Tier II Antidegradation Review & Social and Economic Justification for Bainbridge-Powers Road Extension

Application No.: 24-NT-0226/202461483

WSSI #:36070.01

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Tier II Antidegradation Review and Social and Economic Justification for Bainbridge-Powers Road Extension

Section 1: Introduction

A. Project Summary

The Bainbridge Development Corporation (BDC) is proposing to extend Powers Road through a currently vacant portion of land owned by BDC, redevelop the existing Diamond Jim Road from its intersection with Perrylawn Drive (MD Route 275) west to its intersection with Craigtown Road, and extend Diamond Jim Road to the proposed Powers Road extension (Appendix A) in Cecil County, Maryland. The total limit of disturbance is 33.5 acres for road improvements, stormwater management, and storm drain installation; however, only 19.26 acres of the project are within the Mill Creek 1 Tier II Watershed. The project is in a commercial corridor that includes a variety of uses, including retail, industrial, and institutional uses.

B. Report Executive Summary

This report outlines the avoidance and minimization measures, impacts to Tier II streams and their buffers, impacts to forests, and increases in impervious surface due to the project. The report reviews the mitigation provided to offset impacts and the stormwater management practices provided to treat stormwater runoff. Finally, this report addresses socio-economic benefits of Tier II waters and the project, as well as project costs and impacts on minority populations.

C. Antidegradation Policy

Federal antidegradation regulations (40CFR131.12) require states to develop and adopt a statewide antidegradation policy that protects all Waters of the U.S. from degradation. These regulations also require states to maintain the condition of high-quality (i.e., Tier II) waters that have water quality that is better than the minimum standard necessary to meet designated uses. The Maryland antidegradation implementation procedures are found in the Code of Maryland Regulations (COMAR) 26.08.02.04-2. This regulation explains how Maryland identifies Tier II waters, when a Tier II antidegradation review is required for certain State permits and approvals, and how to determine current Tier II water quality status based on new data. The regulation also describes the social and economic justification procedure that would be necessary to permit the lowering of water quality in a Tier II water. Document purpose – Pursuant to COMAR 26.08.02.04-2 (I), applicants must submit an SEJ if "(a) No cost-effective alternative to the discharge or water quality impacts is available; or (b) The cumulative degradation resulting from nonpoint source pollution and any other permitted discharges would diminish water quality". Therefore, if impacts cannot be fully avoided, minimized, or mitigated, the applicant may have to provide MDE with an SEJ. The SEJ must demonstrate that an economic hardship and/or public benefit overrides the value of the ecological services or water quality benefit that the Tier II water segment provides. The applicant must also provide documentation to show

that all reasonable avoidance, minimization, and mitigation alternatives have been considered, and where economically feasible, implemented.

Section 2: No Discharge Alternatives Analysis

A. Exempt from Alternative Site Analysis

This project is exempt from the Alternative Site Analysis under **Situation 1 –** The project is in a State Designated Priority Funding Area and road improvements are being funded by state grants and **Situation 2-** Project has location specific limitations as the County has dictated the alignment of the Master-Planned roadway. (Appendix B).

B. Alternative Site Analysis

NOT REQUIRED FOR THIS PROJECT

Section 3: Impact Minimization

A. Impact Summary

a. Stream Buffer Impacts and Necessity

Road alignments were designed to minimize forest clearing. This site is located within a State Priority Funding Area, a designation that encourages economic investment and job creation within underutilized areas. Additionally, the future commercial and residential development of this site, which will be supported by the improved roadway infrastructure, will further the economic goals of Cecil County.

Approximately 1.97 acres of Tier II buffer impact is required for the construction of the roadways, stormwater management facilities, and site grading, as shown on the Tier II Buffer Exhibit (Appendix C). Additionally, 190 linear feet of permanent stream impacts and 162 linear feet of temporary stream impacts are proposed.

b. Forest Cover Impacts and Necessity

Road alignments were designed to minimize forest clearing. This site is located within a State Priority Funding Area, a designation that encourages economic investment and job creation within underutilized areas. Additionally, the future commercial and residential development of this site will be supported by the improved roadway infrastructure and will further the economic goals of Cecil County. While impacts to forests have been reduced as much as possible (see Section 3.C.b), unavoidable impacts are necessary to achieve the goals of the project.

Approximately 14.93 acres of net forest clearing are required for the construction of roadways and stormwater management as outlined in the Forest Cover Exhibit (Appendix D).

This project is also required to meet Forest Conservation Act requirements as outlined by Cecil County. Forest Conservation Plans are attached as Appendix E.

c. Impervious Surface Increases and Necessity

The public road improvements are designed to meet minimum road code specifications for Cecil County as well as the Maryland State Highway Administration. Any impact to natural resources is directly related to upgrading roads to comply with modern code requirements.

As the property was initially developed in the 1940's, existing roadways are not sufficient to convey traffic effectively and do not meet modern code standards. As this area develops as a hub of commercial and residential activity in Cecil County, as per the goals of the Priority Funding Area, the existing infrastructure will be insufficient to serve the area.

Category	Area (acres)
Existing Untreated Impervious Surface on-site	4.94
Existing Untreated Impervious to be removed	0.90
Existing Untreated Impervious to be treated (post-construction)	1.98
Existing Untreated Impervious to remain	2.06
Proposed New Treated Impervious	2.98
Proposed New Untreated Impervious	0.30
Total Post-Construction Treated Impervious	4.86

The locations of the proposed treated impervious surfaces are shown on the Impervious Cover Exhibit (Appendix D)

B. Table 1: Tier II Impact Summary

Impact	Total
Tier II Stream Buffers	1.97 acres
Forest Cover Loss	14.93 acres
New Impervious Surface (No ESD treatment)	0.30 acres

C. Minimization Practices

a. Tier II Streams and Buffer Minimization

During the design and permitting process, the applicants have attempted to minimize impacts to Tier II Streams and Buffers by utilizing the existing road infrastructure to the maximum extent possible. Both Cecil County and the Maryland State Highway administration reviewed the project and determined that given the existing condition of the road, and the proposed buildout of the surrounding area, new infrastructure would be required. The applicant applied

for numerous variances to Cecil County's road code requirements to reduce impacts to streams and their buffers, however, these variances were denied. The applicant has minimized impacts by limiting the Limit of Disturbance as much as possible while providing adequate construction access and meeting regulatory requirements. Details regarding minimization attempts are included in Appendix E.

b. Tier II Forest Cover Loss Minimization

During the design and permitting process, the applicants have attempted to minimize impacts to forest cover by utilizing the existing road infrastructure to the maximum extent possible. Both Cecil County and the Maryland State Highway administration reviewed the project and determined that given the existing condition of the road, and the proposed buildout of the surrounding area, new infrastructure would be required. The applicant applied for numerous variances to Cecil County's road code requirements to reduce impacts to forests by limiting new construction, however, these variances were denied. The applicant has minimized impacts by limiting the Limit of Disturbance as much as possible while providing adequate construction access and meeting regulatory requirements. Details regarding minimization attempts are included in Appendix E.

c. Tier II Impervious Cover Increase Minimization

During the design and permitting process, the applicants have attempted to minimize increases to impervious cover utilizing the existing road infrastructure to the maximum extent possible. Both Cecil County and the Maryland State Highway administration reviewed the project and determined that given the existing condition of the road, and the proposed buildout of the surrounding area, new infrastructure would be required. The applicant applied for numerous variances to Cecil County's road code requirements to reduce impervious surface cover by limiting new construction, however, these variances were denied. Details regarding minimization attempts are included in Appendix E.

Section 4: Tier II Mitigation

A. Narrative summary of selected mitigation alternatives included in the project

a. Tier II Streams and Buffer Mitigation

The applicant proposes 1.97 acres of impacts to Tier II buffers. Due to the limits placed on the project area, there are no opportunities for on-site buffer mitigation.

b. Tier II Forest Cover Loss and Tier II Impervious Cover Increase Mitigation

Approximately 14.93 acres of the existing forest will be cleared within the project area. The applicant proposes to reforest 1.28 acres of unforested land

on-site. These areas are identified on the Tier II Mitigation Exhibit (Appendix E)

The applicant will remove approximately 0.90 acres of existing untreated impervious surface. Additionally, 1.98 acres of existing untreated impervious surface will be treated by ESD features post-construction. In total, this represents a decrease in untreated impervious surface of 2.88 acres.

c. Conservation

There are seven forest conservation banks in Cecil County, however, these are all retention banks and are not within the target Tier II watershed, eliminating them from use as Tier II mitigation.

d. Other offsets

There are no other offsets proposed.

B. Table 3: Total Mitigation and Conservation

Type	Total
Stream Buffer	0
Reforestation	1.28 acres (including 0.53 acres of impervious surface to be removed)
Conservation	0
Other Impervious surface treatment Impervious surface removal	 1.98 acres 0.90 acres (0.53 acres to be reforested and put in a conservation easement)

Section 5: Social and Economic Justification

A. Introduction

The Bainbridge Logistics Center is a transformative industrial development located on the historic Bainbridge Naval Training Center site in Port Deposit, Maryland. Designed as a premier logistics and distribution hub along the I-95 corridor, Phase I of the project will revitalize over 440 acres of long-vacant former federal land into a dynamic engine for economic growth. Featuring state-of-the-art warehouse facilities and infrastructure tailored for modern logistics and advanced manufacturing tenants, Bainbridge Logistics Center is poised to generate significant capital investment, attract high-quality employers, and create sustainable jobs in Cecil County.

In conjunction with the development, this project pertains to a new road construction project that will provide a critical secondary access route to the site. This new connector known as the Phase IA/II Road Improvements from Diamond Jim Road to an extension of recently dedicated Powers Road will serve as an additional means of ingress and egress,

improving traffic circulation, enhancing emergency access, and ensuring operational flexibility for future tenants. Beyond the site boundary, the road project includes local roadway upgrades—such as improved intersections, widened shoulders, and signal enhancements—that will benefit nearby residential and commercial corridors. Together, the Bainbridge Logistics Center and supporting transportation investments represent a coordinated public-private effort to unlock the region's economic potential while strengthening local infrastructure.

B. Social and Economic Benefits of the Project

The Bainbridge Logistics Center and its associated infrastructure improvements will deliver a wide range of social and economic benefits for Port Deposit, Cecil County, and the broader region. These include:

Job Creation

The project is expected to generate hundreds of permanent jobs in logistics, warehousing, administration, and advanced manufacturing, in addition to hundreds of temporary construction jobs during site preparation and building phases.

Private Capital Investment

With millions in anticipated private-sector development, Bainbridge will significantly increase the county's commercial tax base, helping to fund schools, emergency services, and other public priorities.

Increased Business Attraction

The presence of a modern logistics hub with multimodal connectivity and upgraded infrastructure will make Cecil County more competitive in attracting national and global tenants.

Support for Small and Local Businesses

Increased activity on and around the site will drive demand for local vendors, service providers, restaurants, and trades, creating a ripple effect on the surrounding economy.

Infrastructure Funding Leverage

The new road and utility upgrades not only serve the site but also position the area for future growth, reducing long-term public costs through shared-use improvements.

a. Economic Importance and Benefit

Constructing the Phase IA/II Road Improvements to the Bainbridge Logistics Center yields a range of economic and financial benefits for both residents and business users in Port Deposit and surrounding areas. These benefits are both direct—such as improved access and safety—and indirect, including regional growth and increased property values.

For Residents

Improved Mobility and Reduced Travel Time

A new access road alleviates congestion on existing local roads, shortening commutes and improving daily convenience for residents who live, work, or travel near the site.

Enhanced Property Values
Improved infrastructure typically leads to appreciation in surrounding property values, especially when paired with increased employment opportunities and new commercial amenities.

Better Emergency Access and Safety
Secondary ingress/egress routes increase public safety, ensuring faster response times for fire, police, and medical services while reducing bottlenecks during emergencies or accidents.

Local Roadway Upgrades
The project includes wider shoulders, safer intersections, and modern signaling—improving overall road conditions for all local users, not just trucks or commercial vehicles.

Job Access and Economic Inclusion
Improved transportation infrastructure expands access to jobs at the Bainbridge site and in surrounding commercial zones, particularly for communities with limited mobility or transportation options.

For Business Users
Reliable and Efficient Site Access
A new road designed to accommodate heavy vehicles ensures uninterrupted truck flows, reduces wear on smaller residential streets, and enhances supply chain reliability.

Cost Savings from Reduced Delays
More efficient ingress/egress reduces fuel consumption, labor hours lost to traffic, and logistics costs, directly benefiting tenants and their vendors.

Expanded Development Capacity
New road infrastructure opens additional acreage for development within and around the Bainbridge site, creating opportunities for businesses to expand or co-locate.

Business Attraction and Investment Confidence
Investors and national tenants look for locations with robust, modern infrastructure—a new road signals that the area is ready for large-scale operations and long-term investment.

Support for Ancillary Services

As traffic increases, so will demand for support services (fuel stations, convenience retail, repair shops, food service, etc.), creating new business opportunities throughout the corridor.

Broader Financial Impact

Increased Local and State Tax Revenues

New road access enables full buildout of the Bainbridge site, leading to higher assessed values, business activity, and resulting property, income, and sales tax growth.

Public-Private Leverage

The road investment may be partially offset by private-sector participation or grants, stretching public dollars and making future infrastructure upgrades more feasible.

In short, the Phase IA/II Road Improvement to Bainbridge is not just a connector—it is a strategic infrastructure investment that multiplies financial returns, enhances economic competitiveness, and benefits the daily lives of both residents and businesses.

i. Method of Financing and categorized project costs

The $27 million Bainbridge access road project is a strategic public-private investment to construct a secondary access route and upgrade surrounding infrastructure. It is funded through $15 million in state grants and nearly $12 million in private investment from the development team, reflecting a strong partnership between Maryland and private industry.

Key Project Cost Categories:

1. Design & Engineering – Permitting, environmental reviews, and construction drawings.
2. New Road Construction – Grading, paving, and stormwater systems
3. Local Road Improvements – Widening, resurfacing, signals, and safety upgrades.
4. Utility Relocation – Coordination for water, sewer, and electric infrastructure
5. Right-of-Way – Land acquisition and easements (if needed)
6. Construction Management – Oversight, contingencies, and contractor costs

This funding model ensures a cost-effective, high-impact investment in regional access, safety, and long-term economic growth.

ii. Annualized cost of minimization implementation over estimated life of project

It is hard to determine the annualized cost of the minimization efforts as the design was not budgeted prior to the minimization strategies implementation.

iii. Project cost allocation, i.e., costs related to financing, that are passed along to end users.

Costs of the project will not be passed along to end users like residents or employees but rather, excess costs will be supported by private development in partnership with the State Grant.

iv. End users responsible for recouping financing

Financing costs of the project will not be passed along to end users like residents or employees but rather, excess costs will be supported by private development in partnership with the State Grant.

v. Table Basic Economic Project Benefits

Benefit	Amount
Annual County Property Tax Revenue	$7,884,734
Annual State Tax Revenue	$575,491
Employment Opportunities	2,730

b. Social Importance and Benefit

The Bainbridge project delivers meaningful social benefits by revitalizing long-vacant land, creating good-paying local jobs, and improving road safety and emergency access for nearby communities. It enhances access to opportunity, supports workforce development, and fosters a sense of community pride through strategic reinvestment in Port Deposit and Cecil County.

i. Purpose and Need

The Phase IA/II Road Improvements Project is essential to support safe, efficient access to the Bainbridge Logistics Center. It will:

1. Provide a secondary access route for trucks and employees.
2. Improve emergency response and public safety.
3. Reduce local traffic congestion.
4. Upgrade outdated infrastructure to modern standards.
5. Enable future growth and development in the region.

Overall, the improvements are key to unlocking the site's full potential and strengthening local connectivity.

ii. Widespread social benefit to the community affected.

The construction of the new access road and local road improvements near the Bainbridge Logistics Center is expected to increase surrounding

property values. Improved accessibility, reduced congestion, and enhanced safety make the area more attractive to residents, businesses, and investors.

Commercial and industrial properties will benefit from proximity to upgraded infrastructure, while residential areas may see appreciation due to better connectivity and nearby job creation. As values rise, the local tax base will grow, supporting further community investment. Overall, the project serves as a catalyst for economic growth and real estate uplift in the region.

iii. Contributions to the environment

Upgrading roads, culverts, and stormwater management systems as part of the Bainbridge project will maintain high water quality and protect local ecosystems. Modern stormwater infrastructure will better manage runoff, limit erosion, and filter pollutants before they reach nearby waterways. Replacing outdated culverts also supports wildlife passage and stream restoration, contributing to a healthier and more resilient environment.

iv. Environmental Justice

- **Demographics of Tier II Watershed Impacted by The Project**

  According to the 2023 American Community Survey, the project area is 51.2% male and 48.8% female. The median age of the project area is 40.9 years. The population is 92.3% white, 6.5% Black or African American. Approximately 8.6% of the population identifies as Hispanic.

  Of the population age 25 and older, 37.7% have a high school diploma, 11.9% have a bachelor's degree, and 13.4% have a graduate degree.

  Of the population over the age of 16, 56.4% are employed in the civilian labor force. The median household income is $19,744.

- **MDE EJ Screen Tool Results**

MDE EJ Score All	60.50
MDE Overburdened Communities Combined	Yes, for Superfund, Brownfield, CAFO, and Mining
MDE Overburdened Sensitive Populations	Yes, for Myocardial infarction
MDE Underserved	No

The MDE EJ Screen Summary is attached as Appendix F.

c. Project Budget

i. Project Budget Narrative

The project costs include design, entitlement, permitting, and constructions costs associated with the Phase IA/II Road Project. It has been priced by local contractors and is based on actual projected costs associated with design and construction.

ii. Table: Project Budget and other relevant costs

PRELIMINARY DEVELOPMENT BUDGET BAINBRIDGE PHASE IA ROAD IMPROVEMENTS PORT DEPOSIT CECIL COUNTY, MD		
DD & ENTITLEMENTS (PARK WIDE)	$	2,100,000
OFF -SITE IMPROVEMENTS (DIAMOND JIM & MD-275 INTERSECTION)	$	10,650,000
DD & ENTITLEMENTS	$	400,000
HARD COSTS	$	9,200,000
SOFT COSTS	$	300,000
CONTIGENCY	$	750,000
POWERS ROAD EXTENSION	$	7,850,000
DD & ENTITLEMENTS	$	50,000
HARD COSTS	$	6,500,000
SOFT COSTS	$	300,000
CONTIGENCY	$	1,000,000
COMMODORE BLVD EXTENSION	$	6,100,000
DD & ENTITLEMENTS	$	-
HARD COSTS	$	4,800,000
SOFT COSTS	$	300,000
CONTIGENCY	$	1,000,000
TOTAL COSTS	$	26,700,000
LESS GRANT FUNDS AVAILABLE	$	(15,000,000)
TOTAL ADDITIONAL FUNDING REQUIRED	$	11,700,000

Section 6: Socioeconomic Benefit of Maintaining High-Quality Tier II Waters

A. Social and Economic Benefits of Maintaining High-Quality Tier II Waters

a. Importance of Tier II streams and water quality

Tier II waters have been recognized as having exceptional water quality, providing ideal habitat for aquatic life, and providing recreational, commercial, and water supply benefits to residents of the watershed.

The Mill Creek 1 Tier II Watershed is located in the larger Lower Susquehanna Watershed, which is recognized by Maryland Department of the Environment for supporting healthy submerged aquatic vegetation, benthic macroinvertebrates and rare, threatened, and endangered species, such as the bog turtle (*Glyptemys muhlenbergii) (*Maryland Department of the Environment, 2006*).* Recent Maryland Department of Natural Resources surveys have determined there are self-sustaining populations of brown trout within Mill Creek and Mill Creek is classified as a cold-water watershed. (Maryland Department of Natural Resources, 2020). Additionally, the large tracts of forest that exist within the watershed provide habitat for Forested Interior Dwelling Birds (FIDS) and migratory bird species.

b. Impacts on property value

High-quality waters, such as Mill Creek 1 have a positive effect on property values. People are willing to pay more to have access to green spaces including forests and healthy streams. Studies show that high-quality waters, when paired with open space, can be attributed to adding $1.6 billion to the regional housing market in Pennsylvania (U.S. Environmental Protection Agency, 2012), while studies in New Mexico show that declining water quality can drop the value of property by ten percent or more (Thomas, 2013).

c. Recreation value

Mill Creek 1 offers strong fisheries for recreational anglers in search of popular game fish, particularly largemouth bass, channel catfish, and northern snakehead (Fishbrain, 2025). The larger Lower Susquehanna watershed supports healthy populations of gamefish. Port Deposit, the closest town to the proposed project, hosts a Rockfish Tournament annually, bringing additional revenue to local businesses (Port Deposit Chamber of Commerce, 2025).

d. Other quality-of-life benefits

Maintaining high-quality watersheds like Mill Creek provides other quality-of-life benefits as well. Stream valley forests and wetlands help prevent flooding, which causes an estimated $8 billion in property damage annually in the United States. Exceptional water quality in streams also lowers the cost of water filtration to localities, reducing the tax burden on residents while providing access to clean drinking water. (U.S. Environmental Protection Agency, 2012).

B. Economic Cost of Maintaining High-Quality Tier II Waters/Restoring Degraded Resources

a. Approximate costs of 1:1 in kind reforestation mitigation for all net forest cover loss based on the area market value

Currently, there are no forest conservation banks in Cecil County, so 1:1 reforestation mitigation would require the purchase of land and establishment of forest. This project proposes a total of 14.93 acres of forest clearing, which would result in an estimated cost of $602,954, per the table in section 6.B.c. below. This would result in significant financial hardship for the applicant.

b. Approximate cost of stream restoration, per linear foot, based on market value

Based on Wetland Studies and Solutions, Inc.'s most recent stream restoration projects, the estimated cost of stream restoration, based on market value, is $1,200 per linear foot. This project proposes to permanently impact 190 linear feet of stream channel. The cost for 1:1 stream restoration would be approximately $228,000.

c. Table: Estimated Cost of 1:1 In-kind Reforestation

Item	Unit Cost	Quantity	Total
3-gallon container grown trees, installed	$7,122.51/ac	14.93	$106,339
Site Preparation	$200/ac	14.93	$2,986
Maintenance and Monitoring	$2,000/year	2	$4,000
10% Planting Contingency	$10,634	1	$10,634
Undeveloped land	$30,555/acre	14.93	$456,186
Legal Fees related to land acquisition	5% of purchase price		$22,809
TOTAL			**$602,954**

Section 7: Appendices

- **A. Vicinity Map**
- **B. Tier II No Discharge Alternatives Analysis**
  - **a. Completed Form**
  - **b. Exemption Supporting Documentation**
- **C. Tier II Minimization Alternatives Analysis**
  - **a. Completed Form**
  - **b. Avoidance and Minimization Analysis**
  - **c. Buffer Exhibit**
  - **d. Forest Cover Exhibit**
  - **e. Impervious Surface Exhibit**
- **D. Preliminary Forest Conservation Plans**
- **E. Tier II Mitigation Analysis**

a. **Completed Form**
b. **On-Site Mitigation Exhibit**
c. **Mitigation Report**

F. EJScreen Summary

G. References

The Bainbridge-Power's Road Extension offers the opportunity for large-scale revitalization to an underserved community. The applicant has minimized impacts to Tier II waters by reducing development within the watershed and limiting clearing, providing removal and treatment of existing impervious surfaces, and on-site reforestation. We hope that this report is sufficient for your review.

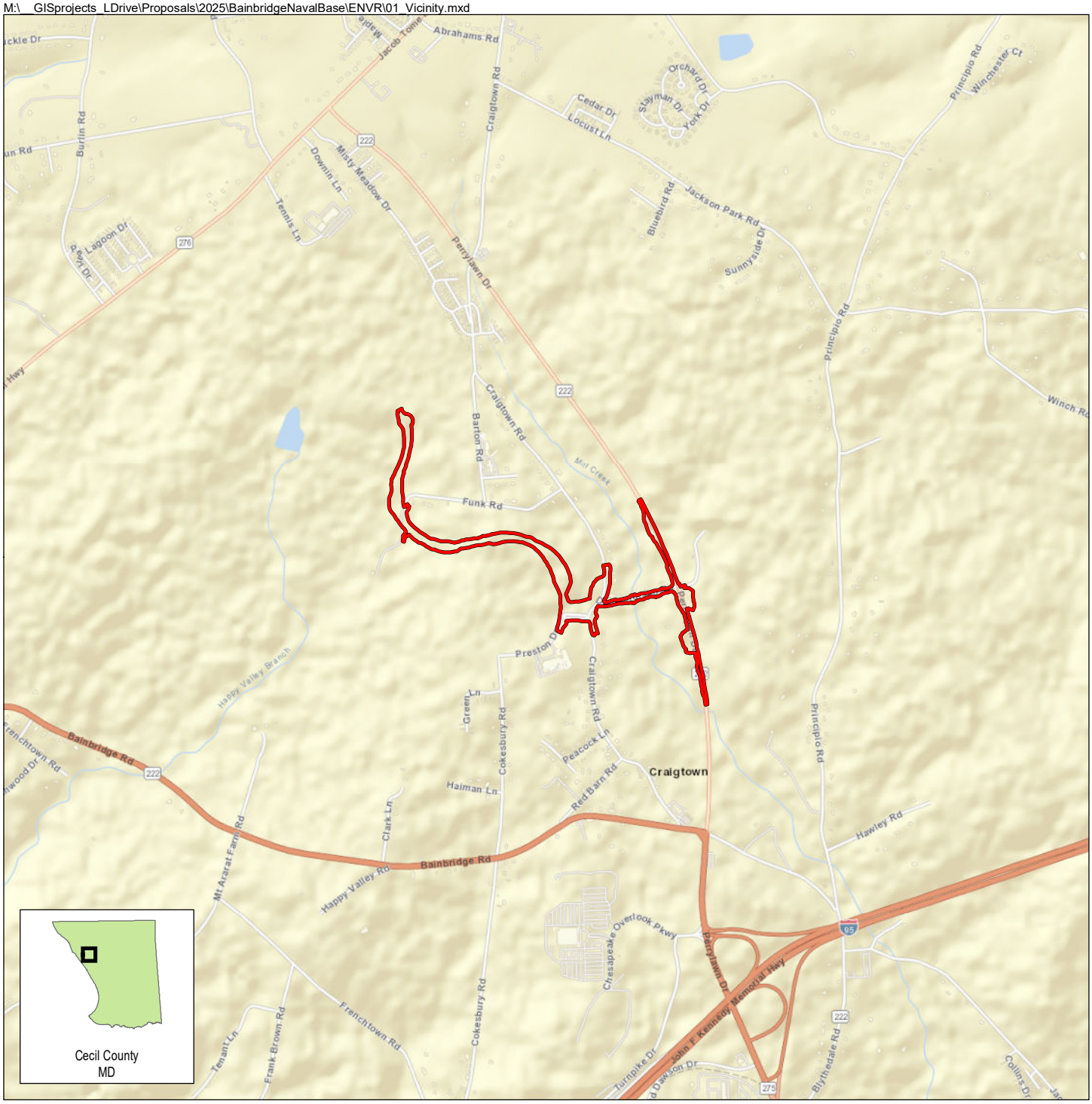
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Appendix A

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Project Area (±28.0 acres)

Vicinity Map
Bainbridge Naval Base Road Improvements

NORTH

0 2,000

Feet

Original Scale:
1 " = 2,000 '

ADC Map/Column/Row: 4243H3
Source: World Street Map - ESRI

Wetland Studies and Solutions, Inc.
a DAVEY company

Exhibit 1

Appendix B

Purpose

This form is designed to help applicants assemble a complete Tier II Review report. This form specifically addresses evaluating alternatives that avoid impacts to Tier II watersheds and streams. It is strongly recommended that applicants complete this analysis as early in the project planning stages as possible, during initial property site search and screening analysis of purchase and feasibility alternatives.

The Department will use this information to determine whether or not an adequate alternatives analysis was conducted, and to help determine if a reasonable alternative to the proposed activity is available. MDE may provide additional comments during the course of the review.

Maryland Department of the Environment

Antidegradation Review Report Form

Alternatives Analysis - No Discharge Alternative

Fill in all that apply:

1. **Project Name:** Bainbridge-Powers Road Extension
2. **County ESC Plan Identifier:** _____
3. **Nontidal Wetlands & Waterways Construction Tracking Number: 20206_ _ _ _**
4. **General Permit Number:** _____
5. **Other Application Type and Number:** NOI/NPDES (Permit number pending)

Applicant Signature: _____ **Date Complete:** 9/2/25

Background

Code of Maryland Regulations (COMAR) 26.08.02.04-2 (G(1)) states that "If a Tier II antidegradation review is required, the applicant shall provide an analysis of reasonable alternatives that do not require direct discharge or a potential water quality impact to a Tier II watershed. The analysis shall include cost data and estimates to determine the cost effectiveness and feasibility of the alternatives".

For land disturbing projects that result in permanent land use change, this 'no discharge' analysis specifically evaluates the reasonability of other sites or alternate routes which could be developed to meet the project purpose, but are located *outside* of the Tier II watershed. Reasonability considerations, as applicable, may take into account property availability, site constraints, natural resource concerns, size, accessibility, and cost to make the property suitable for the project. This analysis shall be performed regardless of whether or not the applicant has ownership or lease agreements to a preferred property or route.

Information from this analysis may be used to inform minimization analysis.

Instructions and Notes

1. Complete the analysis for each Tier II watershed impacted.
2. Review the information in this document carefully. Prepare a report to address all of the analyses required by this document. Submit all Tier II analysis and documentation at one time.
3. To help improve review efficiency and avoid delays, do not leave any response blank. Please use "N/A" for any questions or sections that are not applicable.
4. Provide sufficient supporting documentation for narratives.
5. The level of analysis necessary, and amount of documentation that may be needed to make a decision is dependent upon project size, scope, and scale of relative impacts to Tier II resources. Please develop responses accordingly.
6. Reports/responses shall be submitted in electronic format, as well as paper. Full plans are not required unless requested over the course of the review.
7. Direct any questions regarding this form to Angel Valdez at angel.valdez@maryland.gov, or by phone at 410-537-3606.

No Discharge Alternative Analysis Final Documentation Checklist

☑ Signed & Dated MDE Tier II Alternatives Analysis – No Discharge Alternative form (page 1)

☑ Qualifying Exemptions with supporting documentation

☐ General Project Purpose Statement with relevant definitions N/A: Project Exempt

☐ Alternative Site Reasonability Analysis N/A: Project Exempt

- ☐ Results of initial site search
- ☐ Map of alternatives relative to preferred site and Tier II streams/catchment
- ☐ Alternative Sites Summary Analysis Table Supplementary Information (per site)
- ☐ Detailed Narrative of Alternate Analysis Outcome

☐ Alternative Route Reasonability Analysis N/A: Project Exempt

- ☐ Results of initial site search
- ☐ Map of all alternatives relative to preferred route and Tier II streams/catchment
- ☐ Alternative Sites Summary Analysis Table Supplementary Information (per site)
- ☐ Detailed Narrative of Alternate Analysis Outcome

☐ Narrative rationale for final decision of reasonableness N/A: Project Exempt

Qualifying Exemptions

For the purposes of the no discharge analysis for land disturbing activities, extenuating circumstances may apply to projects that are developed to address a specific need, may be linked to special funding, or linked to a specific location. Supporting documentation is required before consideration. Please read the following examples and determine whether or not a given situation is applicable.

The applicant must get concurrence from MDE as to the applicability of any special circumstances prior to completing the no discharge alternatives analysis. It is at the Department's discretion to determine whether a special circumstance applies, and whether or not this applicability means that there is not a reasonable alternative that avoids the Tier II watershed.

If none of the special circumstances apply, check "**Not Applicable**".

☐ **Not Applicable**

☑ **Situation 1:** Project is linked to unique or special incentives for State, County, or Municipality

Example: County needs for 1000 units of low-income senior housing in legislative district 7. Documentation must include the request for proposals (RFP) or similar missive to meet the housing need, and unique benefits or incentives lost if the project is moved outside of legislative district 7.

Example: Project is located in a State Designated Priority Funding Area, State Designated Enterprise Zone, or similar area targeted by the State for economic growth, business development, or investment.

☑ **Situation 2:** Project has location specific limitations

Example: College campus extension. Education capital funding limits development to sites that are within 5 miles of the main campus. Documentation should include the RFP or similar documentation.

Example: Project is taking place in an existing right of way, or using an area that is currently operational. Such projects include replacing transmission lines, expanding operations on a working farm or business center.

☐ **Situation 3:** Military project (or similar) with restrictions due to national security, etc.

Example: Construct a new runway and hangar for Air Force 1. The military may identify a certain location or base where this construction shall occur due to existing facilities, support personnel, and security concerns.

☐ **Situation 4:** Project has little to no resource impacts.

Example: Repair or replacement of existing structures, road resurfacing, bridge maintenance using scaffolding, General Waterways Construction Permits, habitat restoration, rehabilitation, and stabilization.

☐ **Situation 5:** Project is a "Grandfathered" development, that meets the specifications within Chapter 1.2, in the *Maryland Model Stormwater Management Ordinance, June 2009 & April 2010*

Administrative waivers, extension documentation, etc. are required documentation.

