ST. MARY'S COUNTY GOVERNMENT
DEPARTMENT OF
PUBLIC WORKS & TRANSPORTATION
James M. Gotsch, P.E.
Director

MEMORANDUM

DATE: May 30, 2024

TO: Jessica S.B. Andritz, ***Director***, Department of Land Use & Growth Management

FROM: Jesse J. Harper, ***Engineer III***, Department of Public Works & Transportation

SUBJECT: **CSP23-0265 Honda & Kia Dealership, Adequate Public Facilities (APF) Review**
Agent: Lenhart Traffic Consulting, Inc., c/o Mike Lenhart
Owner: CMA Properties, Inc.

This Department has reviewed the APF Report Form and Traffic Impact Study for the referenced project and we find it is acceptable.

- The project is located within the Lexington Park Development District and generates more than 50 peak hour trips; therefore, a traffic impact study is required and the level-of-service (LOS) which needs to be met is a LOS 'D'.
- Attached are copies of the Adequate Public Facility Report form as received with the certification signed and dated November 8, 2022, and a Traffic Impact Analysis (TIA) prepared by Lenhart Traffic Consulting, LLC, and dated April 25, 2024.
- The site entrance is proposed to have two right-in right-out access points onto Maryland State Route 235 (MD 235), between Maryland State Route 4 (MD 4) and First Colony Boulevard.
- In the attached TIA the intersection identified as Maryland State Route 235 (MD 235) @ First Colony Boulevard / Old Pine Court is misidentified and should read MD 235 @ First Colony Boulevard / California Boulevard.
- The intersection of MD 235 @ First Colony Boulevard / California Boulevard, and MD 235 @ Site Accesses currently operate at acceptable levels of service.
- The intersection of MD 4 @ MD 235 is projected to operate at an "E" level of service during the AM peak period and an "F" level of service during the PM peak. The project increase in traffic does not change the LOS of these intersections.
- The developer realizes that there are known deficiencies at the intersection of MD 4 @ MD 235 and has proffered a fee-in-lieu payment in the amount of **$18,500.00** to go towards the MD Route 235 at FDR Boulevard Intersection, California project which was identified in the Letter to the Secretary of Transportation Maryland Department of Transportation dated March 28, 2023, see attached. We realize that the improvements to the intersection will not occur prior to the development of the proposed site. For this reason, concurrence with LUGM and SHA will be required for this proposed mitigation.

- The developer will be responsible for access and road improvements as required by the State Highway Administration (SHA), and the road improvements should be operational before the certificate of occupancy is granted.

It is trusted that the above will assist in making the APF determination for this development. If you have any questions regarding this memo, please do not hesitate to contact this Department.

Jesse J. Harper, Engineer III JJH
Jesse.Harper@stmaryscountymd.gov

Attachments

cc: Jonathan Makhlouf, Regional Engineer, District 5 Access Management, MDOT SHA
Patt Mudd, Mudd Engineering, LLC
Mike Lenhart, Lenhart Traffic Consulting, Inc.

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Adequate Public Facilities Report
to
Department of Public Works & Transportation

Name of Development CMAP Auto Dealership **Date** 11/8/22

LU&GM Case File No. CSP23-0265 **Checked By** J. Harper JMG

1. In accordance with Article 7 of the St. Mary's County Comprehensive Zoning Ordinance, public roads within this development will be designed and constructed in accordance with the St. Mary's County Road Ordinance, and shall adequately accommodate vehicular traffic projected by this Department.

   The Development must be served by roads which have a Level of Service "D" in development districts or Level of Service "C" in all other areas.

   List existing roads and intersections that are directly affected by the proposed Development. Include from the point of first egress from and ingress to the proposed Development to the intersection with the first County collector road or State road in all directions.

2. This project is **inside / outside** (circle one) the Development District.

3. Describe Existing Geometry, Road Conditions, ADT, PHV, LOS and Existing Speed Limit.

Existing Road(s)	Lane Width	Shoulder Width & Type	ADT	PHV	LOS	Existing Conditions
MD 235	+/- 127'	+/- 6' - Paved	52,781	5,278	F	45 MPH
MD 4	+/1 78'	Variable Width - Paved	23,563	2,356	F	50 MPH

4. If direct residential access to a public road is proposed, existing # lots & dwellings currently served by the access road = N/A

5. Additional # lots or units proposed = N/A

6. Size of commercial/industrial building = 37,025 SF - Auto Dealership

7. Projected Zoning Ordinance or ITE trip generation rates = AM=1.86, PM=1.81+20.91, Daily=27.84

8. Specify independent variable used in computing ITE trip generation rates = Gross Floor Area [sf] - ITE Rates

9. Proposed ADT: 1,031 Trips Proposed PHV: AM=69 / PM=88 Proposed LOS: TBD

10. Specify proposed/future improvements to the public facility:

Access to the proposed site is via two right-in/right-out access points along MD 235. If needed, improvements will be identified in the TIA.

See attached exhibits for location of site, study intersections, detailed trip generation, trip assignment, and ADT analysis.

11. CERTIFICATION

I hereby certify that the data shown hereon is correct, existing conditions are as stated, and projected traffic volumes will not lower the Level of Service below an acceptable Level of Service after development.

Signed: C. Nicholas Driban Date: November 8, 2022

TRAFFIC IMPACT ANALYSIS

FOR

CMAP CAR DEALERSHIP

Prepared by:

LENHART TRAFFIC CONSULTING, INC.

TRAFFIC ENGINEERING & TRANSPORTATION PLANNING

April 25, 2024

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Appendices

List of Exhibits

Section 1 Introduction

1.1 Project Description

This Traffic Impact Analysis (TIA) has been prepared for the proposed CMAP Car Dealership to be located on the north side of MD 235, just east of the intersection with MD 4, in Lexington Park, Maryland. The location of the site is shown on **Exhibit 1**. The development is proposed to 47,538 square feet of automobile dealership space.

Access to the site is proposed with two right-in/right-out only access points along MD 235, between MD 4 and First Colony boulevard. A concept site plan has been included in Appendix A.

1.2 Scope of Study

This TIA has been prepared in accordance with the St. Mary's County Adequate Public Facilities Ordinance as detailed in the Comprehensive Zoning Ordinance (CZO). The CZO establishes the scope, methods, and thresholds for determining the adequacy of public facilities.

The study intersections included in this report were determined based on the guidance of the CZO, which states that the first intersection with a County- or State-maintained collector or arterial roadway in all directions should be included.

Section 70.7.3 establishes the Standards for Level of Service for roadways, stating "service levels shall be defined by the minimum level of service (LOS, as computed per the critical lane analysis method) for intersection capacity for developments in base zoning districts within planning districts designated in the Comprehensive Plan." Schedule 70.7.3, below, provides the allowable LOS for each base zoning district.

Schedule 70.7.3: Allowable Levels of Service

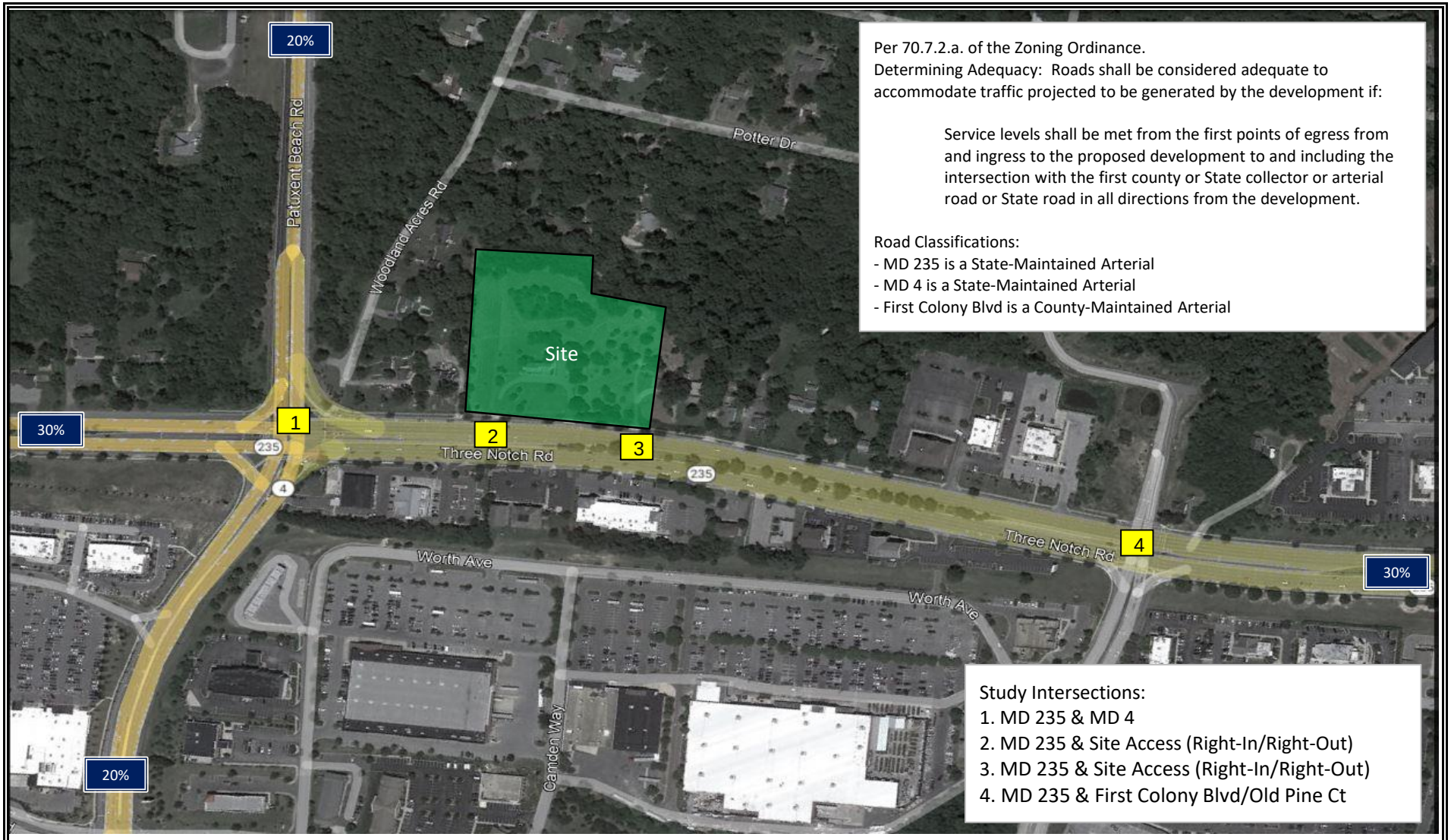
Base Zoning District	Comprehensive Plan District		Peak Hour
Residential Districts	Development Districts		LOS D
	Town Centers and Village Centers		LOS C
Commercial and Mixed Use Districts	Development Districts		LOS D
	Town Centers and Village Centers		LOS C
Industrial and Office Districts	Development Districts		LOS D
	Town Centers and Village Centers		LOC C
Rural Districts and Commercial Marine Districts	Rural Preservation District		LOS C

The proposed development is located within the Lexington Park Development District where the allowable level of service is LOS “D” or better.

Section 70.7.4 details the additional analyses that should be included in a Traffic Impact Analysis, beyond the required adequacy evaluation described above, and includes the following:

- A link capacity analysis shall be performed on the major public roadways within the study area where the traffic signal spacing exceeds two miles.
- An unsignalized analysis shall be utilized at intersections not programmed to be signalized at the time of the study. The result of the analysis shall be to determine proper lane usage at the intersection, and the need for traffic signal warrant analysis.
- A traffic signal warrant analysis shall be performed when appropriate using standard methodologies and criteria.
- Estimated queue lengths will be calculated to check the adequacy of the length of all turn lanes at each intersection.

It should be noted that the analyses described in Section 70.7.4 are not used in the determination of adequate public facilities, but rather to provide additional detail on the operation of the roadways and intersections within the study area.



Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Site Location Map

Exhibit 1

Section 2 Existing Conditions

2.1 Description of Roadway Network

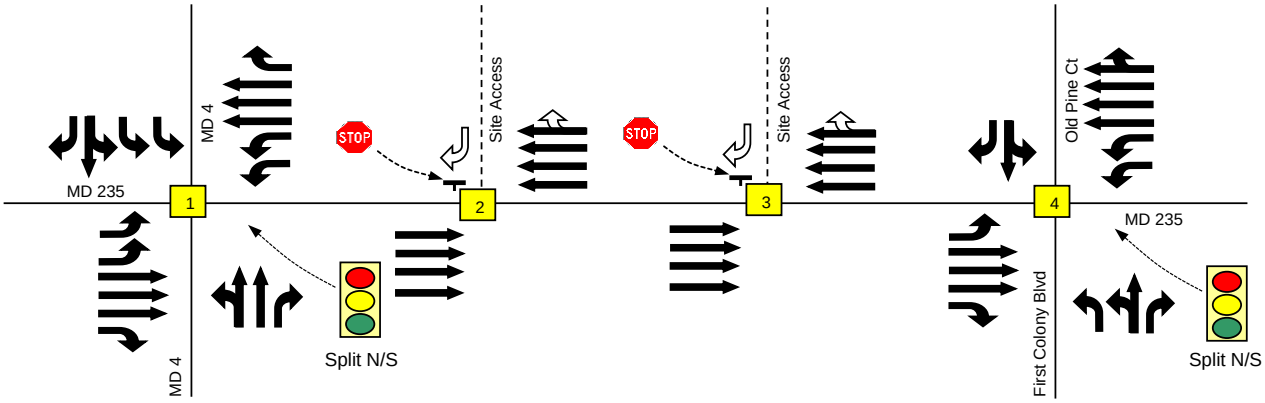
The key road in the study area is MD 235. MD 235 is a six to eight-lane roadway with an east-west orientation through the study network. The posted speed limit is 45 MPH in the vicinity of the site.

2.2 Lane Configurations

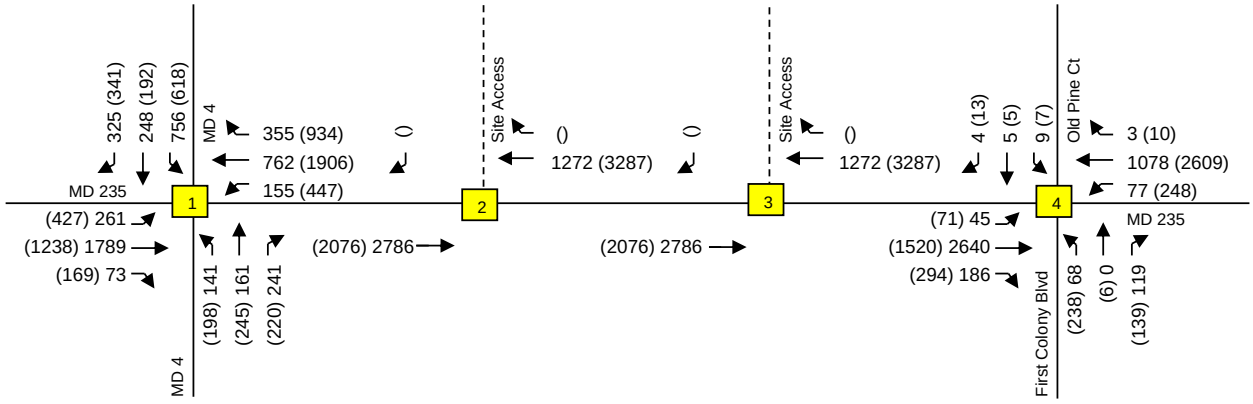
The Lane Use & Traffic Control Devices are shown on **Exhibit 2**.

2.3 Existing Traffic Counts

Peak hour turning movement counts were conducted and the subsequent existing peak hour traffic volumes are shown on **Exhibit 3**.



Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Lane Use & Traffic Control Devices → - Existing ⇒ - Proposed	**Exhibit 2**



Traffic Impact Analysis	Existing Peak Hour Volumes	**Exhibit 3**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

Section 3 Background Conditions

3.1 Annual Growth

A growth rate of 1% was applied to the existing peak hour volumes for three years based on the guidance of St. Mary's County Staff for other projects located within the vicinity of this development. The resulting base peak hour volumes are shown on **Exhibit 4.**

3.2 Background Developments

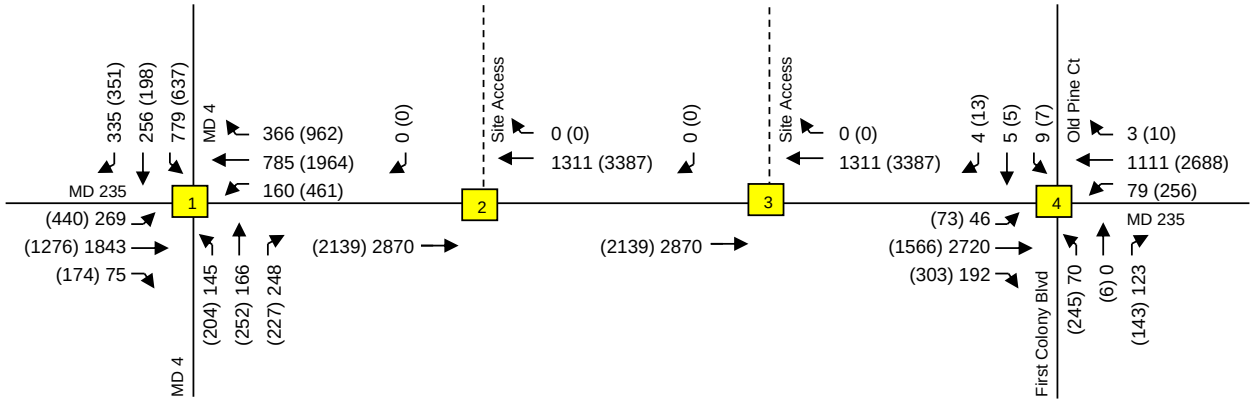
The following background developments were identified for other projects located nearby within the vicinity development:

- First Colony Apartments (CSP21-0202)
- Magic Tunnel Carwash (CSP21-0147)
- Old Rolling Road Apartments (CSP22-0099)
- Tidal Wave Car Wash
- Riverside Townhomes

The analyses of the background developments are included in Appendix C. Exhibit C-8 provides the combined trip assignment for all background developments.

