

February 12th, 2015

Charles County
Department of Planning & Growth Management
P.O. Box 2150
La Plata, MD 20646
ATTN: Joseph Adams-Raczkowski

REF: Board of Appeals Docket Hearing #1325 – additional materials

Dear Sir,

Please find attached for the upcoming Board of Appeals hearing, several items that have been made available since we provided staff with our SE application revision for Docket #1325 on August 22nd, 2014. These additional background data items are as follows:

- 1) September 23rd, 2014 - Charles County Zoning Officer Determination-approval letter of an Administrative Parking Reduction for Walmart
- 2) August 29th, 2014 - Supplemental Traffic Analysis as provided to staff on August 29th 2014
- 3) February 2nd, 2015 - Draft proposed Special Wetland Permit

Nine copies are provided here of each of these items for the convenience of the Board of Appeals members. We have punched these for easy inclusion into our previously submitted binders.

Regards,



Pat Faux
President, The Faux Group

FauxGroup.com

The Faux Group, Inc
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2200 Somerville Rd Ste 200
Annapolis MD 21401





Charles County Government
**DEPARTMENT OF PLANNING &
 GROWTH MANAGEMENT**

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Director

September 23, 2014

Patricia Faux
 The Faux Group, Inc
 2200 Sommerville Road, Ste 200
 Annapolis, MD 21401

RE: Zoning Officer Determination – Parking Ratio for Use Code 6.01.150

Dear Ms. Faux,

Upon review of your letters dated September 9, 2013 and August 22, 2014 regarding the proposal of a parking ratio for a Supercenter in a Transit Oriented Development Zone, staff, after much discussion of the information presented, is able to agree to a parking ratio of 1 space per 250 gross square feet of building floor area, or 4.00 spaces per 1000 gross square feet. This parking ratio represents a 20% reduction from what is typically required of shopping centers.

Staff acknowledges that you have presented significant information within your letter, including the local example from Prince Georges County, all of which has been helpful in reaching this determination.

Article 297-335(C) of the Zoning Regulations recognizes that the Table of Off-Street Parking Requirements cannot and does not cover every possible situation that may arise, and in those cases, the Zoning Officer is authorized to determine the parking requirements using this table as a guide.

Specifically, the use *6.01.150 Retail Sales Over 100,000 square feet on one floor* does not have an assigned parking ratio. Furthermore, Transit Oriented Development and peak parking demand studies are currently not explicitly factored into any parking ratios within the Table of Off-Street Parking Requirements. Additionally, the current ordinance does not apply fractional parking ratios. Therefore, given the intent and purpose of the current parking related regulations, my flexibility to determine a specific parking ratio is somewhat limited.

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This is a one-time determination for use code 6.01.150. As the Waldorf Station project begins to develop with additional uses, each future proposed use will be evaluated for parking adequacy to ensure that the spirit and intent of a Transit Oriented Development is being implemented.

Should you need any further assistance, please contact Steven Ball, Planning Director.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Aluotto", written in a cursive style.

Peter Aluotto
PGM Director

cc: Joseph Adams-Rackowski, Program Manager
Kirby Blass, Planner II
SE Docket #1325 File

Supplemental Traffic Analysis

**WALDORF STATION - WALMART SPECIAL EXCEPTION
Charles County, Maryland**

August 29, 2014

**Prepared for:
Waldorf Restaurants, Inc.**

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APPENDICES

APPENDIX A – Original Intersection Turning Movement Counts, Condition Diagrams and Photos

APPENDIX B – Intersection Capacity Analysis Worksheets

APPENDIX C – Comparison of 2007 and 2013 Count Data

Prepared by: Carl Wilson, Jr., P.E., PTOE
Richard Huang, P.E., PTOE

CRW/clg/smb
(F:\2000\2000-0817D\wp\Supplemental Traffic Analysis_2014-0827.docx)

INTRODUCTION AND SUMMARY OF FINDINGS

Study Purpose

The Traffic Group, Inc. has prepared this Traffic Analysis to quantify the transportation impact that the approval of a special exception for the development of a proposed Walmart Supercenter within the Waldorf Station project will have. Subject site, comprising 20.0± acres, is located on the west side of US Rt 301 south of Mattawoman Road in the northern area of Charles County. The requested special exception proposes the development of a 184,000 square foot one-story building and an approximate 8,452 square foot open air garden center. A preliminary subdivision plan application for the entire Waldorf Station project is currently being reviewed by Charles County. A comprehensive Traffic Impact Study for the entire Waldorf Station project was submitted on October 24, 2012. This Transportation Impact Study has been reviewed and approved by staff within Charles County. It has also been reviewed and approved by the Maryland State Highway Administration ("SHA").

When the Traffic Impact Study for the Preliminary Subdivision Plan was prepared and submitted, the retail user for Waldorf Station was unknown. The purpose of this analysis is to demonstrate that the construction of a Walmart Supercenter as proposed will have no adverse impact on health, safety and welfare of residents or workers from the perspective of transportation. The Charles County Zoning Ordinance requires a special exception for uses greater than 110,000 square feet in floor area.

Study Criteria/Methodology

The scope for this special exception Traffic Analysis is different from the October 24, 2012 Traffic Impact Study prepared for the Preliminary Subdivision Plan. The Traffic Impact Study for the Preliminary Subdivision Plan deals with a much larger tract containing multiple proposed uses. By contrast, the special exception site deals with only 20 acres and a single use. Further, the standard is different. A preliminary subdivision plan application requires a showing of adequacy of public facilities. A special exception requires that an applicant show the proposed special exception use will have no adverse impact on health, safety and welfare on residents and workers in the area. Consequently, this Traffic Analysis studies the impact of the proposed Walmart Supercenter on four site access intersections along US Rt 301. Intersections along MD 5 and regional impacts on the intersection of US Rt 301 and MD 5 are not considered in this analysis as the impact on those roadways is regional in nature.

All intersections are analyzed using Highway Capacity Manual (HCM) Methodology as required by Charles County. This site is located within the Urban Core District of Charles County's Comprehensive Plan. Therefore, Level of Service "D" is considered acceptable.

Trip generation for the land use is based on criteria contained in the Institute of Transportation Engineers (ITE) Trip Generation (9th Edition).

Scope of Services

The principal Scope of Services undertaken for the study was as follows:

- Utilize the traffic data contained in the October 24, 2012 Traffic Impact Study as a basis for analysis.
- Develop a conservative regional traffic growth factor for the US Rt 301 corridor.
- Undertake trip generation and trip distribution for the proposed site using development specific information and approved distribution rates from the TIS.
- Provide an overall assessment of traffic operations, based on the County's HCM Methodology.
- Detail improvements that are recommended to ensure no adverse transportation impacts.

Summary of Findings and Recommendations

In order for efficient and safe site access to the Walmart Development, several improvements are recommended to the US Rt 301 corridor. They are detailed below:

US Rt 301 at Mattawoman Road

- Provide a second left turn lane in both the northbound and southbound directions of US Rt 301.
- Provide an additional thru lane in the southbound direction along site frontage.
- Construct the eastbound site access approach to include a separate right turn lane, a separate thru lane, and a left turn lane.
- Convert the westbound approach to provide two left turn lanes, and one shared thru right lane.

US Rt 301 at Portal Place/Abell Drive

- Construct a separate left turn lane in the northbound direction.
- Provide an additional thru lane in the southbound direction of US Rt 301 along site frontage.

US Rt 301 at Passage Place

- Provide an additional thru lane in the southbound direction of US Rt 301 along site frontage.
- Construct appropriate channelization to prohibit left turns exiting the site.

US Rt 301 at Sub Station Road

- Provide an additional southbound thru lane along US Rt 301.

In addition, sidewalk will be constructed along site frontage within the US Rt 301 corridor and the existing traffic signals will be upgraded to provide pedestrian amenities including push buttons and countdown timers. ADA-compliant ramps will be constructed at crosswalks within the US Rt 301 corridor.

With the implementation of the improvements described above, it is our opinion that the subject site will not be detrimental to the public health, safety, and general welfare. The SHA owns and maintains this segment of US Rt 301, and has already reviewed and approved the concepts of the improvements described above. The administration is in the process of reviewing 95% design plans for construction. It is understood that prior to the issuance of a use and occupancy permit for the Walmart Site, the improvements will need to be completed.

EXISTING TRAFFIC CONDITIONS

Site Information

The property forming the subject matter of this special exception application is located within that section of the Waldorf Station project located on the west/northwest side of US Rt 301. It may more particularly be described as Parcels 17, 26, 254, 339 and 588, appearing on Tax Map 8, Grid 6. A Preliminary Subdivision Plan for the Waldorf Station project has been filed, but has not yet been approved. On that proposed Preliminary Subdivision Plan, the area of the proposed special exception application is identified as proposed Lot 5. It comprises 20 acres (the "Property").

The Property is bounded on the west by proposed Western Parkway, on the south by a proposed private driveway, on the east by another proposed private driveway, and on the north by a proposed extension of Mattawoman Drive from US Rt 301 to intersect with Western Parkway. The section of Western Parkway which is shown bounding on the Property's western edge is not yet constructed. The same is true with the private driveways. Mattawoman Drive is partially constructed and will not be constructed by the opening of Walmart from US Rt 301 in a westerly direction generally to a point approximately 300 feet from US Rt 301.

The Property is presently improved with the Waldorf Restaurant and Motel, an abandoned warehouse building, a former Dairy Plant, a structure currently housing a church known as "New Community Church of God", and a building which currently houses an auto auction facility.

Study Area

The following intersections were incorporated in this analysis for the Special Exception:

- US Rt 301 at Mattawoman Road
- US Rt 301 at Portal Place/Abell Drive – Future only
- US Rt 301 at Passage Place – Future only
- US Rt 301 at Sub Station Road

US Rt 301 is a six-lane divided roadway running primarily in the north/south direction. On the State System it is considered a primary road with a functional classification of Urban Principal Arterial. Traffic signals presently exist at the intersections of US Rt 301 at Mattawoman Road and at Sub Station Road. The

posted speed limit for this segment of US Rt 301 varies from 45 to 55 MPH. Exhibit 1 shows a map of the study intersections. An aerial photograph is included as Exhibit 1A. Exhibit 1B shows the entire Waldorf Station Property. The proposed Walmart is highlighted in Exhibit 1C.

Traffic Volumes

In order to establish existing conditions turning movement counts were collected at each of the study intersections in November 2007 from 6:30 to 9:30 AM and 4 to 7 PM on a typical weekday and from 11 AM to 2 PM on a Saturday. The peak hour volumes are summarized in Exhibit 3. Complete turning movement count summaries can be found in Appendix A.

Average Daily Traffic (ADT) was reviewed in the US Rt 301 corridor to verify the validity of the 2007 counts. SHA's data reveals that ADT has decreased from 63,342 in 2007 to 55,130 in 2013, a decrease of over 2% per year and a total decrease of over 13%. Because volumes have been reduced, the 2007 counts are conservative in nature and remain valid. Details on the ADT counts can be found in Exhibit 3A.

In addition, turning movement counts were collected by SHA at several intersections in 2013. They include:

- US Rt 301 at Mattawoman Drive
- US Rt 301 at Sub Station Road

Full details on the new counts can be found in Appendix C. As shown, the volumes for several of the turning movements have similarly decreased. The overall PM peak hour volumes from 2007 to 2013 increased by 2.0% at Sub Station Road and 1.1% at Mattawoman Road. Given the fact that these volumes were collected about six years apart, the differences in the results are insignificant. In fact, traffic counted on two sequential days could vary by several percentage points and still be considered valid. Standard practice in Maryland is to collect traffic volume data on one weekday, excluding Monday or Friday when public schools are in session and no crashes or construction obstruct the typical flow of traffic. There are potential daily variations, seasonal variations or even monthly variations that could result in slight differences in traffic counts.

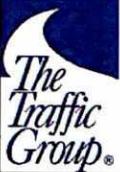
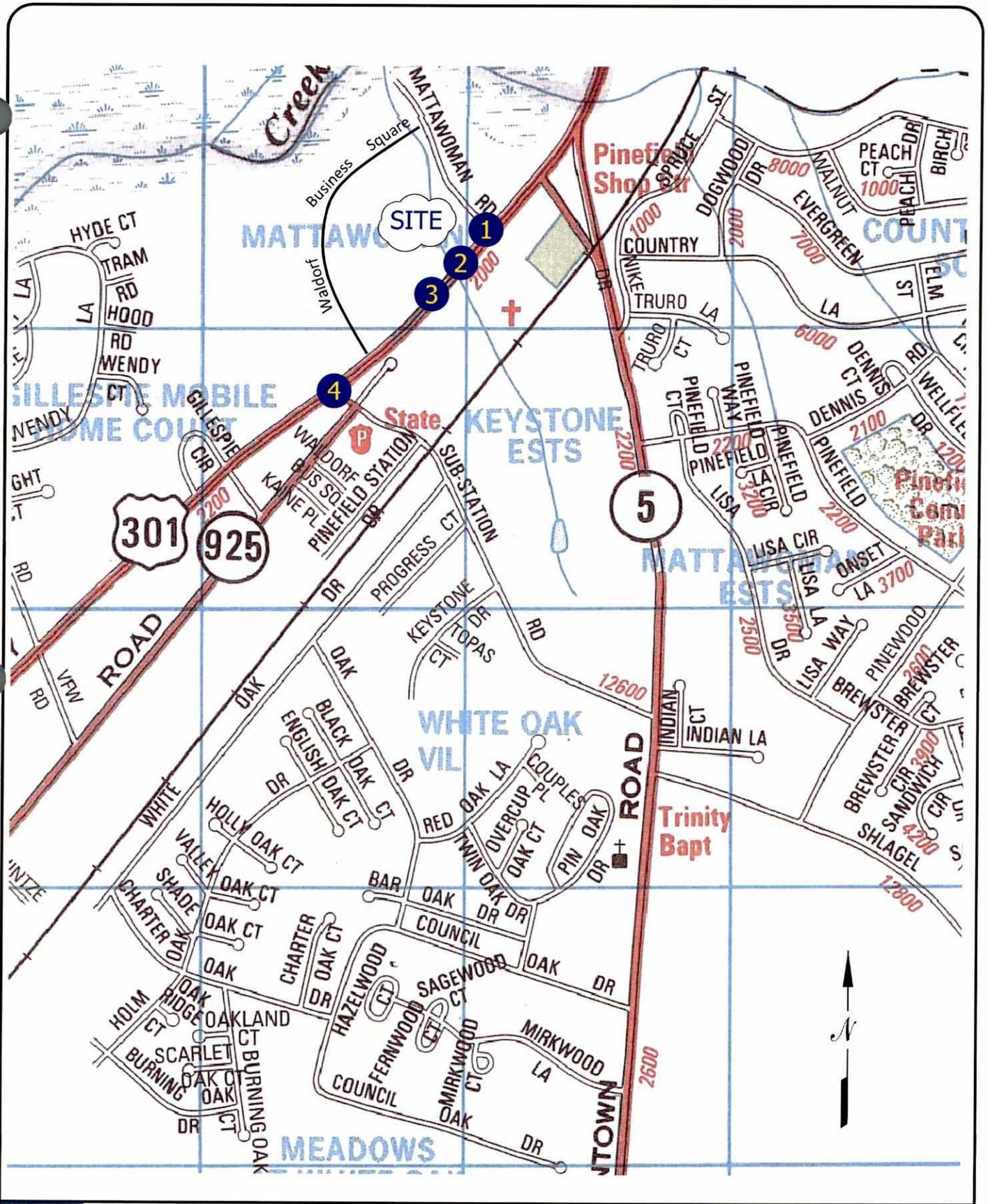
ADT volumes, however, account for the variations described above. Therefore, ADT is a more reliable indicator of actual traffic trends than turning movement data that represents volumes observed during one day. As such, the turning movement counts from 2007 remain valid as evidenced by the overall decrease

in ADT. The collection of new counts in 2014 would not affect the analysis or findings.

Analysis of Existing Traffic Conditions

Intersection Capacity Analyses were undertaken at each of the study intersections using HCM Methodology as required by Charles County. The results of the analysis are summarized in Exhibit 10. Complete capacity worksheets can be found in Appendix B.

A review of Exhibit 10 reveals that the two existing study intersections currently exhibit minimal delay for the overall traffic signal operation for the morning, afternoon, and evening peak periods.



STUDY INTERSECTION

EXHIBIT 1
LOCATION MAP OF
STUDY INTERSECTIONS



EXHIBIT 1A EXISTING AERIAL

WALDORF CROSSING
 Merging Innovation and Excellence
 410.341.6500 • fax 410.341.6600 • 1.800.343.3441

The Traffic Group
 410.341.6500 • fax 410.341.6600 • 1.800.343.3441



PHOTIC SYSTEM
 410.341.6500 • fax 410.341.6600 • 1.800.343.3441



EXHIBIT 1B OVERALL LAYOUT

WALDORF CROSSING
 Mapping Innovation and Excellence
 410.331.6500 • 410.331.6001 • 410.331.6277
 410.331.6506 • 410.331.6001 • 410.331.6277



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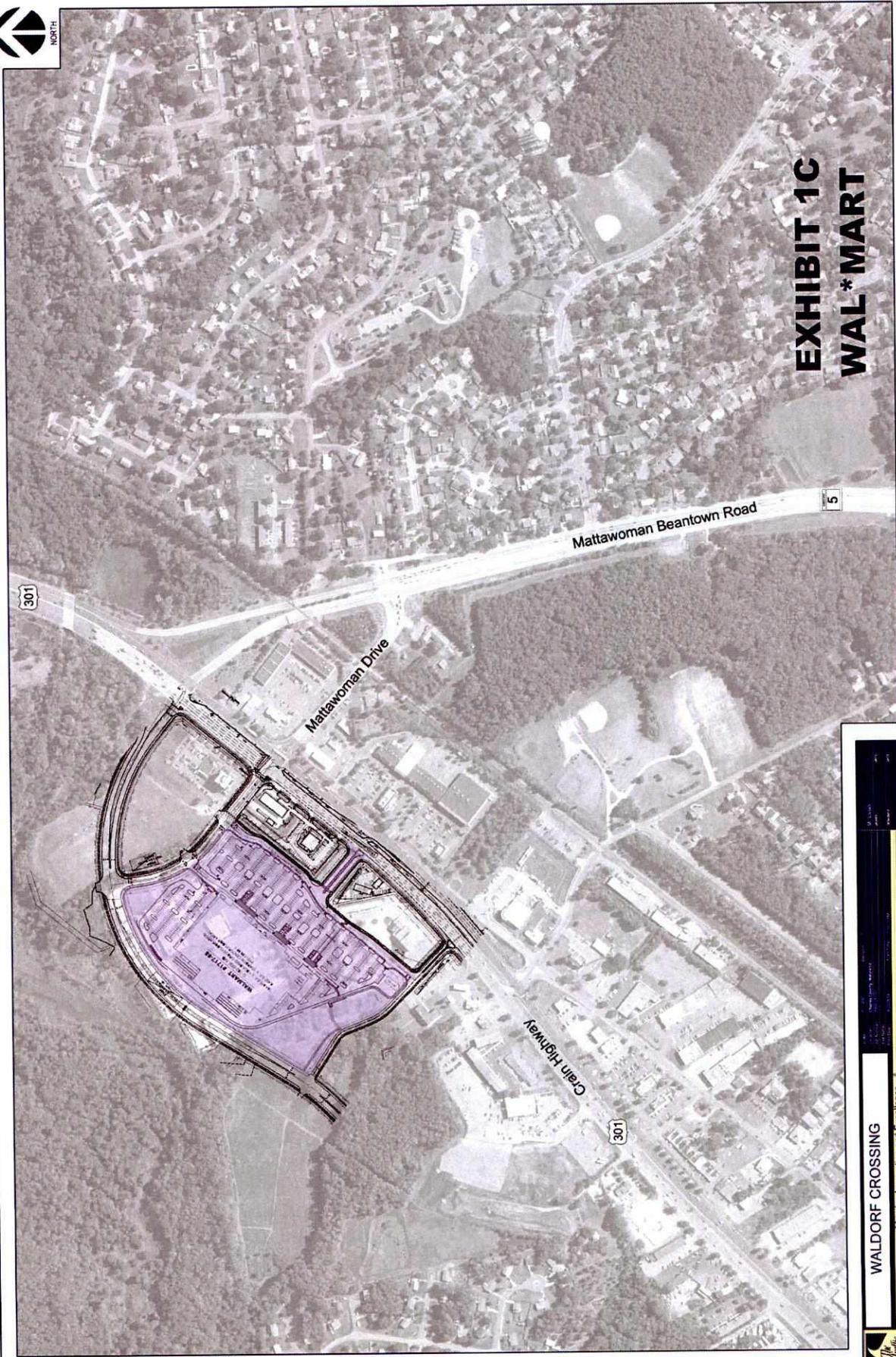


EXHIBIT 1C WAL*MART

WALDORF CROSSING
 Mapping, Innovation and Excellence
 410 St. Charles St. • Baltimore, Maryland 21201
 410.531.6600 • Fax: 410.531.6601 • E-mail: info@walcorp.com



SITE

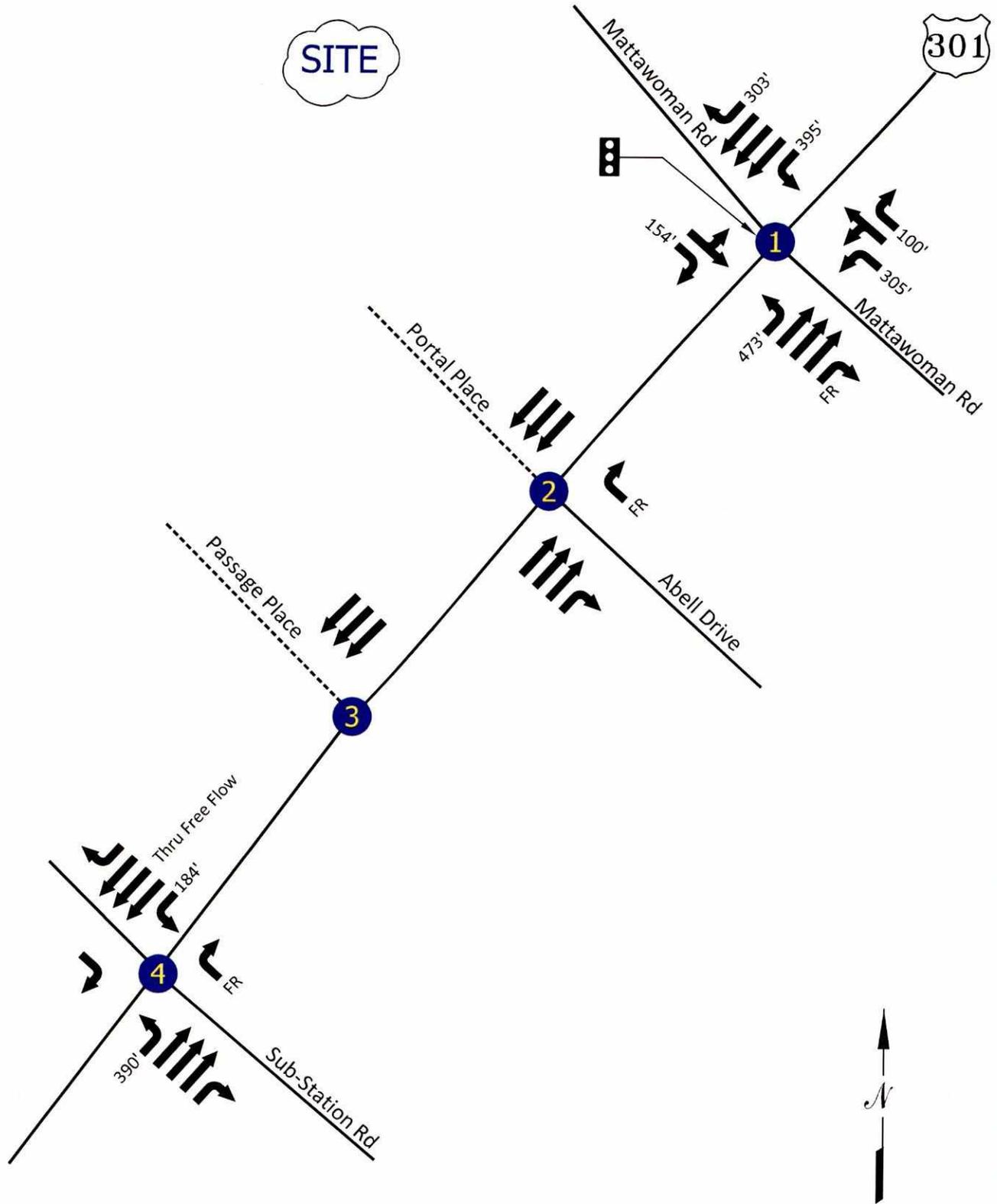
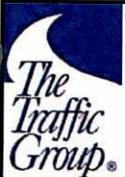
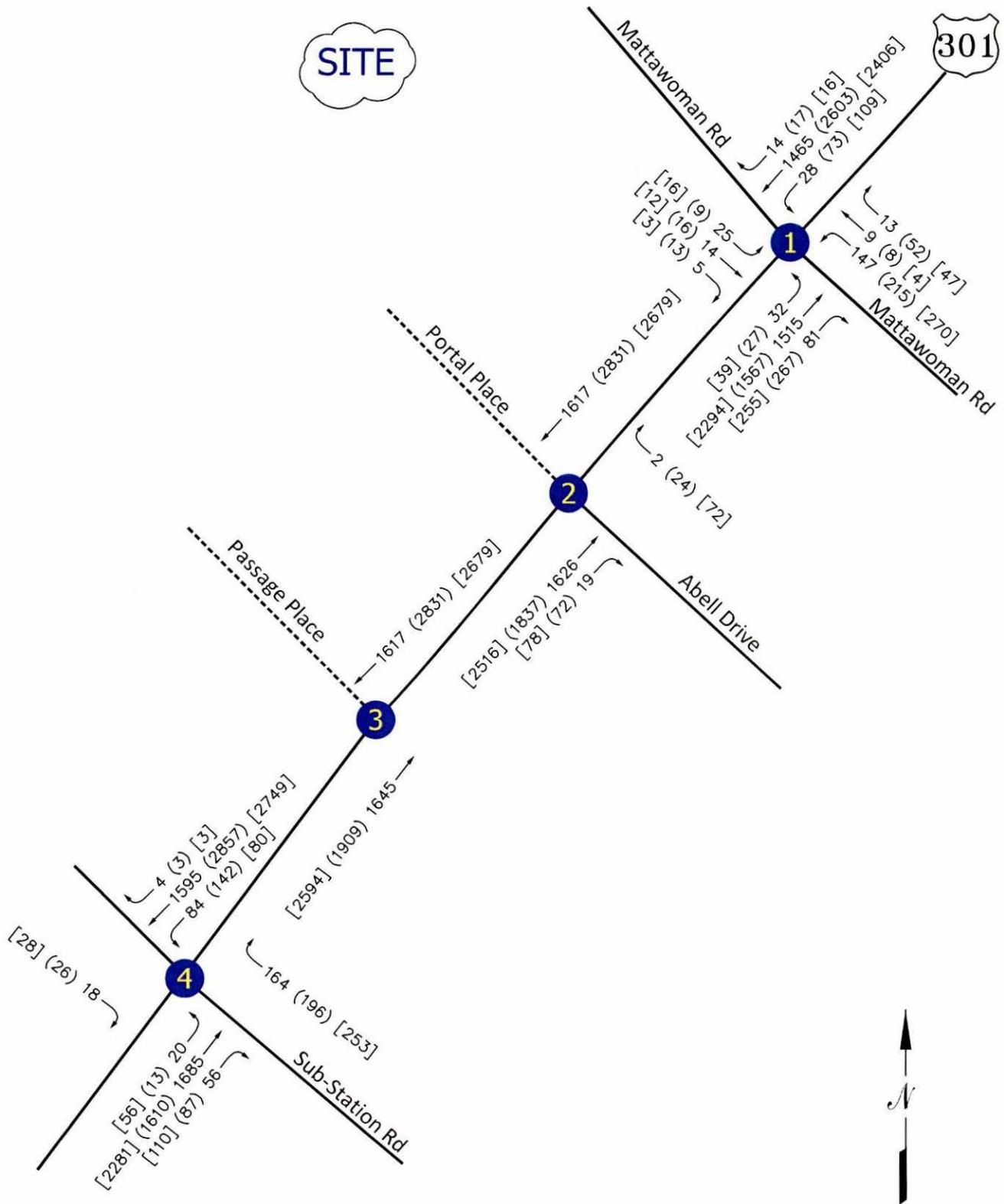