Note -This exemption does not apply to linear projects like roads or pipelines. Grandfathered projects are not exempt from the minimization alternatives analysis.

General Project Purpose Statement

1. Define the overall project purpose and site selection criteria. To result in a fair and meaningful analysis for the antidegradation review the site selection criteria must fall into the following parameters:
    a. The statement must not be so narrowly constructed as to limit the results to one site with no other possible alternatives, or
    b. Likewise, the statement cannot be too broadly written creating too many alternatives to effectively consider.

2. Example Statements
    a. Too Narrow: To develop a high density residential housing complex consisting of 1000 living units on a 200 acre site adjacent to the Mall of Maryland. –- The likelihood that there are multiple properties other than the desired alternative available are unlikely, and this eliminates the possibility of properties outside of the Tier II watershed.
    b. Too Broad: To develop a residential housing complex in Charles County. –- This will yield hundreds of results, creating a burdensome and unrealistic amount of work to evaluate each alternative.**
    c. Reasonable: To develop a residential housing complex near a major shopping center in Northern Charles County. –- This will reduce the number of available properties to a more manageable amount, while still meeting the overall purpose of providing housing near a retail center in a target geographic area. The applicant can further refine the statement by defining "near", "major shopping center", and "Northern Charles County".

3. The applicant must craft a statement that yields at least 3 available alternative properties for further evaluation.

4. The level of detail for the alternative analysis process should appropriately match the complexity of the project taking into consideration factors such as resource impacts to Tier II watersheds in terms of impervious cover, forest cover loss, riparian buffer impacts, public comment, etc. For example, the amount of documentation provided for 3 alternatives to place a single dwelling on one acre is expected to be significantly less than the documentation expected for a 300 acre mixed-use development.

    **Based on comments received during the review or other mitigating circumstances, the Department may require the applicant to evaluate additional alternatives, or provide a more in-depth analysis.

Table 1: Alternative Site Evaluation Summary Analysis Table			
Evaluate each criteria listed in the left hand column for each alternative site. Populate each box with the appropriate conditions, i.e. either yes/no, or by listing one or more of the options provided (a, b, c…), such as types of utilities available at a given site.			
	Site 1	**Site 2**	**Site 3**
Availability: a. Owned by applicant b. For sale c. Special, please explain (example: remediation required)			
Sizing appropriate: a. As is b. Purchase of adjoining property/ROW required			
Accessible Utilities: a. Electric b. Water c. Sewer d. Site access (existing road/bridge, etc.). e. None			
Development Resources: a. Existing SWM b. Existing buildings/structures c. Site cleared			
Zoning: a. Appropriate b. Waiver required			
Resource Impacts: a. Streams b. Forest c. Wetlands/wetlands buffer d. 100-yr flood plain			
Cost to Acquire is Reasonable: Yes or No			

Alternative Sites Summary Analysis Table Supplementary Information:

1. Explanation of site search criteria and rationale.
    a. Relate project requirements to the criteria in Table 1.
    b. Include any additional critical criteria not identified in the above table.

2. Results of initial site search.
    a. List the available sites for consideration before the applicant chose 3 for further evaluation.
    b. Include a brief narrative description of each site.
    c. Include a table listing basic site address, lot size, parcel and map.
    d. Include an overview map showing sites and their relative location to the preferred property.
    e. If available, include Real Property Search Data (From Maryland Department of Assessments and Taxation (http://sdat.dat.maryland.gov/RealProperty/Pages/default.aspx), or MLS (Multiple Listing Service) information.

3. Expand upon the responses in Table 1.
    a. Include a narrative that clearly explains how the applicant determined the final 3 sites for further consideration in Table 1.
    b. Provide basic information about each site, i.e. land use, land cover, unique features, on-site resources such as streams, wetlands, relevant geology and/or hydrology, etc.
    c. Discuss specific resource impacts.
        i. Include a table that further breaks down the resource impacts associated with the 3 alternative sites.
        ii. Include a narrative that further details whether resources could be avoided. For example, an on-site stream that will most likely be crossed to accommodate site access would make that site less favorable when compared to another option.

4. Justify final site decision.

Table 1: Alternative Route Evaluation Summary Analysis Table (use for linear projects such as roads, utility lines, etc)			
Evaluate each criteria listed in the left hand column for each alternative site. Populate each box with the appropriate conditions, i.e. either yes/no, or by listing one or more of the options provided (a, b, c…), such as types of utilities available at a given site.			
	Site 1	**Site 2**	**Site 3**
Availability: a. ROW Owned by applicant b. ROW can be acquired or leased c. Other, please explain			
Accessible Utilities (i.e. where connecting infrastructure is required): a. Electric b. Water c. Sewer or pipeline d. Site access (existing road/bridge, etc.). e. None			
Zoning: a. Appropriate b. Waiver required			
Resource Impacts: a. Streams b. Forest c. Wetlands/wetlands buffer d. 100-yr flood plain			
Cost to Acquire is Reasonable: Yes or No			

Alternative Route Summary Analysis Table Supplementary Information:

1. Explanation of route search criteria and rationale.
    a. Relate project requirements to the criteria in Table 1.
    b. Include any additional critical criteria not identified in the above table. For example, if the purpose of the project is to improve public safety, documentation must be provided to support this claim. For a new road this may include data on accidents, visibility issues, or geometric design issues that can complicate travel.

2. Results of initial route search.
    a. List the available routes for consideration before the applicant chose 3 for further evaluation.
    b. Include a brief narrative description of each route.
    c. Include a table listing route start and end addresses, parcel and map, land use (i.e. residential neighborhood, commercial district, etc.)
    d. Include an overview map showing results and their relative location within the impacted Tier II watershed.

3. Expand upon the responses in Table 1.
    a. Include a narrative that clearly explains how the applicant determined the final 3 sites for further consideration in Table 1.
    b. Provide basic information about each site, i.e. land use, land cover, unique features, on-site resources such as streams, wetlands, etc.
    c. Discuss specific resource impacts.
        i. Include a table that further breaks down the resource impacts associated with the 3 alternative routes. For example identify the number of streams on-site, potential forest loss for site clearing, etc.
        ii. Include a narrative that further details whether resources could be avoided. For example, an on-site stream that will most likely be crossed to accommodate site access would make that site less favorable when compared to another option. Note: In making a final decision, MDE may take into consideration whether or not the project can avoid the impact by going over it (i.e. bridge) or under it (i.e. drilling). Consider this in the resource impact evaluation. The method of crossing may be a special permit condition.

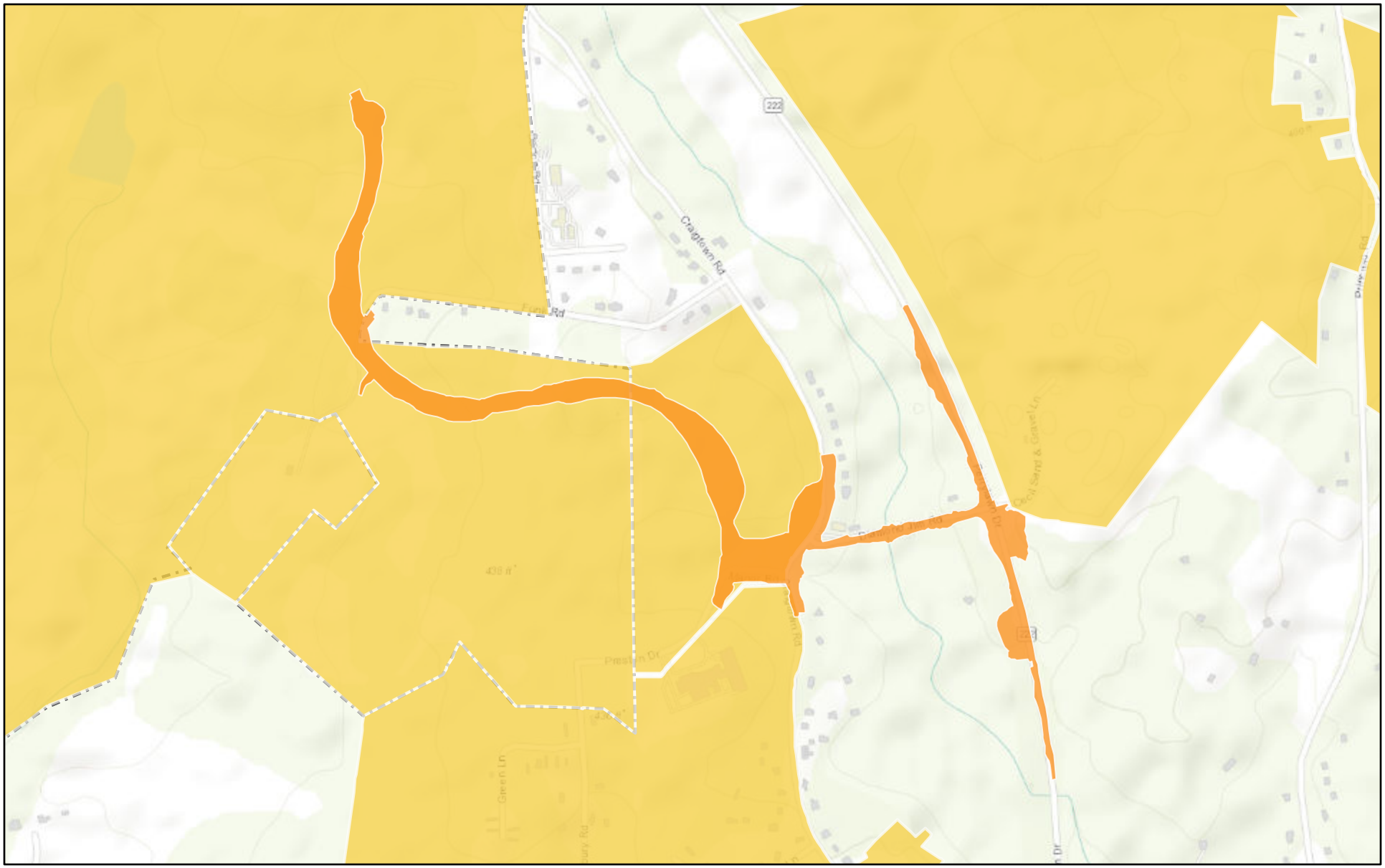
4. Justify final route decision.

Provide a hardcopy responses to:

Maryland Department of the Environment
Environmental Assessment and Standards Program
Antidegradation Implementation Coordinator
ATTN: Angel D. Valdez
1800 Washington Blvd
Baltimore, Maryland 21230

Provide an electronic response, by CD to the address above, or a way to download the response from secure cloud-based site, email: to Angel Valdez at angel.valdez@maryland.gov.

Priority Funding Areas



6/16/2025, 12:38:00 PM

Site Boundary

Priority Funding Areas (MDP)

Municipal Boundaries

Citations

1:12,866

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

Cecil County, Harford County Government, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

Appendix C

Purpose

This form is designed to help applicants assemble a complete Tier II Review report. This form specifically addresses calculating Tier II resource impacts and evaluating alternatives that minimize water quality degradation from unavoidable impacts to Tier II watersheds and streams. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

The Department will use this information to determine whether the applicant evaluated all reasonable alternatives to minimize water quality degradation. MDE may provide additional comments, conditions, or requirements, during the review.

Maryland Department of the Environment

Antidegradation Review Report Form

Alternatives Analysis – Minimization Alternatives

Fill in all that apply:

1. **Project Name:** Bainbridge-Powers Road Extension
2. **County ESC Plan Identifier:** _____
3. **Nontidal Wetlands & Waterways Construction Tracking Number:** _____
4. **General Permit Number:** _____
5. **Other Application Type and Number:** NOI/NPDES (permit number pending)

Applicant Signature: _____ **Date Complete:** 9/2/25

Background

Code of Maryland Regulations (COMAR) 26.08.02.04-2 (G(3)) states that "If the analysis in §G(1) of this regulation shows that the alternatives are not cost effective and feasible, the applicant shall provide the Department with plans to configure or structure the discharge or other regulated activities that may cause a potential water quality impact so as to minimize the use of the assimilative capacity of the water body. The assimilative capacity of the water body is the difference between the water quality at the time the water body was designated as Tier II, the baseline, and the water quality criterion".

To demonstrate that appropriate minimization practices have been considered and implemented, applicants must identify any minimization practices used when developing the project, calculate major Tier II resource impacts, consider alternatives for impacts, and adequately justify unavoidable impacts. Further water quality impact minimization such as mitigation or out-of-kind offsets may be required.

Additionally, applicants are required to coordinate with the County or appropriate approval authority when developing construction plans, and incorporate additional practices as indicated by the guidance provided in the *Construction Stormwater Antidegradation Checklist*. This checklist, as well as the other portions of the Tier II Review Report are required prior to receiving many permits and authorizations from MDE.

Instructions and Notes

1. Review all the information in this document carefully. Prepare a report to address all of the analysis required by this document. Submit all Tier II analysis and documentation together.

2. Do not leave any response blank. Please mark "N/A" for any questions or sections that are not applicable until you reach the end of the document.

3. Provide sufficient supporting documentation for narratives.

4. The level of analysis necessary, and amount of documentation that may be needed to determine if impacts have been adequately addressed, is dependent upon project size, scope, and scale of relative impacts to Tier II resources. Please develop responses accordingly.

5. Reports/responses shall be submitted in electronic format, as well as paper. Full plans are not required unless requested over the course of the review.

6. Direct any questions regarding this form to Angel Valdez at angel.valdez@maryland.gov.

Minimization Alternative Analysis Final Documentation Checklist

☑ Signature & Date MDE Tier II Alternatives Analysis – Minimization Alternative form

☑ Resource Impact Analysis

- ☑ Tier II Stream Buffer Impacts
  - Impact Calculation
  - Impact Minimization
  - Stream Buffer Exhibit
- ☑ Forest Cover Impacts
  - Impact Calculation
  - Impact Minimization
  - Forest Cover Exhibit
- ☑ Impervious Cover
  - Impact Calculation
  - Impact Minimization
  - Impervious Cover Exhibit

Tier II Resource Impacts

Sufficient riparian buffers, ample watershed forest cover, and lower levels of impervious cover are essential to maintaining high quality waters. This project may permanently reduce riparian buffers and forest cover, or increase impervious cover within Tier II watersheds leading to a decrease in water quality. Depending upon project specific impacts, MDE may require monitoring, additional BMPs, expanded buffers in Table 1, and other studies prior to approval. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

MDE will use the following information to determine impacts to Tier II watershed resources.

A. Tier II Stream Buffers

1. Instructions:

- **a. If no stream buffer impacts are proposed (within 100' of stream), mark this section N/A and proceed to Section B, Forest Cover.**
- **b. Complete the analysis for each Tier II watershed affected on a separate sheet**
- **c. Insert the Tier II watershed name at the top of each box.**
- **d. "Impacted" stream segments are those disrupted by road crossings, other infrastructure, construction (ex. sewer lines), or otherwise buried**
- **e. Calculate buffer averages for 2(f) below on a stream segment-by-segment basis.**
- **f. Explain in detail minimization alternatives considered, and any actions taken**

A. **Tier II Stream Buffers - Tier II Watershed:** Mill Creek 1

2. Calculation of Potential Riparian Buffer Impacts to State Regulated Waters	**Linear Feet +/-**	
	LEFT Bank	**Right Bank**
a. Combined length of on-site stream segments:	368	327
b. Combined length of EXISTING, pre-development, impacted stream segments:	0	0
c. Combined length of PROPOSED, post-development, impacted stream segments:	368	327
d. Total post-development impacted stream segments 2(b) + 2(c)=	368	327
e. Total post-development unimpacted stream segments 2(a) - 2(d) =	0	0
f. Combined length of streams, post-development, with an average 100' buffer, based on the value in 2(e):	0	0
g. Potential Tier II Buffer Impacts 2(e) - 2(f) =	0	0

A. **Tier II Stream Buffers - Tier II Watershed:** Mill Creek 1

3. Buffer Impact Minimization:

Evaluate on-site alternatives for buffer impacts for segments identified in 2(g). Examples include minimizing ROW, narrowing paths, alternate routes for walkways, roads, crossings, etc. to avoid buffer impacts.

4. Buffer Exhibit

Prepare a Tier II Buffer Exhibit for on-site streams. Dependent upon the number of segments, multiple sheets (8 ½" by 11") may be used. On an overview, label each segment (a, b, c…) and provide a tabular summary, per bank-segment (e.g., left bank of segment a), of average buffer width.

In addition to on-site streams, the exhibit shall display the following information:

- 100- foot riparian buffer. (symbolize with a line)
- Areas where the post-construction stream buffer are +/- 100 feet. (symbolize with shading, hatches, or dots, etc.)
- On-site areas where buffers could be maintained at distance greater than or equal to a 100' if there are unavoidable constraints in some locations. (symbolize with shading, hatches, or dots, etc.)

Table 1: Expanded Tier II Riparian Buffer

Adjusted Average Optimal Buffer Width Key (in Feet)				
	Slopes (%)			
Soils	0-5%	5-15%	15-25%	>25%
ab	100	130	160	190
c	120	150	180	210
d	140	170	200	230

B. Tier II Forest Cover
1. Instructions: **a. If there is no net forest cover loss within the impacted Tier II watershed, mark this section N/A and proceed to Section C, Impervious Cover.** **b. Complete the analysis for each Tier II watershed affected on a separate sheet** **c. Insert the Tier II watershed name at the top of each box.** **d. "Potential Constraints" include forest loss due to ROW, property boundaries, regulatory requirements, etc.** **e. Explain in detail minimization alternatives considered, and any actions taken**

B. **Tier II Forest Cover - - Tier II Watershed:** Mill Creek 1	
2. **Calculation of Potential Forest Cover Impacts**	**Acres +/-**
a. Total on-site forest cover, EXISTING:	14.93 ac
b. Total on-site forest cover, POST-PROJECT:	0
c. Total off-site reforestation or restoration, IN the Tier II Watershed listed above:	0
d. Permanent forest loss due to potential constraints:	14.93 ac
e. Total forest cover retained in Tier II Watershed 2(b) + 2(c) =	0
f. Total forest cover loss in Tier II Watershed 2(e) – 2(a) =	14.93 ac

B. Tier II Forest Cover - - Tier II Watershed: Zekiah Swamp Run UT 2
3. Forest Cover Loss Minimization
If 2(d) is greater than 0, or if 2(f) is a negative value, evaluate on-site alternatives for forest cover impact minimization. Examples include minimizing ROW, alternate routes for roads, crossings, etc. to avoid forest cover impacts.
4. Forest Cover Exhibit
On an 8 ½" by 11" sheet(s), prepare an on-site Tier II Forest Cover Exhibit. Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(d) above. Prepare a separate exhibit regarding any off-site reforestation, or out-of-kind mitigation opportunities in accordance with Section D.

C. Impervious Cover
1. Instructions: **a. If ESD is used to treat all new, on-site, post-construction stormwater, mark this section N/A and proceed to Section D, Mitigation and Other Potential Requirements.** **b. Insert the Tier II watershed name at the top of each box.** **c. Explain in detail minimization alternatives considered, and any actions taken.**

C. **Tier II Impervious Cover - - Tier II Watershed:** Mill Creek 1	
2. Calculation of Impervious Cover Increase	**Acres +/-**
a. Total additional (new) impervious cover, POST-PROJECT:	2.98
b. Total additional (new) impervious cover treated with ESD practices, POST PROJECT:	2.68
c. *Total impervious cover not treated with ESD practices, POST-PROJECT:* *2(a) – 2(b) =*	0.30

C. Tier II Impervious Cover - - Tier II Watershed: Mill Creek 1
3. Impervious Cover Minimization
If 2(c) is greater than 0, evaluate on-site alternatives for impervious cover impact minimization by identifying additional areas where ESD stormwater management practices can be utilized.
4. Impervious Cover Exhibit
On an 8 ½" by 11" sheet(s), prepare an on-site Tier II Impervious Cover Exhibit. Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(c) above. Prepare a separate exhibit regarding any off-site reforestation, or out-of-kind mitigation opportunities in accordance with Section D.

Applicant Signature: _____ **Date:** 9/2/25

Provide a hardcopy response to:

Maryland Department of the Environment
Environmental Assessment and Standards Program
Antidegradation Implementation Coordinator
ATTN: Angel D. Valdez
1800 Washington Blvd, Suite 530
Baltimore, Maryland 21230

Provide an electronic response via email: to Angel Valdez at angel.valdez@maryland.gov

901 Dulaney Valley Road, Suite 801
Towson, MD 21204
410.821.7900

AVOIDANCE AND MINIMIZATION ANALYSIS

BAINBRIDGE LOGISTICS CENTER
POWERS ROAD EXTENSION
CECIL COUNTY, MARYLAND

Site Description

Bainbridge Logistics Center is located on the southeast side of Jacob Tome Memorial Hwy (MD Route 276) in the Town of Port Dposit, Cecil County, Maryland. Bainbridge Logistics Center is part of an overall master plan to redevelop the decommissioned Bainbridge Naval Base. The first phase of development is underway and consisted of developing approximately 444 acres of the northwest portion of the base and subdividing the site into four industrial lots. Powers Road was constructed per previously approved plans designed for the first phase to provide access to the proposed industrial lots and extends to the eastern edge of the first phase. Powers Road will be dedicated to the Town of Port Deposit and maintained by Cecil County. A Site Location Map of the subject site is attached as Figure 1.

Project Purpose

The Bainbridge Development Corporation (BDC) is proposing to extend Powers Road through a currently vacant portion of land owned by BDC, redevelop the existing Diamond Jim Road from its intersection with Perrylawn Drive (MD Route 275) west to its intersection with Craigtown Road, and extend Diamond Jim Road to the proposed Powers Road extension. Diamond Jim Road and Craigtown Road are Cecil County owned and maintained, and currently serve primarily as residential roads.

The limits of this project include 33.50 acres of disturbance for the road improvements, stormwater management facilities and associated storm drain infrastructure. Future industrial and residential developments are anticipated on BDC's property. At the time of those developments, industrial and residential buildings, parking, utilities, and additional stormwater facilities will be constructed.

The purpose of extending Powers Road is to provide a second access point to Bainbridge Logistics Center to mitigate the distribution of traffic and provide additional safety if the park needed to be evacuated in an emergency. The extension of Powers Road will begin at the phase one termination point and extend through BDC property. While there are existing paved roadways through this portion of the site, the existing alignments were not able to be reused as they do not meet current County design standards. The proposed road alignment was designed to meet rode code standards and minimize impacts. The improvements will include realigning the existing Diamond Jim Road and Craigtown Road intersection to meet the current Cecil County Road Code. The improvements also include upgrading the Diamond Jim Road and Perrylawn Drive (MD Route 275) intersection with acceleration and deceleration lanes, in addition to turn lanes and bike lanes to address anticipated traffic and current design standards. Additionally, stormwater management facilities and associated storm drain to convey runoff from the proposed road improvements will be constructed.

In addition to providing a second means of access and the additional safety measures for the existing park, the road improvements are also part of future planning for the area. The road improvements will also provide access to the vacant lots to the east of the Phase 1 development, which are to be developed in the future for industrial or residential developments to align with the underlying zoning. These lots are approximately 148 acres total and located at Tax Map 29B Grid 15 Parcel 648.

After construction of the first phase of Bainbridge Logistics Center was completed towards the end of 2023 and into early 2024, the next stages for development of Bainbridge began. There was an available state grant for public road improvements that was applied for. Two allocations of state funding, via DGS capital grants (Authorization year 2022 - Chapter 344 - DGS Item 317 $7,500,000 & Authorization year

2023 - Chapter 102 - DGS Item 354 $7,500,000) were provided to complete the road improvements. As outlined above, the extension of Powers Road was necessary to provide additional access to the site to mitigate traffic and safety, but also to provide access to approximately 148 acres of undeveloped land to the east of the first phase of the project. Additionally, the site is located in a Priority Funding Area, and it is an incentive of the Town of Port Deposit and Cecil County to continue development at Bainbridge. So far, the development of Bainbridge Logistics Center has been a benefit to the Town of Port Deposit, Cecil County, and the State of Maryland. These benefits include remediation of asbestos and issuance of a no further action letter for the impacted areas addressed, demolition of abandoned buildings which were an attraction for illegal activity, job creation in the area, driving traffic for commerce into the Town of Port Deposit, and increasing tax base. The road improvements and future industrial and residential developments will further add to these benefits and continue to revitalize the area.

To develop these roads, unavoidable impacts to waters of the US, nontidal wetlands, 25-foot wetland buffers, and the 100-year floodplain are anticipated. Proposed impacts have been avoided and minimized to the maximum extent practicable.

Avoidance, Minimization, and Design Considerations

When conceptual planning for the road improvements began, the applicant wanted to reuse as much of the existing road network as possible to minimize impacts; however, when initial conversations were held with Cecil County and Maryland State Highway Administration it was determined that the proposed road improvements will need to be designed to meet current road standards to safely and adequately convey the anticipated car and truck traffic generated for the current Bainbridge Logistics Center, but additionally take into account the potential future build out of the site. Additionally, it was found that existing road network did not meet today's standards.

The main environmental impacts occur along Diamon Jim Road where there is road widening and a culvert extension is required and along Perrylawn Drive (MD Route 275) where the road was extended to account for turn lanes, bike lanes, and acceleration and deceleration lanes.

Diamond Jim being surrounded by regulated waters and wetlands was acknowledged and an initial request for a road code variance to leave Diamond Jim Road as existing was submitted to Cecil County. When this was discussed, the County pushed back and requested that we revise the road to be 30' wide (existing road 21-25' wide). Additionally, as this road is to be designed for future truck traffic, a wider road was a safer design. The road design was revised to show a 30' road, which required the culvert under Diamond Jim to be extended on the south side of the road. This design was resubmitted to the county with additional road code variances requested to reduce the flat area behind the curb to minimize grading on the side slopes of Diamond Jim Road to avoid stream and wetland impacts. This request was denied again and the County required we provide adequate flat area behind the back of curb and additionally requested we revise the intersection design of Diamond Jim Road and Craigtown Road. The design was revised to meet the request of the County. All attempts were made to avoid environmental features; however, in order to meet the County requests, the culvert needed to be extended on both sides, requiring stream and wetland impacts, and the additional grading along the remainder of Diamond Jim Road and Craigtown Road created additional wetland and buffer impacts. Retaining walls were considered; however, per AASHTO design standards, the location of the retaining wall needs to be offset from the road edge to comply with the clear zone requirements, and ultimately installing retaining walls would increase the environmental impacts compared to how the grades are currently shown due to shifting the walls away from the road. Correspondence with the County is attached as Figure 2.

Similarly, along Perrylawn Drive (MD Route 276), Marland State Highway required that the intersection be designed to adequately convey the traffic that was to be generated for the site. The intersection of MD

Route 275 & Diamond Jim Road is proposed to be improved with the future development at Bainbridge. Eastbound and westbound left turn lanes will be constructed along MD 275 to access Diamond Jim Road and an Industrial Driveway, which is located across from the Diamond Jim entrance at the intersection. The northbound Diamond Jim Road approach will be reconstructed to include a shared left/through lane and a right-turn lane.

With the development of the future phases of the property, a westbound left-turn lane is proposed to be constructed to access Diamond Jim Road. A SimTraffic queuing analysis was conducted for the intersection to determine the length of queuing for the westbound left-turn movement, and it was determined that a storage space of approximately 400 feet should be provided. With a posted speed limit of 50 MPH along MD 275, a taper and deceleration space of 415 feet should be provided in addition to the approximate 400-foot storage space. A lane shift of 600 feet is required for the westbound though lane beyond the 415 foot taper/deceleration space and 400-foot storage space based on a 12-foot proposed turn lane and 50 MPH posted speed limit along MD 275.

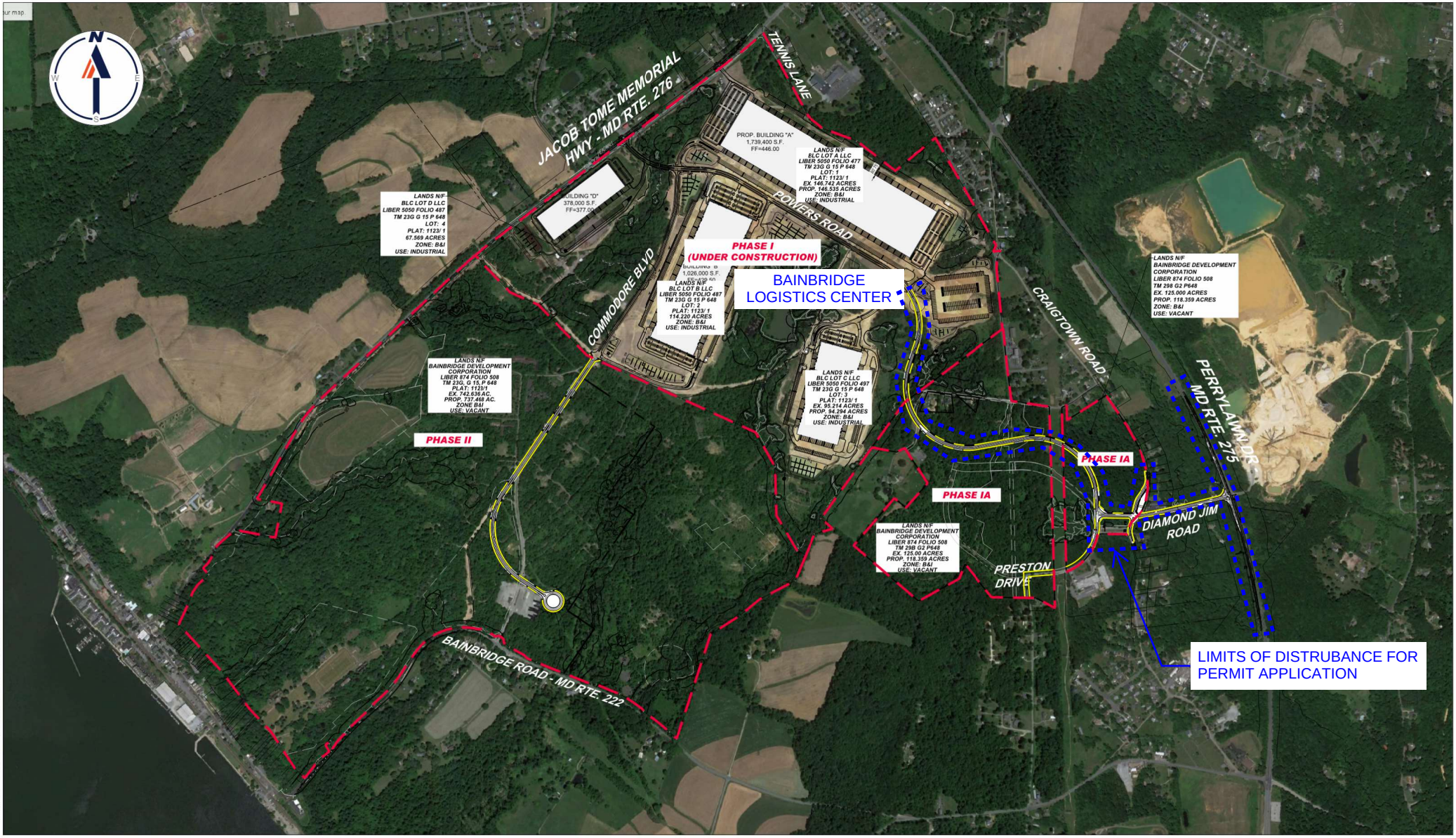
Diamond Jim Road will provide access to the site and the resulting right turns in and out of the site are both greater than 30 peak hour vehicles. Therefore, a partial acceleration lane and full deceleration lane is required. The required lengths are 360 feet for partial acceleration lane and 630 feet for full deceleration lane. An eastbound left-turn lane is proposed along MD 275 to access the industrial driveway of another property, which is the fourth connection at the intersection of Diamond Jim and MD Route 275. The peak hour volumes show a minimal amount of left-turning traffic at this location. As such, the minimum partial deceleration lane is 350 feet, including the storage space and taper.

Although all attempts were made to avoid environmental features with the requirement of the acceleration, deceleration, and left turn lanes, MD Route 275 needed to be widened creating environmental impacts. Additional traffic counts and methodology for SHA geometry is included in the Traffic Impact Analysis included in Figure 3.

Avoidance and Minimization Summary

In order to meet the current road standards as outlined by the Cecil County Road Code and by Maryland State Highway Administrations design guidelines, it was not feasible to completely avoid impacts to wetlands and waters through the proposed road network.

Impacts to regulated resources have been minimized to the maximum extent practicable. The applicant considered numerous road alignments to meet the regulations of modern road design while minimizing impacts to regulated resources.



BOHLER //
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
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MD@BohlerEng.com

OVERALL PROPOSED BAINBRIDGE DEVELOPMENT

BAINBRIDGE DEVELOPMENT CORPORATION

BAINBRIDGE NAVAL BASE | PORT DEPOSIT, MD

NOT TO SCALE

03/13/23 | MCO | MDA220144.00 | REV. 2

FIGURE 1: SITE LOCATION MAP

FIGURE 2: COUNTY CORRESPONDANCE

Morgan O'Donnell

From: Andrew Stine <astine@bohlereng.com>
Sent: Wednesday, January 11, 2023 4:52 PM
To: Reid Townsend
Cc: Kate Nolan Bryden; Morgan O'Donnell; mda220144.00@nf.bohlereng.com
Subject: FW: Bainbridge // Diamond Jim Road Improvements
Attachments: Bainbridge Phase 1A - Diamond Jim Exhibit - 01-11-23.pdf

Categories: Filed by Newforma

Reid – good afternoon.

