7%	98.9%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%									
Average hour	73	66	110	114	82	35	5	0	0	0	0	0	0									486

	Avg. Speed	50th% Speed	85th% Speed
East	27.8	33.3	38.6
West	25.5	29.8	38.1

Peak Hour Data

Direction	Hour	Count	2-way	Hour	Count
East	17	1223	A.M.	12	1703
West	17	1027	P.M.	17	2250

TRAFFIC FLOW BY DIRECTION



STATION: **911270**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **5290** ROAD NAME: **VESTAL AVE**
DIRECTION: Eastbound FACTOR GROUP: 30
STATE DIR CODE: 1 WK OF YR: 30
DATE OF COUNT: 07/25/2011
NOTES LANE 1: 000000911270

COUNT TAKEN BY: ORG CODE: TST INITIALS: WJ

FROM: **S WASHINGTON S**
REC. SERIAL #: 5162
PLACEMENT: 200 Ft W of New St
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: R09 INITIALS: jjg

TO: **MILL ST**
FUNC. CLASS: 17
NHS: no
JURIS: City
CC Stn:
BATCH ID: R09-WW31 Tri-State

COUNTY: **Broome**
CITY: **BINGHAMTON**
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
		AM												PM														
25	M															129	161	186	112	105	98	81	81	54	20			
26	T	20	13	6	9	2	12	38	43	72	97	89	116	108	118	131	135	169	132	129	95	89	71	53	30	1777	169	16
27	W	26	15	9	4	3	11	39	46	71	97	98	104	126	136	134	150	148	133	110	110	94	72	52	31	1819	150	15
28	T	20	21	7	8	9	11	32	47	67	85	104	105	145	108	141	166	157	158	131	111	88	68	44	32	1865	166	15
29	F	25	17	5	8	10	5	39	48	60	79	106	106	150	139	145	157	160	138	114	119	113	84	58	45	1930	160	16
30	S	33	22	15	15	4	5	6	21	59	74	102	103	145	113	110	110	115	113	117	99	95	100	60	46	1682	145	12
31	S	28	27	6	19	7	9	15	51	58	73	66	115	110	92	108	102	111	97	79	75	90	59	45	19	1461	115	11
1	M	19	16	12	3	1	13	31	47	82																		

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

23	16	7	7	6	10	35	45	69	88	97	106	124	119	132	150	162	132	117	102	87	72	50	28	ADT 1784

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED (one way)
7	163	4	97	162	9%	0.983	1.096	**AADT 1628**

New York State Department of Transportation

Traffic Count Hourly Report

ROAD #: **5290** ROAD NAME: **VESTAL AVE**
DIRECTION: Westbound FACTOR GROUP: 30
STATE DIR CODE: 2 WK OF YR: 30
DATE OF COUNT: 07/25/2011
NOTES LANE 1: 000000911270

COUNT TAKEN BY: ORG CODE: TST INITIALS: WJ

FROM: **S WASHINGTON S**
REC. SERIAL #: 5162
PLACEMENT: 200 Ft W of New St
@ REF MARKER:
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: R09 INITIALS: jjg

TO: **MILL ST**
FUNC. CLASS: 17
NHS: no
JURIS: City
CC Stn:
BATCH ID: R09-WW31 Tri-State

COUNTY: **Broome**
CITY: **BINGHAMTON**
LION#:
BIN:
RR CROSSING:
HPMS SAMPLE:

DATE	DAY	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAILY TOTAL	DAILY HIGH COUNT	DAILY HIGH HOUR
		AM												PM														
25	M															**109**	**110**	**125**	**74**	**69**	**74**	**83**	**49**	**27**	**16**			
26	T	**11**	**12**	**6**	**5**	**2**	**7**	**37**	**78**	**91**	**112**	**91**	**102**	**97**	**102**	**103**	**103**	**134**	**89**	**87**	**71**	**62**	**58**	**22**	**24**	1506	134	16
27	W	**12**	**15**	**8**	**3**	**5**	**8**	**48**	**66**	**98**	**110**	**76**	**103**	**118**	**127**	**120**	**129**	**112**	**105**	**91**	**73**	**65**	**54**	**20**	**25**	1591	129	15
28	T	**16**	**15**	**3**	**7**	**5**	**7**	**45**	**52**	**82**	**90**	**99**	**107**	**126**	**100**	**120**	**101**	**137**	**110**	**91**	**61**	**65**	**43**	**24**	**25**	1531	137	16
29	F	**14**	**11**	**4**	**7**	**6**	**17**	**40**	**69**	**88**	**86**	**109**	**95**	**114**	**118**	**100**	**120**	**126**	**117**	**98**	**79**	**80**	**61**	**34**	**27**	1620	126	16
30	S	**16**	**11**	**12**	**12**	**6**	**10**	**19**	**31**	**57**	**100**	**89**	**111**	**123**	**97**	**137**	**81**	**86**	**123**	**67**	**63**	**67**	**50**	**48**	**29**	1445	137	14
31	S	**19**	**9**	**8**	**9**	**9**	**2**	**12**	**16**	**58**	**89**	**80**	**82**	**110**	**104**	**82**	**78**	**90**	**81**	**68**	**52**	**42**	**48**	**24**	**13**	1185	110	12
1	M	**10**	**6**	**10**	**4**	**6**	**8**	**44**	**74**	**85**																		

AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)

13	13	5	6	4	10	42	67	87	98	92	100	112	108	111	109	125	92	83	69	68	50	23	22	ADT 1509

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY High Hour	AVERAGE WEEKDAY % of day	Axle Adj. Factor	Seasonal/Weekday Adjustment Factor	ESTIMATED (one way)
7	163	4	97	125	8%	0.983	1.096	**AADT 1377**

New York State Department of Transportation
Roadway Traffic Count Hourly Report

STATION: 911269

ROUTE/ROAD:	VESTAL AVE	FROM:	PENNSYLVANIA A	TO:	S WASHINGTON S	REGION-COUNTY:	9-BROOME
FED DIR CODE:	3, 7	REF. MARKER:		FUNC. CLASS:	17 - U Major Collector	MUNI:	Binghamton-City-2006
ST DIR CODE:	6	END MILEPOST:	1.89	FACTOR GROUP:	30	BIN:	
DOT ID:	212978	LANES BY DIR:	1 East 1 West	CC STN:		RR CROSSING:	
BEGIN DATE:	5/29/2014	WEEK OF YEAR:	22	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	EB Lane	PLACEMENT:	300 ft W of Mitchell St	JURISDICTION:	04-City or village	1 WAY CODE:	
NOTES 2:	WB Lane					COUNT TYPE:	Vehicle
TAKEN BY:	TST-TLS	PROCESSED BY:	DOT-jjg	BATCH ID:	DOT-DOTR9WW22	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
5/29, Thu																			582	530	413	286	211	130	2152		
5/30, Fri	60	59	29	28	38	117	295	527	606	577	642	669	740	689	807	893	832	748	700	580	472	338	256	190	10892	893	15-16
5/31, Sat	150	86	52	57	46	54	142	226	334	415	523	586	637	608	605	590	584	562	510	454	382	313	250	179	8345	637	12-13
6/01, Sun	96	66	36	47	53	78	177	286	228	321	461	497	617	548	550	574	517	482	423	430	385	211	161	97	7341	617	12-13
6/02, Mon	62	36	30	22	52	123	293	516	567	560	582	524	607	644	686	801	800	669	542	480	427	319	161	118	9621	801	15-16
6/03, Tue	49	37	19	26	35	108	313	534	575	550	574	557	619	620	734	774	831	773	528	543	379	300	162	114	9754	831	16-17
6/04, Wed	57	43	27	17	41	113	306	543	583	553	637														2920		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	55	46	25	24	38	113	302	530	583	560	609	583	613	632	710	788	816	721	551	518	406	302	178	121	9822		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
6	137	3	71	816	8.3	478	7.8	338	9.2	8912	5271	3197

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
5	1.08					1.00	1.00	1.00	1.00
6	1.11	1.00	1.00	1.00	1.00				1.00

STATION: 911269

New York State Department of Transportation
EB Traffic Count Hourly Report

ROUTE/ROAD:	VESTAL AVE	FROM:	PENNSYLVANIA A	TO:	S WASHINGTON S	REGION-COUNTY:	9-BROOME
FED DIR CODE:	3	REF. MARKER:		FUNC. CLASS:	17 - U Major Collector	MUNI:	Binghamton-City-2006
ST DIR CODE:	6	END MILEPOST:	1.89	FACTOR GROUP:	30	BIN:	
DOT ID:	212978	LANES BY DIR:	1 East	CC STN:		RR CROSSING:	
BEGIN DATE:	5/29/2014	WEEK OF YEAR:	22	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	EB Lane	PLACEMENT:	300 ft W of Mitchell St	JURISDICTION:	04-City or village	1 WAY CODE:	
NOTES 2:	WB Lane					COUNT TYPE:	Vehicle
TAKEN BY:	TST-TLS	PROCESSED BY:	DOT-jjg	BATCH ID:	DOT-DOTR9WW22	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
5/29, Thu																			**349**	**313**	**226**	**144**	**114**	**79**	1225		
5/30, Fri	**33**	**33**	**16**	**18**	**21**	**76**	**215**	**385**	**443**	**369**	**384**	**419**	**458**	**436**	**505**	**532**	**506**	**450**	**422**	**342**	**263**	**207**	**157**	**107**	6797	532	15-16
5/31, Sat	**83**	**45**	**21**	**32**	**26**	**36**	**101**	**157**	**214**	**255**	**335**	**367**	**403**	**374**	**362**	**350**	**380**	**324**	**324**	**280**	**218**	**187**	**138**	**96**	5108	403	12-13
6/01, Sun	**50**	**41**	**22**	**24**	**29**	**40**	**106**	**172**	**151**	**217**	**286**	**324**	**369**	**334**	**367**	**368**	**324**	**287**	**258**	**257**	**234**	**129**	**102**	**54**	4545	369	12-13
6/02, Mon	**38**	**15**	**23**	**11**	**34**	**80**	**205**	**397**	**409**	**375**	**339**	**319**	**378**	**409**	**431**	**484**	**454**	**424**	**317**	**281**	**224**	**181**	**105**	**72**	6005	484	15-16
6/03, Tue	**26**	**20**	**12**	**16**	**21**	**80**	**239**	**389**	**411**	**352**	**360**	**344**	**382**	**386**	**447**	**463**	**502**	**461**	**311**	**303**	**233**	**169**	**90**	**69**	6086	502	16-17
6/04, Wed	**32**	**23**	**14**	**13**	**19**	**81**	**236**	**419**	**414**	**368**	**419**														2038		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	30	**25**	**14**	**16**	**20**	**79**	**224**	**398**	**419**	**366**	**376**	**361**	**380**	**398**	**439**	**474**	**478**	**443**	**326**	**299**	**228**	**165**	**103**	**73**	6131		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
6	137	3	71	816	8.3	478	7.8	338	9.2	8912	5271	3197

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
5	1.08					1.00	1.00	1.00	1.00
6	1.11	1.00	1.00	1.00	1.00				1.00

New York State Department of Transportation

STATION: 911269

WB Traffic Count Hourly Report

ROUTE/ROAD:	VESTAL AVE	FROM:	PENNSYLVANIA A	TO:	S WASHINGTON S	REGION-COUNTY:	9-BROOME
FED DIR CODE:	7	REF. MARKER:		FUNC. CLASS:	17 - U Major Collector	MUNI:	Binghamton-City-2006
ST DIR CODE:	6	END MILEPOST:	1.89	FACTOR GROUP:	30	BIN:	
DOT ID:	212978	LANES BY DIR:	1 West	CC STN:		RR CROSSING:	
BEGIN DATE:	5/29/2014	WEEK OF YEAR:	22	ADDL DATA:		HPMS SAMPLE:	
NOTES 1:	EB Lane	PLACEMENT:	300 ft W of Mitchell St	JURISDICTION:	04-City or village	1 WAY CODE:	
NOTES 2:	WB Lane					COUNT TYPE:	Vehicle
TAKEN BY:	TST-TLS	PROCESSED BY:	DOT-jjg	BATCH ID:	DOT-DOTR9WW22	SPEED LIMIT:	

DATE	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	DAILY TOTAL	HIGH COUNT	HIGH HOUR
5/29, Thu																			**233**	**217**	**187**	**142**	**97**	**51**	927		
5/30, Fri	**27**	**26**	**13**	**10**	**17**	**41**	**80**	**142**	**163**	**208**	**258**	**250**	**282**	**253**	**302**	**361**	**326**	**298**	**278**	**238**	**209**	**131**	**99**	**83**	4095	361	15-16
5/31, Sat	**67**	**41**	**31**	**25**	**20**	**18**	**41**	**69**	**120**	**160**	**188**	**219**	**234**	**234**	**243**	**240**	**204**	**238**	**186**	**174**	**164**	**126**	**112**	**83**	3237	243	14-15
6/01, Sun	**46**	**25**	**14**	**23**	**24**	**38**	**71**	**114**	**77**	**104**	**175**	**173**	**248**	**214**	**183**	**206**	**193**	**195**	**165**	**173**	**151**	**82**	**59**	**43**	2796	248	12-13
6/02, Mon	**24**	**21**	**7**	**11**	**18**	**43**	**88**	**119**	**158**	**185**	**243**	**205**	**229**	**235**	**255**	**317**	**346**	**245**	**225**	**199**	**203**	**138**	**56**	**46**	3616	346	16-17
6/03, Tue	**23**	**17**	**7**	**10**	**14**	**28**	**74**	**145**	**164**	**198**	**214**	**213**	**237**	**234**	**287**	**311**	**329**	**312**	**217**	**240**	**146**	**131**	**72**	**45**	3668	329	16-17
6/04, Wed	**25**	**20**	**13**	**4**	**22**	**32**	**70**	**124**	**169**	**185**	**218**														882		
AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6 AM to Fri Noon)																									**AWDT**		
	25	**21**	**11**	**8**	**18**	**34**	**78**	**133**	**164**	**194**	**233**	**223**	**233**	**235**	**271**	**314**	**338**	**279**	**225**	**219**	**179**	**137**	**75**	**47**	3690		

DAYS Counted	HOURS Counted	WEEKDAYS Counted	WEEKDAY Hours	AVERAGE WEEKDAY Roadway High Hour	Roadway % of day	East High Hour	East % of day	West High Hour	West % of day	ESTIMATED AADT Roadway	East	West
6	137	3	71	816	8.3	478	7.8	338	9.2	8912	5271	3197

FACTOR

Month	Seasonal	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Axl
5	1.08					1.00	1.00	1.00	1.00
6	1.11	1.00	1.00	1.00	1.00				1.00

APPENDIX C

Traffic Count Data

Leg	S WASHINGTON ST							NY 434						
Direction	Southbound							Westbound						
Start Time	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW
2019-09-24 07:30:00	7	11	1	0	**19**	0	0	4	114	53	0	**171**	3	4
2019-09-24 07:45:00	5	23	1	0	**29**	0	0	5	222	94	0	**321**	2	0
2019-09-24 08:00:00	8	18	0	0	**26**	0	0	4	262	70	0	**336**	1	3
2019-09-24 08:15:00	3	12	2	0	**17**	0	0	3	174	67	0	**244**	0	1
Grand Total	23	64	4	0	**91**	0	0	16	772	284	0	**1072**	6	8
% Approach	25.3%	70.3%	4.4%	0.0%				1.5%	72.0%	26.5%	0.0%			
% Total	0.8%	2.4%	0.1%	0.0%	**3.4%**			0.6%	28.4%	10.5%	0.0%	**39.5%**		
PHF (7:30 AM - 8:30 AM)	0.719	0.696	0.5	0	**0.784**			0.8	0.737	0.755	0	**0.798**		
Lights	22	62	4	0	**88**			15	759	284	0	**1058**		
% Lights	95.7%	96.9%	100.0%	0.0%	**96.7%**			93.8%	98.3%	100.0%	0.0%	**98.7%**		
Articulated Trucks and Single-Unit Trucks	1	2	0	0	**3**			1	6	0	0	**7**		
% Articulated Trucks and Single-Unit Trucks	4.3%	3.1%	0.0%	0.0%	**3.3%**			6.3%	0.8%	0.0%	0.0%	**0.7%**		
Buses	0	0	0	0	**0**			0	7	0	0	**7**		
% Buses	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	0.9%	0.0%	0.0%	**0.7%**		
Pedestrians						0	0						6	6
% Pedestrians						0.0%	0.0%						100.0%	75.0%
Bicycles on Crosswalk						0	0						0	2
% Bicycles on Crosswalk						0.0%	0.0%						0.0%	25.0%

	S WASHINGTON ST							NY 434							
	Northbound							Eastbound							
	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	**Int Total**
	81	2	77	0	**160**	0	0	14	212	3	0	**229**	1	9	**579**
	103	2	60	0	**165**	0	0	24	279	11	0	**314**	2	1	**829**
	69	5	53	0	**127**	0	0	18	210	6	0	**234**	2	1	**723**
	52	4	49	0	**105**	0	0	16	200	1	0	**217**	3	0	**583**
	305	13	239	0	**557**	0	0	72	901	21	0	**994**	8	11	**2714**
	54.8%	2.3%	42.9%	0.0%				7.2%	90.6%	2.1%	0.0%				
	11.2%	0.5%	8.8%	0.0%	**20.5%**			2.7%	33.2%	0.8%	0.0%	**36.6%**			
	0.74	0.65	0.776	0	**0.844**			0.75	0.807	0.477	0	**0.791**			**0.818**
	300	12	237	0	**549**			71	860	21	0	**952**			**2647**
	98.4%	92.3%	99.2%	0.0%	**98.6%**			98.6%	95.4%	100.0%	0.0%	**95.8%**			**97.5%**
	4	1	2	0	**7**			1	23	0	0	**24**			**41**
	1.3%	7.7%	0.8%	0.0%	**1.3%**			1.4%	2.6%	0.0%	0.0%	**2.4%**			**1.5%**
	1	0	0	0	**1**			0	18	0	0	**18**			**26**
	0.3%	0.0%	0.0%	0.0%	**0.2%**			0.0%	2.0%	0.0%	0.0%	**1.8%**			**1.0%**
						0	0						8	11	
						0.0%	0.0%						100.0%	100.0%	
						0	0						0	0	
						0.0%	0.0%						0.0%	0.0%	

Leg	S WASHINGTON ST							NY 434						
Direction	Southbound							Westbound						
Start Time	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW
2019-09-24 16:15:00	12	16	3	0	**31**	0	0	2	159	87	0	**248**	3	3
2019-09-24 16:30:00	17	16	3	0	**36**	0	0	4	191	62	0	**257**	1	3
2019-09-24 16:45:00	9	26	2	0	**37**	0	0	3	160	81	0	**244**	4	3
2019-09-24 17:00:00	13	18	1	0	**32**	0	0	3	191	77	0	**271**	1	2
Grand Total	51	76	9	0	**136**	0	0	12	701	307	0	**1020**	9	11
% Approach	37.5%	55.9%	6.6%	0.0%				1.2%	68.7%	30.1%	0.0%			
% Total	1.7%	2.5%	0.3%	0.0%	**4.4%**			0.4%	22.8%	10.0%	0.0%	**33.2%**		
PHF (4:15 PM - 5:15 PM)	0.75	0.731	0.75	0	**0.919**			0.75	0.918	0.882	0	**0.941**		
Lights	51	75	8	0	**134**			12	687	306	0	**1005**		
% Lights	100.0%	98.7%	88.9%	0.0%	**98.5%**			100.0%	98.0%	99.7%	0.0%	**98.5%**		
Articulated Trucks and Single-Unit Trucks	0	1	1	0	**2**			0	6	1	0	**7**		
% Articulated Trucks and Single-Unit Trucks	0.0%	1.3%	11.1%	0.0%	**1.5%**			0.0%	0.9%	0.3%	0.0%	**0.7%**		
Buses	0	0	0	0	**0**			0	8	0	0	**8**		
% Buses	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	1.1%	0.0%	0.0%	**0.8%**		
Pedestrians						0	0						8	11
% Pedestrians						0.0%	0.0%						88.9%	100.0%
Bicycles on Crosswalk						0	0						1	0
% Bicycles on Crosswalk						0.0%	0.0%						11.1%	0.0%

	S WASHINGTON ST							NY 434							
	Northbound							Eastbound							
	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	**Int Total**
	79	4	56	0	**139**	1	0	22	303	5	0	**330**	2	2	**748**
	66	5	60	0	**131**	0	0	26	366	9	0	**401**	0	5	**825**
	92	1	56	0	**149**	0	0	22	265	7	0	**294**	1	0	**724**
	114	1	53	0	**168**	0	0	21	275	9	0	**305**	2	4	**776**
	351	11	225	0	**587**	1	0	91	1209	30	0	**1330**	5	11	**3073**
	59.8%	1.9%	38.3%	0.0%				6.8%	90.9%	2.3%	0.0%				
	11.4%	0.4%	7.3%	0.0%	**19.1%**			3.0%	39.3%	1.0%	0.0%	**43.3%**			
	0.77	0.55	0.938	0	**0.874**			0.875	0.826	0.833	0	**0.829**			**0.931**
	349	11	224	0	**584**			91	1197	28	0	**1316**			**3039**
	99.4%	100.0%	99.6%	0.0%	**99.5%**			100.0%	99.0%	93.3%	0.0%	**98.9%**			**98.9%**
	2	0	1	0	**3**			0	9	2	0	**11**			**23**
	0.6%	0.0%	0.4%	0.0%	**0.5%**			0.0%	0.7%	6.7%	0.0%	**0.8%**			**0.7%**
	0	0	0	0	**0**			0	3	0	0	**3**			**11**
	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	0.2%	0.0%	0.0%	**0.2%**			**0.4%**
						1	0						4	9	
						100.0%	0.0%						80.0%	81.8%	
						0	0						1	2	
						0.0%	0.0%						20.0%	18.2%	

Leg	S WASHINGTON ST							VESTAL AVE						
Direction	Southbound							Westbound						
Start Time	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW
2019-09-24 07:30:00	40	36	2	0	**78**	3	3	5	37	1	0	**43**	0	1
2019-09-24 07:45:00	58	69	1	0	**128**	1	0	7	25	1	0	**33**	1	0
2019-09-24 08:00:00	53	48	7	0	**108**	0	0	11	10	1	0	**22**	1	1
2019-09-24 08:15:00	48	34	3	0	**85**	0	1	3	17	3	0	**23**	0	0
Grand Total	199	187	13	0	**399**	4	4	26	89	6	0	**121**	2	2
% Approach	49.9%	46.9%	3.3%	0.0%				21.5%	73.6%	5.0%	0.0%			
% Total	16.3%	15.3%	1.1%	0.0%	**32.6%**			2.1%	7.3%	0.5%	0.0%	**9.9%**		
PHF (7:30 AM - 8:30 AM)	0.858	0.678	0.464	0	**0.779**			0.591	0.601	0.5	0	**0.703**		
Lights	198	187	13	0	**398**			25	85	5	0	**115**		
% Lights	99.5%	100.0%	100.0%	0.0%	**99.7%**			96.2%	95.5%	83.3%	0.0%	**95.0%**		
Articulated Trucks and Single-Unit Trucks	1	0	0	0	**1**			1	1	1	0	**3**		
% Articulated Trucks and Single-Unit Trucks	0.5%	0.0%	0.0%	0.0%	**0.3%**			3.8%	1.1%	16.7%	0.0%	**2.5%**		
Buses	0	0	0	0	**0**			0	3	0	0	**3**		
% Buses	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	3.4%	0.0%	0.0%	**2.5%**		
Pedestrians						4	4						2	1
% Pedestrians						100.0%	100.0%						100.0%	50.0%
Bicycles on Crosswalk						0	0						0	1
% Bicycles on Crosswalk						0.0%	0.0%						0.0%	50.0%

	S WASHINGTON ST							VESTAL AVE							
	Northbound							Eastbound							
	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	**Int Total**
	2	61	6	0	**69**	1	0	4	28	83	0	**115**	3	2	**305**
	1	60	2	0	**63**	2	1	6	44	101	0	**151**	1	0	**375**
	4	35	1	0	**40**	0	1	3	32	83	0	**118**	0	0	**288**
	1	45	2	0	**48**	1	2	4	34	61	0	**99**	0	0	**255**
	8	201	11	0	**220**	4	4	17	138	328	0	**483**	4	2	**1223**
	3.6%	91.4%	5.0%	0.0%				3.5%	28.6%	67.9%	0.0%				
	0.7%	16.4%	0.9%	0.0%	**18.0%**			1.4%	11.3%	26.8%	0.0%	**39.5%**			
	0.5	0.824	0.458	0	**0.797**			0.708	0.784	0.812	0	**0.8**			**0.815**
	6	197	10	0	**213**			17	130	324	0	**471**			**1197**
	75.0%	98.0%	90.9%	0.0%	**96.8%**			100.0%	94.2%	98.8%	0.0%	**97.5%**			**97.9%**
	0	4	1	0	**5**			0	1	3	0	**4**			**13**
	0.0%	2.0%	9.1%	0.0%	**2.3%**			0.0%	0.7%	0.9%	0.0%	**0.8%**			**1.1%**
	2	0	0	0	**2**			0	7	1	0	**8**			**13**
	25.0%	0.0%	0.0%	0.0%	**0.9%**			0.0%	5.1%	0.3%	0.0%	**1.7%**			**1.1%**
						3	4						4	2	
						75.0%	100.0%						100.0%	100.0%	
						1	0						0	0	
						25.0%	0.0%						0.0%	0.0%	

Leg	S WASHINGTON ST							VESTAL AVE						
Direction	Southbound							Westbound						
Start Time	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW
2019-09-24 07:30:00	40	36	2	0	**78**	3	3	5	37	1	0	**43**	0	1
2019-09-24 07:45:00	58	69	1	0	**128**	1	0	7	25	1	0	**33**	1	0
2019-09-24 08:00:00	53	48	7	0	**108**	0	0	11	10	1	0	**22**	1	1
2019-09-24 08:15:00	48	34	3	0	**85**	0	1	3	17	3	0	**23**	0	0
Grand Total	199	187	13	0	**399**	4	4	26	89	6	0	**121**	2	2
% Approach	49.9%	46.9%	3.3%	0.0%				21.5%	73.6%	5.0%	0.0%			
% Total	16.3%	15.3%	1.1%	0.0%	**32.6%**			2.1%	7.3%	0.5%	0.0%	**9.9%**		
PHF (7:30 AM - 8:30 AM)	0.858	0.678	0.464	0	**0.779**			0.591	0.601	0.5	0	**0.703**		
Lights	198	187	13	0	**398**			25	85	5	0	**115**		
% Lights	99.5%	100.0%	100.0%	0.0%	**99.7%**			96.2%	95.5%	83.3%	0.0%	**95.0%**		
Articulated Trucks and Single-Unit Trucks	1	0	0	0	**1**			1	1	1	0	**3**		
% Articulated Trucks and Single-Unit Trucks	0.5%	0.0%	0.0%	0.0%	**0.3%**			3.8%	1.1%	16.7%	0.0%	**2.5%**		
Buses	0	0	0	0	**0**			0	3	0	0	**3**		
% Buses	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	3.4%	0.0%	0.0%	**2.5%**		
Pedestrians						4	4						2	1
% Pedestrians						100.0%	100.0%						100.0%	50.0%
Bicycles on Crosswalk						0	0						0	1
% Bicycles on Crosswalk						0.0%	0.0%						0.0%	50.0%