EXHIBIT 2
EXISTING LANE USE

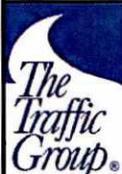


Study Intersection

SITE



00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - SATURDAY MIDDAY PEAK HOUR



Study Intersection

EXHIBIT 3
 EXISTING PEAK HOUR
 TRAFFIC VOLUMES

TRAFFIC GROWTH PROJECTION

Average Decline: 2.26%
Mathematical Decline: 2.29%

Year	ADT Volume	Vol. Decrease	% Decrease	Average %
2007	63,342			
2008	61,443	1,899	3.00%	3.00%
2009	61,444	-1	0.00%	1.50%
2010	58,690	2,754	4.48%	2.49%
2011	58,931	-241	-0.41%	1.77%
2012	58,462	469	0.80%	1.57%
2013	55,130	3,332	5.70%	2.26%
Accumulated Decrease			13.56%	

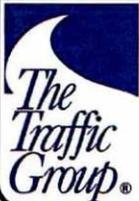
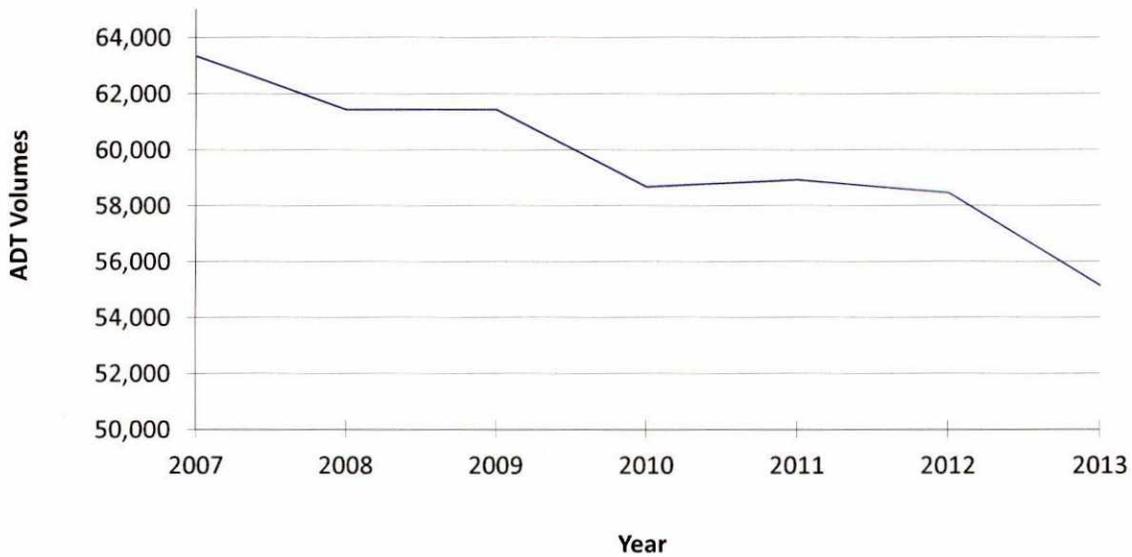


EXHIBIT 3A
TRAFFIC GROWTH PROJECTION
US 301, 0.4 MILE S OF ACTON LANE

BACKGROUND TRAFFIC CONDITIONS

Design Year

Full buildout of the Walmart Property is expected within three years. In order to present a conservative analysis, a 3% annual growth rate was applied to all traffic volumes for a three year period. As previously discussed, traffic volumes within the US Rt 301 corridor have historically decreased since 2007 at the time of the original Traffic Impact Study. Exhibit 4 details the regional growth.

Waldorf is for the most part built out. Therefore, it does not appear likely that there would be any background developments which are approved but unbuilt. The October 24, 2012 Traffic Impact Study filed in support of the Preliminary Subdivision Plan was required to consider certain background developments, all of which are located in Prince George's County. Given the substantially smaller impact of this special exception, it is not appropriate to consider background developments from another county. Further, if there are any local developments which are constructed over the next three years, their traffic generation would likely be incorporated within the conservative 3 percent growth factor which has been utilized within this analysis for the US Rt 301 Corridor.

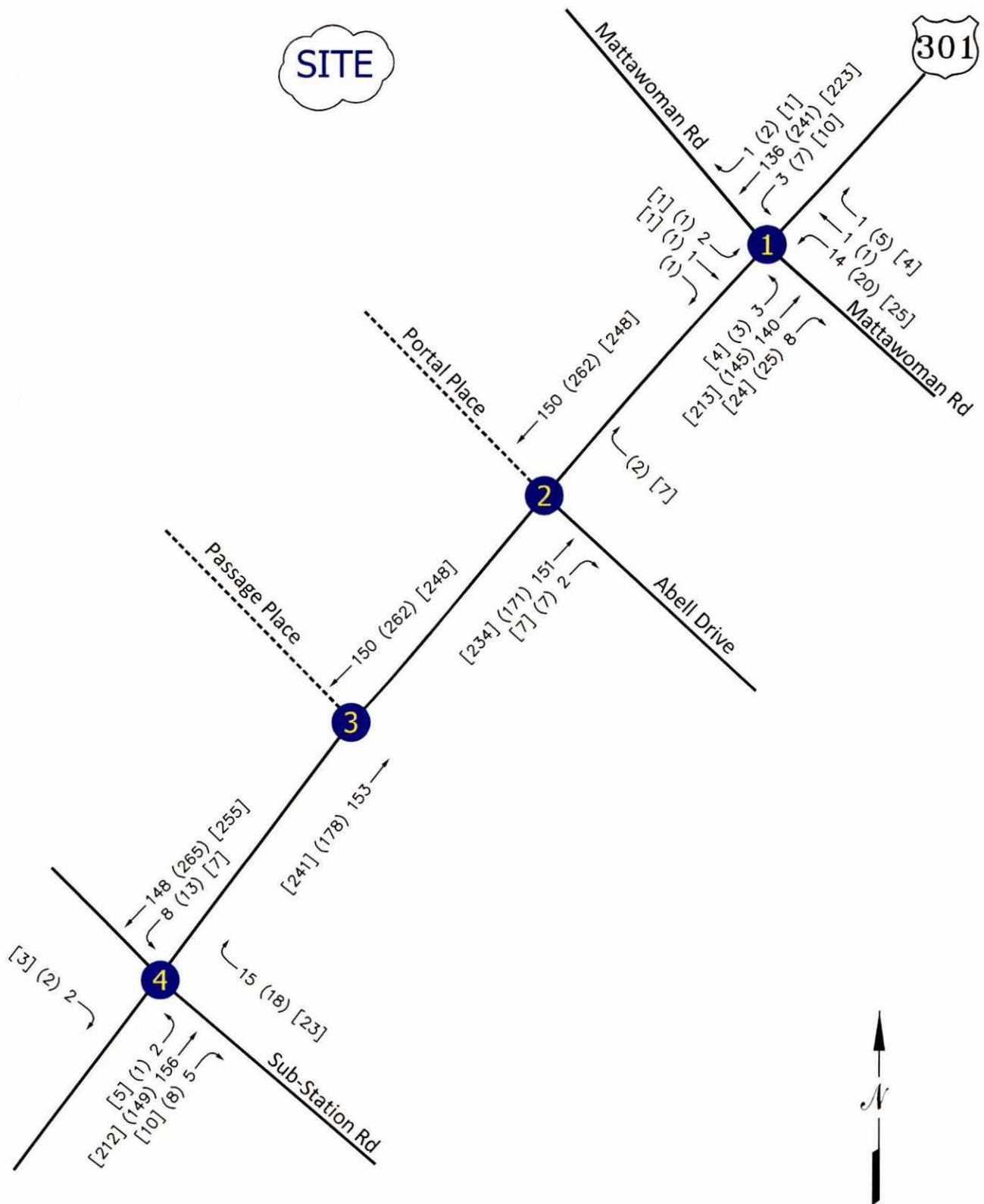
Adding the regional traffic growth to the existing peak hour traffic volumes results in the background peak hour traffic volumes as shown in Exhibit 5.

Analysis of Background Traffic Conditions

HCM Analysis was again undertaken for the study intersections this time with consideration given to the regional traffic growth. The results of the analysis are summarized in Exhibit 10. Complete capacity worksheets can be found in Appendix B.

A review of Exhibit 10 reveals that all intersections are projected to maintain acceptable levels of service in the future when considering regional traffic growth.

SITE



Note: Annual growth rate 3% was applied to all volumes for 3 years.

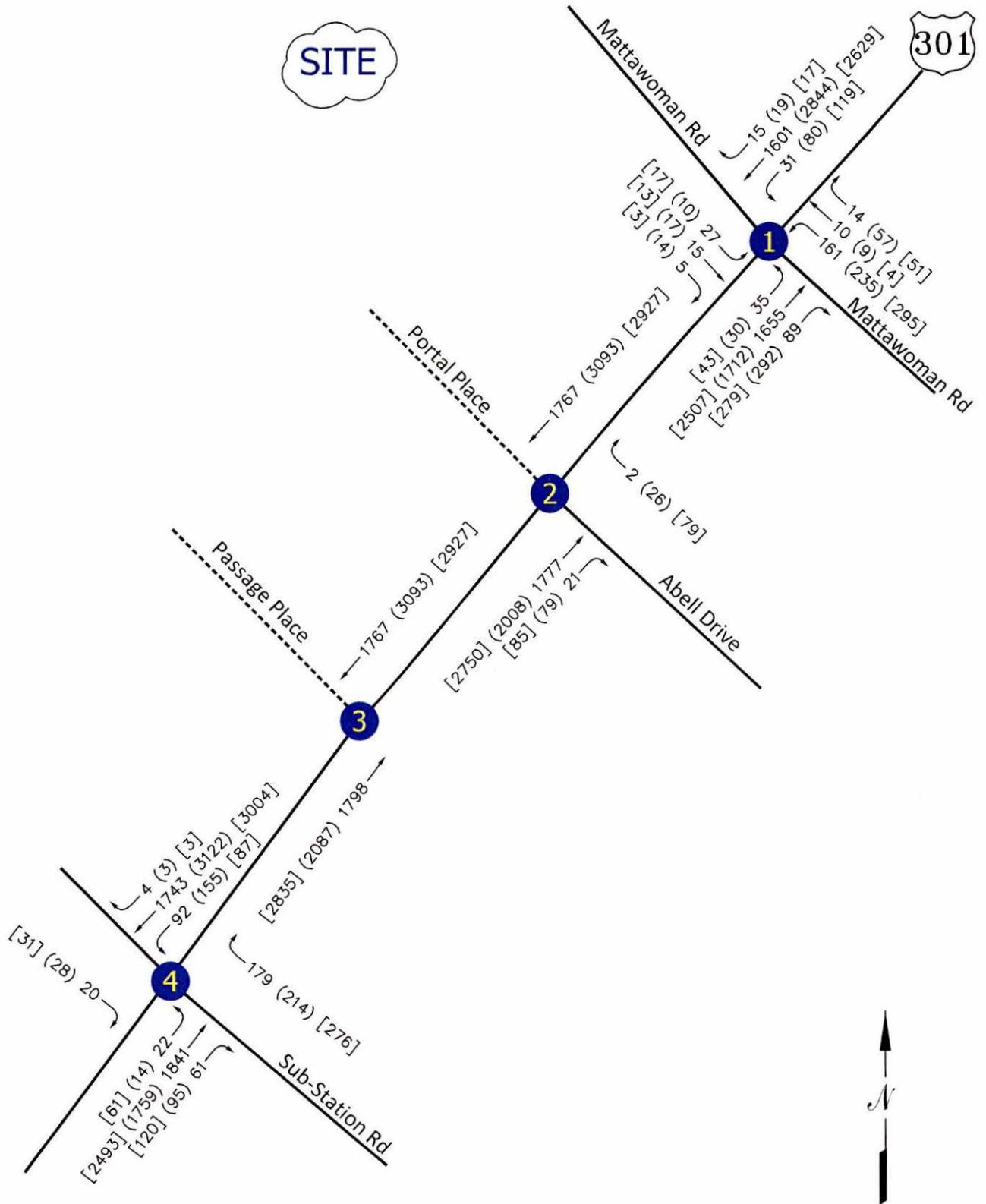
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 00 - SATURDAY MIDDAY PEAK HOUR



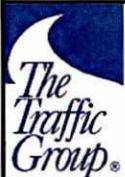
Study Intersection

EXHIBIT 4
 REGIONAL TRAFFIC GROWTH

SITE



00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - SATURDAY MIDDAY PEAK HOUR



Study Intersection

EXHIBIT 5
 BACKGROUND PEAK HOUR
 TRAFFIC VOLUMES

TOTAL TRAFFIC CONDITIONS

Site Information

This proposed Walmart will be a one-story, building consisting of 184,000 square feet and an approximate 8,452 square foot open air garden center for a total of 192,452 square feet. The business will feature a variety of retail uses including, but not limited to, a grocery store section, a pharmacy, optometry services, a clothing section, a toy department, a gardening center (referenced above), an automotive facility and a food tenant, among other uses. The owner and operator of the facility will be Walmart Inc.

Access to the Walmart will be gained from a proposed private access driveway, Portal Place, directly off of US Rt 301 which will provide for left-in/right-in/right-out turning movements. This private access road will be situated roughly at the mid-point of the District A frontage on US Rt 301. Two other access points into Walmart will be available via an extension of existing Mattawoman Drive and through the construction of a second private access road, Passage Place, which will also intersect with US Rt 301 and also provide for right-in/right-out turning movements. Vehicles proceeding southbound on US Rt 301 will be able to enter the Walmart site at one of the three driveway locations shown depicted on the site plan. Vehicles leaving the site and proceeding south can exit through any one of the three driveway entrances. Patrons exiting the site and desiring to proceed north on US Rt 301 will exit via Mattawoman Drive where a full turning movement and median break exists. Turning movements at this location are controlled by an existing traffic signal.

Trip Generation/Distribution

The Institute of Transportation Engineers (ITE) Trip Generation (9th Edition) was utilized to quantify the number of trips projected to be generated by the proposed Walmart use. The trips are summarized in Exhibit 6. As shown within the exhibit, a total of 356 morning peak hour trips, 837 evening peak hour trips, and 1,086 Saturday peak hour trips are projected for the site.

Consistent with all retail uses, ITE permits a pass-by reduction to account for traffic that is already traveling within the roadway network to stop by a proposed use and then continue to a final destination. ITE quantifies the pass-by rates for a discount superstore as 28% during the evening peak period based on research at similar land uses at different locations throughout the nation. The 28% pass-by rate is also utilized for Saturday which is quite reasonable for a major retailer along a primary road that serves as a principal arterial. Since ITE

does not present a pass-by figure for the AM peak period, no reduction is taken. The pass-by trips are also shown in Exhibit 6.

It is important to recognize the original Traffic Impact Study considered the retail component of this project as 'Shopping Center' (ITE Land-use Code #820). While the Walmart use could fit within the definition of a shopping center, Land-use Code #813 (Free-Standing Discount Superstore) more closely matches the actual proposed use. When comparing the trip rates for # 820 to #813, the rates in #813 are less during the critical weekday PM and Saturday peak periods. The shopping center trip rates are 4.84 and 6.64 trips per thousand square feet during the weekday PM and Saturday peak periods. The Walmart is projected to generate 4.35 trips and 5.64 trips per thousand square feet during the PM and Saturday peak periods. As a result, the actual proposed use will generate fewer trips per square foot than the land-use considered in the approved Traffic Impact Study.

The trips projected to be generated by the Walmart Site were distributed and assigned to the road network using the same distribution as approved in the Traffic Impact Study. Specifically, 20% of the traffic is oriented to and from the north and 40% is oriented to and from the south. An additional 37% of all trips are projected to utilize Mattawoman Road to ultimately access MD 5. Exhibit 7 contains a summary of the trip assignment. The pass-by trips for the site are shown in Exhibit 8.

When combining the site trips with the pass-by trips and adding to the background peak hour traffic volumes, the total peak hour traffic volumes as shown in Exhibit 9 are obtained.

Analysis of Total Traffic Conditions

Intersection Capacity Analysis was again undertaken for each of the study intersections, this time with consideration given to the full buildout of Walmart. As shown within Exhibit 10, each of the study intersections is projected to operate with acceptable Level of Service "D" or better conditions when the previously approved improvements are installed. The improvements are as follows:

US Rt 301 at Mattawoman Road

- Provide a second left turn lane in both the northbound and southbound directions of US Rt 301.
- Provide an additional thru lane in the southbound direction along site frontage.

- Construct the eastbound site access approach to include a separate right turn lane, a separate thru lane, and a left turn lane.
- Convert the westbound approach to provide two left turn lanes, and one shared thru right lane.

US Rt 301 at Portal Place/Abell Drive

- Construct a separate left turn lane in the northbound direction.
- Provide an additional thru lane in the southbound direction of US Rt 301 along site frontage.

US Rt 301 at Passage Place

- Provide an additional thru lane in the southbound direction of US Rt 301 along site frontage.
- Construct appropriate channelization to prohibit minor left turns.

US Rt 301 at Sub Station Road

- Provide an additional southbound thru lane along US Rt 301.

Exhibit 11 details the proposed future lane use. In addition, sidewalk will be constructed along site frontage within the US Rt 301 corridor and the existing traffic signals will be upgraded to provide pedestrian amenities including push buttons and countdown timers. ADA-compliant ramps will be constructed at crosswalks within the US Rt 301 corridor.

Since study intersection will exhibit acceptable levels of service in the future and significant improvements will be made to ensure safe pedestrian movements into, out of and around the subject site. It can be concluded that the approval of the subject special exception will not be detrimental to or endanger the public health, safety and general welfare.

TRIP GENERATION RATES

<u>LAND USE</u>	<u>FORMULA</u>	<u>DISTRIBUTION</u>
Free-Standing Discount Superstore (ksf, ITE-813)		
	Morning Trips = 1.85 x ksf	56/44
	Evening Trips = 4.35 x ksf	49/51
	Midday Sat. Trips = 5.64 x ksf	50/50

TRIP GENERATION

	MORNING PEAK HOUR			EVENING PEAK HOUR			MID SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
192,452 sq.ft., Free-Standing Discount Superstore	199	157	356	410	427	837	542	543	1085
Pass-by trips (PM -28%, Sat -28%)				-115	-120	-235	-152	-152	-304
Net Trips	199	157	356	295	307	602	390	391	781

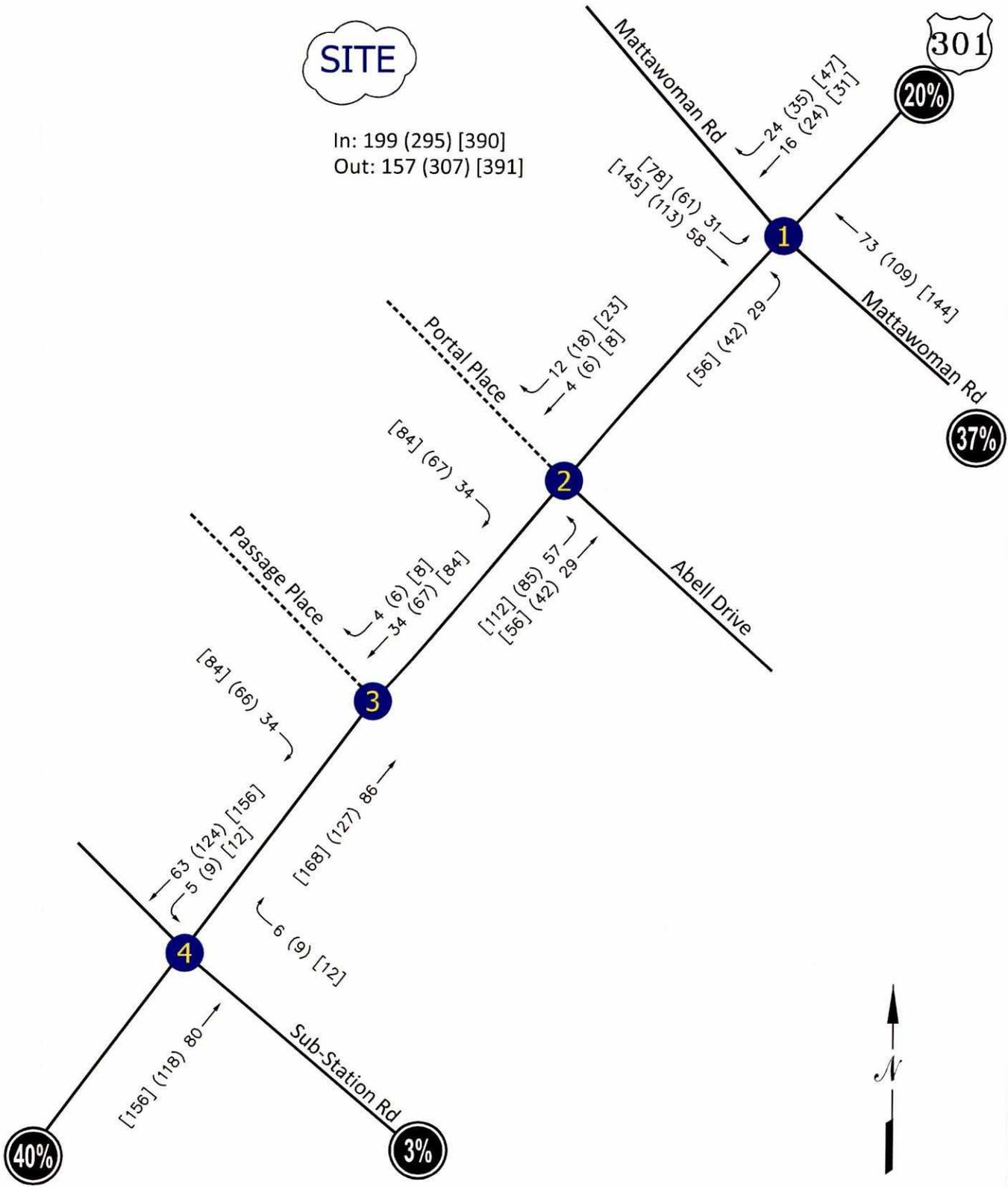
Note: Trip generation Rates and Equation obtained from ITE Trip Generation Manual 9th Edition.