As we continue work on the preliminary design elements for the road improvements, we wanted to further discuss Diamond Jim Road. The attached 2-page exhibit depicts options to maintain existing road widths on Diamond Jim versus widening to meet county standards. Per our initial discussions with Cecil County, their preference would be an open section with two 13-foot lanes and an unpaved shoulder. However, we have not discussed the option of maintaining existing road widths to minimize grading, property takings, disturbance, and floodplain impacts with them. We wanted to review with you first. OPTION TO REUSE EXISTING ROAD PRESENTED TO CLIENT. THIS OPTIONS WAS BROUGHT TO THE COUNTY.

Do you have any time to review/discuss possibly Tuesday, 1/17 or Wednesday 1/18 when you are back in town?

Thank you,
Andrew & Morgan

From: Morgan O'Donnell <modonnell@bohlereng.com>
Sent: Wednesday, January 11, 2023 4:25 PM
To: Andrew Stine <astine@bohlereng.com>
Cc: mda220144.00@nf.bohlereng.com
Subject: Bainbridge // Diamond Jim Road Improvements

Andrew-

Attached is the revised exhibit demonstrating the Diamond Jim Road improvement options.

Thanks,

Morgan O'Donnell, P.E.
Sr. Design Engineer
901 Dulaney Valley Rd., Ste. 801
Towson, MD 21204
o 410-821-7900 / modonnell@bohlereng.com
www.BohlerEngineering.com

BOHLER //

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Morgan O'Donnell

From: Morgan O'Donnell <modonnell@bohlereng.com>
Sent: Friday, February 3, 2023 11:41 AM
To: Kordell Wilen; Emily Forrest
Cc: Reid Townsend; Andrew Stine; mda220144.00@nf.bohlereng.com
Subject: Bainbridge Phase 1A Road Extension // Diamond Jim Grading Exhibit
Attachments: Bainbridge Phase 1A - Diamond Jim Exhibit - 02-01-23.pdf; Diamond Jim Culvert - Report 2023-01-18.pdf

Categories: Filed by Newforma

Kordell & Emily-

OPTION TO REUSE EXISTING ROAD WAS DISCUSSED WITH COUNTY ON A CALL. COMING FROM CALL COUNTY REQUIRED THE ROAD BE WIDENED TO 30'.

Please see the attached grading exhibit for Diamond Jim Road per our call last Friday. The exhibit shows a 30' road section with minimal impacts to the north side of the road, and improvements to add a wing wall to the existing culvert on the south side to minimize stream impacts. I have also provided the culvert analysis we received.

Please see the list below of potential road code variances:

- Off center 60' right-of-way
- 15' travel lanes in lieu of the required 18'
- Min. 0' flat area behind curb and no sidewalk on north side in lieu of the required 7' flat area and 4' sidewalk
- Min. 3' flat area behind curb and no sidewalk on south side in lieu of the required 7' flat area and 4' sidewalk
- Radius at the northeast intersection of Diamond Jim and Craigtown Road is 30' in lieu of the required min. 50' required for industrial intersections
- Diamond Jim Road and Craigtown Road intersection is at a 35° in lieu of the required min. 70°

Please let me know if there are any additional comments/questions.

Thanks,

Morgan O'Donnell, P.E.
Sr. Design Engineer
901 Dulaney Valley Rd., Ste. 801
Towson, MD 21204
o 410-821-7900 / modonnell@bohlereng.com
www.BohlerEngineering.com

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Morgan O'Donnell

From: Emily Forrest <EForrest@cecilcountymd.gov>
Sent: Thursday, March 16, 2023 2:06 PM
To: Morgan O'Donnell; Andrew Stine
Cc: Reid Townsend; mda220144.00@nf.bohlereng.com; Kordell Wilen
Subject: RE: Bainbridge Phase 1A Road Extension // Diamond Jim Grading Exhibit
Attachments: Bainbridge Phase 1A - Diamond Jim Exhibit - 02-10-23.pdf

Categories: Filed by Newforma

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Andrew & Morgan,

I discussed the attached exhibit with DPW and wanted to forward along some comments as they may change the road design. Since the TIS has not been approved, these comments are subject to change and are based on the County's current understanding of the overall plan.

1. The owner/developer must make a reasonable attempt to acquire the right-of-way to the north prior to the County considering the off-center right-of-way shown.
    a. An affidavit of the attempt must be submitted to Development Plans Review for legal review.
2. The intersection angle of Diamond Jim Road and Craigtown Road must meet a minimum of 70°.
3. The proposed guardrail must be designed per SHA standards ensuring adequate clear zone beyond the roadway.
4. A sight distance analysis for the existing driveways and intersections must be provided to ensure proposed guardrail will not create an obstruction.

COUNTY REQUIRED THAT ROAD BE DESIGNED TO THE ABOVE REQUIREMENTS WIHCH LEAD TO THE ULTIMATE ENVIRONMENTAL IMPACTS SHOWN ON PLANS.

If you have any questions, please feel free to contact me and we can set up a time to discuss the comments.

Sincerely,

Emily Forrest, EIT
Municipal Engineer, Development Plans Review Division
Department of Land Use & Development Services
Cecil County Government
200 Chesapeake Blvd, Suite 1200
Elkton, MD 21921
Phone (410) 996-5225
Fax (800) 430-3829
E-Mail eforrest@ccgov.org

From: Morgan O'Donnell <modonnell@bohlereng.com>
Sent: Friday, February 3, 2023 11:41 AM
To: Kordell Wilen <KWilen@cecilcountymd.gov>; Emily Forrest <EForrest@cecilcountymd.gov>
Cc: Reid Townsend <RTownsend@mrpindustrial.com>; Andrew Stine <astine@bohlereng.com>; mda220144.00@nf.bohlereng.com
Subject: Bainbridge Phase 1A Road Extension // Diamond Jim Grading Exhibit

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Kordell & Emily-

Please see the attached grading exhibit for Diamond Jim Road per our call last Friday. The exhibit shows a 30' road section with minimal impacts to the north side of the road, and improvements to add a wing wall to the existing culvert on the south side to minimize stream impacts. I have also provided the culvert analysis we received.

Please see the list below of potential road code variances:

- Off center 60' right-of-way
- 15' travel lanes in lieu of the required 18'
- Min. 0' flat area behind curb and no sidewalk on north side in lieu of the required 7' flat area and 4' sidewalk
- Min. 3' flat area behind curb and no sidewalk on south side in lieu of the required 7' flat area and 4' sidewalk
- Radius at the northeast intersection of Diamond Jim and Craigtown Road is 30' in lieu of the required min. 50' required for industrial intersections
- Diamond Jim Road and Craigtown Road intersection is at a 35° in lieu of the required min. 70°

Please let me know if there are any additional comments/questions.

Thanks,

Morgan O'Donnell, P.E.
Sr. Design Engineer
901 Dulaney Valley Rd., Ste. 801
Towson, MD 21204
o 410-821-7900 / modonnell@bohlereng.com
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Thank you.

Morgan O'Donnell

From: Emily Forrest <EForrest@cecilcountymd.gov>
Sent: Friday, May 26, 2023 10:17 AM
To: Morgan O'Donnell
Cc: Reid Townsend; Kate Nolan Bryden; Andrew Stine; mda220144.00@nf.bohlereng.com; mda220144.01@nf.bohlereng.com; Kordell Wilen; Philip Muzik; Michael Evans
Subject: RE: Bainbridge // Craigtown & Diamond Jim Intersection

Categories: Filed by Newforma

EXTERNAL: Use caution with attachments and links.

Morgan,

DPR and DPW have reviewed option #1 and it appears to meet the Road Code standards and specifications and creates fewer negative impacts on the surrounding residents. The County concurs that all excess land outside of the standard right-of-way requirement between the existing and proposed Craigtown Road should be granted to the adjacent property owners. When preparing the design, please note that the County will require any proposed retaining walls be located outside of the right-of-way. Since the attached sketch appears to meet the Road Code and no variances are required at this point, DPR feels a meeting may not be necessary at this time. However, if you would like to proceed with scheduling a meeting for next week, please let me know and DPR will coordinate.

Sincerely,

Emily Forrest, EIT
Municipal Engineer, Development Plans Review Division
Department of Land Use & Development Services
Cecil County Government
200 Chesapeake Blvd, Suite 1200
Elkton, MD 21921
Phone (410) 996-5225
Fax (800) 430-3829
E-Mail eforrest@ccgov.org

From: Morgan O'Donnell <modonnell@bohlereng.com>
Sent: Wednesday, May 24, 2023 4:23 PM
To: Emily Forrest <EForrest@cecilcountymd.gov>
Cc: Reid Townsend <RTownsend@mrpindustrial.com>; Kate Nolan Bryden <KBryden@mrpindustrial.com>; Andrew Stine <astine@bohlereng.com>; mda220144.00@nf.bohlereng.com; mda220144.01@nf.bohlereng.com
Subject: Bainbridge // Craigtown & Diamond Jim Intersection

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Good Afternoon Emily-

Over the past couple months we have thoughtfully explored the two options for the Craigtown and Diamond Jim intersection discussed at our meeting with public works. Please see the attached plan and some notes below for the two options. We are hoping to get the conversation moving again and were wondering if you would be able to set up a meeting to discuss the options next Thursday, June 1st in the morning, potentially around 10am?

- For both options, Craigtown Road is classified as a Minor Road since it has an ADT less than 500 and Diamond Jim Road is classified as a Major Industrial Collector.
- Both options show Diamond Jim meeting the minimum design standards for an Industrial Major Collector Road with a 60' right-of-way.
- In order to provide the necessary guardrail across the culvert and allow for shoulders, it is assumed the culvert under Diamond Jim will need to be extended on both sides of the road.

Option #1:

- Cecil County requires a minimum intersection angle of 70°. Option #1 shows realigning Craigtown road to have an intersection angle of 75° with Diamond Jim Road. The proposed alignment for Craigtown road meets all road design requirements for a Minor Road.
- This concept plan shows free movement through the intersection along Diamond Jim and there is a proposed stop condition at the intersection for Craigtown Road.
- This option would require the extension of some of the adjacent residential properties' driveways to the proposed Craigtown Road.
- This alignment of Craigtown Road will require ROW dedication from the Bainbridge property and some of the adjacent property owners. There will be a portion of land carved out between existing and proposed Craigtown Road. This area could be granted the adjacent property owners to potentially offset some ROW taking, or the county could maintain this area and provide access easements for the adjacent property owners.

Option #2:

- Option #2 proposes a single lane 120'R round-a-bout. The proposed alignment for Craigtown road meets all road design requirements for a Minor Road.
- The round-a-bout option would require the church's existing access along Craigtown Road to be closed. At a minimum, it would need to be shifted as far as possible north as it is not ideal to have the access point in such close proximity to the roundabout. Driveways blocked by the splitter islands will be limited to right-in/right-out operation and are best avoided if possible. Having the access points close to the roundabout may impact delay.
- There is limited queuing distance from the exit of the round-a-bout to the intersection of Powers Road.
- Traffic during the school year will be mixed between trucks, busses, and cars traveling around the round-a-bout, which is not ideal, especially during drop-off/pick-up at the school.

Let me know if there are any comments/questions.

Thanks,

Morgan

Morgan O'Donnell, P.E.
Assistant Project Manager, Land Development
901 Dulaney Valley Rd., Ste. 801
Towson, MD 21204
o 410-821-7900 / modonnell@bohlereng.com
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Thank you.

TRAFFIC IMPACT ANALYSIS

FOR

BAINBRIDGE: PHASES 1A AND 2

Prepared for:
MRPI Bainbridge I LLC

Prepared by:

LENHART TRAFFIC CONSULTING, INC.

TRAFFIC ENGINEERING & TRANSPORTATION PLANNING

January 30, 2023
Revised: May 17, 2023
Revised: November 15, 2023
Revised: April 12, 2024
Revised: July 23, 2024



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Section 1 Introduction

1.1 Project Description

This Traffic Impact Analysis was prepared for Phases 1A and 2 of the Bainbridge development, located east of MD 276 in Port Deposit, Maryland, as shown on **Exhibit 1**.

The previously approved Phase 1 of development included up to 3,900,000 square feet of warehousing. Phase 1A is proposed to include an additional 1,000,000 square feet of warehousing and 306 multifamily low-rise units. Phase 2 is proposed to consist of a further 2,500,000 square feet of warehousing space. The Bainbridge property will ultimately include a total of 7,400,000 square feet of warehousing space and 306 multifamily low-rise units.

Previous submittals for Phase 1 included up to 5 site access points along MD 276. The current proposal includes a single site access point along MD 276 as well as access to MD 275 via Diamond Jim Road. An internal roadway, Powers Road, will provide connectivity between the two access points. Phase 2 of development will construct an additional access point along MD 222.

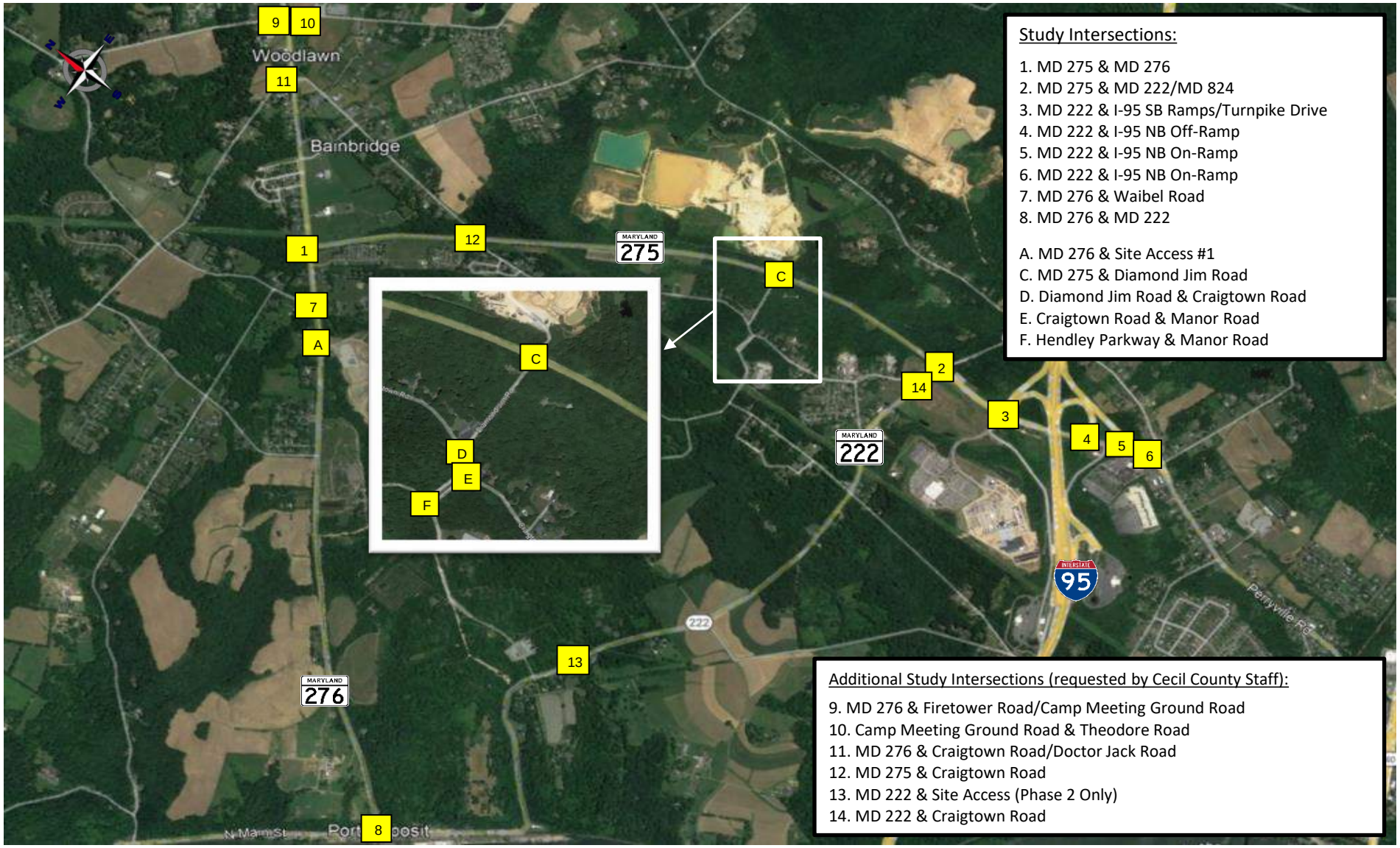
With the development of Phases 1A and 2, the existing intersections of Diamond Jim Road & Craigtown Road, Craigtown Road & Manor Road, and Manor Road & Preston Drive/Hendley Parkway will be realigned and reconstructed. The intersection of Manor Road & Preston Drive/Hendley Parkway will be relocated north, and the intersection of Craigtown Road & Manor Road will be removed such that Manor Road aligns with Diamond Jim Road. Hendley Parkway will be realigned to tie into the proposed Powers Road.

The warehouse portions of the site will be accessed along Powers Road. The residential portion of the site (previously proposed to be accessed along Craigtown Road) is now proposed to be accessed exclusively along Powers Road with emergency access only along Craigtown Road.

A concept plan has been included in Appendix A.

1.2 Scope of Study

The study was conducted in accordance with Maryland State Highway Administration (MDOT SHA) and Cecil County guidelines. All study intersections were evaluated using the Critical Lane Volume (CLV) methodology and Highway Capacity Manual (HCM) methodology.



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 Road Network

The key roads in the study area are:

- MD 222 is a two-lane urban minor arterial. The posted speed limit is 40 mph in the vicinity of the study area.
- MD 275 is a two-lane urban minor arterial. The posted speed limit is 50 mph in the vicinity of the study area.
- MD 276 is a two-lane urban minor arterial. The posted speed limit is 50 mph in the vicinity of the study area.
- Interstate 95 is a six-lane (three lanes in each direction) interstate. The posted speed limit is 65 mph.

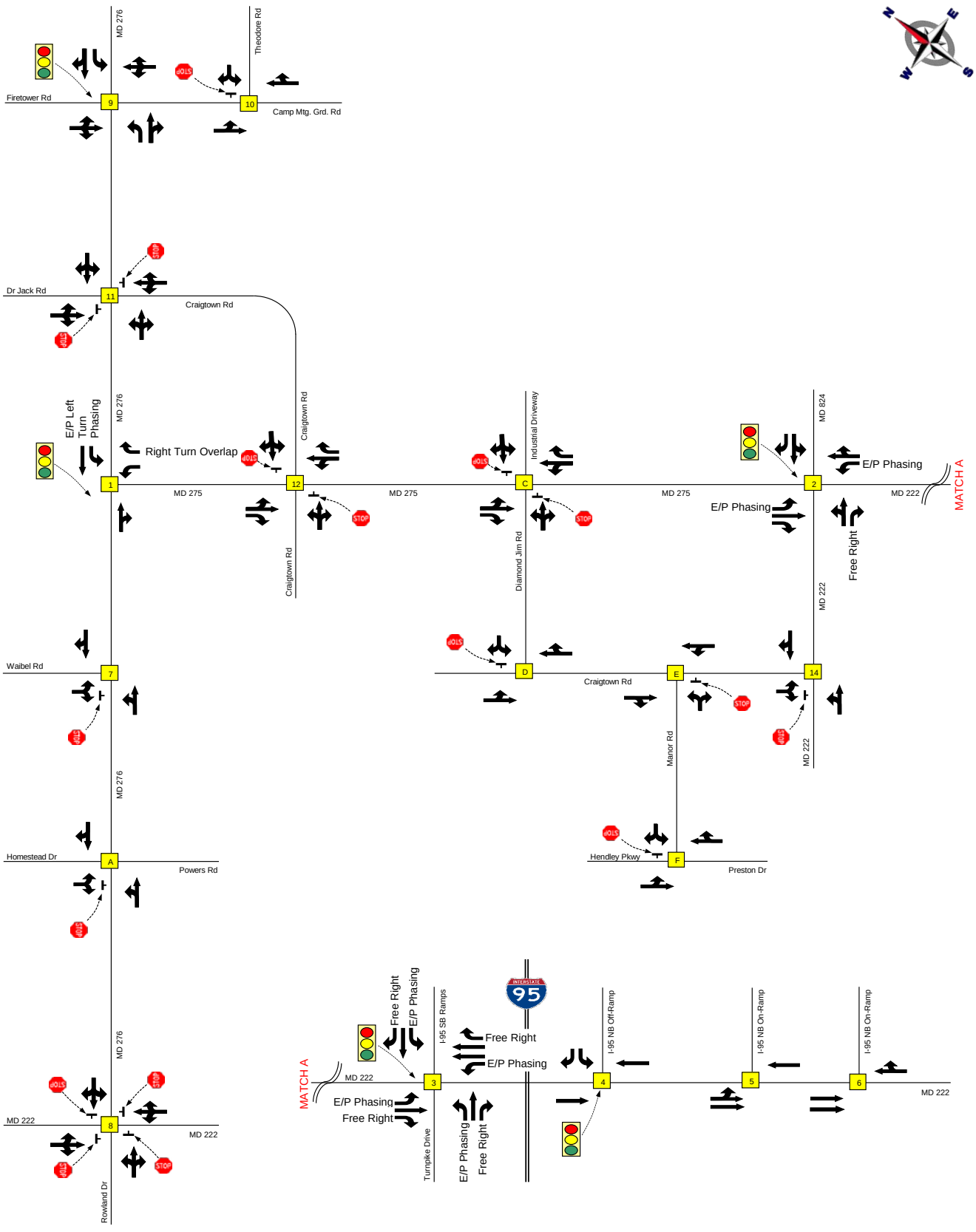
2.2 Existing Lane Configurations

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

2.3 Existing Traffic Counts

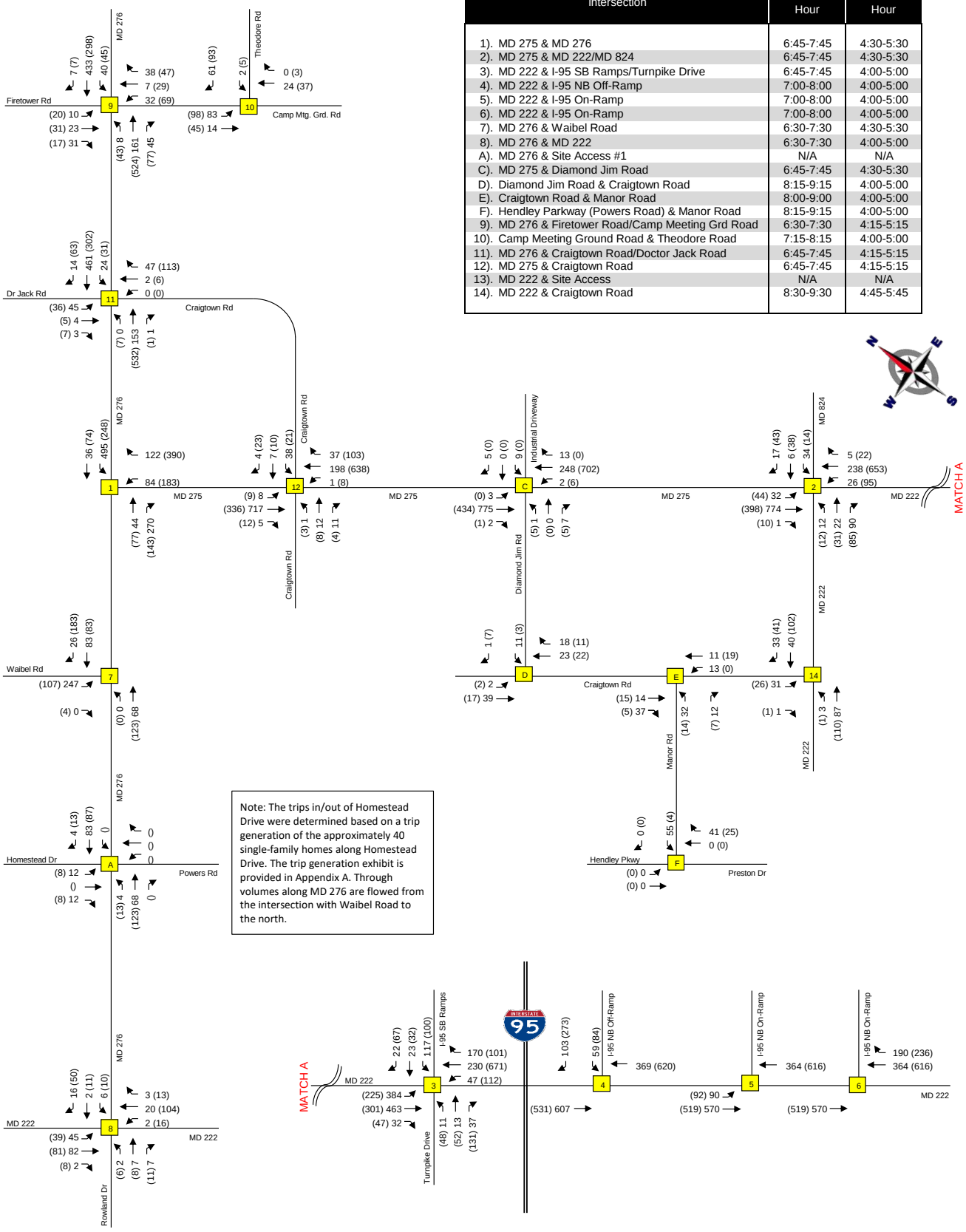
Peak hour turning movement counts were conducted in September 2022, and are shown on **Exhibit 3.**

Note, the peak hour turning movement counts along MD 222 at the I-95 interchange intersections (Study Intersections 3 through 6) have been updated since the previous submission to account for the opening of the nearby Great Wolf Lodge. These counts were conducted in September 2023.



Traffic Impact Analysis	Existing Lane Use & Traffic Control Devices	**Exhibit 2**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning		

Intersection	AM Peak Hour	PM Peak Hour
1). MD 275 & MD 276	6:45-7:45	4:30-5:30
2). MD 275 & MD 222/MD 824	6:45-7:45	4:30-5:30
3). MD 222 & I-95 SB Ramps/Turnpike Drive	6:45-7:45	4:00-5:00
4). MD 222 & I-95 NB Off-Ramp	7:00-8:00	4:00-5:00
5). MD 222 & I-95 On-Ramp	7:00-8:00	4:00-5:00
6). MD 222 & I-95 On-Ramp	7:00-8:00	4:00-5:00
7). MD 276 & Waibel Road	6:30-7:30	4:30-5:30
8). MD 276 & MD 222	6:30-7:30	4:00-5:00
A). MD 276 & Site Access #1	N/A	N/A
C). MD 275 & Diamond Jim Road	6:45-7:45	4:30-5:30
D). Diamond Jim Road & Craigtown Road	8:15-9:15	4:00-5:00
E). Craigtown Road & Manor Road	8:00-9:00	4:00-5:00
F). Hendley Parkway (Powers Road) & Manor Road	8:15-9:15	4:00-5:00
9). MD 276 & Firetower Road/Camp Meeting Grd Road	6:30-7:30	4:15-5:15
10). Camp Meeting Ground Road & Theodore Road	7:15-8:15	4:00-5:00
11). MD 276 & Craigtown Road/Doctor Jack Road	6:45-7:45	4:15-5:15
12). MD 275 & Craigtown Road	6:45-7:45	4:15-5:15
13). MD 222 & Site Access	N/A	N/A
14). MD 222 & Craigtown Road	8:30-9:30	4:45-5:45



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

The SHA's Average Daily Traffic (ADT) Volume Maps were reviewed over the past ten years to determine a historical growth in traffic volumes. The SHA ADT maps contain historical traffic volumes along MD 275 just east of MD 276. The results of the ADT analysis indicate that growth in the area was relatively flat. However, a growth rate of 2% per year for six (6) years was used in order to provide a conservative analysis. The resulting Base Peak Hour Volumes are shown on **Exhibit 4.** Please note that Phase 1A is anticipated to be completed within 3 years and Phase 2 is expected to be completed within 6 years.

3.2 Belvidere Road Interchange

The State's Consolidated Transportation Program (CTP) includes construction of a new interchange at I-95 & Belvidere Road, which is scheduled to be completed in 2025. The Belvidere Road interchange is expected to significantly modify existing traffic patterns along MD 222 and other roadways in the vicinity of the Bainbridge Property as existing traffic diverts to utilize the new interchange. Expected diversion percentages were provided by the Maryland Transportation Authority (MDTA) and are applied to base peak hour volumes on Exhibit 4. The resulting diversions are shown on **Exhibit 5a.**

3.3 Bainbridge Phase 1

Phase 1 of the Bainbridge development was included as a background development for the purposes of this analysis. The trip generation and assignments for Bainbridge Phase 1 are included in Appendix C. The combined trip assignment for Phase 1 is shown on Exhibit C-3. It should be noted that the trips are assigned only along MD 276, consistent with the approved Phase 1 Traffic Impact Study.