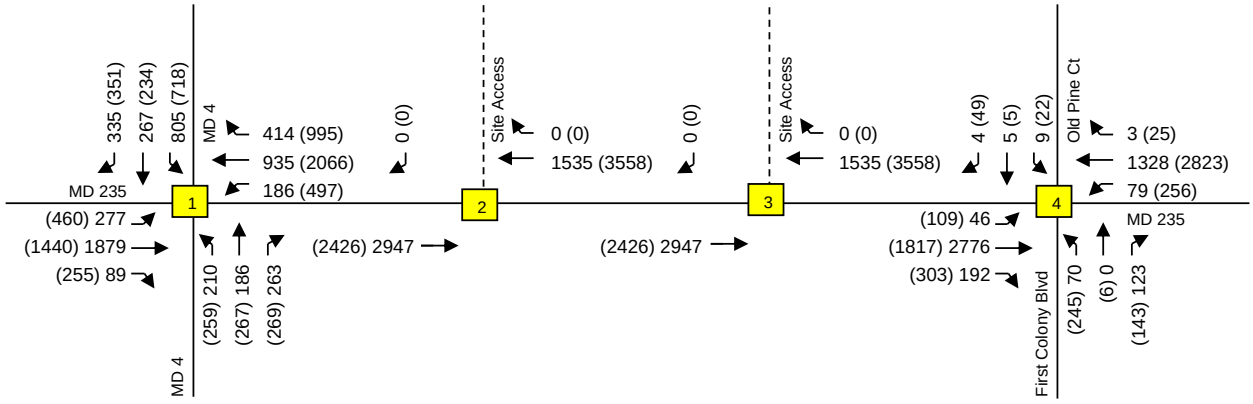
3.3 Background Peak Hour Volumes

The trips associated with the background development (Exhibit C-8) were combined with the base peak hour volumes (Exhibit 4) to obtain the background peak hour volumes, shown on **Exhibit 5**.



1.0%	Growth Rate
3	Years of Growth
1.030	Total Growth

Traffic Impact Analysis	Base Peak Hour Volumes	**Exhibit 4**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Background Peak Hour Volumes	**Exhibit 5**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

Section 4 Projected Conditions with Site

4.1 Site Trip Generation

Exhibit 6 shows the trip generation for the site. The trip generation rates were obtained from ITE Trip Generation Manual, 11th Edition.

4.2 Trip Distribution and Assignment

The inbound and outbound trip distributions and assignments are shown on **Exhibits 7a and 7b,** respectively.

4.3 Total Peak Hour Volumes

The total peak hour volumes are shown on **Exhibit 8.**

4.4 Projected Level of Service

Exhibit 9a shows the results of the Critical Lane Volume (CLV) analyses, as required to determine the adequacy of the study intersections per the St. Mary's County CZO. The results of the CLV analyses indicate that the intersection of MD 235 & MD 4 will not meet the LOS requirements of the Lexington Park Development District. It should be noted that the proposed development has very little impact on the operation of these intersections, as noted below:

- AM Peak Hour: CLV increase of 19, an impact of 1.3%.
- PM Peak Hour: CLV increase of 9, an impact of 0.6%.

The results of the HCM analyses, presented on **Exhibit 9b**, show that the site access approaches at MD 235 will operate with LOS "C" or better. This indicates that each site access point can operate adequately as designed and analyzed in this report.

4.5 95th Percentile Queuing Analysis

MDOT SHA's 95th percentile queuing formula was utilized to analyze queuing at turning movements with dedicated storage space at the study intersections. The results of the queuing analyses are shown on **Exhibits 10a and 10b** for the background and total conditions, respectively. The analyses indicate that the existing storage length is exceeded for the eastbound left-turn and westbound left-turn at the intersection with MD 235 & MD 4 during the evening peak hour. The queue for the eastbound left-turn movement is not impacted by the proposed development and the queue for the westbound left-turn movement increases by less than 50 feet (less than 2 vehicles), indicating the proposed development has little impact on the queues at this intersection.

4.6 Recommended Mitigation

Section 70.6 of the CZO states that in cases where public facilities are not adequate, mitigation may be required from an applicant to ensure that adequate levels of public facilities will be put in place concurrent with the development. Mitigation is described to include one or more of the following:

1. Dedication of property to the County.
2. Additional or special impact fees.
3. Fees in lieu of an improvement.
4. Participation in necessary private/public partnerships to provide required public facilities.
5. Developer agreements.
6. Off-site improvements.
7. Other mechanisms as may be determined to provide adequate public facilities by the Planning Director or Planning Commission, as the approving authority.

No improvements were identified at the deficient intersections that would proportionally mitigate the negligible impacts of the proposed development. Based on the above language of the CZO, specifically item #3, a fee-in-lieu payment should be permitted to address the deficient public facilities rather than constructing physical improvements. A pro rata contribution to planned improvements at the intersection of MD 235 & FDR Boulevard is recommended.

In the St. Mary's County Priority Funding Letter for the FY 2024 Consolidated Transportation Program (CTP), the intersection of MD 235 & FDR Boulevard was identified for a full movement signalized intersection, as follows:

"A signalized full movement intersection at MD 235 and FDR Blvd would positively affect the MD 235 and MD 4 intersection level of service and create a safer junction for both pedestrian and vehicle traffic. This intersection improvement will give the north bound traffic along FDR Blvd and east bound traffic along MD 4 an additional option that helps mitigate the number of vehicles at the MD 4 and MD 235 intersection while also better serving the residential and business developments along the section of FDR Blvd between MD 4 and MD 235."

It is recommended that the proposed development contributes a pro rata payment to fund the traffic signal at MD 235 & FDR Boulevard based on the impact of the development on each of the existing intersections in the study network. Recent cost estimates have estimated the cost of new traffic signals to be approximately $500,000. Similar to other projects in the area, the percentage of impact of the

proposed development is based on the percent increase from background to total conditions during the peak hour with the greatest impact. The chart below shows that the site contribution to the planned traffic signal at MD 235 & FDR Boulevard should be $18,500.00.

Intersection	Percent Impact	Contribution (% x $500,000)
MD 235 & MD 4	1.3%	
MD 235 & First Colony Boulevard	2.4%	
Total	**3.7%**	**$18,500.00**

An analysis of the study intersections with assumed diversions due to the signalization of MD 235 & FDR Boulevard is provided in Appendix D. Exhibit D-1 shows the assumed diversions associated with the signalization. Exhibit D-2 shows the resulting total peak hour volumes with the assumed diversions. Exhibit D-3 provides CLV analyses for each study intersection with the diversions associated with the signalization. As shown, a traffic signal at MD 235 & FDR Boulevard will fully mitigate the impacts of the proposed development on the study intersections, specifically at the intersection of MD 235 & MD 4, which does not meet the LOS standards of St. Mary's County or MDOT SHA.

Trip Generation Rates

Automobile Sales - New (ksf, ITE-840)

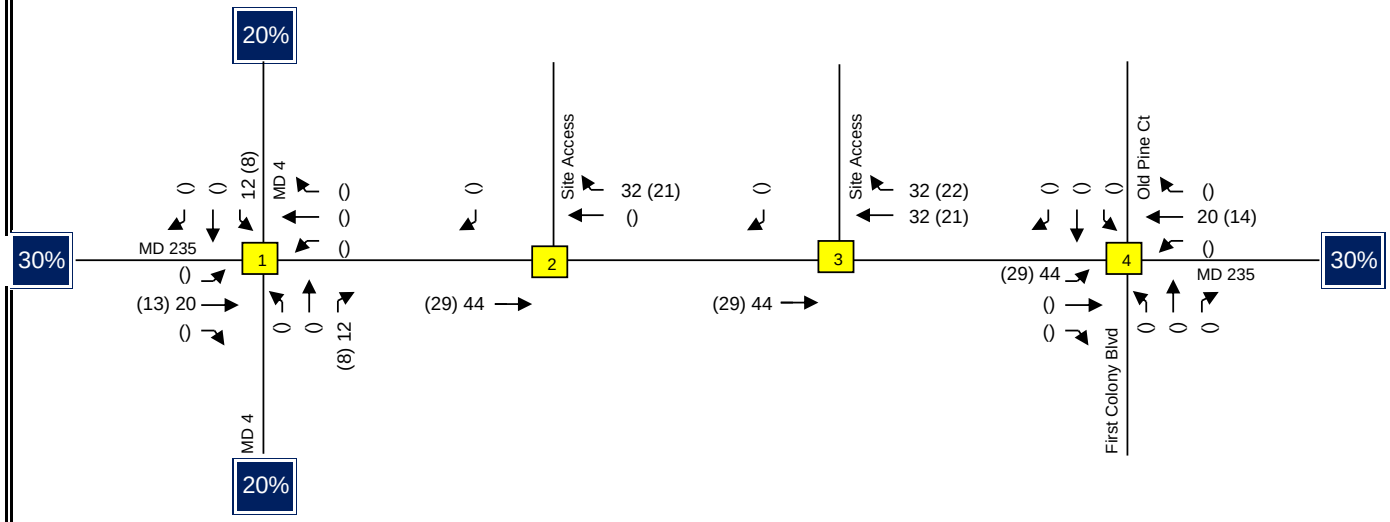
	Trip Distribution (In/Out)
Morning Trips = 1.86 x ksf	73/27
Evening Trips = 1.81 x ksf + 20.91	40/60

Trip Generation Totals

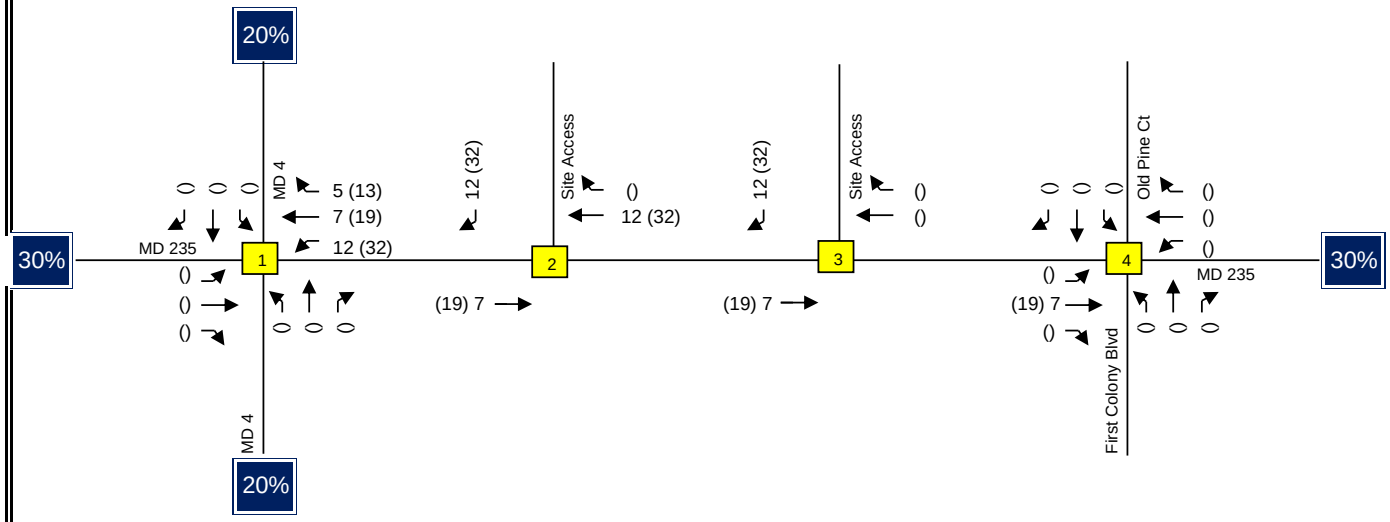
			AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
LU Code 840	Automobile Sales - New (ksf, ITE-840)	47,538 sq.ft.	64	24	88	43	64	107

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition, since there are no St. Mary's County Rates for this use.

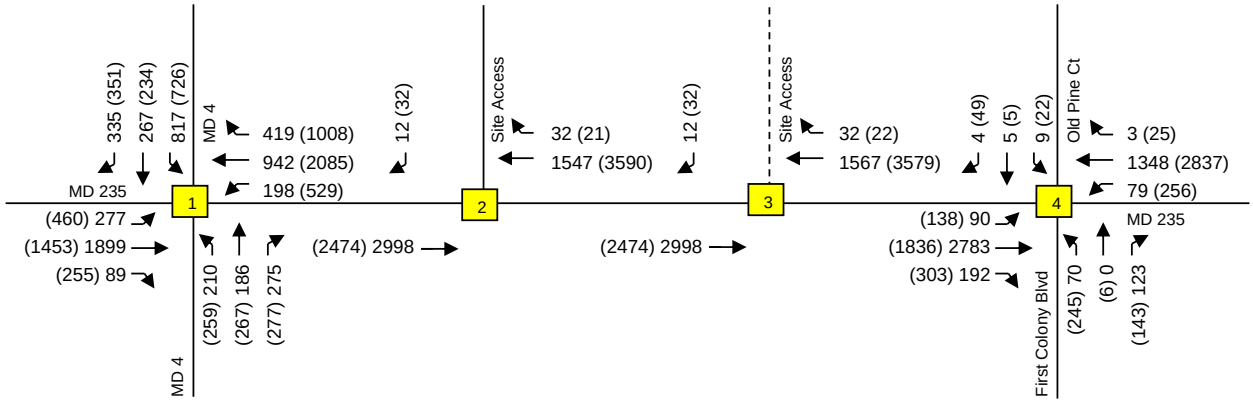
Traffic Impact Analysis	Trip Generation for Site	**Exhibit 6**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		



Traffic Impact Analysis	Inbound Trip Assignment for Site	**Exhibit 7a**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Outbound Trip Assignment for Site	**Exhibit 7b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Total Peak Hour Volumes	**Exhibit 8**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

CLV Level-of-Service Results

Morning Peak Hour	Existing CLV	Background CLV	Total CLV
1). MD 235 & MD 4	D / 1377	E / 1511	E / 1531
2). MD 235 & Site Access	N/A	N/A	A / 486
3). MD 235 & Site Access	N/A	N/A	A / 492
4). MD 235 & First Colony Blvd/Old Pine Ct	C / 1157	C / 1213	C / 1216
Evening Peak Hour	**Existing CLV**	**Background CLV**	**Total CLV**
1). MD 235 & MD 4	E / 1586	F / 1772	F / 1783
2). MD 235 & Site Access	N/A	N/A	B / 1115
3). MD 235 & Site Access	N/A	N/A	B / 1112
4). MD 235 & First Colony Blvd/Old Pine Ct	C / 1273	D / 1416	D / 1450

Notes:

1. The CZO states that intersections located within the Lexington Park Development District must operate with LOS "D" or better.

HCM Level-of-Service Results

Morning Peak Hour	Existing Delay	Background Delay	Total Delay
2). MD 235 & Site Access (Southbound Approach)	N/A	N/A	B / 11.5
3). MD 235 & Site Access (Southbound Approach)	N/A	N/A	B / 11.6
Evening Peak Hour	**Existing Delay**	**Background Delay**	**Total Delay**
2). MD 235 & Site Access (Southbound Approach)	N/A	N/A	C / 22.0
3). MD 235 & Site Access (Southbound Approach)	N/A	N/A	C / 22.0

Notes:

1. Section 70.7.4b of the CZO states "an unsignalized analysis shall be utilized at intersections not programmed to be signalized at the time of study. The result of the analysis shall be to determine the proper lane usage at the intersection, and the need for a traffic signal warrant analysis."
2. The level of service reported for the overall intersection is based on Intersection Capacity Utilization.