EXHIBIT 6
TRIP GENERATION FOR
SUBJECT SITE

SITE

In: 199 (295) [390]
 Out: 157 (307) [391]



00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - SATURDAY MIDDAY PEAK HOUR

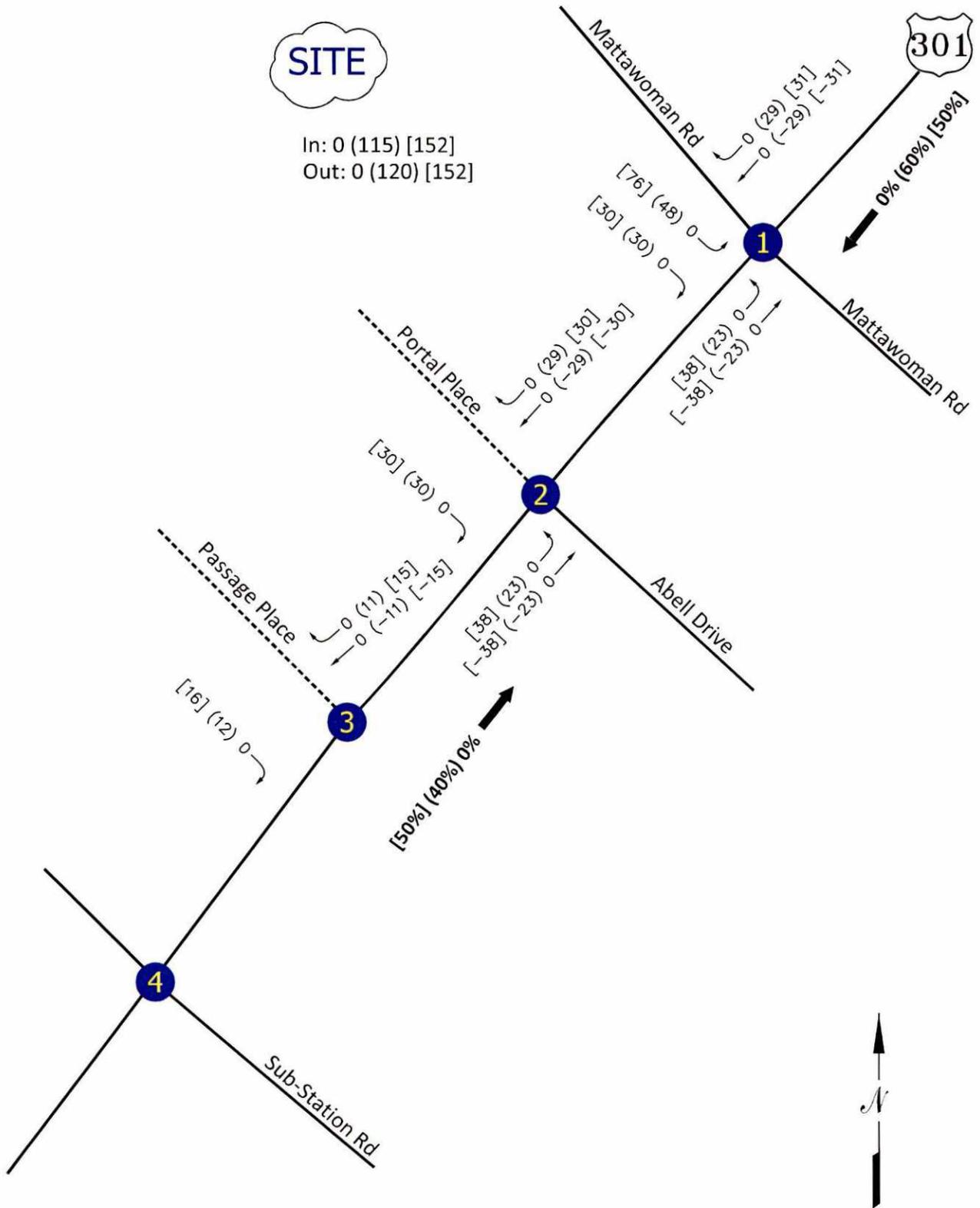


Study Intersection

**EXHIBIT 7
 TRIPS ASSIGNMENT
 FOR SUBJECT SITE**

SITE

In: 0 (115) [152]
 Out: 0 (120) [152]



00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - SATURDAY MIDDAY PEAK HOUR

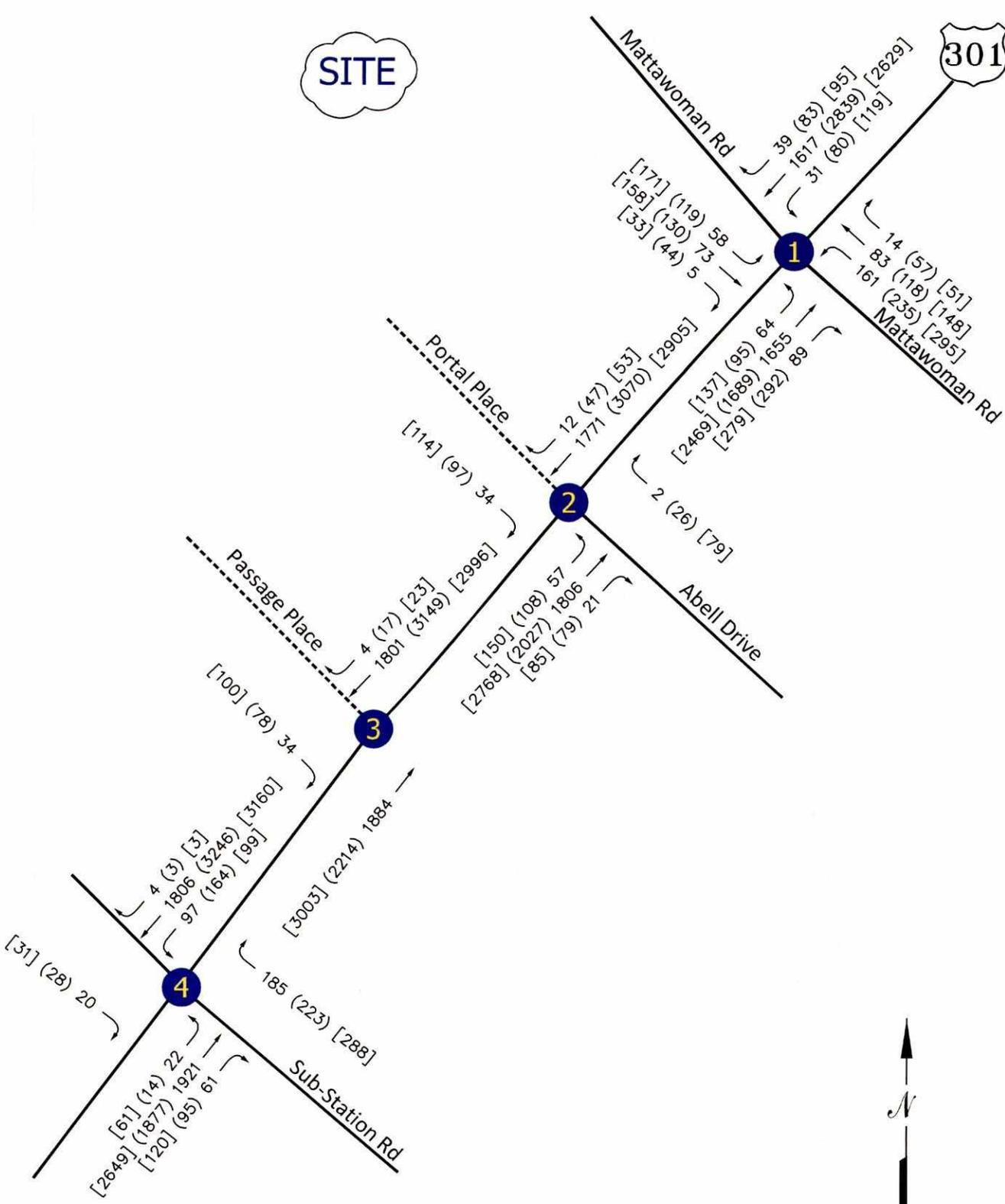


Study Intersection

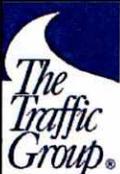
**EXHIBIT 8
 PASS-BY TRIPS ASSIGNMENT
 FOR SUBJECT SITE**

SITE

301



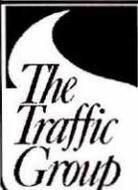
00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - SATURDAY MIDDAY PEAK HOUR



Study Intersection

EXHIBIT 9
 TOTAL PEAK HOUR
 TRAFFIC VOLUMES

		Existing Traffic	Background Traffic	Total Traffic (Wal-Mart Only)
Morning Peak Hour	Type of Control	LOS / Delay (sec)	LOS / Delay (sec)	LOS / Delay (sec)
1. US 301&Mattawoman Rd <i>w/improvements</i>	Signal	C / 26.2 -	C / 27.6 -	C / 28.4 C / 32.6
2. US 301 & Portal Place NB/Left	Stop	-	-	B / 10.1
3. US 301 & Passage Place EB/Right	Stop	-	-	B / 11.3
4. US 301 & Substation Rd	Signal	A / 3.9	A / 4.1	A / 4.2
Evening Peak Hour				
1. US 301&Mattawoman Rd <i>w/improvements</i>	Signal	C / 28.3 -	D / 37.6 -	D / 51.8 D / 35.3
2. US 301 & Portal Place NB/Left	Stop	-	-	C / 16.3
3. US 301 & Passage Place EB/Right	Stop	-	-	C / 16.7
4. US 301 & Substation Rd	Signal	A / 9.6	A / 10.0	B / 10.3
Midday Saturday Peak Hour				
1. US 301&Mattawoman Rd <i>w/improvements</i>	Signal	C / 28.4 -	C / 34.7 -	E / 64.4 D / 44.8
2. US 301 & Portal Place NB/Left	Stop	-	-	C / 17.3
3. US 301 & Passage Place EB/Right	Stop	-	-	C / 17.3
4. US 301 & Substation Rd	Signal	A / 8.3	A / 9.2	B / 10.2



**EXHIBIT 10
RESULTS OF INTERSECTION
CAPACITY ANALYSES (HCM)**

SITE

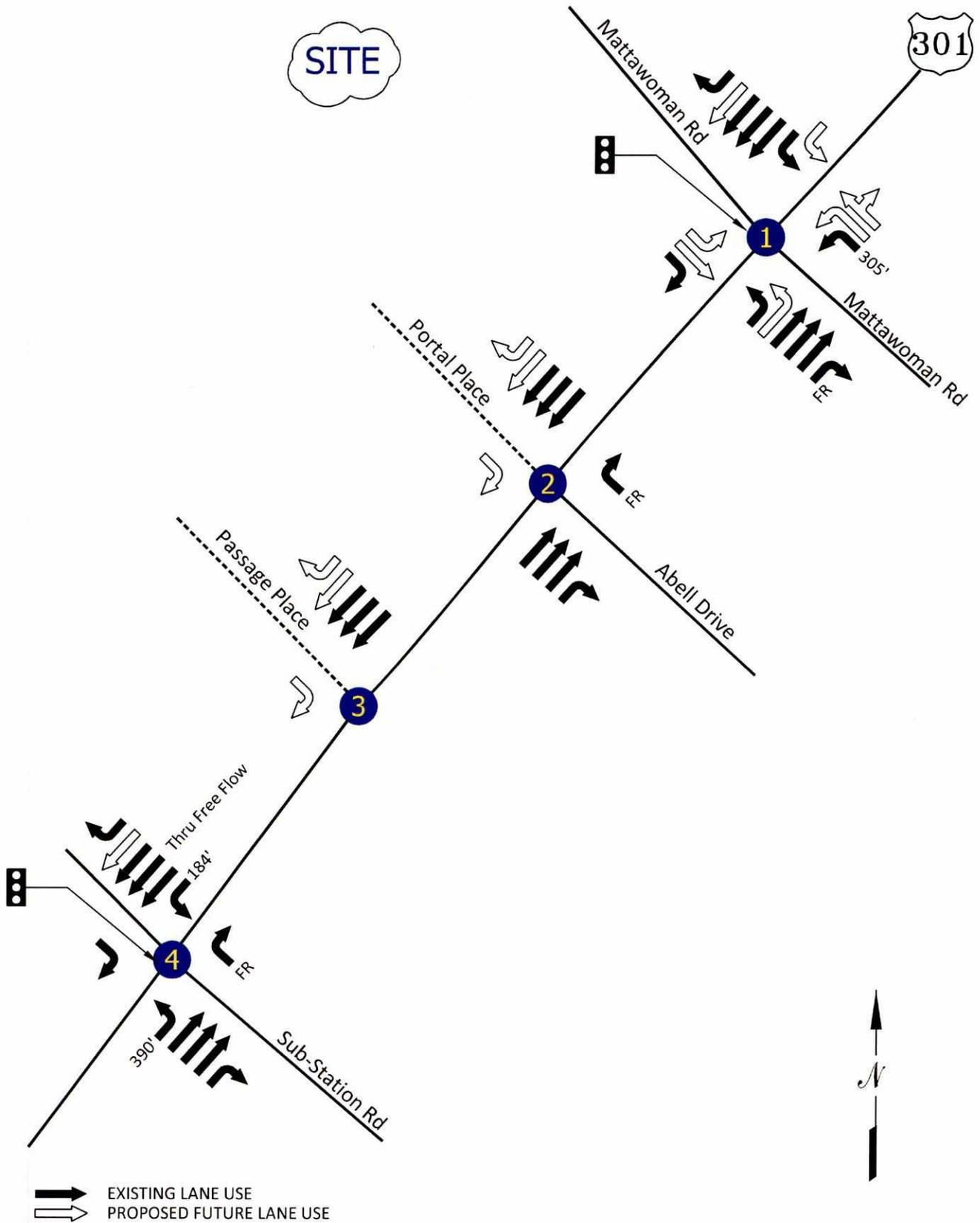
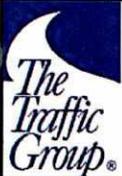


EXHIBIT 11
FUTURE LANE USE



Study Intersection

RESULTS, RECOMMENDATIONS, AND CONCLUSIONS

Study Purpose

The Traffic Group, Inc. has prepared this Traffic Analysis to quantify the transportation impact that the approval of a special exception for the development of a proposed Walmart Supercenter within the Waldorf Station project will have. Subject site, comprising 20.0± acres, is located on the west side of US Rt 301 south of Mattawoman Road in the northern area of Charles County. The requested special exception proposes the development of a 184,000 square foot one-story building and an approximate 8,452 square foot open air garden center. A preliminary subdivision plan application for the entire Waldorf Station project is currently being reviewed by Charles County. A comprehensive Traffic Impact Study for the entire Waldorf Station project was submitted on October 24, 2012. This Transportation Impact Study has been reviewed and approved by staff within Charles County. It has also been reviewed and approved by the Maryland State Highway Administration ("SHA").

When the Traffic Impact Study for the Preliminary Subdivision Plan was prepared and submitted, the retail user for Waldorf Station was unknown. The purpose of this analysis is to demonstrate that the construction of a Walmart Supercenter as proposed will have no adverse impact on health, safety and welfare of residents or workers from the perspective of transportation. The Charles County Zoning Ordinance requires a special exception for uses greater than 110,000 square feet in floor area.

Study Criteria/Methodology

The scope for this special exception Traffic Analysis is different from the October 24, 2012 Traffic Impact Study prepared for the Preliminary Subdivision Plan. The Traffic Impact Study for the Preliminary Subdivision Plan deals with a much larger tract containing multiple proposed uses. By contrast, the special exception site deals with only 20 acres and a single use. Further, the standard is different. A preliminary subdivision plan application requires a showing of adequacy of public facilities. A special exception requires that an applicant show the proposed special exception use will have no adverse impact on health, safety and welfare on residents and workers in the area. Consequently, this Traffic Analysis studies the impact of the proposed Walmart Supercenter on four site access intersections along US Rt 301. Intersections along MD 5 and regional impacts on the intersection of US Rt 301 and MD 5 are not considered in this analysis as the impact on those roadways is regional in nature.

All intersections are analyzed using Highway Capacity Manual (HCM) Methodology as required by Charles County. This site is located within the Urban Core District of Charles County's Comprehensive Plan. Therefore, Level of Service "D" is considered acceptable.

Trip generation for the land use is based on criteria contained in the ITE Trip Generation (9th Edition).

Summary of Findings and Recommendations

In order for efficient and safe site access to the Walmart Development, several improvements are recommended to the US Rt 301 corridor. They are detailed below:

US Rt 301 at Mattawoman Road

- Provide a second left turn lane in both the northbound and southbound directions of US Rt 301.
- Provide an additional thru lane in the southbound direction along site frontage.
- Construct the eastbound site access approach to include a separate right turn lane, a separate thru lane, and a left turn lane.
- Convert the westbound approach to provide two left turn lanes, and one shared thru right lane.

US Rt 301 at Portal Place/Abell Drive

- Construct a separate left turn lane in the northbound direction.
- Provide an additional thru lane in the southbound direction of US Rt 301 along site frontage.

US Rt 301 at Passage Place

- Provide an additional thru lane in the southbound direction of US Rt 301 along site frontage.
- Construct appropriate channelization to prohibit left turns exiting the site.

US Rt 301 at Sub Station Road

- Provide an additional southbound thru lane along US Rt 301.

In addition, sidewalk will be constructed along site frontage within the US Rt 301 corridor and the existing traffic signals will be upgraded to provide pedestrian amenities including push buttons and countdown timers. ADA-compliant ramps will be constructed at crosswalks within the US Rt 301 corridor.

With the implementation of the improvements described above, it is our opinion that the subject site will not be detrimental to the public health, safety, and general welfare. The SHA owns and maintains this segment of US Rt 301, and has already reviewed and approved the concepts of the improvements described above. The administration is in the process of reviewing 95% design plans for construction. It is understood that prior to the issuance of a use and occupancy permit for the Walmart Site, the improvements will need to be completed.

APPENDIX A

**Original Intersection Turning Movement Counts,
Condition Diagrams and Photos**

VEHICLE TURNING MOVEMENT COUNT - SUMMARY

Intersection of: US 301
and: Mattawoman Beantown Rd. / Mattawoman Rd.
Location: Charles Co., MD

Counted by: MC, TT
Date: November 14, 2007
Weather: Showers, Cool
Entered by: TT

Day: Wednesday



TIME	TRAFFIC FROM NORTH on: US 301					TRAFFIC FROM SOUTH on: US 301					TRAFFIC FROM EAST on: Mattawoman Beantown Rd.					TRAFFIC FROM WEST on: Mattawoman Rd.					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
30-45	3	180	1	0	184	18	477	2	0	497	8	0	21	0	29	1	0	3	0	4	714
45-00	2	232	1	0	235	38	453	2	2	495	5	1	26	0	32	1	1	1	0	3	765
07:0-15	1	224	3	0	228	29	478	1	8	514	4	2	23	0	29	0	4	2	0	6	777
15-30	1	234	2	1	238	13	481	2	4	480	7	4	30	0	41	1	3	4	0	8	767
30-45	2	270	1	0	273	21	427	1	2	451	7	3	34	0	44	1	2	0	0	3	771
45-00	6	350	4	1	361	23	354	3	4	384	5	4	32	0	41	1	3	2	0	6	792
08:0-15	2	325	6	1	334	22	408	1	2	433	6	3	36	0	45	1	2	5	0	8	820
15-30	3	379	9	1	392	18	376	6	8	406	4	4	31	0	39	0	5	4	0	9	848
30-45	3	372	8	0	383	17	385	4	6	412	0	0	46	0	45	3	4	8	0	15	855
45-00	6	389	3	0	398	24	346	1	4	375	3	2	35	0	40	1	3	8	0	12	825
09:0-15	4	364	3	0	371	24	319	5	5	353	2	2	37	0	41	3	4	7	0	14	779
15-30	6	351	2	0	359	21	270	6	0	297	3	0	27	0	30	7	2	3	0	12	698
3 Hr Totals	39	3670	43	4	3758	268	4754	34	43	5099	54	25	377	0	456	20	33	47	0	100	8411
1 Hr Totals																					
630-730	7	870	7	1	885	98	1869	7	12	1986	24	7	100	0	131	3	8	10	0	21	3023
645-745	6	960	7	1	974	101	1819	6	14	1940	23	10	113	0	146	3	10	7	0	20	3080
07-08	10	1078	10	2	1100	86	1720	7	16	1829	23	13	119	0	155	3	12	8	0	23	3107
715-815	11	1179	13	3	1206	79	1650	7	12	1748	25	14	132	0	171	4	10	11	0	25	3150
730-830	13	1324	20	3	1360	84	1585	11	16	1676	22	14	133	0	169	3	12	11	0	26	3231
745-845	14	1426	27	3	1470	90	1523	14	20	1637	15	11	144	0	170	5	14	19	0	38	3315
08-09	14	1465	28	2	1507	81	1515	12	20	1629	13	9	147	0	169	5	14	25	0	44	3348
815-915	16	1504	23	1	1544	83	1426	16	23	1548	9	8	148	0	165	7	16	27	0	50	3307
830-930	19	1476	18	0	1511	86	1320	16	15	1437	8	4	144	0	156	14	13	26	0	53	3157
PEAK HOUR																					
08-09	14	1465	28	2	1507	81	1515	12	20	1628	13	9	147	0	169	5	14	25	0	44	3348
PM																					
04:0-15	5	595	15	0	615	42	387	2	7	438	10	0	40	0	50	3	9	5	0	17	1120
15-30	4	591	23	1	619	57	393	4	5	469	12	2	40	0	54	0	3	4	0	7	1149
30-45	1	646	19	0	666	72	389	6	4	471	9	1	39	0	49	6	2	1	0	9	1195
45-00	5	666	19	0	690	70	368	0	6	442	12	1	68	0	81	2	4	3	0	9	1222
05:0-15	4	649	15	0	668	54	396	0	8	458	16	3	55	0	74	4	3	3	0	10	1210
15-30	7	842	19	1	869	71	416	0	3	490	15	3	53	0	71	1	7	2	0	10	1240
30-45	4	628	26	2	660	73	340	0	5	418	6	2	48	0	56	3	10	4	0	17	1151
45-00	2	642	32	1	677	59	362	3	7	431	10	1	72	1	84	2	3	5	0	10	1202
06:0-15	1	651	18	2	672	70	351	1	4	426	12	0	46	0	58	2	5	6	0	13	1159
15-30	1	658	24	2	685	63	358	0	5	426	10	2	48	0	60	4	4	1	0	9	1180
30-45	16	560	19	1	590	51	311	0	5	367	10	4	44	0	58	3	4	3	0	10	1031
45-00	6	483	9	1	499	48	263	3	4	348	11	1	44	0	56	2	2	5	0	9	912
3 Hr Totals	58	7411	238	11	7715	740	4362	19	63	5184	133	20	597	1	751	32	56	42	0	130	13781
1 Hr Totals																					
04-05	15	2498	76	1	2590	251	1535	12	22	1820	43	4	187	0	234	11	18	13	0	42	4686
415-515	14	2552	76	1	2643	283	1544	10	23	1840	49	7	202	0	258	12	12	11	0	35	4776
430-530	17	2603	72	1	2693	287	1567	6	21	1861	52	8	215	0	275	13	18	9	0	38	4887
445-545	20	2585	79	3	2687	268	1518	0	22	1808	49	9	224	0	282	10	24	12	0	46	4823
05-06	17	2561	92	4	2674	257	1514	3	23	1797	47	9	228	1	285	10	23	14	0	47	4803
515-615	14	2563	96	6	2678	273	1469	4	19	1765	43	6	219	1	269	8	25	17	0	50	4762
530-630	8	2579	100	7	2694	265	1411	4	21	1701	38	5	214	1	258	11	22	16	0	49	4702
545-645	20	2511	93	6	2630	243	1362	4	21	1650	42	7	210	1	260	11	16	15	0	42	4582
06-07	24	2352	70	6	2452	232	1313	4	18	1567	43	7	182	0	232	11	15	15	0	41	4292
PEAK HOUR																					
430-530	17	2603	72	1	2693	267	1567	6	21	1861	52	8	215	0	275	13	18	9	0	38	4887

VEHICLE TURNING MOVEMENT COUNT - SUMMARY

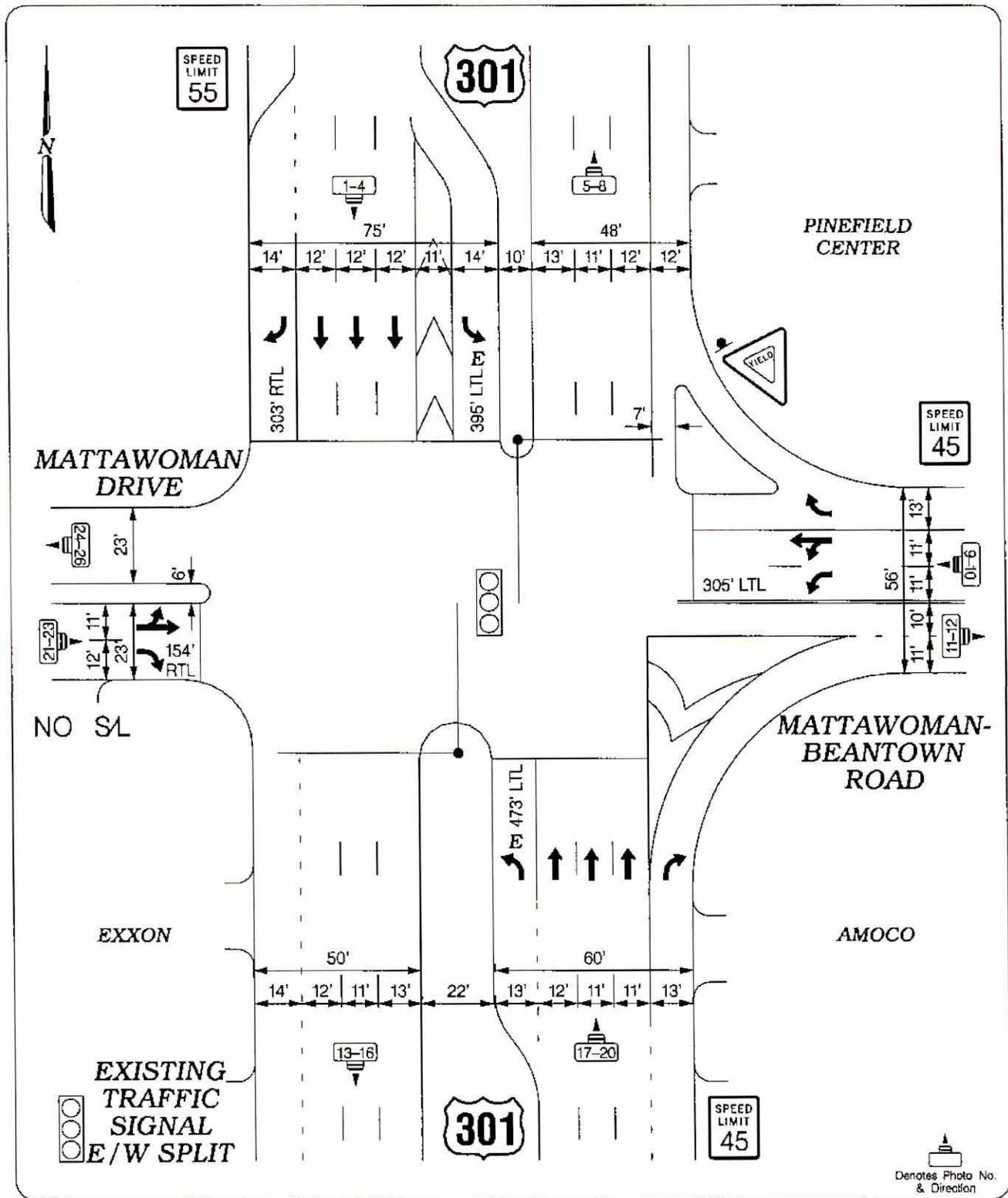


Intersection of: US 301
 and: Mattawoman Beantown Rd. / Mattawoman Rd.
 Location: Charles Co., MD

Counted by: JS, JS
 Date: November 10, 2007
 Weather: Fair, Cool
 Entered by: TT

Day: Saturday

TIME	TRAFFIC FROM NORTH on: US 301				TRAFFIC FROM SOUTH on: US 301				TRAFFIC FROM EAST on: Mattawoman Beantown Rd.				TRAFFIC FROM WEST on: Mattawoman Rd.				TOTAL N + S + E + W					
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT		THRU	LEFT	U-TN	TOTAL	
AM																						
11:0-15	3	549	11	3	566	33	460	8	19	520	16	7	85	0	108	3	4	7	0	14	1208	
15-30	7	615	5	1	628	52	510	1	16	579	6	1	69	0	76	2	5	3	0	10	1293	
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45-00	5	594	10	3	612	66	502	1	9	578	17	1	68	0	86	4	4	12	0	20	1296	
12:0-15	3	650	13	1	667	59	501	1	10	571	14	1	69	0	84	2	5	3	0	10	1332	
15-30	3	570	6	2	581	59	549	4	7	619	16	0	69	0	85	1	4	7	0	12	1297	
30-45	4	588	15	3	610	51	547	0	7	605	13	2	80	0	95	2	7	4	0	13	1323	
45-00	4	657	43	2	706	72	515	6	11	604	14	1	66	0	81	0	3	6	0	9	1400	
01:0-15	4	609	19	1	633	56	566	3	3	628	13	0	59	0	72	0	5	5	0	10	1343	
15-30	4	597	19	2	622	69	607	3	4	683	13	1	74	0	88	2	1	2	0	5	1398	
30-45	4	643	21	2	670	58	606	4	5	673	7	2	71	0	80	1	3	3	0	7	1430	
45-00	7	614	11	2	634	66	513	5	7	591	16	3	75	0	94	0	4	4	0	8	1327	
3 Hr Totals	52	7323	191	24	7590	697	6362	38	110	7207	150	21	860	0	1031	18	49	59	0	126	15954	
1 Hr Totals																						
11-12	19	2395	44	9	2467	207	1958	12	56	2233	44	11	297	0	352	10	17	25	0	52	5104	
1115-1215	19	2496	46	7	2568	233	1999	5	47	2284	42	5	281	0	328	9	18	21	0	48	5228	
1130-1230	15	2451	47	8	2521	240	2038	8	38	2324	52	4	281	0	337	8	17	25	0	50	5232	
1145-1245	15	2402	44	9	2470	235	2099	6	33	2373	60	4	286	0	350	9	20	26	0	55	5248	
12-01	14	2465	77	8	2564	241	2112	11	35	2399	57	4	284	0	345	5	19	20	0	44	5352	
1215-0115	15	2424	83	8	2530	238	2177	13	28	2456	56	3	274	0	333	3	19	22	0	44	5363	
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1245-0145	16	2506	102	7	2631	255	2294	16	23	2588	47	4	270	0	321	3	12	16	0	31	5571	
01-02	19	2463	70	7	2559	249	2292	15	19	2575	49	6	279	0	334	3	13	14	0	30	5498	
PEAK HOUR																						
1245-0145	16	2406	102	7	2531	255	2294	16	23	2588	47	4	270	0	321	3	12	16	0	31	5471	