3.4 Background Developments

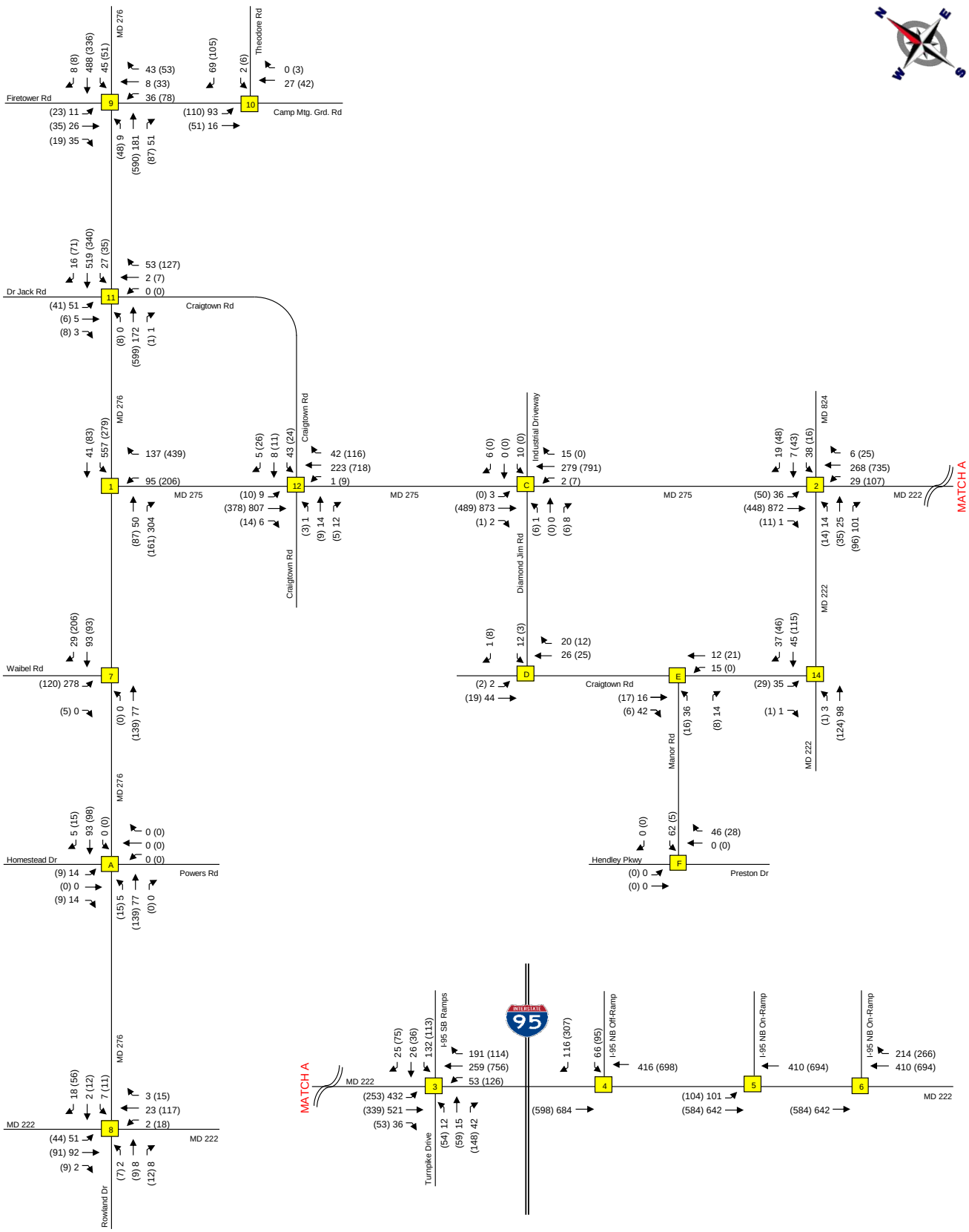
Additionally, the Chesapeake Overlook development is included as a background development. The combined trip assignment for the Chesapeake Overlook development is shown on Exhibit C-6. Trip generation and assignment for the Chesapeake Overlook development were obtained from the most recently approved TIS for the project, completed in June 2021. Please note that the peak hour traffic counts conducted along MD 222 at the I-95 interchange intersections (Intersections

3 through 6) occurred after the opening of the Great Wolf Lodge. Trips associated with the Great Wolf Lodge have been removed from these intersections. The combined trips associated with the background developments, which include Bainbridge Phase 1 and the Chesapeake Overlook development, are shown on **Exhibit 5b.**

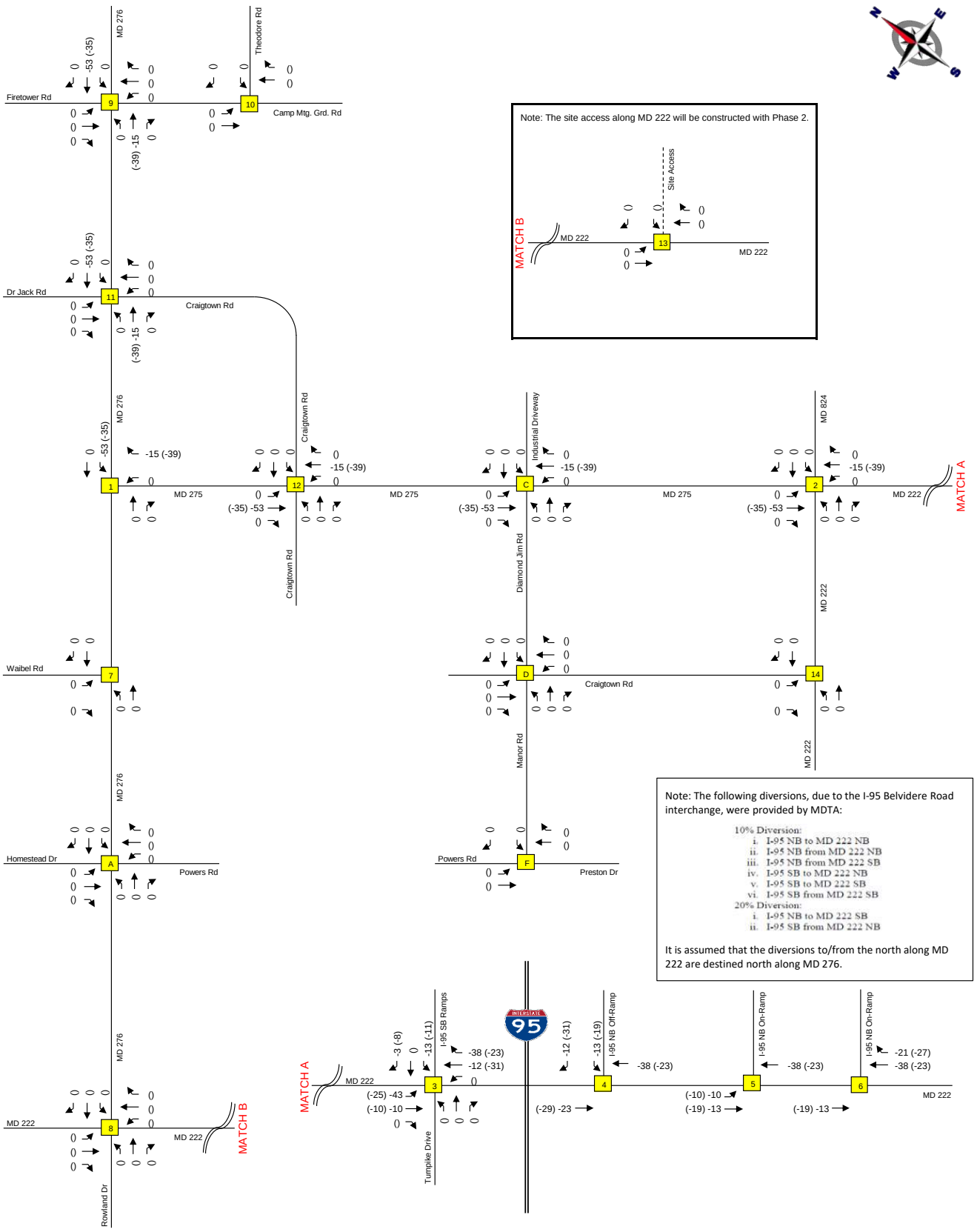
Phase 1 of the Bainbridge development also included an improvement to Intersection 1, MD 275 & MD 276. This improvement consists of providing a northbound free right-turn along MD 276. The improvement is bonded and will be constructed. **Exhibit 5c** shows the resulting Background Lane Use & Traffic Control Devices.

3.5 Background Peak Hour Volumes

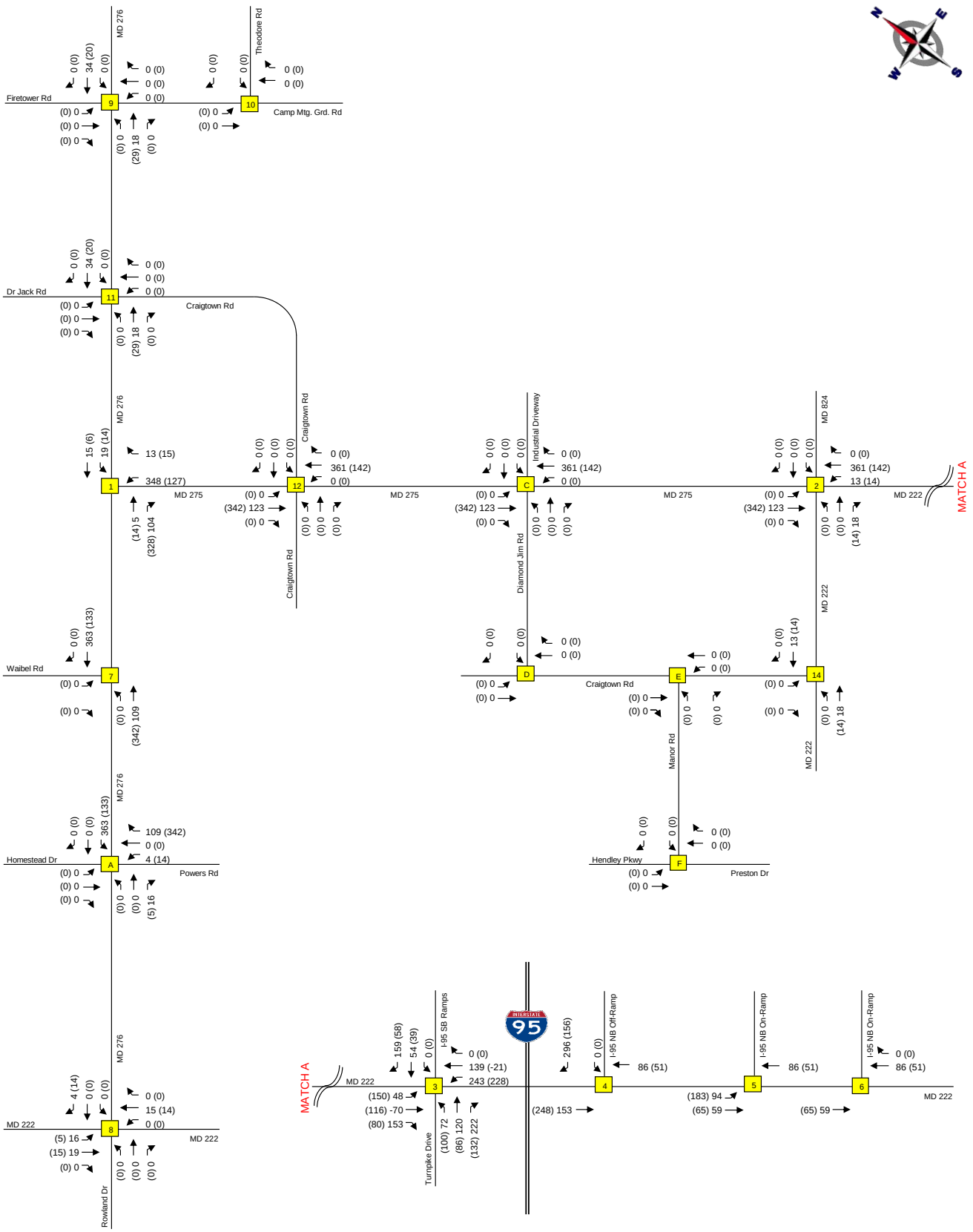
Exhibit 5d shows the Background Peak Hour Volumes which combine the diversions due to the Belvidere Road interchange (Exhibit 5a) and the trips generated by the background developments (Exhibit 5b) with the Base Peak Hour Volumes on Exhibit 4.



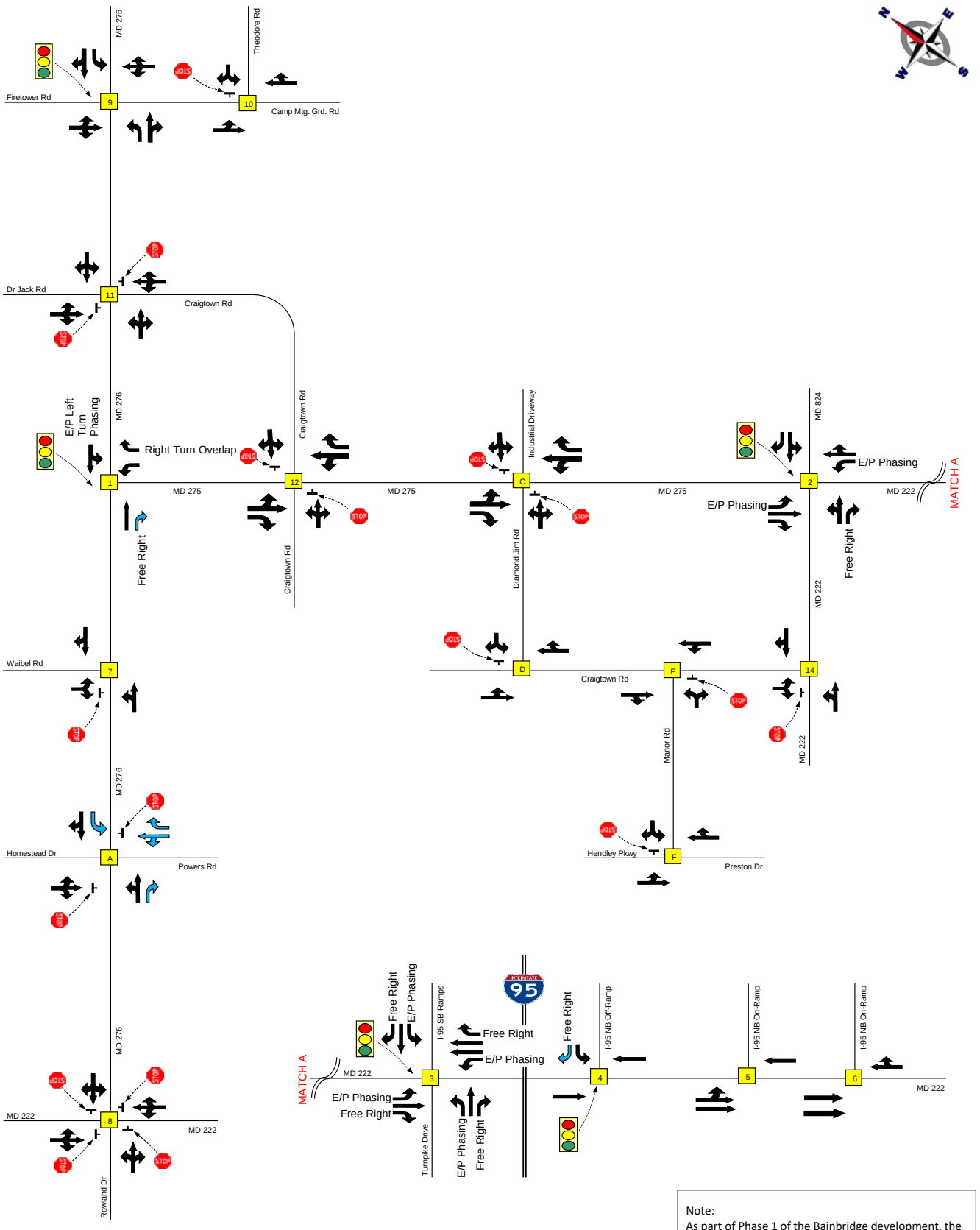
Traffic Impact Analysis	Base Peak Hour Volumes	**Exhibit 4**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Diversions Due to Construction of I-95 Belvidere Road Interchange	**Exhibit 5a**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

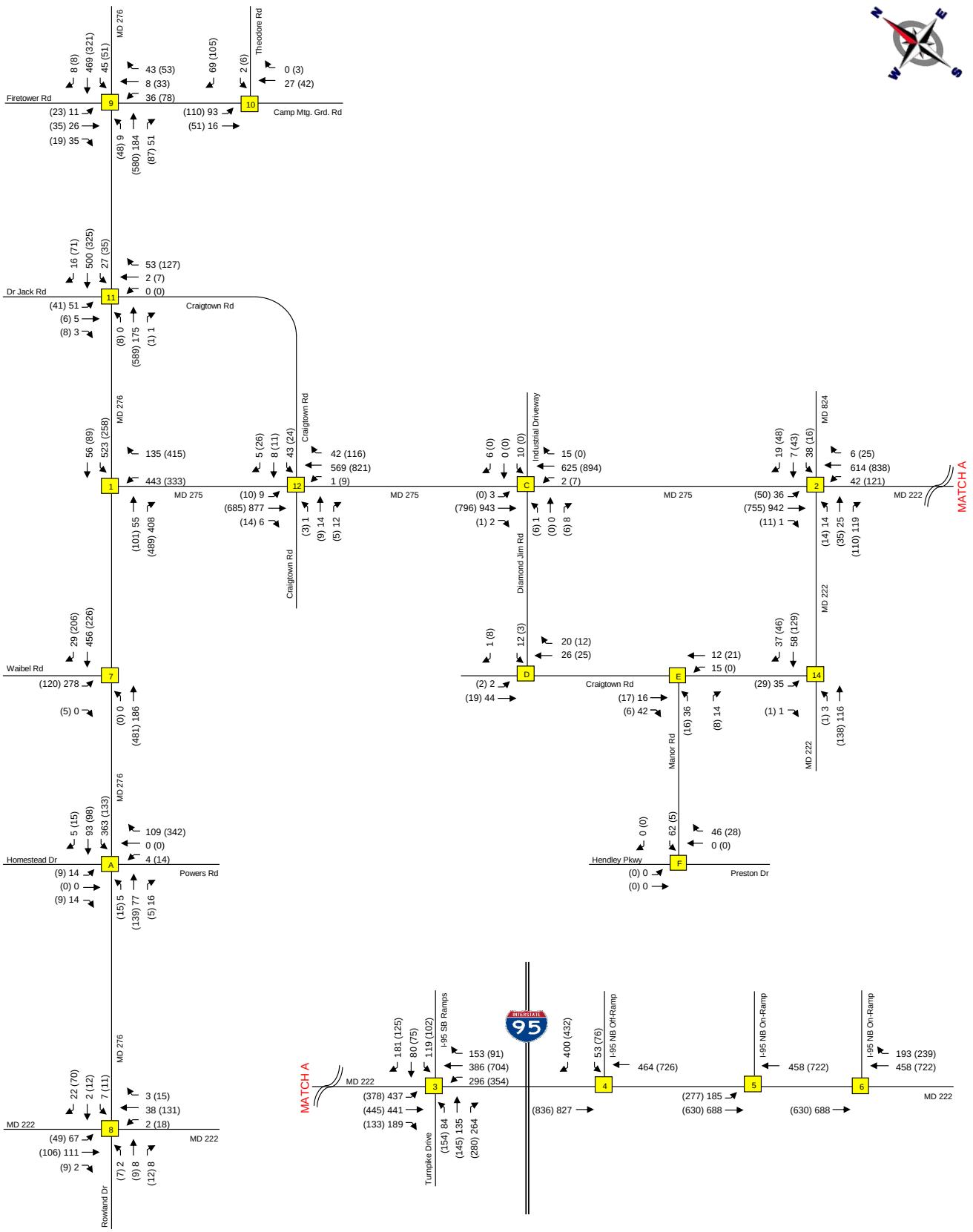


Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Combined Background Development Trips Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit 5b**



Note:
As part of Phase 1 of the Bainbridge development, the northbound approach of Intersection 1 will be improved to include a free right turn onto MD 275.

Traffic Impact Analysis	Background Lane Use & Traffic Control Devices	**Exhibit 5c**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	- Existing - Background	



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

Section 4 Total Conditions

4.1 Diamond Jim Access/Realignment

As discussed in Section 1.1, the existing intersections of Diamond Jim Road & Craigtown Road, Craigtown Road & Manor Road, and Manor Road & Preston Drive/Hendley Parkway will be realigned and reconstructed with the development of Phases 1A and 2. Intersection E (Craigtown Road & Manor Road) is removed with the realignment. **Exhibit 6a** shows the resulting Proposed Lane Use & Traffic Control Devices. It should be noted that improvements are proposed at the intersection of MD 275 & Diamond Jim Road as part of the development of Phases 1A and 2. These improvements consist of providing left-turn lanes along MD 275 for vehicles turning onto Diamond Jim Road and the Industrial Driveway as well as widening the Diamond Jim Road approach to provide a shared left/through lane and a right-turn lane.

Exhibit 6b shows the redistribution of background traffic volumes at Intersection D (Craigtown Road & Diamond Jim Road) with the realignment of Diamond Jim Road/Manor Road and the subsequent removal of Intersection E (Craigtown Road & Manor Road).

With the development of Phases 1A and 2, access to the site will be provided along MD 275 via the realigned Diamond Jim Road/Manor Road. A portion of trips associated with Phase 1 of the Bainbridge development, which is included in the background traffic for the purposes of this report, will divert through the site along Powers Road to access MD 275 via Diamond Jim Road, rather than continuing to utilize the access along MD 276. It is assumed that 30% of the Phase 1 trips to/from the east along MD 275/MD 222 will divert to utilize the site access along MD 275. These diversions are shown on **Exhibit 6c**.

Exhibit 7 shows the Background Peak Hour Volumes with the diversions and redistributions associated with the realignment of Diamond Jim Road/Manor Road.

4.2 Site Trip Generation

The previously approved Phase 1 of development included up to 3,900,000 square feet of warehousing. Phase 1A is proposed to include an additional 1,000,000 square feet of warehousing and 306 multifamily low-rise units. Phase 2 is proposed to consist of a further 2,500,000 square feet of warehousing space. The Bainbridge property will ultimately include a total of 7,400,000 square feet of warehousing space and 306 multifamily low-rise units.

The trip generation for the site is detailed on **Exhibit 8**. Trip generation rates and totals are based on the ITE Trip Generation Manual, 11th Edition.

Truck trip generation rates provided in the ITE Trip Generation Manual, 11th Edition, were utilized to determine the distribution of heavy truck/passenger car trips associated with the warehousing portions of the development.

4.3 Phase 1A Site Trip Distribution & Trip Assignment

The inbound and outbound trips of the residential portion of Phase 1A are assigned on **Exhibits 9a and 9b**, respectively. The truck trips associated with the warehousing portion of Phase 1A are assigned on **Exhibit 9c**. The inbound and outbound passenger car trips associated with the warehousing portion of Phase 1A are shown on **Exhibits 9d and 9e**, respectively.

4.4 Phase 1A Total Peak Hour Volumes

The Total Peak Hour Volumes for Phase 1A of development are shown on **Exhibit 10**.

4.5 Phase 1A Projected Level of Service

The results of the CLV analyses with the development of Phase 1A are shown on **Exhibit 11a**. As shown, all intersections operate at LOS "D" or better under total conditions with the proposed improvement to Intersection C (MD 275 & Diamond Jim Road), therefore meeting the requirements of MDOT SHA.

The results of the HCM analyses with the development of Phase 1A are shown on **Exhibits 11b and 11c**. Heavy truck percentages were provided by MDTA for use in the HCM analyses of the existing conditions at the MD 222 interchange. The calculation of truck percentages for the background and total conditions is included as Appendix F. Significant changes to the existing traffic pattern at the intersections along MD 222 between MD 824 and the I-95 ramps occur during the background conditions due to the planned Belvidere Road interchange and numerous trips associated with the Chesapeake Overlook development. It is assumed that MDOT SHA will modify traffic signal timings to accommodate these changes, specifically at the coordinated intersections along MD 222 (Intersections 2, 3, and 4). As such, the HCM analyses use a modified signal timing for these intersections under the background conditions, and the same timing is used for the total conditions to show the impacts of the proposed Bainbridge development. The recommended signal timings have been provided in Appendix K.

As shown, each signalized intersection and controlled movement at unsignalized intersections operate with LOS "D" or better, with the exception of the minor street movements of MD 275 & Doctor Jack Road, MD 275 & Craigtown Road, and MD 276 & Waibel Road. These movements are stop-controlled minor street movements at intersections in which the mainline is not controlled. Intersections such as these typically result in higher minor street delays as vehicles must wait for a gap in mainline traffic before proceeding. The CLV analyses indicate that these intersections operate with LOS "A" with the development of the site. Cecil County Staff has requested traffic signal warrant analyses at each of these intersections. The results of the traffic signal warrant analyses are detailed in Section 4.8.

SimTraffic simulation software was utilized to determine the 95th percentile queuing at the study intersections, the results of which are shown on **Exhibits 11d through 11g.** As shown, 95th percentile queues for turning movements are generally contained within the available storage space, and mainline queues do not impact other intersections within the vicinity.

The CLV, HCM, and SimTraffic worksheets for existing, background, and total conditions are contained in Appendix B.

4.6 Phase 2 Site Trip Distribution & Trip Assignment

The truck trips associated with the warehousing portion of Phase 2 are assigned on **Exhibit 12a**. The inbound and outbound passenger car trips associated with the warehousing portion of Phase 1A are shown on **Exhibits 12b and 12c**, respectively.

4.7 Phase 2 Total Peak Hour Volumes

The Total Peak Hour Volumes for Phase 2 of development are shown on **Exhibit 13**.

4.8 Phase 2 Projected Level of Service

The results of the CLV analyses with the development of Phase 2 are shown on **Exhibit 14a**. As shown, all intersections operate at LOS "D" or better under total conditions with the proposed improvement to Intersection C (MD 275 & Diamond Jim Road), therefore meeting the requirements of MDOT SHA.

The results of the HCM analyses with the development of Phase 2 are shown on **Exhibits 14b and 14c**. Heavy truck percentages were provided by MDTA for use in the HCM analyses of the existing conditions at the MD 222 interchange. The

calculation of truck percentages for the background and total conditions is included as Appendix F. As shown, each signalized intersection and controlled movement at unsignalized intersections operate with LOS "D" or better, with the exception of the minor street movements of MD 275 & Waibel Road, MD 275 & Doctor Jack Road, and MD 275 & Craigtown Road. These movements are stop-controlled minor street movements at intersections in which the mainline is not controlled. Intersections such as these typically result in higher minor street delay as vehicles must wait for a gap in mainline traffic before proceeding. The CLV analyses indicate that these intersections operate with LOS "B" or better with the development of the site. Cecil County Staff requested Traffic Signal Warrant Analyses (TSWA) at each of these intersections. The results of the TSWAs are discussed below. Signalization at these intersections would require MDOT SHA approval as these intersections are located in state-owned right-of-way. The results of the CLV analyses indicate that the intersections operate acceptably based on MDOT SHA requirements.

MD 276 & Craigtown Road/Doctor Jack Road

The TSWA for MD 276 & Craigtown Road/Doctor Jack Road is provided in Appendix G of this report. The trip distribution and assignments for each phase of development, including the previously approved Phase 1, are based on the peak hour trip distribution and assignments for each phase and proposed land use. Reduced volumes were used in the TSWA as the posted speed limit exceeds 40 MPH along MD 276 at this intersection. The eastbound approach was considered the minor street approach for two reasons: (1) the eastbound approach is the approach that operates in excess of LOS "D", and (2) the westbound approach consists of mostly right-turns which only need to wait for gaps in northbound volume along MD 276. The northbound volume along MD 276 does not meet the mainline volume threshold in enough hours to warrant signalization.

The results of the TSWA under existing conditions are shown on Exhibits G-2b and G-2c, for Warrants 1 and 2, respectively. As shown, a traffic signal is not warranted at this location under existing conditions.

The results of the TSWA after the completion of Phase 1A are shown on Exhibits G-7a and G-7b, for Warrants 1 and 2, respectively. As shown, a traffic signal is not warranted at this location with the traffic volumes under Phase 1A total conditions.

The results of the TSWA after the completion of Phase 2 are shown on Exhibits G-10a and G-10b, for Warrants 1 and 2, respectively. As shown, a traffic signal is not warranted at this location with the traffic volumes under Phase 2 total conditions. It should be noted that the minor street volumes along the eastbound approach only

exceed the minimum volume thresholds for 1 hour using Warrant 1 and no hours using Warrant 2.

Based on the results of the operational analyses and TSWA for the intersection of MD 276 & Craigtown Road/Doctor Jack Road, no mitigation is recommended. This intersection is owned by MDOT SHA and operates at LOS "A" based on the MDOT SHA methodology. The eastbound approach, which was found to exceed the requirements of Cecil County, is used by less than 60 vehicles during each peak hour. No other improvements were identified that will meaningfully improve the operation of the eastbound approach.

TSWA: MD 275 & Craigtown Road

The TSWA for MD 275 & Craigtown Road is provided in Appendix H of this report. The trip distribution and assignments for each phase of development, including the previously approved Phase 1, are based on the peak hour trip distribution and assignments for each phase and proposed land use. Reduced volumes were used in the TSWA as the posted speed limit exceeds 40 MPH along MD 275 at this intersection. The larger volume between the north- and southbound approaches was used for the minor-street approach volume.

The results of the TSWA under existing conditions are shown on Exhibits H-2b and H-2c, for Warrants 1 and 2, respectively. As shown, a traffic signal is not warranted at this location under existing conditions.

The results of the TSWA after the completion of Phase 1A are shown on Exhibits H-7a and H-7b, for Warrants 1 and 2, respectively. As shown, a traffic signal is not warranted at this location with the traffic volumes under Phase 1A total conditions.

The results of the TSWA after the completion of Phase 2 are shown on Exhibits H-10a and H-10b, for Warrants 1 and 2, respectively. As shown, a traffic signal is not warranted at this location with the traffic volumes under Phase 2 total conditions. It should be noted that the minor street volumes exceed the minimum volume thresholds for only 5 hours for Warrant 1 and no hours for Warrant 2.

Based on the results of the operational analyses and TSWA for the intersection of MD 275 & Craigtown Road, no mitigation is recommended. This intersection is owned by MDOT SHA and operates at LOS "B" based on the MDOT SHA methodology. The southbound approach, the minor street approach with the most volume, is used by only 56 vehicles during the morning peak hour and 61 vehicles during the evening peak hour. No other improvements were identified that will

meaningfully improve the operation of the minor street approaches.

TSWA: MD 276 & Waibel Road

The TSWA for MD 276 & Waibel Road is provided in Appendix I of this report. The trip distribution and assignments for each phase of development, including the previously approved Phase 1, are based on the peak hour trip distribution and assignments for each phase and proposed land use. Reduced volumes were used in the TSWA as the posted speed limit exceeds 40 MPH along MD 276 at this intersection. The larger volume between the eastbound approach and the northbound left-turn was used for the minor-street approach volume.

The results of the TSWA under existing conditions are shown on Exhibits I-2b and I-2c, for Warrants 1 and 2, respectively. As shown, a traffic signal is not warranted at this location under existing conditions.

The results of the TSWA after the completion of Phase 1A are shown on Exhibits I-7a and I-7b, for Warrants 1 and 2, respectively. As shown, a traffic signal is warranted at this location with the completion of Phase 1A based on Warrant 2.

The results of the TSWA after the completion of Phase 2 are shown on Exhibits I-10a and I-10b, for Warrants 1 and 2, respectively. As shown, a traffic signal is warranted at this location with the traffic volumes under Phase 2 total conditions.

Constructing a traffic signal at this location will require MDOT SHA approval. The intersection operates with LOS "A" using the MDOT SHA analysis methodology, and MDOT SHA does not typically approve traffic signals based on projected traffic volumes. It is therefore recommended that MDOT SHA requires an updated TSWA after the completion of Phase 1A and again after the completion of Phase 2 to determine if a traffic signal should be constructed.

SimTraffic simulation software was utilized to determine the 95th percentile queuing at the study intersections, the results of which are shown on **Exhibits 14d through 14g.** As shown, 95th percentile queues for turning movements are generally contained within the available storage space, and mainline queues do not impact other intersections within the vicinity.

Cecil County Staff expressed concern that the queue for the westbound right-turn at MD 275 & MD 276 may impact other County roads within the vicinity. The westbound right-turn has a storage bay of 275 feet. During the morning peak hour, the westbound right-turn queue was found to exceed the storage space with the

Phase 2 total volumes. However, the queue has no impact on any County roadways within the vicinity. It is recommended that MDOT SHA considers modifying the signal timing based on the projected traffic volumes. An analysis using a modified timing has been provided which shows that the westbound queue can be accommodated without significantly impacting the queues or operation of the other approaches. The modified timing will significant improve delay at the intersection, and improves the level of service to LOS "C" under Phase 2 total conditions. The recommended signal timing is provided in Appendix K.

The CLV and SimTraffic worksheets for existing, background, and total conditions are contained in Appendix B.

A merge/diverge analysis was conducted for the I-95 ramps at the MD 222 interchange. The existing through volumes along I-95 were calculated from a MDOT SHA traffic count along I-95, just north of the MD 222 interchange, and the peak hour turning movement counts at each of the on/off ramps at study intersections 3-6 in this TIA. **Exhibit 15** shows the existing peak hour through, merge, and diverge volumes.

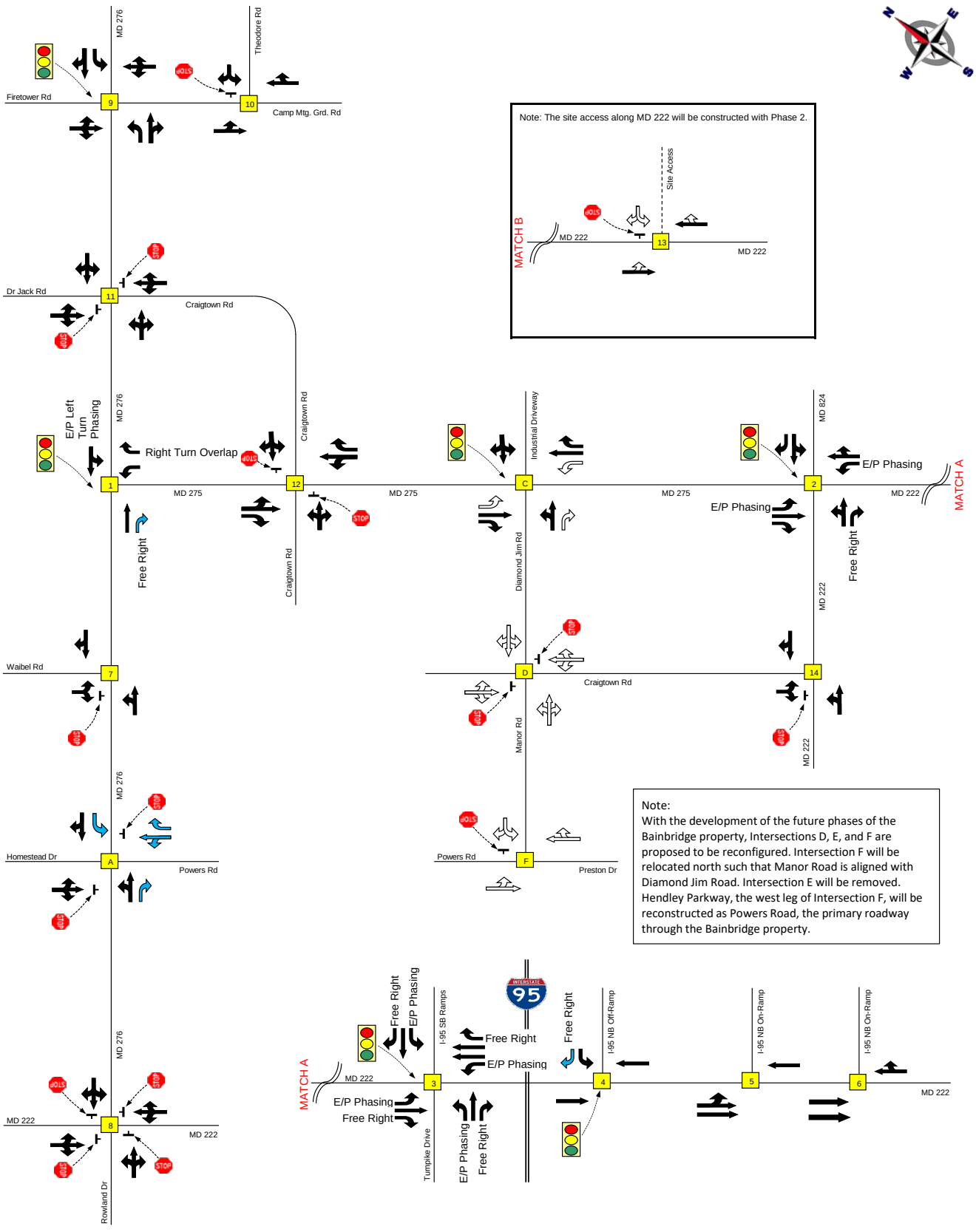
Exhibit 16 shows the background peak hour through, merge, and diverge volumes.