Maryland State Highway Administration Queuing Analysis Formula (Signalized Intersections)

Int 1: MD 235 & MD 4 (AM)	Available Queue Length (ft)	Maximum Queue (ft)	Vehicles / Hour	Lane Use Factor	Cycle Length (seconds)	Seconds / Hour	Feet / Vehicle	Surge Factor
Westbound Left	590	228	186	0.6	210	3600	25	1.4
Eastbound Left	385	340	277	0.6	210	3600	25	1.4
Int 1: MD 235 & MD 4 (PM)	**Available Queue Length (ft)**	**Maximum Queue (ft)**	**Vehicles / Hour**	**Lane Use Factor**	**Cycle Length (seconds)**	**Seconds / Hour**	**Feet / Vehicle**	**Surge Factor**
Westbound Left	590	725	497	0.6	250	3600	25	1.4
Eastbound Left	385	671	460	0.6	250	3600	25	1.4
Int 4: MD 235 & First Colony Blvd (AM)	**Available Queue Length (ft)**	**Maximum Queue (ft)**	**Vehicles / Hour**	**Lane Use Factor**	**Cycle Length (seconds)**	**Seconds / Hour**	**Feet / Vehicle**	**Surge Factor**
Westbound Left	440	97	79	0.6	210	3600	25	1.4
Eastbound Left	335	94	46	1	210	3600	25	1.4
Int 4: MD 235 & First Colony Blvd (PM)	**Available Queue Length (ft)**	**Maximum Queue (ft)**	**Vehicles / Hour**	**Lane Use Factor**	**Cycle Length (seconds)**	**Seconds / Hour**	**Feet / Vehicle**	**Surge Factor**
Westbound Left	440	374	256	0.6	250	3600	25	1.4
Eastbound Left	335	265	109	1	250	3600	25	1.4

Notes:
1. Lane Use Factor applied as follows: 1 indicates single turn lane, 0.6 indicates a double left turn lane, 0.4 indicates a triple left turn lane.
2. Available queue lengths do not include available taper area that may be used for storage. Available queue's for double left turn lanes are based on the average storage of the two lanes combined.
3. $\frac{\text{Maximum Queue (Ft)} \times \text{Turning Volume (veh per hour)} \times \text{Lane Use Factor} \times \text{Cycle Length (Seconds)} \times 25 \text{ Feet/Vehicle} \times 1.4 \text{ Surge Factor}}{3600 \text{ (Seconds per hour)}}$

Maryland State Highway Administration Queuing Analysis Formula (Signalized Intersections)

Int 1: MD 235 & MD 4 (AM)	Available Queue Length (ft)	Maximum Queue (ft)	Vehicles / Hour	Lane Use Factor	Cycle Length (seconds)	Seconds / Hour	Feet / Vehicle	Surge Factor
Westbound Left	590	243	198	0.6	210	3600	25	1.4
Eastbound Left	385	340	277	0.6	210	3600	25	1.4
Int 1: MD 235 & MD 4 (PM)	**Available Queue Length (ft)**	**Maximum Queue (ft)**	**Vehicles / Hour**	**Lane Use Factor**	**Cycle Length (seconds)**	**Seconds / Hour**	**Feet / Vehicle**	**Surge Factor**
Westbound Left	590	772	529	0.6	250	3600	25	1.4
Eastbound Left	385	671	460	0.6	250	3600	25	1.4
Int 4: MD 235 & First Colony Blvd (AM)	**Available Queue Length (ft)**	**Maximum Queue (ft)**	**Vehicles / Hour**	**Lane Use Factor**	**Cycle Length (seconds)**	**Seconds / Hour**	**Feet / Vehicle**	**Surge Factor**
Westbound Left	440	97	79	0.6	210	3600	25	1.4
Eastbound Left	335	184	90	1	210	3600	25	1.4
Int 4: MD 235 & First Colony Blvd (PM)	**Available Queue Length (ft)**	**Maximum Queue (ft)**	**Vehicles / Hour**	**Lane Use Factor**	**Cycle Length (seconds)**	**Seconds / Hour**	**Feet / Vehicle**	**Surge Factor**
Westbound Left	440	374	256	0.6	250	3600	25	1.4
Eastbound Left	335	335	138	1	250	3600	25	1.4

Notes:
1. Lane Use Factor applied as follows: 1 indicates single turn lane, 0.6 indicates a double left turn lane, 0.4 indicates a triple left turn lane.
2. Available queue lengths do not include available taper area that may be used for storage. Available queue's for double left turn lanes are based on the average storage of the two lanes combined.
3. $\frac{\text{Maximum Queue (Ft)} \times \text{Turning Volume (veh per hour)} \times \text{Lane Use Factor} \times \text{Cycle Length (Seconds)} \times 25 \text{ Feet/Vehicle} \times 1.4 \text{ Surge Factor}}{3600 \text{ (Seconds per hour)}}$

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Queuing Analyses
Total Conditions

EXHIBIT
10b

Section 5 Conclusions / Recommendations

5.1 Results of Analysis

This Traffic Impact Analysis (TIA) has been prepared for the proposed CMAP Car Dealership to be located on the north side of MD 235, just east of the intersection with MD 4, in Lexington Park, Maryland. The development is proposed to 47,538 square feet of automobile dealership space.

Access to the site is proposed with two right-in/right-out only access points along MD 235, between MD 4 and First Colony boulevard.

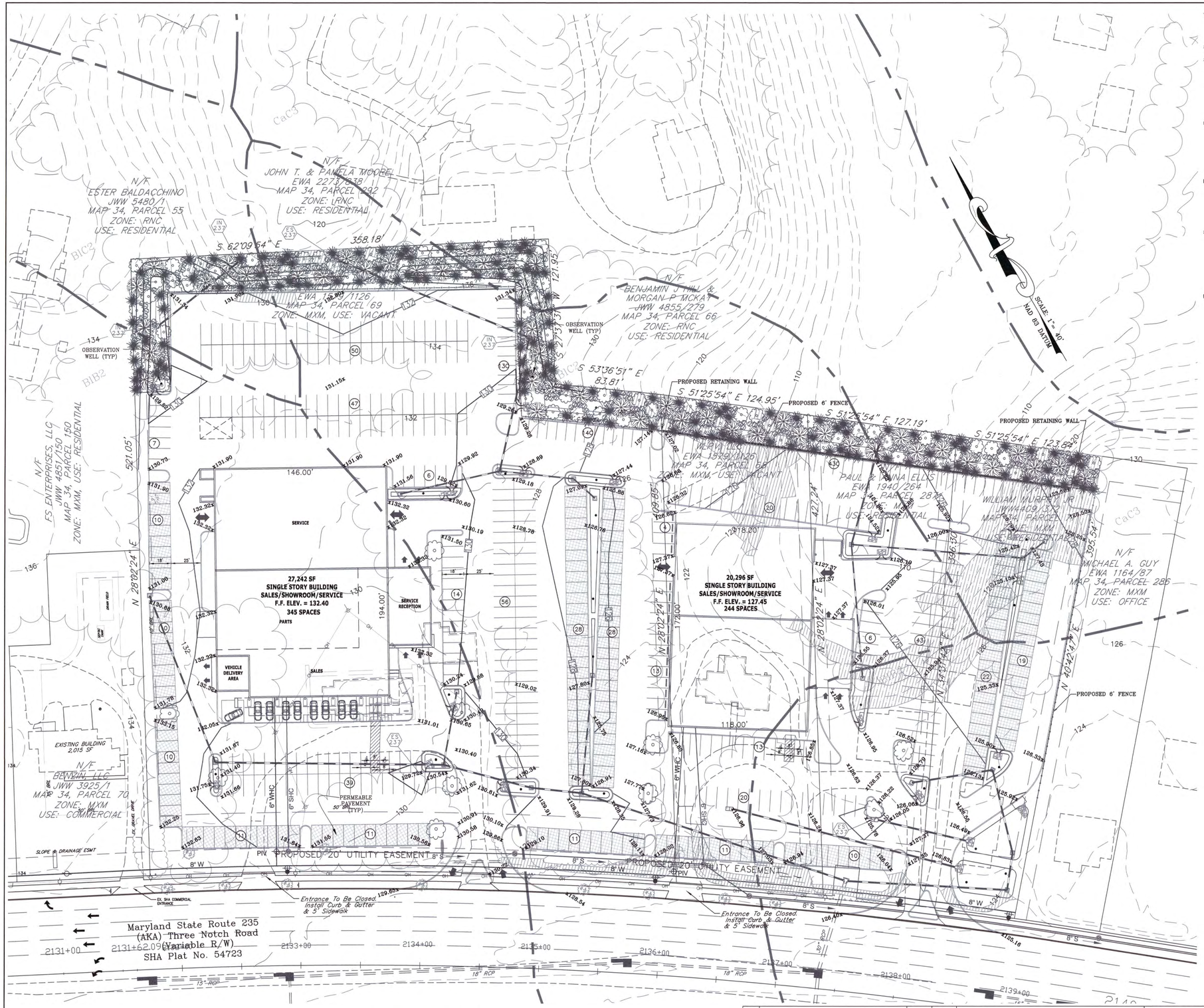
Based on the analyses contained in this report:

- CLV/HCM analyses indicate that the intersection of MD 235 & MD 4 will not meet adequacy requirements of St. Mary's County or MDOT SHA. It is recommended that a pro rata contribution of $18,500.00 is made to fund the planned traffic signal at MD 235 & FDR Boulevard in lieu of constructing physical improvements at this intersection.
- The site access points along MD 235 were found to operate acceptably based on the standards of St. Mary's County and MDOT SHA.
- 95th percentile queues were found to be contained within existing storage space at each of the study intersections with the exception of the east- and westbound left turns at MD 235 & MD 4. The contribution to the planned traffic signal should be considered as mitigation of the minimal queue impacts of the proposed development.

Based on the findings contained in this study, the proposed development will meet the requirements of St. Mary's County and MDOT SHA with the recommended fee-in-lieu contribution.

Appendix A

Supplemental Information
Turning Movement Counts



CONCEPT SITE PLAN
SCALE: 1" = 40'

TYPE 'C' BUFFERYARD LANDSCAPE SCHEDULE

1,051 LF OF PROPERTY ADJACENT TO RNC ZONED LANDS. THESE QUANTITIES CAN BE REDUCED WHERE EXISTING VEGETATION INCLUDES THE CATEGORIES OF PLANTS LISTED BELOW.

SHADE TREE(S)

SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS	LOCATION
		ACER RUBRUM	RED MAPLE	2 1/2-3" CAL	B&B	BUFFERYARD
		QUERCUS PHELLOS	WILLOW OAK	2 1/2-3" CAL	B&B	BUFFERYARD
		PLANTANUS X ACERIFOLIA 'BLOODGOOD'	BLOODGOOD LONDON PLANETREE	2 1/2-3" CAL	B&B	BUFFERYARD

TOTAL = 52

UNDERSTORY TREE(S)

PYRUS CALLERYANA REDSPIRE	REDSPIRE CALLERY PEAR	2 1/2 - 3"	B&B	BUFFERYARD
LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	8' - 10'	B&B	BUFFERYARD
CERCIS CANADENIS	EASTERN REDBUD	2" - 2 1/2"	B&B	BUFFERYARD
CORNUS FLORIDA	FLOWERING DOGWOOD	8' - 10'	B&B	BUFFERYARD

TOTAL = 74

EVERGREEN TREE(S)

PINUS NIGRA	AUSTRIAN PINE	6' - 7'	B&B	BUFFERYARD
PINUS TAEDA	LOBLOLLY PINE	8' - 10'	B&B	BUFFERYARD
ILEX X 'NELLIE R STEVENS'	NELLIE STEVENS HOLLY	4' - 5'	B&B	BUFFERYARD

TOTAL = 147

SHRUB(S)

ILEX OPACA	AMERICAN HOLLY	15" - 18"	5 GAL	BUFFERYARD
BERBERIS THUNBERGII	RED BARBERRY	12" - 15"	5 GAL	BUFFERYARD
LEX GLABRA	INKBERRY	12" - 15"	5 GAL	BUFFERYARD
HAMEMELIS VIRGINIANA	WITCH HAZEL	12" - 15"	5 GAL	BUFFERYARD
MYRICA PENNSYLVANICA	NORTHERN BAYBERRY	12" - 15"	5 GAL	BUFFERYARD

TOTAL = 284

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE. THE ABOVE PLANT TYPES MAY BE SUBSTITUTED BY THE OWNER AS DESIRED PROVIDED THEY ARE NATIVE SPECIES.

1 TREE AND 3 SHRUBS FROM MBIO#2 ARE PART OF THE TOTAL PLANTS INCLUDED WITHIN THIS BUFFERYARD.

PARKING AREA LANDSCAPE SCHEDULE:

105 PARKING SPACES REQUIRES 10 TREES

SHADE TREE(S)

SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS	LOCATION

ORNAMENTAL TREE(S)

PYRUS CALLERYANA REDSPIRE	REDSPIRE CALLERY PEAR	2 1/2 - 3"	B&B	PARKING
LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	8' - 10'	B&B	PARKING
CERCIS CANADENIS	EASTERN REDBUD	2" - 2 1/2"	B&B	PARKING
CORNUS FLORIDA	FLOWERING DOGWOOD	8' - 10'	B&B	PARKING

TOTAL = 10

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE. THE ABOVE PLANT TYPES MAY BE SUBSTITUTED BY THE OWNER AS DESIRED PROVIDED THEY ARE NATIVE SPECIES.

NO.	REVISIONS	BY	DATE

Date: 4/14/2023 | CAD Standards Version: AutoCAD 2019
Designed: PHM | Technician: | Checked: PHM

Mudd Engineering, LLC
103 Glades Turn
Panama City Beach, Florida 32407
(410) 474-8163
muddeng@gmail.com

OWNER/DEVELOPER INFORMATION
CMA PROPERTIES, INC.
P.O. BOX 7823
CHARLOTTESVILLE, VA 22906
PHONE: (434) 466-5354

STATE OF MARYLAND
PHILIP H. MUDD
No. 19982
REGISTERED
PROFESSIONAL ENGINEER
8.3.23

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the Laws of the State of Maryland, License No. 19422, Expiration Date 03/25/25.

LUGM #

CONCEPT SITE & LANDSCAPE PLAN

HONDA & KIA DEALERSHIPS

8TH. ELECTION DISTRICT
ST. MARY'S COUNTY, MARYLAND

SCALE
ONE INCH
1"= 40'

CONCEPT SWM E&S SHEET 2
SHEET 2
OF 6

PROJECT NO.
HONDA

C:\MISCELLANEOUS\HONDA\concept 4-17-23.DWG

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	MD 4 Northbound					MD 4 Southbound					MD 235 Eastbound					MD 235 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
6:30-6:45	0	17	39	32	0	0	142	38	61	0	3	51	334	8	0	5	28	151	78	0	987
6:45-7:00	0	54	43	62	0	0	205	50	87	0	5	31	345	10	0	4	19	168	89	0	1172
7:00-7:15	0	35	40	61	0	0	141	38	70	0	2	49	391	16	0	9	25	197	68	0	1142
7:15-7:30	1	38	37	51	1	0	223	74	82	0	7	57	356	14	0	4	31	171	96	0	1242
7:30-7:45	0	22	39	65	0	0	207	60	90	0	3	64	492	21	0	2	53	204	81	0	1403
7:45-8:00	0	47	46	66	0	0	170	70	84	0	2	52	480	15	0	6	28	166	98	0	1330
8:00-8:15	0	33	39	59	1	0	156	44	69	0	6	70	461	23	0	6	25	221	80	0	1292
8:15-8:30	0	34	57	70	0	0	190	55	83	0	7	43	335	15	0	6	28	157	97	0	1177
8:30-8:45	1	39	42	46	0	0	180	39	79	0	6	70	333	20	0	4	38	184	89	0	1170
8:45-9:00	0	45	34	55	0	0	167	50	60	0	10	64	370	25	0	5	32	191	74	0	1182
9:00-9:15	0	41	46	42	2	0	109	53	62	0	9	45	259	17	0	6	32	162	102	0	985
9:15-9:30	0	59	30	55	1	0	141	58	59	0	3	54	259	29	0	9	35	180	84	0	1055
Hourly Totals																					
6:30-7:30	1	144	159	206	1	0	711	200	300	0	17	188	1426	48	0	22	103	687	331	0	4544
6:45-7:45	1	149	159	239	1	0	776	222	329	0	17	201	1584	61	0	19	128	740	334	0	4960
7:00-8:00	1	142	162	243	1	0	741	242	326	0	14	222	1719	66	0	21	137	738	343	0	5118
7:15-8:15	1	140	161	241	2	0	756	248	325	0	18	243	1789	73	0	18	137	762	355	0	5269
7:30-8:30	0	136	181	260	1	0	723	229	326	0	18	229	1768	74	0	20	134	748	356	0	5203
7:45-8:45	1	153	184	241	1	0	696	208	315	0	21	235	1609	73	0	22	119	728	364	0	4970
8:00-9:00	1	151	172	230	1	0	693	188	291	0	29	247	1499	83	0	21	123	753	340	0	4822
8:15-9:15	1	159	179	213	2	0	646	197	284	0	32	222	1297	77	0	21	130	694	362	0	4516
8:30-9:30	1	184	152	198	3	0	597	200	260	0	28	233	1221	91	0	24	137	717	349	0	4395

AM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**Total**
7:15-8:15	**1**	**140**	**161**	**241**	**2**	**0**	**756**	**248**	**325**	**0**	**18**	**243**	**1789**	**73**	**0**	**18**	**137**	**762**	**355**	**0**	**5269**

Weekday Evening Peak Hour (4 pm - 7 pm)