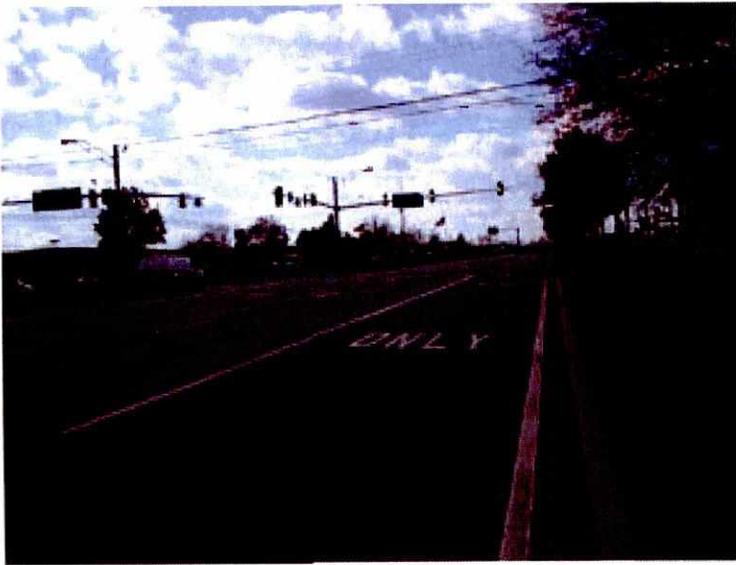
**US 301 AT
MATTAWOMAN ROAD**

FIELD WORK BY: G. Ashton
 DRAWN BY: S. Langley
 DATE: December, 2007
 SCALE: N/A

JOB NO.: 2000-0817
 US301e
 DWG NAME: MattawomanRd.DGN
 LOCATION: Charles Co., MD
 SHEET NO.: 1 OF 6



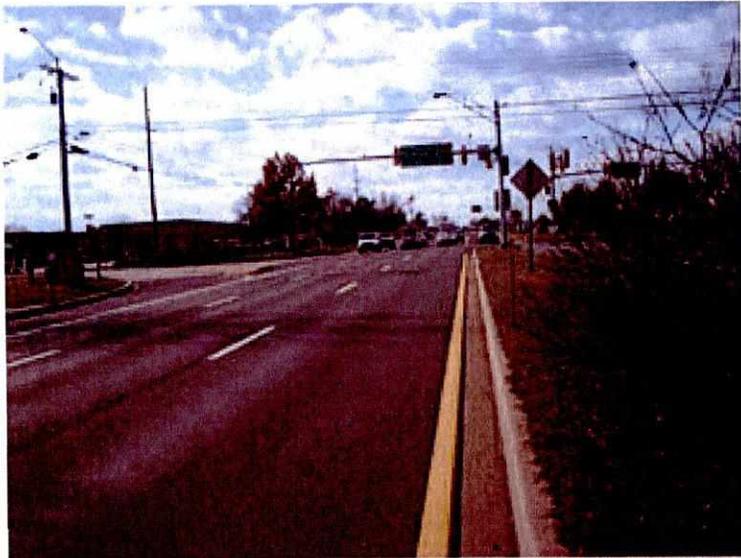
US 301 & Mattawoman Rd



01.jpg



02.jpg



03.jpg



04.jpg



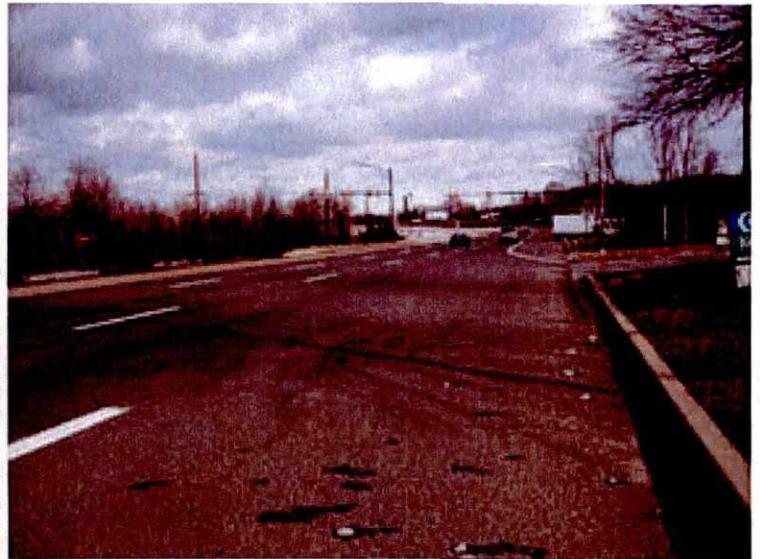
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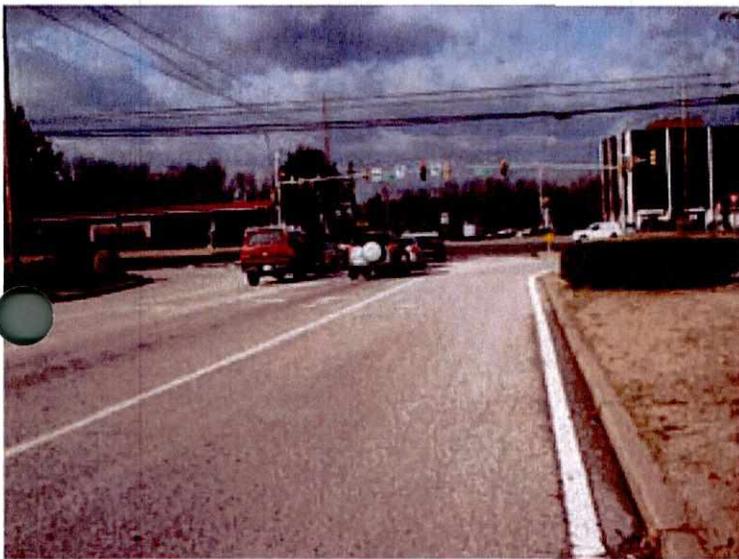
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08.jpg



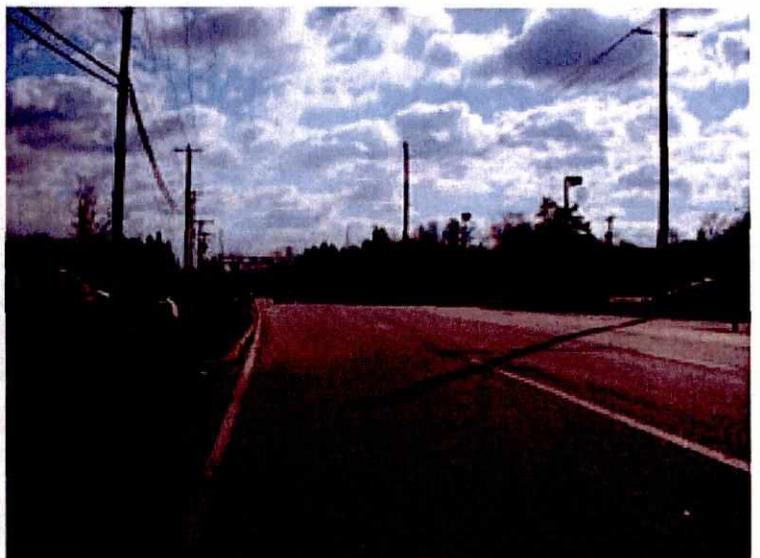
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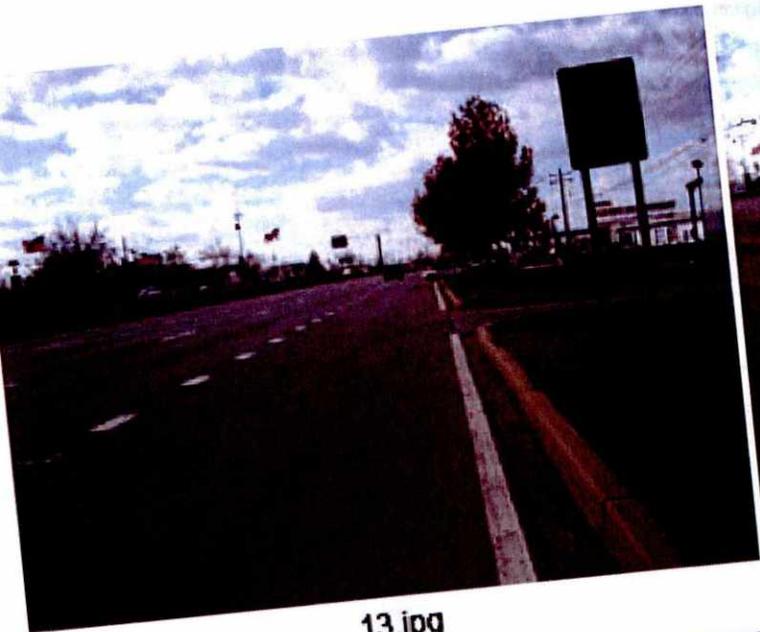
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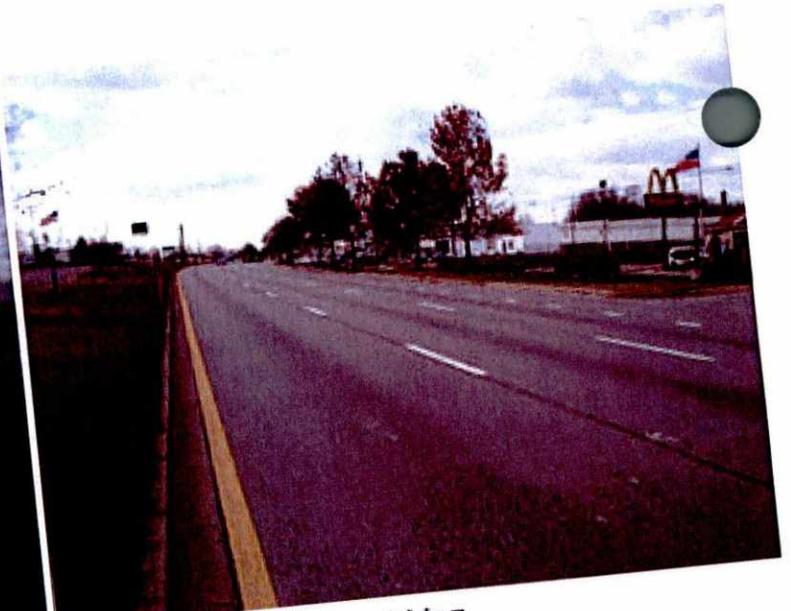
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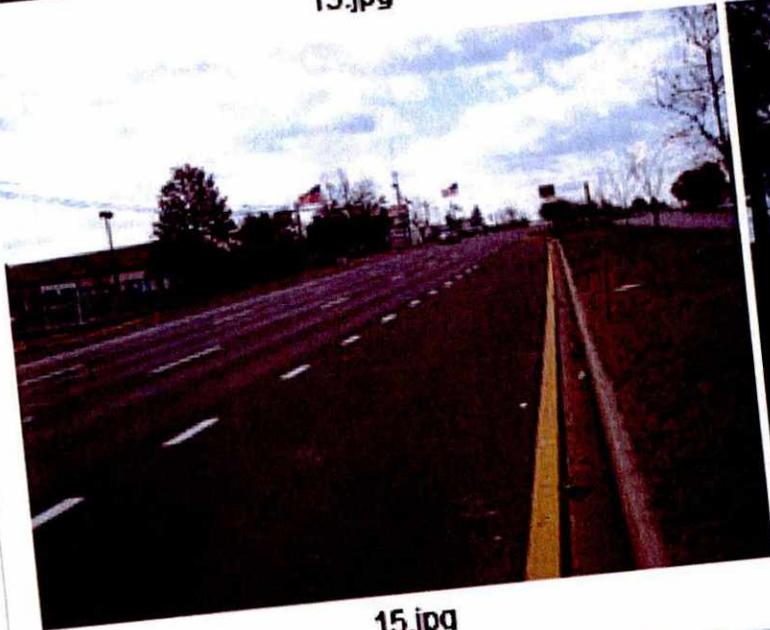
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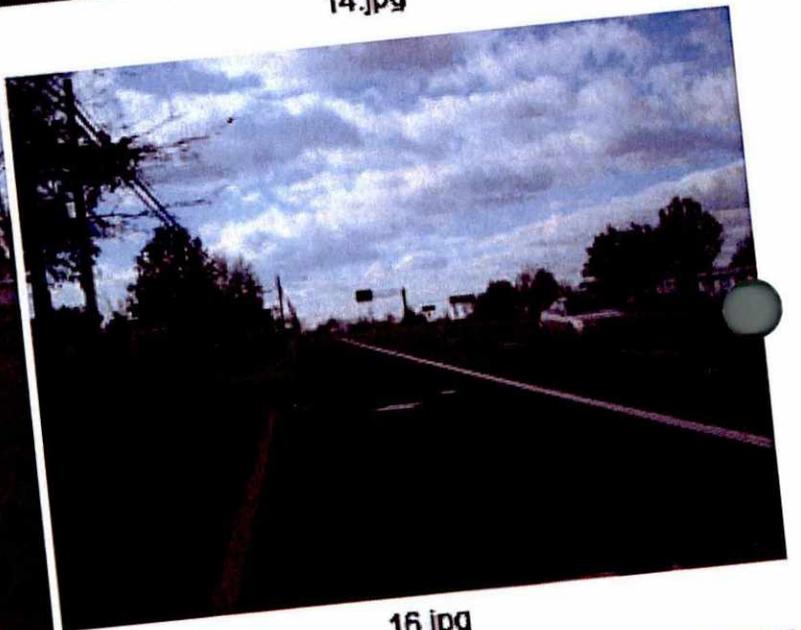
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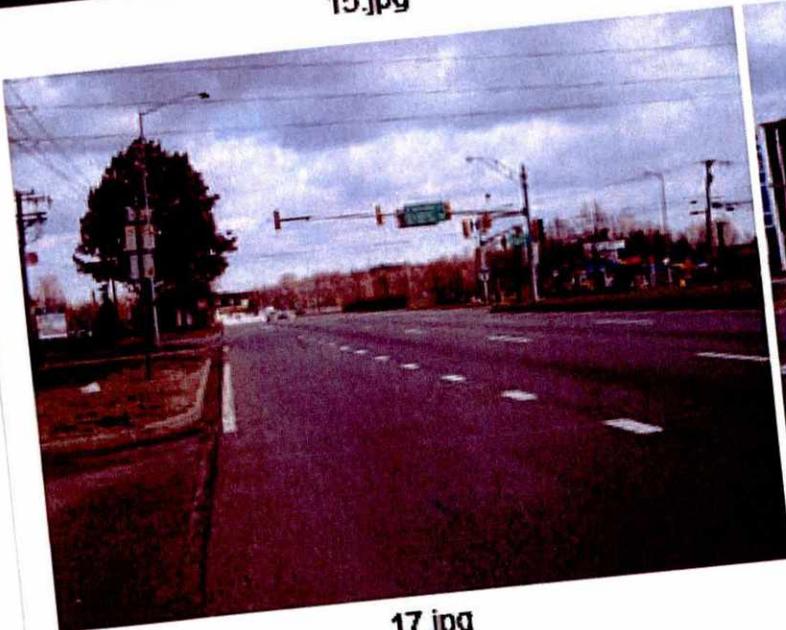
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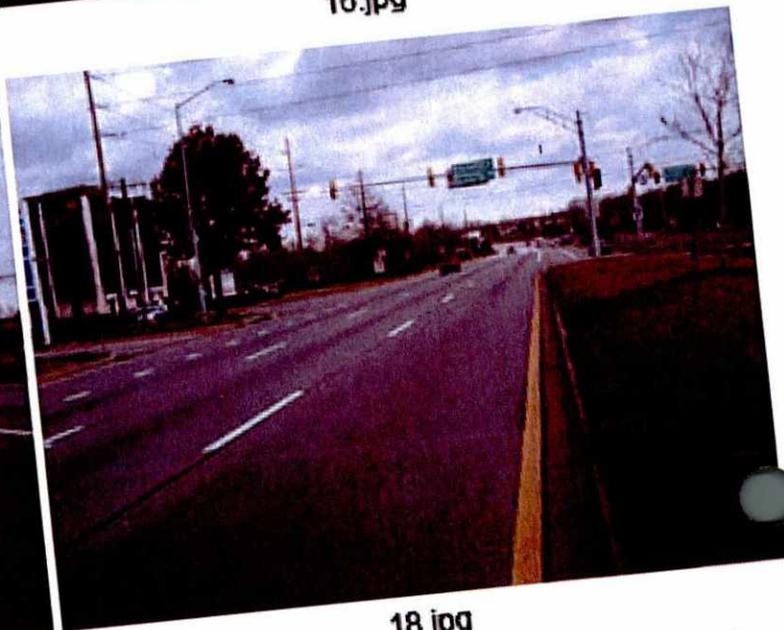
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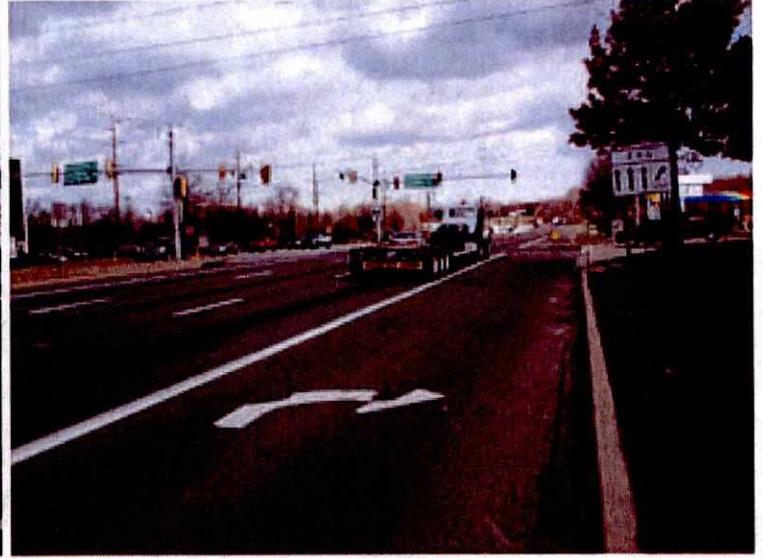
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20.jpg



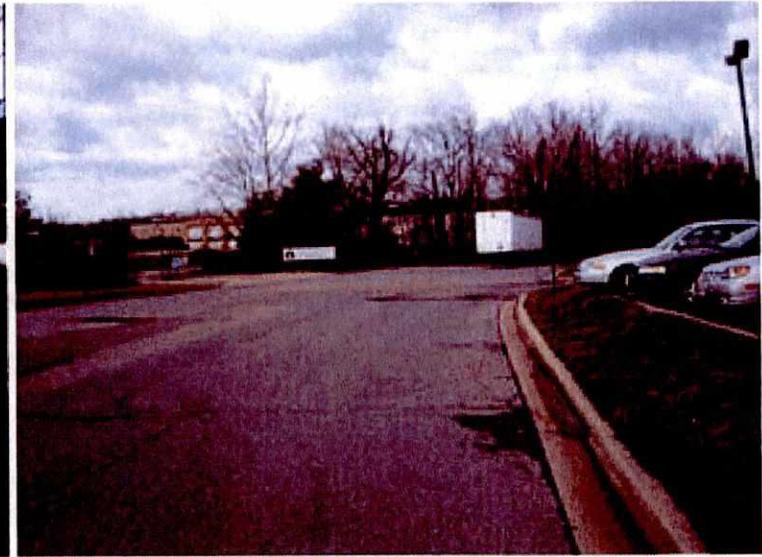
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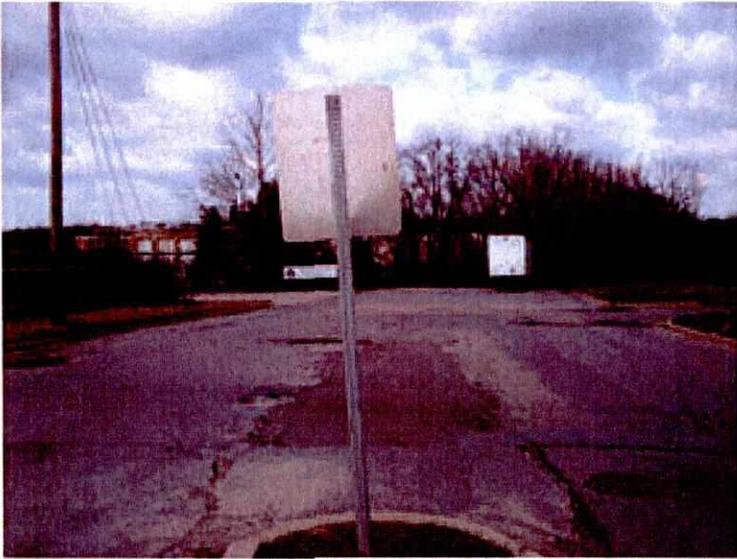
22.jpg



23.jpg



24.jpg



25.jpg



26.jpg

VEHICLE TURNING MOVEMENT COUNT - SUMMARY

Intersection of: US 301
and: Substation Rd. / Business Access
Location: Charles Co., MD

Counted by: AN, RB
Date: November 14, 2007
Weather: Showers, Cool
Entered by: TT

Day: Wednesday



TIME	TRAFFIC FROM NORTH on: US 301					TRAFFIC FROM SOUTH on: US 301					TRAFFIC FROM EAST on: Substation Rd.					TRAFFIC FROM WEST on: Business Access					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
30-45	0	204	6	3	213	10	438	1	0	449	22				22	2				2	686
45-00	1	269	12	1	283	7	421	4	1	433	23				23	9				9	748
07:0-15	0	251	2	2	255	11	453	1	1	466	34				34	3				3	758
15-30	1	279	8	1	289	22	437	2	1	462	43				43	7				7	801
30-45	2	314	12	2	330	10	374	3	0	387	43				43	3				3	763
45-00	2	410	17	3	432	11	408	3	1	423	44				44	4				4	903
08:0-15	2	387	17	7	393	19	370	6	4	399	40				40	2				2	834
15-30	0	392	19	2	413	11	451	0	2	464	38				38	9				9	924
30-45	0	426	17	2	445	15	453	1	3	475	42				42	3				3	965
45-00	1	447	26	4	478	13	343	3	3	362	33				33	2				2	875
08:0-15	0	431	35	0	466	8	344	4	4	360	31				31	4				4	861
15-30	1	393	20	4	418	5	345	2	4	356	24				24	7				7	805
3 Hr Totals	10	4163	191	31	4415	142	4840	30	24	5036	417	0	0	0	417	55	0	0	0	55	9923
1 Hr Totals																					
630-730	2	1003	28	7	1040	50	1749	8	3	1810	122	0	0	0	122	21	0	0	0	21	2993
045-745	4	1113	34	6	1167	50	1685	10	3	1748	143	0	0	0	143	22	0	0	0	22	3070
07-08	5	1254	39	8	1306	54	1672	9	3	1738	164	0	0	0	164	17	0	0	0	17	3225
715-815	7	1370	54	13	1444	52	1589	14	6	1671	170	0	0	0	170	16	0	0	0	16	3301
730-830	6	1483	65	14	1568	51	1603	12	7	1673	165	0	0	0	165	18	0	0	0	18	3424
745-845	4	1595	70	14	1683	56	1685	10	10	1761	164	0	0	0	164	18	0	0	0	18	3525
08-09	3	1632	79	15	1729	58	1620	10	12	1700	153	0	0	0	153	16	0	0	0	16	3598
815-915	1	1696	97	8	1802	47	1594	8	12	1861	144	0	0	0	144	18	0	0	0	18	3625
830-930	2	1697	98	10	1807	41	1488	10	14	1553	130	0	0	0	130	16	0	0	0	16	3506
PEAK HOUR																					
745-845	4	1595	70	14	1683	56	1685	10	10	1761	164	0	0	0	164	18	0	0	0	18	3525
PM																					
04:0-15	0	614	35	4	653	18	357	3	5	383	57				57	6				6	1099
15-30	2	630	24	4	659	14	440	7	4	465	46				46	12				12	1192
30-45	1	720	33	4	758	17	418	2	0	437	52				52	11				11	1258
45-00	0	722	33	7	762	23	396	4	3	426	45				45	5				5	1238
05:0-15	2	677	31	3	713	35	409	1	0	445	54				54	6				6	1218
15-30	0	738	25	6	769	12	387	1	2	402	45				45	4				4	1220
30-45	1	632	52	3	688	12	387	3	4	406	43				43	5				5	1142
45-00	3	706	30	4	743	15	386	4	2	408	45				45	8				8	1204
06:0-15	2	704	30	2	738	21	375	2	2	400	46				46	8				8	1192
15-30	1	715	37	5	758	37	374	2	2	415	48				48	9				9	1230
30-45	0	602	26	1	629	21	351	3	3	378	45				45	16				16	1068
45-00	2	510	29	3	544	34	304	4	2	344	48				48	8				8	944
3 Hr Totals	14	7979	385	46	8424	260	4564	36	29	4909	574	0	0	0	574	98	0	0	0	98	14005
1 Hr Totals																					
04-05	3	2695	125	19	2842	72	1611	16	12	1711	200	0	0	0	200	34	0	0	0	34	4787
415-515	5	2758	121	18	2902	89	1663	14	7	1773	197	0	0	0	197	34	0	0	0	34	4906
430-530	3	2857	122	20	3002	87	1610	8	5	1710	196	0	0	0	196	26	0	0	0	26	4934
445-545	3	2769	141	19	2932	82	1579	9	9	1679	187	0	0	0	187	20	0	0	0	20	4818
05-06	6	2753	138	16	2913	75	1569	9	8	1661	187	0	0	0	187	23	0	0	0	23	4784
515-615	6	2780	137	15	2938	81	1535	10	10	1616	179	0	0	0	179	25	0	0	0	25	4758
530-630	7	2757	149	14	2927	86	1522	11	10	1629	182	0	0	0	182	30	0	0	0	30	4768
545-645	6	2727	123	12	2868	95	1486	11	9	1601	184	0	0	0	184	41	0	0	0	41	4694
06-07	5	2531	122	11	2569	113	1404	11	9	1537	187	0	0	0	187	41	0	0	0	41	4434
PEAK HOUR																					
430-530	3	2857	122	20	3002	87	1610	8	5	1710	196	0	0	0	196	26	0	0	0	26	4934