Exhibit 17 shows the Phase 2 total peak hour through, merge, and diverge volumes. Please note that the Phase 2 total peak hour volumes include trips associated with the Phase 1A development as well.

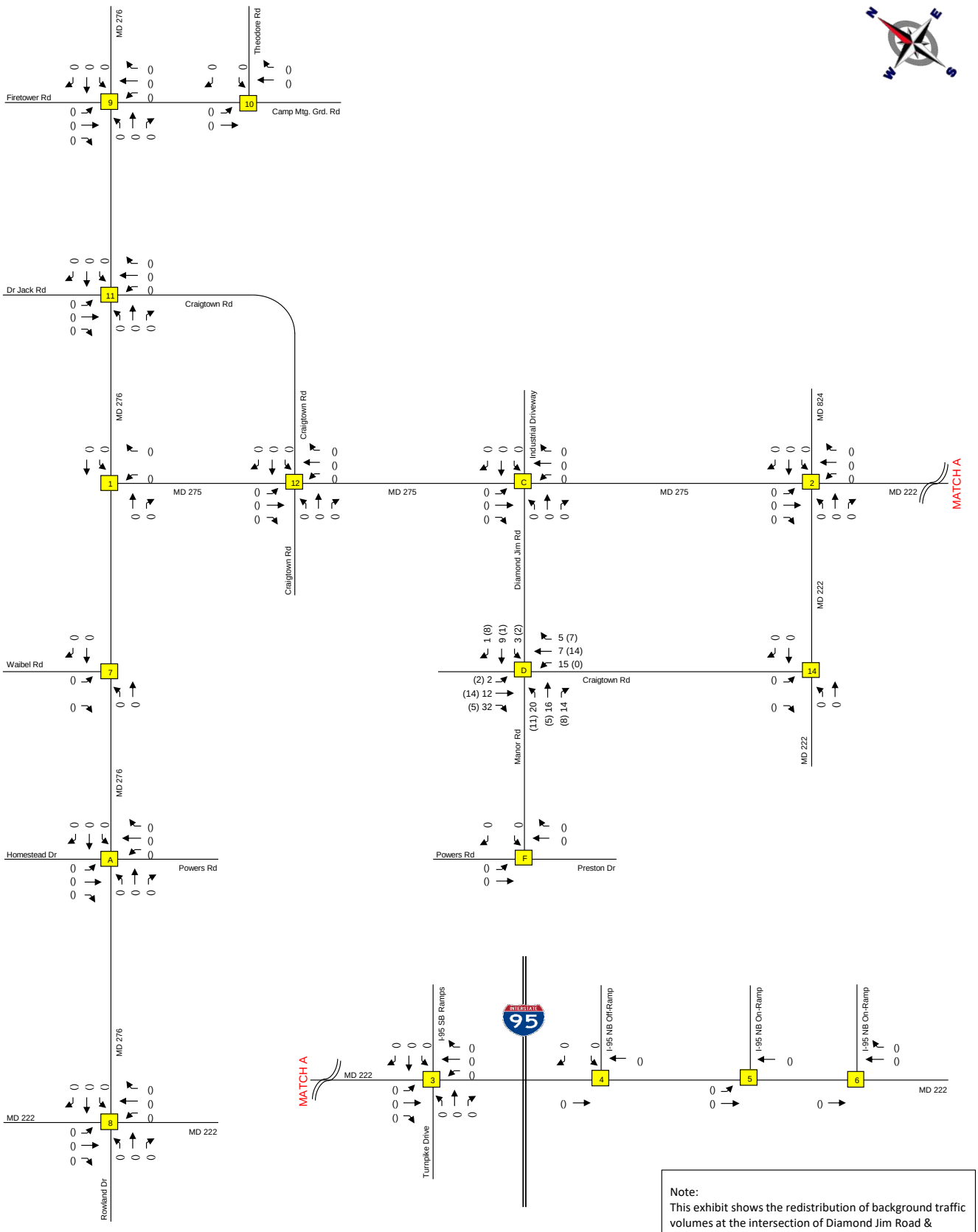
Exhibit 18 provides the results of the merge/diverge analyses for each of the on/off ramps. As shown, each merge/diverge will operate with LOS "C" or better with the entirety of the proposed development. The HCM merge/diverge report sheets have been included in Appendix J.

4.9 MD 275 & Diamond Jim Road Improvements

In previous rounds of review, MDOT SHA has indicated that a traffic signal should be installed at the intersection of MD 275 & Diamond Jim Road. A concept improvement plan and Design Request has been submitted to MDOT SHA for the proposed improvements. The specific design of the improvements will continue to be coordinated with MDOT SHA Staff.

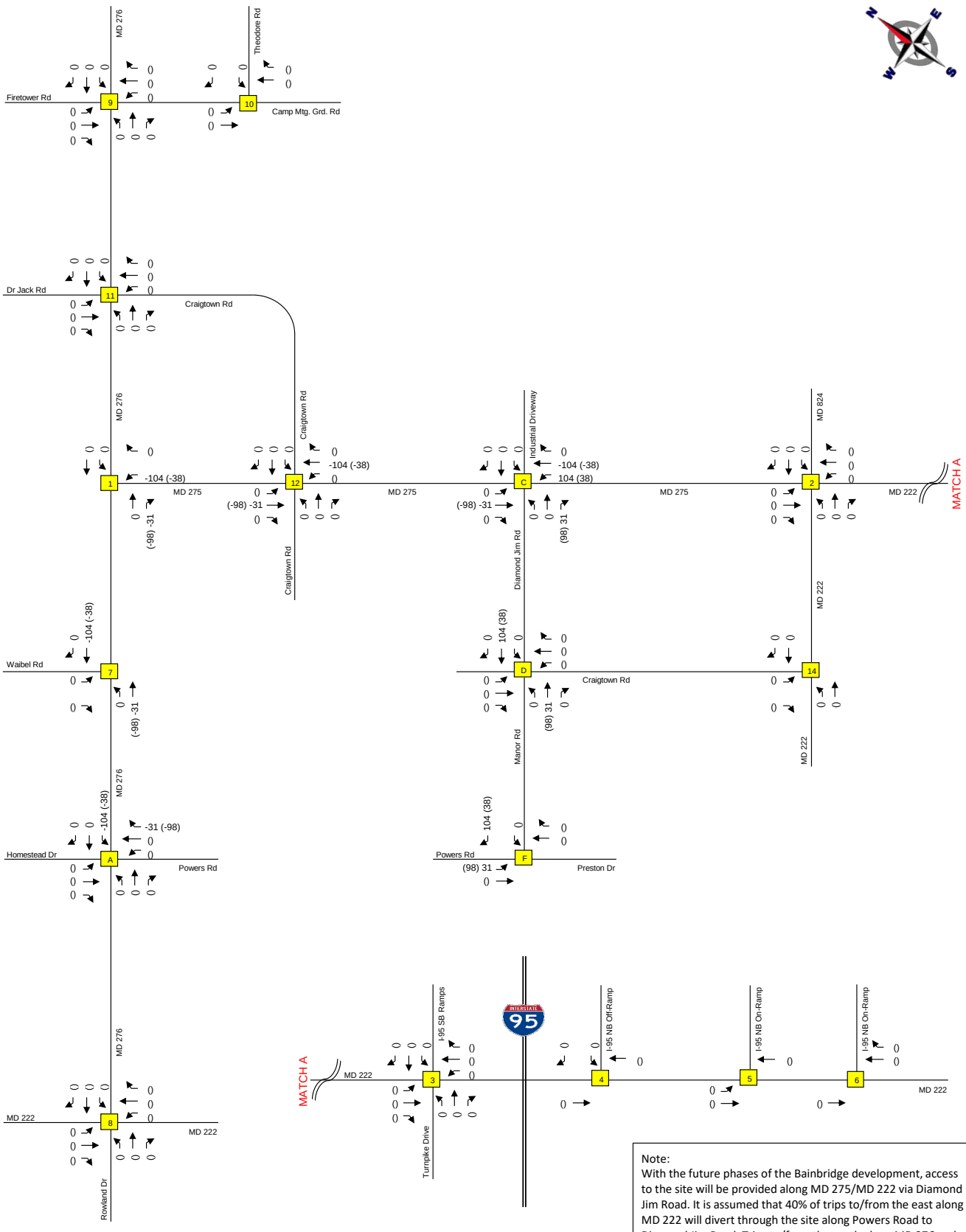


Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Proposed Lane Use & Traffic Control Devices - Existing - Background - Total	**Exhibit 6a**



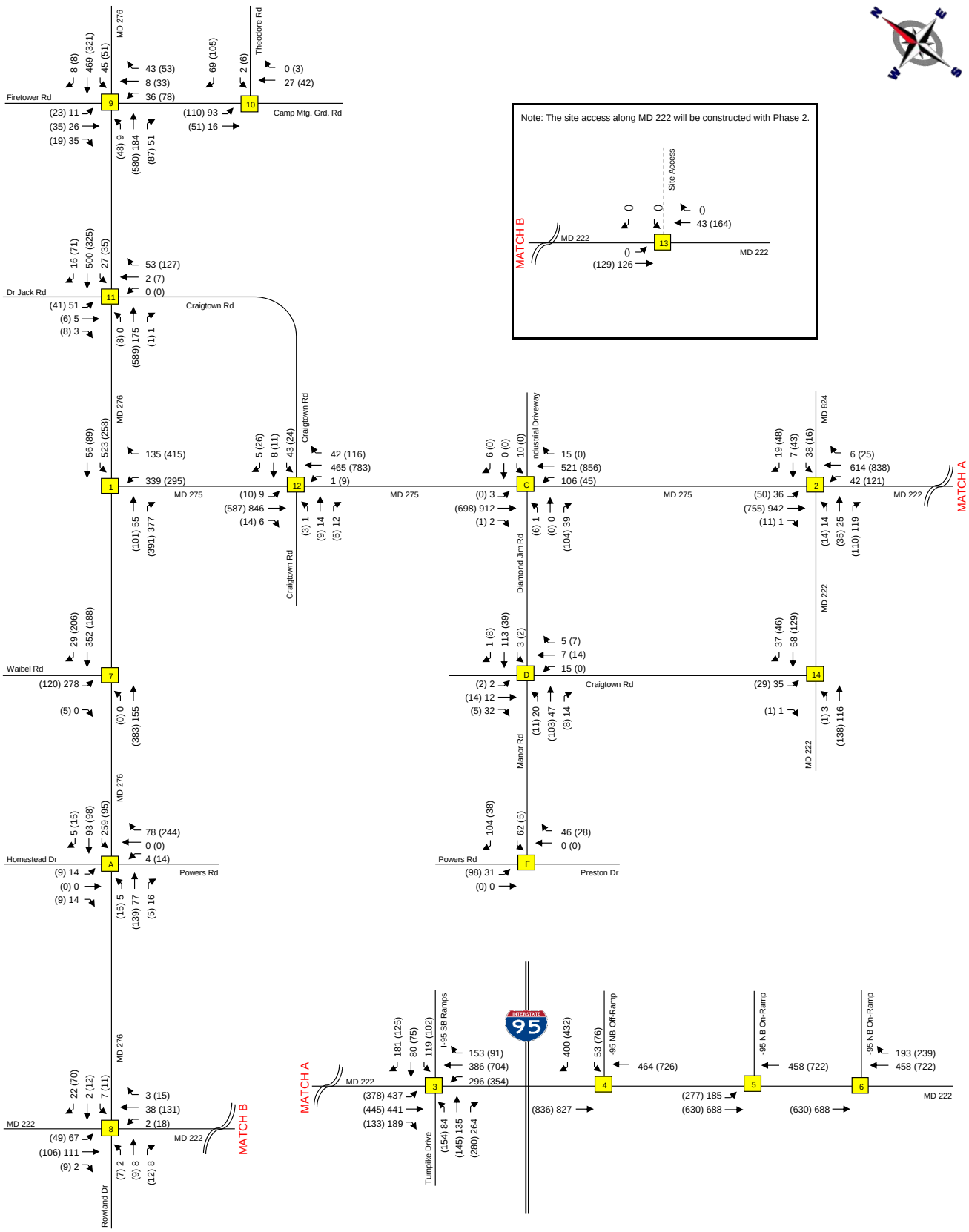
Note:
This exhibit shows the redistribution of background traffic volumes at the intersection of Diamond Jim Road & Craigtown Road as a result of the realignment of Diamond Jim Road/Manor Road.

Traffic Impact Analysis	Redistribution of Background Volumes Due to Realignment of Diamond Jim Road/Manor Road	**Exhibit 6b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Note:
With the future phases of the Bainbridge development, access to the site will be provided along MD 275/MD 222 via Diamond Jim Road. It is assumed that 40% of trips to/from the east along MD 222 will divert through the site along Powers Road to Diamond Jim Road. Trips to/from the north along MD 276 and to/from the south along MD 276 are assumed to continue to utilize the access along MD 276 at Intersection A.

Traffic Impact Analysis	Diversion of Phase 1 Volumes Due to Realignment of Diamond Jim Road/Manor Road	**Exhibit 6c**
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 with Realignment of Diamond Jim/Manor Road	**Exhibit 7**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

Trip Generation Rates

	Trip Distribution (In/Out)
Warehousing (ksf, ITE-150)	
Morning Trips = 0.12 x ksf + 23.62	77/23
Evening Trips = 0.12 x ksf + 26.48	28/72
Warehousing Truck Trips (ksf, ITE-150)	**Trip Distribution (In/Out)**
Morning Trips = 0.02 x ksf	52/48
Evening Trips = 0.03 x ksf	52/48
Multifamily Housing, Low-Rise (ITE-220, Units) [Not Close to Rail Transit]	**Trip Distribution (In/Out)**
Morning Trips = 0.31 x Units + 22.85	24/76
Evening Trips = 0.43 x Units + 20.55	63/37

Trip Generation Totals

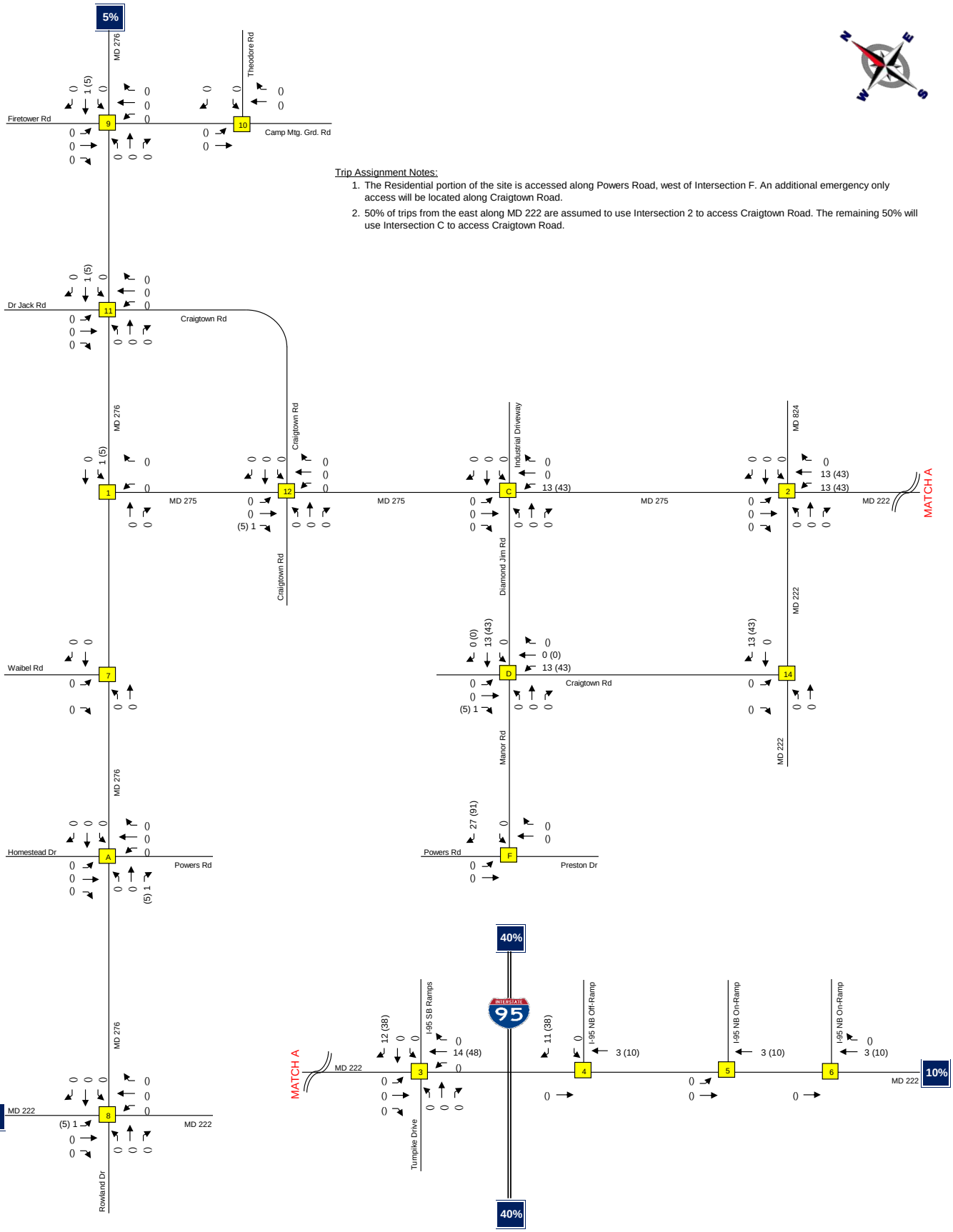
			AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Phase 1A	Multifamily Housing, Low-Rise (ITE-220, Units)	306 units	28	90	118	96	56	152
	Warehousing (ksf, ITE-150)	max of 1,000,000 sq.ft.	111	33	144	41	105	146
	Total Phase 1A Residential:		**28**	**90**	**118**	**96**	**56**	**152**
	Total Phase 1A Warehousing:		**111**	**33**	**144**	**41**	**105**	**146**
	Truck Trip Generation (Using ITE 11th Edition Truck Trip Generation Rates):		10	10	20	16	14	30
	Warehousing Passenger Vehicles (Overall Trips minus Truck Trips):		101	23	124	25	91	116

			AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Phase 2	Warehousing (ksf, ITE-150)	max of 2,500,000 sq.ft.	249	75	324	91	235	326
	Total Phase 2 Warehousing:		**249**	**75**	**324**	**91**	**235**	**326**
	Truck Trip Generation (Using ITE 11th Edition Truck Trip Generation Rates):		26	24	50	39	36	75
	Warehousing Passenger Vehicles (Overall Trips minus Truck Trips):		223	51	274	52	199	251

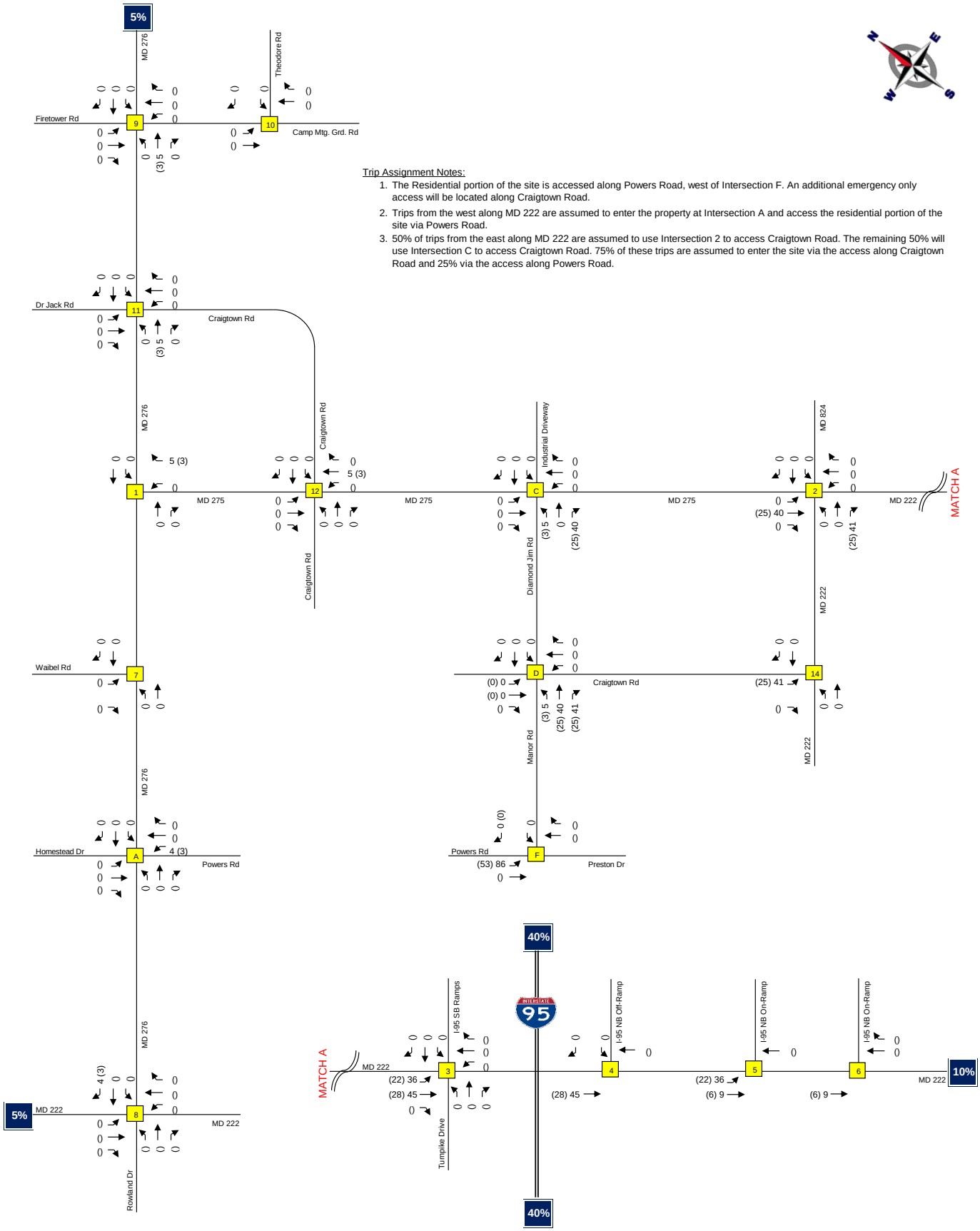
Notes:

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

Traffic Impact Analysis	Trip Generation for Site	**Exhibit 8**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning		



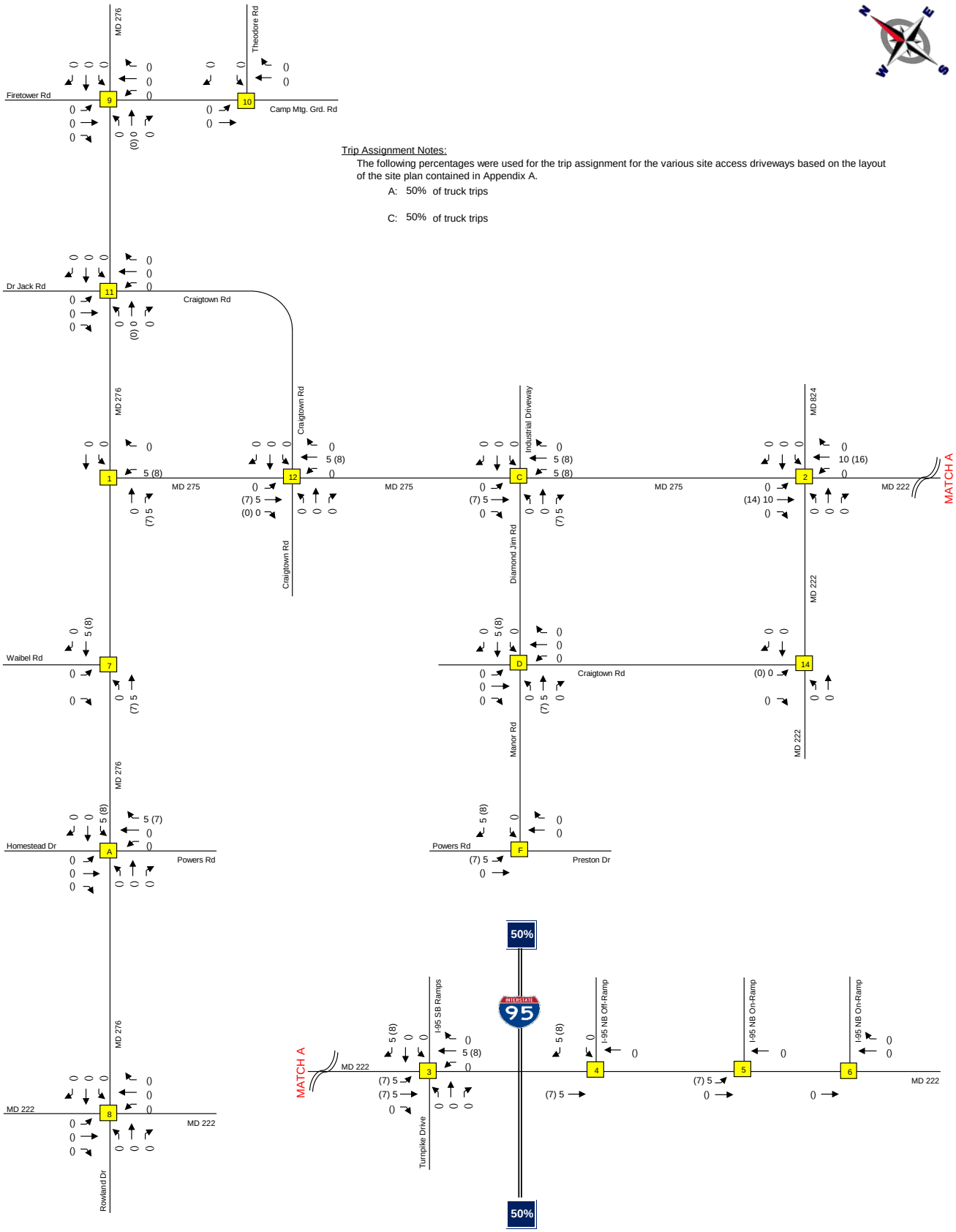
Traffic Impact Analysis	Inbound Site Trip Assignment - Phase 1A Residential Trips	**Exhibit 9a**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Trip Assignment Notes:

1. The Residential portion of the site is accessed along Powers Road, west of Intersection F. An additional emergency only access will be located along Craigtown Road.
2. Trips from the west along MD 222 are assumed to enter the property at Intersection A and access the residential portion of the site via Powers Road.
3. 50% of trips from the east along MD 222 are assumed to use Intersection 2 to access Craigtown Road. The remaining 50% will use Intersection C to access Craigtown Road. 75% of these trips are assumed to enter the site via the access along Craigtown Road and 25% via the access along Powers Road.

Traffic Impact Analysis	Outbound Site Trip Assignment - Phase 1A Residential Trips	**Exhibit 9b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



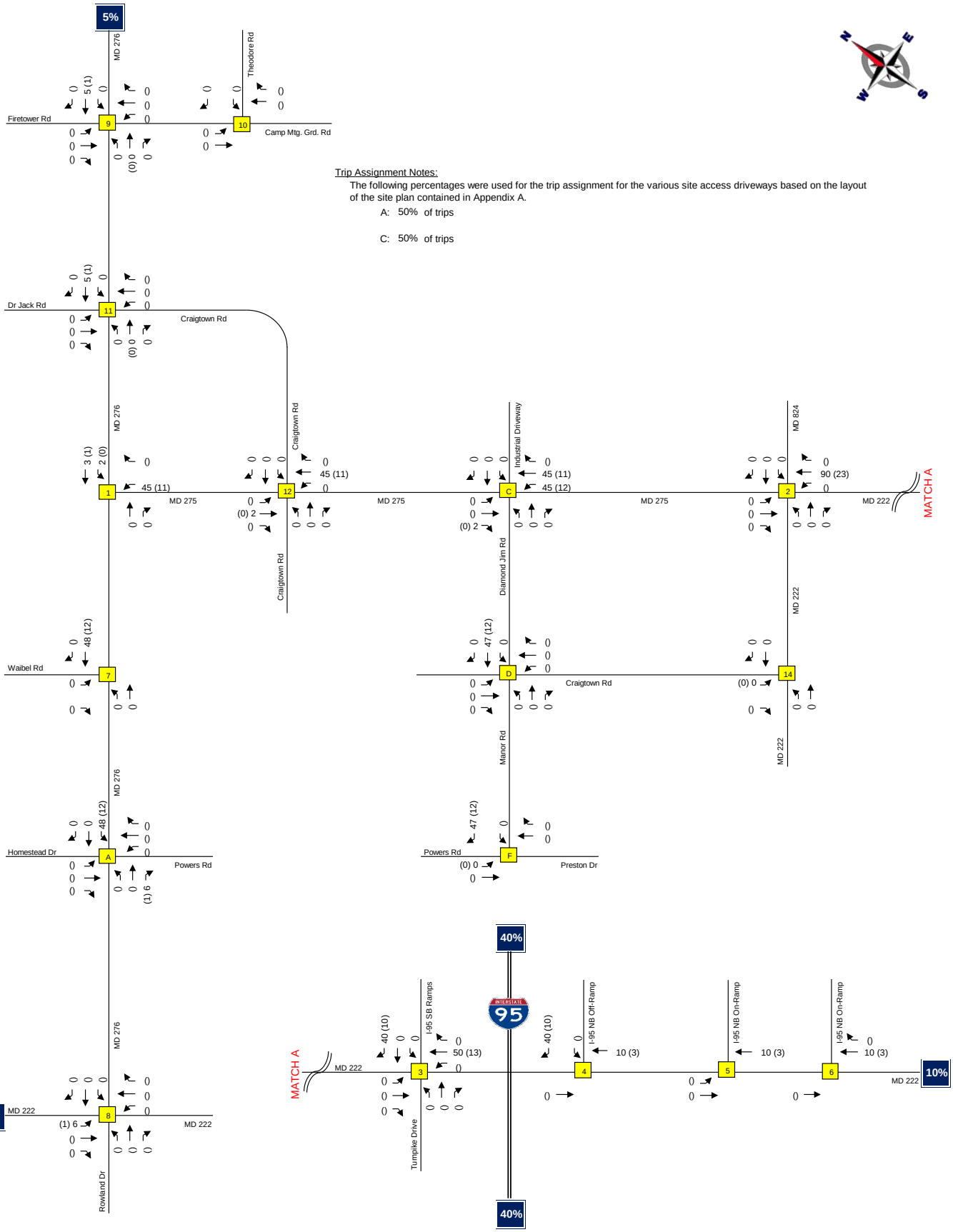
Trip Assignment Notes:

The following percentages were used for the trip assignment for the various site access driveways based on the layout of the site plan contained in Appendix A.