	S WASHINGTON ST							VESTAL AVE							
	Northbound							Eastbound							
	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	**Int Total**
	2	61	6	0	**69**	1	0	4	28	83	0	**115**	3	2	**305**
	1	60	2	0	**63**	2	1	6	44	101	0	**151**	1	0	**375**
	4	35	1	0	**40**	0	1	3	32	83	0	**118**	0	0	**288**
	1	45	2	0	**48**	1	2	4	34	61	0	**99**	0	0	**255**
	8	201	11	0	**220**	4	4	17	138	328	0	**483**	4	2	**1223**
	3.6%	91.4%	5.0%	0.0%				3.5%	28.6%	67.9%	0.0%				
	0.7%	16.4%	0.9%	0.0%	**18.0%**			1.4%	11.3%	26.8%	0.0%	**39.5%**			
	0.5	0.824	0.458	0	**0.797**			0.708	0.784	0.812	0	**0.8**			**0.815**
	6	197	10	0	**213**			17	130	324	0	**471**			**1197**
	75.0%	98.0%	90.9%	0.0%	**96.8%**			100.0%	94.2%	98.8%	0.0%	**97.5%**			**97.9%**
	0	4	1	0	**5**			0	1	3	0	**4**			**13**
	0.0%	2.0%	9.1%	0.0%	**2.3%**			0.0%	0.7%	0.9%	0.0%	**0.8%**			**1.1%**
	2	0	0	0	**2**			0	7	1	0	**8**			**13**
	25.0%	0.0%	0.0%	0.0%	**0.9%**			0.0%	5.1%	0.3%	0.0%	**1.7%**			**1.1%**
						3	4						4	2	
						75.0%	100.0%						100.0%	100.0%	
						1	0						0	0	
						25.0%	0.0%						0.0%	0.0%	

Leg	MARY ST							VESTAL AVE						
Direction	Southbound							Westbound						
Start Time	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW
2019-09-17 07:30:00	3	0	0	0	**3**	1	5	1	29	0	0	**30**	0	1
2019-09-17 07:45:00	1	0	1	0	**2**	1	0	3	32	0	0	**35**	0	0
2019-09-17 08:00:00	2	0	0	0	**2**	1	1	2	24	0	0	**26**	0	1
2019-09-17 08:15:00	0	0	0	0	**0**	1	0	6	24	0	0	**30**	0	0
Grand Total	6	0	1	0	**7**	4	6	12	109	0	0	**121**	0	2
% Approach	85.7%	0.0%	14.3%	0.0%				9.9%	90.1%	0.0%	0.0%			
% Total	1.4%	0.0%	0.2%	0.0%	**1.7%**			2.9%	26.0%	0.0%	0.0%	**28.9%**		
PHF (7:30 AM - 8:30 AM)	0.5	0	0.25	0	**0.583**			0.5	0.852	0	0	**0.864**		
Lights	5	0	1	0	**6**			11	104	0	0	**115**		
% Lights	83.3%	0.0%	100.0%	0.0%	**85.7%**			91.7%	95.4%	0.0%	0.0%	**95.0%**		
Articulated Trucks and Single-Unit Trucks	1	0	0	0	**1**			0	2	0	0	**2**		
% Articulated Trucks and Single-Unit Trucks	16.7%	0.0%	0.0%	0.0%	**14.3%**			0.0%	1.8%	0.0%	0.0%	**1.7%**		
Buses	0	0	0	0	**0**			1	3	0	0	**4**		
% Buses	0.0%	0.0%	0.0%	0.0%	**0.0%**			8.3%	2.8%	0.0%	0.0%	**3.3%**		
Pedestrians						4	5						0	2
% Pedestrians						100.0%	83.3%						0.0%	100.0%
Bicycles on Crosswalk						0	1						0	0
% Bicycles on Crosswalk						0.0%	16.7%						0.0%	0.0%

	MARY ST							VESTAL AVE							
	Northbound							Eastbound							
	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	**Int Total**
	1	32	9	0	**42**	1	7	0	24	13	0	**37**	0	0	**112**
	2	31	1	0	**34**	1	1	0	28	14	0	**42**	0	0	**113**
	1	20	4	0	**25**	4	1	0	36	5	0	**41**	0	0	**94**
	0	21	5	0	**26**	3	1	0	33	11	0	**44**	0	0	**100**
	4	104	19	0	**127**	9	10	0	121	43	0	**164**	0	0	**419**
	3.1%	81.9%	15.0%	0.0%				0.0%	73.8%	26.2%	0.0%				
	1.0%	24.8%	4.5%	0.0%	**30.3%**			0.0%	28.9%	10.3%	0.0%	**39.1%**			
	0.5	0.813	0.528	0	**0.756**			0	0.84	0.768	0	**0.932**			**0.927**
	4	102	19	0	**125**			0	107	42	0	**149**			**395**
	100.0%	98.1%	100.0%	0.0%	**98.4%**			0.0%	88.4%	97.7%	0.0%	**90.9%**			**94.3%**
	0	0	0	0	**0**			0	4	0	0	**4**			**7**
	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	3.3%	0.0%	0.0%	**2.4%**			**1.7%**
	0	2	0	0	**2**			0	10	1	0	**11**			**17**
	0.0%	1.9%	0.0%	0.0%	**1.6%**			0.0%	8.3%	2.3%	0.0%	**6.7%**			**4.1%**
						9	10						0	0	
						100.0%	100.0%						0.0%	0.0%	
						0	0						0	0	
						0.0%	0.0%						0.0%	0.0%	

Leg	MARY ST							VESTAL AVE						
Direction	Southbound							Westbound						
Start Time	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW
2019-09-17 16:30:00	4	0	3	0	**7**	1	4	6	30	0	0	**36**	0	0
2019-09-17 16:45:00	2	0	3	0	**5**	9	4	1	30	0	0	**31**	0	0
2019-09-17 17:00:00	3	0	1	0	**4**	0	4	6	29	0	0	**35**	1	2
2019-09-17 17:15:00	2	0	3	0	**5**	1	2	3	39	0	0	**42**	2	0
Grand Total	11	0	10	0	**21**	11	14	16	128	0	0	**144**	3	2
% Approach	52.4%	0.0%	47.6%	0.0%				11.1%	88.9%	0.0%	0.0%			
% Total	2.4%	0.0%	2.1%	0.0%	**4.5%**			3.4%	27.5%	0.0%	0.0%	**30.9%**		
PHF (4:30 PM - 5:30 PM)	0.688	0	0.833	0	**0.75**			0.667	0.821	0	0	**0.857**		
Lights	11	0	10	0	**21**			15	126	0	0	**141**		
% Lights	100.0%	0.0%	100.0%	0.0%	**100.0%**			93.8%	98.4%	0.0%	0.0%	**97.9%**		
Articulated Trucks and Single-Unit Trucks	0	0	0	0	**0**			1	0	0	0	**1**		
% Articulated Trucks and Single-Unit Trucks	0.0%	0.0%	0.0%	0.0%	**0.0%**			6.3%	0.0%	0.0%	0.0%	**0.7%**		
Buses	0	0	0	0	**0**			0	2	0	0	**2**		
% Buses	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	1.6%	0.0%	0.0%	**1.4%**		
Pedestrians						11	14						3	2
% Pedestrians						100.0%	100.0%						100.0%	100.0%
Bicycles on Crosswalk						0	0						0	0
% Bicycles on Crosswalk						0.0%	0.0%						0.0%	0.0%

	MARY ST							VESTAL AVE							
	Northbound							Eastbound							
	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	Right	Thru	Left	U-Turn	**App Total**	Peds CW	Peds CCW	**Int Total**
	3	22	2	0	**27**	5	1	0	33	11	0	**44**	0	0	**114**
	4	14	3	0	**21**	5	4	0	32	19	0	**51**	0	3	**108**
	4	21	1	0	**26**	1	1	0	42	9	0	**51**	0	0	**116**
	5	28	3	0	**36**	1	3	0	36	9	0	**45**	0	0	**128**
	16	85	9	0	**110**	12	9	0	143	48	0	**191**	0	3	**466**
	14.5%	77.3%	8.2%	0.0%				0.0%	74.9%	25.1%	0.0%				
	3.4%	18.2%	1.9%	0.0%	**23.6%**			0.0%	30.7%	10.3%	0.0%	**41.0%**			
	0.8	0.759	0.75	0	**0.764**			0	0.851	0.632	0	**0.936**			**0.91**
	16	85	9	0	**110**			0	139	47	0	**186**			**458**
	100.0%	100.0%	100.0%	0.0%	**100.0%**			0.0%	97.2%	97.9%	0.0%	**97.4%**			**98.3%**
	0	0	0	0	**0**			0	1	1	0	**2**			**3**
	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	0.7%	2.1%	0.0%	**1.0%**			**0.6%**
	0	0	0	0	**0**			0	3	0	0	**3**			**5**
	0.0%	0.0%	0.0%	0.0%	**0.0%**			0.0%	2.1%	0.0%	0.0%	**1.6%**			**1.1%**
						10	8						0	3	
						83.3%	88.9%						0.0%	100.0%	
						2	1						0	0	
						16.7%	11.1%						0.0%	0.0%	

APPENDIX D

Background Growth Rate Calculations

Historical Traffic Growth Calculations

Proposed Commercial Development - 33 South Washington Street, Binghamton, NY

Historical Traffic Counts Taken from the NYSDOT 2017 Traffic Volume Report

Route 434 (Vestal Parkway) - Between Binghamton City Line and Pennsylvania Avenue