VEHICLE TURNING MOVEMENT COUNT - SUMMARY



Intersection of: US 301
and: Substation Rd. / Business Access
Location: Charles Co., MD

Counted by: FC, TP

Date: November 17, 2007
Weather: Showers, Cool
Entered by: TT

Day: Saturday

TIME	TRAFFIC FROM NORTH on: US 301					TRAFFIC FROM SOUTH on: US 301					TRAFFIC FROM EAST on: Substation Rd.					TRAFFIC FROM WEST on: Business Access					TOTAL N + S + E + W	
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL		
AM																						
11:0-15	1	600	35	6	642	17	495	5	14	531	23	23			23	9				9		1205
15-30	2	761	38	4	805	19	571	2	11	603	35	35			35	4				4		1447
30-45	0	722	22	9	753	26	502	2	9	539	46	46			46	4				4		1342
45-00	1	733	17	6	757	28	530	5	8	571	57	57			57	2				2		1387
12:0-15	1	682	13	3	699	36	552	3	8	599	54	54			54	5				5		1357
15-30	1	610	17	7	635	21	589	4	11	625	73	73			73	9				9		1342
30-45	1	745	22	6	774	28	567	4	13	612	60	60			60	7				7		1453
45-00	0	712	11	1	724	25	573	5	8	611	66	66			66	7				7		1408
01:0-15	1	620	13	0	634	26	584	4	11	625	65	65			65	4				4		1328
15-30	3	566	10	2	581	19	614	7	11	651	54	54			54	6				6		1292
30-45	1	667	20	6	694	23	594	4	11	632	53	53			53	7				7		1386
45-00	0	556	14	2	572	26	539	2	12	579	57	57			57	4				4		1212
3 Hr Totals	12	7974	232	52	8270	294	6710	47	127	7178	643	643	0	0	643	68	0	0	0	68		16159
1 Hr Totals																						
11-12	4	2816	112	25	2957	90	2098	14	42	2244	161	161	0	0	161	19	0	0	0	19		5381
1115-1215	4	2898	90	22	3014	109	2155	12	36	2312	192	192	0	0	192	15	0	0	0	15		5533
1130-1230	3	2747	69	25	2844	111	2173	14	36	2334	230	230	0	0	230	20	0	0	0	20		5428
1145-1245	4	2770	69	22	2865	113	2238	16	40	2407	244	244	0	0	244	23	0	0	0	23		5539
12-01	3	2749	63	17	2832	110	2281	16	40	2447	253	253	0	0	253	28	0	0	0	28		5560
1215-0115	3	2687	63	14	2767	100	2313	17	43	2473	264	264	0	0	264	27	0	0	0	27		5531
1230-0130	5	2643	56	9	2713	98	2338	20	43	2499	245	245	0	0	245	24	0	0	0	24		5481
1245-0145	5	2565	54	9	2633	93	2365	20	41	2519	238	238	0	0	238	24	0	0	0	24		5414
01-02	5	2409	57	10	2481	94	2331	17	45	2487	229	229	0	0	229	21	0	0	0	21		5218
PEAK HOUR																						
12-01	3	2749	63	17	2832	110	2281	16	40	2447	253	253	0	0	253	28	0	0	0	28		5560

VEHICLE TURNING MOVEMENT COUNT - SUMMARY

Intersection of: MD 925
and: Substation Rd.
Location: Charles Co., MD

Counted by: JS, JS
Date: November 14, 2007
Weather: Showers, Cool
Entered by: TT

Day: Wednesday



TIME	TRAFFIC FROM NORTH on: MD 925					TRAFFIC FROM SOUTH on: MD 925					TRAFFIC FROM EAST on: Substation Rd.					TRAFFIC FROM WEST on: Substation Rd.					TOTAL N + S + E + W	
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL		
AM																						
30-45	0	0	0	0	0	3	2	19	0	24	2	19	25	0	46	5	6	0	0	11	81	
45-00	0	1	0	0	1	7	1	13	0	21	0	17	31	0	48	13	12	0	0	25	95	
07:0-15	0	1	0	0	1	12	1	19	0	32	0	23	55	0	78	5	10	0	1	16	127	
15-30	1	0	0	0	1	9	0	27	0	36	1	20	48	0	69	8	14	0	0	22	128	
30-45	0	0	0	0	0	9	0	22	0	31	0	19	48	0	67	10	10	0	0	20	118	
45-00	1	1	0	0	2	7	0	17	0	24	0	13	61	0	74	13	13	0	0	26	126	
08:0-15	0	1	1	0	2	11	0	23	0	34	1	9	62	0	72	13	16	0	0	29	137	
15-30	0	0	0	0	0	16	1	25	0	42	0	12	59	0	71	17	17	0	0	34	147	
30-45	2	0	1	0	3	14	0	33	0	47	1	7	57	0	65	20	7	1	1	29	144	
45-00	3	1	0	0	4	12	0	30	0	42	0	12	62	0	74	24	13	0	0	37	157	
09:0-15	2	4	2	0	8	15	4	26	0	45	2	5	71	0	78	23	17	1	0	41	172	
15-30	3	7	0	0	10	10	2	21	0	33	0	8	45	0	53	26	11	2	0	39	135	
3 Hr Totals	12	16	4	0	32	125	11	275	0	411	7	164	624	0	795	177	146	4	2	329	1567	
1 Hr Totals																						
630-730	1	2	0	0	3	31	4	78	0	113	3	79	159	0	241	31	42	0	1	74	431	
645-745	1	2	0	0	3	37	2	81	0	120	1	79	162	0	262	36	46	0	1	83	468	
07-08	2	2	0	0	4	37	1	85	0	123	1	75	212	0	295	36	47	0	1	84	499	
715-815	2	2	1	0	5	38	0	89	0	125	2	61	219	0	282	44	53	0	0	97	509	
730-830	1	2	1	0	4	43	1	87	0	131	1	53	230	0	284	53	56	0	0	109	529	
745-845	3	2	2	0	7	48	1	98	0	147	2	41	239	0	282	63	53	1	1	118	554	
08-09	5	2	2	0	9	53	1	111	0	165	2	40	240	0	282	74	53	1	1	129	585	
815-915	7	5	3	0	15	57	5	114	0	176	3	36	249	0	288	84	54	2	1	141	620	
830-930	10	12	3	0	25	51	6	110	0	167	3	32	235	0	270	93	48	4	1	146	608	
PEAK HOUR																						
815-915	7	5	3	0	15	57	5	114	0	176	3	36	249	0	288	84	54	2	1	141	620	
PM																						
04:0-15	1	3	1	0	5	41	1	52	0	94	0	7	37	0	44	13	24	0	0	37	180	
15-30	1	3	2	0	6	76	0	52	0	128	0	6	55	0	61	19	35	0	0	54	249	
30-45	0	6	0	0	6	53	0	51	0	104	0	4	52	0	56	13	36	0	0	49	215	
45-00	2	2	0	0	4	54	0	40	0	94	0	10	45	0	55	16	39	0	0	55	208	
05:0-15	4	3	0	0	7	81	1	56	0	138	0	5	60	0	65	22	44	0	0	66	278	
15-30	3	4	2	0	9	55	0	51	0	106	0	6	40	0	46	15	41	1	0	56	219	
30-45	3	4	2	0	9	63	2	42	0	107	0	5	67	0	72	22	35	0	0	57	245	
45-00	2	2	2	0	6	34	2	50	0	80	0	4	58	0	60	19	39	0	0	58	210	
06:0-15	1	2	0	0	3	52	9	43	0	104	0	12	63	0	75	13	24	0	0	37	219	
15-30	3	5	0	0	8	30	2	32	0	64	0	6	41	0	47	27	32	0	0	59	179	
30-45	0	2	0	0	2	36	0	38	0	74	1	10	41	0	52	18	34	0	0	52	180	
45-00	0	0	0	0	0	30	0	38	0	66	0	10	39	0	49	12	25	0	0	37	152	
3 Hr Totals	20	37	9	0	66	605	17	543	0	1165	1	85	596	0	682	210	408	1	0	619	2532	
1 Hr Totals																						
04-05	4	14	3	0	21	224	1	195	0	420	0	27	189	0	216	61	134	0	0	195	852	
415-515	7	14	2	0	23	264	1	199	0	464	0	25	212	0	237	70	154	0	0	224	948	
430-530	9	15	2	0	26	243	1	198	0	442	0	25	197	0	222	67	190	1	0	226	918	
445-545	12	13	4	0	29	253	3	189	0	445	0	26	212	0	238	76	159	1	0	236	948	
05-06	12	13	6	0	31	233	5	199	0	437	0	20	223	0	243	79	159	1	0	239	950	
515-615	9	12	6	0	27	204	13	186	0	403	0	27	226	0	253	70	139	1	0	210	893	
530-630	9	14	4	0	27	179	15	167	0	361	0	27	227	0	254	81	130	0	0	211	853	
545-645	6	12	2	0	20	152	13	163	0	328	1	32	201	0	234	77	129	0	0	206	788	
06-07	4	10	0	0	14	148	11	149	0	308	1	36	184	0	223	70	115	0	0	185	730	
PEAK HOUR																						
05-06	12	13	6	0	31	233	5	199	0	437	0	20	223	0	243	79	159	1	0	239	950	

VEHICLE TURNING MOVEMENT COUNT - SUMMARY

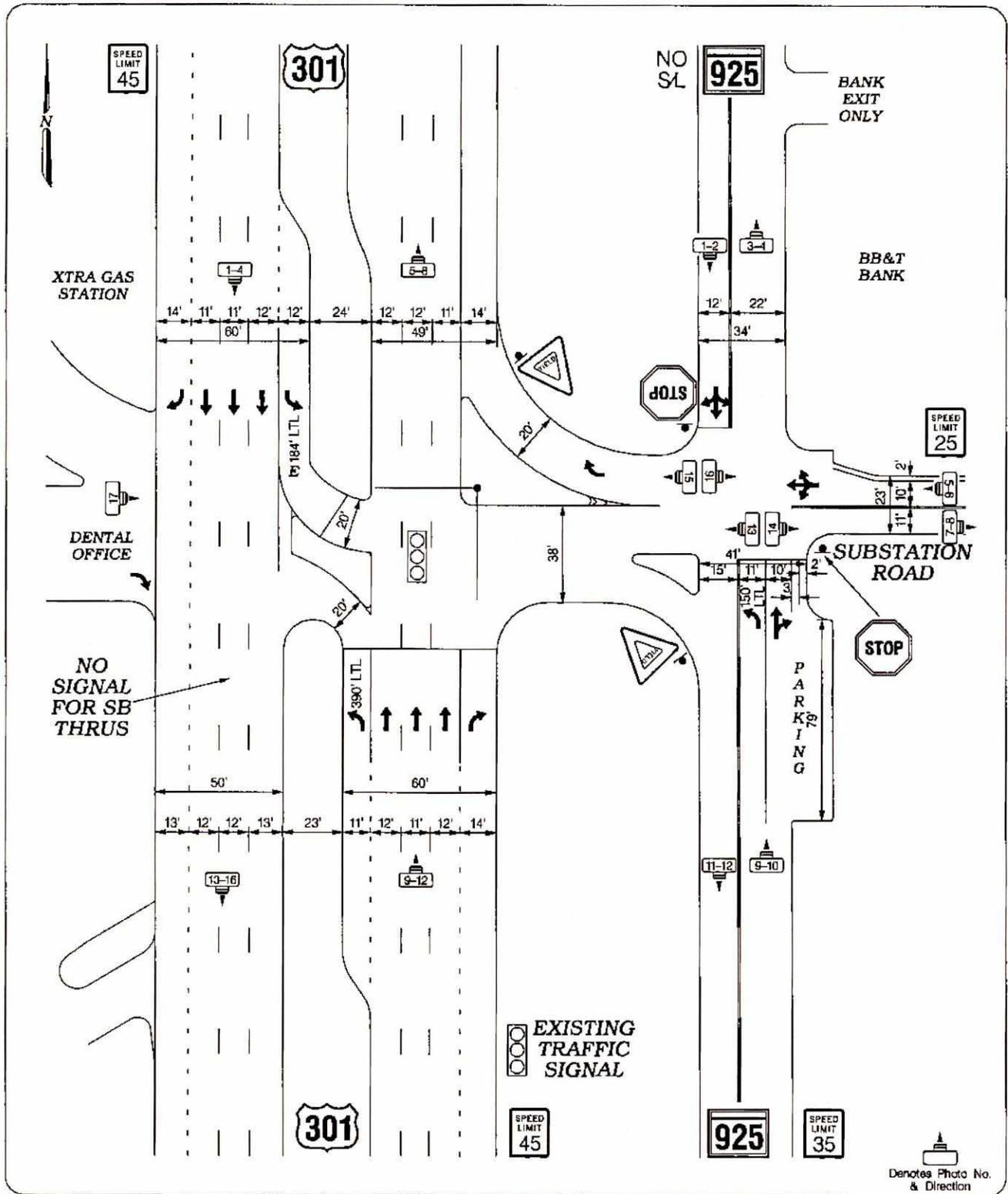


Counted by: RB
 Date: November 17, 2007
 Weather: Showers, Cool
 Entered by: TT

Intersection of: MD 925
 and: Substation Rd.
 Location: Charles Co., MD

Day: Saturday

TIME	TRAFFIC FROM NORTH on: MD 925				TRAFFIC FROM SOUTH on: MD 925				TRAFFIC FROM EAST on: Substation Rd.				TRAFFIC FROM WEST on: Substation Rd.				TOTAL N + S + E + W					
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT		THRU	LEFT	U-TN	TOTAL	
AM																						
11:0-15	3	3	1	0	7	38	5	37	0	80	3	12	61	0	76	29	18	0	0	47	210	
15-30	3	3	1	0	7	48	0	40	0	88	0	12	54	0	66	16	30	2	0	48	209	
30-45	1	3	3	0	7	53	1	51	0	105	0	4	58	0	62	28	22	1	0	51	225	
45-00	3	1	2	0	6	25	1	47	0	73	3	8	51	0	62	20	17	1	0	38	179	
12:0-15	1	0	0	0	1	29	2	52	0	83	2	5	51	0	58	9	27	1	0	37	179	
15-30	2	1	0	0	3	45	0	51	0	96	0	7	55	0	62	11	18	1	0	30	191	
30-45	1	2	1	0	4	48	2	45	0	95	0	17	56	0	73	17	32	0	0	49	221	
45-00	2	0	0	0	2	36	1	49	0	86	0	9	41	0	50	14	21	2	0	37	175	
01:0-15	1	1	0	0	2	29	0	56	0	85	0	7	38	0	45	12	21	1	0	34	166	
15-30	3	1	1	0	5	27	2	50	0	79	1	7	34	0	42	11	12	1	0	24	150	
30-45	2	2	0	0	4	21	1	39	0	61	0	8	29	0	37	22	13	0	0	35	137	
45-00	1	1	0	0	2	31	0	26	0	57	0	21	47	0	68	26	11	1	0	38	165	
3 Hr Totals	23	18	9	0	50	430	15	543	0	988	9	117	575	0	701	215	242	11	0	468	2207	
1 Hr Totals																						
11-12	10	10	7	0	27	164	7	175	0	346	6	36	224	0	266	93	87	4	0	184	823	
1115-1215	8	7	6	0	21	155	4	190	0	349	5	29	214	0	248	73	96	5	0	174	792	
1130-1230	7	5	5	0	17	152	4	201	0	357	5	24	215	0	244	68	84	4	0	156	774	
1145-1245	7	4	3	0	14	147	5	195	0	347	5	37	213	0	255	57	94	3	0	154	770	
12-01	6	3	1	0	10	158	5	197	0	360	2	38	203	0	243	51	98	4	0	153	766	
1215-0115	6	4	1	0	11	158	3	201	0	362	0	40	190	0	230	54	92	4	0	150	753	
1230-0130	7	4	2	0	13	140	5	200	0	345	1	40	169	0	210	54	86	4	0	144	712	
1245-0145	8	4	1	0	13	113	4	194	0	311	1	31	142	0	174	59	67	4	0	130	628	
01-02	7	5	1	0	13	108	3	171	0	282	1	43	148	0	192	71	57	3	0	131	618	
PEAK HOUR																						
11-12	10	10	7	0	27	164	7	175	0	346	6	36	224	0	266	93	87	4	0	184	823	



**US 301 AT
/MD 925/
SUBSTATION ROAD**

FIELD WORK BY: G. Ashton
 DRAWN BY: S. Langley
 DATE: December, 2007
 SCALE: N/A

JOB NO.: 2000-0817
 DWG NAME: US301@SubstationRd.DGN
 LOCATION: Charles Co., MD
 SHEET NO.: 2 OF 6



US 301 & Sub-Station Rd

APPENDIX B

Intersection Capacity

Analysis Worksheets

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	1. US 301 & Mattawoman Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group, Inc.	Jurisdiction	Charles County, MD	Analysis Year	Existing		
Date Performed	7/8/08						
Time Period	AM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R
Volume (vph)	25	14	5	147	9	13	32	1515	81	28	1465	14
% Heavy Vehicles	2	2	2	2	2	2	2	5	2	2	5	2
PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type		3	3	3	3	3	4	4	4	4	4	4
Unit Extension		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EW Perm	WB Only	03		04		NS Perm	Thru & RT	07		08	
Timing	G = 23.0	G = 22.0	G =		G =		G = 9.0	G = 72.0	G =		G =	
	Y = 6	Y = 6	Y =		Y =		Y = 5	Y = 7	Y =		Y =	
Duration of Analysis (hrs) = 0.25							Cycle Length C = 150.0					

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		40	5	89	70	13	33	1546	83	29	1495	14
Lane Group Capacity		267	338	251	253	1636	110	2287	1636	113	2366	1149	
v/c Ratio		0.15	0.01	0.35	0.28	0.01	0.30	0.68	0.05	0.26	0.63	0.01	
Green Ratio		0.15	0.21	0.15	0.15	1.00	0.06	0.48	1.00	0.06	0.48	0.68	
Uniform Delay d ₁		55.0	46.6	57.6	56.9	0.0	67.5	30.0	0.0	67.3	29.1	7.7	
Delay Factor k		0.11	0.11	0.11	0.11	0.11	0.11	0.25	0.11	0.11	0.21	0.11	
Incremental Delay d ₂		0.3	0.0	0.9	0.6	0.0	1.5	0.8	0.0	1.2	0.6	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.796	1.000	1.000	0.796	0.335	
Control Delay		55.3	46.6	58.5	57.5	0.0	69.0	24.7	0.0	68.5	23.7	2.6	
Lane Group LOS		E	D	E	E	A	E	C	A	E	C	A	
Approach Delay		54.3			53.7			24.4			24.4		
Approach LOS		D			D			C			C		
Intersection Delay		26.2			Intersection LOS						C		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Agency or Co.	The Traffic Group, Inc.	Intersection	1. US 301 & Mattawoman Rd		
Date Performed	7/8/08	Area Type	All other areas				
Period	PM Peak	Jurisdiction	Charles County, MD				
		Analysis Year	Existing				

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1	
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R	
Volume (vph)	9	16	13	215	8	52	27	1567	267	73	2603	17	
% Heavy Vehicles	5	5	5	5	5	5	5	5	5	5	5	5	
PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A	
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Arrival Type		3	3	3	3	3	4	4	4	4	4	4	
Unit Extension		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking/Hour													
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2		
Timing	EW Perm	WB Only		03		04		NS Perm	Thru & RT		07		08
	G = 20.0	G = 24.0		G =		G =		G = 11.0	G = 101.0		G =		G =
	Y = 6	Y = 6		Y =		Y =		Y = 5	Y = 7		Y =		Y =
Duration of Analysis (hrs) = 0.25								Cycle Length C = 180.0					

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		25	13	110	117	53	28	1599	272	74	2656	17
Lane Group Capacity		200	282	231	232	1589	118	2700	1589	122	2793	1176	
v/c Ratio		0.13	0.05	0.48	0.50	0.03	0.24	0.59	0.17	0.61	0.95	0.01	
Green Ratio		0.12	0.18	0.14	0.14	1.00	0.07	0.57	1.00	0.07	0.57	0.72	
Uniform Delay d ₁		71.3	60.5	71.5	71.8	0.0	79.7	25.4	0.0	81.7	36.6	7.3	
Delay Factor k		0.11	0.11	0.11	0.11	0.11	0.11	0.18	0.11	0.19	0.46	0.11	
Incremental Delay d ₂		0.3	0.1	1.5	1.8	0.0	1.0	0.4	0.1	8.4	8.4	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.649	1.000	1.000	0.649	0.203	
Control Delay		71.5	60.6	73.0	73.5	0.0	80.7	16.9	0.1	90.1	32.1	1.5	
Lane Group LOS		E	E	E	E	A	F	B	A	F	C	A	
Approach Delay		67.8			59.4			15.4			33.5		
Approach LOS		E			E			B			C		
Intersection Delay		28.3			Intersection LOS						C		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	1. US 301 & Mattawoman Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group, Inc.	Jurisdiction	Charles County, MD	Analysis Year	Existing		
Date Performed	7/8/08						
Time Period	SAT Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R
Volume (vph)	16	12	3	270	4	47	39	2294	255	109	2406	16
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Arrival Type		3	3	3	3	3	4	4	4	4	4	4
Unit Extension		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EW Perm	WB Only	03		04		NS Perm	Thru & RT	07		08	
Timing	G = 18.0	G = 25.0	G =		G =		G = 12.0	G = 101.0	G =		G =	
	Y = 6	Y = 6	Y =		Y =		Y = 5	Y = 7	Y =		Y =	
Duration of Analysis (hrs) = 0.25							Cycle Length C = 180.0					

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		30	3	135	150	49	41	2390	266	114	2506	17
Lane Group Capacity		185	281	247	248	1636	132	2779	1636	136	2875	1192	
v/c Ratio		0.16	0.01	0.55	0.60	0.03	0.31	0.86	0.16	0.84	0.87	0.01	
Green Ratio		0.11	0.18	0.14	0.14	1.00	0.07	0.57	1.00	0.07	0.57	0.71	
Uniform Delay d ₁		73.3	61.0	71.5	72.2	0.0	79.2	33.0	0.0	82.5	33.4	7.9	
Delay Factor k		0.15	0.15	0.18	0.22	0.15	0.15	0.40	0.15	0.39	0.41	0.15	
Incremental Delay d ₂		0.6	0.0	3.2	4.8	0.0	1.8	3.1	0.1	35.6	3.3	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.649	1.000	1.000	0.649	0.231	
Control Delay		73.8	61.0	74.7	77.0	0.0	81.1	24.4	0.1	118.1	25.0	1.8	
Lane Group LOS		E	E	E	E	A	F	C	A	F	C	A	
Approach Delay		72.7			64.8			22.9			28.8		
Approach LOS		E			E			C			C		
Intersection Delay		28.4			Intersection LOS						C		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	1. US 301 & Mattawoman Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group, Inc.	Jurisdiction	Charles County, MD	Analysis Year	Background		
Date Performed	7/8/08						
Period	AM Peak						

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1	
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R	
Volume (vph)	27	15	5	161	10	14	35	1655	89	31	1601	15	
% Heavy Vehicles	2	2	2	2	2	2	2	5	2	2	5	2	
PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A	
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival Type		3	3	3	3	3	4	4	4	4	4	4	
Unit Extension		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking/Hour													
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2		
Timing	EW Perm	WB Only		03		04		NS Perm	Thru & RT		07		08
	G = 23.0	G = 22.0		G =		G =		G = 9.0	G = 72.0		G =		G =
	Y = 6	Y = 6		Y =		Y =		Y = 5	Y = 7		Y =		Y =
Duration of Analysis (hrs) = 0.25								Cycle Length C = 150.0					

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		43	5	97	77	14	36	1689	91	32	1634	15
Lane Group Capacity		267	338	251	253	1636	110	2287	1636	113	2366	1149	
v/c Ratio		0.16	0.01	0.39	0.30	0.01	0.33	0.74	0.06	0.28	0.69	0.01	
Green Ratio		0.15	0.21	0.15	0.15	1.00	0.06	0.48	1.00	0.06	0.48	0.68	
Uniform Delay d ₁		55.1	46.6	57.9	57.2	0.0	67.6	31.4	0.0	67.4	30.3	7.7	
Delay Factor k		0.11	0.11	0.11	0.11	0.11	0.11	0.30	0.11	0.11	0.26	0.11	
Incremental Delay d ₂		0.3	0.0	1.0	0.7	0.0	1.7	1.3	0.0	1.4	0.9	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.796	1.000	1.000	0.796	0.335	
Control Delay		55.4	46.6	58.9	57.8	0.0	69.3	26.3	0.0	68.8	25.0	2.6	
Lane Group LOS		E	D	E	E	A	E	C	A	E	C	A	
Approach Delay		54.5			54.1			25.8			25.7		
Approach LOS		D			D			C			C		
Intersection Delay		27.6			Intersection LOS						C		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	1. US 301 & Mattawoman Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group, Inc.	Jurisdiction	Charles County, MD	Analysis Year	Background		
Date Performed	7/8/08						
Time Period	PM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R
Volume (vph)	10	17	14	235	9	57	30	1712	292	80	2844	19
% Heavy Vehicles	5	5	5	5	5	5	5	5	5	5	5	5
PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Arrival Type		3	3	3	3	3	4	4	4	4	4	4
Unit Extension		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EW Perm	WB Only	03	04	NS Perm	Thru & RT	07	08				
Timing	G = 16.0	G = 24.0	G =	G =	G = 14.0	G = 102.0	G =	G =				
	Y = 6	Y = 6	Y =	Y =	Y = 5	Y = 7	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		27	14	120	129	58	31	1747	298	82	2902	19
Lane Group Capacity		162	273	231	232	1589	148	2727	1589	153	2820	1149	
v/c Ratio		0.17	0.05	0.52	0.56	0.04	0.21	0.64	0.19	0.54	1.03	0.02	
Green Ratio		0.09	0.18	0.14	0.14	1.00	0.08	0.57	1.00	0.08	0.57	0.70	
Uniform Delay d ₁		75.0	61.4	71.9	72.3	0.0	77.0	26.0	0.0	79.2	38.5	8.2	
Delay Factor k		0.11	0.11	0.13	0.15	0.11	0.11	0.22	0.11	0.14	0.50	0.11	
Incremental Delay d ₂		0.5	0.1	2.1	2.9	0.0	0.7	0.5	0.1	3.7	24.9	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.637	1.000	1.000	0.637	0.256	
Control Delay		75.5	61.5	74.0	75.3	0.0	77.7	17.1	0.1	82.8	49.5	2.1	
Lane Group LOS		E	E	E	E	A	E	B	A	F	D	A	
Approach Delay		70.7			60.6			15.5			50.1		
Approach LOS		E			E			B			D		
Intersection Delay		37.6			Intersection LOS						D		