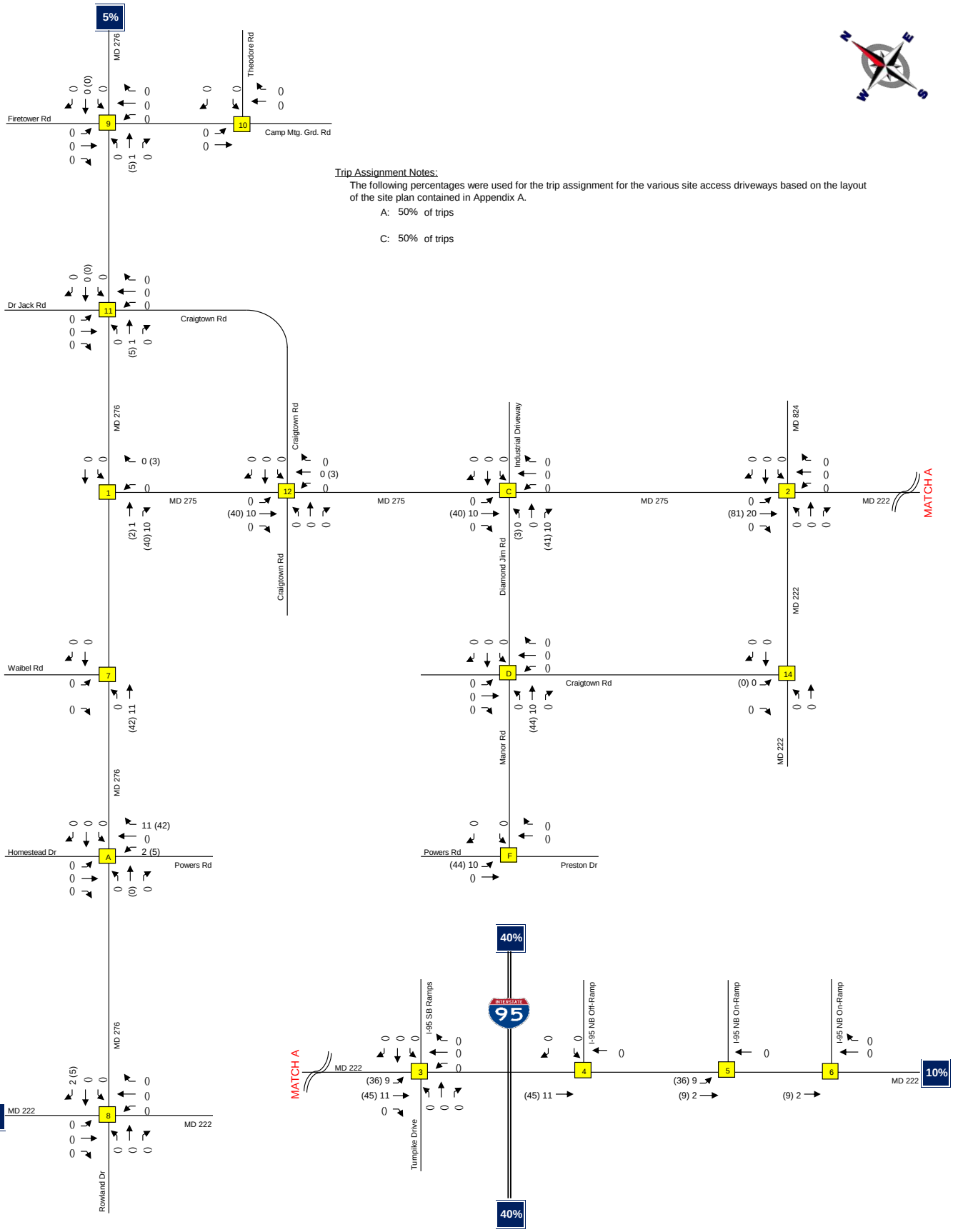
A: 50% of truck trips

C: 50% of truck trips

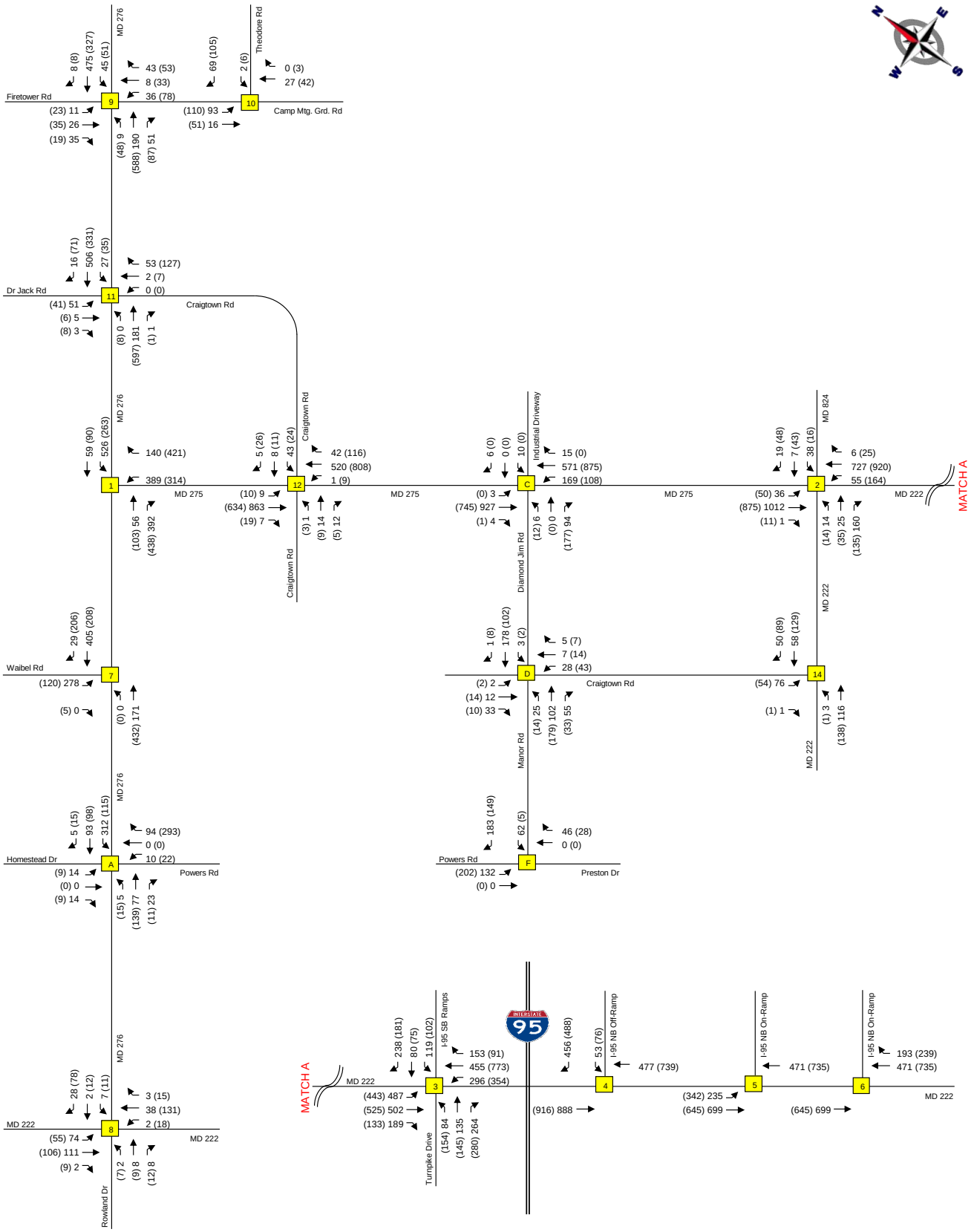
Traffic Impact Analysis	Site Trip Assignment - Phase 1A Warehouse Truck Trips	**Exhibit 9c**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Inbound Site Trip Assignment - Phase 1A Warehouse Passenger Car Trips Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit 9d**



Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Outbound Site Trip Assignment - Phase 1A Warehouse Passenger Car Trips Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit 9e**



Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Phase 1A Total Peak Hour Volumes Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit 10**

Phase 1A Level of Service Results

Morning Peak Hour	Existing CLV	Background CLV	Total Phase 1A CLV
1). MD 275 & MD 276	A / 893	B / 1022	A / 974
2). MD 275 & MD 222/MD 824	A / 898	B / 1099	C / 1210
3). MD 222 & I-95 SB Ramps/Turnpike Drive	A / 641	A / 991	B / 1052
4). MD 222 & I-95 NB Off-Ramp	A / 666	B / 1045	B / 1138
5). MD 222 & I-95 On-Ramp	A / 570	A / 688	A / 706
6). MD 222 & I-95 On-Ramp	A / 570	A / 688	A / 699
7). MD 276 & Waibel Road	A / 356	A / 763	A / 712
8). MD 276 & MD 222	A / 157	A / 215	A / 226
A). MD 276 & Site Access #1	--	A / 553	A / 493
C). MD 275 & Diamond Jim Road	A / 794	A / 964	C / 1203
w/ Imps. - WB Left Turn Lanes & Two NB Lanes			B / 1116
D). Diamond Jim Road & Craigtown Road	A / 55	A / 61	A / 257
E). Craigtown Road & Manor Road	A / 108	A / 123	--
F). Hendley Parkway (Powers Road) & Manor Road	A / 96	A / 108	A / 423
9). MD 276 & Firetower Road/Camp Meeting Grd Road	A / 544	A / 594	A / 591
10). Camp Meeting Ground Road & Theodore Road	A / 170	A / 191	A / 191
11). MD 276 & Craigtown Road/Doctor Jack Road	A / 593	A / 649	A / 655
12). MD 275 & Craigtown Road	A / 785	A / 954	A / 940
13). Craigtown Road & Residential Site Access	--	--	--
14). MD 222 & Craigtown Road	A / 122	A / 155	A / 193

Evening Peak Hour	Existing CLV	Background CLV	Total Phase 1A CLV
1). MD 275 & MD 276	A / 651	A / 692	A / 680
2). MD 275 & MD 222/MD 824	A / 784	A / 988	B / 1100
3). MD 222 & I-95 SB Ramps/Turnpike Drive	A / 746	B / 1046	B / 1126
4). MD 222 & I-95 NB Off-Ramp	A / 893	C / 1213	D / 1315
5). MD 222 & I-95 On-Ramp	A / 708	A / 999	B / 1077
6). MD 222 & I-95 On-Ramp	A / 852	A / 961	A / 974
7). MD 276 & Waibel Road	A / 377	A / 606	A / 557
8). MD 276 & MD 222	A / 249	A / 313	A / 320
A). MD 276 & Site Access #1	--	A / 628	A / 569
C). MD 275 & Diamond Jim Road	A / 713	A / 907	C / 1160
w/ Imps. - WB Left Turn Lanes & Two NB Lanes			A / 944
D). Diamond Jim Road & Craigtown Road	A / 45	A / 50	A / 283
E). Craigtown Road & Manor Road	A / 41	A / 47	--
F). Hendley Parkway (Powers Road) & Manor Road	A / 29	A / 33	A / 384
9). MD 276 & Firetower Road/Camp Meeting Grd Road	A / 811	A / 905	A / 913
10). Camp Meeting Ground Road & Theodore Road	A / 251	A / 283	A / 283
11). MD 276 & Craigtown Road/Doctor Jack Road	A / 726	A / 808	A / 808
12). MD 275 & Craigtown Road	A / 807	B / 1011	A / 995
13). Craigtown Road & Residential Site Access	--	--	--
14). MD 222 & Craigtown Road	A / 171	A / 206	A / 273

Notes:

1. With the proposed improvements at Intersection 1 and C, all intersections satisfy MD SHA Guidelines of LOS "D" or better.

Phase 1A HCM Level of Service Results: Morning Peak Hour

Morning Peak Hour	Existing HCM	Background HCM	Total Phase 1A HCM
1). MD 275 & MD 276	B / 15.2	C / 26.1	C / 21.7
2). MD 275 & MD 222/MD 824	A / 9.2	A / 9.9	B / 12.2
3). MD 222 & I-95 SB Ramps/Turnpike Drive	A / 9.9	B / 17.0	B / 19.5
4). MD 222 & I-95 NB Off-Ramp	A / 8.5	A / 4.2	A / 4.4
5). MD 222 & I-95 On-Ramp	A / 0.9	A / 1.7	A / 2.2
Eastbound Left	A / 3.4	A / 5.5	A / 6.5
6). MD 222 & I-95 On-Ramp	A / 0.0	A / 0.0	A / 0.0
7). MD 276 & Waibel Road	A / 6.7	B / 10.4	A / 8.8
Eastbound Left/Right	B / 11.4	E / 35.4	D / 28.1
8). MD 276 & MD 222	A / 7.7	A / 8.0	A / 8.1
Eastbound Left	A / 7.9	A / 8.4	A / 8.5
Westbound Left	A / 7.2	A / 7.5	A / 7.5
Northbound Left	A / 7.2	A / 7.4	A / 7.4
Southbound Left	A / 7.1	A / 7.3	A / 7.3
A). MD 276 & Powers Road (Site Access)	A / 1.4	A / 6.8	A / 6.5
Eastbound Left/Thru/Right	A / 9.2	C / 20.2	C / 17.2
Westbound Left	--	B / 10.1	B / 10.9
Westbound Right	--	A / 0.0	A / 0.0
Northbound Right	--	A / 0.0	A / 0.0
Southbound Left	--	A / 8.4	A / 8.3
C). MD 275 & Diamond Jim Road	A / 0.3	A / 0.4	C / 25.8
Northbound Left/Thru/Right	B / 12.6	C / 15.1	
Southbound Left/Thru/Right	B / 14.4	D / 25.4	
D). Diamond Jim Road & Craigtown Road	A / 1.3	A / 1.2	A / 2.7
Southbound Left/Right	A / 8.9	A / 9.0	
Eastbound Left/Thru/Right			B / 10.4
Westbound Left/Thru/Right			B / 12.5
E). Craigtown Road & Manor Road	A / 4.1	A / 4.2	--
Northbound Left/Right	A / 9.0	A / 9.1	
F). Hendley Parkway (Powers Road) & Manor Road	A / 5.1	A / 5.1	A / 8.2
Southbound Left/Right	A / 8.9	A / 8.9	A / 9.9
9). MD 276 & Firetower Road/Camp Meeting Grd Road	A / 8.9	A / 9.1	A / 9.1
10). Camp Meeting Ground Road & Theodore Road	A / 6.4	A / 6.4	A / 6.4
Southbound Left	A / 8.7	A / 8.8	A / 8.8
11). MD 276 & Craigtown Road/Doctor Jack Road	A / 2.3	A / 2.6	A / 2.6
Eastbound Left/Thru/Right	C / 19.2	C / 22.6	C / 23.2
Westbound Left/Thru/Right	A / 9.6	A / 9.8	A / 9.9
12). MD 275 & Craigtown Road	A / 1.9	A / 5.7	A / 4.8
Northbound Left/Thru/Right	C / 19.3	F / 37.2	D / 34.1
Southbound Left/Thru/Right	D / 28.5	F / 143	F / 113
13). MD 222 & Site Access	--	--	--
Southbound Left/Right			
14). MD 222 & Craigtown Road	A / 1.7	A / 1.5	A / 2.7
Eastbound Left/Right	A / 9.5	A / 9.9	B / 10.3

Phase 1A HCM Level of Service Results: Evening Peak Hour

Evening Peak Hour	Existing HCM	Background HCM	Total Phase 1A HCM
1). MD 275 & MD 276	B / 15.4	B / 11.7	B / 11.8
2). MD 275 & MD 222/MD 824	B / 12.4	B / 14.5	B / 18.2
3). MD 222 & I-95 SB Ramps/Turnpike Drive	B / 15.5	C / 28.3	C / 31.9
4). MD 222 & I-95 NB Off-Ramp	B / 15.0	A / 5.9	A / 6.3
5). MD 222 & I-95 On-Ramp	A / 0.9	A / 2.8	A / 3.8
Eastbound Left	A / 4.2	A / 9.5	B / 11.6
6). MD 222 & I-95 On-Ramp	A / 0.0	A / 0.0	A / 0.0
7). MD 276 & Waibel Road	A / 2.3	A / 2.4	A / 2.3
Eastbound Left/Right	B / 10.5	C / 19.8	C / 17.8
8). MD 276 & MD 222	A / 8.0	A / 8.5	A / 8.6
Eastbound Left	A / 8.2	A / 8.7	A / 8.8
Westbound Left	A / 8.2	A / 8.6	A / 8.7
Northbound Left	A / 7.6	A / 7.9	A / 7.9
Southbound Left	A / 7.6	A / 8.0	A / 8.0
A). MD 276 & Site Access #1	A / 1.0	A / 7.6	A / 6.9
Eastbound Left/Thru/Right	A / 9.2	C / 15.8	B / 14.3
Westbound Left	--	B / 12.3	B / 11.7
Westbound Right	--	A / 0.0	A / 0.0
Northbound Right	--	A / 0.0	A / 0.0
Southbound Left	--	A / 8.2	A / 8.2
C). MD 275 & Diamond Jim Road	A / 0.2	A / 0.3	C / 20.4
Northbound Left/Thru/Right	B / 14.9	D / 26.6	
Southbound Left/Thru/Right	A / 0.0	A / 0.0	
D). Diamond Jim Road & Craigtown Road	A / 1.6	A / 1.6	A / 2.8
Southbound Left/Right	A / 8.6	A / 8.6	
Eastbound Left/Thru/Right			B / 10.8
Westbound Left/Thru/Right			B / 12.1
E). Craigtown Road & Manor Road	A / 3.1	A / 3.1	--
Northbound Left/Right	A / 8.7	A / 8.7	
F). Hendley Parkway (Powers Road) & Manor Road	A / 1.1	A / 1.2	A / 7.9
Southbound Left/Right	A / 8.6	A / 8.6	A / 9.5
9). MD 276 & Firetower Road/Camp Meeting Grd Road	B / 11.9	B / 14.4	B / 14.5
10). Camp Meeting Ground Road & Theodore Road	A / 5.8	A / 5.9	A / 5.9
Southbound Left	A / 9.0	A / 9.2	A / 9.2
11). MD 276 & Craigtown Road/Doctor Jack Road	A / 3.9	A / 5.7	A / 5.8
Eastbound Left/Thru/Right	E / 41.8	F / 70.1	F / 74.4
Westbound Left/Thru/Right	C / 15.3	C / 17.4	C / 17.7
12). MD 275 & Craigtown Road	A / 1.6	A / 4.1	A / 3.5
Northbound Left/Thru/Right	C / 23.3	F / 53.9	E / 48.2
Southbound Left/Thru/Right	D / 26.4	F / 99.2	F / 81.5
13). MD 222 & Site Access	--	--	--
Southbound Left/Right			
14). MD 222 & Craigtown Road	A / 1.0	A / 1.0	A / 1.5
Eastbound Left/Right	B / 10.0	B / 10.5	B / 10.9

Phase 1A SimTraffic Queuing Analysis Results: Morning Peak Hour

Morning Peak Hour	Available Storage (feet)	Existing Queue (feet)	Background Queue (feet)	Phase 1A Queue (feet)
1). MD 275 & MD 276				
Westbound Left		110	361	282
Westbound Right	>275	59	216	150
Northbound Through		78	63	56
Southbound Left/Through		295	340	312
2). MD 275 & MD 222/MD 824				
Eastbound Left	250	32	38	58
Eastbound Through		166	163	235
Eastbound Right	210	0	0	0
Westbound Left	>250	38	56	71
Westbound Through/Right		84	82	103
Northbound Left/Through		53	66	67
Southbound Left	>60	66	67	71
Southbound Through/Right		40	52	47
3). MD 222 & I-95 SB Ramps/Turnpike Drive				
Eastbound Left	>550	164	234	278
Eastbound Through		125	246	289
Eastbound Right	>550	0	0	0
Westbound Left	530	38	168	169
Westbound Through		79	146	166
Westbound Through		68	124	158
Westbound Right	550	0	0	0
Northbound Left	220	37	121	113
Northbound Through	230	38	236	193
Northbound Right	200	0	118	65
Southbound Left	>400	207	175	177
Southbound Through		48	120	111
Southbound Right	500	0	0	0
4). MD 222 & I-95 NB Off-Ramp				
Eastbound Through		107	105	147
Westbound Through		97	84	94
Southbound Left	300	109	115	114
Southbound Right		77	0	0
5). MD 222 & I-95 On-Ramp				
Eastbound Left/Through	500	60	80	100
Eastbound Through	500	0	0	0
Westbound Through		0	3	3
6). MD 222 & I-95 On-Ramp	No Controlled Movements			
7). MD 276 & Waibel Road				
Eastbound Left/Right		68	138	150
8). MD 276 & MD 222				
Eastbound Left/Thru/Right		57	61	64
Westbound Left/Thru/Right		39	45	45
Northbound Left/Thru/Right		31	32	32
Southbound Left/Thru/Right		33	37	38
A). MD 276 & Site Access #1				
Eastbound Left/Thru/Right		41	40	43
Westbound Left		--	19	35
Westbound Right		--	0	0
Northbound Left/Through		6	6	7
Northbound Right		--	0	8
Southbound Left	350	--	73	82

Phase 1A SimTraffic Queuing Analysis Results: Morning Peak Hour

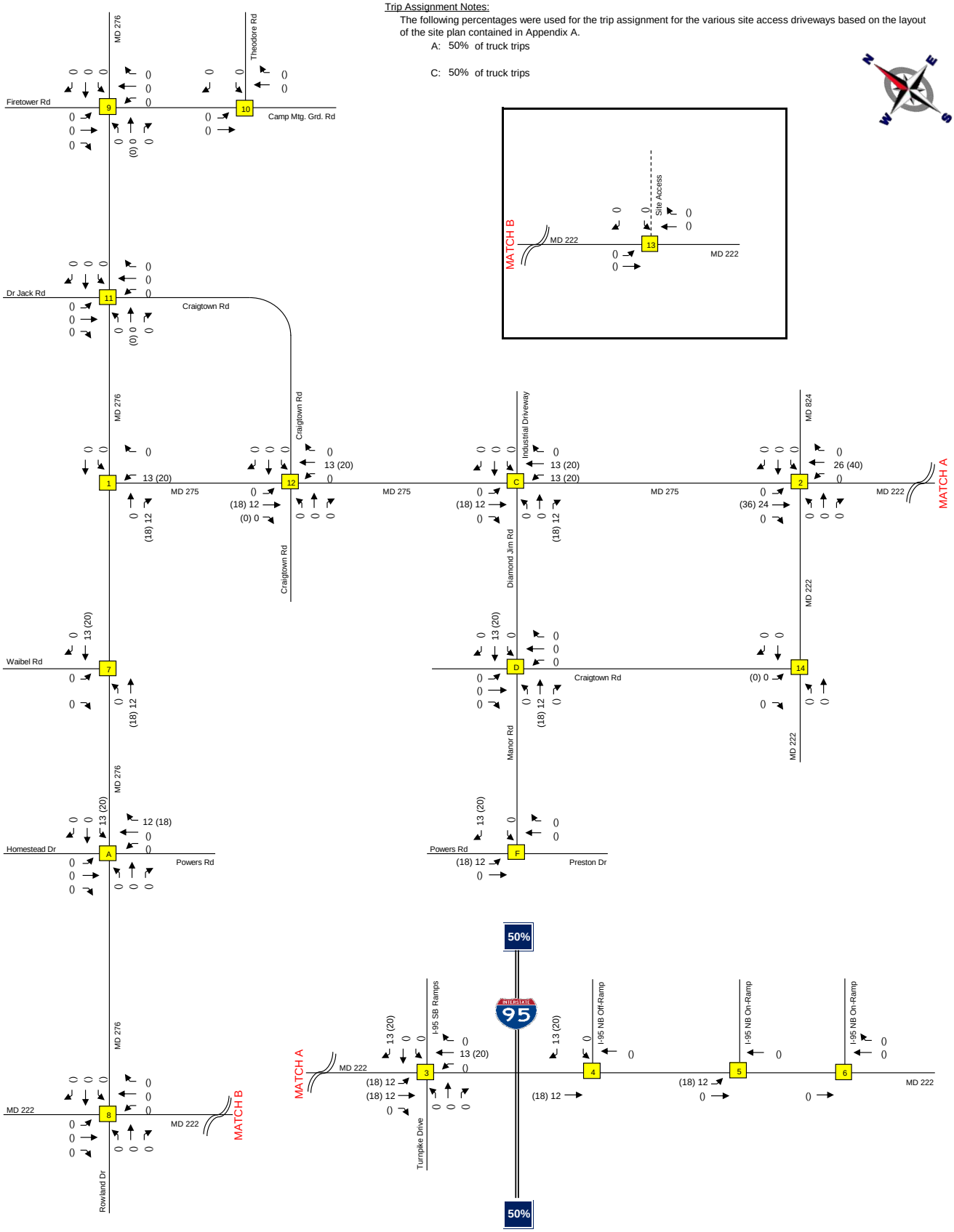
Morning Peak Hour	Available Storage (feet)	Existing Queue (feet)	Background Queue (feet)	Phase 1A Queue (feet)
C). MD 275 & Diamond Jim Road				
Eastbound Left		--	--	40
Eastbound Through		--	--	479
Eastbound Right	Improvements to	--	--	9
Westbound Left	this intersection	--	--	190
Westbound Through	are being	--	--	161
Westbound Right	coordinated with	--	--	14
Northbound Left/Thru	MDOT SHA.	--	--	33
Northbound Right		--	--	124
Southbound Left/Through/Right		--	--	36
D). Diamond Jim Road & Craigtown Road				
Eastbound Left/Through/Right		4	4	51
Westbound Left/Through/Right		0	0	52
Northbound Left/Through/Right		0	0	19
Southbound Left/Through/Right		34	32	4
E). Craigtown Road & Manor Road				
Northbound Left/Right		49	45	--
F). Hendley Parkway (Powers Road) & Manor Road				
Eastbound Left/Through		0	0	33
Southbound Left		47	48	52
Southbound Right		--	0	84
9). MD 276 & Firetower Road/Camp Meeting Grd Road				
Eastbound Left/Through/Right		67	66	77
Westbound Left/Through/Right		66	79	75
Northbound Left	300	21	16	23
Northbound Through/Right		76	76	86
Southbound Left	325	41	49	47
Southbound Through/Right		119	130	147
10). Camp Meeting Ground Road & Theodore Road				
Eastbound Left/Through	300	16	25	19
Southbound Left/Right		29	30	34
11). MD 276 & Craigtown Road/Doctor Jack Road				
Eastbound Left/Through/Right		55	63	59
Westbound Left/Through/Right		46	47	47
Northbound Left/Through/Right		0	0	0
Southbound Left/Through/Right		28	29	23
12). MD 275 & Craigtown Road				
Eastbound Left	>260	13	19	28
Eastbound Through/Right		0	0	2
Westbound Left	>275	7	6	10
Westbound Through/Right		0	0	4
Northbound Left/Through/Right		44	46	56
Southbound Left/Through/Right		65	157	100
13). MD 222 & Site Access				
Eastbound Left/Through		--	--	--
Southbound Left/Right		--	--	--
14). MD 222 & Craigtown Road				
Eastbound Left/Right		37	37	43

Phase 1A SimTraffic Queuing Analysis Results: Evening Peak Hour

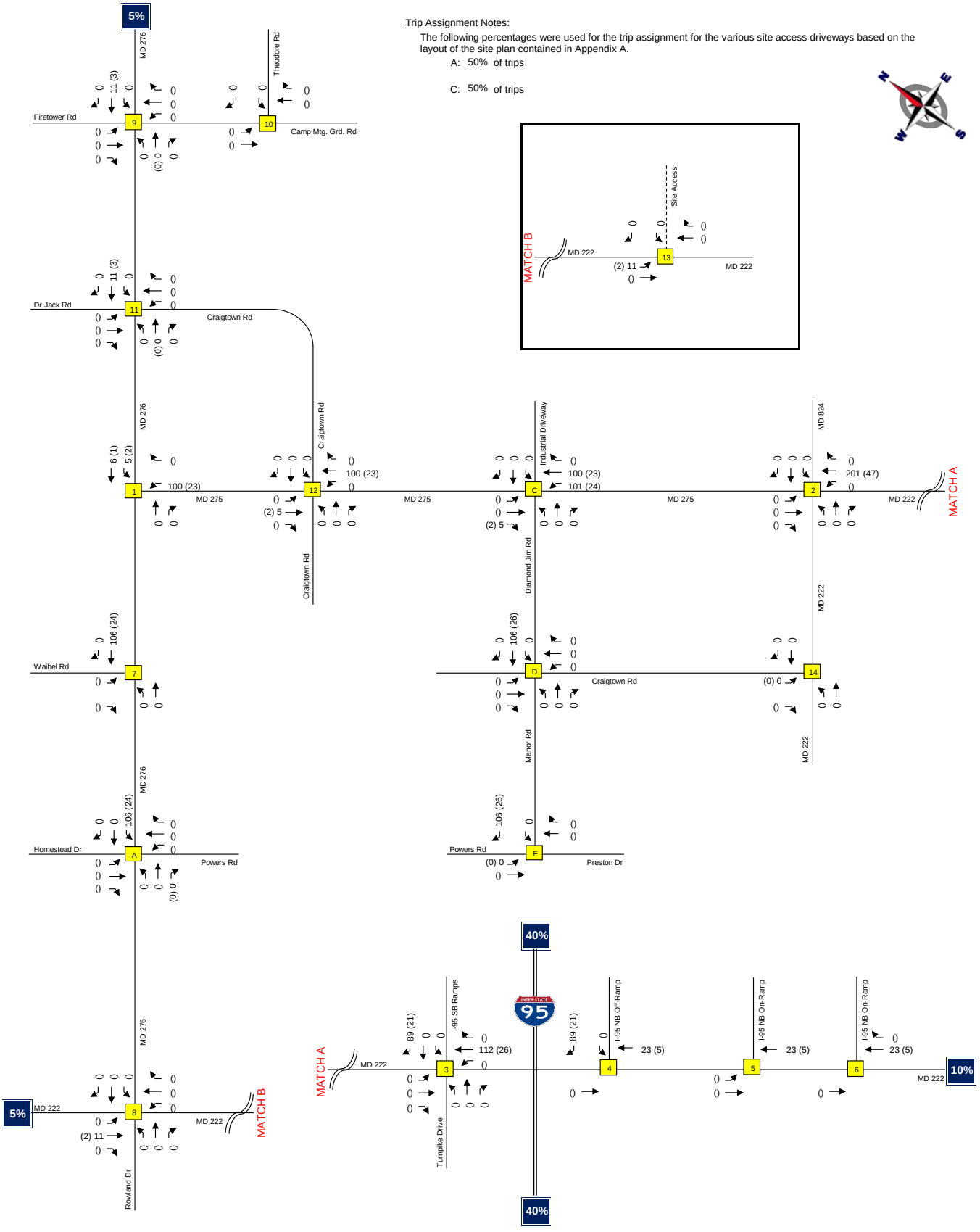
Evening Peak Hour	Available Storage (feet)	Existing Queue (feet)	Background Queue (feet)	Phase 1A Queue (feet)
1). MD 275 & MD 276				
Westbound Left		140	215	201
Westbound Right	>275	116	128	143
Northbound Through		111	89	84
Southbound Left/Through		171	170	180
2). MD 275 & MD 222/MD 824				
Eastbound Left	250	44	60	90
Eastbound Through		135	199	284
Eastbound Right	210	0	31	31
Westbound Left	>250	90	96	152
Westbound Through/Right		249	185	265
Northbound Left/Through		72	80	86
Southbound Left	>60	55	53	60
Southbound Through/Right		102	124	126
3). MD 222 & I-95 SB Ramps/Turnpike Drive				
Eastbound Left	>550	160	304	356
Eastbound Through		142	367	447
Eastbound Right	>550	0	0	127
Westbound Left	530	62	248	260
Westbound Through		170	248	348
Westbound Through		162	248	361
Westbound Right	550	0	0	0
Northbound Left	220	83	174	191
Northbound Through	230	89	196	216
Northbound Right	200	0	65	87
Southbound Left	>400	143	154	138
Southbound Through		64	112	120
Southbound Right	500	0	24	20
4). MD 222 & I-95 NB Off-Ramp				
Eastbound Through		128	232	270
Westbound Through		175	178	185
Southbound Left	300	172	134	135
Southbound Right		197	0	0
5). MD 222 & I-95 On-Ramp				
Eastbound Left/Through	500	67	124	181
Eastbound Through	500	8	11	23
Westbound Through		0	5	14
6). MD 222 & I-95 On-Ramp	No Controlled Movements			
7). MD 276 & Waibel Road				
Eastbound Left/Right		48	71	67
8). MD 276 & MD 222				
Eastbound Left/Thru/Right		64	61	65
Westbound Left/Thru/Right		55	61	63
Northbound Left/Thru/Right		35	35	35
Southbound Left/Thru/Right		44	45	50
A). MD 276 & Site Access #1				
Eastbound Left/Thru/Right		38	36	38
Westbound Left		--	31	38
Westbound Right		--	0	0
Northbound Left/Through		7	10	9
Northbound Right		--	0	0
Southbound Left	350	--	69	56