2017(est)	2014	2008	2002
23,454 veh	23,184 veh	25,613 veh	27,350 veh

+0.4% per year | -1.6% per year | -1.1% per year

-0.9% per year

-0.9% per year

Vestal Avenue - Pennsylvania Avenue to South Washington Avenue

2017(Est)	2014	2011
8,841 veh	9,122 veh	9,737 veh

-1.0% per year | -2.1% per year

-1.5% per year

Vestal Avenue - South Washington Street to Mill Street

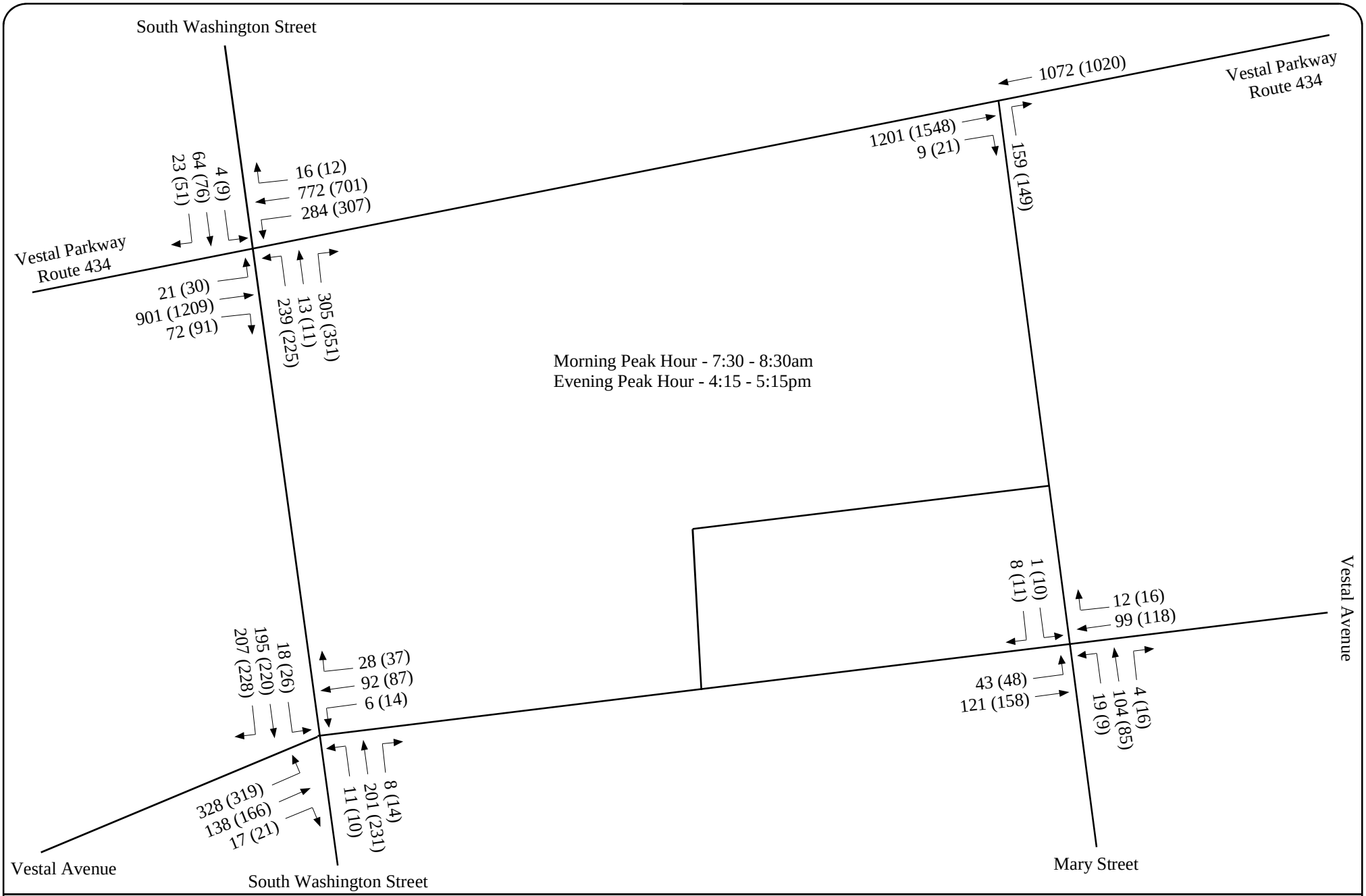
2017	2011
3,249 veh	3,002 veh

+1.4% per year

Use +1.0% Annual Growth Rate for Conservative Analysis

APPENDIX E

Traffic Volume Figures 1-7



Proposed Commercial Development - 33 South Washington Street - Binghamton, NY

2019 Existing Traffic Volumes

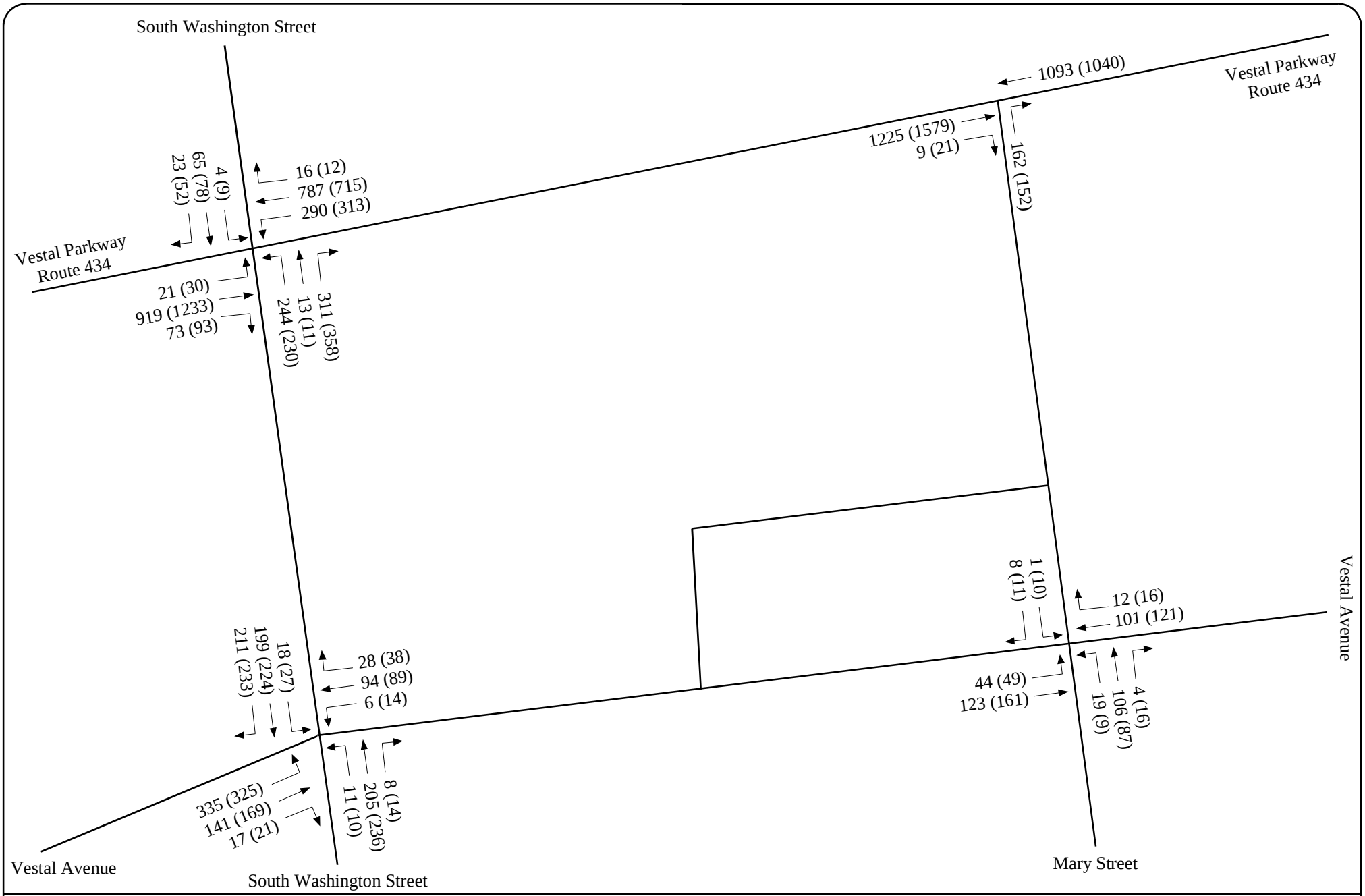
Weekday Morning (Evening) Peak Hour

Figure 1

Not To Scale

N W E

GTS Consulting



Proposed Commercial Development - 33 South Washington Street - Binghamton, NY

2021 Background Traffic Volumes - With 1% Growth per Year (2% Total)

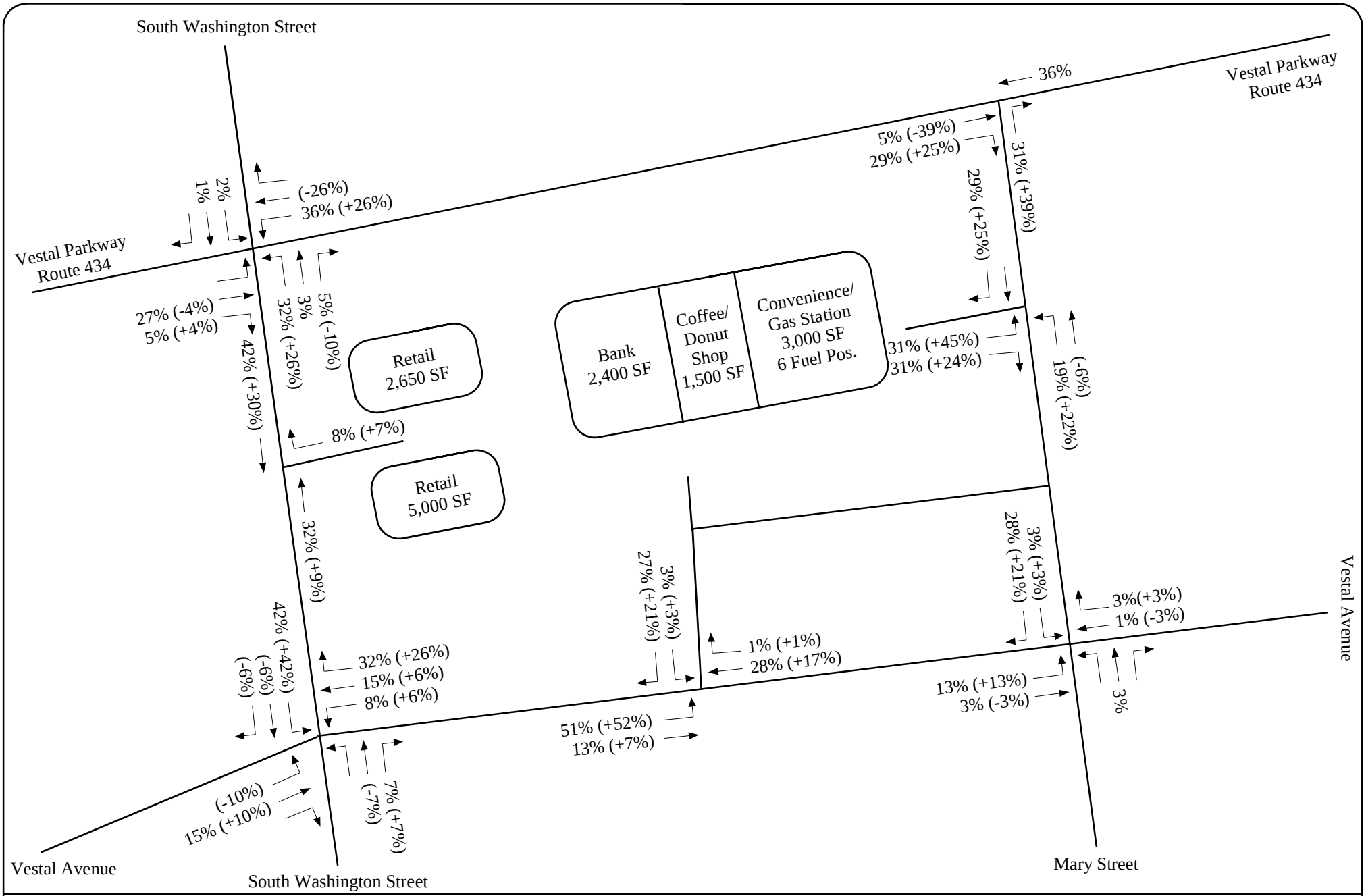
Weekday Morning (Evening) Peak Hour

Figure 2

Not To Scale

N W E

GTS Consulting



Proposed Commercial Development - 33 South Washington Street - Binghamton, NY

Arrival / Departure Trip Distribution - Morning Peak Hour

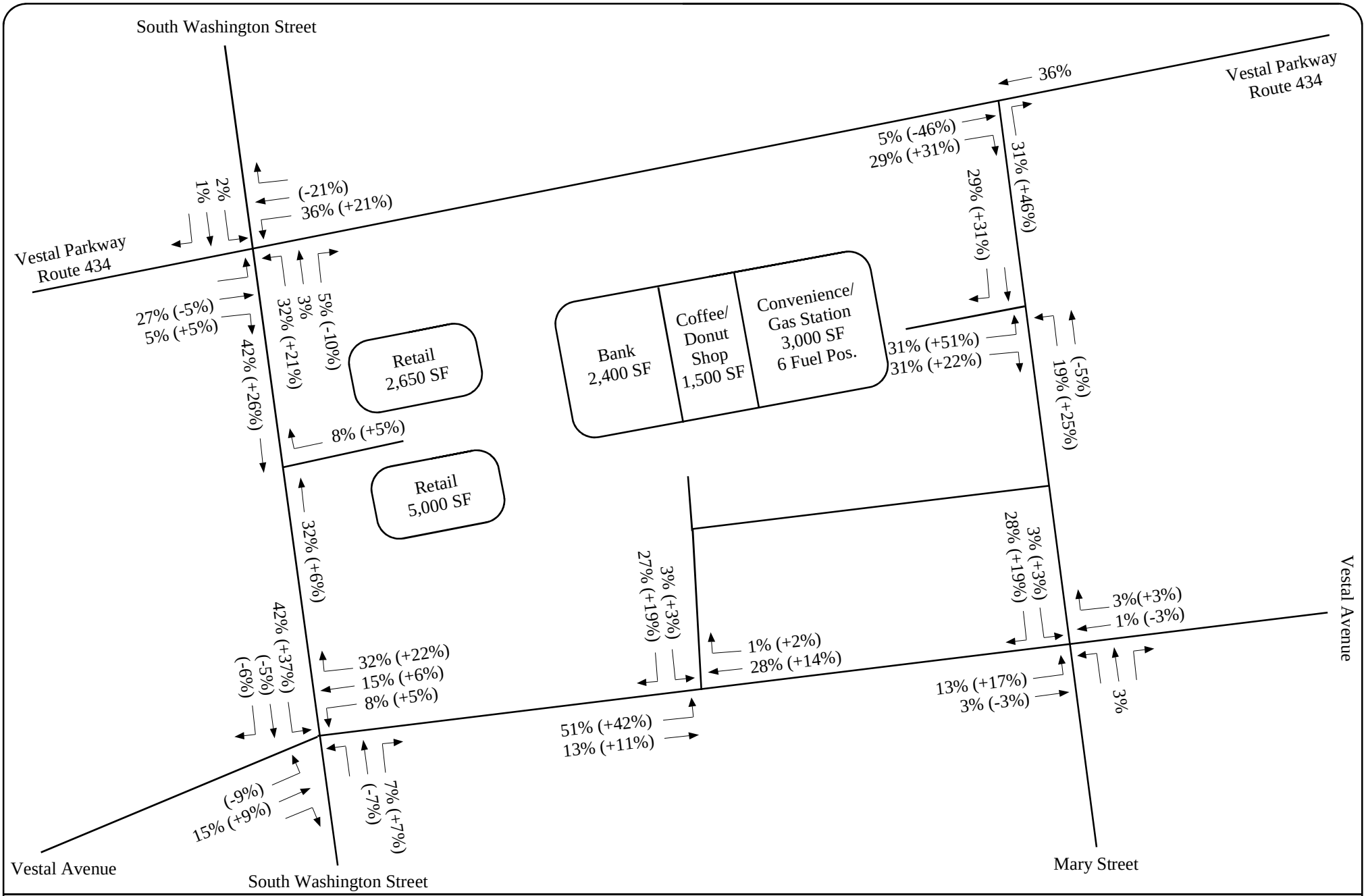
New (Pass-by) Trip Percentage

Figure 3

Not To Scale

N
W E

GTS Consulting



Proposed Commercial Development - 33 South Washington Street - Binghamton, NY

Arrival / Departure Trip Distribution - Evening Peak Hour

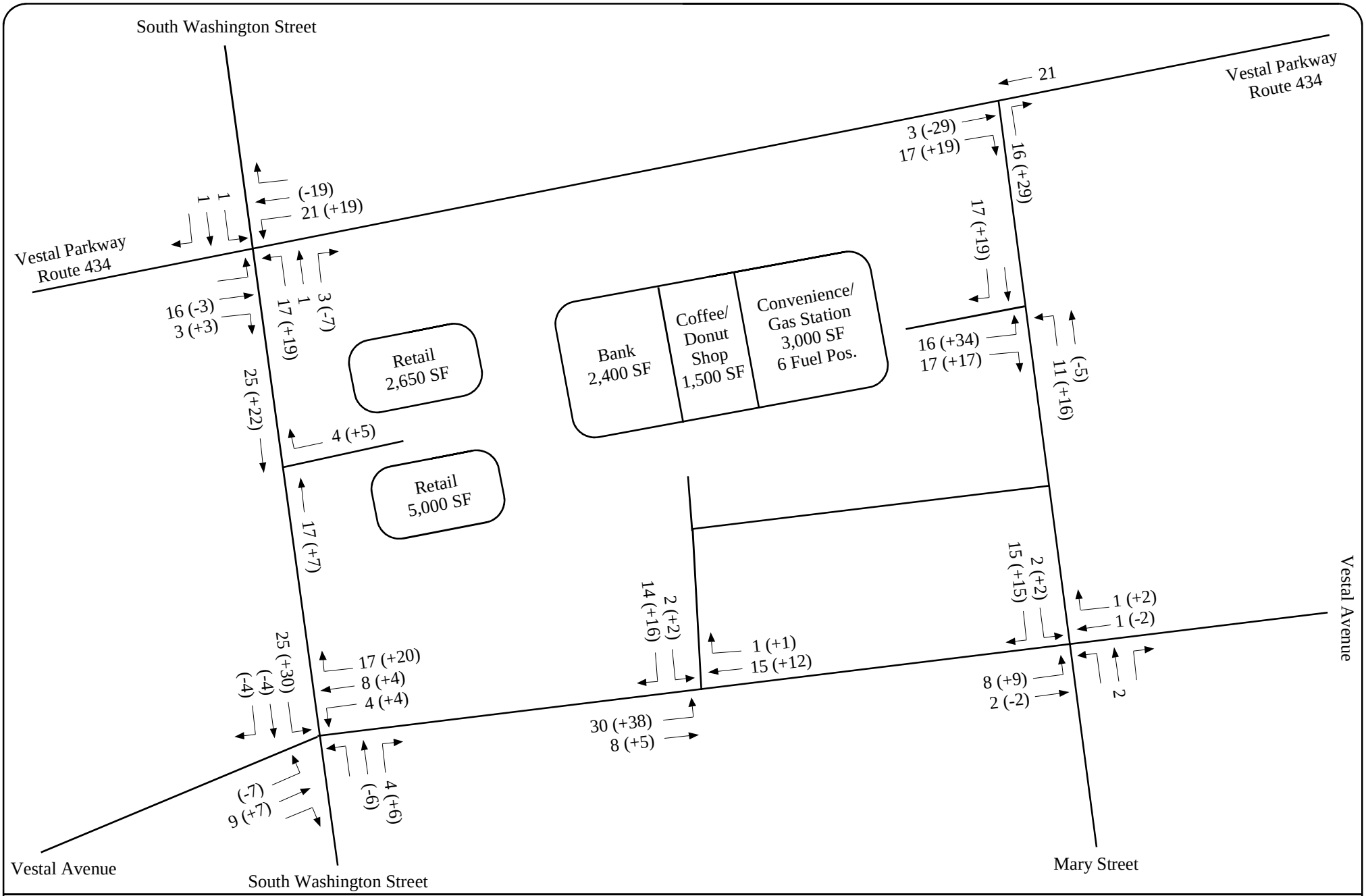
New (Pass-by) Trip Percentage

Figure 4

Not To Scale

N W E

GTS Consulting



Proposed Commercial Development - 33 South Washington Street - Binghamton, NY

Trips Generated - Morning Peak Hour

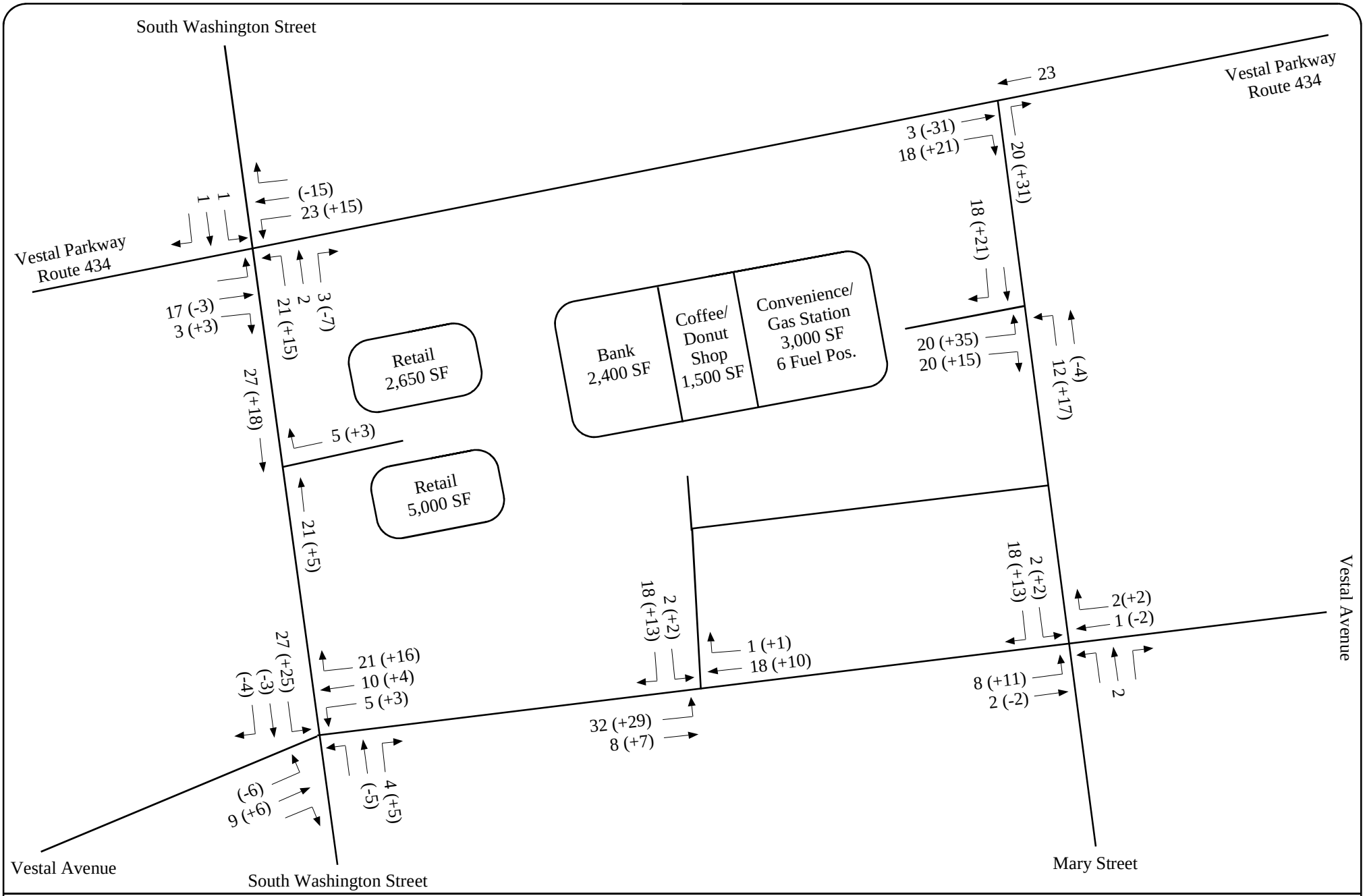
New (Pass-by) Trips

Figure 5

Not To Scale

N
W E

GTS Consulting



Proposed Commercial Development - 33 South Washington Street - Binghamton, NY

Trips Generated - Evening Peak Hour

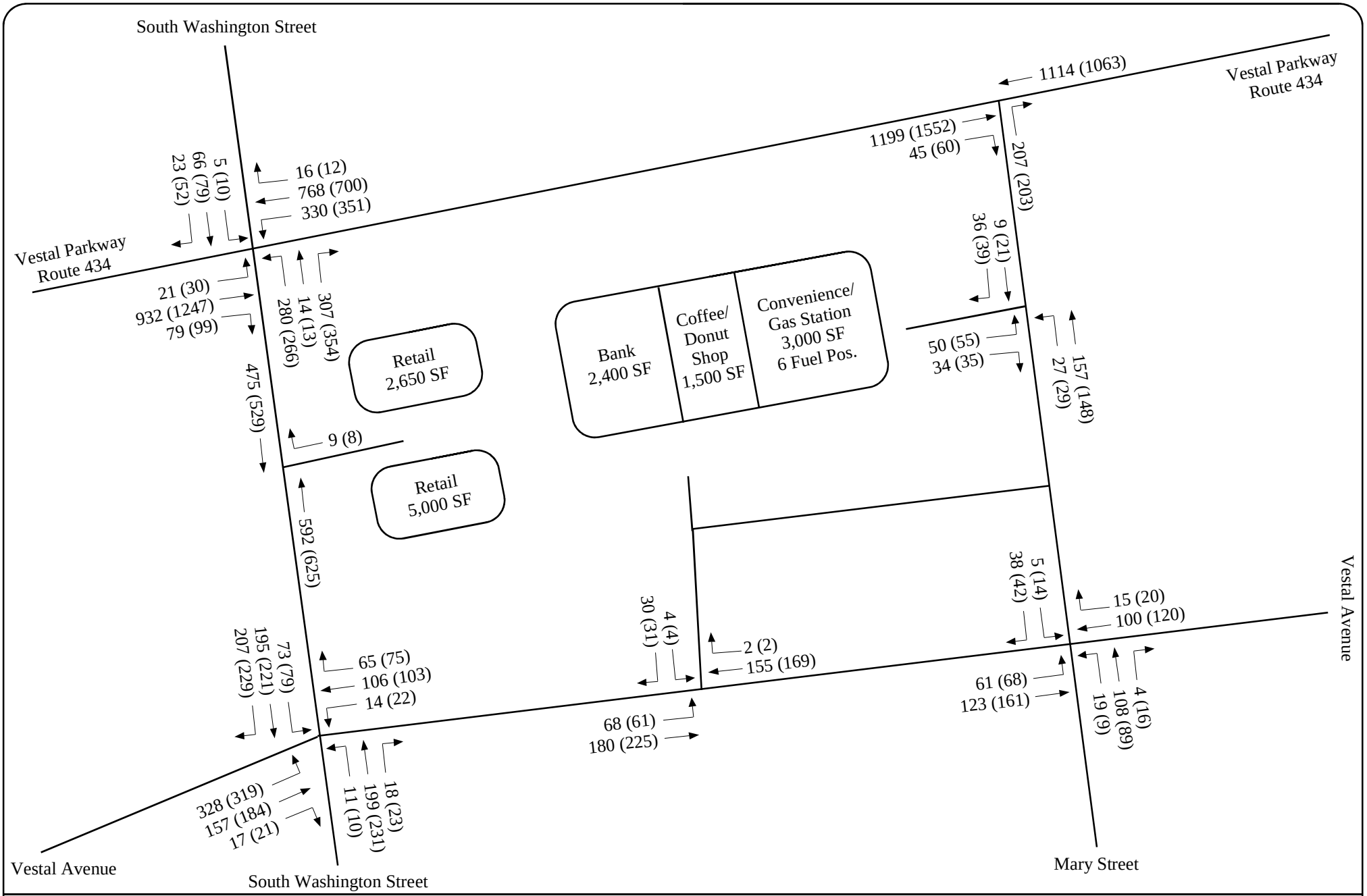
New (Pass-by) Trips

Figure 6

Not To Scale

N
W E

GTS Consulting



Proposed Commercial Development - 33 South Washington Street - Binghamton, NY

2021 Build Traffic Volumes

Weekday Morning (Evening) Peak Hour

Figure 7

Not To Scale

N
W E

GTS Consulting

APPENDIX F

Trip Generation Calculations

Proposed Commercial Development - 33 South Washington Street, Binghamton, NY

Trip Generation Estimate

Proposed Development

3,000 SF Convenience Store
w/ 6 Fueling Positions
2,400 SF Bank with Drive Through Operations
1,500 SF Coffee / Donut Shop with Drive Through Operations
2,650 SF Retail (Number 5 Restaurant redevelopment
5,000 SF Retail (Vacant Southern Building - 2 Floors - 2,500 SF each)

ITE Trip Generation - 10th Edition

Land Use 853 - Convenience Market with Gasoline Pumps

AM Peak Hour	40.59 Trips/1,000 SF	50% Enter	50% Exit
PM Peak Hour	49.29 Trips/1,000 SF	50% Enter	50% Exit
AM Peak Hour	20.76 Trips/Fuel Posit	50% Enter	50% Exit
PM Peak Hour	23.04 Trips/Fuel Posit	50% Enter	50% Exit

Use worst case estimate based number of fuel positions in the morning, convenience store square footage in the evening

Land Use 912 - Drive-In Bank

AM Peak Hour	9.50 Trips/1,000 SF	58% Enter	42% Exit
PM Peak Hour	20.45 Trips/1,000 SF	50% Enter	50% Exit

Land Use 937 - Coffee/Donut Shop with Drive-Through Window

AM Peak Hour	88.99 Trips/1,000 SF	51% Enter	49% Exit
PM Peak Hour	43.38 Trips/1,000 SF	50% Enter	50% Exit

Land Use 820 - Shopping Center - Use for Retail

AM Peak Hour	0.94 Trips/1,000 SF	62% Enter	38% Exit
PM Peak Hour	3.81 Trips/1,000 SF	48% Enter	52% Exit

Assume 10% Multi-Use Credit

Average Pass-by Percentages
Land Use 853 - Convenience Market with Gasoline Pumps - AM - 63%, PM - 66%
Land Use 912 - Drive-In Bank - AM - 29%, PM - 35%
Fast Food Restaurant - AM - 49%, PM - 50%, Specialty Use Expresso Stand - AM - 83%
Land Use 820 - Retail - PM Peak Hour - 34%

Use 60% Pass-by for Convenience & Coffee/Donut Shop, 30% Pass-by for Bank & Retail - both peak hours

Pass-by Credits are applied after multi-use credit is applied to not compound credits

Trip Generation Estimate - Proposed Commercial Development - 33 South Washington Street

		Morning Peak Hour			Evening/Saturday Peak Hour		
Development	**Size**	**Total Trips**	**Entering**	**Exiting**	**Total Trips**	**Entering**	**Exiting**
Convenience Store w/Gas	3,000 SF / 6 Fuel Pos.	126	63	63	148	74	74
Bank	2,400 SF	23	13	10	50	25	25
Coffee/Donut Shop	1,500 SF	133	68	65	66	33	33
Retail	7,650 SF	7	4	3	29	14	15
Total Individual Trips Generated		**289**	**148**	**141**	**293**	**146**	**147**
Multi-Use Credit - 10%		*-29*	*-15*	*-14*	*-29*	*-15*	*-14*
Total Trips Generated		**260**	**133**	**127**	**264**	**131**	**133**
Pass-by Trips - Convence/Gas/Coffee - 60%		-140	-70	-70	-116	-58	-58
Pass-by Trips - Bank - 30%		-8	-4	-4	-20	-10	-10
Total Pass-by Trips		***-148***	***-74***	***-74***	***-136***	***-68***	***-68***
Total New Trips Generated		**112**	**59**	**53**	**128**	**63**	**65**

APPENDIX G

Level of Service Summary

Proposed Commercial Development – 33 South Washington Street, Binghamton, NY

Intersection Level of Service Summary

Morning Peak Hour

Intersection	2019 Existing	2021 Background	2021 Build	2021 Build w/ Timing Adj.
Vestal Parkway @ South Washington Street	**C(31)**	**C(32)**	**D(40)**	**D(36)**
EB Left	D(46)	D(46)	D(46)	D(46)
EB Through/Right	C(29)	C(30)	C(31)	D(42)
WB Left	E(57)	E(57)	E(68)	E(58)
WB Through/Right	B(14)	B(14)	B(14)	B(17)
NB Left/Through	F(86)	F(92)	F(144)	E(75)
NB Right	B(15)	B(15)	B(14)	B(11)
SB Left/Through	C(32)	C(32)	C(32)	C(28)
SB Right	A(1)	A(1)	A(1)	A(1)
South Washington Street @ Vestal Avenue	**B(19)**	**B(20)**	**C(24)**	**C(21)**
EB Left	C(27)	C(29)	D(37)	C(22)
EB Through/Right	B(15)	B(15)	B(15)	B(12)
WB Left	C(26)	C(26)	C(27)	C(23)
WB Through/Right	C(34)	C(34)	D(45)	C(31)
NB Left/Through/Right	B(16)	B(16)	B(17)	C(21)
SB Left/Through	B(16)	B(16)	B(20)	C(26)
SB Right	A(6)	A(6)	A(6)	A(8)
Vestal Avenue @ Mary Street	**B(11)**	**B(11)**	**B(11)**	**B(11)**
EB Left/Through	A(10)	A(10)	A(10)	A(10)
WB Through/Right	A(8)	A(8)	A(8)	A(8)
NB Left/Through/Right	B(16)	B(16)	B(16)	B(16)
SB Left/Right	A(3)	A(3)	A(6)	A(6)
Vestal Parkway @ Mary Street				
EB Through/Right	a(0) / *a(2)*	a(0) / *a(2)*	a(0) / *a(3)*	a(0) / *a(3)*
WB Through	a(0) / *a(1)*	a(0) / *a(1)*	a(0) / *a(1)*	a(0) / *a(1)*
NB Right	e(37) / *a(1)*	e(40) / *a(1)*	f(60) / *a(1)*	f(60) / *a(2)*
South Washington Street @ Site Access (Right Out Only)				
WB Right	-	-	b(11)	b(11)
NB Through	-	-	a(0)	a(0)
SB Through	-	-	a(0)	a(0)
Vestal Avenue @ Site Access				
EB Left/Through	-	-	a(2)	a(2)
WB Through/Right	-	-	a(0)	a(0)
SB Left/Right	-	-	b(11)	b(11)
Mary Street @ Site Access				
EB Left/Right	-	-	b(11)	b(11)
NB Left/Through	-	-	a(1)	a(1)
SB Through/Right	-	-	a(0)	a(0)

B(12) – Signalized Level of Service (Average Delay per Vehicle in Seconds) – Synchro10
a(9) – Unsignalized Level of Service (Average Delay per Vehicle in Seconds) – Synchro10 / *Simtraffic10*

Proposed Commercial Development – 33 South Washington Street, Binghamton, NY

Intersection Level of Service Summary

Evening Peak Hour

Intersection	2019 Existing	2021 Background	2021 Build	2021 Build w/ Timing Adj.
Vestal Parkway @ South Washington Street	**C(30)**	**C(31)**	**D(36)**	**D(37)**
EB Left	D(46)	D(46)	D(46)	D(46)
EB Through/Right	C(31)	C(32)	C(33)	D(44)
WB Left	D(52)	D(52)	E(59)	E(57)
WB Through/Right	B(14)	B(14)	B(14)	B(17)
NB Left/Through	E(73)	E(75)	F(108)	E(68)
NB Right	B(16)	B(16)	B(16)	B(13)
SB Left/Through	C(32)	C(32)	C(32)	C(28)
SB Right	A(1)	A(1)	A(1)	A(1)
South Washington Street @ Vestal Avenue	**B(17)**	**B(17)**	**B(20)**	**B(20)**
EB Left	C(21)	C(21)	C(23)	C(20)
EB Through/Right	B(15)	B(15)	B(15)	B(14)
WB Left	C(27)	C(27)	C(28)	C(26)
WB Through/Right	C(32)	C(33)	D(39)	C(32)
NB Left/Through/Right	B(16)	B(16)	B(17)	B(19)
SB Left/Through	B(17)	B(17)	C(21)	C(25)
SB Right	A(6)	A(6)	A(6)	A(8)
Vestal Avenue @ Mary Street	**B(11)**	**B(11)**	**B(11)**	**B(11)**
EB Left/Through	B(11)	B(11)	B(11)	B(11)
WB Through/Right	A(8)	A(8)	A(8)	A(8)
NB Left/Through/Right	B(14)	B(14)	B(15)	B(15)
SB Left/Right	A(5)	A(5)	A(7)	A(7)
Vestal Parkway @ Mary Street				
EB Through/Right	a(0) / *a(3)*	a(0) / *a(3)*	a(0) / *a(3)*	a(0) / *a(3)*
WB Through	a(0) / *a(1)*	a(0) / *a(1)*	a(0) / *a(1)*	a(0) / *a(1)*
NB Right	e(47) / *a(1)*	f(52) / *a(1)*	f(94) / *a(2)*	f(94) / *a(3)*
South Washington Street @ Site Access (Right Out Only)				
WB Right	-	-	b(11)	b(11)
NB Through	-	-	a(0)	a(0)
SB Through	-	-	a(0)	a(0)
Vestal Avenue @ Site Access				
EB Left/Through	-	-	a(2)	a(2)
WB Through/Right	-	-	a(0)	a(0)
SB Left/Right	-	-	b(11)	b(11)
Mary Street @ Site Access				
EB Left/Right	-	-	b(11)	b(11)
NB Left/Through	-	-	a(1)	a(1)
SB Through/Right	-	-	a(0)	a(0)

B(12) – Signalized Level of Service (Average Delay per Vehicle in Seconds) – Synchro10
a(9) – Unsignalized Level of Service (Average Delay per Vehicle in Seconds) – Synchro10 / *Simtraffic10*

APPENDIX H

Accident Analysis

Proposed commercial Development, 33 South Washington Street, Binghamton, NY
Accident History Summaries - June 1 2016 Through May 31, 2019

Accident #	Date	Location	Type	# Cars	Severity	Direction	Conditions	Contributing Factors
1	6/14/2016	Vestal Pkwy @ S Washington	Right Turn	2	INJ	EB Right / EB	Dry	Unsafe Lane Change
2	6/19/2016	Vestal Pkwy @ S Washington	Bicyclist	1	INJ	NB Bike / WB	Dry	Failure to Yield ROW
3	8/5/2016	Midblock South Washington	Backing	2	PDO	NB Backing / WB Right	Dry	Backing Unsafely
4	8/19/2016	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB Stopped	Dry	Driver Inattention
5	9/10/2016	Vestal Pkwy @ S Washington	Left Turn	2	PDO	NB Left / NB	Dry	Failure to Yield ROW
6	9/25/2016	Vestal Pkwy @ S Washington	Right Angle	2	PDO	NB / WB	Dry	Traffic Control Disregarded
7	10/12/2016	Midblock South Washington	Left Turn	2	PDO	NB Left / WB	Dry	Not Entered
8	10/25/2016	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB Stopped	Dry	Driver Inattention
9	11/15/2016	Midblock Mary Street	Backing	2	PDO	EB Backing / SB Stopped	Dry	Backing Unsafely
10	12/10/2016	Vestal Pkwy @ S Washington	Backing	2	PDO	WB Backing / NB Stopped	Wet	Backing Unsafely
11	12/13/2016	S Washington @ Vestal Ave	Rearend	2	PDO	EB / EB	Dry	Following Too Closely
12	12/3/2016	Midblock South Washington	Overtaking	2	PDO	SB Changing Lanes / SB	Wet	Driver Inattention
13	1/10/2017	Midblock Vestal Parkway	Fixed Object	2	PDO	WB / Ditch	Icy	Slippery Pavement
14	1/24/2017	Vestal Pkwy @ S Washington	Fixed Object	2	PDO	WB Left / Curb	Dry	Driver Inattention
15	1/30/2017	Parking Lot	Backing	2	PDO	EB Backing / EB Parked	Dry	Backing Unsafely
16	2/23/2017	Vestal Pkwy @ S Washington	Left Turn	2	PDO	EB Left / NB Stopped	Dry	Turning Improper
17	1/31/2017	Vestal Pkwy @ S Washington	Rearend	2	PDO	EB / EB	Icy	Slippery Pavement
18	2/19/2017	Vestal Pkwy @ S Washington	Rearend	2	INJ	WB / WB Stopped	Dry	Glare
19	11/24/2016	Vestal Pkwy @ S Washington	Left Turn	2	PDO	NB Left / SB	Wet	Failure to Yield ROW
20	3/17/2017	Vestal Pkwy @ S Washington	Overtaking	2	PDO	NB Right / NB	Dry	Driver Inattention
21	3/22/2017	S Washington @ Vestal Ave	Overtaking	2	PDO	EB / EB Stopped	Wet	Passing Improper
22	1/13/2017	Vestal Pkwy @ S Washington	Left Turn	2	PDO	WB Left / EB	Dry	Traffic Control Disregarded
23	4/20/2017	Midblock Vestal Parkway	Pedestrian	1	INJ	Ped / WB	Wet	Pedestrian Error
24	4/30/2017	Vestal Pkwy @ S Washington	Left Turn	2	PDO	NB / SB Left	Dry	Traffic Control Disregarded
25	4/24/2017	Vestal Pkwy @ S Washington	Left Turn	2	INJ	NB Left / WB	Dry	Failure to Yield ROW
26	5/19/2017	Vestal Pkwy @ S Washington	Fixed Object	1	PDO	EB / Sign Post	Dry	Unknown
27	6/8/2017	Mary Street @ Vestal Avenue	Rearend	2	PDO	EB / EB Stopped	Dry	Driver Inattention
28	5/17/2017	S Washington @ Vestal Ave	Rearend	2	PDO	WB / WB	Dry	Reaction to Another Vehicle
29	6/27/2017	Vestal Pkwy @ S Washington	Rearend	2	PDO	EB / EB Stopped	Dry	Unknown
30	7/29/2017	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB	Dry	Following Too Closely
31	6/28/2017	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB	Dry	Following Too Closely
32	8/7/2017	Vestal Pkwy @ S Washington	Overtaking	2	PDO	WB Changing Lanes / WB	Dry	Failure to Yield ROW
33	8/25/2017	Midblock Mary Street	Rearend	2	PDO	WB Left / WB Parked	Dry	Driver Inexperience
34	8/26/2017	Vestal Pkwy @ S Washington	Rearend	2	PDO	EB / EB	Dry	Following Too Closely
35	8/30/2017	Vestal Pkwy @ S Washington	Bicyclist	1	INJ	WB Right / Bike NB	Dry	Failure to Yield ROW
36	9/18/2017	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB Changing Lanes / WB	Dry	Unsafe Lane Change
37	9/21/2017	Vestal Pkwy @ S Washington	Pedestrian	1	INJ	EB Right / Pedestrian	Dry	Failure to Yield ROW
38	10/7/2017	Vestal Pkwy @ S Washington	Overtaking	2	PDO	WB / WB	Dry	Passing Improper