SHORT REPORT

General Information				Site Information			
Analyst	RH			Intersection	1. US 301 & Mattawoman Rd		
Agency or Co.	The Traffic Group, Inc.			Area Type	All other areas		
Date Performed	7/8/08			Jurisdiction	Charles County, MD		
Period	SAT Peak			Analysis Year	Background		

Volume and Timing Input														
	EB			WB			NB			SB				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1		
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R		
Volume (vph)	17	13	3	295	4	51	43	2507	279	119	2629	17		
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2		
PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A		
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		
Extension of Effective Green		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Arrival Type		3	3	3	3	3	4	4	4	4	4	4		
Unit Extension		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N		
Parking/Hour														
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2			
Timing	EW Perm	WB Only		03		04		NS Perm	Thru & RT		07		08	
	G = 18.0	G = 25.0		G =		G =		G = 12.0	G = 101.0		G =		G =	
	Y = 6	Y = 6		Y =		Y =		Y = 5	Y = 7		Y =		Y =	
Duration of Analysis (hrs) = 0.25							Cycle Length C = 180.0							

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		32	3	147	164	53	45	2611	291	124	2739	18
Lane Group Capacity		185	281	247	248	1636	132	2779	1636	136	2875	1192	
v/c Ratio		0.17	0.01	0.60	0.66	0.03	0.34	0.94	0.18	0.91	0.95	0.02	
Green Ratio		0.11	0.18	0.14	0.14	1.00	0.07	0.57	1.00	0.07	0.57	0.71	
Uniform Delay d ₁		73.3	61.0	72.1	72.8	0.0	79.4	36.1	0.0	82.9	36.7	7.9	
Delay Factor k		0.15	0.15	0.22	0.26	0.15	0.15	0.46	0.15	0.44	0.47	0.15	
Incremental Delay d ₂		0.6	0.0	4.5	7.1	0.0	2.1	7.3	0.1	51.9	8.4	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.649	1.000	1.000	0.649	0.231	
Control Delay		74.0	61.0	76.6	80.0	0.0	81.5	30.7	0.1	134.9	32.3	1.8	
Lane Group LOS		E	E	E	E	A	F	C	A	F	C	A	
Approach Delay		72.8			67.0			28.5			36.5		
Approach LOS		E			E			C			D		
Intersection Delay		34.7			Intersection LOS						C		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Agency or Co.	The Traffic Group, Inc.	Intersection	1. US 301 & Mattawoman Rd		
Date Performed	7/8/08	Area Type	All other areas				
Time Period	AM Peak	Jurisdiction	Charles County, MD				
		Analysis Year	Total				

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R
Volume (vph)	58	73	5	161	83	14	64	1655	89	31	1617	39
% Heavy Vehicles	2	2	2	2	2	2	2	5	2	2	5	2
PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Arrival Type		3	3	3	3	3	4	4	4	4	4	4
Unit Extension		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EW Perm	WB Only	03		04		NS Perm	Thru & RT	07		08	
Timing	G = 23.0	G = 22.0	G =		G =		G = 9.0	G = 72.0	G =		G =	
	Y = 6	Y = 6	Y =		Y =		Y = 5	Y = 7	Y =		Y =	
Duration of Analysis (hrs) = 0.25							Cycle Length C = 150.0					

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		133	5	87	162	14	65	1689	91	32	1650	40
Lane Group Capacity		282	359	262	270	1636	122	2319	1636	126	2399	1160	
v/c Ratio		0.47	0.01	0.33	0.60	0.01	0.53	0.73	0.06	0.25	0.69	0.03	
Green Ratio		0.16	0.23	0.15	0.15	1.00	0.07	0.49	1.00	0.07	0.49	0.69	
Uniform Delay d ₁		57.2	45.0	56.6	59.2	0.0	67.7	30.6	0.0	66.5	29.7	7.5	
Delay Factor k		0.11	0.11	0.11	0.19	0.11	0.14	0.29	0.11	0.11	0.26	0.11	
Incremental Delay d ₂		1.2	0.0	0.7	3.7	0.0	4.5	1.2	0.0	1.1	0.8	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.787	1.000	1.000	0.787	0.310	
Control Delay		58.5	45.0	57.4	62.9	0.0	72.2	25.3	0.0	67.5	24.2	2.3	
Lane Group LOS		E	D	E	E	A	E	C	A	E	C	A	
Approach Delay		58.0			57.7			25.7			24.5		
Approach LOS		E			E			C			C		
Intersection Delay		28.4			Intersection LOS						C		

SHORT REPORT

General Information				Site Information			
Analyst	RH			Intersection	1. US 301 & Mattawoman Rd		
Agency or Co.	The Traffic Group, Inc.			Area Type	All other areas		
Date Performed	7/8/08			Jurisdiction	Charles County, MD		
Period	PM Peak			Analysis Year	Total		

Volume and Timing Input														
	EB			WB			NB			SB				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1		
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R		
Volume (vph)	119	130	44	235	118	57	95	1689	292	80	2839	83		
% Heavy Vehicles	5	5	5	5	5	5	5	5	5	5	5	5		
PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A		
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		
Extension of Effective Green		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Arrival Type		3	3	3	3	3	4	4	4	4	4	4		
Unit Extension		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N		
Parking/Hour														
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2			
Timing	EW Perm	WB Only		03		04		NS Perm	Thru & RT		07		08	
	G = 21.0	G = 22.0		G =		G =		G = 12.0	G = 101.0		G =		G =	
	Y = 6	Y = 6		Y =		Y =		Y = 5	Y = 7		Y =		Y =	
Duration of Analysis (hrs) = 0.25								Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		254	45	125	235	58	97	1723	298	82	2897	85
Lane Group Capacity		209	299	212	218	1589	128	2700	1589	132	2793	1185	
v/c Ratio		1.22	0.15	0.59	1.08	0.04	0.76	0.64	0.19	0.62	1.04	0.07	
Green Ratio		0.12	0.19	0.13	0.13	1.00	0.07	0.57	1.00	0.07	0.57	0.72	
Uniform Delay d ₁		79.0	60.2	74.0	78.5	0.0	82.0	26.5	0.0	81.1	39.0	7.3	
Delay Factor k		0.50	0.11	0.18	0.50	0.11	0.31	0.22	0.11	0.20	0.50	0.11	
Incremental Delay d ₂		132.5	0.2	4.3	83.2	0.0	22.7	0.5	0.1	8.7	27.6	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.649	1.000	1.000	0.649	0.207	
Control Delay		211.5	60.4	78.3	161.7	0.0	104.6	17.7	0.1	89.8	52.9	1.5	
Lane Group LOS		F	E	E	F	A	F	B	A	F	D	A	
Approach Delay		188.7			114.3			19.2			52.5		
Approach LOS		F			F			B			D		
Intersection Delay		51.8			Intersection LOS					D			

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	1. US 301 & Mattawoman Rd				
Agency or Co.	The Traffic Group, Inc.	Area Type	All other areas				
Date Performed	7/8/08	Jurisdiction	Charles County, MD				
Time Period	SAT Peak	Analysis Year	Total				

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	1	1	1	1	3	1	1	3	1
Lane Group		LT	R	L	LT	R	L	T	R	L	T	R
Volume (vph)	171	158	33	295	148	51	137	2469	279	119	2629	95
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Arrival Type		3	3	3	3	3	4	4	4	4	4	4
Unit Extension		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		11.0	12.0	11.0	11.0	13.0	13.0	11.0	13.0	14.0	12.0	14.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0	0	0	0	0	0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EW Perm	WB Only	03	04	NS Perm	Thru & RT	07	08				
Timing	G = 19.0	G = 25.0	G =	G =	G = 12.0	G = 100.0	G =	G =				
	Y = 6	Y = 6	Y =	Y =	Y = 5	Y = 7	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate		343	34	160	301	53	143	2572	291	124	2739	99
Lane Group Capacity		195	290	247	254	1636	132	2752	1636	136	2847	1192	
v/c Ratio		1.76	0.12	0.65	1.19	0.03	1.08	0.93	0.18	0.91	0.96	0.08	
Green Ratio		0.11	0.18	0.14	0.14	1.00	0.07	0.56	1.00	0.07	0.56	0.71	
Uniform Delay d ₁		80.0	61.3	72.7	77.0	0.0	83.5	36.5	0.0	82.9	37.7	8.3	
Delay Factor k		0.50	0.15	0.25	0.50	0.15	0.50	0.45	0.15	0.44	0.47	0.15	
Incremental Delay d ₂		361.7	0.2	6.5	115.9	0.0	102.4	6.9	0.1	51.9	9.7	0.0	
PF Factor		1.000	1.000	1.000	1.000	0.950	1.000	0.660	1.000	1.000	0.660	0.231	
Control Delay		441.7	61.6	79.2	192.9	0.0	185.9	30.9	0.1	134.9	34.5	2.0	
Lane Group LOS		F	E	E	F	A	F	C	A	F	C	A	
Approach Delay		407.5			137.6			35.3			37.7		
Approach LOS		F			F			D			D		
Intersection Delay		64.4			Intersection LOS						E		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	1. US 301 & Mattawoman Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group, Inc.	Jurisdiction	Charles County, MD	Analysis Year	Total w/imp		
Date Performed	7/8/08						
Period	AM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT									
Number of Lanes	1	1	1	2	1	0	2	3	1	2	4	1
Lane Group	L	T	R	L	TR		L	T	R	L	T	R
Volume (vph)	58	73	5	161	83	14	64	1655	89	31	1617	39
% Heavy Vehicles	2	2	2	2	2	2	2	5	2	2	5	2
PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Arrival Type	3	3	3	3	3		4	4	4	4	4	4
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	11.0	12.0	11.0	11.0		13.0	11.0	13.0	14.0	12.0	14.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0	0	0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Timing	EB Only	WB Only	03	04	Excl. Left	Thru & RT	07	08
G =	24.0	25.0	G =	G =	G = 12.0	G = 65.0	G =	G =
Y =	6	6	Y =	Y =	Y = 5	Y = 7	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate	59	74	5	164	99		65	1689	91	32	1650
Lane Group Capacity	283	300	401	576	305		308	2097	1003	318	2892	1092
v/c Ratio	0.21	0.25	0.01	0.28	0.32		0.21	0.81	0.09	0.10	0.57	0.04
Green Ratio	0.16	0.17	0.25	0.17	0.17		0.09	0.44	0.61	0.09	0.44	0.65
Uniform Delay d ₁	54.7	54.3	41.9	53.9	54.3		63.7	36.4	11.9	63.1	31.4	9.6
Delay Factor k	0.11	0.11	0.11	0.11	0.11		0.11	0.35	0.11	0.11	0.17	0.11
Incremental Delay d ₂	0.4	0.4	0.0	0.3	0.6		0.3	2.4	0.0	0.1	0.3	0.0
PF Factor	1.000	1.000	1.000	1.000	1.000		1.000	0.849	0.542	1.000	0.849	0.448
Control Delay	55.1	54.7	42.0	54.2	54.9		64.1	33.3	6.5	63.3	26.9	4.3
Lane Group LOS	E	D	D	D	D		E	C	A	E	C	A
Approach Delay	54.4			54.5			33.1			27.1		
Approach LOS	D			D			C			C		
Intersection Delay	32.6			Intersection LOS						C		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	1. US 301 & Mattawoman Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group, Inc.	Jurisdiction	Charles County, MD	Analysis Year	Total w/imp		
Date Performed	7/8/08						
Time Period	PM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1	2	1	0	2	3	1	2	4	1
Lane Group	L	T	R	L	TR		L	T	R	L	T	R
Volume (vph)	119	130	44	235	118	57	95	1689	292	80	2839	83
% Heavy Vehicles	5	5	5	5	5	5	5	5	5	5	5	5
PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Arrival Type	3	3	3	3	3		4	4	4	4	4	4
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	11.0	12.0	11.0	11.0		13.0	11.0	13.0	14.0	12.0	14.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0	0	0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	EB Only	WB Only	03	04	Excl. Left	Thru & RT	07	08				
Timing	G = 23.0	G = 30.0	G =	G =	G = 13.0	G = 90.0	G =	G =				
	Y = 6	Y = 6	Y =	Y =	Y = 5	Y = 7	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate	121	133	45	240	178		97	1723	298	82	2897
Lane Group Capacity	220	233	325	556	287		268	2409	1077	277	3323	1103
v/c Ratio	0.55	0.57	0.14	0.43	0.62		0.36	0.72	0.28	0.30	0.87	0.08
Green Ratio	0.13	0.13	0.21	0.17	0.17		0.08	0.51	0.68	0.08	0.51	0.67
Uniform Delay d ₁	73.6	73.2	57.7	66.6	69.0		78.8	34.5	11.5	78.3	39.3	10.2
Delay Factor k	0.15	0.17	0.11	0.11	0.20		0.11	0.28	0.11	0.11	0.40	0.11
Incremental Delay d ₂	2.9	3.3	0.2	0.5	4.1		0.8	1.0	0.1	0.6	2.8	0.0
PF Factor	1.000	1.000	1.000	1.000	1.000		1.000	0.758	0.344	1.000	0.758	0.364
Control Delay	76.6	76.5	57.9	67.2	73.1		79.6	27.2	4.1	78.9	32.6	3.7
Lane Group LOS	E	E	E	E	E		E	C	A	E	C	A
Approach Delay	73.7			69.7			26.3			33.1		
Approach LOS	E			E			C			C		
Intersection Delay	35.3			Intersection LOS						D		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	1. US 301 & Mattawoman Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group, Inc.	Jurisdiction	Charles County, MD	Analysis Year	Total w/imp		
Date Performed	7/8/08						
Time Period	SAT Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1	2	1	0	2	3	1	2	4	1
Lane Group	L	T	R	L	TR		L	T	R	L	T	R
Volume (vph)	171	158	33	295	148	51	137	2469	279	119	2629	95
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Arrival Type	3	3	3	3	3		4	4	4	4	4	4
Unit Extension	3.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	11.0	12.0	11.0	11.0		13.0	11.0	13.0	14.0	12.0	14.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour	0	0	0	0	0		0	0	0	0	0	0
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Timing	EB Only	WB Only	03	04	Excl. Left	Thru & RT	07	08				
	G = 25.0	G = 27.0	G =	G =	G = 12.0	G = 92.0	G =	G =				
	Y = 6	Y = 6	Y =	Y =	Y = 5	Y = 7	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate	178	165	34	307	207		143	2572	291	124	2739
Lane Group Capacity	246	260	343	517	269		256	2534	1100	265	3495	1173
v/c Ratio	0.72	0.63	0.10	0.59	0.77		0.56	1.01	0.26	0.47	0.78	0.08
Green Ratio	0.14	0.14	0.22	0.16	0.16		0.07	0.52	0.67	0.07	0.52	0.69
Uniform Delay d ₁	74.2	72.5	56.4	70.7	72.9		80.7	43.5	11.8	80.2	35.3	8.9
Delay Factor k	0.28	0.24	0.15	0.22	0.34		0.19	0.50	0.15	0.15	0.35	0.15
Incremental Delay d ₂	10.1	5.7	0.2	2.2	13.4		3.3	21.7	0.2	1.8	1.3	0.0
PF Factor	1.000	1.000	1.000	1.000	1.000		1.000	0.740	0.364	1.000	0.740	0.279
Control Delay	84.3	78.2	56.6	72.9	86.3		84.1	53.9	4.5	82.0	27.4	2.5
Lane Group LOS	F	E	E	E	F		F	D	A	F	C	A
Approach Delay	79.1			78.3			50.5			28.9		
Approach LOS	E			E			D			C		
Intersection Delay	44.8			Intersection LOS						D		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	RH	Intersection	2. US 301 & Portal Place
Agency/Co.	The Traffic Group, Inc	Jurisdiction	Charles County, MD
Date Performed	7/25/2008	Analysis Year	Total
Analysis Time Period	AM Peak Hour		

Project Description: <i>Walmart Only</i>	
East/West Street: <i>Portal Place</i>	North/South Street: <i>US 301</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	57				886	
Peak-Hour Factor, PHF	0.98	1.00	1.00	1.00	0.98	1.00
Hourly Flow Rate, HFR (veh/h)	58	0	0	0	904	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Raised curb</i>					
RT Channelized			0			0
Lanes	1	0	0	0	2	0
Configuration	L				T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							
v (veh/h)	58							
C (m) (veh/h)	761							
v/c	0.08							
95% queue length	0.25							
Control Delay (s/veh)	10.1							
LOS	B							
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>RH</i>	Intersection	<i>2. US 301 & Portal Place</i>
Agency/Co.	<i>The Traffic Group, Inc</i>	Jurisdiction	<i>Charles County, MD</i>
Date Performed	<i>7/25/2008</i>	Analysis Year	<i>Total</i>
Analysis Time Period	<i>PM Peak Hour</i>		

Project Description: <i>Walmart Only</i>	
East/West Street: <i>Portal Place</i>	North/South Street: <i>US 301</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	<i>108</i>				<i>1535</i>	
Peak-Hour Factor, PHF	<i>0.98</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>0.98</i>	<i>1.00</i>
Hourly Flow Rate, HFR (veh/h)	<i>110</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1566</i>	<i>0</i>
Percent Heavy Vehicles	<i>0</i>	--	--	<i>0</i>	--	--
Median Type	<i>Raised curb</i>					
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>2</i>	<i>0</i>
Configuration	<i>L</i>				<i>T</i>	
Upstream Signal		<i>0</i>			<i>0</i>	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
Hourly Flow Rate, HFR (veh/h)	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Percent Heavy Vehicles	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Percent Grade (%)	<i>0</i>			<i>0</i>		
Front Approach		<i>N</i>			<i>N</i>	
Storage		<i>0</i>			<i>0</i>	
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>L</i>							
v (veh/h)	<i>110</i>							
C (m) (veh/h)	<i>427</i>							
v/c	<i>0.26</i>							
95% queue length	<i>1.02</i>							
Control Delay (s/veh)	<i>16.3</i>							
LOS	<i>C</i>							
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	RH	Intersection	2. US 301 & Portal Place
Agency/Co.	The Traffic Group, Inc	Jurisdiction	Charles County, MD
Date Performed	7/25/2008	Analysis Year	Total
Analysis Time Period	Sat Peak Hour		

Project Description: <i>Walmart Only</i>	
East/West Street: <i>Portal Place</i>	North/South Street: <i>US 301</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	150				1453	
Peak-Hour Factor, PHF	0.96	1.00	1.00	1.00	0.96	1.00
Hourly Flow Rate, HFR (veh/h)	156	0	0	0	1513	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Raised curb</i>					
RT Channelized			0			0
Lanes	1	0	0	0	2	0
Configuration	L				T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							
v (veh/h)	156							
C (m) (veh/h)	448							
v/c	0.35							
95% queue length	1.54							
Control Delay (s/veh)	17.3							
LOS	C							
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>RH</i>	Intersection	<i>3.. US 301 & Passage Place</i>
Agency/Co.	<i>The Traffic Group, Inc</i>	Jurisdiction	<i>Charles County, MD</i>
Date Performed	<i>7/10/2008</i>	Analysis Year	<i>Total</i>
Analysis Time Period	<i>AM Peak Hour</i>		

Project Description <i>Walmart Only</i>	
East/West Street: <i>Passage Place</i>	North/South Street: <i>US 301</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					901	0
Peak-Hour Factor, PHF	<i>0.98</i>	<i>0.98</i>	<i>0.98</i>	<i>0.98</i>	<i>0.98</i>	<i>0.98</i>
Hourly Flow Rate, HFR (veh/h)	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>919</i>	<i>0</i>
Percent Heavy Vehicles	<i>0</i>	<i>--</i>	<i>--</i>	<i>0</i>	<i>--</i>	<i>--</i>
Median Type	<i>Undivided</i>					
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>2</i>	<i>1</i>
Configuration					<i>T</i>	<i>R</i>
Upstream Signal		<i>0</i>			<i>0</i>	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			34			
Peak-Hour Factor, PHF	<i>0.98</i>	<i>0.98</i>	<i>0.98</i>	<i>0.98</i>	<i>0.98</i>	<i>0.98</i>
Hourly Flow Rate, HFR (veh/h)	<i>0</i>	<i>0</i>	<i>34</i>	<i>0</i>	<i>0</i>	<i>0</i>
Percent Heavy Vehicles	<i>0</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>0</i>
Percent Grade (%)		<i>0</i>			<i>0</i>	
Flared Approach		<i>N</i>			<i>N</i>	
Storage		<i>0</i>			<i>0</i>	
RT Channelized			<i>0</i>			<i>0</i>
Lanes	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>
Configuration			<i>R</i>			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								<i>R</i>
v (veh/h)								<i>34</i>
C (m) (veh/h)								<i>601</i>
v/c								<i>0.06</i>
95% queue length								<i>0.18</i>
Control Delay (s/veh)								<i>11.3</i>
LOS								<i>B</i>
Approach Delay (s/veh)	<i>--</i>	<i>--</i>				<i>11.3</i>		
Approach LOS	<i>--</i>	<i>--</i>				<i>B</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	RH	Intersection	3. US 301 & Passage Place
Agency/Co.	The Traffic Group, Inc	Jurisdiction	Charles County, MD
Date Performed	7/10/2008	Analysis Year	Total
Analysis Time Period	PM Peak Hour		

Project Description: <i>Walmart Only</i>	
East/West Street: <i>Passage Place</i>	North/South Street: <i>US 301</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					1575	0
Peak-Hour Factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1607	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	0	0	0	2	1
Configuration					T	R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			78			
Peak-Hour Factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Hourly Flow Rate, HFR (veh/h)	0	0	79	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	1	0	0	0
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								79
C (m) (veh/h)								386
v/c								0.20
95% queue length								0.76
Control Delay (s/veh)								16.7
LOS								C
Approach Delay (s/veh)	--	--				16.7		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>RH</i>	Intersection	<i>3. US 301 & Passage Place</i>
Agency/Co.	<i>The Traffic Group, Inc</i>	Jurisdiction	<i>Charles County, MD</i>
Date Performed	<i>7/10/2008</i>	Analysis Year	<i>Total</i>
Analysis Time Period	<i>Sat Peak Hour</i>		

Project Description: <i>Walmart Only</i>	
East/West Street: <i>Passage Place</i>	North/South Street: <i>US 301</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					1498	0
Peak-Hour Factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	1560	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	0	0	0	2	1
Configuration					T	R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			100			
Peak-Hour Factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Hourly Flow Rate, HFR (veh/h)	0	0	104	0	0	0
Percent Heavy Vehicles	0	0	2	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	1	0	0	0
Configuration			R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								104
C (m) (veh/h)								395
v/c								0.26
95% queue length								1.04
Control Delay (s/veh)								17.3
LOS								C
Approach Delay (s/veh)	--	--				17.3		
Approach LOS	--	--				C		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	4 US 301 & Sub-Station Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group	Jurisdiction	Charles County, MD	Analysis Year	Existing		
Date Performed	7/8/08						
Time Period	AM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes						1		3	1	1		
Lane Group						R		T	R	L		
Volume (vph)						164		1685	56	84		
% Heavy Vehicles						0		5	2	2		
PHF						0.94		0.94	0.94	0.94		
Pretimed/Actuated (P/A)								A	A	A		
Startup Lost Time						2.0		2.0	2.0	2.0		
Extension of Effective Green						2.0		2.0	2.0	2.0		
Arrival Type						3		4	4	4		
Unit Extension						3.0		3.0	3.0	3.0		
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0	
Lane Width						12.0		12.0	14.0	12.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour						0		0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	01	02	03	04	SB Only	NB Only	07	08				
Timing	G =	G =	G =	G =	G = 28.0	G = 110.0	G = 0.0	G = 0.0				
	Y =	Y =	Y =	Y =	Y = 5	Y = 7	Y = 0	Y = 0				
Duration of Analysis (hrs) = 0.25							Cycle Length C = 150.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate						174		1793	60	89	
Lane Group Capacity						1567		3615	1239	330		
v/c Ratio						0.11		0.50	0.05	0.27		
Green Ratio						0.95		0.73	0.73	0.19		
Uniform Delay d ₁						0.2		8.4	5.5	52.2		
Delay Factor k						0.11		0.11	0.11	0.11		
Incremental Delay d ₂						0.0		0.1	0.0	0.3		
PF Factor						1.071		0.216	0.216	1.000		
Control Delay						0.2		1.9	1.2	52.5		
Lane Group LOS						A		A	A	D		
Approach Delay				0.2			1.9			52.5		
Approach LOS				A			A			D		
Intersection Delay	3.9			Intersection LOS						A		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	4. US 301 & Sub-Station Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group	Jurisdiction	Charles County, MD	Analysis Year	Existing		
Date Performed	7/8/08						
Time Period	PM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes						1		3	1	1		
Lane Group						R		T	R	L		
Volume (vph)						196		1610	87	142		
% Heavy Vehicles						5		5	5	5		
PHF						0.98		0.98	0.98	0.98		
Pretimed/Actuated (P/A)								A	A	A		
Startup Lost Time						2.0		2.0	2.0	2.0		
Extension of Effective Green						2.0		2.0	2.0	2.0		
Arrival Type						3		4	4	4		
Unit Extension						3.0		3.0	3.0	3.0		
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0	0
Lane Width						12.0		12.0	14.0	12.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour						0		0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Timing	01	02	03	04	SB Only	NB Only	07	08				
G =	G =	G =	G =	G =	G = 51.0	G = 117.0	G = 0.0	G = 0.0				
Y =	Y =	Y =	Y =	Y =	Y = 5	Y = 7	Y = 0	Y = 0				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate						200		1643	89	145	
Lane Group Capacity						1504		3204	1067	487		
v/c Ratio						0.13		0.51	0.08	0.30		
Green Ratio						0.96		0.65	0.65	0.28		
Uniform Delay d ₁						0.2		16.5	11.7	50.5		
Delay Factor k						0.11		0.12	0.11	0.11		
Incremental Delay d ₂						0.0		0.1	0.0	0.0		
PF Factor						1.286		0.438	0.438	0.998		
Control Delay						0.2		7.4	5.1	50.4		
Lane Group LOS						A		A	A	D		
Approach Delay				0.2			7.3			50.4		
Approach LOS				A			A			D		
Intersection Delay	9.6			Intersection LOS						A		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	4. US 301 & Sub-Station Rd				
Agency or Co.	The Traffic Group	Area Type	All other areas				
Date Performed	7/8/08	Jurisdiction	Charles County, MD				
Time Period	Saturday Peak	Analysis Year	Existing				