	MD 4 Northbound					MD 4 Southbound					MD 235 Eastbound					MD 235 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	47	49	52	0	0	102	41	68	0	4	91	344	41	0	13	73	515	234	0	1674
4:15-4:30	1	52	67	60	0	0	174	52	83	0	5	109	277	42	0	18	88	429	239	0	1696
4:30-4:45	0	45	55	43	0	0	144	48	91	0	7	85	356	36	0	10	92	523	262	0	1797
4:45-5:00	0	54	71	59	0	0	171	51	92	0	8	118	262	40	0	12	115	454	223	0	1730
5:00-5:15	0	46	52	58	0	0	129	41	75	0	8	87	343	51	0	16	96	500	210	0	1712
5:15-5:30	1	48	68	32	0	0	142	52	76	0	5	112	269	23	0	16	110	370	234	0	1558
5:30-5:45	0	45	55	60	0	0	119	42	62	0	6	81	322	26	0	9	79	408	177	0	1491
5:45-6:00	0	54	62	41	0	0	135	47	86	0	11	78	255	32	0	11	69	268	141	0	1290
6:00-6:15	0	33	47	42	0	1	104	37	44	0	7	60	261	35	0	7	61	332	174	0	1245
6:15-6:30	0	44	42	34	0	0	102	33	54	0	7	68	232	19	0	14	69	236	139	0	1093
6:30-6:45	1	32	38	36	0	0	96	30	51	0	12	47	224	29	0	5	49	255	114	0	1019
6:45-7:00	1	27	37	19	0	0	95	44	46	0	12	56	195	16	0	19	43	190	105	0	905
Hourly Totals																					
4:00-5:00	1	198	242	214	0	0	591	192	334	0	24	403	1239	159	0	53	368	1921	958	0	6897
4:15-5:15	1	197	245	220	0	0	618	192	341	0	28	399	1238	169	0	56	391	1906	934	0	6935
4:30-5:30	1	193	246	192	0	0	586	192	334	0	28	402	1230	150	0	54	413	1847	929	0	6797
4:45-5:45	1	193	246	209	0	0	561	186	305	0	27	398	1196	140	0	53	400	1732	844	0	6491
5:00-6:00	1	193	237	191	0	0	525	182	299	0	30	358	1189	132	0	52	354	1546	762	0	6051
5:15-6:15	1	180	232	175	0	1	500	178	268	0	29	331	1107	116	0	43	319	1378	726	0	5584
5:30-6:30	0	176	206	177	0	1	460	159	246	0	31	287	1070	112	0	41	278	1244	631	0	5119
5:45-6:45	1	163	189	153	0	1	437	147	235	0	37	253	972	115	0	37	248	1091	568	0	4647
6:00-7:00	2	136	164	131	0	1	397	144	195	0	38	231	912	99	0	45	222	1013	532	0	4262

PM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**Total**
4:15-5:15	**1**	**197**	**245**	**220**	**0**	**0**	**618**	**192**	**341**	**0**	**28**	**399**	**1238**	**169**	**0**	**56**	**391**	**1906**	**934**	**0**	**6935**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 4 & MD 235
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Wednesday, November 29, 2023
Jurisdiction: St. Marys County

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	First Colony Blvd Northbound					California Blvd Southbound					MD 235 Eastbound					MD 235 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
6:30-6:45	0	10	2	16	0	0	1	1	4	0	7	0	521	27	0	0	10	202	0	0	801
6:45-7:00	0	13	1	23	0	0	4	1	0	0	4	0	580	35	0	2	13	235	2	0	913
7:00-7:15	0	2	0	32	0	0	2	0	4	0	7	0	534	33	0	0	20	270	1	0	905
7:15-7:30	0	16	0	23	0	0	2	1	1	0	5	0	662	35	0	2	16	256	1	0	1020
7:30-7:45	0	20	0	23	0	0	4	3	2	0	9	2	650	39	0	0	22	296	0	0	1070
7:45-8:00	0	17	0	36	0	0	1	0	1	0	9	0	671	56	0	0	13	273	0	0	1077
8:00-8:15	0	15	0	37	0	0	2	1	0	0	19	1	657	56	0	1	23	253	2	0	1067
8:15-8:30	0	18	0	37	0	0	6	0	0	0	8	0	547	53	0	0	22	249	1	0	941
8:30-8:45	0	22	1	30	0	0	2	0	2	0	9	2	478	53	0	0	25	259	0	0	883
8:45-9:00	0	26	0	39	0	0	1	1	2	0	13	0	479	65	0	1	48	252	0	0	927
9:00-9:15	0	24	0	34	0	0	4	0	3	0	6	0	419	51	0	3	42	231	1	0	818
9:15-9:30	0	28	1	32	0	0	0	0	2	0	5	0	401	63	0	0	38	259	0	0	829
Hourly Totals																					
6:30-7:30	0	41	3	94	0	0	9	3	9	0	23	0	2297	130	0	4	59	963	4	0	3639
6:45-7:45	0	51	1	101	0	0	12	5	7	0	25	2	2426	142	0	4	71	1057	4	0	3908
7:00-8:00	0	55	0	114	0	0	9	4	8	0	30	2	2517	163	0	2	71	1095	2	0	4072
7:15-8:15	0	68	0	119	0	0	9	5	4	0	42	3	2640	186	0	3	74	1078	3	0	4234
7:30-8:30	0	70	0	133	0	0	13	4	3	0	45	3	2525	204	0	1	80	1071	3	0	4155
7:45-8:45	0	72	1	140	0	0	11	1	3	0	45	3	2353	218	0	1	83	1034	3	0	3968
8:00-9:00	0	81	1	143	0	0	11	2	4	0	49	3	2161	227	0	2	118	1013	3	0	3818
8:15-9:15	0	90	1	140	0	0	13	1	7	0	36	2	1923	222	0	4	137	991	2	0	3569
8:30-9:30	0	100	2	135	0	0	7	1	9	0	33	2	1777	232	0	4	153	1001	1	0	3457

AM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**Total**
7:15-8:15	**0**	**68**	**0**	**119**	**0**	**0**	**9**	**5**	**4**	**0**	**42**	**3**	**2640**	**186**	**0**	**3**	**74**	**1078**	**3**	**0**	**4234**

Weekday Evening Peak Hour (4 pm - 7 pm)

	First Colony Blvd Northbound					California Blvd Southbound					MD 235 Eastbound					MD 235 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	60	2	33	0	0	2	2	3	0	12	1	398	85	0	2	64	720	5	0	1389
4:15-4:30	0	64	1	34	0	0	1	0	5	0	16	1	352	74	0	2	59	623	2	0	1234
4:30-4:45	0	54	2	41	0	0	3	2	0	0	17	0	394	66	0	0	55	702	2	0	1338
4:45-5:00	0	60	1	31	0	0	1	1	5	2	22	2	376	69	0	0	66	564	1	0	1199
5:00-5:15	0	60	0	42	0	0	1	2	2	0	23	0	406	83	0	0	56	604	1	0	1280
5:15-5:30	0	61	1	31	0	0	0	0	2	0	19	0	387	64	0	0	66	574	3	0	1208
5:30-5:45	0	67	0	31	0	0	1	3	3	0	15	1	413	74	0	0	53	504	3	0	1168
5:45-6:00	0	59	1	37	0	0	2	1	1	0	18	0	306	63	0	3	62	427	1	0	981
6:00-6:15	0	44	1	31	0	0	1	1	1	0	12	2	364	73	0	1	51	452	2	0	1036
6:15-6:30	1	53	1	37	0	0	0	0	4	0	8	1	292	54	0	1	42	385	2	0	881
6:30-6:45	0	53	0	21	0	0	2	1	1	0	12	2	272	69	0	1	37	301	2	0	774
6:45-7:00	0	44	0	22	0	0	0	0	1	0	13	0	304	59	0	1	40	286	1	0	771
Hourly Totals																					
4:00-5:00	0	238	6	139	0	0	7	5	13	2	67	4	1520	294	0	4	244	2609	10	0	5162
4:15-5:15	0	238	4	148	0	0	6	5	12	2	78	3	1528	292	0	2	236	2493	6	0	5053
4:30-5:30	0	235	4	145	0	0	5	5	9	2	81	2	1563	282	0	0	243	2444	7	0	5027
4:45-5:45	0	248	2	135	0	0	3	6	12	2	79	3	1582	290	0	0	241	2246	8	0	4857
5:00-6:00	0	247	2	141	0	0	4	6	8	0	75	1	1512	284	0	3	237	2109	8	0	4637
5:15-6:15	0	231	3	130	0	0	4	5	7	0	64	3	1470	274	0	4	232	1957	9	0	4393
5:30-6:30	1	223	3	136	0	0	4	5	9	0	53	4	1375	264	0	5	208	1768	8	0	4066
5:45-6:45	1	209	3	126	0	0	5	3	7	0	50	5	1234	259	0	6	192	1565	7	0	3672
6:00-7:00	1	194	2	111	0	0	3	2	7	0	45	5	1232	255	0	4	170	1424	7	0	3462

PM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**Total**
4:00-5:00	**0**	**238**	**6**	**139**	**0**	**0**	**7**	**5**	**13**	**2**	**67**	**4**	**1520**	**294**	**0**	**4**	**244**	**2609**	**10**	**0**	**5162**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 235 & First Colony Blvd
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Wednesday, April 3, 2024
Jurisdiction: St. Mary's County

Appendix B

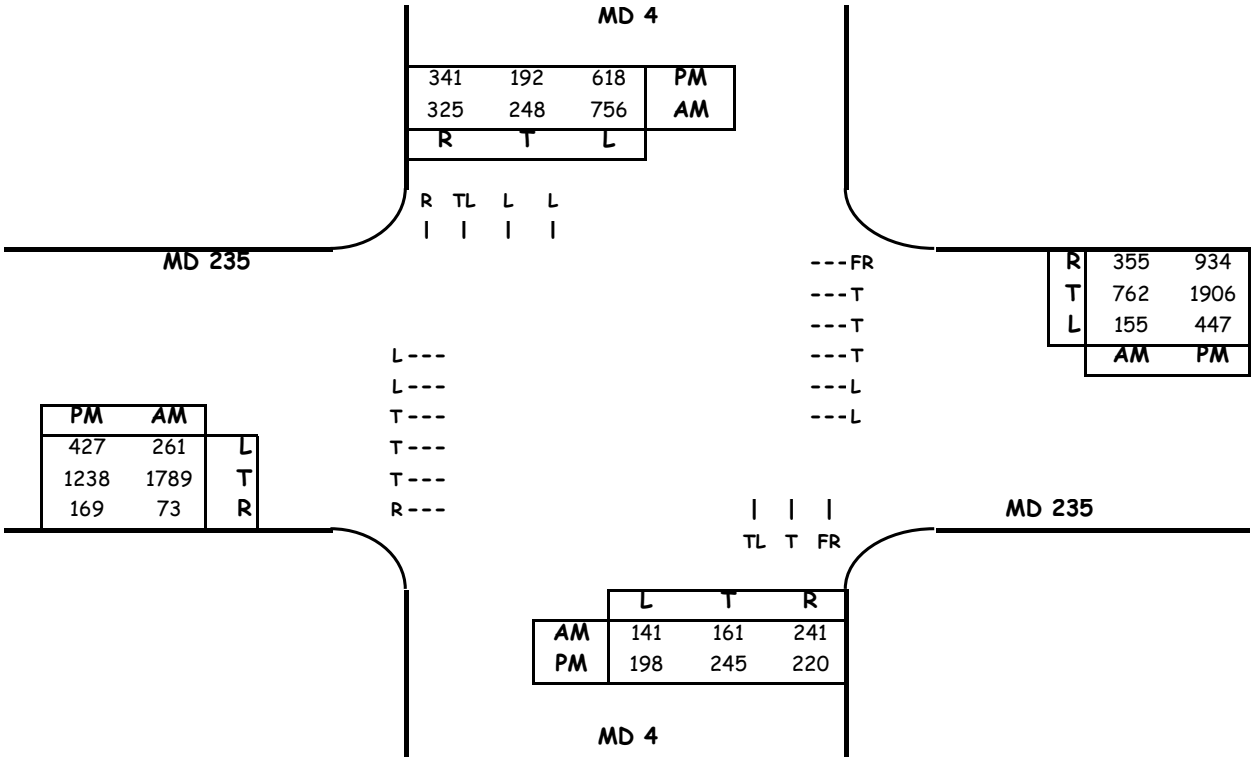
Critical Lane Volume (LOS) Worksheets

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: MD 4
and: MD 235
Conditions: EXISTING TRAFFIC **Analyst:** Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis - North/South Split

Morning Peak Hour

	Thru Volumes			+ Opposing Lefts			AM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	302	0.55	166				166
SB	1004	0.4	402				402
EB	1789	0.4	716	155	0.6	93	809
WB	762	0.4	305	261	0.6	157	

CLV TOTAL= **1377**
Level of Service (LOS)= **D**

Evening Peak Hour

	Thru Volumes			+ Opposing Lefts			PM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	443	0.55	244				244
SB	810	0.4	324				324
EB	1238	0.4	495	447	0.6	268	1018
WB	1906	0.4	762	427	0.6	256	

CLV TOTAL= **1586**
Level of Service (LOS)= **E**

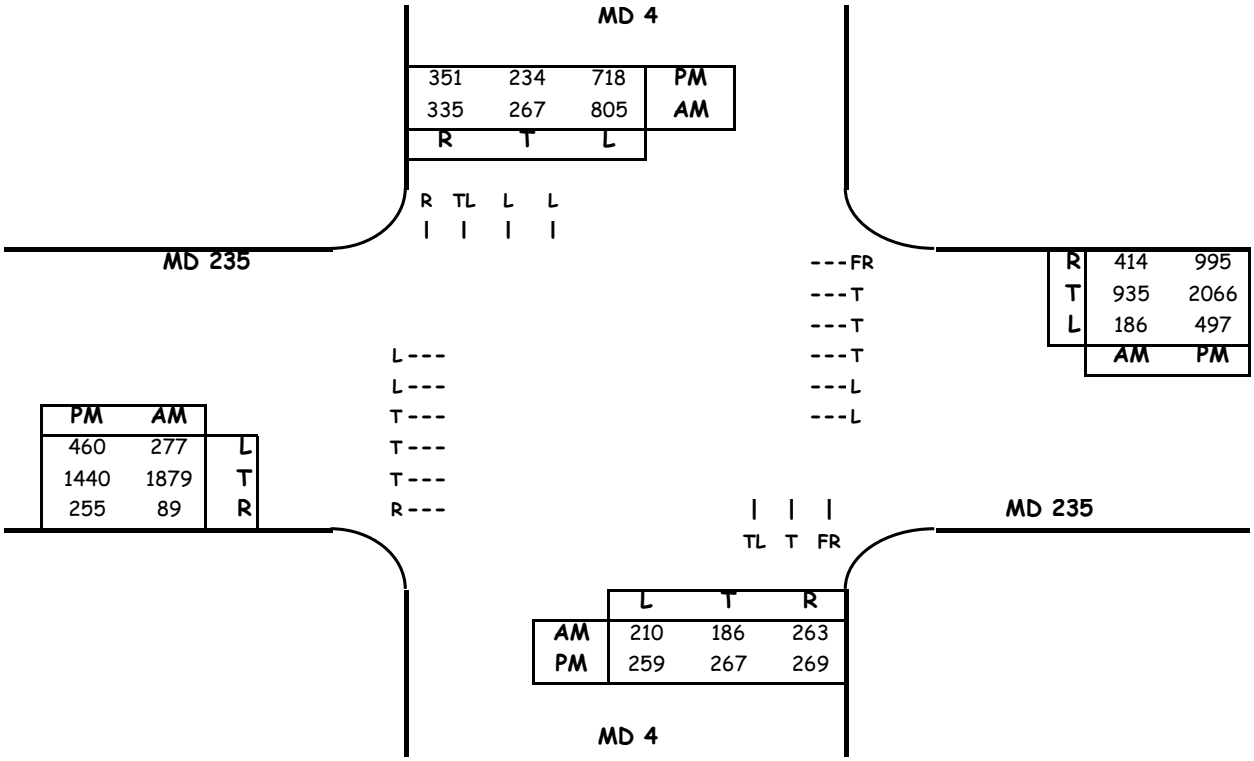
Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	N	MD 4 & MD 235 (EXISTING TRAFFIC)	**Intersection** **1**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: MD 4
and: MD 235
Conditions: BACKGROUND TRAFFIC **Analyst:** Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis - North/South Split

Morning Peak Hour

	Thru Volumes			+ Opposing Lefts			AM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	396	0.55	218				218
SB	1072	0.4	429				429
EB	1879	0.4	752	186	0.6	112	864
WB	935	0.4	374	277	0.6	166	

CLV TOTAL= **1511**
Level of Service (LOS)= **E**

Evening Peak Hour

	Thru Volumes			+ Opposing Lefts			PM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	526	0.55	289				289
SB	952	0.4	381				381
EB	1440	0.4	576	497	0.6	298	1102
WB	2066	0.4	826	460	0.6	276	

CLV TOTAL= **1772**
Level of Service (LOS)= **F**

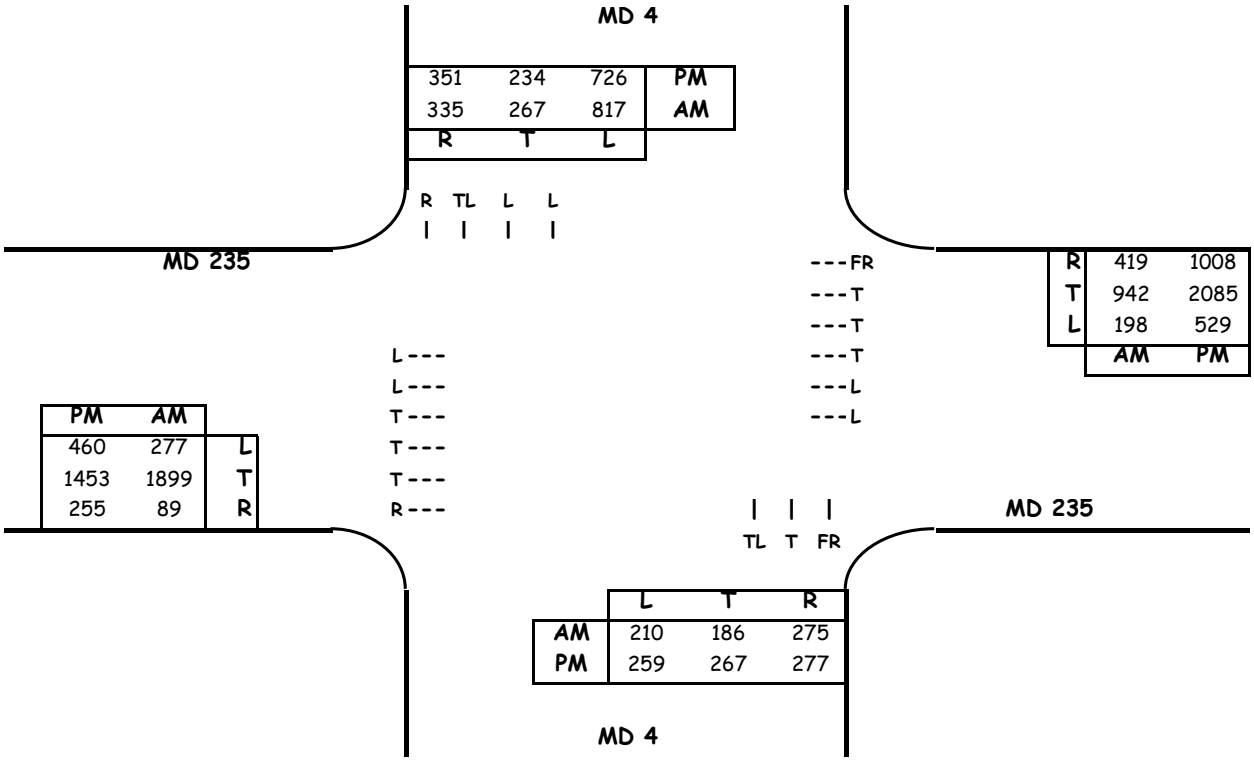
Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	N	MD 4 & MD 235 (BACKGROUND TRAFFIC)	**Intersection** **1**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: MD 4
and: MD 235
Conditions: TOTAL TRAFFIC **Analyst:** Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis - North/South Split