Accident #	Date	Location	Type	# Cars	Severity	Direction	Conditions	Contributing Factors
39	10/19/2017	Midblock Vestal Parkway	Animal	1	PDO	EB / Animal	Dry	Animal's Actions
40	10/31/2017	Vestal Pkwy @ S Washington	Left Turn	2	PDO	WB Left / WB Left	Dry	Failure to Yield ROW
41	11/16/2017	Midblock Mary Street	Backing	2	PDO	EB Backing / SB Stopped	Wet	Backing Unsafely
42	11/19/2017	Vestal Pkwy @ S Washington	Rearend	2	PDO	EB / EB Stopped	Wet	Following Too Closely
43	12/6/2017	S Washington @ Vestal Ave	Backing	2	PDO	EB Backing / WB Left	Dry	Backing Unsafely
44	1/2/2018	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB	Wet	Following Too Closely
45	1/29/2018	S Washington @ Vestal Ave	Right Angle	2	PDO	SB Left / EB	Dry	Failure to Yield ROW
46	2/12/2018	Midblock Mary Street	Backing	2	PDO	EB Backing / SB Stopped	Dry	Driver Inattention
47	3/3/2018	Midblock S Washington	Overtaking	2	PDO	SB Parking / SB Parked	Wet	Not Entered
48	3/4/2018	S Washington @ Vestal Ave	Backing	2	PDO	EB Backing / SB	Wet	Alcohol Involvement
49	3/18/2018	S Washington @ Vestal Ave	Overtaking	2	PDO	EB / EB	Dry	Unsafe Lane Change
50	3/16/2018	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB Stopped	Dry	Following Too Closely
51	3/29/2018	Vestal Pkwy @ S Washington	Rearend	2	PDO	NB / NB	Dry	Driver Inattention
52	4/13/2018	Parking Lot	Backing	2	PDO	NB Backing / EB Parked	Dry	Backing Unsafely
53	4/16/2018	Mary Street @ Vestal Avenue	Rearend	2	PDO	EB / EB Stopped	Wet	Following Too Closely
54	4/20/2018	Vestal Pkwy @ S Washington	Left Turn	2	PDO	NB Left SB	Dry	Failure to Yield ROW
55	6/18/2018	Vestal Pkwy @ S Washington	Right Angle	2	PDO	SB / WB	Dry	Traffic Control Disregarded
56	6/23/2018	S Washington @ Vestal Ave	Right Angle	2	PDO	SB / EB	Wet	Traffic Control Disregarded
57	5/25/2018	Vestal Pkwy @ S Washington	Rearend	2	INJ	EB / EB	Dry	Following Too Closely
58	7/29/2018	Vestal Pkwy @ S Washington	Rearend	2	PDO	EB / EB Stopped	Dry	Following Too Closely
59	7/30/2018	Vestal Pkwy @ S Washington	Overtaking	2	PDO	NB Changing Lanes / NB	Dry	Glare
60	8/26/2018	Vestal Pkwy @ S Washington	Rearend	2	INJ	EB / EB	Dry	Driver Inattention
61	9/24/2018	S Washington @ Vestal Ave	Overtaking	2	PDO	NB / NB	Dry	Turning Improper
62	10/21/2018	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB	Dry	Following Too Closely
63	11/6/2018	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB Stopped	Dry	Following Too Closely
64	10/17/2018	Midblock Vestal Avenue	Sideswipe	2	PDO	Not Entered	Unknown	Not Entered
65	11/17/2018	Mary Street @ Vestal Avenue	Rearend	2	PDO	EB / EB Stopped	Wet	Following Too Closely
66	12/6/2018	Vestal Pkwy @ S Washington	Rearend	2	PDO	EB / EB Stopped	Wet	Driver Inattention
67	12/26/2018	Vestal Pkwy @ S Washington	Rearend	2	PDO	EB / EB	Dry	Following Too Closely
68	1/8/2018	S Washington @ Vestal Ave	Right Angle	2	PDO	WB / SB	Dry	Traffic Control Disregarded
69	1/22/2019	S Washington @ Vestal Ave	Rearend	2	INJ	NB / NB Stopped	Wet	Driver Inattention
70	1/30/2019	S Washington @ Vestal Ave	Rearend	2	PDO	WB / WB Stopped	Wet	Reaction to Another Vehicle
71	2/12/2019	S Washington @ Vestal Ave	Overtaking	2	PDO	WB Changing Lanes / WB	Icy	Passing Improper
72	2/19/2019	Vestal Pkwy @ S Washington	Left Turn	2	PDO	WB Left / EB Left	Dry	Fell Asleep
73	1/15/2019	S Washington @ Vestal Ave	Left Turn	2	PDO	NB Right / WB	Dry	Traffic Control Disregarded
74	2/13/2019	Vestal Pkwy @ S Washington	Rearend	2	PDO	WB / WB Stopped	Wet	Not Entered
75	3/5/2019	Midblock Vestal Avenue	Rearend	2	PDO	WB / WB Parked	Dry	Driver Inattention
76	3/5/2019	Vestal Pkwy @ S Washington	Left Turn	2	PDO	EB Left / NB Stopped	Dry	Failure to Yield ROW
77	3/13/2019	Mary Street @ Vestal Pkwy	Fixed Object	1	PDO	WB / Barrier	Dry	Unsafe Speed
78	3/18/2019	Midblock Vestal Parkway	Overtaking	2	PDO	WB Changing Lanes / WB	Dry	Driver Inattention
79	4/12/2019	S Washington @ Vestal Ave	Overtaking	2	PDO	NB Left / NB	Dry	Failure to Yield ROW
80	4/15/2019	Mary Street @ Vestal Avenue	Right Angle	2	INJ	WB / NB	Wet	Traffic Control Disregarded

Vestal Parkway @ S Washington - 44 Accidents
21 - Rearend Accidents
10 - Left Turn Accidents
4 - Overtaking Accidents
2 - Right Angle Accidents
2 - Fixed Object Accidents
1 - Right Turn Accident
1 - Backing Accident
1 - Pedestrian Accident
2 - Bicyclist Accident

Mary Street @ Vestal Parkway - 1 Accident
1 - Fixed Object Accident

S Washington @ Vestal Avenue - 15 Accidents
5 - Overtaking Accidents
4 - Rearend Accidents
3 - Right Angle Accidents
2 - Backing Accidents
1 - Left Turn Accident

Mary Street Midblock - 4 Accidents
3 - Backing Accidents
1 - Rearend Accident

Vestal Parkway Midblock - 4 Accidents
1 - Overtaking Accident
1 - Fixed Object Accident
1 - Pedestrian Accident
1 - Animal Accident

Mary Street @ Vestal Avenue - 4 Accidents
3 - Rearend Accidents
1 - Right Angle Accident

South Washington Midblock - 4 Accidents
2 - Overtaking Accident
1 - Left Turn Accident
1 - Backing Accident

Vestal Avenue Midblock - 2 Accidents
1 - Rearend Accident
1 - Sideswipe Accident

Parking Lots - 2 Backing Accidents

Vestal Parkway @ South Washington Street Intersection - Evening Peak Hour - 3,073 Vehicles. Assumed PM Peak is 9% of AADT, AADT = 34,144 Vehicles
South Washington Street @ Vestal Avenue Intersection - Evening Peak Hour - 1,373 Vehicles. Assumed PM Peak is 9% of AADT, AADT = 15,256 Vehicles
Mary Street @ Vestal Avenue Intersection - Evening Peak Hour - 471 Vehicles. Assumed PM Peak is 9% of AADT, AADT = 5,233 Vehicles
Mary Street @ Vestal Parkway Intersection - Evening Peak Hour - 2,738 Vehicles. Assumed PM Peak is 9% of AADT, AADT = 30,422 Vehicles

Vestal Parkway - Evening Peak Hour - 2,589 Vehicles. Assumed PM Peak is 9% of AADT, AADT - 28,767 Vehicles
South Washington Street - Evening Peak Hour - 1,061 Vehicles. Assumed PM Peak is 9% of AADT, AADT - 11,789 Vehicles
Mary Street - Evening Peak Hour - 170 Vehicles. Assumed PM Peak is 9% of AADT, AADT - 1,889 Vehicles
Vestal Avenue - Evening Peak Hour - 344 Vehicles. Assumed PM Peak is 9% of AADT, AADT - 3,822 Vehicles

Intersection Accident Rates

$$\frac{\text{\# Accidents X 1,000,000}}{\text{AADT X \# Years X 365 Days}}$$

Time Period = 3 years

Vestal Parkway @ S Washington - 44 Accidents
Accident Rate = 1.18 accidents per million entering vehicles
Statewide average for similar facilities = 0.52 accidents per million entering vehicles (Urban - 4 Legged Intersection - 1-4 Lanes)
Intersection Accident History is Above the Statewide Average

S Washington @ Vestal Avenue - 15 Accidents
Accident Rate = 0.90 accidents per million entering vehicles
Statewide average for similar facilities = 0.52 accidents per million entering vehicles (Urban - 4 Legged Intersection - 1-4 Lanes)
Intersection Accident History is Above the Statewide Average

Mary Street @ Vestal Avenue - 4 Accidents
Accident Rate = 0.70 accidents per million entering vehicles
Statewide average for similar facilities = 0.52 accidents per million entering vehicles (Urban - 4 Legged Intersection - 1-4 Lanes)
Intersection Accident History is Above the Statewide Average

Mary Street @ Vestal Parkway - 1 Accident
Accident Rate = 0.03 accidents per million entering vehicles
Statewide average for similar facilities = 0.12 accidents per million entering vehicles (Urban - 4 Legged Intersection - 1-4 Lanes)
Intersection Accident History is Below the Statewide Average

Link Accident Rates

$$\frac{\text{\# Accidents X 1,000,000}}{\text{Link Length X AADT X \# Years X 365 Days}}$$

Time Period = 3 years
Vestal Parkway Link Length = 0.086 Miles
South Washington Link Length = 0.072 Miles
Mary Street Link Length = 0.068 Miles
Vestal Avenue Link Length = 0.078 Miles

Vestal Parkway Midblock - 4 Accidents
Accident Rate = 1.48 accidents per million vehicle miles
Statewide average for similar facilities = 3.65 accidents per million vehicle miles (Urban - Free Access - 6 Lanes - Divided - Mainline Accidents Only)
Intersection Accident History is Below the Statewide Average

South Washington Midblock - 4 Accidents
Accident Rate = 4.3 accidents per million vehicle miles
Statewide average for similar facilities = 3.22 accidents per million vehicle miles (Urban - Free Access - 4 Lanes - Undivided - Mainline Accidents Only)
Intersection Accident History is Above the Statewide Average

Mary Street Midblock - 4 Accidents
Accident Rate = 28.4 accidents per million vehicle miles
Statewide average for similar facilities = 2.23 accidents per million vehicle miles (Urban - Free Access - 2 Lanes - Undivided - Mainline Accidents Only)
Intersection Accident History is Above the Statewide Average

Vestal Avenue Midblock - 2 Accidents
Accident Rate = 6.1 accidents per million vehicle miles
Statewide average for similar facilities = 2.23 accidents per million vehicle miles (Urban - Free Access - 2 Lanes - Undivided - Mainline Accidents Only)
Intersection Accident History is Above the Statewide Average

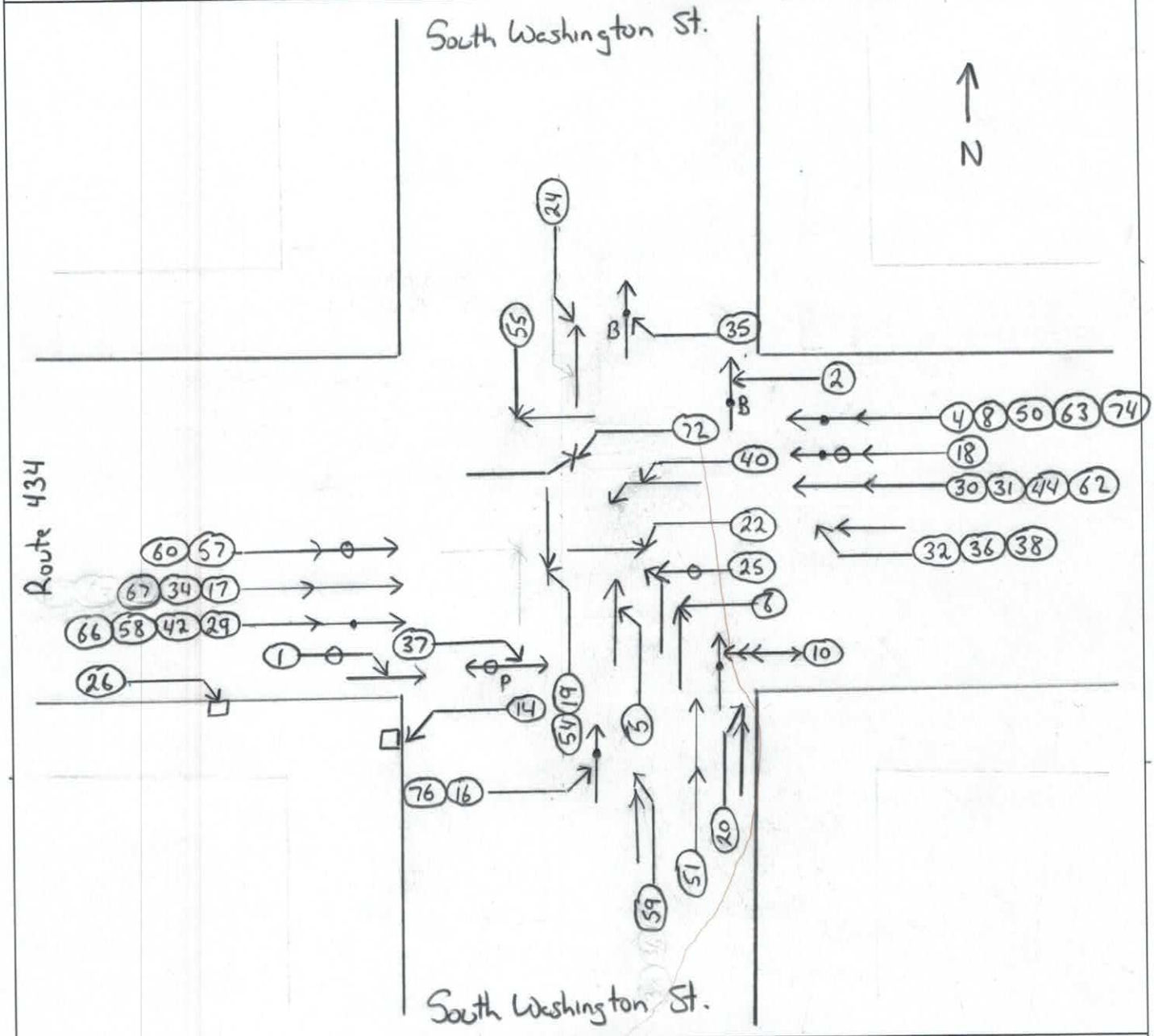
TE 56

DEPARTMENT OF TRANSPORTATION
COLLISION DIAGRAM

MUNICIPALITY: Binghamton COUNTY: Broome FILE:

INTERSECTION: Route 434 @ South Washington St.

PERIOD: 3 YR 0 MO FROM 6/1/16 TO 5/31/19 BY GTS Consulting DATE 1/9/20



SYMBOLS

- MOVING VEHICLE
- M — MOTORCYCLE
- BACKING VEHICLE
- STOPPED VEHICLE
- PARKED VEHICLE
- PEDESTRIAN
- B — BICYCLE
- FIXED OBJECT
- PERSONAL INJURY
- FATAL INJURY

MANNER OF COLLISION

- REAR-END
- SIDE-SWIPE
- OUT OF CONTROL
- SKIDDING
- OVERTURNED
- HEAD-ON
- LEFT-TURN
- RIGHT-ANGLE

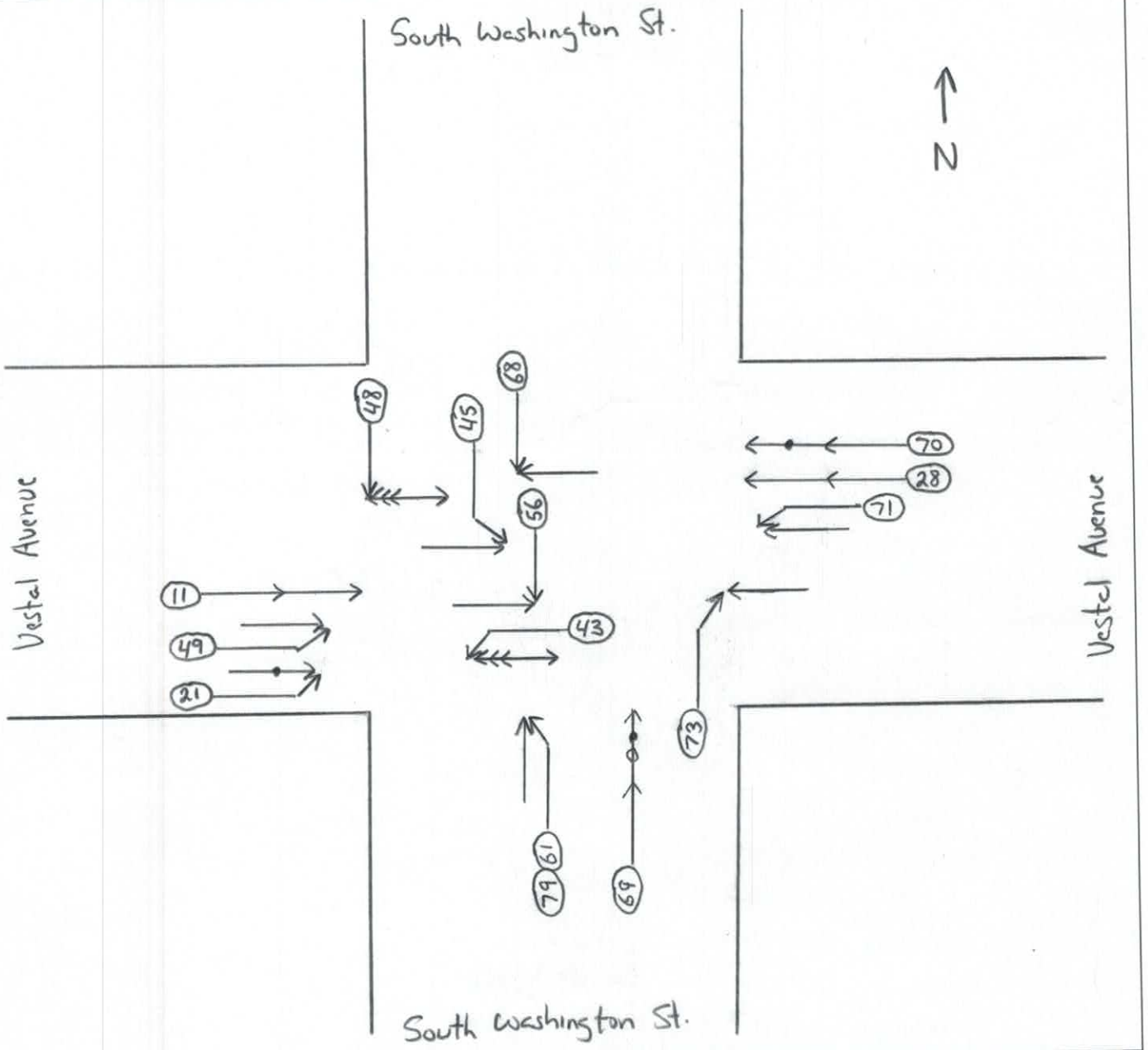
TE 56

DEPARTMENT OF TRANSPORTATION
COLLISION DIAGRAM

MUNICIPALITY: Binghamton COUNTY: Broome FILE:

INTERSECTION: South Washington St. @ Vestal Avenue

PERIOD: 3 YR 0 MO FROM 6 / 1 / 16 TO 5 / 31 / 19 BY GTS Consulting DATE 1 / 10 / 20



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- FATAL INJURY

MANNER OF COLLISION

- REAR-END
- SIDE-SWIPE
- OUT OF CONTROL
- SKIDDING
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- HEAD-ON
- LEFT-TURN
- RIGHT-ANGLE

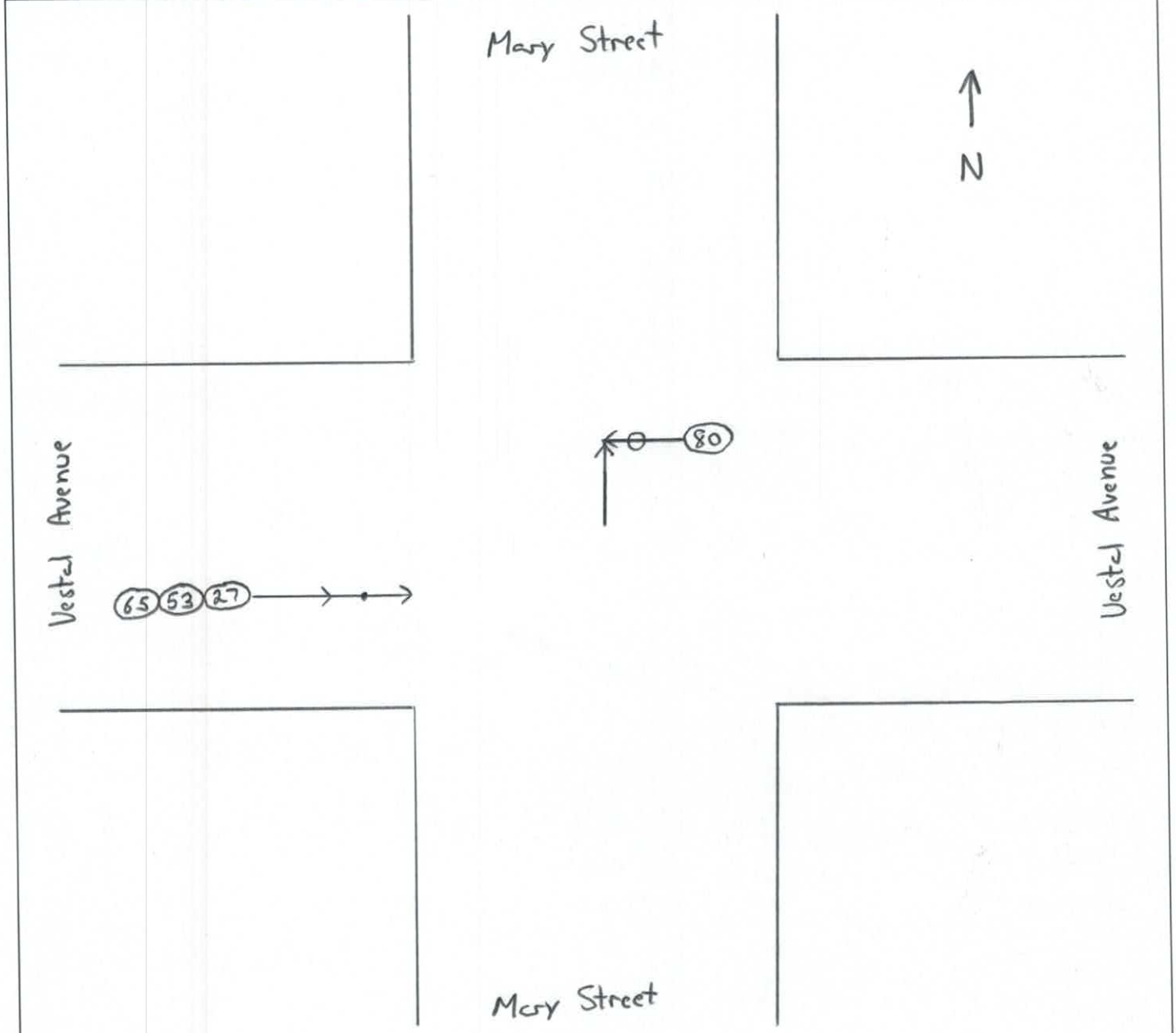
TE 56

DEPARTMENT OF TRANSPORTATION
COLLISION DIAGRAM

MUNICIPALITY Binghamton COUNTY Broome FILE

INTERSECTION Vestal Avenue @ Mary Street

PERIOD 3 YR 0 MO FROM 6/1/16 TO 5/31/19 BY GTS Consulting DATE 1/10/20



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MANNER OF COLLISION

- REAR-END
- SIDE-SWIPE
- OUT OF CONTROL
- SKIDDING
- OVERTURNED
- HEAD-ON
- LEFT-TURN
- RIGHT-ANGLE

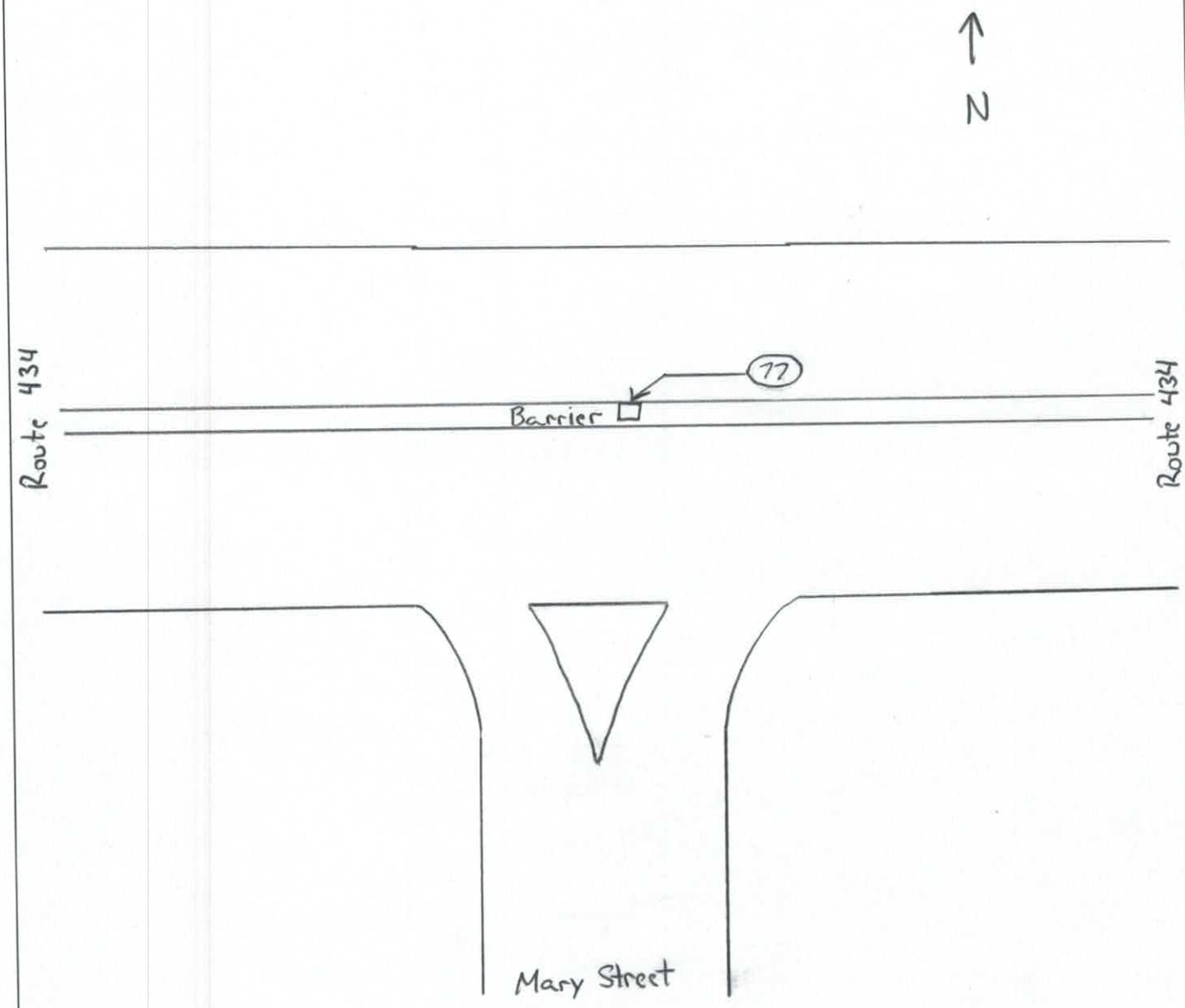
TE 56

DEPARTMENT OF TRANSPORTATION
COLLISION DIAGRAM

MUNICIPALITY Binghamton COUNTY Broome FILE

INTERSECTION Route 434 @ Mary Street

PERIOD 3 YR 0 MO FROM 6 / 1 / 16 TO 5 / 31 / 19 BY GTS Consulting DATE 1 / 10 / 20