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes						1		3	1	1		
Lane Group						R		T	R	L		
Volume (vph)						253		2281	110	80		
% Heavy Vehicles						2		2	2	2		
PHF						0.96		0.96	0.96	0.96		
Pretimed/Actuated (P/A)								A	A	A		
Startup Lost Time						2.0		2.0	2.0	2.0		
Extension of Effective Green						2.0		2.0	2.0	2.0		
Arrival Type						3		4	4	4		
Unit Extension						3.0		3.0	3.0	3.0		
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0	
Lane Width						12.0		12.0	14.0	12.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour						0		0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing	01	02	03	04	SB Only	NB Only	07	08				
Timing	G =	G =	G =	G =	G = 48.0	G = 120.0	G = 0.0	G = 0.0				
	Y =	Y =	Y =	Y =	Y = 5	Y = 7	Y = 0	Y = 0				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate						264		2376	115	83	
Lane Group Capacity						1548		3383	1126	472		
v/c Ratio						0.17		0.70	0.10	0.18		
Green Ratio						0.96		0.67	0.67	0.27		
Uniform Delay d ₁						0.2		18.8	10.7	50.8		
Delay Factor k						0.11		0.27	0.11	0.11		
Incremental Delay d ₂						0.1		0.7	0.0	0.1		
PF Factor						1.286		0.383	0.383	1.000		
Control Delay						0.3		7.9	4.2	50.9		
Lane Group LOS						A		A	A	D		
Approach Delay				0.3			7.7			50.9		
Approach LOS				A			A			D		
Intersection Delay	8.3			Intersection LOS						A		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Agency or Co.	The Traffic Group	Intersection	4 US 301 & Sub-Station Rd		
Date Performed	7/8/08			Area Type	All other areas		
Time Period	AM Peak			Jurisdiction	Charles County, MD		
				Analysis Year	Background		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes						1		3	1	1		
Lane Group						R		T	R	L		
Volume (vph)						179		1841	61	92		
% Heavy Vehicles						0		5	2	2		
PHF						0.94		0.94	0.94	0.94		
Pretimed/Actuated (P/A)								A	A	A		
Startup Lost Time						2.0		2.0	2.0	2.0		
Extension of Effective Green						2.0		2.0	2.0	2.0		
Arrival Type						3		4	4	4		
Unit Extension						3.0		3.0	3.0	3.0		
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0	
Lane Width						12.0		12.0	14.0	12.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour						0		0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Timing	01	02	03	04	SB Only	NB Only	07	08				
Timing	G =	G =	G =	G =	G = 28.0	G = 110.0	G = 0.0	G = 0.0				
	Y =	Y =	Y =	Y =	Y = 5	Y = 7	Y = 0	Y = 0				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 150.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate						190		1959	65	98	
Lane Group Capacity						1567		3615	1239	330		
v/c Ratio						0.12		0.54	0.05	0.30		
Green Ratio						0.95		0.73	0.73	0.19		
Uniform Delay d ₁						0.2		8.9	5.5	52.5		
Delay Factor k						0.11		0.14	0.11	0.11		
Incremental Delay d ₂						0.0		0.2	0.0	0.3		
PF Factor						1.071		0.216	0.216	1.000		
Control Delay						0.2		2.1	1.2	52.9		
Lane Group LOS						A		A	A	D		
Approach Delay				0.2			2.0			52.9		
Approach LOS				A			A			D		
Intersection Delay	4.1			Intersection LOS						A		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Agency or Co.	The Traffic Group	Intersection	4. US 301 & Sub-Station Rd		
Date Performed	7/8/08	Area Type	All other areas				
Time Period	PM Peak	Jurisdiction	Charles County, MD				
		Analysis Year	Background				

Volume and Timing Input																
	EB			WB			NB			SB						
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT				
Number of Lanes						1		3	1	1						
Lane Group						R		T	R	L						
Volume (vph)						214		1759	95	155						
% Heavy Vehicles						5		5	5	5						
PHF						0.98		0.98	0.98	0.98						
Pretimed/Actuated (P/A)								A	A	A						
Startup Lost Time						2.0		2.0	2.0	2.0						
Extension of Effective Green						2.0		2.0	2.0	2.0						
Arrival Type						3		4	4	4						
Unit Extension						3.0		3.0	3.0	3.0						
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0					
Lane Width						12.0		12.0	14.0	12.0						
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N				
Parking/Hour																
Bus Stops/Hour						0		0	0	0						
Minimum Pedestrian Time		3.2				3.2		3.2			3.2					
Phasing	01		02		03		04		SB Only		NB Only		07		08	
Timing	G =		G =		G =		G =		G = 51.0		G = 117.0		G = 0.0		G = 0.0	
	Y =		Y =		Y =		Y =		Y = 5		Y = 7		Y = 0		Y = 0	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 180.0							

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	Adjusted Flow Rate						218		1795	97	158		
Lane Group Capacity						1504		3204	1067	487			
v/c Ratio						0.14		0.56	0.09	0.32			
Green Ratio						0.96		0.65	0.65	0.28			
Uniform Delay d ₁						0.2		17.3	11.7	50.9			
Delay Factor k						0.11		0.16	0.11	0.11			
Incremental Delay d ₂						0.0		0.2	0.0	0.0			
PF Factor						1.286		0.438	0.438	0.998			
Control Delay						0.2		7.8	5.2	50.9			
Lane Group LOS						A		A	A	D			
Approach Delay				0.2			7.7			50.9			
Approach LOS				A			A			D			
Intersection Delay	10.0			Intersection LOS									A

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	4. US 301 & Sub-Station Rd				
Agency or Co.	The Traffic Group	Area Type	All other areas				
Date Performed	7/8/08	Jurisdiction	Charles County, MD				
Time Period	Saturday Peak	Analysis Year	Background				

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes						1		3	1	1		
Lane Group						R		T	R	L		
Volume (vph)						276		2493	120	87		
% Heavy Vehicles						2		2	2	2		
PHF						0.96		0.96	0.96	0.96		
Pretimed/Actuated (P/A)								A	A	A		
Startup Lost Time						2.0		2.0	2.0	2.0		
Extension of Effective Green						2.0		2.0	2.0	2.0		
Arrival Type						3		4	4	4		
Unit Extension						3.0		3.0	3.0	3.0		
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0	
Lane Width						12.0		12.0	14.0	12.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour						0		0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Timing	01	02	03	04	SB Only	NB Only	07	08				
Timing	G =	G =	G =	G =	G = 48.0	G = 120.0	G = 0.0	G = 0.0				
Timing	Y =	Y =	Y =	Y =	Y = 5	Y = 7	Y = 0	Y = 0				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate						288		2597	125	91	
Lane Group Capacity						1548		3383	1126	472		
v/c Ratio						0.19		0.77	0.11	0.19		
Green Ratio						0.96		0.67	0.67	0.27		
Uniform Delay d ₁						0.2		20.5	10.8	51.0		
Delay Factor k						0.11		0.32	0.11	0.11		
Incremental Delay d ₂						0.1		1.1	0.0	0.1		
PF Factor						1.286		0.383	0.383	1.000		
Control Delay						0.3		9.0	4.2	51.1		
Lane Group LOS						A		A	A	D		
Approach Delay				0.3			8.7			51.1		
Approach LOS				A			A			D		
Intersection Delay	9.2			Intersection LOS						A		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	4 US 301 & Sub-Station Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group	Jurisdiction	Charles County, MD	Analysis Year	Total		
Date Performed	7/8/08						
Time Period	AM Peak						

Volume and Timing Input																
	EB			WB			NB			SB						
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT				
Number of Lanes						1		3	1	1						
Lane Group						R		T	R	L						
Volume (vph)						185		1921	61	97						
% Heavy Vehicles						0		5	2	2						
PHF						0.94		0.94	0.94	0.94						
Pretimed/Actuated (P/A)								A	A	A						
Startup Lost Time						2.0		2.0	2.0	2.0						
Extension of Effective Green						2.0		2.0	2.0	2.0						
Arrival Type						3		4	4	4						
Unit Extension						3.0		3.0	3.0	3.0						
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0					
Lane Width						12.0		12.0	14.0	12.0						
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N				
Parking/Hour																
Bus Stops/Hour						0		0	0	0						
Minimum Pedestrian Time		3.2			3.2			3.2			3.2					
Phasing	01		02		03		04		SB Only		NB Only		07		08	
Timing	G =		G =		G =		G =		G = 28.0		G = 110.0		G = 0.0		G = 0.0	
	Y =		Y =		Y =		Y =		Y = 5		Y = 7		Y = 0		Y = 0	
Duration of Analysis (hrs) = 0.25									Cycle Length C = 150.0							

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate						197		2044	65	103	
Lane Group Capacity						1567		3615	1239	330		
v/c Ratio						0.13		0.57	0.05	0.31		
Green Ratio						0.95		0.73	0.73	0.19		
Uniform Delay d ₁						0.2		9.1	5.5	52.7		
Delay Factor k						0.11		0.16	0.11	0.11		
Incremental Delay d ₂						0.0		0.2	0.0	0.4		
PF Factor						1.071		0.216	0.216	1.000		
Control Delay						0.2		2.2	1.2	53.0		
Lane Group LOS						A		A	A	D		
Approach Delay				0.2			2.1			53.0		
Approach LOS				A			A			D		
Intersection Delay	4.2			Intersection LOS						A		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	4. US 301 & Sub-Station Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group	Jurisdiction	Charles County, MD	Analysis Year	Total		
Date Performed	7/8/08						
Time Period	PM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes						1		3	1	1		
Lane Group						R		T	R	L		
Volume (vph)						223		1877	95	164		
% Heavy Vehicles						5		5	5	5		
PHF						0.98		0.98	0.98	0.98		
Pretimed/Actuated (P/A)								A	A	A		
Startup Lost Time						2.0		2.0	2.0	2.0		
Extension of Effective Green						2.0		2.0	2.0	2.0		
Arrival Type						3		4	4	4		
Unit Extension						3.0		3.0	3.0	3.0		
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0	
Lane Width						12.0		12.0	14.0	12.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour						0		0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Timing												
	01	02	03	04	SB Only	NB Only	07	08				
G =	G =	G =	G =	G =	G = 51.0	G = 117.0	G = 0.0	G = 0.0				
Y =	Y =	Y =	Y =	Y =	Y = 5	Y = 7	Y = 0	Y = 0				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate						228		1915	97	167	
Lane Group Capacity						1504		3204	1067	487		
v/c Ratio						0.15		0.60	0.09	0.34		
Green Ratio						0.96		0.65	0.65	0.28		
Uniform Delay d ₁						0.2		18.0	11.7	51.2		
Delay Factor k						0.11		0.19	0.11	0.11		
Incremental Delay d ₂						0.0		0.3	0.0	0.0		
PF Factor						1.286		0.438	0.438	0.998		
Control Delay						0.3		8.2	5.2	51.2		
Lane Group LOS						A		A	A	D		
Approach Delay				0.3			8.1			51.2		
Approach LOS				A			A			D		
Intersection Delay	10.3			Intersection LOS						B		

SHORT REPORT

General Information				Site Information			
Analyst	RH	Intersection	4. US 301 & Sub-Station Rd	Area Type	All other areas		
Agency or Co.	The Traffic Group	Jurisdiction	Charles County, MD	Analysis Year	Total		
Date Performed	7/8/08						
Time Period	Saturday Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes						1		3	1	1		
Lane Group						R		T	R	L		
Volume (vph)						288		2649	120	99		
% Heavy Vehicles						2		2	2	2		
PHF						0.96		0.96	0.96	0.96		
Pretimed/Actuated (P/A)								A	A	A		
Startup Lost Time						2.0		2.0	2.0	2.0		
Extension of Effective Green						2.0		2.0	2.0	2.0		
Arrival Type						3		4	4	4		
Unit Extension						3.0		3.0	3.0	3.0		
Ped/Bike/RTOR Volume	0	0		0	0	0	0	0	0	0	0	
Lane Width						12.0		12.0	14.0	12.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour						0		0	0	0		
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	
Phasing												
Phasing	01	02	03	04	SB Only	NB Only	07	08				
Timing	G =	G =	G =	G =	G = 48.0	G = 120.0	G = 0.0	G = 0.0				
	Y =	Y =	Y =	Y =	Y = 5	Y = 7	Y = 0	Y = 0				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 180.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	Adjusted Flow Rate						300		2759	125	103	
Lane Group Capacity						1548		3383	1126	472		
v/c Ratio						0.19		0.82	0.11	0.22		
Green Ratio						0.96		0.67	0.67	0.27		
Uniform Delay d ₁						0.2		21.9	10.8	51.4		
Delay Factor k						0.11		0.36	0.11	0.11		
Incremental Delay d ₂						0.1		1.6	0.0	0.1		
PF Factor						1.286		0.383	0.383	1.000		
Control Delay						0.3		10.0	4.2	51.5		
Lane Group LOS						A		B	A	D		
Approach Delay				0.3			9.8			51.5		
Approach LOS				A			A			D		
Intersection Delay	10.2			Intersection LOS						B		

APPENDIX C

**Comparison of 2007 and
2013 Count Data**

VEHICLE TURNING MOVEMENT COUNT - SUMMARY

Intersection of: US 301
and: Substation Rd. / Business Access
Location: Charles Co., MD

Counted by: AN, RB
Date: November 14, 2007
Weather: Showers, Cool
Entered by: TT

Day: Wednesday



TIME	TRAFFIC FROM NORTH on: US 301					TRAFFIC FROM SOUTH on: US 301					TRAFFIC FROM EAST on: Substation Rd.					TRAFFIC FROM WEST on: Business Access					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
30-45	0	204	6	3	213	10	438	1	0	449	22				22	2				2	686
45-00	1	269	12	1	283	7	421	4	1	433	23				23	9				9	748
07:0-15	0	251	2	2	255	11	453	1	1	466	34				34	3				3	758
15-30	1	279	8	1	289	22	437	2	1	462	43				43	7				7	801
30-45	2	314	12	2	330	10	374	3	0	387	43				43	3				3	763
45-00	2	410	17	3	432	11	408	3	1	423	44				44	4				4	903
08:0-15	2	367	17	7	393	19	370	6	4	399	40				40	2				2	834
15-30	0	392	19	2	413	11	451	0	2	464	38				38	9				9	924
30-45	0	426	17	2	445	15	456	1	3	475	42				42	3				3	965
45-00	1	447	26	4	478	13	343	3	3	362	33				33	2				2	875
09:0-15	0	431	35	0	466	8	344	4	4	360	31				31	4				4	861
15-30	1	393	20	4	418	5	345	2	4	356	24				24	7				7	805
3 Hr Totals	10	4183	191	31	4415	142	4840	30	24	5036	417	0	0	0	417	55	0	0	0	55	9923
1 Hr Totals																					
630-730	2	1003	28	7	1040	50	1749	8	3	1810	122	0	0	0	122	21	0	0	0	21	2993
645-745	4	1113	34	6	1157	50	1685	10	3	1748	143	0	0	0	143	22	0	0	0	22	3070
07-08	5	1254	39	8	1306	54	1672	9	3	1738	164	0	0	0	164	17	0	0	0	17	3225
715-815	7	1370	54	13	1444	62	1589	14	6	1671	170	0	0	0	170	16	0	0	0	16	3301
730-830	6	1483	65	14	1568	51	1603	12	7	1673	165	0	0	0	165	18	0	0	0	18	3424
745-845	4	1595	70	14	1683	56	1685	10	10	1761	164	0	0	0	164	18	0	0	0	18	3625
08-09	3	1632	79	15	1729	58	1620	10	12	1700	153	0	0	0	153	16	0	0	0	16	3598
815-915	1	1696	97	8	1802	47	1594	8	12	1661	144	0	0	0	144	18	0	0	0	18	3625
830-930	2	1697	98	10	1807	41	1488	10	14	1553	130	0	0	0	130	16	0	0	0	16	3506
PEAK HOUR																					
745-845	4	1595	70	14	1683	56	1685	10	10	1761	164	0	0	0	164	18	0	0	0	18	3625
PM																					
04:0-15	0	614	35	4	653	18	357	3	5	383	57				57	6				6	1099
15-30	2	639	24	4	669	14	440	7	4	465	46				46	12				12	1192
30-45	1	720	33	4	758	17	418	2	0	437	52				52	11				11	1258
45-00	0	722	33	7	762	23	396	4	3	426	45				45	5				5	1238
05:0-15	2	677	31	3	713	35	405	1	0	445	54				54	6				6	1218
15-30	0	738	25	6	769	12	387	1	2	402	45				45	4				4	1220
30-45	1	632	52	3	688	12	387	3	4	406	43				43	5				5	1142
45-00	3	706	30	4	743	16	386	4	2	408	45				45	8				8	1204
06:0-15	2	704	30	2	738	21	375	2	2	400	46				46	8				8	1192
15-30	1	715	37	5	758	37	374	2	2	415	48				48	9				9	1230
30-45	0	602	26	1	629	21	351	3	3	378	45				45	16				16	1068
45-00	2	510	29	3	544	34	304	4	2	344	48				48	8				8	944
3 Hr Totals	14	7979	385	46	8424	250	4584	36	29	4909	574	0	0	0	574	98	0	0	0	98	14005
1 Hr Totals																					
04-05	3	2695	125	19	2842	72	1611	16	12	1711	200	0	0	0	200	34	0	0	0	34	4787
415-515	5	2758	121	18	2902	89	1663	14	7	1773	197	0	0	0	197	34	0	0	0	34	4906
430-530	3	2857	122	20	3002	87	1610	8	5	1710	196	0	0	0	196	26	0	0	0	26	4934
445-545	3	2769	141	19	2932	82	1579	9	9	1679	187	0	0	0	187	20	0	0	0	20	4818
05-06	6	2753	138	16	2913	75	1569	9	8	1661	187	0	0	0	187	23	0	0	0	23	4784
515-615	6	2780	137	15	2938	61	1535	10	10	1616	179	0	0	0	179	25	0	0	0	25	4758
530-630	7	2757	149	14	2927	86	1522	11	10	1629	182	0	0	0	182	30	0	0	0	30	4768
545-645	6	2727	123	12	2868	95	1485	11	9	1601	184	0	0	0	184	41	0	0	0	41	4694
06-07	5	2531	122	11	2669	113	1404	11	9	1537	187	0	0	0	187	41	0	0	0	41	4434
PEAK HOUR																					
430-530	3	2857	122	20	3002	87	1610	8	5	1710	196	0	0	0	196	26	0	0	0	26	4934

VEHICLE TURNING MOVEMENT COUNT - SUMMARY

Intersection of: US 301
and: Mattawoman Beantown Rd. / Mattawoman Rd.
Location: Charles Co., MD

Counted by: MC, TT
Date: November 14, 2007
Weather: Showers, Cool
Entered by: TT

Day: Wednesday



TIME	TRAFFIC FROM NORTH on: US 301					TRAFFIC FROM SOUTH on: US 301					TRAFFIC FROM EAST on: Mattawoman Beantown Rd.					TRAFFIC FROM WEST on: Mattawoman Rd.					TOTAL N + S + E + W	
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL		
AM																						
30-45	3	180	1	0	184	18	477	2	0	497	8	0	21	0	29	1	0	3	0	4		714
45-00	2	232	1	0	235	38	453	2	2	495	5	1	26	0	32	1	1	1	0	3		765
07:0-15	1	224	3	0	228	29	478	1	6	514	4	2	23	0	29	0	4	2	0	6		777
15-30	1	234	2	1	238	13	461	2	4	480	7	4	30	0	41	1	3	4	0	8		767
30-45	2	270	1	0	273	21	427	1	2	451	7	3	34	0	44	1	2	0	0	3		771
45-00	6	350	4	1	361	23	354	3	4	384	5	4	32	0	41	1	3	2	0	6		792
08:0-15	2	325	6	1	334	22	408	1	2	433	6	3	36	0	45	1	2	5	0	8		820
15-30	3	379	9	1	392	18	376	6	8	408	4	4	31	0	39	0	5	4	0	9		848
30-45	3	372	8	0	383	17	385	4	6	412	0	0	45	0	45	3	4	8	0	15		855
45-00	6	389	3	0	398	24	346	1	4	375	3	2	35	0	40	1	3	8	0	12		825
09:0-15	4	364	3	0	371	24	319	5	5	353	2	2	37	0	41	3	4	7	0	14		779
15-30	6	351	2	0	359	21	270	6	0	297	3	0	27	0	30	7	2	3	0	12		698
3 Hr Totals	39	3670	43	4	3756	268	4754	34	43	5099	54	25	377	0	456	20	33	47	0	100		9411
1 Hr Totals																						
630-730	7	870	7	1	885	98	1869	7	12	1986	24	7	100	0	131	3	8	10	0	21		3023
645-745	6	960	7	1	974	101	1819	6	14	1940	23	10	113	0	146	3	10	7	0	20		3080
07-08	10	1078	10	2	1100	86	1720	7	16	1829	23	13	119	0	155	3	12	8	0	23		3107
715-815	11	1179	13	3	1206	79	1650	7	12	1748	25	14	132	0	171	4	10	11	0	25		3150
730-830	13	1324	20	3	1360	84	1565	11	16	1676	22	14	133	0	169	3	12	11	0	26		3231
745-845	14	1426	27	3	1470	80	1523	14	20	1637	15	11	144	0	170	5	14	19	0	38		3315
08-09	14	1465	26	2	1507	81	1515	12	20	1628	13	9	147	0	169	5	14	25	0	44		3348
815-915	16	1504	23	1	1544	83	1426	16	23	1548	9	8	148	0	165	7	16	27	0	50		3307
830-930	19	1476	16	0	1511	86	1320	16	15	1437	8	4	144	0	156	14	13	26	0	53		3157
PEAK HOUR																						
08-09	14	1465	26	2	1507	81	1515	12	20	1628	13	9	147	0	169	5	14	25	0	44		3348
PM																						
04:0-15	5	595	15	0	615	42	387	2	7	438	10	0	40	0	50	3	9	5	0	17		1120
15-30	4	591	23	1	619	67	393	4	5	469	12	2	40	0	54	0	3	4	0	7		1149
30-45	1	646	19	0	666	72	389	6	4	471	9	1	39	0	49	6	2	1	0	9		1195
45-00	5	666	19	0	690	70	366	0	6	442	12	1	68	0	81	2	4	3	0	9		1222
05:0-15	4	649	15	0	668	54	396	0	8	458	16	3	55	0	74	4	3	3	0	10		1210
15-30	7	642	19	1	669	71	415	0	3	490	15	3	53	0	71	1	7	2	0	10		1240
30-45	4	628	26	2	660	73	340	0	5	418	6	2	48	0	56	3	10	4	0	17		1151
45-00	2	642	32	1	677	59	362	3	7	431	10	1	72	1	84	2	3	5	0	10		1202
06:0-15	1	651	18	2	672	70	351	1	4	426	12	0	46	0	58	2	5	6	0	13		1169
15-30	1	658	24	2	685	63	358	0	5	426	10	2	48	0	60	4	4	1	0	9		1180
30-45	16	560	19	1	596	51	311	0	5	367	10	4	44	0	58	3	4	3	0	10		1031
45-00	6	483	9	1	499	48	293	3	4	348	11	1	44	0	56	2	2	5	0	9		912
3 Hr Totals	56	7411	238	11	7716	740	4362	19	63	5184	133	20	597	1	751	32	56	42	0	130		13781
1 Hr Totals																						
04-05	15	2498	76	1	2590	251	1535	12	22	1820	43	4	187	0	234	11	18	13	0	42		4686
415-515	14	2552	76	1	2643	263	1544	10	23	1840	49	7	202	0	258	12	12	11	0	35		4776
430-530	17	2603	72	1	2693	267	1567	6	21	1861	52	8	215	0	275	13	16	9	0	38		4867
445-545	20	2585	79	3	2687	268	1516	0	22	1808	49	9	224	0	282	10	24	12	0	46		4823
05-06	17	2561	92	4	2674	257	1514	3	23	1797	47	9	228	1	285	10	23	14	0	47		4803
515-615	14	2563	95	6	2678	273	1469	4	19	1765	43	6	219	1	269	8	25	17	0	50		4762
530-630	8	2579	100	7	2694	265	1411	4	21	1701	38	5	214	1	258	11	22	16	0	49		4702
545-645	20	2511	93	6	2630	243	1382	4	21	1650	42	7	210	1	260	11	16	15	0	42		4582
06-07	24	2352	70	6	2452	232	1313	4	18	1567	43	7	182	0	232	11	15	15	0	41		4292
PEAK HOUR																						
430-530	17	2603	72	1	2693	267	1567	6	21	1861	52	8	215	0	275	13	16	9	0	38		4867

**Maryland State Highway Administration
Highway Information Services Division
Turning Movement Count Study - Field Sheet**

Station ID: S1999080006
Date: Wednesday 05/29/2013
Location: US 301 at Sub-Station Rd

County: Charles
Town: none
Weather: Clear

Comments: LOS AM:A(0.6) PM:D(0.8)

Interval (dd): 60 min

PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Begin	End	Volume	PM PERIOD 12:00PM-19:00PM	Begin	End	Volume
		11:00	12:00	4044		17:00	18:00	5035

Hour	US 301 From North				US 301 From South				Sub-Station Road From East				Parking Lot From West				Grand Total
	L	T	R	TOT	L	T	R	TOT	L	T	R	TOT	L	T	R	TOT	
6:00	21	611	12	644	7	1878	23	1908	0	0	127	127	0	0	14	14	2693
7:00	79	1366	26	1471	13	1907	38	1958	0	0	172	172	0	0	28	28	3629
8:00	78	1661	18	1757	25	1760	42	1827	0	0	187	187	0	0	18	18	3789
9:00	89	1683	16	1788	25	1564	48	1637	0	0	150	150	0	0	15	15	3590
10:00	130	1783	19	1932	20	1583	50	1653	0	0	160	160	0	0	17	17	3762
11:00	89	1889	25	2003	29	1746	62	1837	0	0	178	178	0	0	26	26	4044
12:00	106	1831	16	1953	35	1894	58	1987	0	0	203	203	0	0	15	15	4158
13:00	104	1939	16	2059	44	1857	78	1979	0	0	193	193	0	0	16	16	4247
14:00	122	2100	18	2240	46	1911	86	2043	0	0	193	193	0	0	21	21	4497
15:00	104	2442	21	2567	33	1768	78	1879	0	0	168	168	0	0	27	27	4641
16:00	110	2487	17	2614	39	1761	105	1905	0	0	244	244	0	0	9	9	4772
17:00	154	2655	13	2822	33	1797	134	1964	0	0	232	232	0	0	17	17	5035
18:00	78	2476	15	2569	30	1742	75	1847	0	0	174	174	0	0	16	16	4606
TOTAL	1264	24923	232	26419	379	23168	877	24424	0	0	2381	2381	0	0	239	239	53463
AM Peak	89	1889	25	2003	29	1746	62	1837	0	0	178	178	0	0	26	26	4044
PM Peak	154	2655	13	2822	33	1797	134	1964	0	0	232	232	0	0	17	17	5035