Morning Peak Hour

	Thru Volumes			+ Opposing Lefts			AM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	396	0.55	218				218
SB	1084	0.4	434				434
EB	1899	0.4	760	198	0.6	119	879
WB	942	0.4	377	277	0.6	166	
						CLV TOTAL=	**1531**
						Level of Service (LOS)=	**E**

Evening Peak Hour

	Thru Volumes			+ Opposing Lefts			PM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	526	0.55	289				289
SB	960	0.4	384				384
EB	1453	0.4	581	529	0.6	317	1110
WB	2085	0.4	834	460	0.6	276	
						CLV TOTAL=	**1783**
						Level of Service (LOS)=	**F**

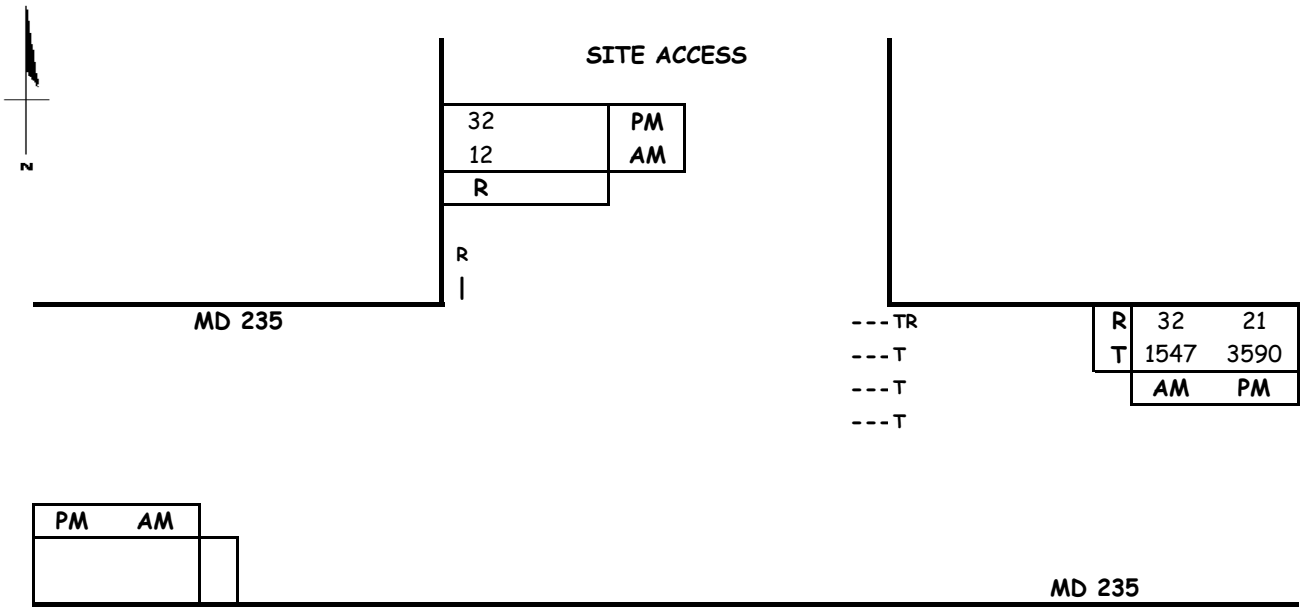
Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	N	MD 4 & MD 235 (TOTAL TRAFFIC)	**Intersection** **1**

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Site Access
and: MD 235
Conditions: Total Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	12	1.00	12				12
EB	0	0.00	0				474
WB	1579	0.30	474	0	0.00	0	

CLV TOTAL= **486**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	32	1.00	32				32
EB	0	0.00	0				1083
WB	3611	0.30	1083	0	0.00	0	

CLV TOTAL= **1115**
Level of Service (LOS)= **B**

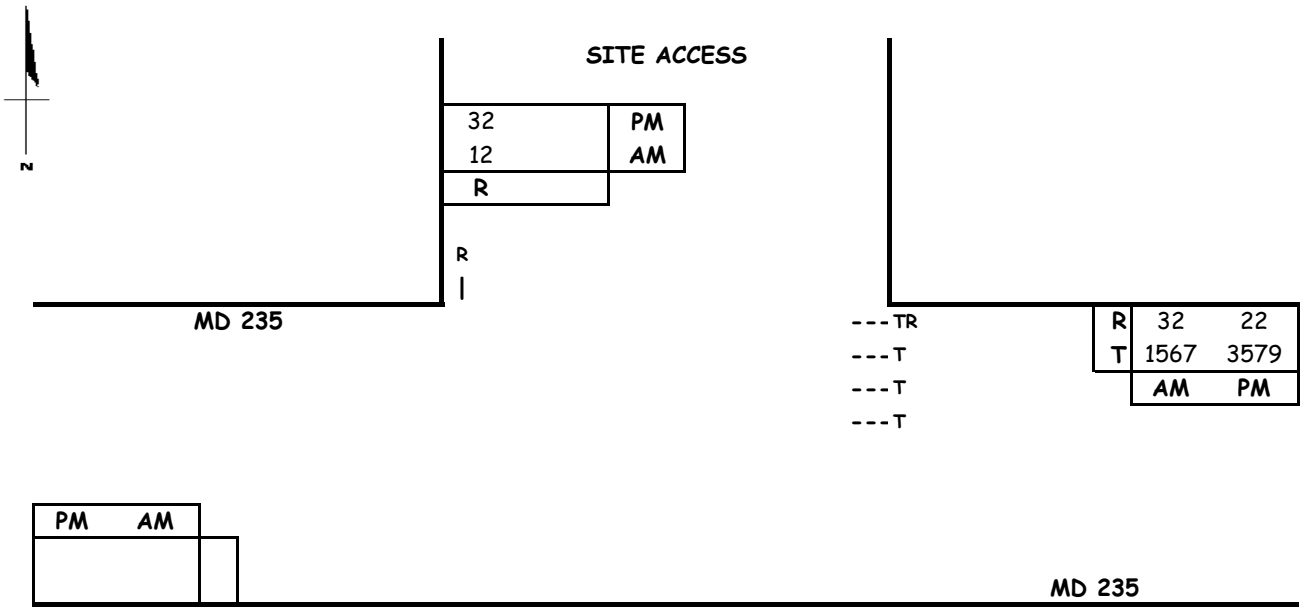
Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Site Access & MD 235 (Total Traffic)	**Intersection** **2**

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Site Access
and: MD 235
Conditions: Total Traffic

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	12	1.00	12				12
EB	0	0.00	0				480
WB	1599	0.30	480	0	0.00	0	

CLV TOTAL= **492**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	32	1.00	32				32
EB	0	0.00	0				1080
WB	3601	0.30	1080	0	0.00	0	

CLV TOTAL= **1112**
Level of Service (LOS)= **B**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Site Access &
MD 235
(Total Traffic)

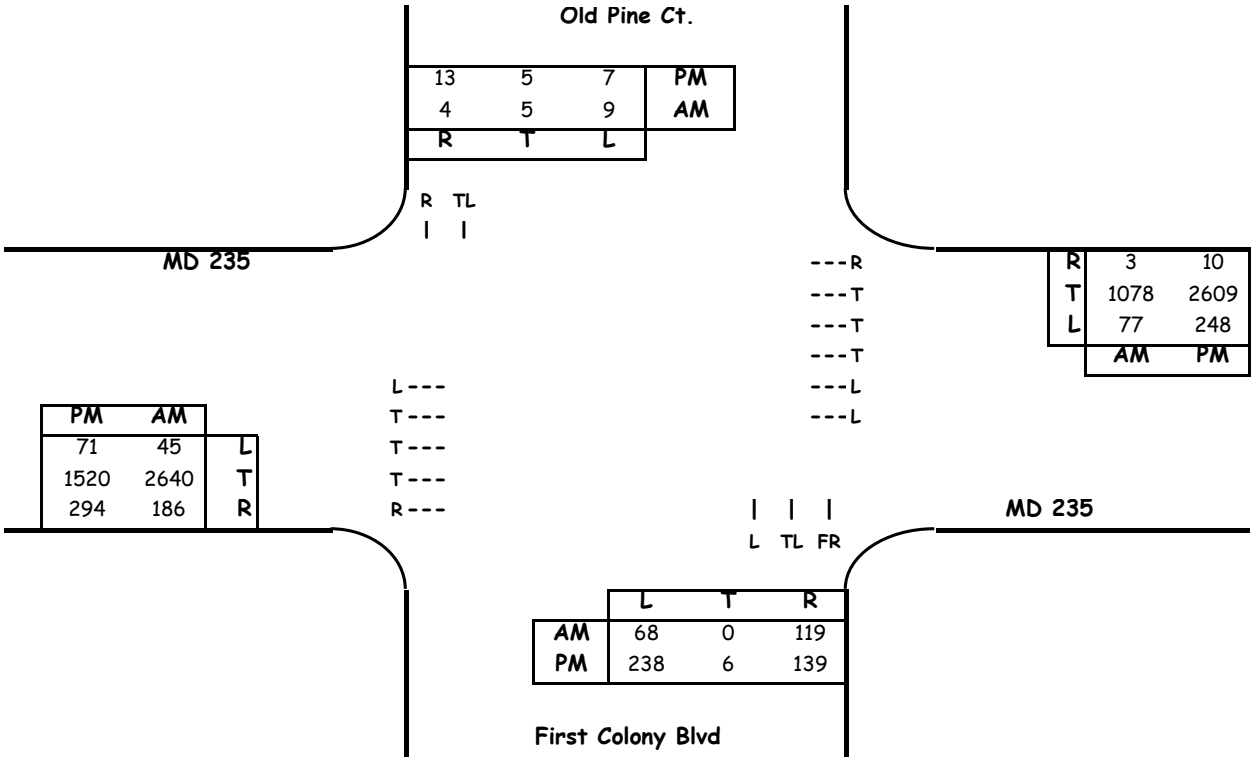
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Old Pine Ct.
and: MD 235
Conditions: EXISTING TRAFFIC **Analyst:** Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis - North/South Split

Morning Peak Hour

	Thru Volumes			+ Opposing Lefts			AM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	68	0.6	41				41
SB	14	1	14				14
EB	2640	0.4	1056	77	0.6	46	1102
WB	1078	0.4	431	45	1	45	

CLV TOTAL= **1157**
Level of Service (LOS)= **C**

Evening Peak Hour

	Thru Volumes			+ Opposing Lefts			PM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	244	0.6	146				146
SB	12	1	12				12
EB	1520	0.4	608	248	0.6	149	1115
WB	2609	0.4	1044	71	1	71	

CLV TOTAL= **1273**
Level of Service (LOS)= **C**

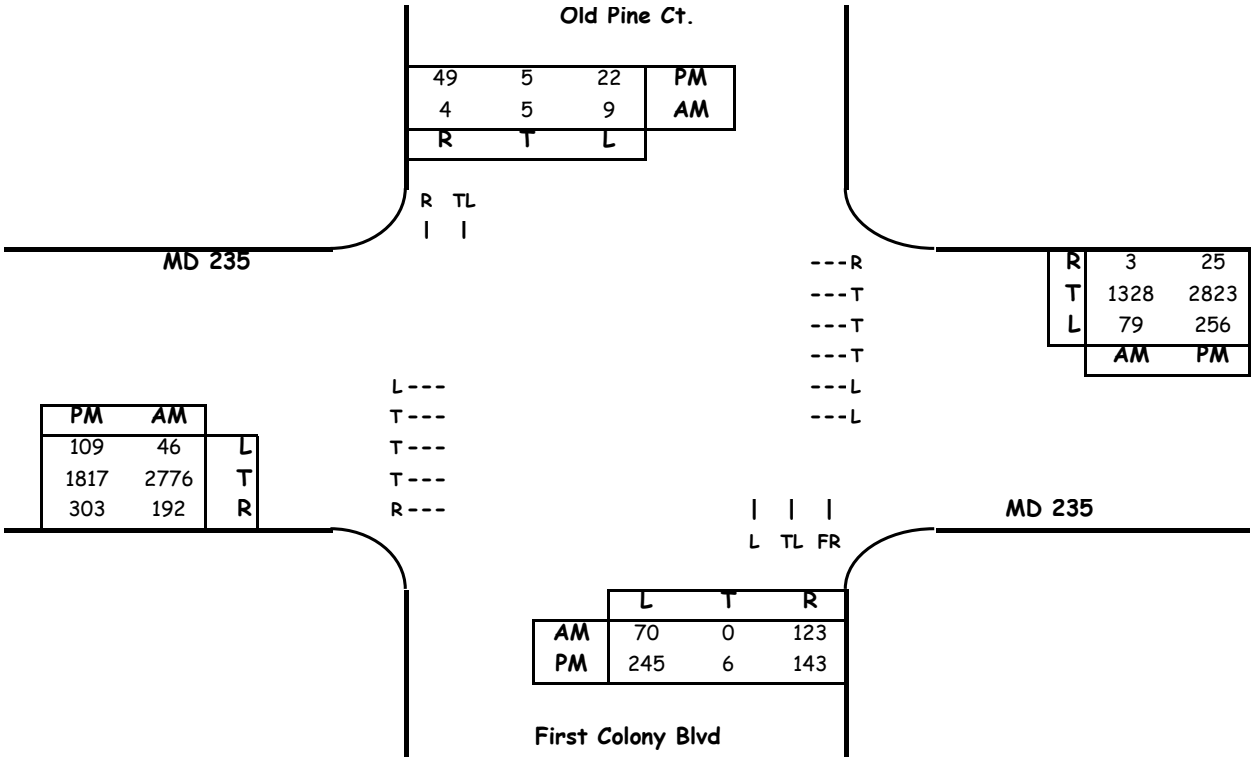
Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	N	Old Pine Ct. & MD 235 (EXISTING TRAFFIC)	**Intersection** **4**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Old Pine Ct.
and: MD 235
Conditions: BACKGROUND TRAFFIC **Analyst:** Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis - North/South Split

Morning Peak Hour

	Thru Volumes			+ Opposing Lefts			AM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	70	0.6	42				42
SB	14	1	14				14
EB	2776	0.4	1110	79	0.6	47	1157
WB	1328	0.4	531	46	1	46	

CLV TOTAL= **1213**
Level of Service (LOS)= **C**

Evening Peak Hour

	Thru Volumes			+ Opposing Lefts			PM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	251	0.6	151				151
SB	27	1	27				27
EB	1817	0.4	727	256	0.6	154	1238
WB	2823	0.4	1129	109	1	109	