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MANNER OF COLLISION

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- OVERTURNED
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- LEFT-TURN
- RIGHT-ANGLE

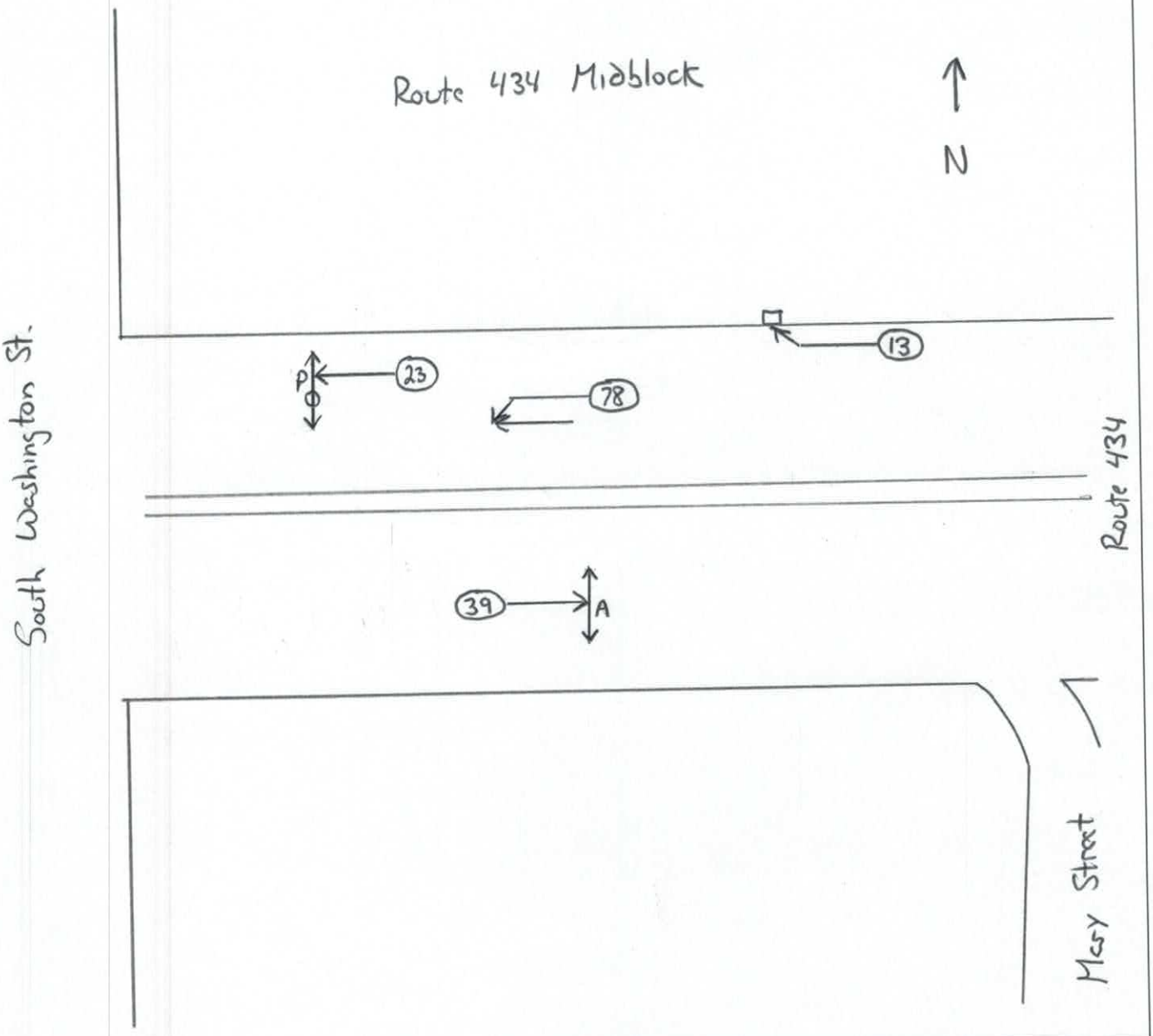
TE 56

DEPARTMENT OF TRANSPORTATION
COLLISION DIAGRAM

MUNICIPALITY Binghamton COUNTY Broome FILE

INTERSECTION Route 434 Midblock

PERIOD 3 YR 0 MO FROM 6/1/16 TO 5/31/19 BY GTS Consulting DATE 1/10/20



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MANNER OF COLLISION

- REAR-END
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- OVERTURNED
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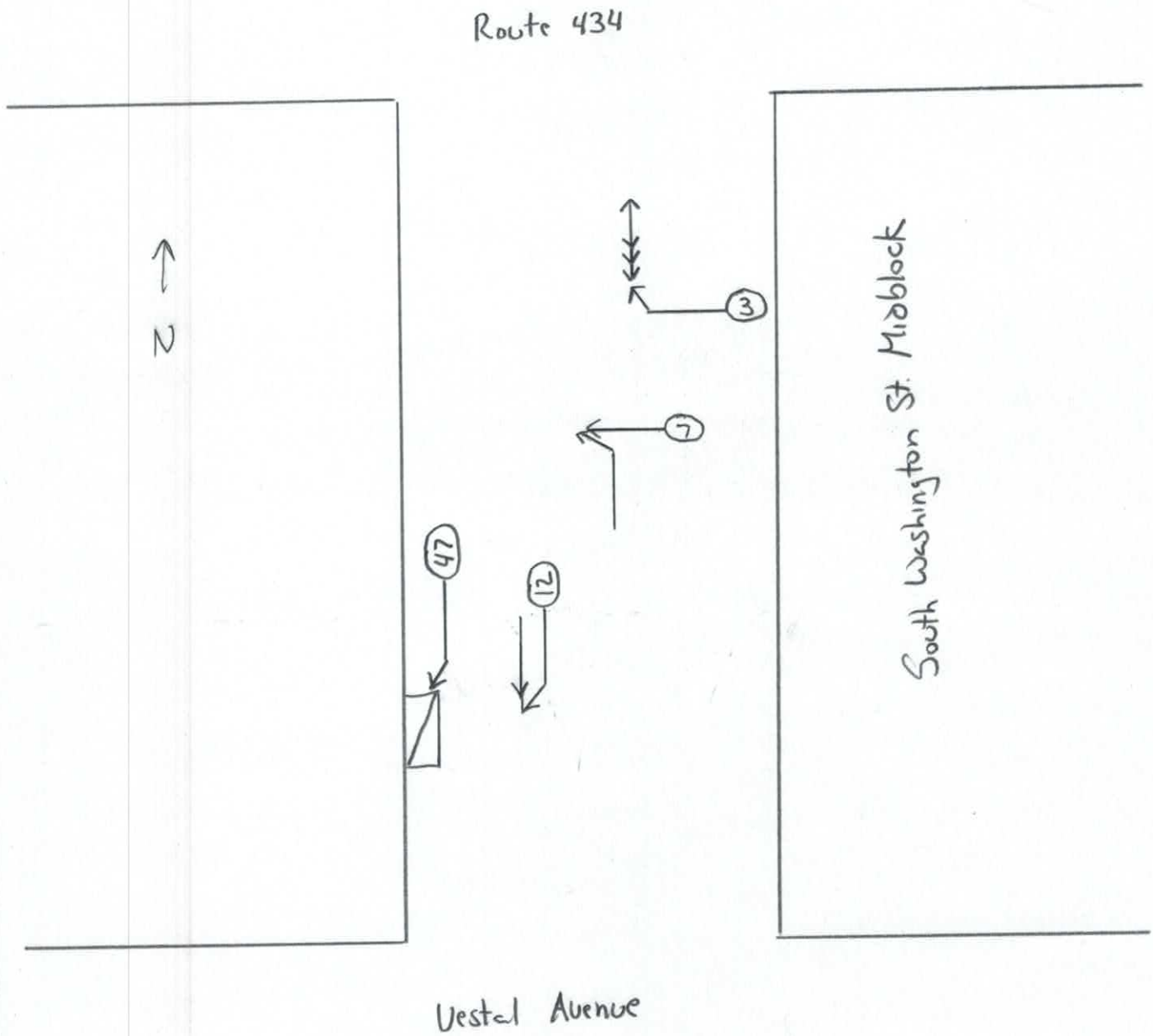
- LEFT-TURN
- RIGHT-ANGLE

TE 56

DEPARTMENT OF TRANSPORTATION
COLLISION DIAGRAM

MUNICIPALITY	Binghamton	COUNTY Broome	FILE
INTERSECTION	South Washington St. Midblock		
PERIOD	3 YR 0 MO	FROM 6/1/16 TO 5/31/19	BY GTS Consulting DATE 1/10/20



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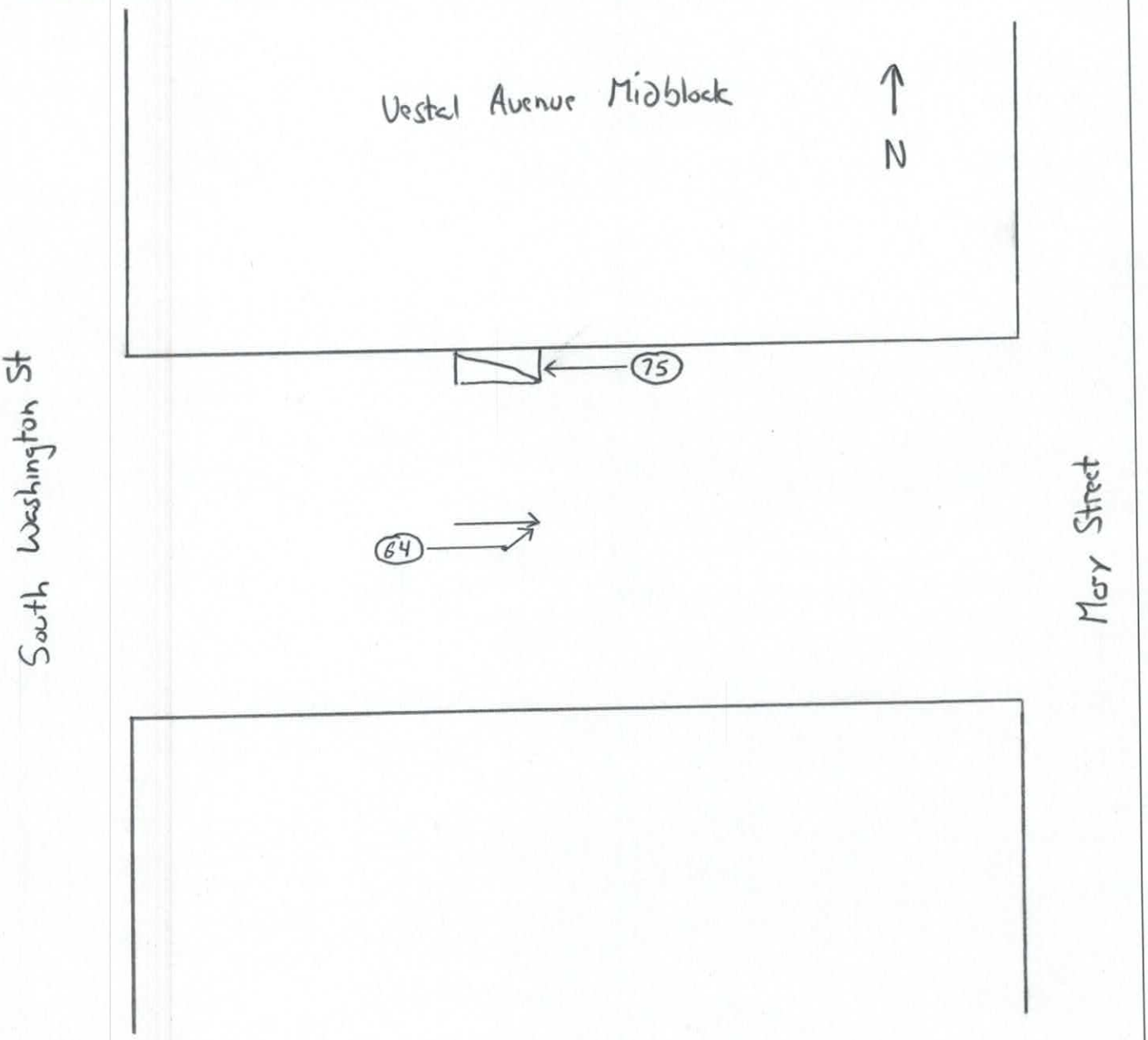
TE 56

DEPARTMENT OF TRANSPORTATION
COLLISION DIAGRAM

MUNICIPALITY	Binghamton	COUNTY Broome	FILE
INTERSECTION	Vestal Avenue Midblock		
PERIOD	3 YR 0 MO	FROM 6/1/16 TO 5/31/19	BY GTS Consulting DATE 1/10/20



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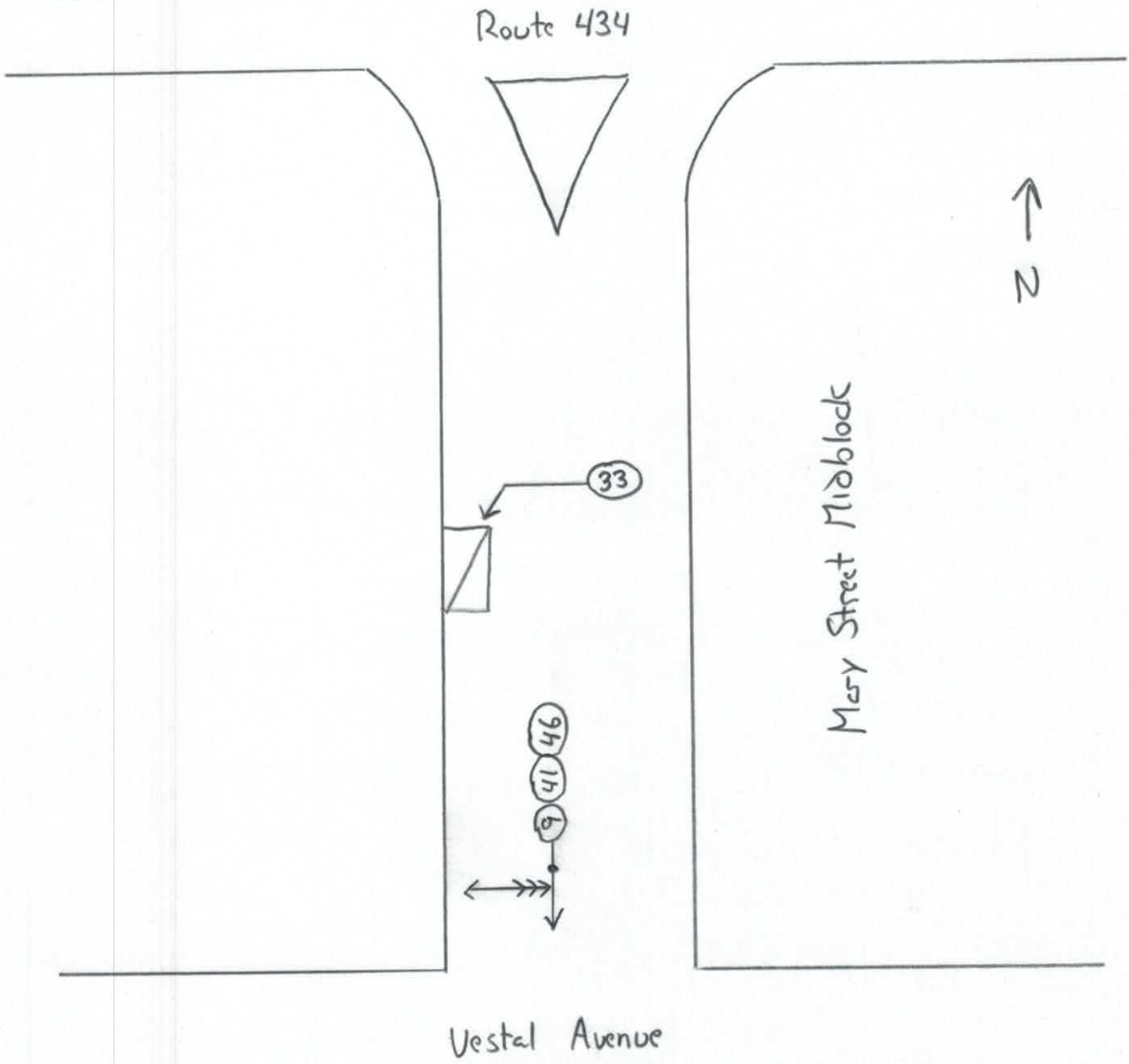
- RIGHT-ANGLE

TE 56

DEPARTMENT OF TRANSPORTATION
COLLISION DIAGRAM

MUNICIPALITY	Binghamton	COUNTY Broome	FILE
INTERSECTION	Mary Street Midblock		
PERIOD	3 YR 0 MO	FROM 6/1/16 TO 5/31/19	BY BTS Consulting DATE 1/10/20



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MANNER OF COLLISION

- REAR-END
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APPENDIX I

Capacity Analysis Printouts

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	901	72	284	772	16	239	13	305	4	64	23
Future Volume (vph)	21	901	72	284	772	16	239	13	305	4	64	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		1000	0		0	0		0	0		250
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5029	0	1787	3564	0	0	1797	1599	0	1839	1568
Flt Permitted	0.950			0.950				0.674			0.977	
Satd. Flow (perm)	1770	5029	0	1787	3564	0	0	1243	1568	0	1801	1513
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			3				28			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1512			453			129			476	
Travel Time (s)		34.4			10.3			2.9			10.8	
Confl. Peds. (#/hr)							19		12	12		19
Peak Hour Factor	0.82	0.82	0.82	0.80	0.80	0.80	0.84	0.84	0.84	0.78	0.78	0.78
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	1187	0	355	985	0	0	300	363	0	87	29
Number of Detectors	2	2		2	2		1	2	2	1	2	2
Detector Template							Left			Left		
Leading Detector (ft)	50	156		50	156		20	50	50	20	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	8	6		8	6		20	8	8	20	8	8
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	2.0	4.0	0.0	2.0	4.0
Detector 2 Position(ft)	20	150		20	150			20	20		20	20
Detector 2 Size(ft)	30	6		30	6			30	30		30	30
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	5	2		1	6			3	1		3	
Permitted Phases							3		3	3		3
Detector Phase	5	2		1	6		3	3	1	3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		8.0	10.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.9	15.6		12.9	15.6		14.0	14.0	12.9	14.0	14.0	14.0
Total Split (s)	15.0	40.0		30.0	55.0		30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	15.0%	40.0%		30.0%	55.0%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	10.1	34.4		25.1	49.4		24.0	24.0	25.1	24.0	24.0	24.0
Yellow Time (s)	3.2	3.9		3.2	3.9		3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		2.8	2.8	1.7	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.9	5.6		4.9	5.6			6.0	4.9		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.5	6.0		3.0	6.0		2.5	2.5	3.0	2.5	2.5	2.5
Minimum Gap (s)	2.5	3.0		3.0	3.0		2.5	2.5	3.0	2.5	2.5	2.5
Time Before Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	8.1	34.4		22.6	56.8			24.0	47.8		24.0	24.0
Actuated g/C Ratio	0.08	0.35		0.23	0.58			0.25	0.49		0.25	0.25
v/c Ratio	0.18	0.67		0.86	0.47			0.98	0.46		0.20	0.06
Control Delay	45.8	29.0		56.6	13.6			86.2	14.5		31.5	0.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	45.8	29.0		56.6	13.6			86.2	14.5		31.5	0.3
LOS	D	C		E	B			F	B		C	A
Approach Delay		29.3			25.0			47.0			23.7	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	16	232		212	146			~194	116		44	0
Queue Length 95th (ft)	38	249		274	228			#329	164		74	0
Internal Link Dist (ft)		1432			373			49			396	
Turn Bay Length (ft)	250											250
Base Capacity (vph)	183	1783		460	2076			306	828		443	474
Starvation Cap Reductn	0	0		0	0			0	3		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.14	0.67		0.77	0.47			0.98	0.44		0.20	0.06

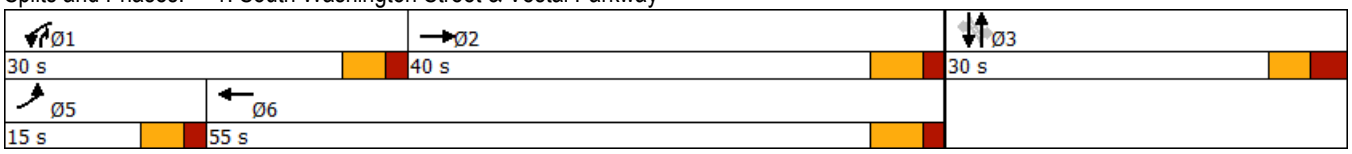
Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 97.6
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 30.9 Intersection LOS: C
Intersection Capacity Utilization 69.1% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: South Washington Street & Vestal Parkway



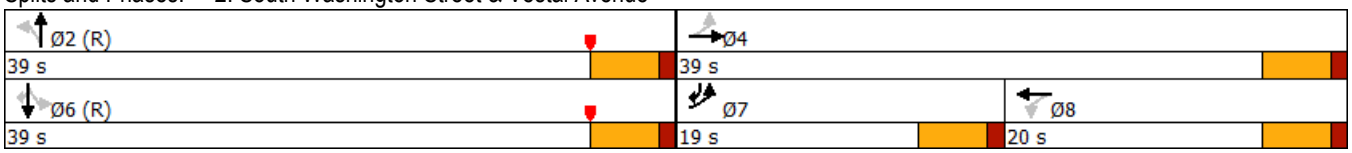
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	138	17	6	92	28	11	201	8	18	195	207
Future Volume (vph)	328	138	17	6	92	28	11	201	8	18	195	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	1843	0	1752	1773	0	0	1846	0	0	1874	1599
Flt Permitted	0.434			0.639				0.980			0.962	
Satd. Flow (perm)	815	1843	0	1162	1773	0	0	1814	0	0	1809	1559
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			244			478			249	
Travel Time (s)		13.4			5.5			10.9			5.7	
Confl. Peds. (#/hr)	4		7	7		4	6		3	3		6
Peak Hour Factor	0.82	0.82	0.82	0.70	0.70	0.70	0.80	0.80	0.80	0.78	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	189	0	9	171	0	0	275	0	0	273	265
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Minimum Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (%)	24.4%	50.0%		25.6%	25.6%		50.0%	50.0%		50.0%	50.0%	24.4%
Maximum Green (s)	14.0	34.0		15.0	15.0		34.0	34.0		34.0	34.0	14.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Act Effct Green (s)	34.0	34.0		15.0	15.0			34.0			34.0	48.0
Actuated g/C Ratio	0.44	0.44		0.19	0.19			0.44			0.44	0.62
v/c Ratio	0.76	0.24		0.04	0.50			0.35			0.35	0.27
Control Delay	27.3	14.8		26.3	34.1			16.2			16.2	5.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	27.3	14.8		26.3	34.1			16.2			16.2	5.9
LOS	C	B		C	C			B			B	A
Approach Delay		23.3			33.7			16.2			11.1	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	136	56		4	75			86			85	42
Queue Length 95th (ft)	190	88		12	101			122			117	59
Internal Link Dist (ft)		511			164			398			169	
Turn Bay Length (ft)	90			150								
Base Capacity (vph)	529	803		223	340			790			788	966
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.76	0.24		0.04	0.50			0.35			0.35	0.27

Intersection Summary

Area Type: Other
Cycle Length: 78
Actuated Cycle Length: 78
Offset: 34 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 19.1 Intersection LOS: B
Intersection Capacity Utilization 66.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: South Washington Street & Vestal Avenue

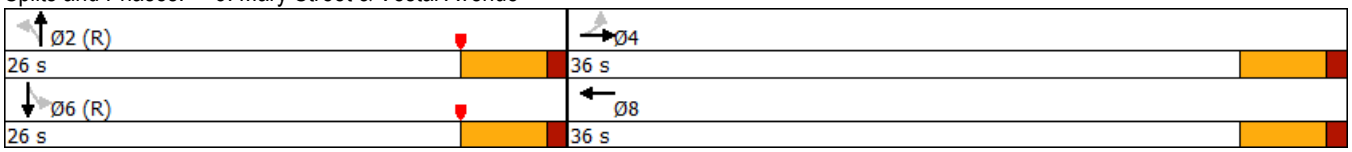


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	121	0	0	99	12	19	104	4	1	0	8
Future Volume (vph)	43	121	0	0	99	12	19	104	4	1	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1839	0	0	1829	0	0	1859	0	0	1461	0
Flt Permitted		0.910						0.964			0.975	
Satd. Flow (perm)	0	1692	0	0	1829	0	0	1805	0	0	1433	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					14			3			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		216			566			542			209	
Travel Time (s)		4.9			12.9			12.3			4.8	
Confl. Peds. (#/hr)	9		19	19		9			2	2		
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.76	0.76	0.76	0.58	0.58	0.58
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	14%	14%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	176	0	0	129	0	0	167	0	0	16	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Minimum Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%			58.1%		41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	31.0	31.0			31.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		31.0			31.0			21.0			21.0	
Actuated g/C Ratio		0.50			0.50			0.34			0.34	
v/c Ratio		0.21			0.14			0.27			0.03	
Control Delay		9.5			7.9			16.2			2.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.5			7.9			16.2			2.8	
LOS		A			A			B			A	
Approach Delay		9.5			7.9			16.2			2.8	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)		34			21			44			0	
Queue Length 95th (ft)		65			43			70			1	
Internal Link Dist (ft)		136			486			462			129	
Turn Bay Length (ft)												
Base Capacity (vph)		846			921			613			508	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.21			0.14			0.27			0.03	

Intersection Summary

Area Type: Other
Cycle Length: 62
Actuated Cycle Length: 62
Offset: 21 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.27
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 51.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Mary Street & Vestal Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1201	9	0	1072	0	159
Future Volume (vph)	1201	9	0	1072	0	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5080	0	0	5136	0	1627
Flt Permitted						
Satd. Flow (perm)	5080	0	0	5136	0	1627
Link Speed (mph)	30			30	30	
Link Distance (ft)	453			856	161	
Travel Time (s)	10.3			19.5	3.7	
Peak Hour Factor	0.82	0.82	0.80	0.80	0.76	0.76
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1476	0	0	1340	0	209
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 39.9% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↱			↑↑↑		↱
Traffic Vol, veh/h	1201	9	0	1072	0	159
Future Vol, veh/h	1201	9	0	1072	0	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	80	80	76	76
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	1465	11	0	1340	0	209

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	733
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.91
Pot Cap-1 Maneuver	-	0	0	-	0	313
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	313
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	36.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	313	-	-
HCM Lane V/C Ratio	0.668	-	-
HCM Control Delay (s)	36.9	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	4.5	-	-