Phase 1A SimTraffic Queuing Analysis Results: Evening Peak Hour

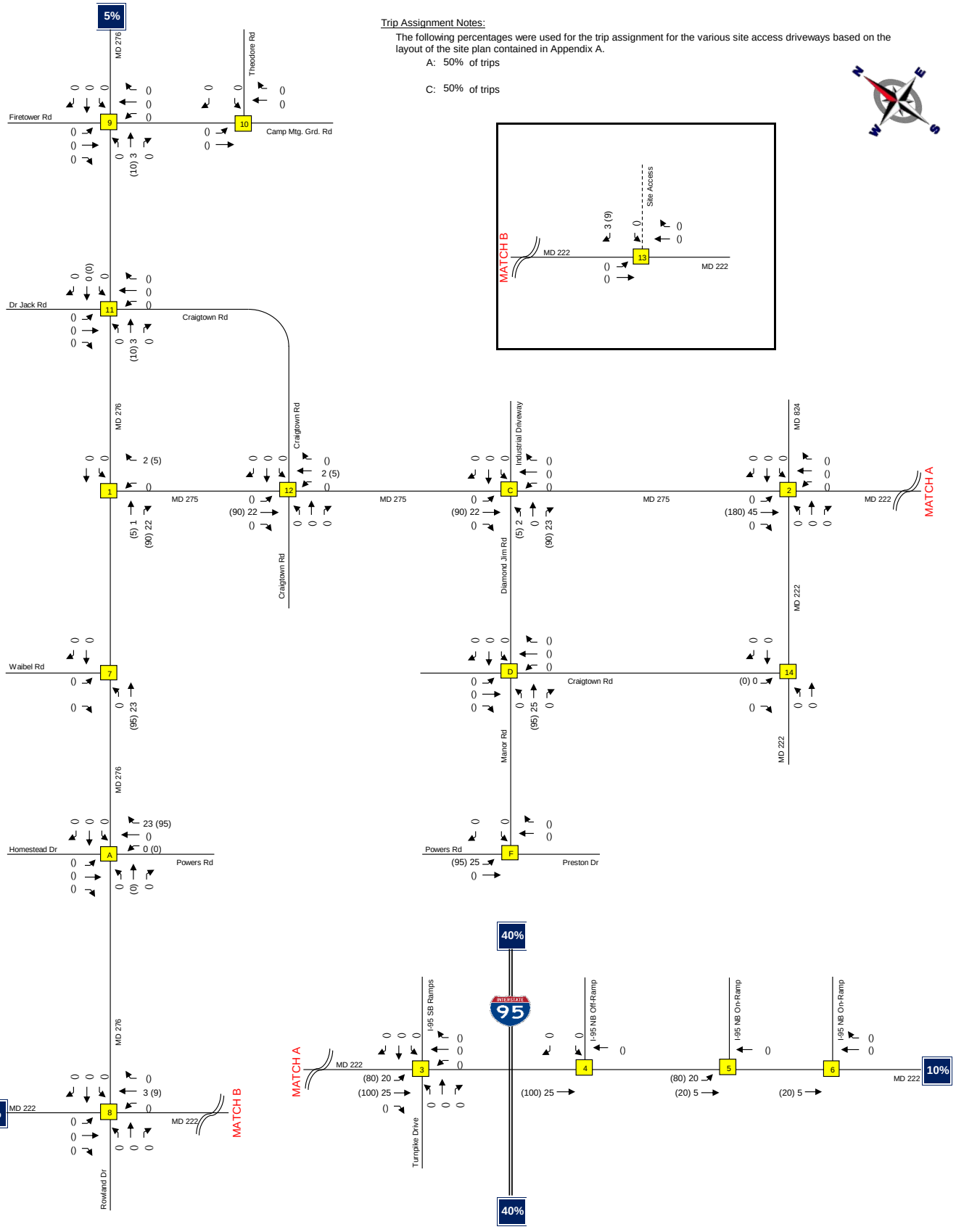
Evening Peak Hour	Available Storage (feet)	Existing Queue (feet)	Background Queue (feet)	Phase 1A Queue (feet)
C). MD 275 & Diamond Jim Road				
Eastbound Left		--	--	0
Eastbound Through		--	--	300
Eastbound Right	Improvements to	--	--	3
Westbound Left	this intersection	--	--	144
Westbound Through	are being	--	--	224
Westbound Right	coordinated with	--	--	0
Northbound Left/Thru	MDOT SHA.	--	--	33
Northbound Right		--	--	158
Southbound Left/Through/Right		--	--	0
D). Diamond Jim Road & Craigtown Road				
Eastbound Left/Through/Right		0	8	43
Westbound Left/Through/Right		0	0	55
Northbound Left/Through/Right		0	0	14
Southbound Left/Through/Right		29	30	15
E). Craigtown Road & Manor Road				
Northbound Left/Right		40	42	--
F). Hendley Parkway (Powers Road) & Manor Road				
Eastbound Left/Through		0	0	39
Southbound Left		18	42	19
Southbound Right		0	0	94
9). MD 276 & Firetower Road/Camp Meeting Grd Road				
Eastbound Left/Through/Right		75	76	69
Westbound Left/Through/Right		114	127	128
Northbound Left	300	55	52	53
Northbound Through/Right		205	208	230
Southbound Left	325	57	63	60
Southbound Through/Right		110	115	119
10). Camp Meeting Ground Road & Theodore Road				
Eastbound Left/Through	300	22	30	30
Southbound Left/Right		41	39	36
11). MD 276 & Craigtown Road/Doctor Jack Road				
Eastbound Left/Through/Right		64	64	60
Westbound Left/Through/Right		75	84	88
Northbound Left/Through/Right		20	30	25
Southbound Left/Through/Right		52	58	74
12). MD 275 & Craigtown Road				
Eastbound Left/Through	>260	14	20	46
Eastbound Through/Right		0	22	0
Westbound Left/Through	>275	13	5	58
Westbound Through/Right		3	0	0
Northbound Left/Through/Right		36	50	39
Southbound Left/Through/Right		57	84	71
13). MD 222 & Site Access				
Eastbound Left/Through		--	--	--
Southbound Left/Right		--	--	--
14). MD 222 & Craigtown Road				
Eastbound Left/Right		40	34	44



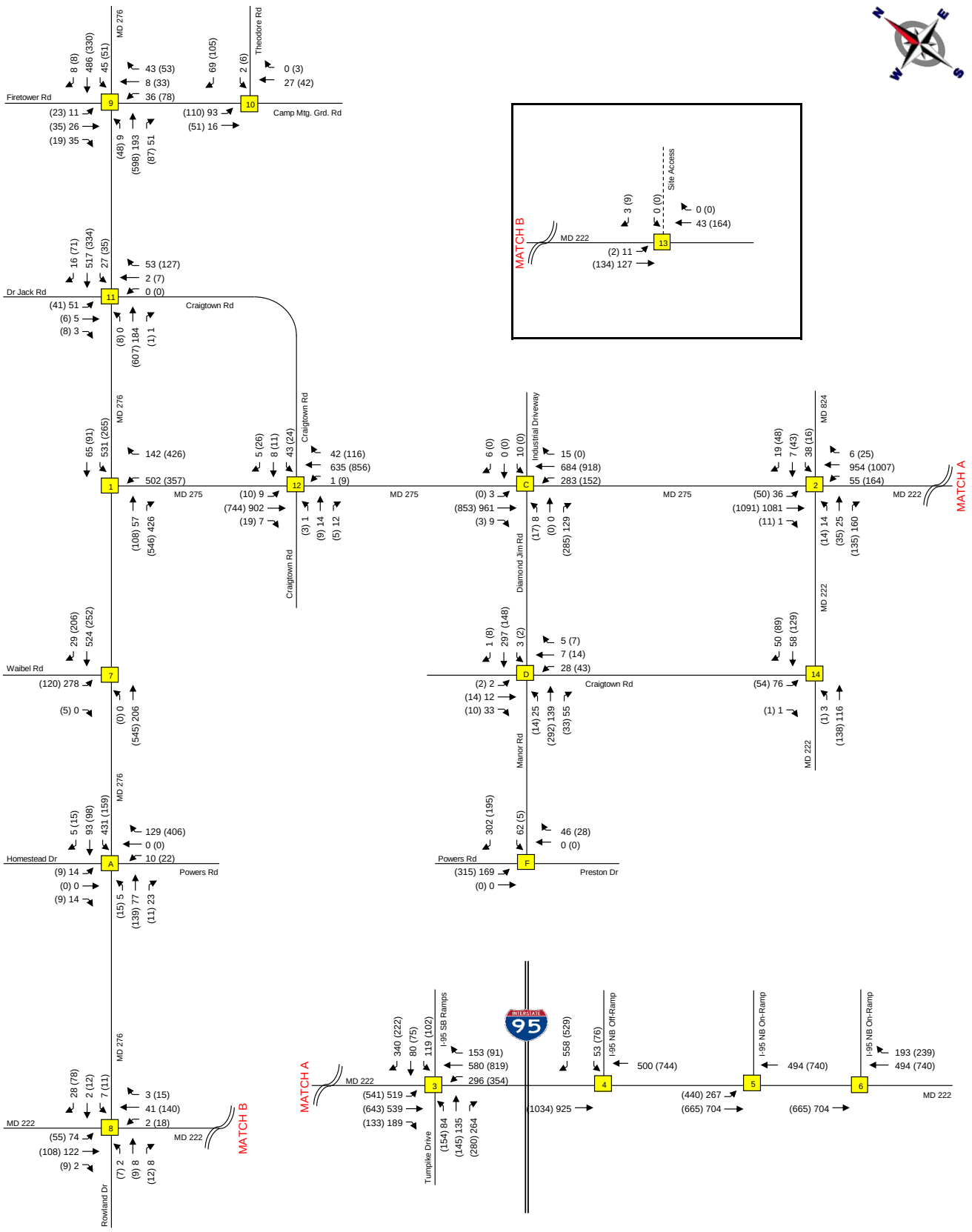
Traffic Impact Analysis	Site Trip Assignment - Phase 2 Warehouse Truck Trips	**Exhibit 12a**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Inbound Site Trip Assignment - Phase 2 Warehouse Passenger Car Trips	**Exhibit 12b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Outbound Site Trip Assignment - Phase 2 Warehouse Passenger Car Trips	**Exhibit 12c**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Phase 2 Total Peak Hour Volumes	**Exhibit 13**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

Phase 2 Level of Service Results

Morning Peak Hour	Existing CLV	Background CLV	Total Phase 1A CLV	Total Phase 2 CLV
1). MD 275 & MD 276	A / 893	B / 1022	A / 974	B / 1098
2). MD 275 & MD 222/MD 824	A / 898	B / 1099	C / 1210	C / 1279
3). MD 222 & I-95 SB Ramps/Turnpike Drive	A / 641	A / 991	B / 1052	B / 1092
4). MD 222 & I-95 NB Off-Ramp	A / 666	B / 1045	B / 1138	C / 1270
5). MD 222 & I-95 On-Ramp	A / 570	A / 688	A / 706	A / 761
6). MD 222 & I-95 On-Ramp	A / 570	A / 688	A / 699	A / 704
7). MD 276 & Waibel Road	A / 356	A / 763	A / 712	A / 831
8). MD 276 & MD 222	A / 157	A / 215	A / 226	A / 239
A). MD 276 & Site Access #1	--	A / 553	A / 493	A / 647
C). MD 275 & Diamond Jim Road	A / 794	A / 964	C / 1203	D / 1395
w/ Imps. - WB Left Turn Lanes & Two NB Lanes			B / 1116	C / 1269
D). Diamond Jim Road & Craigtown Road	A / 55	A / 61	A / 257	A / 401
E). Craigtown Road & Manor Road	A / 108	A / 123	--	--
F). Hendley Parkway (Powers Road) & Manor Road	A / 96	A / 108	A / 423	A / 579
9). MD 276 & Firetower Road/Camp Meeting Grd Road	A / 544	A / 594	A / 591	A / 611
10). Camp Meeting Ground Road & Theodore Road	A / 170	A / 191	A / 191	A / 191
11). MD 276 & Craigtown Road/Doctor Jack Road	A / 593	A / 649	A / 655	A / 666
12). MD 275 & Craigtown Road	A / 785	A / 954	A / 940	A / 980
13). MD 222 & Site Access	--	--	--	A / 142
14). MD 222 & Craigtown Road	A / 122	A / 155	A / 193	A / 196

Evening Peak Hour	Existing CLV	Background CLV	Total Phase 1A CLV	Total Phase 2 CLV
1). MD 275 & MD 276	A / 651	A / 692	A / 680	A / 730
2). MD 275 & MD 222/MD 824	A / 784	A / 988	B / 1100	D / 1330
3). MD 222 & I-95 SB Ramps/Turnpike Drive	A / 746	B / 1046	B / 1126	C / 1244
4). MD 222 & I-95 NB Off-Ramp	A / 893	C / 1213	D / 1315	D / 1418
5). MD 222 & I-95 On-Ramp	A / 708	A / 999	B / 1077	C / 1180
6). MD 222 & I-95 On-Ramp	A / 852	A / 961	A / 974	A / 979
7). MD 276 & Waibel Road	A / 377	A / 606	A / 557	A / 670
8). MD 276 & MD 222	A / 249	A / 313	A / 320	A / 336
A). MD 276 & Site Access #1	--	A / 628	A / 569	A / 726
C). MD 275 & Diamond Jim Road	A / 713	A / 907	C / 1160	D / 1374
w/ Imps. - WB Left Turn Lanes & Two NB Lanes			A / 944	B / 1138
D). Diamond Jim Road & Craigtown Road	A / 45	A / 50	A / 283	A / 411
E). Craigtown Road & Manor Road	A / 41	A / 47	--	--
F). Hendley Parkway (Powers Road) & Manor Road	A / 29	A / 33	A / 384	A / 547
9). MD 276 & Firetower Road/Camp Meeting Grd Road	A / 811	A / 905	A / 913	A / 923
10). Camp Meeting Ground Road & Theodore Road	A / 251	A / 283	A / 283	A / 283
11). MD 276 & Craigtown Road/Doctor Jack Road	A / 726	A / 808	A / 808	A / 826
12). MD 275 & Craigtown Road	A / 807	B / 1011	A / 995	B / 1046
13). MD 222 & Site Access	--	--	--	A / 175
14). MD 222 & Craigtown Road	A / 171	A / 206	A / 273	A / 274

Notes:

1. With the proposed improvements at Intersection 1 and C, all intersections satisfy MD SHA Guidelines of LOS "D" or better.

Phase 2 HCM Level of Service Results: Morning Peak Hour

Morning Peak Hour	Existing HCM	Background HCM	Total Phase 1A HCM	Total Phase 2 HCM
1). MD 275 & MD 276	B / 15.2	C / 26.1	C / 21.7	D / 39.3
w/ recommended signal timing				C / 30.9
2). MD 275 & MD 222/MD 824	A / 9.2	A / 9.9	B / 12.2	B / 13.8
3). MD 222 & I-95 SB Ramps/Turnpike Drive	A / 9.9	B / 17.0	B / 19.5	C / 22.5
4). MD 222 & I-95 NB Off-Ramp	A / 8.5	A / 4.2	A / 4.4	A / 4.5
5). MD 222 & I-95 On-Ramp	A / 0.9	A / 1.7	A / 2.2	B / 2.5
Eastbound Left	A / 3.4	A / 5.5	A / 6.5	A / 7.4
6). MD 222 & I-95 On-Ramp	A / 0.0	A / 0.0	A / 0.0	A / 0.0
7). MD 276 & Waibel Road	A / 6.7	B / 10.4	A / 8.8	B / 13.8
Eastbound Left/Right	B / 11.4	E / 35.4	D / 28.1	F / 51.4
8). MD 276 & MD 222	A / 7.7	A / 8.0	A / 8.1	A / 8.2
Eastbound Left	A / 7.9	A / 8.4	A / 8.5	A / 8.6
Westbound Left	A / 7.2	A / 7.5	A / 7.5	A / 7.5
Northbound Left	A / 7.2	A / 7.4	A / 7.4	A / 7.4
Southbound Left	A / 7.1	A / 7.3	A / 7.3	A / 7.3
A). MD 276 & Powers Road (Site Access)	A / 1.4	A / 6.8	A / 6.5	A / 7.7
Eastbound Left/Thru/Right	A / 9.2	C / 20.2	C / 17.2	D / 25.7
Westbound Left	--	B / 10.1	B / 10.9	B / 11.8
Westbound Right	--	A / 0.0	A / 0.0	A / 0.0
Northbound Right	--	A / 0.0	A / 0.0	A / 0.0
Southbound Left	--	A / 8.4	A / 8.3	A / 8.7
C). MD 275 & Diamond Jim Road	A / 0.3	A / 0.4	C / 25.8	D / 44.7
Northbound Left/Thru/Right	B / 12.6	C / 15.1		
Southbound Left/Thru/Right	B / 14.4	D / 25.4		
D). Diamond Jim Road & Craigtown Road	A / 1.3	A / 1.2	A / 2.7	A / 2.3
Southbound Left/Right	A / 8.9	A / 9.0		
Eastbound Left/Thru/Right			B / 10.4	B / 11.7
Westbound Left/Thru/Right			B / 12.5	B / 14.9
E). Craigtown Road & Manor Road	A / 4.1	A / 4.2	--	--
Northbound Left/Right	A / 9.0	A / 9.1		
F). Hendley Parkway (Powers Road) & Manor Road	A / 5.1	A / 5.1	A / 8.2	A / 8.9
Southbound Left/Right	A / 8.9	A / 8.9	A / 9.9	B / 10.5
9). MD 276 & Firetower Road/Camp Meeting Grd Road	A / 8.9	A / 9.1	A / 9.1	A / 9.8
10). Camp Meeting Ground Road & Theodore Road	A / 6.4	A / 6.4	A / 6.4	A / 6.4
Southbound Left	A / 8.7	A / 8.8	A / 8.8	A / 8.8
11). MD 276 & Craigtown Road/Doctor Jack Road	A / 2.3	A / 2.6	A / 2.6	A / 2.6
Eastbound Left/Thru/Right	C / 19.2	C / 22.6	C / 23.2	C / 23.8
Westbound Left/Thru/Right	A / 9.6	A / 9.8	A / 9.9	A / 9.9
12). MD 275 & Craigtown Road	A / 1.9	A / 5.7	A / 4.8	A / 7.6
Northbound Left/Thru/Right	C / 19.3	F / 37.2	D / 34.1	E / 42.7
Southbound Left/Thru/Right	D / 28.5	F / 143	F / 113	F / 204
13). MD 222 & Site Access	--	--	--	A / 0.6
Southbound Left/Right				A / 8.5
14). MD 222 & Craigtown Road	A / 1.7	A / 1.5	A / 2.7	A / 2.7
Eastbound Left/Right	A / 9.5	A / 9.9	B / 10.3	B / 10.3

Phase 2 HCM Level of Service Results: Evening Peak Hour

Evening Peak Hour	Existing HCM	Background HCM	Total Phase 1A HCM	Total Phase 2 HCM
1). MD 275 & MD 276	B / 15.4	B / 11.7	B / 11.8	B / 12.0
2). MD 275 & MD 222/MD 824	B / 12.4	B / 14.5	B / 18.2	C / 25.2
3). MD 222 & I-95 SB Ramps/Turnpike Drive	B / 15.5	C / 28.3	C / 31.9	D / 41.6
4). MD 222 & I-95 NB Off-Ramp	B / 15.0	A / 5.9	A / 6.3	A / 7.6
5). MD 222 & I-95 On-Ramp	A / 0.9	A / 2.8	A / 3.8	A / 5.6
Eastbound Left	A / 4.2	A / 9.5	B / 11.6	C / 15.6
6). MD 222 & I-95 On-Ramp	A / 0.0	A / 0.0	A / 0.0	A / 0.0
7). MD 276 & Waibel Road	A / 2.3	A / 2.4	A / 2.3	A / 2.6
Eastbound Left/Right	B / 10.5	C / 19.8	C / 17.8	C / 23.2
8). MD 276 & MD 222	A / 8.0	A / 8.5	A / 8.6	A / 8.6
Eastbound Left	A / 8.2	A / 8.7	A / 8.8	A / 8.9
Westbound Left	A / 8.2	A / 8.6	A / 8.7	A / 8.8
Northbound Left	A / 7.6	A / 7.9	A / 7.9	A / 7.9
Southbound Left	A / 7.6	A / 8.0	A / 8.0	A / 8.1
A). MD 276 & Site Access #1	A / 1.0	A / 7.6	A / 6.9	A / 8.5
Eastbound Left/Thru/Right	A / 9.2	C / 15.8	B / 14.3	C / 18.5
Westbound Left	--	B / 12.3	B / 11.7	B / 13.5
Westbound Right	--	A / 0.0	A / 0.0	A / 0.0
Northbound Right	--	A / 0.0	A / 0.0	A / 0.0
Southbound Left	--	A / 8.2	A / 8.2	A / 8.3
C). MD 275 & Diamond Jim Road	A / 0.2	A / 0.3	C / 20.4	C / 25.4
Northbound Left/Thru/Right	B / 14.9	D / 26.6		
Southbound Left/Thru/Right	A / 0.0	A / 0.0		
D). Diamond Jim Road & Craigtown Road	A / 1.6	A / 1.6	A / 2.8	A / 2.4
Southbound Left/Right	A / 8.6	A / 8.6		
Eastbound Left/Thru/Right			B / 10.8	B / 12.0
Westbound Left/Thru/Right			B / 12.1	B / 14.5
E). Craigtown Road & Manor Road	A / 3.1	A / 3.1	--	--
Northbound Left/Right	A / 8.7	A / 8.7		
F). Hendley Parkway (Powers Road) & Manor Road	A / 1.1	A / 1.2	A / 7.9	A / 8.3
Southbound Left/Right	A / 8.6	A / 8.6	A / 9.5	A / 9.8
9). MD 276 & Firetower Road/Camp Meeting Grd Road	B / 11.9	B / 14.4	B / 14.5	B / 14.6
10). Camp Meeting Ground Road & Theodore Road	A / 5.8	A / 5.9	A / 5.9	A / 5.9
Southbound Left	A / 9.0	A / 9.2	A / 9.2	A / 9.2
11). MD 276 & Craigtown Road/Doctor Jack Road	A / 3.9	A / 5.7	A / 5.8	A / 6.0
Eastbound Left/Thru/Right	E / 41.8	F / 70.1	F / 74.4	F / 78.7
Westbound Left/Thru/Right	C / 15.3	C / 17.4	C / 17.7	C / 18.0
12). MD 275 & Craigtown Road	A / 1.6	A / 4.1	A / 3.5	A / 5.3
Northbound Left/Thru/Right	C / 23.3	F / 53.9	E / 48.2	F / 64.8
Southbound Left/Thru/Right	D / 26.4	F / 99.2	F / 81.5	F / 138
13). MD 222 & Site Access	--	--	--	A / 0.3
Southbound Left/Right				A / 9.2
14). MD 222 & Craigtown Road	A / 1.0	A / 1.0	A / 1.5	A / 1.5
Eastbound Left/Right	B / 10.0	B / 10.5	B / 10.9	B / 10.9

Phase 2 SimTraffic Queuing Analysis Results: Morning Peak Hour

Morning Peak Hour	Available Storage (feet)	Existing Queue (feet)	Background Queue (feet)	Phase 1A Queue (feet)	Phase 2 Queue (feet)
1). MD 275 & MD 276					
Westbound Left		110	361	282	459
Westbound Right	>275	59	216	150	276
Northbound Through		78	63	56	61
Southbound Left/Through		295	340	312	336
1). MD 275 & MD 276 with Recommended Signal Timing					
Westbound Left					366
Westbound Right	>275				242
Northbound Through					63
Southbound Left/Through					353
2). MD 275 & MD 222/MD 824					
Eastbound Left	250	32	38	58	95
Eastbound Through		166	163	235	314
Eastbound Right	210	0	0	0	0
Westbound Left	>250	38	56	71	66
Westbound Through/Right		84	82	103	173
Northbound Left/Through		53	66	67	63
Southbound Left	>60	66	67	71	65
Southbound Through/Right		40	52	47	49
3). MD 222 & I-95 SB Ramps/Turnpike Drive					
Eastbound Left	>550	164	234	278	361
Eastbound Through		125	246	289	322
Eastbound Right	>550	0	0	0	0
Westbound Left	530	38	168	169	199
Westbound Through		79	146	166	200
Westbound Through		68	124	158	189
Westbound Right	550	0	0	0	0
Northbound Left	220	37	121	113	114
Northbound Through	230	38	236	193	178
Northbound Right	200	0	118	65	73
Southbound Left	>400	207	175	177	163
Southbound Through		48	120	111	114
Southbound Right	500	0	0	0	77
4). MD 222 & I-95 NB Off-Ramp					
Eastbound Through		107	105	147	177
Westbound Through		97	84	94	103
Southbound Left	300	109	115	114	112
Southbound Right		77	0	0	0
5). MD 222 & I-95 On-Ramp					
Eastbound Left/Through	500	60	80	100	107
Eastbound Through	500	0	0	0	17
Westbound Through		0	3	3	3
6). MD 222 & I-95 On-Ramp	No Controlled Movements				
7). MD 276 & Waibel Road					
Eastbound Left/Right		68	138	150	194
8). MD 276 & MD 222					
Eastbound Left/Thru/Right		57	61	64	69
Westbound Left/Thru/Right		39	45	45	47
Northbound Left/Thru/Right		31	32	32	31
Southbound Left/Thru/Right		33	37	38	40
A). MD 276 & Site Access #1					
Eastbound Left/Thru/Right		41	40	43	46
Westbound Left		--	19	35	30
Westbound Right		--	0	0	0
Northbound Left/Through		6	6	7	5
Northbound Right		--	0	8	5
Southbound Left	350	--	73	82	102

Phase 2 SimTraffic Queuing Analysis Results: Morning Peak Hour

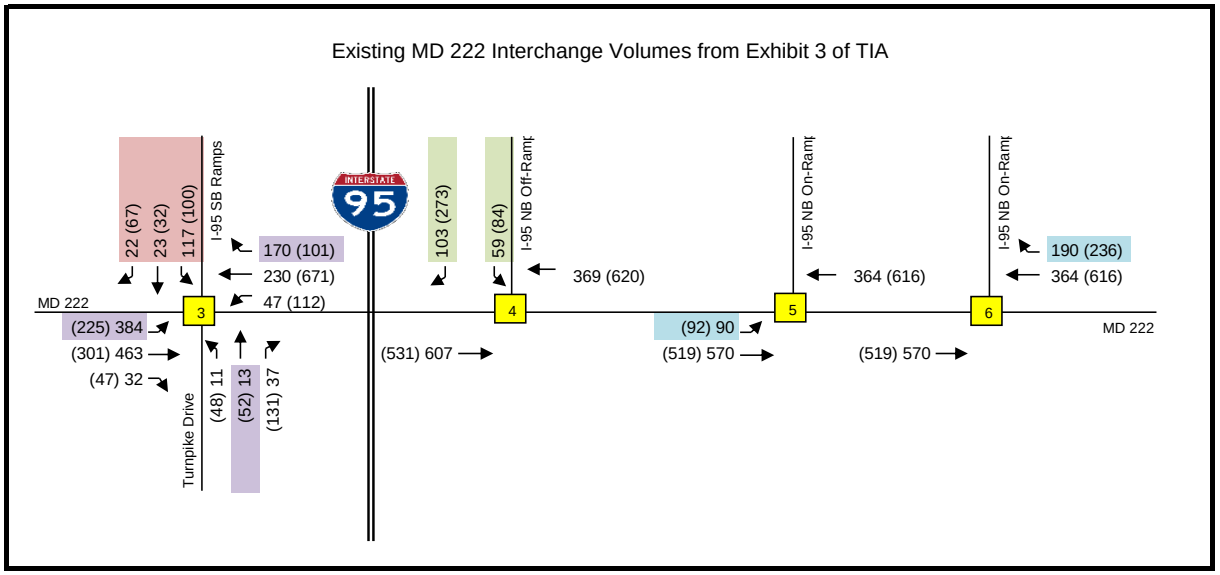
Morning Peak Hour	Available Storage (feet)	Existing Queue (feet)	Background Queue (feet)	Phase 1A Queue (feet)	Phase 2 Queue (feet)
C). MD 275 & Diamond Jim Road					
Eastbound Left		--	--	40	11
Eastbound Through		--	--	479	719
Eastbound Right	Improvements to	--	--	9	95
Westbound Left	this intersection	--	--	190	384
Westbound Through	are being	--	--	161	523
Westbound Right	coordinated with	--	--	14	17
Northbound Left/Thru	MDOT SHA.	--	--	33	34
Northbound Right		--	--	124	198
Southbound Left/Through/Right		--	--	36	37
D). Diamond Jim Road & Craigtown Road					
Eastbound Left/Through/Right		4	4	51	55
Westbound Left/Through/Right		0	0	52	57
Northbound Left/Through/Right		0	0	19	33
Southbound Left/Through/Right		34	32	4	10
E). Craigtown Road & Manor Road					
Northbound Left/Right		49	45	--	
F). Hendley Parkway (Powers Road) & Manor Road					
Eastbound Left/Through		0	0	33	49
Southbound Left		47	48	52	55
Southbound Right		--	0	84	112
9). MD 276 & Firetower Road/Camp Meeting Grd Road					
Eastbound Left/Through/Right		67	66	77	72
Westbound Left/Through/Right		66	79	75	88
Northbound Left	300	21	16	23	21
Northbound Through/Right		76	76	86	83
Southbound Left	325	41	49	47	49
Southbound Through/Right		119	130	147	145
10). Camp Meeting Ground Road & Theodore Road					
Eastbound Left/Through	300	16	25	19	24
Southbound Left/Right		29	30	34	29
11). MD 276 & Craigtown Road/Doctor Jack Road					
Eastbound Left/Through/Right		55	63	59	61
Westbound Left/Through/Right		46	47	47	45
Northbound Left/Through/Right		0	0	0	0
Southbound Left/Through/Right		28	29	23	34
12). MD 275 & Craigtown Road					
Eastbound Left	>260	13	19	28	21
Eastbound Through/Right		0	0	2	0
Westbound Left/Through	>275	7	6	10	0
Westbound Left		0	0	4	2
Northbound Left/Through/Right		44	46	56	56
Southbound Left/Through/Right		65	157	100	114
13). MD 222 & Site Access					
Eastbound Left/Through		--	--	--	5
Southbound Left/Right		--	--	--	21
14). MD 222 & Craigtown Road					
Eastbound Left/Right		37	37	43	46

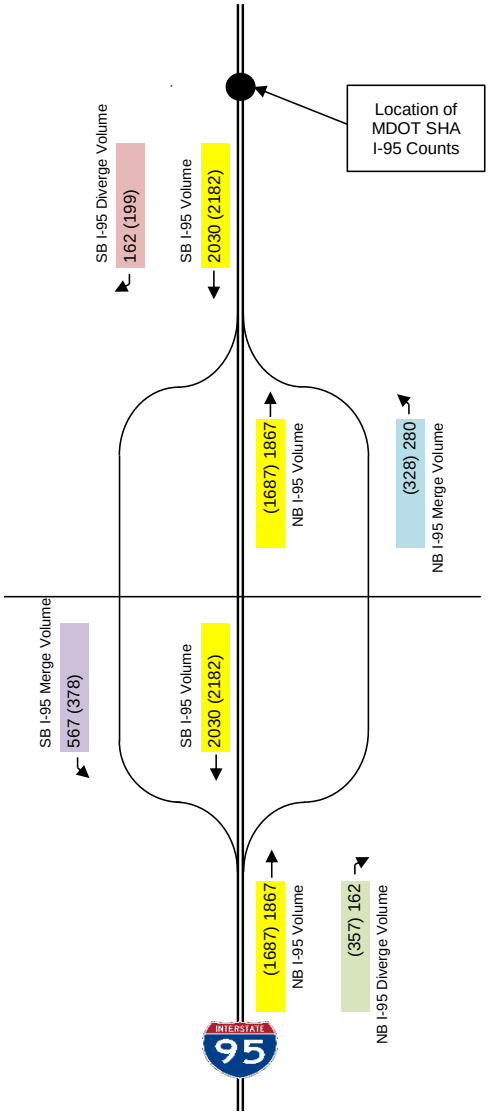
Phase 2 SimTraffic Queuing Analysis Results: Evening Peak Hour

Evening Peak Hour	Available Storage (feet)	Existing Queue (feet)	Background Queue (feet)	Phase 1A Queue (feet)	Phase 2 Queue (feet)
1). MD 275 & MD 276					
Westbound Left		140	215	201	219
Westbound Right	>275	116	128	143	156
Northbound Through		111	89	84	80
Southbound Left/Through		171	170	180	192
2). MD 275 & MD 222/MD 824					
Eastbound Left	250	44	60	90	117
Eastbound Through		135	199	284	635
Eastbound Right	210	0	31	31	56
Westbound Left	>250	90	96	152	185
Westbound Through/Right		249	185	265	394
Northbound Left/Through		72	80	86	84
Southbound Left	>60	55	53	60	61
Southbound Through/Right		102	124	126	112
3). MD 222 & I-95 SB Ramps/Turnpike Drive					
Eastbound Left	>550	160	304	356	490
Eastbound Through		142	367	447	865
Eastbound Right	>550	0	0	127	579
Westbound Left	530	62	248	260	445
Westbound Through		170	248	348	539
Westbound Through		162	248	361	551
Westbound Right	550	0	0	0	178
Northbound Left	220	83	174	191	172
Northbound Through	230	89	196	216	230
Northbound Right	200	0	65	87	101
Southbound Left	>400	143	154	138	136
Southbound Through		64	112	120	120
Southbound Right	500	0	24	20	33
4). MD 222 & I-95 NB Off-Ramp					
Eastbound Through		128	232	270	378
Westbound Through		175	178	185	226
Southbound Left	300	172	134	135	150
Southbound Right		197	0	0	0
5). MD 222 & I-95 On-Ramp					
Eastbound Left/Through	500	67	124	181	280
Eastbound Through	500	8	11	23	120
Westbound Through		0	5	14	3
6). MD 222 & I-95 On-Ramp	No Controlled Movements				
7). MD 276 & Waibel Road					
Eastbound Left/Right		48	71	67	68
8). MD 276 & MD 222					
Eastbound Left/Thru/Right		64	61	65	60
Westbound Left/Thru/Right		55	61	63	62
Northbound Left/Thru/Right		35	35	35	38
Southbound Left/Thru/Right		44	45	50	49
A). MD 276 & Site Access #1					
Eastbound Left/Thru/Right		38	36	38	38
Westbound Left		--	31	38	35
Westbound Right		--	0	0	0
Northbound Left/Through		7	10	9	9
Northbound Right		--	0	0	0
Southbound Left	350	--	69	56	81