CLV TOTAL= **1416**
Level of Service (LOS)= **D**

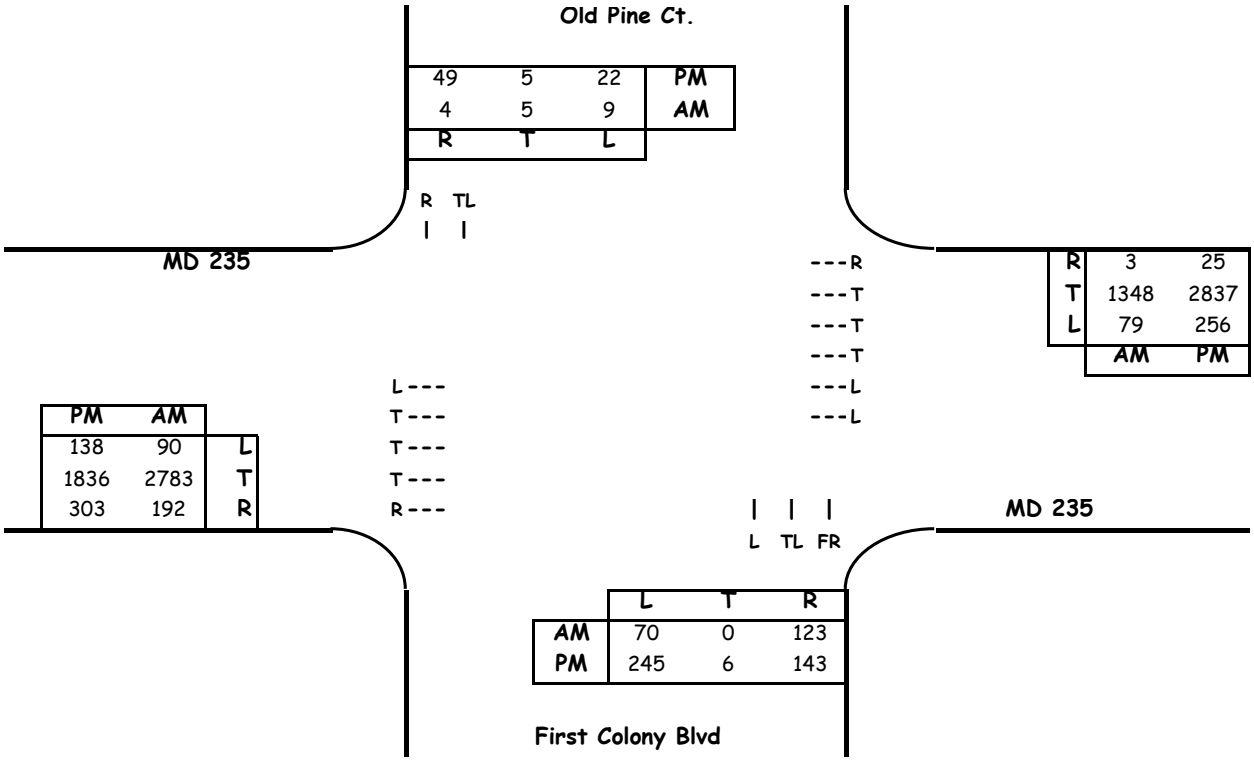
Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	N	Old Pine Ct. & MD 235 (BACKGROUND TRAFFIC)	**Intersection** **4**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Old Pine Ct.
and: MD 235
Conditions: TOTAL TRAFFIC **Analyst:** Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis - North/South Split

Morning Peak Hour

	Thru Volumes			+ Opposing Lefts			AM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	70	0.6	42				42
SB	14	1	14				14
EB	2783	0.4	1113	79	0.6	47	1160
WB	1348	0.4	539	90	1	90	

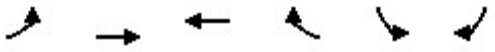
CLV TOTAL= **1216**
Level of Service (LOS)= **C**

Evening Peak Hour

	Thru Volumes			+ Opposing Lefts			PM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	251	0.6	150				150
SB	27	1	27				27
EB	1836	0.4	734	256	0.6	154	1273
WB	2837	0.4	1135	138	1	138	

CLV TOTAL= **1450**
Level of Service (LOS)= **D**

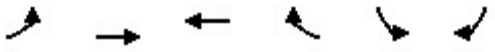
Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	N	Old Pine Ct. & MD 235 (TOTAL TRAFFIC)	**Intersection** **4**



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2999	1547	32	0	12
Future Volume (Veh/h)	0	2999	1547	32	0	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3260	1682	35	0	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		521				
pX, platoon unblocked					0.63	
vC, conflicting volume	1717				2514	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1717				431	438
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	365				346	567

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	815	815	815	815	481	481	481	275	13
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	35	13
cSH	1700	1700	1700	1700	1700	1700	1700	1700	567
Volume to Capacity	0.48	0.48	0.48	0.48	0.28	0.28	0.28	0.16	0.02
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
Lane LOS									B
Approach Delay (s)	0.0				0.0				11.5
Approach LOS									B

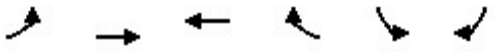
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2999	1567	32	0	12
Future Volume (Veh/h)	0	2999	1567	32	0	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3260	1703	35	0	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		812				
pX, platoon unblocked					0.63	
vC, conflicting volume	1738				2536	443
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1738				543	443
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	358				298	562

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	815	815	815	815	487	487	487	278	13
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	35	13
cSH	1700	1700	1700	1700	1700	1700	1700	1700	562
Volume to Capacity	0.48	0.48	0.48	0.48	0.29	0.29	0.29	0.16	0.02
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6
Lane LOS									B
Approach Delay (s)	0.0				0.0				11.6
Approach LOS									B

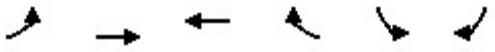
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2475	3590	21	0	32
Future Volume (Veh/h)	0	2475	3590	21	0	32
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2690	3902	23	0	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		521				
pX, platoon unblocked					0.80	
vC, conflicting volume	3925				4586	987
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3925				4236	987
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	86
cM capacity (veh/h)	47				1	246

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	672	672	672	672	1115	1115	1115	580	35
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	23	35
cSH	1700	1700	1700	1700	1700	1700	1700	1700	246
Volume to Capacity	0.40	0.40	0.40	0.40	0.66	0.66	0.66	0.34	0.14
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0
Lane LOS									C
Approach Delay (s)	0.0				0.0				22.0
Approach LOS									C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		



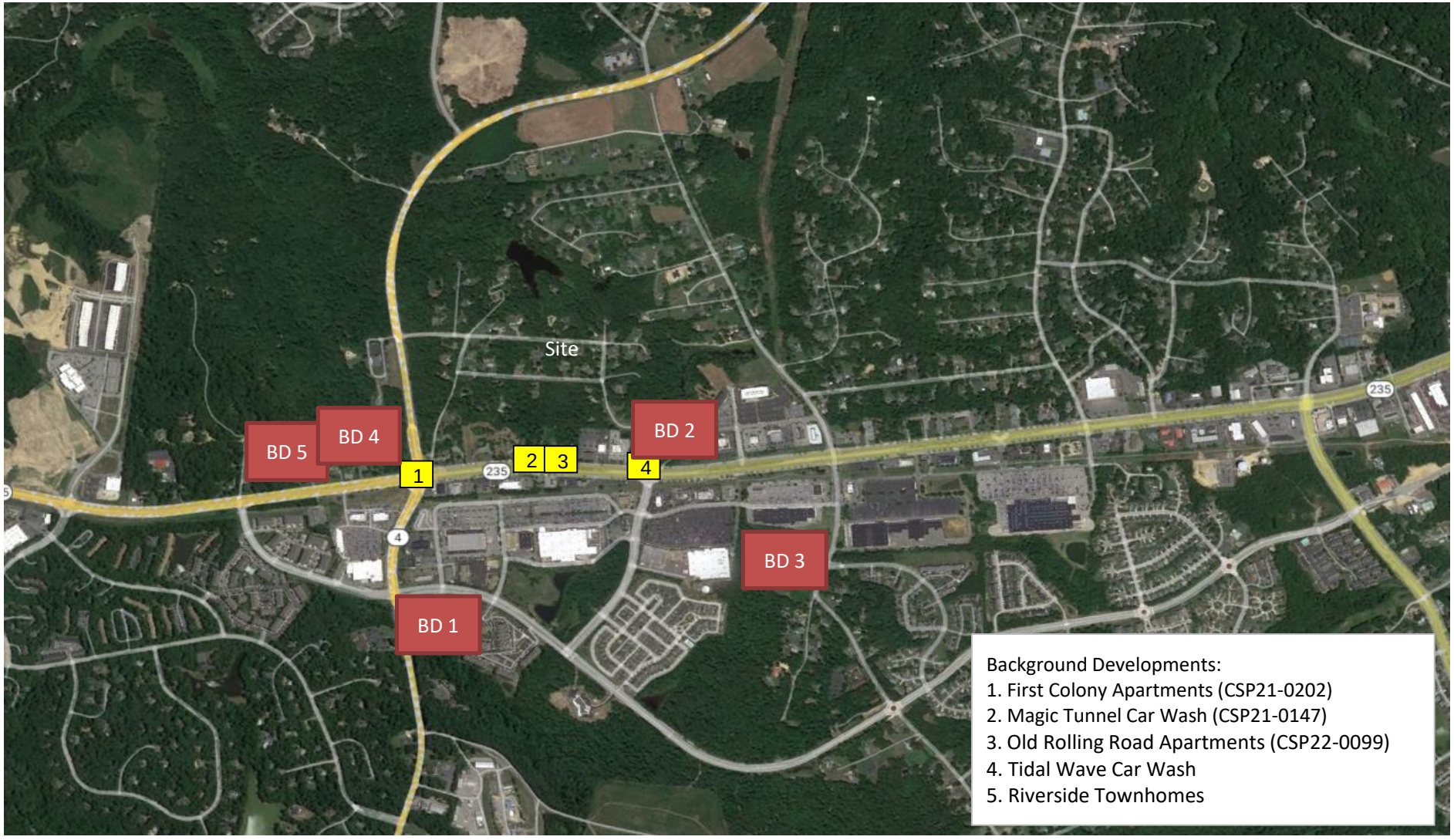
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2475	3590	22	0	32
Future Volume (Veh/h)	0	2475	3590	22	0	32
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2690	3902	24	0	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		812				
pX, platoon unblocked					0.81	
vC, conflicting volume	3926				4586	988
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3926				4254	988
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	86
cM capacity (veh/h)	47				1	246

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	672	672	672	672	1115	1115	1115	581	35
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	24	35
cSH	1700	1700	1700	1700	1700	1700	1700	1700	246
Volume to Capacity	0.40	0.40	0.40	0.40	0.66	0.66	0.66	0.34	0.14
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0
Lane LOS									C
Approach Delay (s)	0.0				0.0				22.0
Approach LOS									C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

Appendix C

Background Developments



Traffic Impact Analysis	Site Location Map	**Exhibit C-1**

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Trip Generation Rates

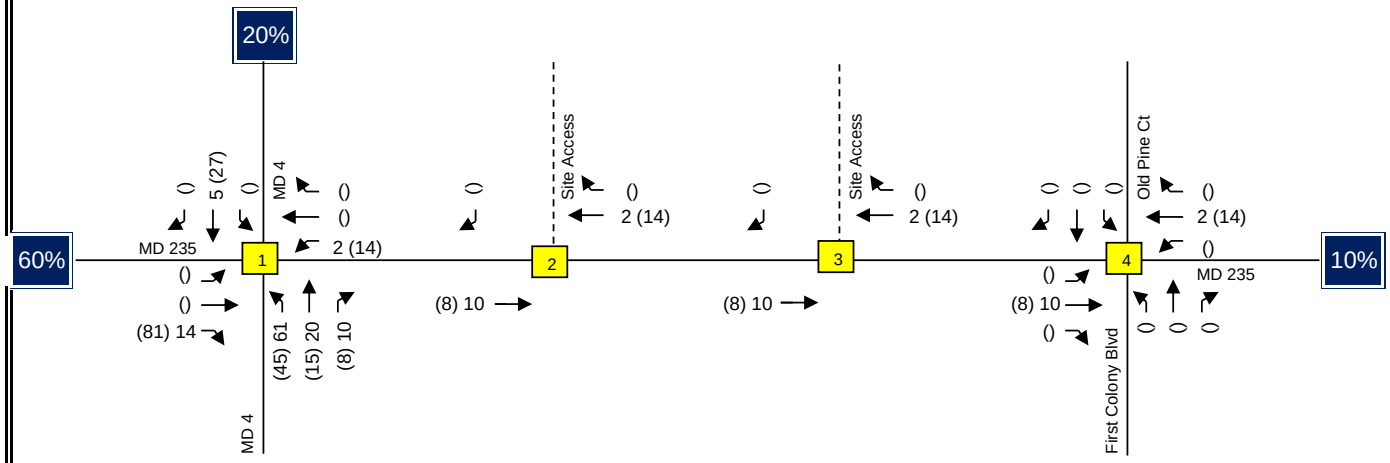
Apartment (St. Mary's County Rates, Units)	**Trip Distribution (In/Out)**
Morning Trips = 0.51 x Units	18/82
Evening Trips = 0.63 x Units	68/32
Fast Casual Restaurant (ITE-930, ksf)	**Trip Distribution (In/Out)**
Morning Trips = 1.43 x ksf	50/50
Evening Trips = 12.55 x ksf	55/45
Automated Car Wash (ITE-948, ksf)	**Trip Distribution (In/Out)**
Morning Trips = N/A	N/A
Evening Trips = 14.20 x ksf	50/50

Trip Generation Totals

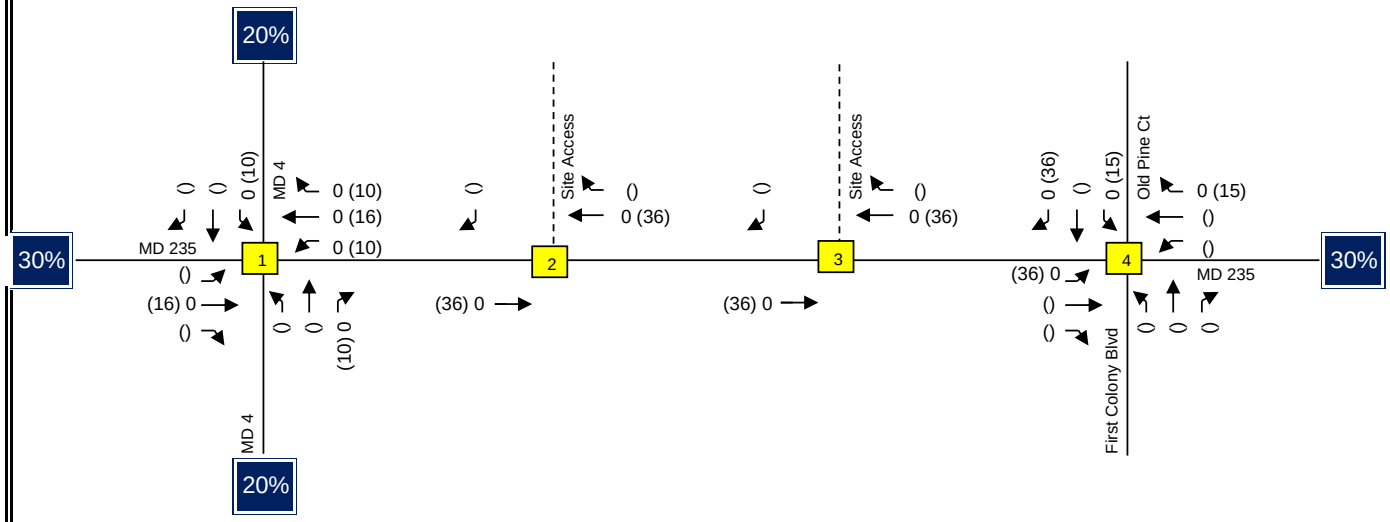
					AM Peak			PM Peak		
					In	Out	Total	In	Out	Total
1	First Colony Apartments	Apartment (St. Mary's County Rates, Units)	233	units	21	98	119	100	47	147
		Fast Casual Restaurant (ITE-930, ksf)	5,000	sq.ft.	3	4	7	35	28	63
2	Magic Tunnel	Automated Car Wash (ITE-948, ksf)	7,200	sq.ft.	0	0	0	51	51	102
3	Old Rolling Hills	Apartment (St. Mary's County Rates, Units)	568	units	52	238	290	243	115	358

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition, since there are no St. Mary's County Rates for this use.

Note: It is assumed that 10% of trips to/from Background Development 1 will be to/from the south along MD 4. These trips will not pass through the study intersections.

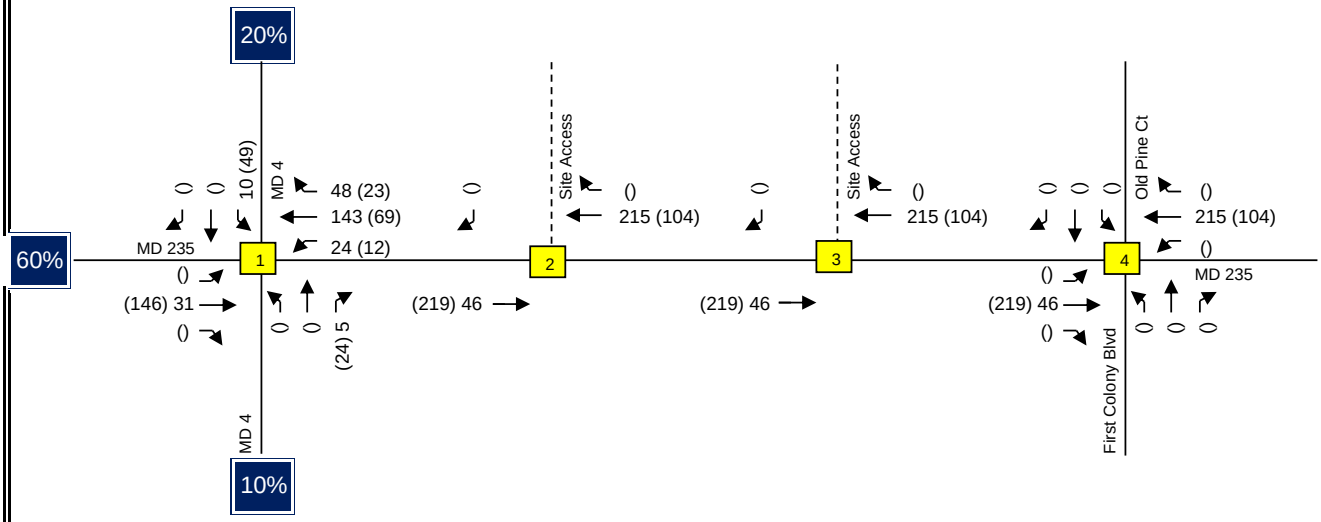


Traffic Impact Analysis	Trip Assignment for Background Development 1	**Exhibit C-3a**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Trip Assignment for Background Development 2	**Exhibit C-3b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

Note: It is assumed that 10% of trips to/from Background Development 3 will be to/from the east along MD 235. These trips will not pass through the study intersections.