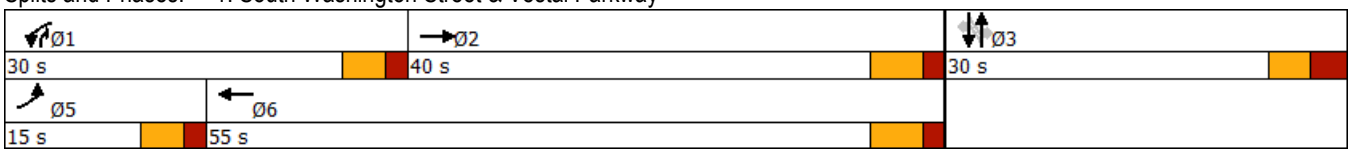
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1209	91	307	701	12	225	11	351	9	76	51
Future Volume (vph)	30	1209	91	307	701	12	225	11	351	9	76	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		1000	0		0	0		0	0		250
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	5075	0	1787	3564	0	0	1797	1599	0	1853	1583
Flt Permitted	0.950			0.950				0.669			0.953	
Satd. Flow (perm)	1787	5075	0	1787	3564	0	0	1241	1562	0	1773	1539
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			2				28			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1512			453			129			476	
Travel Time (s)		34.4			10.3			2.9			10.8	
Confl. Peds. (#/hr)			1	1			13		19	19		13
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.87	0.87	0.87	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	1398	0	327	759	0	0	272	403	0	93	55
Number of Detectors	2	2		2	2		1	2	2	1	2	2
Detector Template							Left			Left		
Leading Detector (ft)	50	156		50	156		20	50	50	20	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	8	6		8	6		20	8	8	20	8	8
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	2.0	4.0	0.0	2.0	4.0
Detector 2 Position(ft)	20	150		20	150			20	20		20	20
Detector 2 Size(ft)	30	6		30	6			30	30		30	30
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	5	2		1	6			3	1		3	
Permitted Phases							3		3	3		3
Detector Phase	5	2		1	6		3	3	1	3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		8.0	10.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.9	15.6		12.9	15.6		14.0	14.0	12.9	14.0	14.0	14.0
Total Split (s)	15.0	40.0		30.0	55.0		30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	15.0%	40.0%		30.0%	55.0%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	10.1	34.4		25.1	49.4		24.0	24.0	25.1	24.0	24.0	24.0
Yellow Time (s)	3.2	3.9		3.2	3.9		3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		2.8	2.8	1.7	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.9	5.6		4.9	5.6			6.0	4.9		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.5	6.0		3.0	6.0		2.5	2.5	3.0	2.5	2.5	2.5
Minimum Gap (s)	2.5	3.0		3.0	3.0		2.5	2.5	3.0	2.5	2.5	2.5
Time Before Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	8.2	34.6		21.7	53.5			22.9	45.7		22.9	22.9
Actuated g/C Ratio	0.09	0.36		0.23	0.56			0.24	0.48		0.24	0.24
v/c Ratio	0.21	0.76		0.81	0.38			0.92	0.52		0.22	0.12
Control Delay	46.0	30.7		51.6	13.7			72.8	15.9		31.7	0.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	46.0	30.7		51.6	13.7			72.8	15.9		31.7	0.5
LOS	D	C		D	B			E	B		C	A
Approach Delay		31.0			25.1			38.8			20.1	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	19	284		192	149			167	134		47	0
Queue Length 95th (ft)	49	347		#298	199			#306	197		91	0
Internal Link Dist (ft)		1432			373			49			396	
Turn Bay Length (ft)	250											250
Base Capacity (vph)	189	1841		470	1993			312	826		446	488
Starvation Cap Reductn	0	0		0	0			0	1		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.17	0.76		0.70	0.38			0.87	0.49		0.21	0.11

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 95.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 30.2 Intersection LOS: C
Intersection Capacity Utilization 75.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: South Washington Street & Vestal Parkway



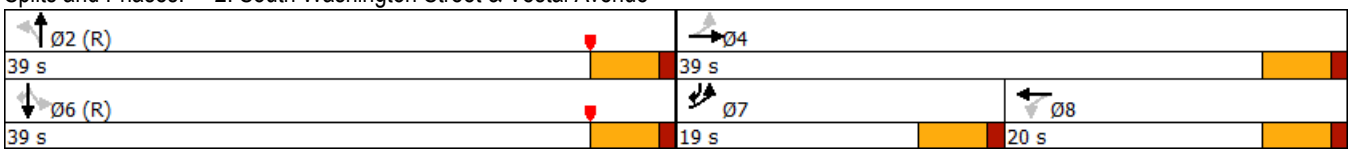
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	166	21	14	87	37	10	231	14	26	220	228
Future Volume (vph)	319	166	21	14	87	37	10	231	14	26	220	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	1839	0	1787	1778	0	0	1859	0	0	1872	1599
Flt Permitted	0.476			0.635				0.985			0.947	
Satd. Flow (perm)	889	1839	0	1135	1778	0	0	1834	0	0	1780	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			244			478			249	
Travel Time (s)		13.4			5.5			10.9			5.7	
Confl. Peds. (#/hr)	15		25	25		15	11		11	11		11
Peak Hour Factor	0.96	0.96	0.96	0.84	0.84	0.84	0.90	0.90	0.90	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	195	0	17	148	0	0	284	0	0	300	278
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Minimum Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (%)	24.4%	50.0%		25.6%	25.6%		50.0%	50.0%		50.0%	50.0%	24.4%
Maximum Green (s)	14.0	34.0		15.0	15.0		34.0	34.0		34.0	34.0	14.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Act Effct Green (s)	34.0	34.0		15.0	15.0			34.0			34.0	48.0
Actuated g/C Ratio	0.44	0.44		0.19	0.19			0.44			0.44	0.62
v/c Ratio	0.61	0.24		0.08	0.43			0.36			0.39	0.29
Control Delay	20.7	14.9		27.1	32.4			16.3			16.8	6.0
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	20.7	14.9		27.1	32.4			16.3			16.8	6.0
LOS	C	B		C	C			B			B	A
Approach Delay		18.6			31.8			16.3			11.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	108	58		7	64			89			95	45
Queue Length 95th (ft)	175	101		22	109			146			139	66
Internal Link Dist (ft)		511			164			398			169	
Turn Bay Length (ft)	90			150								
Base Capacity (vph)	548	801		218	341			799			775	963
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.61	0.24		0.08	0.43			0.36			0.39	0.29

Intersection Summary

Area Type: Other
Cycle Length: 78
Actuated Cycle Length: 78
Offset: 34 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 17.0 Intersection LOS: B
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: South Washington Street & Vestal Avenue

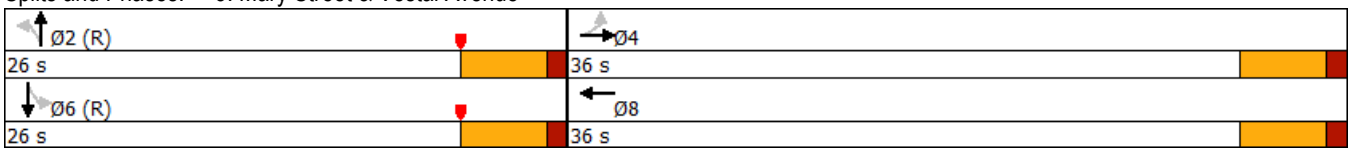


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	158	0	0	118	16	9	85	16	10	0	11
Future Volume (vph)	48	158	0	0	118	16	9	85	16	10	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1859	0	0	1841	0	0	1829	0	0	1683	0
Flt Permitted		0.909						0.983			0.885	
Satd. Flow (perm)	0	1702	0	0	1841	0	0	1804	0	0	1521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					16			15			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		216			566			542			209	
Travel Time (s)		4.9			12.9			12.3			4.8	
Confl. Peds. (#/hr)	25		18	18		25	3		5	5		3
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.76	0.76	0.76	0.75	0.75	0.75
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	227	0	0	156	0	0	145	0	0	28	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Minimum Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%			58.1%		41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	31.0	31.0			31.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		31.0			31.0			21.0			21.0	
Actuated g/C Ratio		0.50			0.50			0.34			0.34	
v/c Ratio		0.27			0.17			0.23			0.05	
Control Delay		10.0			8.2			14.4			5.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.0			8.2			14.4			5.2	
LOS		B			A			B			A	
Approach Delay		10.0			8.2			14.4			5.2	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		46			26			34			0	
Queue Length 95th (ft)		83			51			58			9	
Internal Link Dist (ft)		136			486			462			129	
Turn Bay Length (ft)												
Base Capacity (vph)		851			928			620			538	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.27			0.17			0.23			0.05	

Intersection Summary

Area Type: Other
Cycle Length: 62
Actuated Cycle Length: 62
Offset: 21 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.27
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 75.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Mary Street & Vestal Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1548	21	0	1020	0	149
Future Volume (vph)	1548	21	0	1020	0	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5125	0	0	5136	0	1627
Flt Permitted						
Satd. Flow (perm)	5125	0	0	5136	0	1627
Link Speed (mph)	30			30	30	
Link Distance (ft)	453			856	161	
Travel Time (s)	10.3			19.5	3.7	
Peak Hour Factor	0.93	0.93	0.94	0.94	0.76	0.76
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1688	0	0	1085	0	196
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 46.3% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↱			↑↑↑		↱
Traffic Vol, veh/h	1548	21	0	1020	0	149
Future Vol, veh/h	1548	21	0	1020	0	149
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	94	94	76	76
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	1665	23	0	1085	0	196

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	833
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.91
Pot Cap-1 Maneuver	-	0	0	-	0	269
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	269
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	47.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	269	-	-
HCM Lane V/C Ratio	0.729	-	-
HCM Control Delay (s)	47.4	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	5.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	919	73	290	787	16	244	13	311	4	65	23
Future Volume (vph)	21	919	73	290	787	16	244	13	311	4	65	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		1000	0		0	0		0	0		250
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5029	0	1787	3564	0	0	1797	1599	0	1839	1568
Flt Permitted	0.950			0.950				0.673			0.977	
Satd. Flow (perm)	1770	5029	0	1787	3564	0	0	1241	1568	0	1801	1513
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			3				28			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1512			453			129			476	
Travel Time (s)		34.4			10.3			2.9			10.8	
Confl. Peds. (#/hr)							19		12	12		19
Peak Hour Factor	0.82	0.82	0.82	0.80	0.80	0.80	0.84	0.84	0.84	0.78	0.78	0.78
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	1210	0	363	1004	0	0	305	370	0	88	29
Number of Detectors	2	2		2	2		1	2	2	1	2	2
Detector Template							Left			Left		
Leading Detector (ft)	50	156		50	156		20	50	50	20	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	8	6		8	6		20	8	8	20	8	8
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	2.0	4.0	0.0	2.0	4.0
Detector 2 Position(ft)	20	150		20	150			20	20		20	20
Detector 2 Size(ft)	30	6		30	6			30	30		30	30
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	5	2		1	6			3	1		3	
Permitted Phases							3		3	3		3
Detector Phase	5	2		1	6		3	3	1	3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		8.0	10.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.9	15.6		12.9	15.6		14.0	14.0	12.9	14.0	14.0	14.0
Total Split (s)	15.0	40.0		30.0	55.0		30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	15.0%	40.0%		30.0%	55.0%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	10.1	34.4		25.1	49.4		24.0	24.0	25.1	24.0	24.0	24.0
Yellow Time (s)	3.2	3.9		3.2	3.9		3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		2.8	2.8	1.7	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.9	5.6		4.9	5.6			6.0	4.9		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.5	6.0		3.0	6.0		2.5	2.5	3.0	2.5	2.5	2.5
Minimum Gap (s)	2.5	3.0		3.0	3.0		2.5	2.5	3.0	2.5	2.5	2.5
Time Before Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	8.1	34.4		23.1	57.2			24.0	48.2		24.0	24.0
Actuated g/C Ratio	0.08	0.35		0.24	0.58			0.24	0.49		0.24	0.24
v/c Ratio	0.18	0.68		0.86	0.48			1.01	0.47		0.20	0.06
Control Delay	45.9	29.5		57.2	13.7			92.4	14.6		31.7	0.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	45.9	29.5		57.2	13.7			92.4	14.6		31.7	0.3
LOS	D	C		E	B			F	B		C	A
Approach Delay		29.8			25.3			49.8			23.9	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	16	238		218	151			~208	119		45	0
Queue Length 95th (ft)	38	255		280	234			#336	167		74	0
Internal Link Dist (ft)		1432			373			49			396	
Turn Bay Length (ft)	250											250
Base Capacity (vph)	182	1775		457	2082			303	825		441	472
Starvation Cap Reductn	0	0		0	0			0	3		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.14	0.68		0.79	0.48			1.01	0.45		0.20	0.06

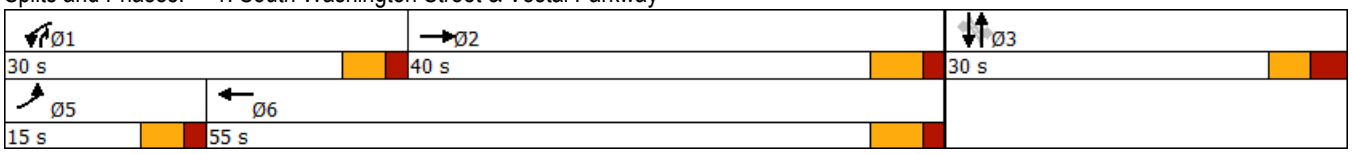
Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 98
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 70.1% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: South Washington Street & Vestal Parkway



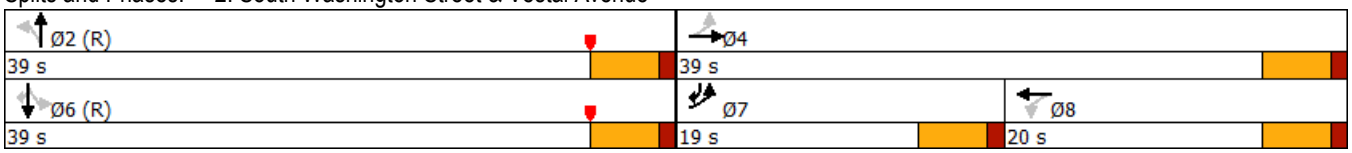
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	141	17	6	94	28	11	205	8	18	199	211
Future Volume (vph)	335	141	17	6	94	28	11	205	8	18	199	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	1845	0	1752	1775	0	0	1848	0	0	1874	1599
Flt Permitted	0.429			0.636				0.981			0.963	
Satd. Flow (perm)	805	1845	0	1157	1775	0	0	1816	0	0	1811	1559
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			244			478			249	
Travel Time (s)		13.4			5.5			10.9			5.7	
Confl. Peds. (#/hr)	4		7	7		4	6		3	3		6
Peak Hour Factor	0.82	0.82	0.82	0.70	0.70	0.70	0.80	0.80	0.80	0.78	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	409	193	0	9	174	0	0	280	0	0	278	271
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Minimum Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (%)	24.4%	50.0%		25.6%	25.6%		50.0%	50.0%		50.0%	50.0%	24.4%
Maximum Green (s)	14.0	34.0		15.0	15.0		34.0	34.0		34.0	34.0	14.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Act Effct Green (s)	34.0	34.0		15.0	15.0			34.0			34.0	48.0
Actuated g/C Ratio	0.44	0.44		0.19	0.19			0.44			0.44	0.62
v/c Ratio	0.78	0.24		0.04	0.51			0.35			0.35	0.28
Control Delay	28.6	14.9		26.3	34.3			16.3			16.3	5.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	28.6	14.9		26.3	34.3			16.3			16.3	5.9
LOS	C	B		C	C			B			B	A
Approach Delay		24.2			33.9			16.3			11.2	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	140	57		4	76			87			87	43
Queue Length 95th (ft)	194	89		12	102			125			119	60
Internal Link Dist (ft)		511			164			398			169	
Turn Bay Length (ft)	90			150								
Base Capacity (vph)	527	804		222	341			791			789	966
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.78	0.24		0.04	0.51			0.35			0.35	0.28

Intersection Summary

Area Type: Other
Cycle Length: 78
Actuated Cycle Length: 78
Offset: 34 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 19.5 Intersection LOS: B
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: South Washington Street & Vestal Avenue

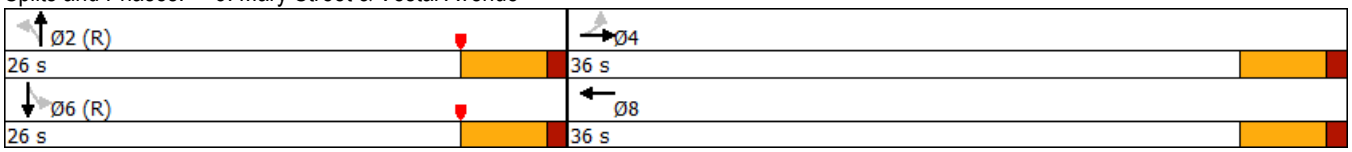


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	123	0	0	101	12	19	106	4	1	0	8
Future Volume (vph)	44	123	0	0	101	12	19	106	4	1	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1839	0	0	1831	0	0	1859	0	0	1461	0
Flt Permitted		0.909						0.965			0.975	
Satd. Flow (perm)	0	1690	0	0	1831	0	0	1807	0	0	1433	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					14			3			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		216			566			542			209	
Travel Time (s)		4.9			12.9			12.3			4.8	
Confl. Peds. (#/hr)	9		19	19		9			2	2		
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.76	0.76	0.76	0.58	0.58	0.58
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	14%	14%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	0	0	131	0	0	169	0	0	16	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Minimum Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%			58.1%		41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	31.0	31.0			31.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		31.0			31.0			21.0			21.0	
Actuated g/C Ratio		0.50			0.50			0.34			0.34	
v/c Ratio		0.21			0.14			0.28			0.03	
Control Delay		9.5			7.9			16.2			2.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.5			7.9			16.2			2.8	
LOS		A			A			B			A	
Approach Delay		9.5			7.9			16.2			2.8	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)		35			22			44			0	
Queue Length 95th (ft)		67			44			70			1	
Internal Link Dist (ft)		136			486			462			129	
Turn Bay Length (ft)												
Base Capacity (vph)		845			922			614			508	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.21			0.14			0.28			0.03	

Intersection Summary

Area Type: Other
Cycle Length: 62
Actuated Cycle Length: 62
Offset: 21 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.28
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 51.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Mary Street & Vestal Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1225	9	0	1093	0	162
Future Volume (vph)	1225	9	0	1093	0	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5080	0	0	5136	0	1627
Flt Permitted						
Satd. Flow (perm)	5080	0	0	5136	0	1627
Link Speed (mph)	30			30	30	
Link Distance (ft)	453			856	161	
Travel Time (s)	10.3			19.5	3.7	
Peak Hour Factor	0.82	0.82	0.80	0.80	0.76	0.76
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1505	0	0	1366	0	213
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 40.6% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↱			↑↑↑		↱
Traffic Vol, veh/h	1225	9	0	1093	0	162
Future Vol, veh/h	1225	9	0	1093	0	162
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	80	80	76	76
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	1494	11	0	1366	0	213

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	747
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.91
Pot Cap-1 Maneuver	-	0	0	-	0	307
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	307
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	39.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	307	-	-
HCM Lane V/C Ratio	0.694	-	-
HCM Control Delay (s)	39.6	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	4.8	-	-

Lanes, Volumes, Timings
1: South Washington Street & Vestal Parkway

01/09/2020

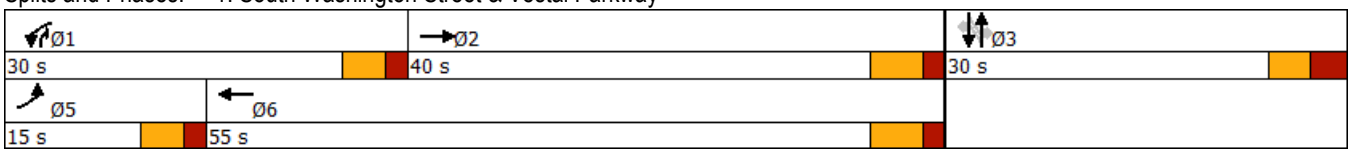
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1233	93	313	715	12	230	11	358	9	78	52
Future Volume (vph)	30	1233	93	313	715	12	230	11	358	9	78	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		1000	0		0	0		0	0		250
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	5075	0	1787	3564	0	0	1797	1599	0	1853	1583
Flt Permitted	0.950			0.950				0.668			0.953	
Satd. Flow (perm)	1787	5075	0	1787	3564	0	0	1240	1562	0	1773	1539
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			2				28			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1512			453			129			476	
Travel Time (s)		34.4			10.3			2.9			10.8	
Confl. Peds. (#/hr)			1	1			13		19	19		13
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.87	0.87	0.87	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	1426	0	333	774	0	0	277	411	0	95	57
Number of Detectors	2	2		2	2		1	2	2	1	2	2
Detector Template							Left			Left		
Leading Detector (ft)	50	156		50	156		20	50	50	20	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	8	6		8	6		20	8	8	20	8	8
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	2.0	4.0	0.0	2.0	4.0
Detector 2 Position(ft)	20	150		20	150			20	20		20	20
Detector 2 Size(ft)	30	6		30	6			30	30		30	30
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	5	2		1	6			3	1		3	
Permitted Phases							3		3	3		3
Detector Phase	5	2		1	6		3	3	1	3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		8.0	10.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.9	15.6		12.9	15.6		14.0	14.0	12.9	14.0	14.0	14.0
Total Split (s)	15.0	40.0		30.0	55.0		30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	15.0%	40.0%		30.0%	55.0%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	10.1	34.4		25.1	49.4		24.0	24.0	25.1	24.0	24.0	24.0
Yellow Time (s)	3.2	3.9		3.2	3.9		3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		2.8	2.8	1.7	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.9	5.6		4.9	5.6			6.0	4.9		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.5	6.0		3.0	6.0		2.5	2.5	3.0	2.5	2.5	2.5
Minimum Gap (s)	2.5	3.0		3.0	3.0		2.5	2.5	3.0	2.5	2.5	2.5
Time Before Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	8.2	34.5		22.0	53.7			23.1	46.2		23.1	23.1
Actuated g/C Ratio	0.09	0.36		0.23	0.56			0.24	0.48		0.24	0.24
v/c Ratio	0.21	0.78		0.82	0.39			0.93	0.53		0.22	0.12
Control Delay	46.1	31.5		52.2	13.8			75.2	16.0		31.8	0.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	46.1	31.5		52.2	13.8			75.2	16.0		31.8	0.5
LOS	D	C		D	B			E	B		C	A
Approach Delay		31.8			25.4			39.8			20.1	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	19	295		196	153			172	138		48	0
Queue Length 95th (ft)	49	357		#317	204			#314	202		93	0
Internal Link Dist (ft)		1432			373			49			396	
Turn Bay Length (ft)	250											250
Base Capacity (vph)	188	1829		467	1992			310	826		443	486
Starvation Cap Reductn	0	0		0	0			0	1		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.17	0.78		0.71	0.39			0.89	0.50		0.21	0.12

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 96.2
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 30.8 Intersection LOS: C
Intersection Capacity Utilization 77.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: South Washington Street & Vestal Parkway



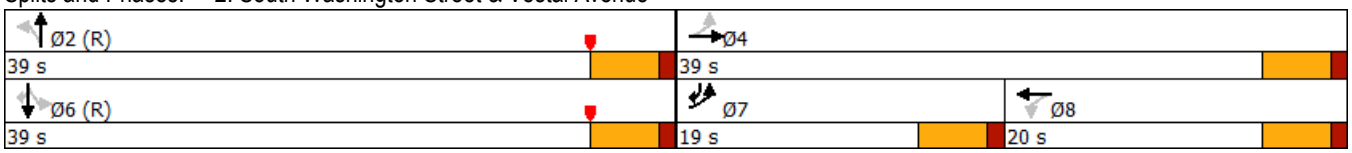
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	169	21	14	89	38	10	236	14	27	224	233
Future Volume (vph)	325	169	21	14	89	38	10	236	14	27	224	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	1839	0	1787	1778	0	0	1861	0	0	1872	1599
Flt Permitted	0.470			0.633				0.985			0.945	
Satd. Flow (perm)	877	1839	0	1132	1778	0	0	1836	0	0	1776	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			244			478			249	
Travel Time (s)		13.4			5.5			10.9			5.7	
Confl. Peds. (#/hr)	15		25	25		15	11		11	11		11
Peak Hour Factor	0.96	0.96	0.96	0.84	0.84	0.84	0.90	0.90	0.90	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	339	198	0	17	151	0	0	289	0	0	306	284
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Minimum Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (%)	24.4%	50.0%		25.6%	25.6%		50.0%	50.0%		50.0%	50.0%	24.4%
Maximum Green (s)	14.0	34.0		15.0	15.0		34.0	34.0		34.0	34.0	14.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Act Effct Green (s)	34.0	34.0		15.0	15.0			34.0			34.0	48.0
Actuated g/C Ratio	0.44	0.44		0.19	0.19			0.44			0.44	0.62
v/c Ratio	0.62	0.25		0.08	0.44			0.36			0.40	0.29
Control Delay	21.2	15.0		27.1	32.6			16.4			16.9	6.0
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	21.2	15.0		27.1	32.6			16.4			16.9	6.0
LOS	C	B		C	C			B			B	A
Approach Delay		18.9			32.0			16.4			11.7	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	111	59		7	65			91			98	46
Queue Length 95th (ft)	179	102		22	111			149			141	67
Internal Link Dist (ft)		511			164			398			169	
Turn Bay Length (ft)	90			150								
Base Capacity (vph)	545	801		217	341			800			774	963
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.62	0.25		0.08	0.44			0.36			0.40	0.29

Intersection Summary

Area Type: Other
Cycle Length: 78
Actuated Cycle Length: 78
Offset: 34 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 17.1 Intersection LOS: B
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: South Washington Street & Vestal Avenue

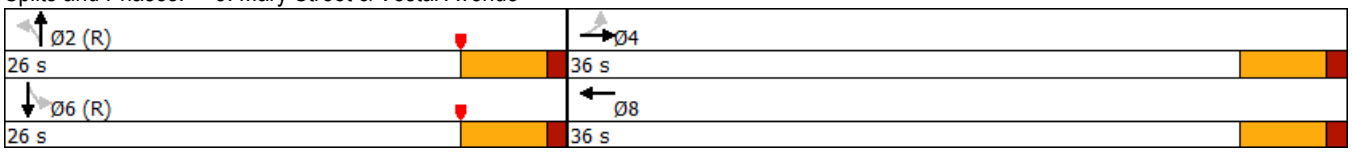


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	161	0	0	121	16	9	87	16	10	0	11
Future Volume (vph)	49	161	0	0	121	16	9	87	16	10	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1859	0	0	1841	0	0	1831	0	0	1683	0
Flt Permitted		0.907						0.983			0.885	
Satd. Flow (perm)	0	1698	0	0	1841	0	0	1806	0	0	1521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					16			15			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		216			566			542			209	
Travel Time (s)		4.9			12.9			12.3			4.8	
Confl. Peds. (#/hr)	25		18	18		25	3		5	5		3
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.76	0.76	0.76	0.75	0.75	0.75
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	231	0	0	160	0	0	147	0	0	28	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Minimum Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%			58.1%		41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	31.0	31.0			31.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		31.0			31.0			21.0			21.0	
Actuated g/C Ratio		0.50			0.50			0.34			0.34	
v/c Ratio		0.27			0.17			0.24			0.05	
Control Delay		10.1			8.2			14.4			5.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.1			8.2			14.4			5.2	
LOS		B			A			B			A	
Approach Delay		10.1			8.2			14.4			5.2	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		46			27			35			0	
Queue Length 95th (ft)		85			52			59			9	
Internal Link Dist (ft)		136			486			462			129	
Turn Bay Length (ft)												
Base Capacity (vph)		849			928			621			538	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.27			0.17			0.24			0.05	