Hour	US 301 North Leg			US 301 South Leg			Sub-Station Road East Leg			Parking Lot West Leg		
	S.C.	PED.	U.T.	S.C.	PED.	U.T.	S.C.	PED.	U.T.	S.C.	PED.	U.T.
6:00	0	0	0	0	0	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
AM Peak	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak	0	0	0	0	0	0	0	0	0	0	0	0

**Maryland State Highway Administration
Highway Information Services Division
Turning Movement Count Study - Field Sheet**

Station ID: S1999080007
Date: Tuesday 05/21/2013
Location: US 301 at MD 5K/Mattawoman Dr

County: Charles
Town: none
Weather: Fair

Comments: LOS AM:A(0.53) PM:C(0.79)

Interval (dd): 60 min

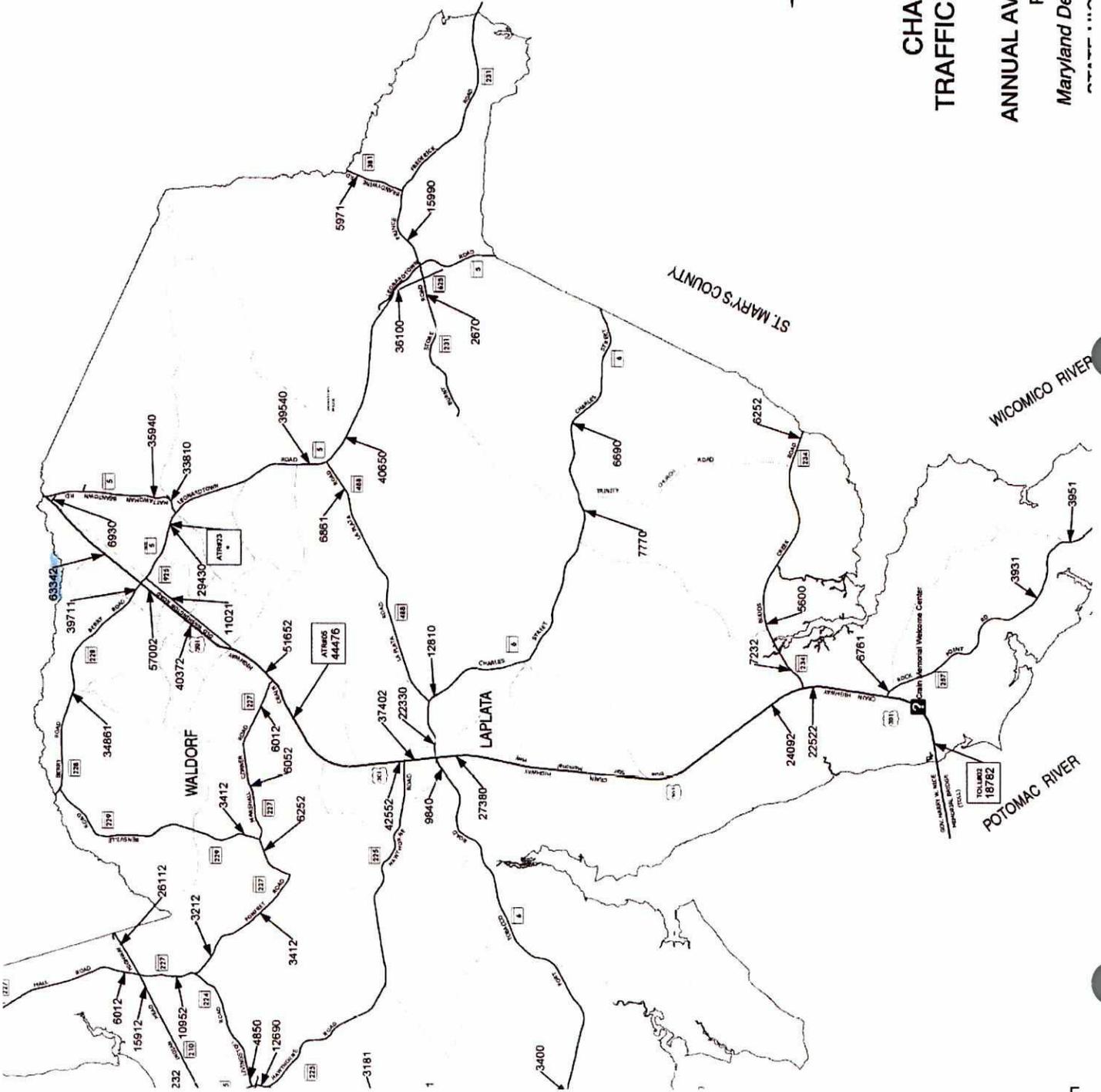
PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Begin	End	Volume	PM PERIOD 12:00PM-19:00PM	Begin	End	Volume
		08:00	09:00	3699		17:00	18:00	4922

Hour	US 301 From North				US 301 From South				MD 5K From East				Mattawoman Drive From West				Grand Total
	Begin	L	T	R	TOT	L	T	R	TOT	L	T	R	TOT	L	T	R	
6:00	9	750	17	776	4	2475	48	2527	78	8	34	120	20	8	4	32	3455
7:00	17	1153	51	1221	7	2028	89	2124	122	5	33	160	18	13	7	38	3543
8:00	31	1636	26	1693	19	1671	90	1780	135	10	28	173	35	13	5	53	3699
9:00	19	1521	18	1558	16	1567	98	1681	150	7	29	186	21	20	11	52	3477
10:00	32	1737	16	1785	8	1538	109	1655	122	6	21	149	21	14	13	48	3637
11:00	34	1712	13	1759	11	1590	77	1678	122	7	17	146	27	23	9	59	3642
12:00	35	1818	18	1871	12	1713	122	1847	149	7	23	179	45	14	21	80	3977
13:00	43	1827	17	1887	13	1845	129	1987	167	5	21	193	35	20	20	75	4142
14:00	27	2176	22	2225	17	1781	109	1907	139	5	21	165	26	16	8	50	4347
15:00	52	2449	17	2518	14	1615	133	1762	166	2	31	199	22	10	21	53	4532
16:00	52	2644	15	2711	12	1739	177	1928	163	4	39	206	21	16	11	48	4893
17:00	47	2694	20	2761	12	1702	146	1860	198	5	34	237	21	23	20	64	4922
18:00	59	2428	33	2520	2	1518	150	1670	186	3	27	216	16	12	3	31	4437
TOTAL	457	24545	283	25285	147	22782	1477	24406	1897	74	358	2329	328	202	153	683	52703
AM Peak	31	1636	26	1693	19	1671	90	1780	135	10	28	173	35	13	5	53	3699
PM Peak	47	2694	20	2761	12	1702	146	1860	198	5	34	237	21	23	20	64	4922

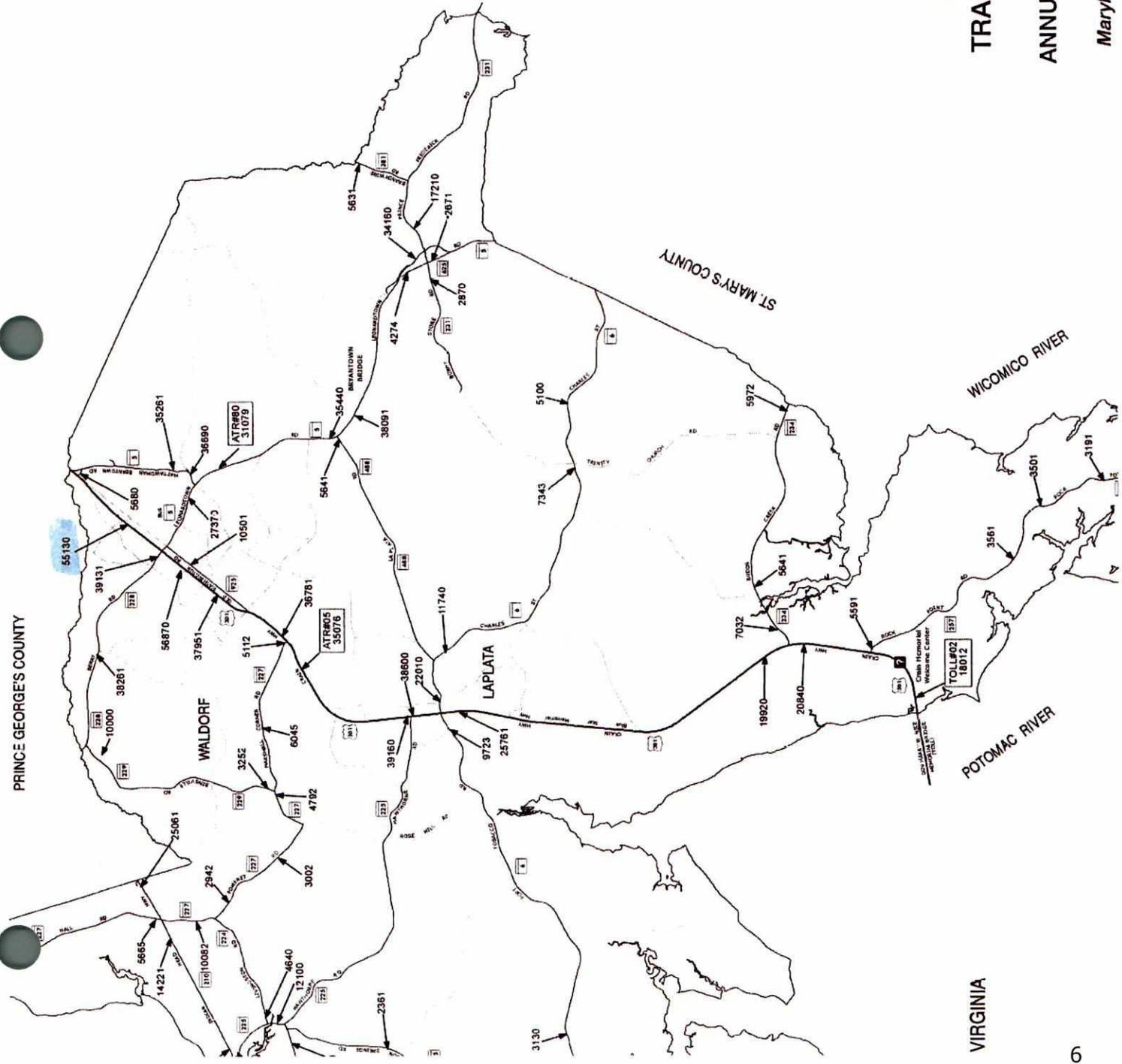
Hour	US 301 North Leg			US 301 South Leg			MD 5K East Leg			Mattawoman Drive West Leg			
	Ending	S.C.	PED.	U.T.	S.C.	PED.	U.T.	S.C.	PED.	U.T.	S.C.	PED.	U.T.
6:00	0	0	8	0	1	3	0	0	0	0	0	0	0
7:00	0	1	9	0	0	19	0	0	0	0	0	0	0
8:00	0	0	8	0	0	16	0	0	0	0	0	0	0
9:00	0	0	5	0	0	23	0	0	0	0	0	0	0
10:00	0	0	5	0	1	11	0	0	0	0	0	0	0
11:00	0	0	5	0	0	13	0	0	0	0	0	0	0
12:00	0	0	5	0	0	24	0	0	0	0	0	0	0
13:00	0	0	1	0	1	20	0	0	0	0	0	0	0
14:00	0	0	4	0	0	18	0	0	0	0	0	0	0
15:00	0	0	4	0	0	13	0	0	0	0	0	0	0
16:00	0	0	5	0	0	13	0	0	0	0	0	0	0
17:00	0	1	2	0	0	16	0	0	0	0	0	0	0
18:00	0	0	2	0	0	25	0	0	0	0	0	0	0
Total	0	2	63	0	3	214	0	0	0	0	0	0	0
AM Peak	0	0	8	0	0	16	0	0	0	0	0	0	0
PM Peak	0	1	2	0	0	16	0	0	0	0	0	0	0

CHARLES COUNTY TRAFFIC VOLUME MAP 2007

ANNUAL AVERAGE DAILY TRAFFIC
Prepared by the
Maryland Department of Transportation



PRINCE GEORGE'S COUNTY



CHARLES COUNTY
TRAFFIC VOLUME MAP
2013
 ANNUAL AVERAGE DAILY TRAFFIC
 Prepared by the
 Maryland Department of Transportation

VIRGINIA

Marlyn Haigis

Subject:

RE: Draft Special Conditions - Waldorf Crossing (UNCLASSIFIED)

From: George Junkin <george@americanlandconcepts.com>

Subject: Fwd: Draft Special Conditions - Waldorf Crossing (UNCLASSIFIED)

Date: February 2, 2015 at 4:22:53 PM EST

To: "Wyrough, Page" <rwyrough@chaneyenterprises.com>

----- Forwarded message -----

From: Harman, Steven S (Steve) NAB <STEVE.HARMAN@usace.army.mil>

Date: Mon, Feb 2, 2015 at 2:48 PM

Subject: Draft Special Conditions - Waldorf Crossing (UNCLASSIFIED)

To: George Junkin <george@americanlandconcepts.com>

Cc: "Anderson, Katherine B (Kathy) NAB" <Kathy.Anderson@usace.army.mil>

Classification: UNCLASSIFIED

Caveats: NONE

Hi George,

Please review the draft proposed special permit conditions before we finalize them for the permit.

Steve

Classification: UNCLASSIFIED

Caveats: NONE

**ATTACHMENT 1
SPECIAL CONDITIONS**

CENAB-OP-RMS (WALDORF CROSSING PROPERTY/WESTERN PARKWAY PHASE 2 & 3) 2007-66063

General Project Conditions:

1. Instream work must not be conducted from 1 March through 15 June, inclusive of any year.
2. The permittees must restore all temporarily impacted wetlands and stream banks, to preconstruction condition or better and any debris entering the waterway must be removed. Instream work must be conducted in the dry, (i.e., stream flow must be diverted or piped around the work area). Strict sedimentation and erosion control measures as indicated in the local sediment and erosion control plans must be implemented.
3. Utility lines installed by trenching method below the plane of the ordinary high water mark of any stream or waterway must be constructed under dry conditions, using stream diversion other than earthen cofferdams. In wetlands, the top 6 to 12 inches of the trench must be backfilled with the top 6 to 12 inches of topsoil removed from the trench.
4. Permanent culvert pipes that are greater than 24-inches in diameter must be countersunk a minimum of 12 inches below the natural stream invert.
5. The permittees must not store or use chemicals, stockpile materials and equipment, or park vehicles within waters of the U.S., including jurisdictional wetlands.
6. Within 60 days after project completion, the permittees must conduct an as-built survey, to scale, depicting the actual dimensions and locations of the completion of work within waters of the U.S., including jurisdictional wetlands, and must submit the survey to the Corps and notify the Corps to coordinate a compliance site visit.
 - a. The as built project plans survey must depict actual grading elevations and vegetation zones as well as include permanent cross-sectional transect locations and include all dimensions, as a baseline to determine if stream or wetland transformation occurs as a result of the project. This baseline should include photographic documentation; channel cross section; pattern and profile; ordinary high water mark; and channel and structure stability in relationship to permanent survey markers that must be installed. These documents must include as-built latitude/longitude coordinates and surveyed plans. The plans must also identify any project component that deviates from the attached approved plans and describe in detail the rationale for the deviation from the authorized plan.

Compensatory Mitigation Conditions:

7. All the compensatory mitigation work must be done in accordance with the proposed Waldorf Crossing/Western Parkway Phase 2 & 3 mitigation plans dated 18 September 2013.
 - a. The permittees must mitigate for authorized stream impacts by restoring a total of approximately 9,270 square feet along 1,185 linear feet of stream channel. Stream restoration/enhancement must be completed by elevating the incised stream bed to reconnect the stream with the floodplain; creating step pool structures; armoring the streambed; and removing debris, a concrete pad and invasive plant species.
 - b. Approximately 1.54 acres of riparian buffer must be restored by removing debris and trash; removing invasive plant species; and replanting with native riparian plant species.
 - c. The permittees must create 0.66 acres of forested wetlands with native woody wetland plant species in the area of the existing athletic field that is adjacent to and within the Mattawoman Creek floodplain.
 - d. The permittees must remove a building and waste lagoon associated with an abandoned dairy plant and restore 0.01 acres of non-tidal wetlands at that site.
 - e. The permittee must provide to the Baltimore District a copy of the purchase agreement for the 2.62 acres at the permittees responsible mitigation site known as Port Tobacco II Mitigation Site located on Maryland Route 225, in the Port Tobacco watershed, near La Plata, Charles County, Maryland.
 - i. The permittees must submit to the Baltimore District a copy of the two most recent monitoring reports that were submitted to the Maryland Department of the Environment for the parcel within the Port Tobacco II Consolidated Mitigation Site that was purchased as compensatory mitigation for this project.
 - ii. Within 30 days of the date of this permit, the permittees must provide copies of the wetland monitoring reports for the Port Tobacco II Mitigation Site parcel containing the non-tidal wetland mitigation area designated as compensation for the authorized impacts.
 - iii. Future monitoring reports, that completes a total five year period, including past reports, must be submitted to the Corps for our review.

- iv. Within 30 days of the date of this permit, the permittees must provide to the Baltimore District a copy of the signed purchase agreement for the 2.62 acre of mitigation credit at the "Port Tobacco II" Consolidated Mitigation Site.
8. The mitigation work must commence concurrently with or prior to construction of the authorized impacts and must be completed no later than 180 days from the mitigation project construction commencement date.
9. Within 60 days after the stream, riparian planting and wetland mitigation project completions, or before, the permittees must identify the party responsible for monitoring and inspecting the project site to comply with the conditions set forth herein.
10. The permittees must notify and provide to the Corps, a detailed description of any necessary corrective measures, including maintenance and repair, or alteration in any way, of the permitted mitigation work no later than 15 days prior to performance of such corrective measures for review and approval.
11. Within 60 days after stream, riparian planting and wetland and mitigation project completions, or before, the permittees must identify the party responsible for monitoring and inspecting the project sites to comply with the conditions set forth herein. The monitor must not be the party responsible for project design and construction. The monitor must contact the Corps for approval of any project changes prior to construction of any deviation from the authorized work.
12. Within 60 days after stream, riparian planting and wetland mitigation project completions, the permittees must conduct as-built surveys, to scale, and must submit the surveys to the Baltimore District to coordinate a compliance site visit.
 - a. The as built project plans must depict actual grading elevations and vegetation zones of the stream, riparian planting and wetland mitigation projects. For the stream restoration/enhancement project the as built surveys must also include permanent cross-sectional transect locations and include all dimensions, as a baseline to determine if stream transformation occurs as a result of the project. This baseline should include photographic documentation; channel cross section; pattern and profile; ordinary high water mark; and channel and structure stability in relationship to permanent survey markers that must be installed. The plans must also identify any project component that deviates from the attached approved plans and describe in detail the rationale for the deviation from the authorized plan.

Compensatory Mitigation Performance Standards

13. The permittees must remove debris and sediments within the stream, riparian planting and wetland mitigation project areas that may affect the integrity of the structures and determine if any remedial work is necessary. The permittees must maintain the as-built integrity of the authorized stream mitigation by retrieving any materials that may be dispersed outside of the boundaries of the structures and restoring the structures to the designed placement and must ensure that the mitigation is functionally mature and self-sustaining.
14. The permittees must notify and provide to the Baltimore District, a detailed description of any necessary corrective measures, including maintenance and repair, or alteration in any way, of the permitted stream, riparian planting and wetland mitigation projects no later than 15 days prior to performance of such corrective measures for review and approval. The permittees is not relieved of this requirement if the permittees abandons the permitted activity. Should the permittees wish to cease to maintain the authorized activity or should the permittees desire to abandon it without a good faith transfer, the permittees must obtain a modification of this permit from this office, which may require restoration of the areas.
 - a. Stream mitigation:
 - i. A dedicated stream specialist with specific experience in the design and construction of stream stabilization measures must provide onsite supervision during all aspects of the stream restoration project construction. The stream specialist must contact the Corps for approval of any project changes prior to construction of any deviation from the authorized work.
 - b. Riparian mitigation
 - i. At the end of the second growing season, the permittees must achieve a minimum of 55% survival rate of nursery stock planted or 435 trees per acre including any natural regeneration.
 - ii. As the riparian planting area performance standards are achieved and the District determines that the riparian areas are functionally mature and self-sustaining, the inspection and documentation requirement during the monitoring period may be reduced or eliminated, upon written approval by this office.
 - c. Wetland mitigation

- i. The permittees must ensure that both the onsite wetland enhancement and creation work and wetlands previously created at the Port Tobacco II Mitigation site will result in 85% hydrophytic vegetation (facultative or wetter) by the end of the 5-year establishment period and must have saturation to the surface (within 10-inches) for a minimum of 12.5% of the growing season (approximately 27 days). If these parameters are not met, the permittees must determine reasons for failure and take remedial measures. The permittees must ensure that the created or enhanced wetlands meet the Federal wetland criteria outlined in the report entitled "Corps of Engineers Wetlands Delineation Manual", dated January 1987, with current Corps of Engineers guidance within five years of completion of the wetland creation and enhancement mitigation sites.
15. If the stream, riparian planting and wetland mitigation projects cannot be constructed in accordance with the approved plans, or if monitoring or other information indicates that the project is not progressing towards meeting its performance standards as anticipated, the permittees must notify the Baltimore District immediately and provide recommended remedial actions for Baltimore District review and approval. Any modifications to the authorized project, requires prior approval from the Baltimore District.
16. The permittees must assume all liability for accomplishing the corrective work should the Baltimore District determine that the stream, riparian planting and wetland mitigation projects have not been fully satisfactory in meeting their stated goals or has an adverse effect on aquatic resources. If the Baltimore District does not find the stream, riparian planting and wetland mitigation projects satisfactory, the permittees will be required to develop a remediation plan and an extension of monitoring time may be required to cover any necessary remedial work.

Mitigation Monitoring

17. For a period of 5 years after stream, riparian planting and wetland mitigation project construction, the permittees must quarterly, and after any major storm event, such as hurricanes and nor'easters, inspect and document the stream, riparian planting and wetland mitigation areas to determine if there has been deterioration of planted stock or structures as a result of the storm events. For the stream and riparian planting mitigation sites, the annual inspections should include a visual inspection within eyesight of at least 200 feet downstream to determine if excess sedimentation occurs in the stream and/or wetlands downstream of the project area as a result of these projects.

18. The permittees must monitor the stream, riparian planting and wetland mitigation project areas for 5 consecutive years after mitigation work is completed. A monitoring report summarizing the findings of the monitoring must be submitted to the Baltimore District no later than December 31 of each year. The report must include information describing the success or failure of the stream, riparian planting and wetland creation areas; a description of any necessary remedial actions; and prescribed remedial actions with a time frame for implementing such actions. The monitoring report must include, but not be limited to, the following additional information:

- a. A narrative description of each of the mitigation areas (stream, riparian planting and wetland creation) and work efforts.
- b. A narrative description of observed failures/problems such as structure failure, erosion, siltation or plant die-off.
- c. Dates of site inspections.
- d. Description of species and measurements of any planted vegetative coverage.
- e. Photographic documentation, in digital form, taken within the same time frame during each monitoring year at established photographic plot points.
- f. Copies of field data sheets and/or forms.
- g. Description of the presence of invasive species and remedial actions to eradicate these plants.
- h. Documentation, including completion dates of remedial actions completed.

The monitoring reports must identify and evaluate changes in cross-section; pattern and profile; bed material; channel stability; structural stability and condition; a description of soil profiles 18 inches below the bottom of the pool bottom; and vegetation viability. The monitoring effort must include topographic surveys of monumental cross-sections within the project area, visual field observations, photographic documentation, vegetation viability measurements, and identify any necessary corrective measures.

19. If the mitigation areas do not thrive, the reasons for failure must be determined; corrective measures must be taken and the areas replanted. Remedial measures that may be taken include, but are not limited to; regrading; replanting; excavation; placement of fill or substrate amendments; removing sediment; altering hydrology; and controlling exotic species, weeds, and wildlife. An extension of the monitoring time may be required to cover any necessary remedial work.

Mitigation Monitoring Reports:

20. The permittees must provide annual reports (one hard copy and one digital copy) for five years. The annual reports are due to this office within 60 days of the conclusion

of each year. The annual reports must include a compilation and analysis of the reports outlined in condition #18 above and the following: identification and evaluation of any changes in channel cross-section; pattern and profile; channel stability (channel migration/aggradation/degradation); structure stability and condition; stream bed materials composition; a comparison of pre-construction and post construction project conditions; a description of any maintenance performed or needed; and photographic documentation.

Conservation Area Protective Instruments:

21. Within 90 days of the date of this letter, the permittees must permanently preserve the on-site stream, riparian planting and wetland mitigation areas by through recording of a Declaration of Restrictive Covenants attached which must be recorded in the land records of Charles County within (90) days of this authorization. The Declaration must attach a description of the mitigation area to be preserved including the acreage preserved, the site plan and a metes and bounds description of the mitigation site.
22. Within 90 days of the date of this letter, the permittees must permanently preserve the off-site wetland creation at the Port Tobacco II Consolidated Mitigation Site through recording of a Declaration of Restrictive Covenants attached which must be recorded in the land records of Charles County within (90) days of this authorization. The Declaration must attach a description of the mitigation area to be preserved including the acreage preserved, the site plan and a metes and bounds description of the mitigation site.

Financial Assurances

23. The permittees must comply with the **Mitigation Construction Performance Bond** to be executed in the amount of \$371,000, to provide financial assurance for the performance of all of the obligations, covenants, terms, conditions and agreements required of the Permittee under this authorization. The executed Mitigation Construction Performance Bond must be posted within 60 days of permit issuance or prior to commencement of impacts to aquatic resources, whichever occurs first. Once the Baltimore District determines that the wetland and stream mitigation projects are functionally mature and self-sustaining in accordance with the performance criteria, the performance bond may be phased-out or reduced, upon written approval by this office.
24. The permittee must comply with the **Mitigation, Maintenance and Monitoring Performance Bond** to be executed in the amount of \$284,050, to provide financial assurance for the performance of all of the obligations, covenants, terms, conditions

and agreements required of the Permittee under this authorization. The executed Mitigation, Maintenance and Monitoring Performance Bond must be provided to our office within 30 days prior to completion of the required mitigation. Once the Baltimore District determines that the wetland and stream mitigation projects are functionally mature and self-sustaining in accordance with the performance criteria, the performance bond may be phased-out or reduced, upon written approval by this office.

25. The permittees must renew the bonds at each 2-year interval so that the surety remains active for the entire construction period and for the 5-year monitoring period until monitoring concludes.

Other:

26. The permittees must maintain the work authorized herein, in good condition and in conformance with the terms and conditions of this permit.

DRAFT