Traffic Impact Analysis	Trip Assignment for Background Development 3	**Exhibit C-3c**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

Trip Generation Rates

Automated Car Wash (Car Wash Tunnels, ITE-948)

	Trip Distribution (In/Out)
Morning Trips = N/A [See Note 2]	N/A
Evening Trips = 77.50 x Car Wash Tunnels	50/50
Daily Trips = N/A [See Note 3]	

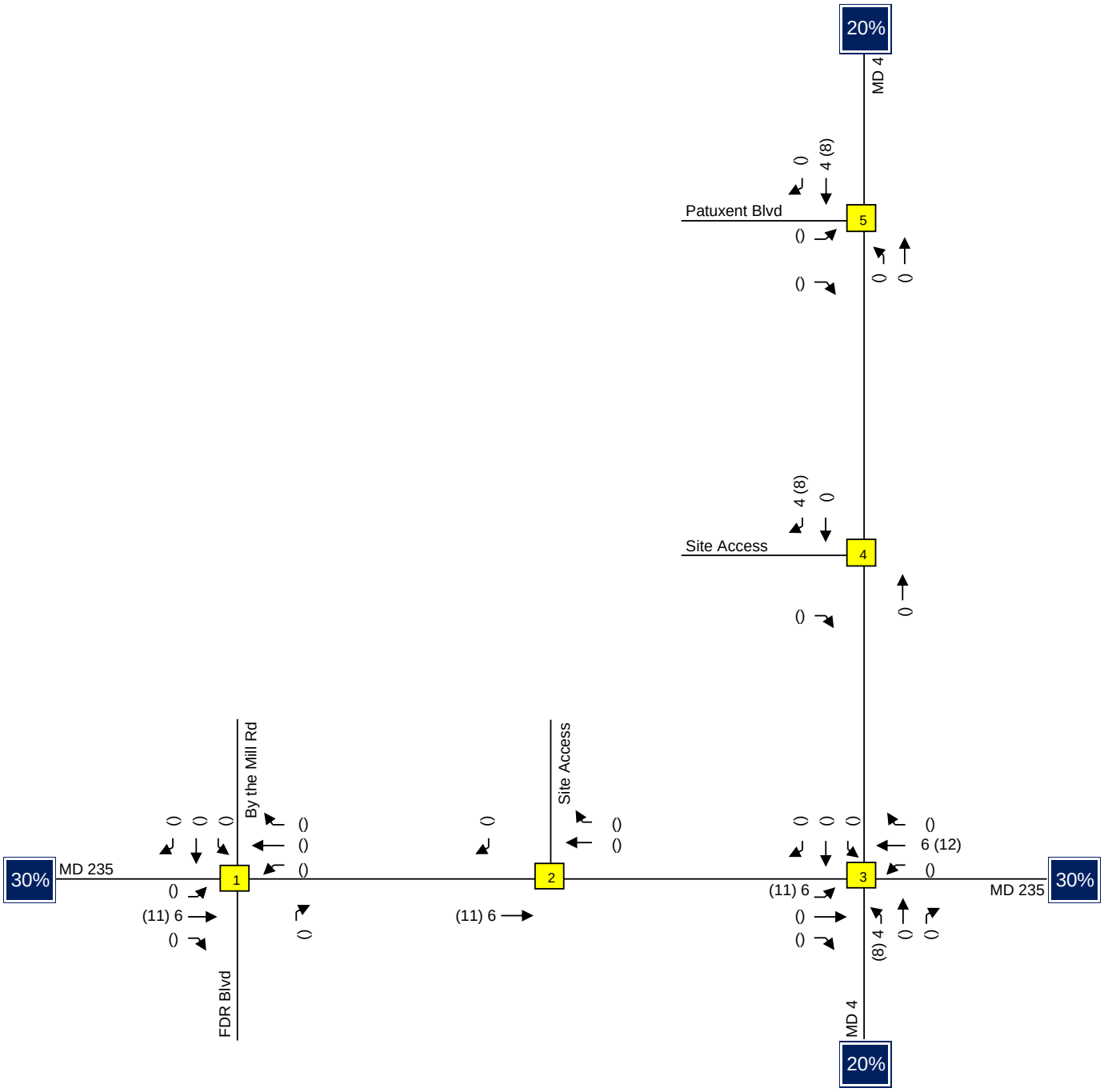
Trip Generation Totals

			AM Peak			PM Peak			Daily Trips
			In	Out	Total	In	Out	Total	
LU Code 948	Automated Car Wash (Car Wash Tunnels, ITE-948)	1 tunnel	21	22	43	39	39	78	780
		Primary Trip Generation Totals:	**21**	**22**	**43**	**39**	**39**	**78**	**780**

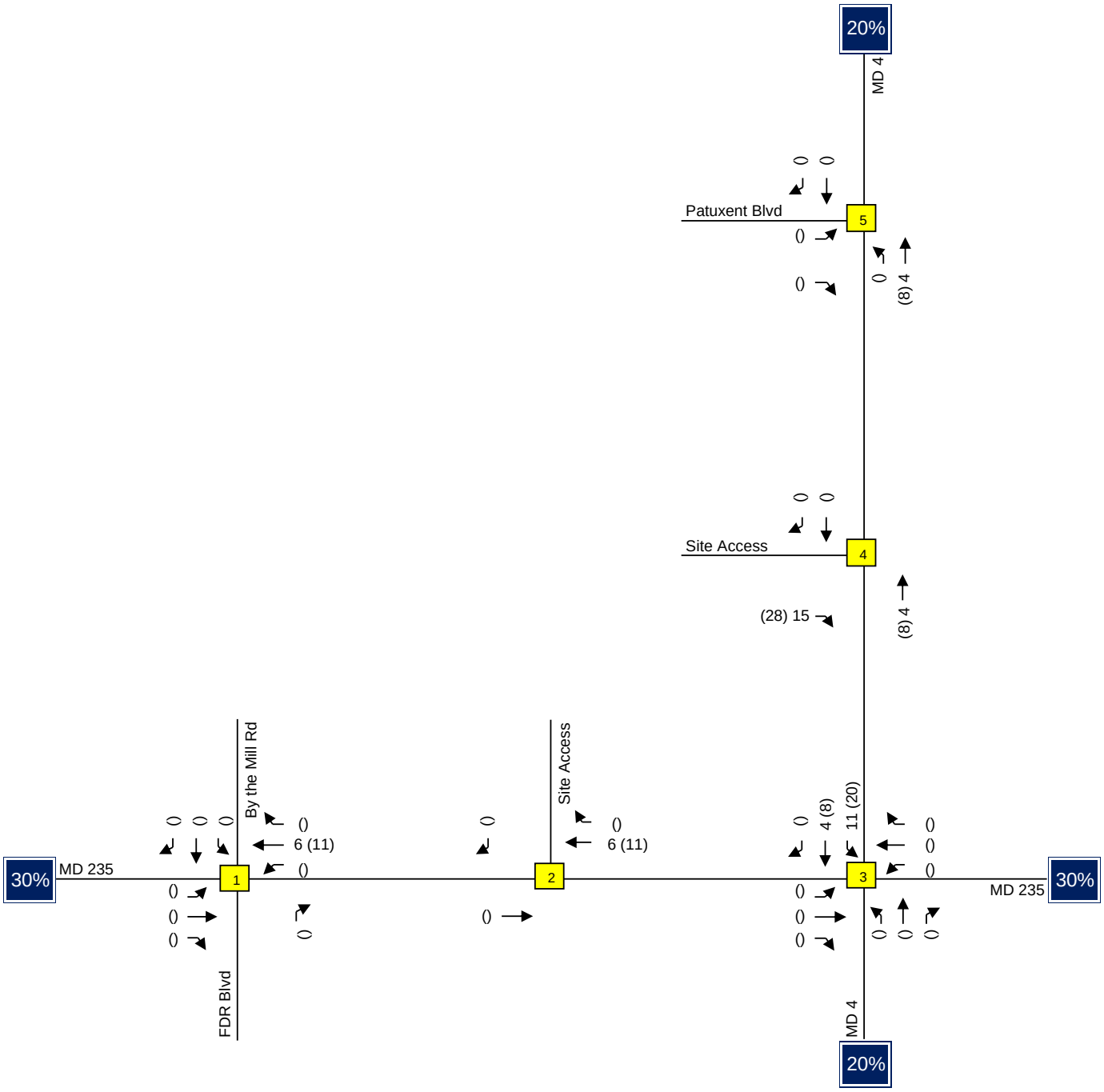
NOTES: 1. Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition

2. ITE does not provide trip generation rates for the morning peak hour of ITE-948. Based on ITE diurnal percentages for ITE-948, the morning peak hour generates 5.5% of daily trips and the evening peak hour generates 10.0% of daily trips. As such, it is assumed that 55% of the trips generated during the evening peak hour are generated during the morning peak hour. A 50/50 in/out directional distribution was assumed for the morning peak hour.

3. ITE does not provide daily trip generation rates for ITE-948. Based on ITE diurnal percentages for ITE-948, 10.0% of daily trips are generated during the evening peak hour. As such, it is assumed that the daily trips generated are 10 times the trips generated during the evening peak hour.



Traffic Impact Analysis	Inbound Trip Assignment for Tidal Wave Car Wash	**Exhibit C-5a**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Outbound Trip Assignment for Tidal Wave Car Wash	**Exhibit C-5b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

Trip Generation Rates

Condo/Townhouse (Units, St. Mary's County CZO)

Morning Trips = 0.44 x units

Evening Trips = 0.55 x units

Daily Trips = 5.86 x units

Trip Distribution (In/Out)

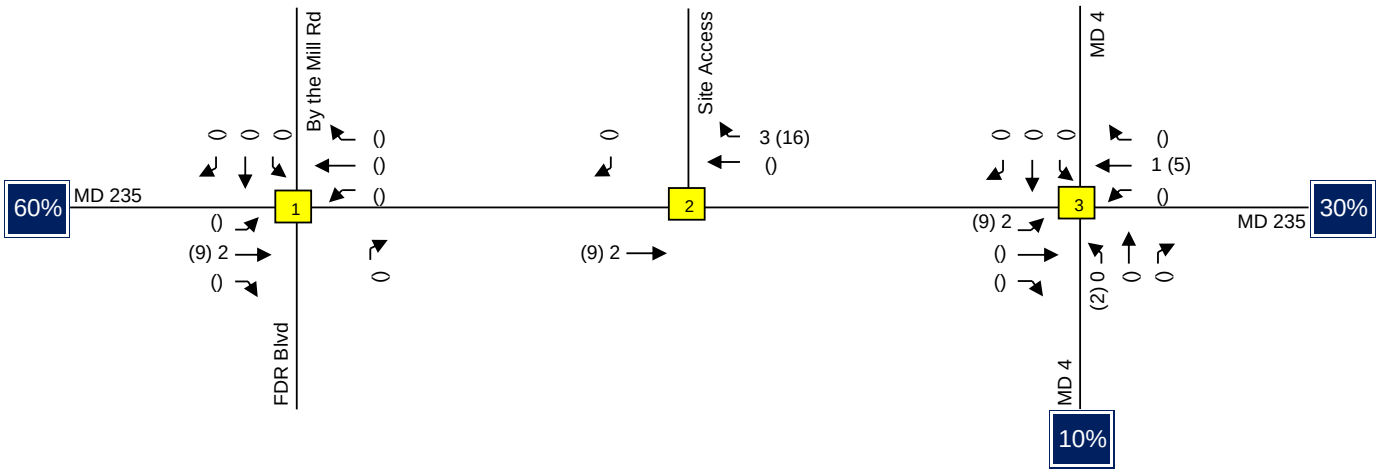
16/84

65/35

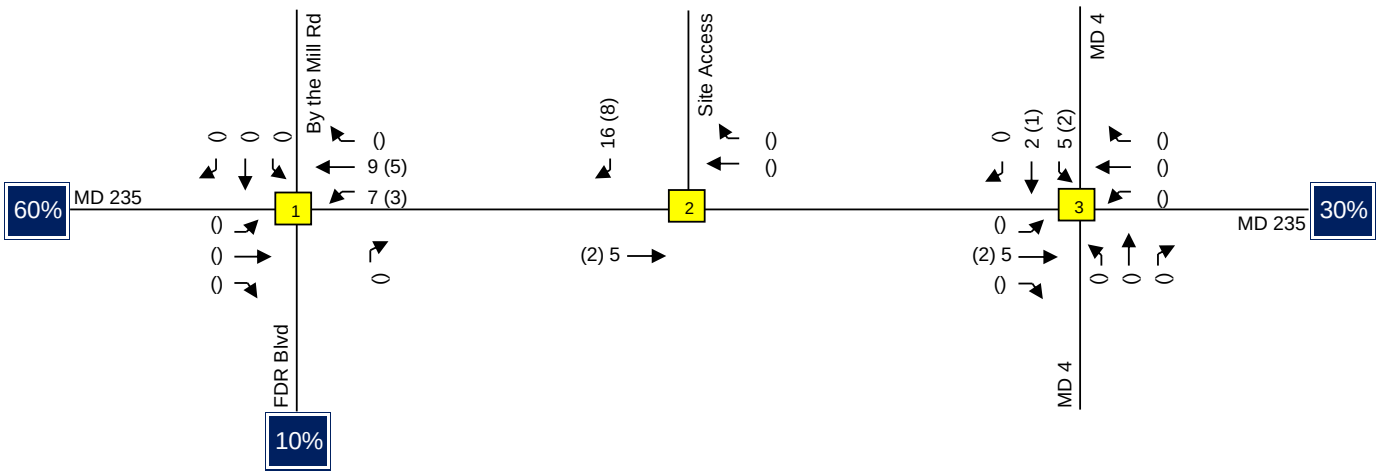
Trip Generation Totals

			AM Peak			PM Peak			Daily Trips
			In	Out	Total	In	Out	Total	
	Condo/Townhouse (Units, St. Mary's County CZO)	43 units	3	16	19	16	8	24	252
	Primary Trip Generation Totals:		**3**	**16**	**19**	**16**	**8**	**24**	**252**

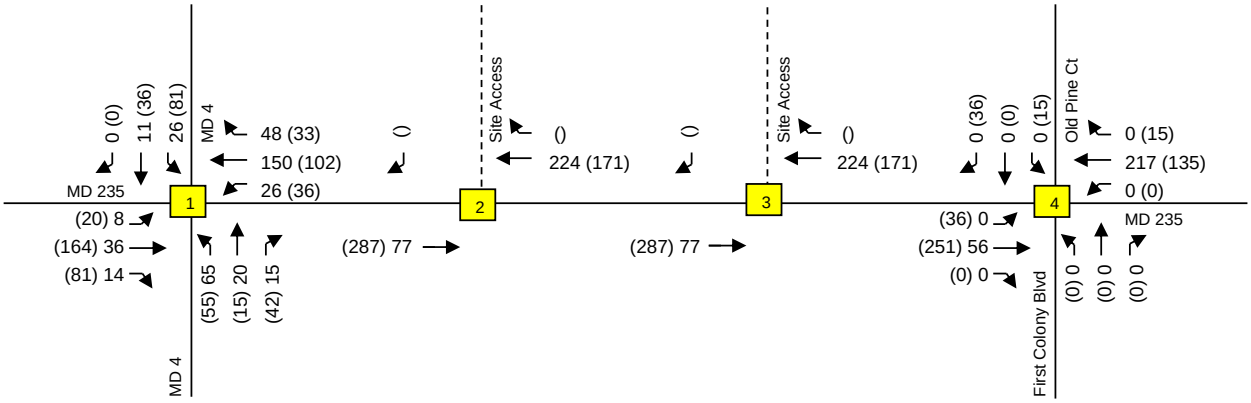
NOTES: 1. Trip Generation Rates obtained from the St. Mary's County Comprehensive Zoning Ordinance



Traffic Impact Analysis	Inbound Trip Assignment for Riverside Townhomes	**Exhibit C-7a**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



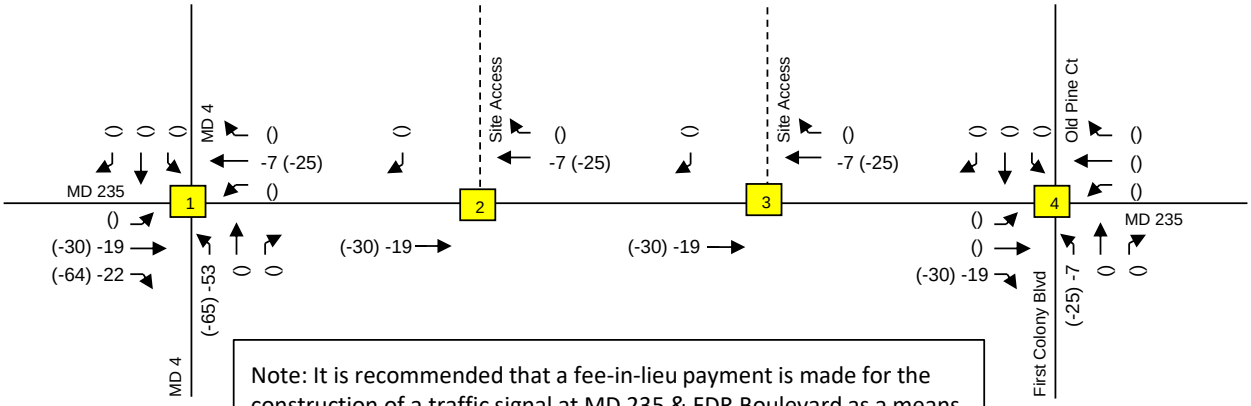
Traffic Impact Analysis	Outbound Trip Assignment for Riverside Townhomes	**Exhibit C-7b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Combined Trips from Background Developments	**Exhibit C-8**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

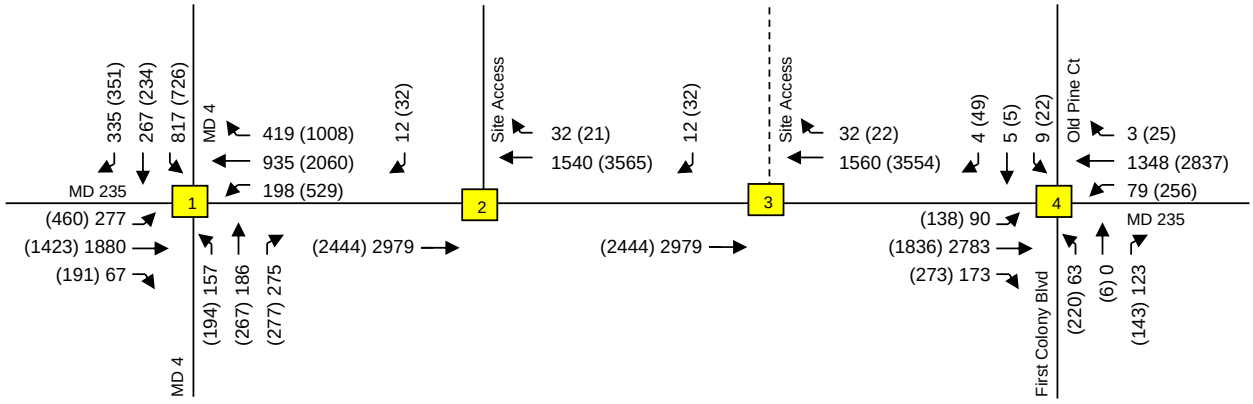
Appendix D

Diversions Due to Signalization of MD 235 & FDR Boulevard



Note: It is recommended that a fee-in-lieu payment is made for the construction of a traffic signal at MD 235 & FDR Boulevard as a means of mitigating the site impact on the intersection of MD 235 & MD 4. It is assumed that 25% of eastbound right-turns and northbound left-turns at MD 235 & MD 4 will divert to MD 235 & FDR Boulevard. It is also assumed that 10% of eastbound right-turns and northbound left-turns at MD 235 & First Colony Boulevard will divert to MD 235 & FDR Boulevard.