Intersection Summary

Area Type: Other
Cycle Length: 62
Actuated Cycle Length: 62
Offset: 21 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.27
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 77.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Mary Street & Vestal Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1579	21	0	1040	0	152
Future Volume (vph)	1579	21	0	1040	0	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5125	0	0	5136	0	1627
Flt Permitted						
Satd. Flow (perm)	5125	0	0	5136	0	1627
Link Speed (mph)	30			30	30	
Link Distance (ft)	453			856	161	
Travel Time (s)	10.3			19.5	3.7	
Peak Hour Factor	0.93	0.93	0.94	0.94	0.76	0.76
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1721	0	0	1106	0	200
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 47.1% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↱			↑↑↑		↱
Traffic Vol, veh/h	1579	21	0	1040	0	152
Future Vol, veh/h	1579	21	0	1040	0	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	94	94	76	76
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	1698	23	0	1106	0	200

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	849
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.91
Pot Cap-1 Maneuver	-	0	0	-	0	263
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	263
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	51.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	263	-	-
HCM Lane V/C Ratio	0.76	-	-
HCM Control Delay (s)	51.9	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	5.6	-	-

Lanes, Volumes, Timings
1: South Washington Street & Vestal Parkway

01/09/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	932	79	330	768	16	280	14	307	5	66	23
Future Volume (vph)	21	932	79	330	768	16	280	14	307	5	66	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		1000	0		0	0		0	0		250
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5024	0	1787	3564	0	0	1797	1599	0	1839	1568
Flt Permitted	0.950			0.950				0.671			0.937	
Satd. Flow (perm)	1770	5024	0	1787	3564	0	0	1237	1568	0	1728	1513
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			3				28			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1512			453			129			476	
Travel Time (s)		34.4			10.3			2.9			10.8	
Confl. Peds. (#/hr)							19		12	12		19
Peak Hour Factor	0.82	0.82	0.82	0.80	0.80	0.80	0.84	0.84	0.84	0.78	0.78	0.78
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	1233	0	413	980	0	0	350	365	0	91	29
Number of Detectors	2	2		2	2		1	2	2	1	2	2
Detector Template							Left			Left		
Leading Detector (ft)	50	156		50	156		20	50	50	20	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	8	6		8	6		20	8	8	20	8	8
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	2.0	4.0	0.0	2.0	4.0
Detector 2 Position(ft)	20	150		20	150			20	20		20	20
Detector 2 Size(ft)	30	6		30	6			30	30		30	30
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	5	2		1	6			3	1		3	
Permitted Phases							3		3	3		3
Detector Phase	5	2		1	6		3	3	1	3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		8.0	10.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.9	15.6		12.9	15.6		14.0	14.0	12.9	14.0	14.0	14.0
Total Split (s)	15.0	40.0		30.0	55.0		30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	15.0%	40.0%		30.0%	55.0%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	10.1	34.4		25.1	49.4		24.0	24.0	25.1	24.0	24.0	24.0
Yellow Time (s)	3.2	3.9		3.2	3.9		3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		2.8	2.8	1.7	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.9	5.6		4.9	5.6			6.0	4.9		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.5	6.0		3.0	6.0		2.5	2.5	3.0	2.5	2.5	2.5
Minimum Gap (s)	2.5	3.0		3.0	3.0		2.5	2.5	3.0	2.5	2.5	2.5
Time Before Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	8.1	34.4		24.5	58.6			24.0	49.6		24.0	24.0
Actuated g/C Ratio	0.08	0.35		0.25	0.59			0.24	0.50		0.24	0.24
v/c Ratio	0.18	0.71		0.94	0.47			1.17	0.45		0.22	0.06
Control Delay	46.0	30.5		68.0	13.5			144.1	14.3		32.2	0.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	46.0	30.5		68.0	13.5			144.1	14.3		32.2	0.3
LOS	D	C		E	B			F	B		C	A
Approach Delay		30.8			29.6			77.8			24.4	
Approach LOS		C			C			E			C	
Queue Length 50th (ft)	16	244		257	145			~269	117		47	0
Queue Length 95th (ft)	38	261		#356	227			#401	165		77	0
Internal Link Dist (ft)		1432			373			49			396	
Turn Bay Length (ft)	250											250
Base Capacity (vph)	179	1748		451	2101			298	813		417	467
Starvation Cap Reductn	0	0		0	0			0	3		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.15	0.71		0.92	0.47			1.17	0.45		0.22	0.06

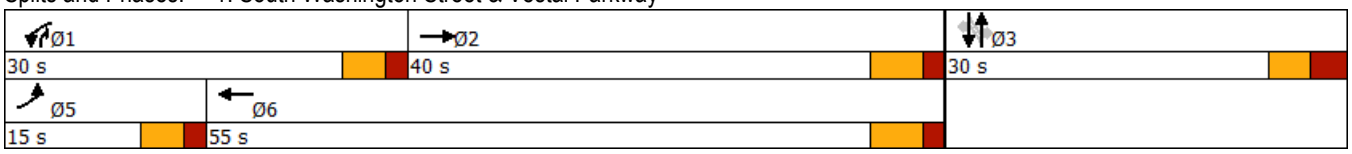
Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 99.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 39.8 Intersection LOS: D
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: South Washington Street & Vestal Parkway



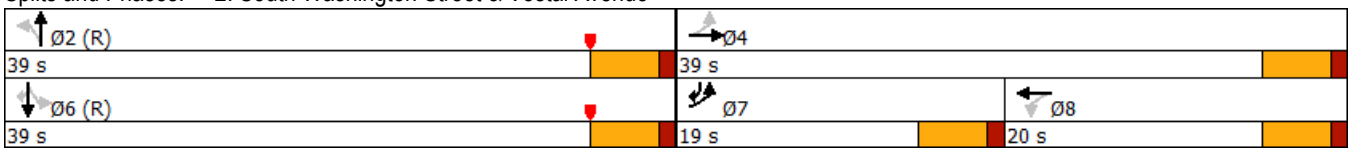
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	157	17	14	106	65	11	199	18	73	195	207
Future Volume (vph)	328	157	17	14	106	65	11	199	18	73	195	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	1848	0	1752	1728	0	0	1835	0	0	1857	1599
Flt Permitted	0.307			0.625				0.978			0.843	
Satd. Flow (perm)	577	1848	0	1137	1728	0	0	1798	0	0	1585	1559
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			244			478			249	
Travel Time (s)		13.4			5.5			10.9			5.7	
Confl. Peds. (#/hr)	4		7	7		4	6		3	3		6
Peak Hour Factor	0.82	0.82	0.82	0.70	0.70	0.70	0.80	0.80	0.80	0.78	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	212	0	20	244	0	0	286	0	0	344	265
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Minimum Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (%)	24.4%	50.0%		25.6%	25.6%		50.0%	50.0%		50.0%	50.0%	24.4%
Maximum Green (s)	14.0	34.0		15.0	15.0		34.0	34.0		34.0	34.0	14.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Act Effct Green (s)	34.0	34.0		15.0	15.0			34.0			34.0	48.0
Actuated g/C Ratio	0.44	0.44		0.19	0.19			0.44			0.44	0.62
v/c Ratio	0.85	0.26		0.09	0.73			0.37			0.50	0.27
Control Delay	36.5	15.1		27.3	44.7			16.5			19.0	5.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.8	0.0
Total Delay	36.5	15.1		27.3	44.7			16.5			19.8	5.9
LOS	D	B		C	D			B			B	A
Approach Delay		29.1			43.4			16.5			13.7	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	136	63		8	112			90			116	42
Queue Length 95th (ft)	#206	98		20	140			127			156	59
Internal Link Dist (ft)		511			164			398			169	
Turn Bay Length (ft)	90			150								
Base Capacity (vph)	468	805		218	332			783			690	966
Starvation Cap Reductn	0	0		0	0			0			136	0
Spillback Cap Reductn	0	0		0	0			0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.85	0.26		0.09	0.73			0.37			0.62	0.27

Intersection Summary

Area Type: Other
Cycle Length: 78
Actuated Cycle Length: 78
Offset: 34 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 23.9 Intersection LOS: C
Intersection Capacity Utilization 93.6% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: South Washington Street & Vestal Avenue

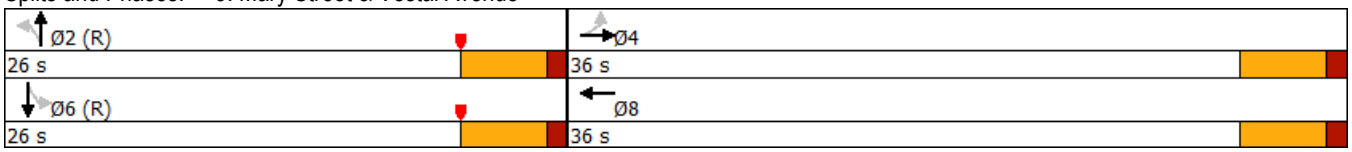


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	123	0	0	100	15	19	108	4	5	0	38
Future Volume (vph)	61	123	0	0	100	15	19	108	4	5	0	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1833	0	0	1824	0	0	1859	0	0	1460	0
Flt Permitted		0.875						0.958			0.966	
Satd. Flow (perm)	0	1626	0	0	1824	0	0	1794	0	0	1418	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					17			3			66	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		216			566			542			209	
Travel Time (s)		4.9			12.9			12.3			4.8	
Confl. Peds. (#/hr)	9		19	19		9			2	2		
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.76	0.76	0.76	0.58	0.58	0.58
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	14%	14%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	133	0	0	172	0	0	75	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Minimum Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%			58.1%		41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	31.0	31.0			31.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		31.0			31.0			21.0			21.0	
Actuated g/C Ratio		0.50			0.50			0.34			0.34	
v/c Ratio		0.24			0.14			0.28			0.14	
Control Delay		9.8			7.8			16.3			6.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.8			7.8			16.3			6.0	
LOS		A			A			B			A	
Approach Delay		9.8			7.8			16.3			6.0	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)		39			22			45			2	
Queue Length 95th (ft)		74			44			71			10	
Internal Link Dist (ft)		136			486			462			129	
Turn Bay Length (ft)												
Base Capacity (vph)		813			920			609			523	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.24			0.14			0.28			0.14	

Intersection Summary

Area Type: Other
Cycle Length: 62
Actuated Cycle Length: 62
Offset: 21 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.28
Intersection Signal Delay: 10.8 Intersection LOS: B
Intersection Capacity Utilization 51.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Mary Street & Vestal Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1199	45	0	1114	0	207
Future Volume (vph)	1199	45	0	1114	0	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5060	0	0	5136	0	1627
Flt Permitted						
Satd. Flow (perm)	5060	0	0	5136	0	1627
Link Speed (mph)	30			30	30	
Link Distance (ft)	453			856	161	
Travel Time (s)	10.3			19.5	3.7	
Peak Hour Factor	0.82	0.82	0.80	0.80	0.76	0.76
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1517	0	0	1393	0	272
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.7% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↱			↑↑↑		↱
Traffic Vol, veh/h	1199	45	0	1114	0	207
Future Vol, veh/h	1199	45	0	1114	0	207
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	80	80	76	76
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	1462	55	0	1393	0	272

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	731
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.91
Pot Cap-1 Maneuver	-	0	0	-	0	314
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	314
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	59.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	314	-	-
HCM Lane V/C Ratio	0.867	-	-
HCM Control Delay (s)	59.9	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	7.8	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	9	592	0	0	475
Future Volume (vph)	0	9	592	0	0	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1627	3574	0	0	3574
Flt Permitted						
Satd. Flow (perm)	0	1627	3574	0	0	3574
Link Speed (mph)	30		30			30
Link Distance (ft)	136		249			129
Travel Time (s)	3.1		5.7			2.9
Peak Hour Factor	0.90	0.90	0.84	0.84	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	10	705	0	0	609
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 26.4% ICU Level of Service A
Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑			↑↑
Traffic Vol, veh/h	0	9	592	0	0	475
Future Vol, veh/h	0	9	592	0	0	475
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	84	84	78	78
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	10	705	0	0	609

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	353	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	-	-
Pot Cap-1 Maneuver	0	646	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	646	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	646	-
HCM Lane V/C Ratio	-	0.015	-
HCM Control Delay (s)	-	10.7	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	180	155	2	4	30
Future Volume (vph)	68	180	155	2	4	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1839	1841	0	1647	0
Flt Permitted		0.987			0.995	
Satd. Flow (perm)	0	1839	1841	0	1647	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		244	216		132	
Travel Time (s)		5.5	4.9		3.0	
Peak Hour Factor	0.93	0.93	0.70	0.70	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	267	224	0	37	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 34.8% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	180	155	2	4	30
Future Vol, veh/h	68	180	155	2	4	30
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	93	93	70	70	90	90
Heavy Vehicles, %	2	2	3	3	1	1
Mvmt Flow	73	194	221	3	4	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	224	0	-	0	563	223
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	340	-
Critical Hdwy	4.12	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.218	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1345	-	-	-	489	819
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1345	-	-	-	459	819
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	723	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1345	-	-	-	750
HCM Lane V/C Ratio	0.054	-	-	-	0.05
HCM Control Delay (s)	7.8	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	34	27	157	9	36
Future Volume (vph)	50	34	27	157	9	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1726	0	0	1868	1624	0
Flt Permitted	0.971			0.993		
Satd. Flow (perm)	1726	0	0	1868	1624	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	128			209	161	
Travel Time (s)	2.9			4.8	3.7	
Peak Hour Factor	0.90	0.90	0.76	0.76	0.58	0.58
Heavy Vehicles (%)	1%	1%	1%	1%	14%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	94	0	0	243	78	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 27.9% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	34	27	157	9	36
Future Vol, veh/h	50	34	27	157	9	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	76	76	58	58
Heavy Vehicles, %	1	1	1	1	14	2
Mvmt Flow	56	38	36	207	16	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	326	47	78	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	279	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	670	1025	1527	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	652	1025	1527	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	770	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1527	-	765	-	-
HCM Lane V/C Ratio	0.023	-	0.122	-	-
HCM Control Delay (s)	7.4	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1247	99	351	700	12	266	13	354	10	79	52
Future Volume (vph)	30	1247	99	351	700	12	266	13	354	10	79	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		1000	0		0	0		0	0		250
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	5074	0	1787	3564	0	0	1797	1599	0	1852	1583
Flt Permitted	0.950			0.950				0.666			0.921	
Satd. Flow (perm)	1787	5074	0	1787	3564	0	0	1236	1562	0	1713	1539
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			2				28			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1512			453			129			476	
Travel Time (s)		34.4			10.3			2.9			10.8	
Confl. Peds. (#/hr)			1	1			13		19	19		13
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.87	0.87	0.87	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	1447	0	373	758	0	0	321	407	0	97	57
Number of Detectors	2	2		2	2		1	2	2	1	2	2
Detector Template							Left			Left		
Leading Detector (ft)	50	156		50	156		20	50	50	20	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	8	6		8	6		20	8	8	20	8	8
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	2.0	4.0	0.0	2.0	4.0
Detector 2 Position(ft)	20	150		20	150			20	20		20	20
Detector 2 Size(ft)	30	6		30	6			30	30		30	30
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	5	2		1	6			3	1		3	
Permitted Phases							3		3	3		3
Detector Phase	5	2		1	6		3	3	1	3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		8.0	10.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.9	15.6		12.9	15.6		14.0	14.0	12.9	14.0	14.0	14.0
Total Split (s)	15.0	40.0		30.0	55.0		30.0	30.0	30.0	30.0	30.0	30.0
Total Split (%)	15.0%	40.0%		30.0%	55.0%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	10.1	34.4		25.1	49.4		24.0	24.0	25.1	24.0	24.0	24.0
Yellow Time (s)	3.2	3.9		3.2	3.9		3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		2.8	2.8	1.7	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.9	5.6		4.9	5.6			6.0	4.9		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.5	6.0		3.0	6.0		2.5	2.5	3.0	2.5	2.5	2.5
Minimum Gap (s)	2.5	3.0		3.0	3.0		2.5	2.5	3.0	2.5	2.5	2.5
Time Before Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	8.2	34.4		23.4	54.9			24.0	48.5		24.0	24.0
Actuated g/C Ratio	0.08	0.35		0.24	0.56			0.24	0.49		0.24	0.24
v/c Ratio	0.21	0.81		0.88	0.38			1.07	0.51		0.23	0.12
Control Delay	46.4	33.4		58.8	13.8			108.1	15.5		32.3	0.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	46.4	33.4		58.8	13.8			108.1	15.5		32.3	0.5
LOS	D	C		E	B			F	B		C	A
Approach Delay		33.7			28.7			56.3			20.5	
Approach LOS		C			C			E			C	
Queue Length 50th (ft)	19	303		226	148			~230	136		50	0
Queue Length 95th (ft)	49	364		#379	198			#380	200		95	0
Internal Link Dist (ft)		1432			373			49			396	
Turn Bay Length (ft)	250											250
Base Capacity (vph)	183	1785		456	1990			301	821		418	477
Starvation Cap Reductn	0	0		0	0			0	3		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.17	0.81		0.82	0.38			1.07	0.50		0.23	0.12

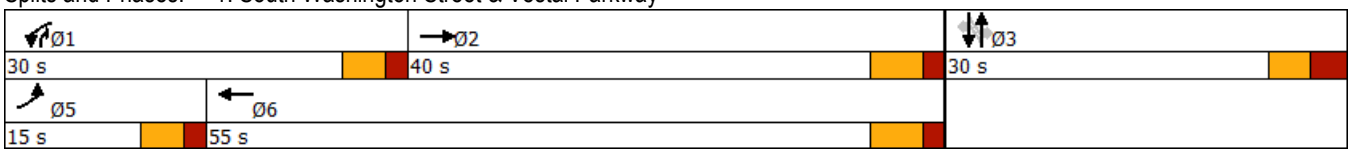
Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 98.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 36.2 Intersection LOS: D
Intersection Capacity Utilization 81.6% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: South Washington Street & Vestal Parkway



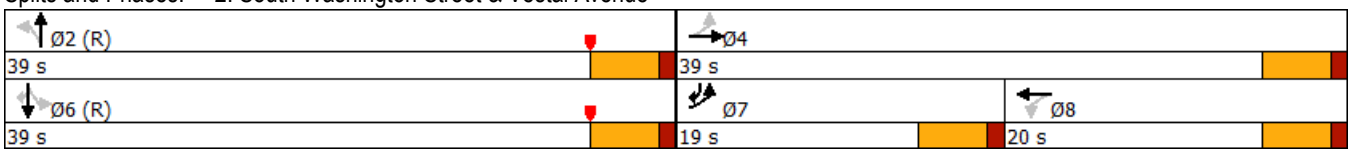
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	184	21	22	103	75	10	231	23	79	221	229
Future Volume (vph)	319	184	21	22	103	75	10	231	23	79	221	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	1844	0	1787	1737	0	0	1850	0	0	1857	1599
Flt Permitted	0.362			0.624				0.984			0.844	
Satd. Flow (perm)	676	1844	0	1117	1737	0	0	1823	0	0	1585	1553
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			244			478			249	
Travel Time (s)		13.4			5.5			10.9			5.7	
Confl. Peds. (#/hr)	15		25	25		15	11		11	11		11
Peak Hour Factor	0.96	0.96	0.96	0.84	0.84	0.84	0.90	0.90	0.90	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	214	0	26	212	0	0	294	0	0	366	279
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Minimum Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (s)	19.0	39.0		20.0	20.0		39.0	39.0		39.0	39.0	19.0
Total Split (%)	24.4%	50.0%		25.6%	25.6%		50.0%	50.0%		50.0%	50.0%	24.4%
Maximum Green (s)	14.0	34.0		15.0	15.0		34.0	34.0		34.0	34.0	14.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Act Effct Green (s)	34.0	34.0		15.0	15.0			34.0			34.0	48.0
Actuated g/C Ratio	0.44	0.44		0.19	0.19			0.44			0.44	0.62
v/c Ratio	0.67	0.27		0.12	0.63			0.37			0.53	0.29
Control Delay	23.0	15.2		27.8	38.7			16.5			19.6	6.0
Queue Delay	0.0	0.0		0.0	0.0			0.0			1.0	0.0
Total Delay	23.0	15.2		27.8	38.7			16.5			20.6	6.0
LOS	C	B		C	D			B			C	A
Approach Delay		20.0			37.5			16.5			14.3	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)	108	64		11	96			93			126	45
Queue Length 95th (ft)	175	110		30	152			152			180	66
Internal Link Dist (ft)		511			164			398			169	
Turn Bay Length (ft)	90			150								
Base Capacity (vph)	494	803		214	334			794			690	963
Starvation Cap Reductn	0	0		0	0			0			133	0
Spillback Cap Reductn	0	0		0	0			0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.67	0.27		0.12	0.63			0.37			0.66	0.29

Intersection Summary

Area Type: Other
Cycle Length: 78
Actuated Cycle Length: 78
Offset: 34 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 19.7 Intersection LOS: B
Intersection Capacity Utilization 101.5% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 2: South Washington Street & Vestal Avenue

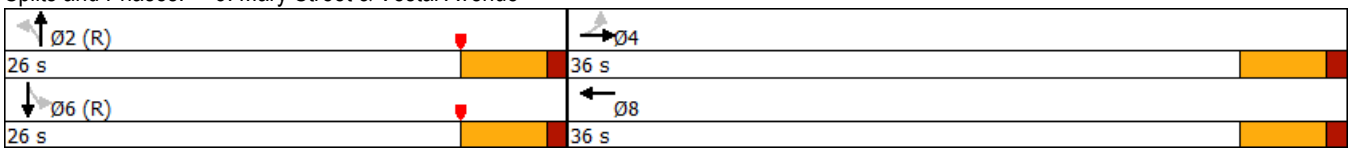


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	161	0	0	120	20	9	89	16	14	0	42
Future Volume (vph)	68	161	0	0	120	20	9	89	16	14	0	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1853	0	0	1834	0	0	1831	0	0	1639	0
Flt Permitted		0.873						0.981			0.921	
Satd. Flow (perm)	0	1633	0	0	1834	0	0	1803	0	0	1527	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					19			14			56	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		216			566			542			209	
Travel Time (s)		4.9			12.9			12.3			4.8	
Confl. Peds. (#/hr)	25		18	18		25	3		5	5		3
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.76	0.76	0.76	0.75	0.75	0.75
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	252	0	0	163	0	0	150	0	0	75	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Minimum Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%			58.1%		41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	31.0	31.0			31.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		31.0			31.0			21.0			21.0	
Actuated g/C Ratio		0.50			0.50			0.34			0.34	
v/c Ratio		0.31			0.18			0.24			0.14	
Control Delay		10.5			8.1			14.6			7.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.5			8.1			14.6			7.1	
LOS		B			A			B			A	
Approach Delay		10.5			8.1			14.6			7.1	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		52			27			36			5	
Queue Length 95th (ft)		94			52			60			21	
Internal Link Dist (ft)		136			486			462			129	
Turn Bay Length (ft)												
Base Capacity (vph)		816			926			619			554	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.31			0.18			0.24			0.14	

Intersection Summary

Area Type: Other
Cycle Length: 62
Actuated Cycle Length: 62
Offset: 21 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.31
Intersection Signal Delay: 10.5 Intersection LOS: B
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Mary Street & Vestal Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1552	60	0	1063	0	203
Future Volume (vph)	1552	60	0	1063	0	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5105	0	0	5136	0	1627
Flt Permitted						
Satd. Flow (perm)	5105	0	0	5136	0	1627
Link Speed (mph)	30			30	30	
Link Distance (ft)	453			856	161	
Travel Time (s)	10.3			19.5	3.7	
Peak Hour Factor	0.93	0.93	0.94	0.94	0.76	0.76
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1734	0	0	1131	0	267
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 50.6% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	8.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↱			↑↑↑		↱
Traffic Vol, veh/h	1552	60	0	1063	0	203
Future Vol, veh/h	1552	60	0	1063	0	203
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	94	94	76	76
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	1669	65	0	1131	0	267

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	835
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.91
Pot Cap-1 Maneuver	-	0	0	-	0	269
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	269
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	94.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	269	-	-
HCM Lane V/C Ratio	0.993	-	-
HCM Control Delay (s)	94.1	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	9.9	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	8	625	0	0	529
Future Volume (vph)	0	8	625	0	0	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1627	3574	0	0	3574
Flt Permitted						
Satd. Flow (perm)	0	1627	3574	0	0	3574
Link Speed (mph)	30		30			30
Link Distance (ft)	136		249			129
Travel Time (s)	3.1		5.7			2.9
Peak Hour Factor	0.90	0.90	0.87	0.87	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	718	0	0	645
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 27.3% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑			↑↑
Traffic Vol, veh/h	0	8	625	0	0	529
Future Vol, veh/h	0	8	625	0	0	529
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	87	87	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	9	718	0	0	645

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	359	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	-	-
Pot Cap-1 Maneuver	0	640	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	640	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	640	-
HCM Lane V/C Ratio	-	0.014	-
HCM Control Delay (s)	-	10.7	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	61	225	169	2	4	31
Future Volume (vph)	61	225	169	2	4	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1860	1879	0	1645	0
Flt Permitted		0.989			0.995	
Satd. Flow (perm)	0	1860	1879	0	1645	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		244	216		132	
Travel Time (s)		5.5	4.9		3.0	
Peak Hour Factor	0.91	0.91	0.84	0.84	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	314	203	0	38	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 37.6% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	61	225	169	2	4	31
Future Vol, veh/h	61	225	169	2	4	31
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	91	91	84	84	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	67	247	201	2	4	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	203	0	-	0	583	202
Stage 1	-	-	-	-	202	-
Stage 2	-	-	-	-	381	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1375	-	-	-	476	841
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	693	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1375	-	-	-	449	841
Mov Cap-2 Maneuver	-	-	-	-	449	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	693	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1375	-	-	-	765
HCM Lane V/C Ratio	0.049	-	-	-	0.051
HCM Control Delay (s)	7.8	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	35	29	148	21	39
Future Volume (vph)	55	35	29	148	21	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1728	0	0	1866	1716	0
Flt Permitted	0.970			0.992		
Satd. Flow (perm)	1728	0	0	1866	1716	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	128			209	161	
Travel Time (s)	2.9			4.8	3.7	
Peak Hour Factor	0.90	0.90	0.76	0.76	0.75	0.75
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	0	233	80	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 27.9% ICU Level of Service A
Analysis Period (min) 15

Intersection						
Int Delay, s/veh	3.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	35	29	148	21	39
Future Vol, veh/h	55	35	29	148	21	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	76	76	75	75
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	61	39	38	195	28	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	325	54	80	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	671	1016	1524	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	652	1016	1524	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	777	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1524	-	758	-	-
HCM Lane V/C Ratio	0.025	-	0.132	-	-
HCM Control Delay (s)	7.4	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