Traffic Impact Analysis	Diversions Due to MD 235 & FDR Blvd Signal	**Exhibit D-1**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Total Peak Hour Volumes with Diversions	**Exhibit D-2**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

CLV Level-of-Service Results

Morning Peak Hour	Background CLV	Total CLV	Total CLV with Diversion
1). MD 235 & MD 4	E / 1511	E / 1531	E / 1494
2). MD 235 & Site Access	N/A	A / 486	A / 484
3). MD 235 & Site Access	N/A	A / 492	A / 490
4). MD 235 & First Colony Blvd/Old Pine Ct	C / 1213	C / 1216	C / 1212
Evening Peak Hour	**Background CLV**	**Total CLV**	**Total CLV with Diversion**
1). MD 235 & MD 4	F / 1772	F / 1783	F / 1738
2). MD 235 & Site Access	N/A	B / 1115	B / 1108
3). MD 235 & Site Access	N/A	B / 1112	B / 1105
4). MD 235 & First Colony Blvd/Old Pine Ct	D / 1416	D / 1450	D / 1436

Notes:

1. The CZO states that intersections located within the Lexington Park Development District must operate with LOS "D" or better.

Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Results of CLV LOS Analyses with Diversions

Exhibit D-3

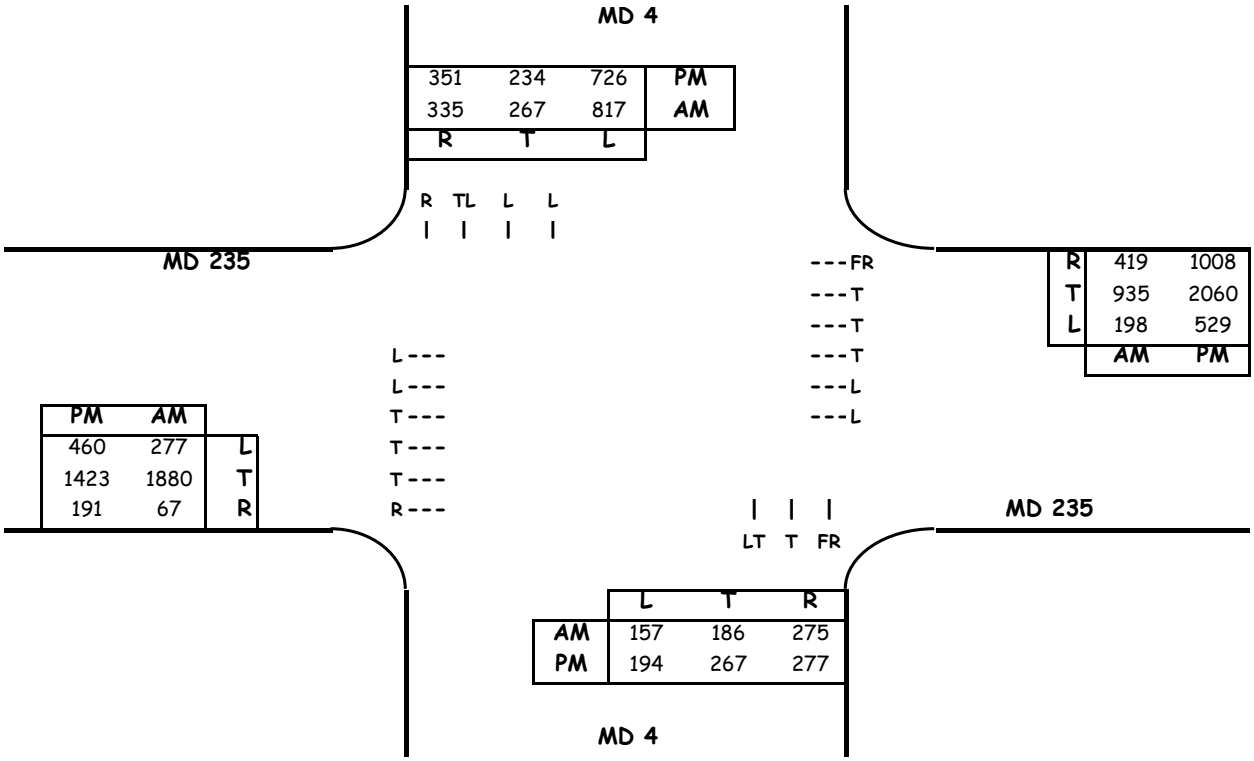
CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: MD 4
and: MD 235
Conditions: TOTAL TRAFFIC
WITH DIVERSIONS

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis - North/South Split

Morning Peak Hour

	Thru Volumes			+ Opposing Lefts			AM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	343	0.55	189				189
SB	1084	0.4	434				434
EB	1880	0.4	752	198	0.6	119	871
WB	935	0.4	374	277	0.6	166	

CLV TOTAL= **1494**
Level of Service (LOS)= **E**

Evening Peak Hour

	Thru Volumes			+ Opposing Lefts			PM
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	461	0.55	254				254
SB	960	0.4	384				384
EB	1423	0.4	569	529	0.6	317	1100
WB	2060	0.4	824	460	0.6	276	

CLV TOTAL= **1738**
Level of Service (LOS)= **F**

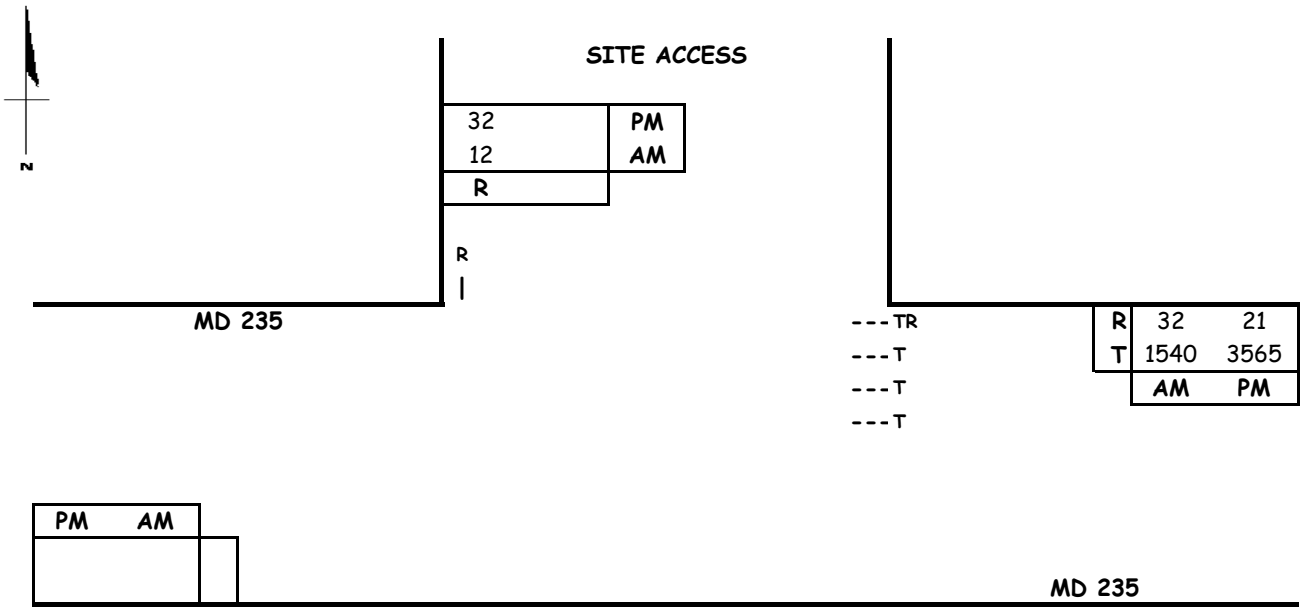
Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	N	MD 4 & MD 235 (TOTAL TRAFFIC)	**Intersection** **1**

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Site Access
and: MD 235
Conditions: Total Traffic
WITH DIVERSIONS

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	12	1.00	12				12
EB	0	0.00	0				472
WB	1572	0.30	472	0	0.00	0	

CLV TOTAL= **484**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	32	1.00	32				32
EB	0	0.00	0				1076
WB	3586	0.30	1076	0	0.00	0	

CLV TOTAL= **1108**
Level of Service (LOS)= **B**

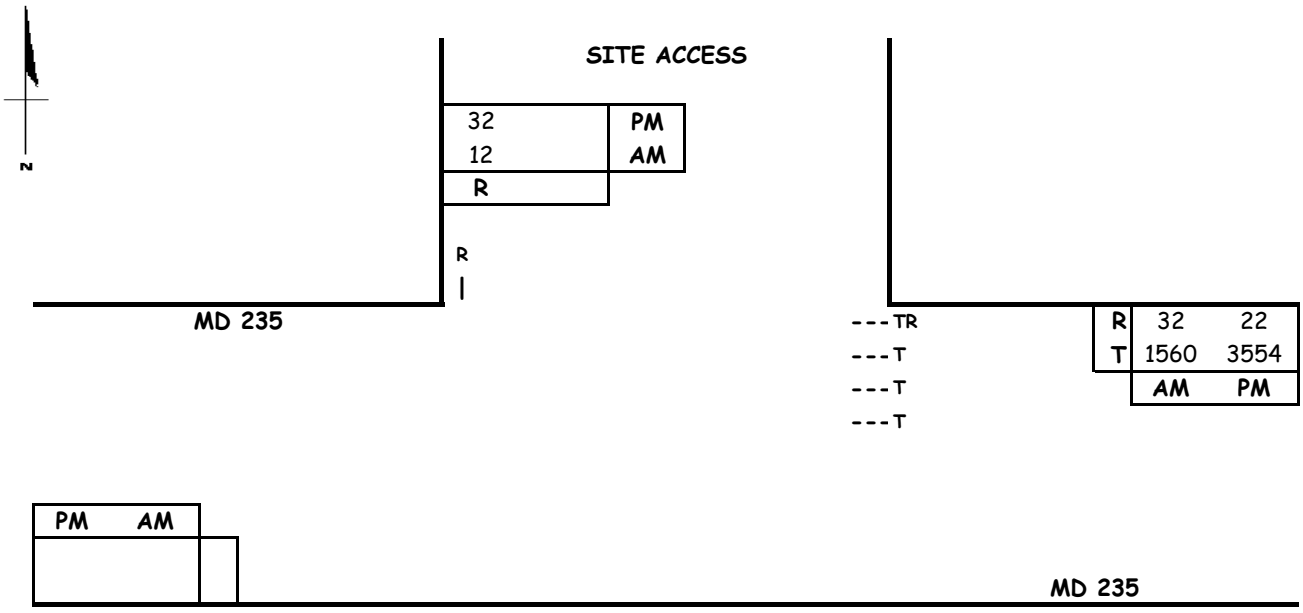
Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Site Access & MD 235 (Total Traffic)	**Intersection** **2**

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Site Access
and: MD 235
Conditions: Total Traffic
WITH DIVERSIONS

Analyst: Lenhart Traffic

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	12	1.00	12				12
EB	0	0.00	0				478
WB	1592	0.30	478	0	0.00	0	

CLV TOTAL= **490**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	32	1.00	32				32
EB	0	0.00	0				1073
WB	3576	0.30	1073	0	0.00	0	

CLV TOTAL= **1105**
Level of Service (LOS)= **B**

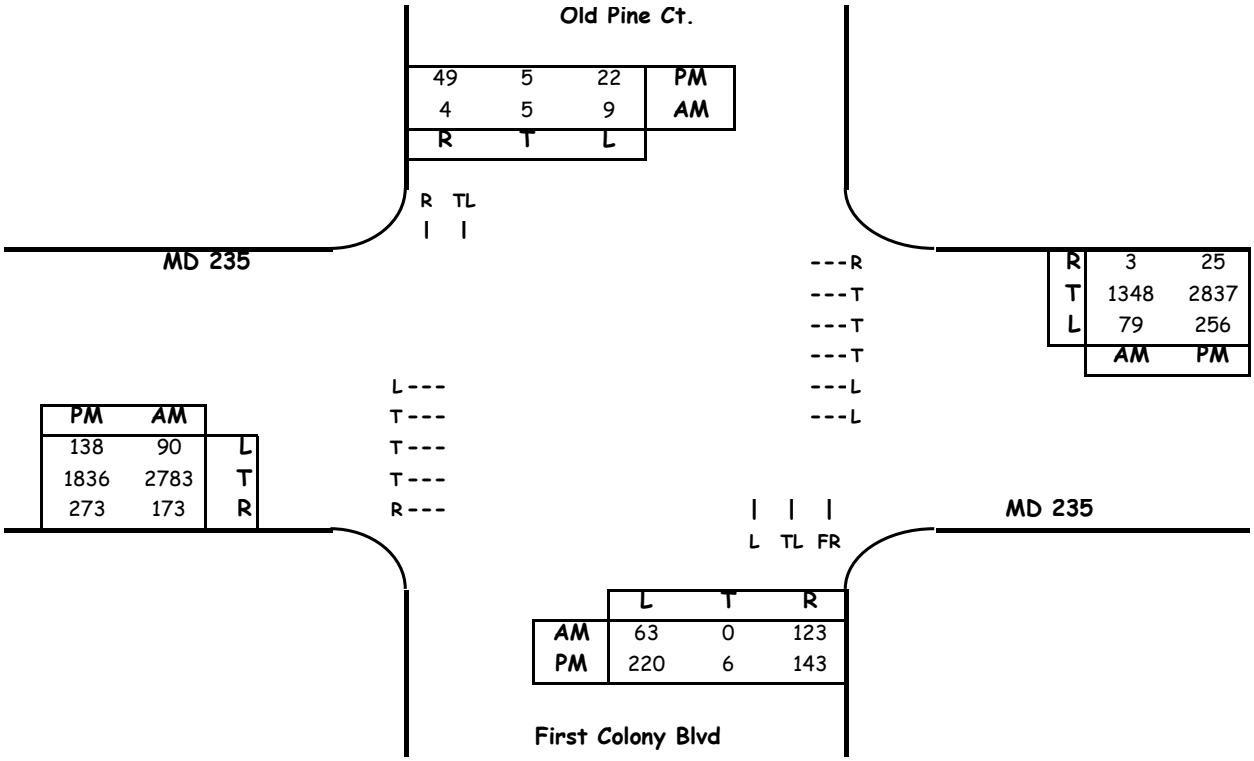
Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Site Access & MD 235 (Total Traffic)	**Intersection** **3**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Old Pine Ct.
and: MD 235
Conditions: TOTAL TRAFFIC WITH DIVERSIONS
Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis - North/South Split

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	63	0.6	38				38
SB	14	1	14				14
EB	2783	0.4	1113	79	0.6	47	1160
WB	1348	0.4	539	90	1	90	
						CLV TOTAL=	1212
						Level of Service (LOS)=	C

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	226	0.6	136				136
SB	27	1	27				27
EB	1836	0.4	734	256	0.6	154	1273
WB	2837	0.4	1135	138	1	138	
						CLV TOTAL=	1436
						Level of Service (LOS)=	D

Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	N	Old Pine Ct. & MD 235 (TOTAL TRAFFIC)	**Intersection** **4**