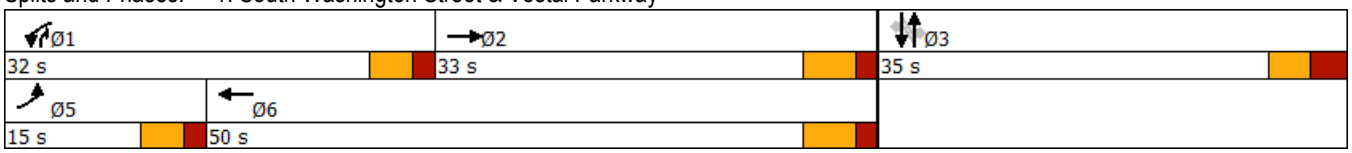
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	932	79	330	768	16	280	14	307	5	66	23
Future Volume (vph)	21	932	79	330	768	16	280	14	307	5	66	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		1000	0		0	0		0	0		250
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5024	0	1787	3564	0	0	1797	1599	0	1839	1568
Flt Permitted	0.950			0.950				0.671			0.973	
Satd. Flow (perm)	1770	5024	0	1787	3564	0	0	1241	1570	0	1794	1519
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			3				28			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1512			453			129			476	
Travel Time (s)		34.4			10.3			2.9			10.8	
Confl. Peds. (#/hr)							19		12	12		19
Peak Hour Factor	0.82	0.82	0.82	0.80	0.80	0.80	0.84	0.84	0.84	0.78	0.78	0.78
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	3%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	1233	0	413	980	0	0	350	365	0	91	29
Number of Detectors	2	2		2	2		1	2	2	1	2	2
Detector Template							Left			Left		
Leading Detector (ft)	50	156		50	156		20	50	50	20	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	8	6		8	6		20	8	8	20	8	8
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	2.0	4.0	0.0	2.0	4.0
Detector 2 Position(ft)	20	150		20	150			20	20		20	20
Detector 2 Size(ft)	30	6		30	6			30	30		30	30
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	5	2		1	6			3	1		3	
Permitted Phases							3		3	3		3
Detector Phase	5	2		1	6		3	3	1	3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		8.0	10.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.9	15.6		12.9	15.6		14.0	14.0	12.9	14.0	14.0	14.0
Total Split (s)	15.0	33.0		32.0	50.0		35.0	35.0	32.0	35.0	35.0	35.0
Total Split (%)	15.0%	33.0%		32.0%	50.0%		35.0%	35.0%	32.0%	35.0%	35.0%	35.0%
Maximum Green (s)	10.1	27.4		27.1	44.4		29.0	29.0	27.1	29.0	29.0	29.0
Yellow Time (s)	3.2	3.9		3.2	3.9		3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		2.8	2.8	1.7	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.9	5.6		4.9	5.6			6.0	4.9		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.5	6.0		3.0	6.0		2.5	2.5	3.0	2.5	2.5	2.5
Minimum Gap (s)	2.5	3.0		3.0	3.0		2.5	2.5	3.0	2.5	2.5	2.5
Time Before Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	8.1	27.4		25.5	52.7			29.0	55.5		29.0	29.0
Actuated g/C Ratio	0.08	0.28		0.26	0.54			0.29	0.56		0.29	0.29
v/c Ratio	0.18	0.87		0.89	0.51			0.96	0.40		0.17	0.05
Control Delay	45.9	42.0		58.3	16.9			74.6	10.3		27.6	0.2
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.1		0.0	0.0
Total Delay	45.9	42.0		58.3	16.9			74.6	10.4		27.6	0.2
LOS	D	D		E	B			E	B		C	A
Approach Delay		42.1			29.2			41.8			20.9	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	16	273		250	170			220	95		43	0
Queue Length 95th (ft)	38	292		#321	254			#359	135		71	0
Internal Link Dist (ft)		1432			373			49			396	
Turn Bay Length (ft)	250											250
Base Capacity (vph)	181	1410		492	1908			365	932		529	543
Starvation Cap Reductn	0	0		0	0			0	83		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.14	0.87		0.84	0.51			0.96	0.43		0.17	0.05

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 98.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 36.1 Intersection LOS: D
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: South Washington Street & Vestal Parkway



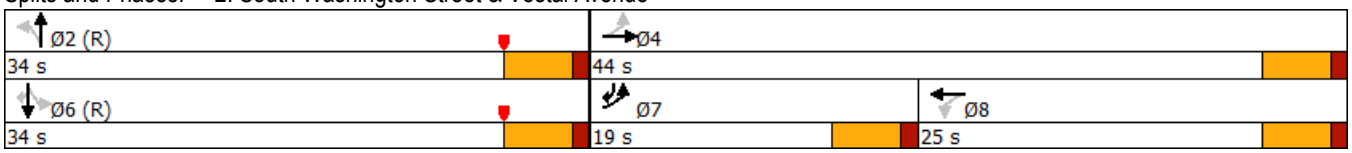
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	157	17	14	106	65	11	199	18	73	195	207
Future Volume (vph)	328	157	17	14	106	65	11	199	18	73	195	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	1848	0	1752	1729	0	0	1835	0	0	1857	1599
Flt Permitted	0.386			0.625				0.977			0.818	
Satd. Flow (perm)	725	1848	0	1141	1729	0	0	1796	0	0	1538	1559
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			244			478			249	
Travel Time (s)		13.4			5.5			10.9			5.7	
Confl. Peds. (#/hr)	4		7	7		4	6		3	3		6
Peak Hour Factor	0.82	0.82	0.82	0.70	0.70	0.70	0.80	0.80	0.80	0.78	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	212	0	20	244	0	0	286	0	0	344	265
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Minimum Split (s)	19.0	39.0		20.0	20.0		29.0	29.0		29.0	29.0	19.0
Total Split (s)	19.0	44.0		25.0	25.0		34.0	34.0		34.0	34.0	19.0
Total Split (%)	24.4%	56.4%		32.1%	32.1%		43.6%	43.6%		43.6%	43.6%	24.4%
Maximum Green (s)	14.0	39.0		20.0	20.0		29.0	29.0		29.0	29.0	14.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Act Effct Green (s)	39.0	39.0		20.0	20.0			29.0			29.0	43.0
Actuated g/C Ratio	0.50	0.50		0.26	0.26			0.37			0.37	0.55
v/c Ratio	0.72	0.23		0.07	0.55			0.43			0.60	0.31
Control Delay	21.7	11.9		22.9	30.7			20.8			25.2	8.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.5	0.0
Total Delay	21.7	11.9		22.9	30.7			20.8			25.8	8.3
LOS	C	B		C	C			C			C	A
Approach Delay		18.3			30.1			20.8			18.2	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	118	55		7	103			102			132	53
Queue Length 95th (ft)	165	85		19	128			144			178	75
Internal Link Dist (ft)		511			164			398			169	
Turn Bay Length (ft)	90			150								
Base Capacity (vph)	553	924		292	443			667			571	866
Starvation Cap Reductn	0	0		0	0			0			48	0
Spillback Cap Reductn	0	0		0	0			0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.72	0.23		0.07	0.55			0.43			0.66	0.31

Intersection Summary

Area Type: Other
Cycle Length: 78
Actuated Cycle Length: 78
Offset: 34 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 70
Control Type: Pretimed
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 20.4 Intersection LOS: C
Intersection Capacity Utilization 93.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: South Washington Street & Vestal Avenue

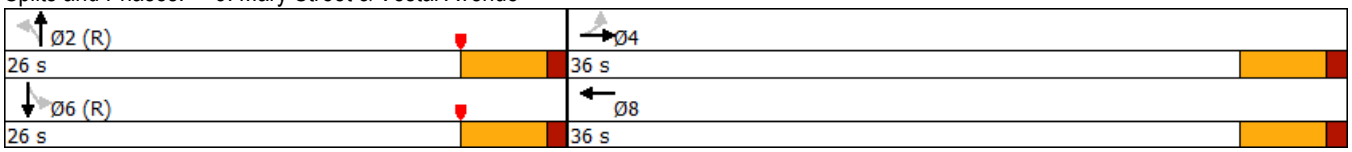


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	123	0	0	100	15	19	108	4	5	0	38
Future Volume (vph)	61	123	0	0	100	15	19	108	4	5	0	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1833	0	0	1824	0	0	1859	0	0	1460	0
Flt Permitted		0.875						0.958			0.966	
Satd. Flow (perm)	0	1626	0	0	1824	0	0	1794	0	0	1418	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					17			3			66	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		216			566			542			209	
Travel Time (s)		4.9			12.9			12.3			4.8	
Confl. Peds. (#/hr)	9		19	19		9			2	2		
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.76	0.76	0.76	0.58	0.58	0.58
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	14%	14%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	133	0	0	172	0	0	75	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Minimum Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%			58.1%		41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	31.0	31.0			31.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		31.0			31.0			21.0			21.0	
Actuated g/C Ratio		0.50			0.50			0.34			0.34	
v/c Ratio		0.24			0.14			0.28			0.14	
Control Delay		9.8			7.8			16.3			6.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.8			7.8			16.3			6.0	
LOS		A			A			B			A	
Approach Delay		9.8			7.8			16.3			6.0	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)		39			22			45			2	
Queue Length 95th (ft)		74			44			71			10	
Internal Link Dist (ft)		136			486			462			129	
Turn Bay Length (ft)												
Base Capacity (vph)		813			920			609			523	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.24			0.14			0.28			0.14	

Intersection Summary

Area Type: Other
Cycle Length: 62
Actuated Cycle Length: 62
Offset: 21 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.28
Intersection Signal Delay: 10.8 Intersection LOS: B
Intersection Capacity Utilization 51.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Mary Street & Vestal Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1199	45	0	1114	0	207
Future Volume (vph)	1199	45	0	1114	0	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5060	0	0	5136	0	1627
Flt Permitted						
Satd. Flow (perm)	5060	0	0	5136	0	1627
Link Speed (mph)	30			30	30	
Link Distance (ft)	453			856	161	
Travel Time (s)	10.3			19.5	3.7	
Peak Hour Factor	0.82	0.82	0.80	0.80	0.76	0.76
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1517	0	0	1393	0	272
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.7% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↱			↑↑↑		↱
Traffic Vol, veh/h	1199	45	0	1114	0	207
Future Vol, veh/h	1199	45	0	1114	0	207
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	80	80	76	76
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	1462	55	0	1393	0	272

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	731
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.91
Pot Cap-1 Maneuver	-	0	0	-	0	314
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	314
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	59.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	314	-	-
HCM Lane V/C Ratio	0.867	-	-
HCM Control Delay (s)	59.9	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	7.8	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	9	592	0	0	475
Future Volume (vph)	0	9	592	0	0	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1627	3574	0	0	3574
Flt Permitted						
Satd. Flow (perm)	0	1627	3574	0	0	3574
Link Speed (mph)	30		30			30
Link Distance (ft)	136		249			129
Travel Time (s)	3.1		5.7			2.9
Peak Hour Factor	0.90	0.90	0.84	0.84	0.78	0.78
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	10	705	0	0	609
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 26.4% ICU Level of Service A
Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑			↑↑
Traffic Vol, veh/h	0	9	592	0	0	475
Future Vol, veh/h	0	9	592	0	0	475
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	84	84	78	78
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	10	705	0	0	609

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	353	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	-	-
Pot Cap-1 Maneuver	0	646	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	646	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	646	-
HCM Lane V/C Ratio	-	0.015	-
HCM Control Delay (s)	-	10.7	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	180	155	2	4	30
Future Volume (vph)	68	180	155	2	4	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1839	1841	0	1647	0
Flt Permitted		0.987			0.995	
Satd. Flow (perm)	0	1839	1841	0	1647	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		244	216		132	
Travel Time (s)		5.5	4.9		3.0	
Peak Hour Factor	0.93	0.93	0.70	0.70	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	3%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	267	224	0	37	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 34.8% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	180	155	2	4	30
Future Vol, veh/h	68	180	155	2	4	30
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	93	93	70	70	90	90
Heavy Vehicles, %	2	2	3	3	1	1
Mvmt Flow	73	194	221	3	4	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	224	0	-	0	563	223
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	340	-
Critical Hdwy	4.12	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.218	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1345	-	-	-	489	819
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1345	-	-	-	459	819
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	723	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1345	-	-	-	750
HCM Lane V/C Ratio	0.054	-	-	-	0.05
HCM Control Delay (s)	7.8	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	34	27	157	9	36
Future Volume (vph)	50	34	27	157	9	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1726	0	0	1868	1624	0
Flt Permitted	0.971			0.993		
Satd. Flow (perm)	1726	0	0	1868	1624	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	128			209	161	
Travel Time (s)	2.9			4.8	3.7	
Peak Hour Factor	0.90	0.90	0.76	0.76	0.58	0.58
Heavy Vehicles (%)	1%	1%	1%	1%	14%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	94	0	0	243	78	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 27.9% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	34	27	157	9	36
Future Vol, veh/h	50	34	27	157	9	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	76	76	58	58
Heavy Vehicles, %	1	1	1	1	14	2
Mvmt Flow	56	38	36	207	16	62

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	326	47	78	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	279	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	670	1025	1527	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	652	1025	1527	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	770	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1527	-	765	-	-
HCM Lane V/C Ratio	0.023	-	0.122	-	-
HCM Control Delay (s)	7.4	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

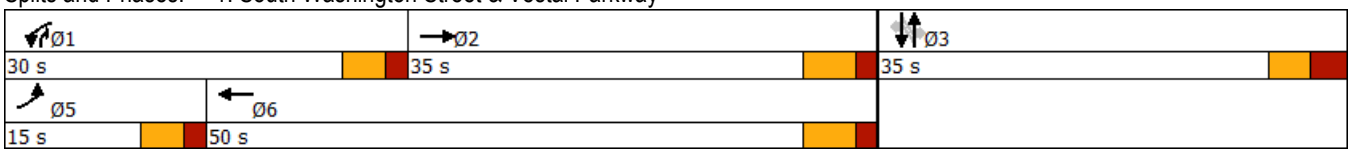
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1247	99	351	700	12	266	13	354	10	79	52
Future Volume (vph)	30	1247	99	351	700	12	266	13	354	10	79	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		1000	0		0	0		0	0		250
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	5074	0	1787	3564	0	0	1797	1599	0	1852	1583
Flt Permitted	0.950			0.950				0.666			0.948	
Satd. Flow (perm)	1787	5074	0	1787	3564	0	0	1239	1563	0	1764	1543
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			2				28			135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1512			453			129			476	
Travel Time (s)		34.4			10.3			2.9			10.8	
Confl. Peds. (#/hr)			1	1			13		19	19		13
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.87	0.87	0.87	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	1447	0	373	758	0	0	321	407	0	97	57
Number of Detectors	2	2		2	2		1	2	2	1	2	2
Detector Template							Left			Left		
Leading Detector (ft)	50	156		50	156		20	50	50	20	50	50
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	8	6		8	6		20	8	8	20	8	8
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	2.0	4.0	0.0	2.0	4.0
Detector 2 Position(ft)	20	150		20	150			20	20		20	20
Detector 2 Size(ft)	30	6		30	6			30	30		30	30
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases	5	2		1	6			3	1		3	
Permitted Phases							3		3	3		3
Detector Phase	5	2		1	6		3	3	1	3	3	3
Switch Phase												
Minimum Initial (s)	8.0	10.0		8.0	10.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	12.9	15.6		12.9	15.6		14.0	14.0	12.9	14.0	14.0	14.0
Total Split (s)	15.0	35.0		30.0	50.0		35.0	35.0	30.0	35.0	35.0	35.0
Total Split (%)	15.0%	35.0%		30.0%	50.0%		35.0%	35.0%	30.0%	35.0%	35.0%	35.0%
Maximum Green (s)	10.1	29.4		25.1	44.4		29.0	29.0	25.1	29.0	29.0	29.0
Yellow Time (s)	3.2	3.9		3.2	3.9		3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.7		1.7	1.7		2.8	2.8	1.7	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.9	5.6		4.9	5.6			6.0	4.9		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			
Vehicle Extension (s)	2.5	6.0		3.0	6.0		2.5	2.5	3.0	2.5	2.5	2.5
Minimum Gap (s)	2.5	3.0		3.0	3.0		2.5	2.5	3.0	2.5	2.5	2.5
Time Before Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	20.0		0.0	20.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	Min		None	Min		None	None	None	None	None	None
Act Effct Green (s)	8.3	29.6		23.1	49.9			27.1	51.3		27.1	27.1
Actuated g/C Ratio	0.09	0.31		0.24	0.52			0.28	0.53		0.28	0.28
v/c Ratio	0.21	0.92		0.87	0.41			0.92	0.48		0.20	0.11
Control Delay	46.3	44.1		57.3	16.6			67.6	12.4		27.9	0.4
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.1		0.0	0.0
Total Delay	46.3	44.1		57.3	16.6			67.6	12.6		27.9	0.4
LOS	D	D		E	B			E	B		C	A
Approach Delay		44.2			30.0			36.8			17.7	
Approach LOS		D			C			D			B	
Queue Length 50th (ft)	19	329		226	166			196	118		46	0
Queue Length 95th (ft)	49	#433		#379	222			#338	174		88	0
Internal Link Dist (ft)		1432			373			49			396	
Turn Bay Length (ft)	250											250
Base Capacity (vph)	188	1565		468	1848			375	888		533	561
Starvation Cap Reductn	0	0		0	0			0	56		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.17	0.92		0.80	0.41			0.86	0.49		0.18	0.10

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 96.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 36.9 Intersection LOS: D
Intersection Capacity Utilization 81.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: South Washington Street & Vestal Parkway



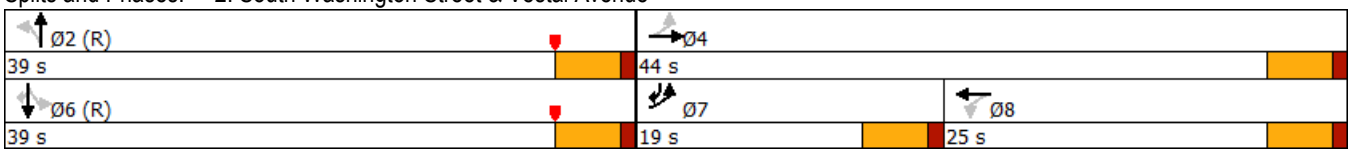
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	184	21	22	103	75	10	231	23	79	221	229
Future Volume (vph)	319	184	21	22	103	75	10	231	23	79	221	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1787	1844	0	1787	1740	0	0	1849	0	0	1857	1599
Flt Permitted	0.415			0.624				0.984			0.831	
Satd. Flow (perm)	776	1844	0	1129	1740	0	0	1823	0	0	1560	1552
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			244			478			249	
Travel Time (s)		13.4			5.5			10.9			5.7	
Confl. Peds. (#/hr)	15		25	25		15	11		11	11		11
Peak Hour Factor	0.96	0.96	0.96	0.84	0.84	0.84	0.90	0.90	0.90	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	214	0	26	212	0	0	294	0	0	366	279
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Minimum Split (s)	19.0	39.0		20.0	20.0		34.0	34.0		34.0	34.0	19.0
Total Split (s)	19.0	44.0		25.0	25.0		39.0	39.0		39.0	39.0	19.0
Total Split (%)	22.9%	53.0%		30.1%	30.1%		47.0%	47.0%		47.0%	47.0%	22.9%
Maximum Green (s)	14.0	39.0		20.0	20.0		34.0	34.0		34.0	34.0	14.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Act Effct Green (s)	39.0	39.0		20.0	20.0			34.0			34.0	48.0
Actuated g/C Ratio	0.47	0.47		0.24	0.24			0.41			0.41	0.58
v/c Ratio	0.62	0.25		0.10	0.51			0.39			0.57	0.31
Control Delay	20.2	14.2		25.7	32.2			19.2			23.3	7.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			1.3	0.0
Total Delay	20.2	14.2		25.7	32.2			19.2			24.6	7.9
LOS	C	B		C	C			B			C	A
Approach Delay		17.8			31.5			19.2			17.3	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	108	64		11	96			105			143	57
Queue Length 95th (ft)	171	108		29	150			169			201	82
Internal Link Dist (ft)		511			164			398			169	
Turn Bay Length (ft)	90			150								
Base Capacity (vph)	535	866		272	419			746			639	905
Starvation Cap Reductn	0	0		0	0			0			118	0
Spillback Cap Reductn	0	0		0	0			0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.62	0.25		0.10	0.51			0.39			0.70	0.31

Intersection Summary

Area Type: Other
Cycle Length: 83
Actuated Cycle Length: 83
Offset: 34 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 75
Control Type: Pretimed
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 101.5% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 2: South Washington Street & Vestal Avenue

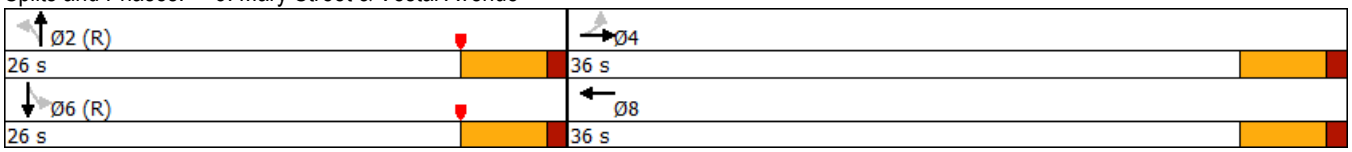


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	161	0	0	120	20	9	89	16	14	0	42
Future Volume (vph)	68	161	0	0	120	20	9	89	16	14	0	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1853	0	0	1834	0	0	1831	0	0	1639	0
Flt Permitted		0.873						0.981			0.921	
Satd. Flow (perm)	0	1633	0	0	1834	0	0	1803	0	0	1527	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					19			14			56	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		216			566			542			209	
Travel Time (s)		4.9			12.9			12.3			4.8	
Confl. Peds. (#/hr)	25		18	18		25	3		5	5		3
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.76	0.76	0.76	0.75	0.75	0.75
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	252	0	0	163	0	0	150	0	0	75	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Minimum Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (s)	36.0	36.0			36.0		26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%			58.1%		41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	31.0	31.0			31.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		31.0			31.0			21.0			21.0	
Actuated g/C Ratio		0.50			0.50			0.34			0.34	
v/c Ratio		0.31			0.18			0.24			0.14	
Control Delay		10.5			8.1			14.6			7.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.5			8.1			14.6			7.1	
LOS		B			A			B			A	
Approach Delay		10.5			8.1			14.6			7.1	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		52			27			36			5	
Queue Length 95th (ft)		94			52			60			21	
Internal Link Dist (ft)		136			486			462			129	
Turn Bay Length (ft)												
Base Capacity (vph)		816			926			619			554	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.31			0.18			0.24			0.14	

Intersection Summary

Area Type: Other
Cycle Length: 62
Actuated Cycle Length: 62
Offset: 21 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.31
Intersection Signal Delay: 10.5 Intersection LOS: B
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Mary Street & Vestal Avenue



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1552	60	0	1063	0	203
Future Volume (vph)	1552	60	0	1063	0	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5105	0	0	5136	0	1627
Flt Permitted						
Satd. Flow (perm)	5105	0	0	5136	0	1627
Link Speed (mph)	30			30	30	
Link Distance (ft)	453			856	161	
Travel Time (s)	10.3			19.5	3.7	
Peak Hour Factor	0.93	0.93	0.94	0.94	0.76	0.76
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1734	0	0	1131	0	267
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 50.6% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	8.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↱			↑↑↑		↱
Traffic Vol, veh/h	1552	60	0	1063	0	203
Future Vol, veh/h	1552	60	0	1063	0	203
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	94	94	76	76
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	1669	65	0	1131	0	267

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	835
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.12
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.91
Pot Cap-1 Maneuver	-	0	0	-	0	269
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	269
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	94.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	269	-	-
HCM Lane V/C Ratio	0.993	-	-
HCM Control Delay (s)	94.1	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	9.9	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	8	625	0	0	529
Future Volume (vph)	0	8	625	0	0	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1627	3574	0	0	3574
Flt Permitted						
Satd. Flow (perm)	0	1627	3574	0	0	3574
Link Speed (mph)	30		30			30
Link Distance (ft)	136		249			129
Travel Time (s)	3.1		5.7			2.9
Peak Hour Factor	0.90	0.90	0.87	0.87	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	718	0	0	645
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 27.3% ICU Level of Service A
Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑			↑↑
Traffic Vol, veh/h	0	8	625	0	0	529
Future Vol, veh/h	0	8	625	0	0	529
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	87	87	82	82
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	9	718	0	0	645

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	359	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.92	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.31	-	-	-	-
Pot Cap-1 Maneuver	0	640	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	640	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	640	-
HCM Lane V/C Ratio	-	0.014	-
HCM Control Delay (s)	-	10.7	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	61	225	169	2	4	31
Future Volume (vph)	61	225	169	2	4	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1860	1879	0	1645	0
Flt Permitted		0.989			0.995	
Satd. Flow (perm)	0	1860	1879	0	1645	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		244	216		132	
Travel Time (s)		5.5	4.9		3.0	
Peak Hour Factor	0.91	0.91	0.84	0.84	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	314	203	0	38	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 37.6% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	61	225	169	2	4	31
Future Vol, veh/h	61	225	169	2	4	31
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	91	91	84	84	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	67	247	201	2	4	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	203	0	-	0	583	202
Stage 1	-	-	-	-	202	-
Stage 2	-	-	-	-	381	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1375	-	-	-	476	841
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	693	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1375	-	-	-	449	841
Mov Cap-2 Maneuver	-	-	-	-	449	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	693	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1375	-	-	-	765
HCM Lane V/C Ratio	0.049	-	-	-	0.051
HCM Control Delay (s)	7.8	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	35	29	148	21	39
Future Volume (vph)	55	35	29	148	21	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1728	0	0	1866	1716	0
Flt Permitted	0.970			0.992		
Satd. Flow (perm)	1728	0	0	1866	1716	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	128			209	161	
Travel Time (s)	2.9			4.8	3.7	
Peak Hour Factor	0.90	0.90	0.76	0.76	0.75	0.75
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	0	233	80	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 27.9% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	35	29	148	21	39
Future Vol, veh/h	55	35	29	148	21	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	76	76	75	75
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	61	39	38	195	28	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	325	54	80	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	671	1016	1524	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	652	1016	1524	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	777	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1524	-	758	-	-
HCM Lane V/C Ratio	0.025	-	0.132	-	-
HCM Control Delay (s)	7.4	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

4: Mary Street & Vestal Parkway Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.4	0.1
Total Del/Veh (s)	2.0	2.3	0.5	0.8	1.2

4: Mary Street & Vestal Parkway Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	1.9	0.2
Total Del/Veh (s)	2.7	2.7	0.6	1.4	1.8

4: Mary Street & Vestal Parkway Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.5	0.1
Total Del/Veh (s)	2.1	1.9	0.5	0.8	1.3

4: Mary Street & Vestal Parkway Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.3	0.1
Total Del/Veh (s)	2.6	3.0	0.5	0.7	1.7

4: Mary Street & Vestal Parkway Performance by movement

Movement	EBT	EBR	WBT	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0	0.0	0.1
Total Del/Veh (s)	2.7	3.0	1.0	1.0	1.4	1.9

4: Mary Street & Vestal Parkway Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0	0.1
Total Del/Veh (s)	3.0	3.5	0.5	1.9	2.0

4: Mary Street & Vestal Parkway Performance by movement

Movement	EBT	EBR	WBT	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0	0.0	0.1
Total Del/Veh (s)	2.6	2.9	0.6	1.4	2.2	1.7

4: Mary Street & Vestal Parkway Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0	0.1
Total Del/Veh (s)	3.3	3.6	0.6	3.0	2.2