Phase 2 SimTraffic Queuing Analysis Results: Evening Peak Hour

Evening Peak Hour	Available Storage (feet)	Existing Queue (feet)	Background Queue (feet)	Phase 1A Queue (feet)	Phase 2 Queue (feet)
C). MD 275 & Diamond Jim Road					
Eastbound Left		--	--	0	0
Eastbound Through		--	--	300	415
Eastbound Right	Improvements to	--	--	3	12
Westbound Left	this intersection	--	--	144	197
Westbound Through	are being	--	--	224	250
Westbound Right	coordinated with	--	--	0	0
Northbound Left/Thru	MDOT SHA.	--	--	33	116
Northbound Right		--	--	158	257
Southbound Left/Through/Right		--	--	0	0
D). Diamond Jim Road & Craigtown Road					
Eastbound Left/Through/Right		0	8	43	45
Westbound Left/Through/Right		0	0	55	58
Northbound Left/Through/Right		0	0	14	18
Southbound Left/Through/Right		29	30	15	4
E). Craigtown Road & Manor Road					
Northbound Left/Right		40	42	--	--
F). Hendley Parkway (Powers Road) & Manor Road					
Eastbound Left/Through		0	0	39	54
Southbound Left		18	42	19	17
Southbound Right		0	0	94	112
9). MD 276 & Firetower Road/Camp Meeting Grd Road					
Eastbound Left/Through/Right		75	76	69	81
Westbound Left/Through/Right		114	127	128	119
Northbound Left	300	55	52	53	75
Northbound Through/Right		205	208	230	261
Southbound Left	325	57	63	60	68
Southbound Through/Right		110	115	119	119
10). Camp Meeting Ground Road & Theodore Road					
Eastbound Left/Through	300	22	30	30	38
Southbound Left/Right		41	39	36	33
11). MD 276 & Craigtown Road/Doctor Jack Road					
Eastbound Left/Through/Right		64	64	60	62
Westbound Left/Through/Right		75	84	88	89
Northbound Left/Through/Right		20	30	25	22
Southbound Left/Through/Right		52	58	74	90
12). MD 275 & Craigtown Road					
Eastbound Left/Through	>260	14	20	46	17
Eastbound Through/Right		0	22	0	2
Westbound Left/Through	>275	13	5	58	24
Westbound Through/Right		3	0	0	7
Northbound Left/Through/Right		36	50	39	49
Southbound Left/Through/Right		57	84	71	136
13). MD 222 & Site Access					
Eastbound Left/Through		--	--	--	11
Southbound Left/Right		--	--	--	30
14). MD 222 & Craigtown Road					
Eastbound Left/Right		40	34	44	38



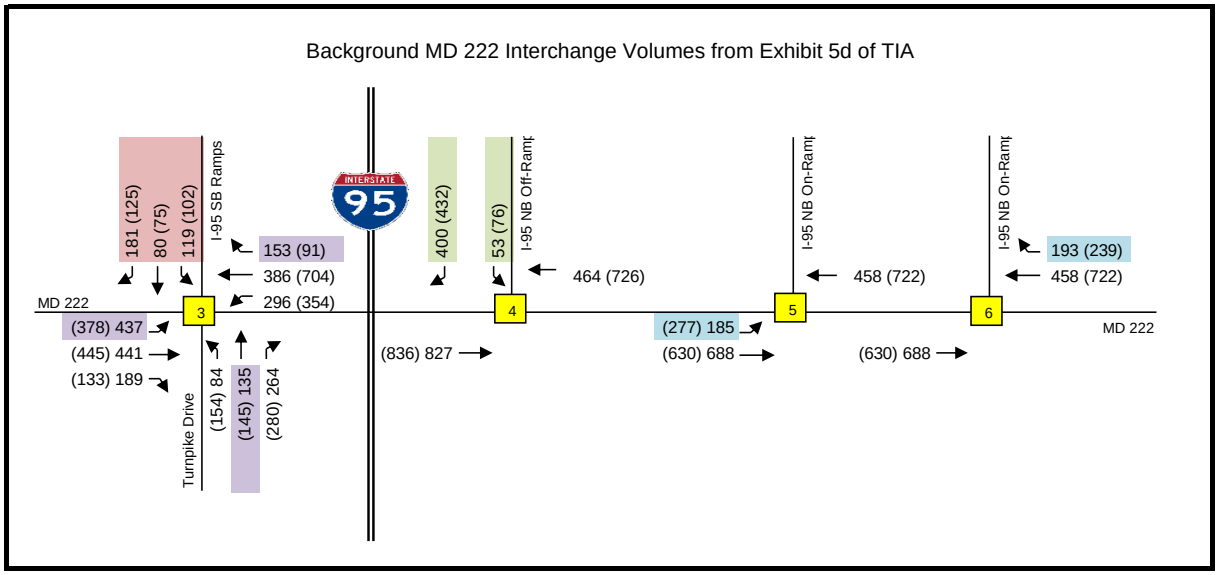


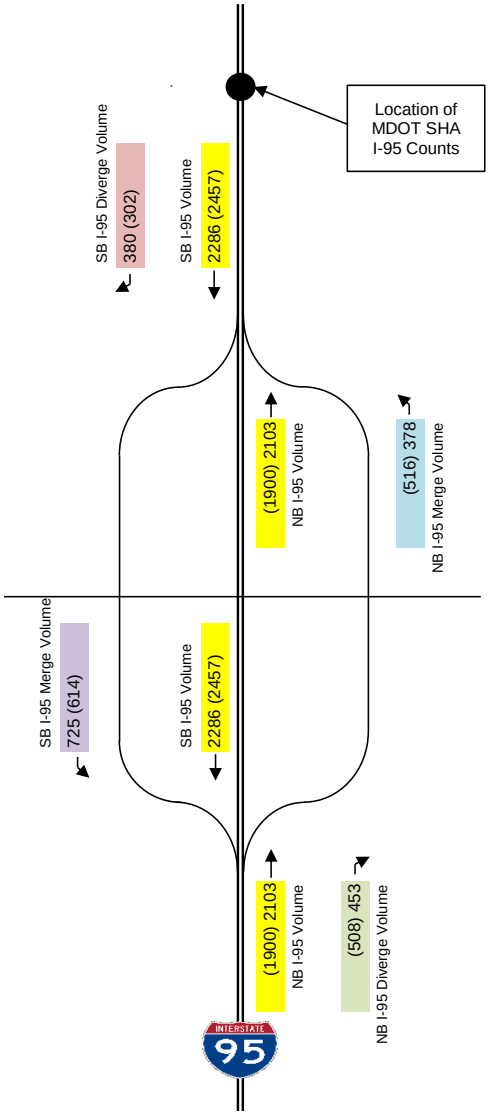
Notes:

1. The through, merge, and diverge volumes used to calculate the merge and diverge level of service along I-95 are shown on the right. The MD 222 interchange intersections from the Bainbridge Phase 1A and 2 TIA have been included in the box above for reference.
2. The red, purple, blue, and green highlighted merge and diverge volumes were caluculated from the associated movements at the MD 222 interchange.
3. The through volumes along I-95, highlighted yellow, were calculated based on a traffic count conducted by MDOT SHA 0.5 miles north of MD 222 in September 2023 and the merge/diverge volumes. The data collected by MDOT SHA is detailed below.

	AM Peak	PM Peak
Northbound I-95:	2147	2015
Southbound I-95:	2192	2381

Traffic Impact Analysis	Existing I-95 Merge and Diverge Peak Hour Volumes	**Exhibit 15**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

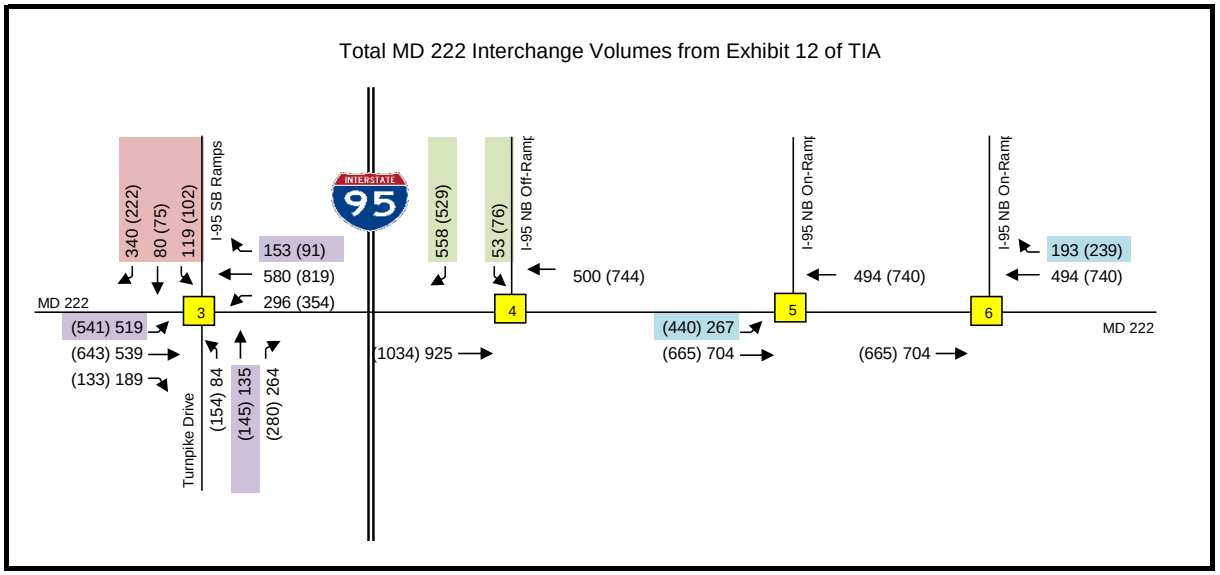


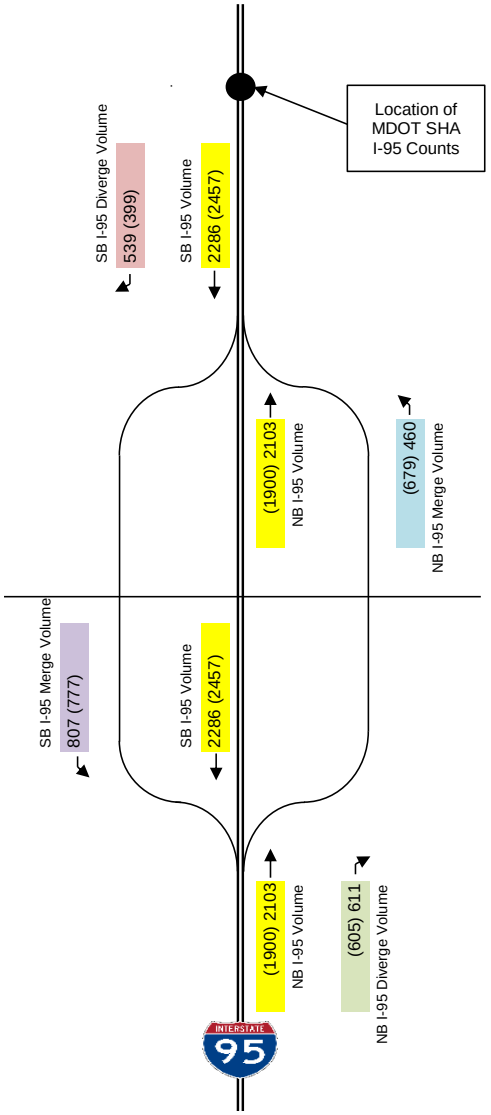


2%	Growth Rate
6	Years of Growth
1.126	Total Growth

Note: The growth rate was applied to the I-95 through volumes from Exhibit J1, highlighted yellow. The merge and diverge volumes were obtained from the background peak hour volumes from the Bainbridge Phase 1A and 2 TIA.

Traffic Impact Analysis	Background I-95 Merge and Diverge Peak Hour Volumes	**Exhibit 16**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	





Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Phase 2 Total I-95 Merge and Diverge Peak Hour Volumes Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit 17**

Phase 2 I-95 Ramp Merge/Diverge Level of Service Results

Morning Peak Hour	Phase 2 (LOS/Density)
1). Northbound I-95 Diverge	B / 10.5
2). Northbound I-95 Merge	C / 21.1
3). Southbound I-95 Diverge	C / 20.4
4). Southbound I-95 Merge	C / 21.2
Evening Peak Hour	**Phase 2 (LOS/Density)**
1). Northbound I-95 Diverge	A / 8.9
2). Northbound I-95 Merge	C / 21.5
3). Southbound I-95 Diverge	C / 21.1
4). Southbound I-95 Merge	C / 22.1

Notes:

1. With the proposed improvements at Intersection 1 and C, all intersections satisfy MD SHA Guidelines of LOS "D" or better.

Section 5 Conclusions / Recommendations

5.1 Results of Analysis

This Traffic Impact Analysis was prepared for Phases 1A and 2 of the Bainbridge development, located east of MD 276 in Port Deposit, Maryland.

The previously approved Phase 1 of development included up to 3,900,000 square feet of warehousing. Phase 1A is proposed to include an additional 1,000,000 square feet of warehousing and 306 multifamily low-rise units. Phase 2 is proposed to consist of a further 2,500,000 square feet of warehousing space. The Bainbridge property will ultimately include a total of 7,400,000 square feet of warehousing space and 306 multifamily low-rise units.

Based on the analyses contained in this report for Phase 1A of development:

- All intersections will operate with a LOS "D" or better using the CLV methodology.
- Each signalized intersection will operate with LOS "D" or better using the HCM methodology.
- Each controlled approach at unsignalized intersections will operate with LOS "D" or better with the exception of the minor street approaches of MD 275 & Doctor Jack Road and MD 275 & Craigtown Road.
    - The delay and queues for these approaches do not significantly increase with the development of the site.
    - CLV analyses indicate that the intersections operate with LOS "A".
    - Physical improvements are not recommended.
    - The results of the traffic signal warrant analyses indicate that traffic signals are not warranted at these intersections.
- SimTraffic simulation analyses indicate that 95th percentile queuing is generally contained within provided storage space and that mainline queues do not impact neighboring intersections.

Based on the analyses contained in this report for Phase 2 of development:

- All intersections will operate with a LOS "D" or better using the CLV methodology.
- Each signalized intersection will operate with LOS "D" or better using the HCM methodology.
- Each controlled approach at unsignalized intersections will operate with LOS "D" or better with the exception of the minor street approaches of MD 275 & Waibel Road, MD 275 & Doctor Jack Road and MD 275 & Craigtown Road.
    - These intersections continue to operate with LOS "B" or better using

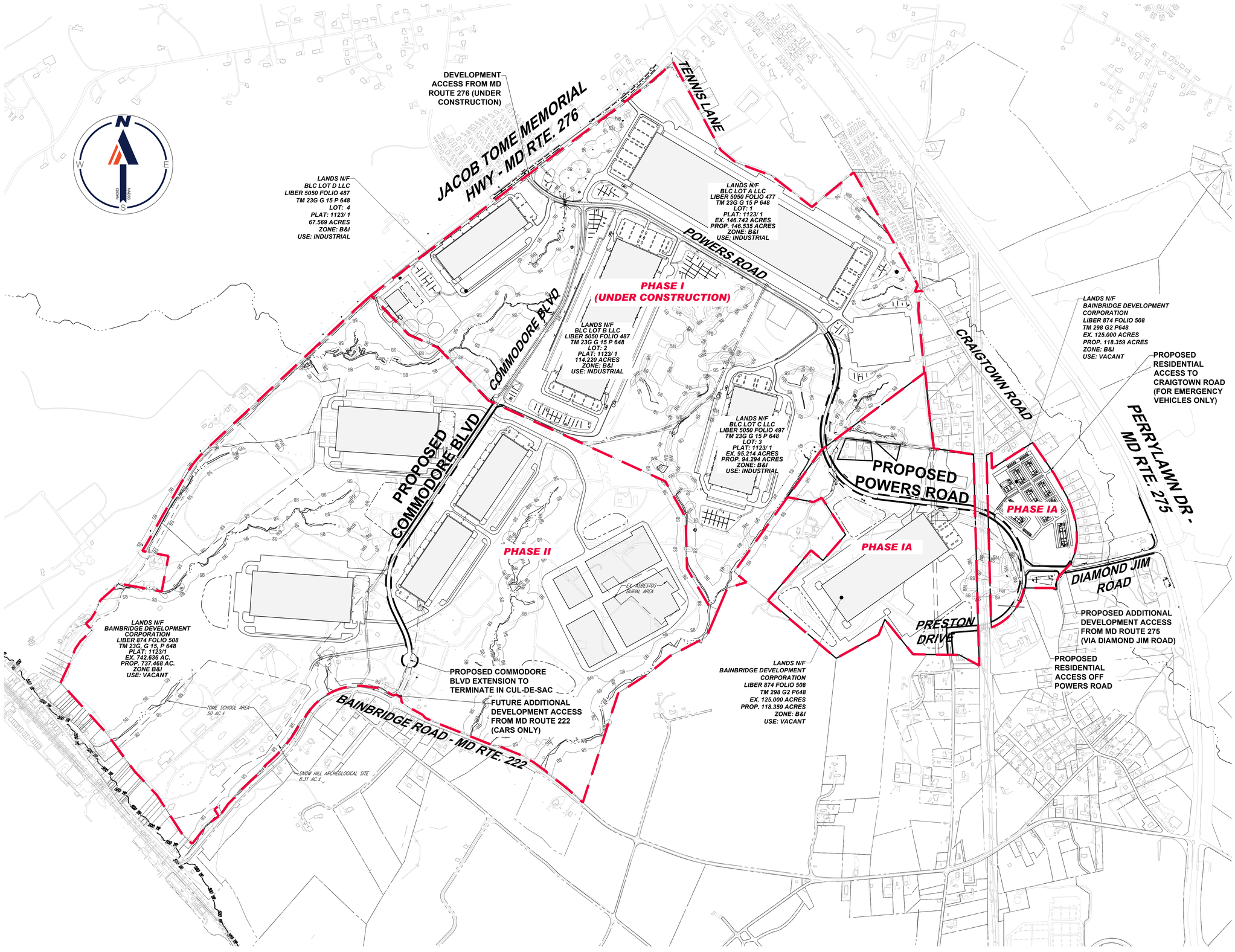
the CLV methodology.
    - Traffic signals are not warranted at the intersections of MD 276 & Craigtown Road/Doctor Jack Road and MD 275 & Craigtown Road.
    - Based on the projected traffic volumes, a traffic signal is warranted at the intersection of MD 276 & Waibel Road. It is recommended that MDOT SHA requires an updated TSWA with the completion of Phase 1A and Phase 2.
- SimTraffic simulation analyses indicate that 95th percentile queuing is generally contained within provided storage space and that mainline queues do not impact neighboring intersections.
    - A signal timing modification has been recommended for the intersection of MD 275 & MD 276 to address Cecil County concerns for the queuing at this intersection.
- Merge/Diverge analyses indicate that the existing on/off ramps at the MD 222 & I-95 interchange will continue to operate at acceptable levels of service with the full build out of the Bainbridge development.

MDOT SHA has indicated that a traffic signal should be constructed at MD 275 & Diamond Jim Road with the development of Phase 1A. A concept plan and Design Request has been submitted to MDOT SHA. The specific design of the improvements will continue to be coordinated with MDOT SHA Staff.

In light of the findings contained in this report, the development of Phases 1A and 2 of the Bainbridge property should be approved with the recommendations in this report.

Appendix A

Supplemental Information
Condition Diagrams
Turning Movement Counts



BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
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REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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ALWAYS CALL 811
It's fast. It's free. It's the law.

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PROJECT:

OVERALL BAINBRIDGE DEVELOPMENT PLAN

FOR
MRP INDUSTRIAL NE LLC
LOCATION OF SITE
BAINBRIDGE NAVAL BASE
PORT DEPOSIT, MD 21904
TAX MAP 29B, GRID 2, PARCEL 648
TOWN OF PORT DEPOSIT

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
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ANDREW G. STINE
PROFESSIONAL ENGINEER
MARYLAND LICENSE No. 37687
PROFESSIONAL CERTIFICATION
I, ANDREW G. STINE, 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. 37687, EXPIRATION DATE: 7/12/23

SHEET TITLE:

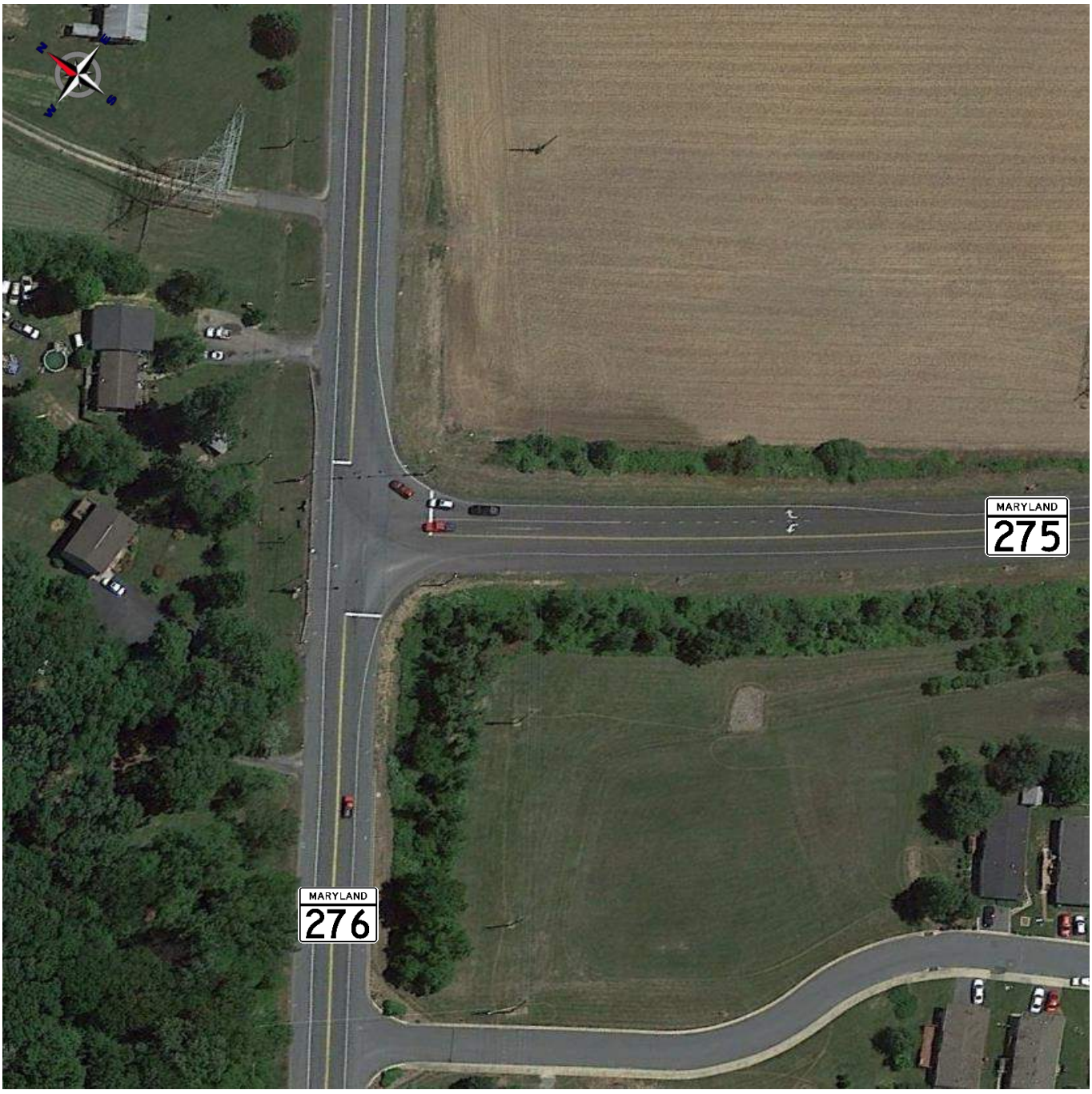
OVERALL BAINBRIDGE DEVELOPMENT PLAN

SHEET NUMBER:

1

ORG. DATE - 05/18/23

May 18, 2023
H:\2022\MDA220144.00\CAD\DRAWINGS\CONCEPTS\OVERALL CONCEPTS\MDA220144.00 - CPTD - 0----LAYOUT 01 - OVERALL BAINBRIDGE DEVELOPMENT PLAN # 1
MCO



Aerial

Diagram

Intersection: MD 275 & MD 276

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

County: Cecil

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

	MD 276 Northbound					MD 276 Southbound					N/A Eastbound					MD 275 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	0	15	79	0	0	110	9	0	0	0	0	0	0	0	0	22	0	16	0	251
6:45-7:00	0	0	9	57	0	0	128	13	0	0	0	0	0	0	0	0	20	0	25	0	252
7:00-7:15	0	0	14	73	0	0	102	6	0	0	0	0	0	0	0	0	20	0	27	0	242
7:15-7:30	0	0	9	75	0	0	157	8	0	0	0	0	0	0	0	0	17	0	23	0	289
7:30-7:45	0	0	12	65	0	0	108	9	0	0	0	0	0	0	0	0	27	0	47	0	268
7:45-8:00	0	0	13	31	0	0	85	11	0	0	0	0	0	0	0	0	28	0	32	0	200
8:00-8:15	0	0	10	40	0	0	63	17	0	0	0	0	0	0	0	0	12	0	31	0	173
8:15-8:30	0	0	10	58	0	0	94	15	0	0	0	0	0	0	0	0	14	0	32	0	223
8:30-8:45	0	0	12	47	0	0	86	9	0	0	0	0	0	0	0	0	15	0	33	0	202
8:45-9:00	0	0	9	26	0	0	89	10	0	0	0	0	0	0	0	0	10	0	46	0	190
9:00-9:15	0	0	12	31	0	0	67	8	0	0	0	0	0	0	0	0	26	0	28	0	172
9:15-9:30	0	0	11	31	0	0	72	12	0	0	0	0	0	0	0	0	17	0	36	0	179

Hourly Totals																					
6:30-7:30	0	0	47	284	0	0	497	36	0	0	0	0	0	0	0	0	79	0	91	0	1034
6:45-7:45	0	0	44	270	0	0	495	36	0	0	0	0	0	0	0	0	84	0	122	0	1051
7:00-8:00	0	0	48	244	0	0	452	34	0	0	0	0	0	0	0	0	92	0	129	0	999
7:15-8:15	0	0	44	211	0	0	413	45	0	0	0	0	0	0	0	0	84	0	133	0	930
7:30-8:30	0	0	45	194	0	0	350	52	0	0	0	0	0	0	0	0	81	0	142	0	864
7:45-8:45	0	0	45	176	0	0	328	52	0	0	0	0	0	0	0	0	69	0	128	0	798
8:00-9:00	0	0	41	171	0	0	332	51	0	0	0	0	0	0	0	0	51	0	142	0	788
8:15-9:15	0	0	43	162	0	0	336	42	0	0	0	0	0	0	0	0	65	0	139	0	787
8:30-9:30	0	0	44	135	0	0	314	39	0	0	0	0	0	0	0	0	68	0	143	0	743

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**
6:45-7:45	**0**	**0**	**44**	**270**	**0**	**0**	**495**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**84**	**0**	**122**	**0**	**1051**

Weekday Evening Peak Hour (4 pm - 7 pm)

	MD 276 Northbound					MD 276 Southbound					N/A Eastbound					MD 275 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15-4:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30-4:45	0	0	17	39	0	0	60	24	0	0	0	0	0	0	0	0	56	0	101	0	297
4:45-5:00	0	0	28	33	0	0	55	14	0	0	0	0	0	0	0	0	51	0	109	0	290
5:00-5:15	0	0	16	28	0	0	64	19	0	0	0	0	0	0	1	0	46	0	94	0	267
5:15-5:30	0	0	16	43	0	0	69	17	0	0	0	0	0	0	0	0	30	0	86	0	261
5:30-5:45	0	0	23	31	0	0	83	28	0	0	0	0	0	0	0	0	35	0	83	0	283
5:45-6:00	0	0	20	23	0	0	66	13	0	0	0	0	0	0	1	0	49	0	61	0	232
6:00-6:15	0	0	23	27	0	0	58	17	0	0	0	0	0	0	0	0	32	0	64	0	221
6:15-6:30	0	0	15	19	0	0	59	17	0	0	0	0	0	0	0	0	42	0	52	0	204
6:30-6:45	0	0	18	18	0	0	58	15	0	0	0	0	0	0	1	0	35	0	35	0	179
6:45-7:00	0	0	13	15	0	0	43	21	0	0	0	0	0	0	0	0	24	0	32	0	148

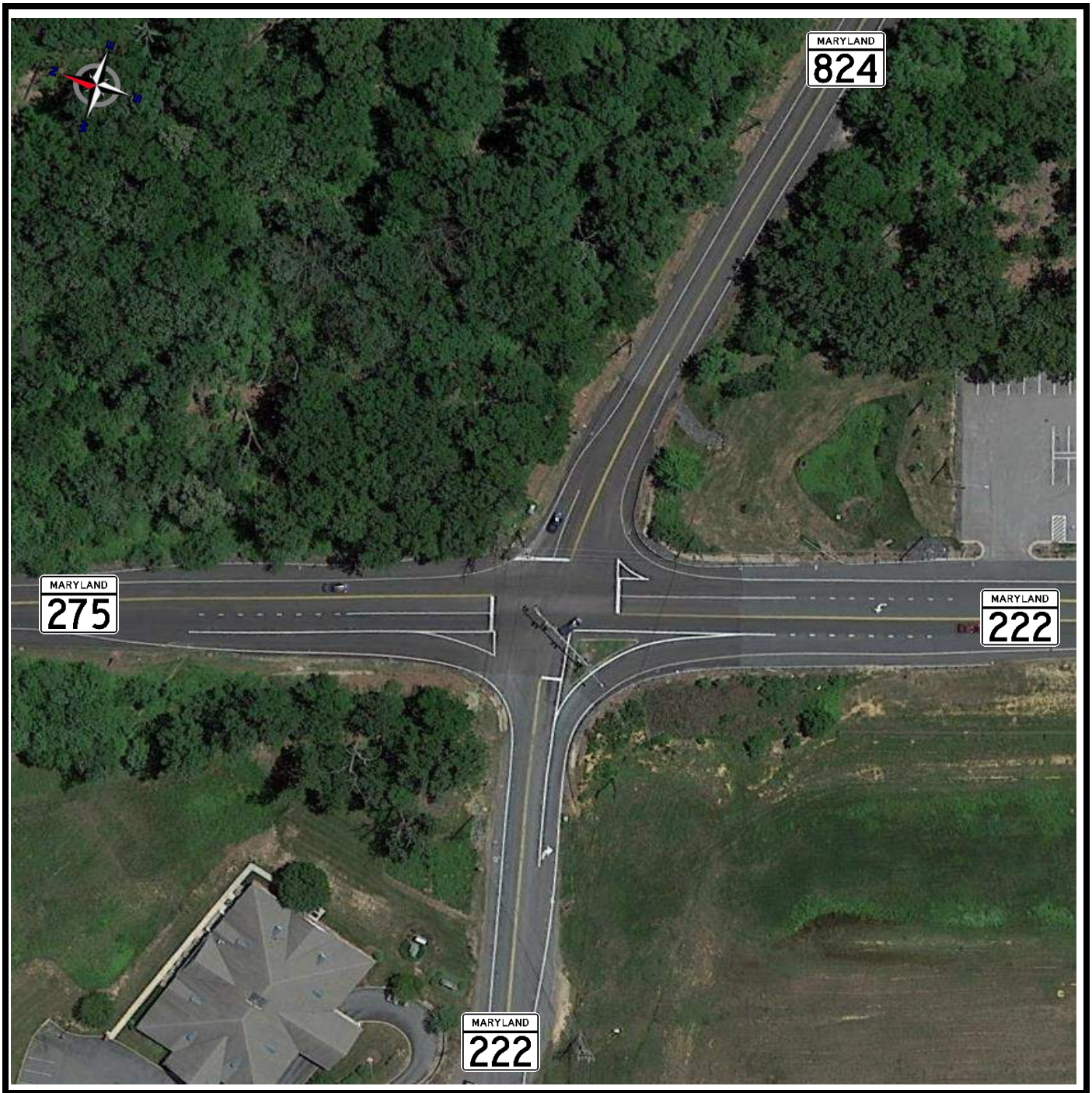
Hourly Totals																					
4:00-5:00	0	0	45	72	0	0	115	38	0	0	0	0	0	0	0	0	107	0	210	0	587
4:15-5:15	0	0	61	100	0	0	179	57	0	0	0	0	0	0	1	0	153	0	304	0	855
4:30-5:30	0	0	77	143	0	0	248	74	0	0	0	0	0	0	1	0	183	0	390	0	1116
4:45-5:45	0	0	83	135	0	0	271	78	0	0	0	0	0	0	1	0	162	0	372	0	1102
5:00-6:00	0	0	75	125	0	0	282	77	0	0	0	0	0	0	2	0	160	0	324	0	1045
5:15-6:15	0	0	82	124	0	0	276	75	0	0	0	0	0	0	1	0	146	0	294	0	998
5:30-6:30	0	0	81	100	0	0	266	75	0	0	0	0	0	0	1	0	158	0	260	0	941
5:45-6:45	0	0	76	87	0	0	241	62	0	0	0	0	0	0	2	0	158	0	212	0	838
6:00-7:00	0	0	69	79	0	0	218	70	0	0	0	0	0	0	1	0	133	0	183	0	753

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**
4:30-5:30	**0**	**0**	**77**	**143**	**0**	**0**	**248**	**74**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**183**	**0**	**390**	**0**	**1116**

Peak Hour
Turning Movement Count

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

Intersection: MD 275 & MD 276
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Tuesday, September 27, 2022
Jurisdiction: Cecil County



Aerial

Diagram

Intersection: MD 275 & MD 222/MD 824

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

County: Cecil

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

	MD 222 Northbound					MD 824 Southbound					MD 275 Eastbound					MD 222 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	1	5	11	0	0	8	1	2	0	0	8	204	1	0	0	4	38	1	0	284
6:45-7:00	0	1	9	18	0	0	9	2	7	0	0	8	185	0	0	0	3	51	1	0	294
7:00-7:15	0	1	4	24	0	0	8	0	4	0	0	5	187	0	0	0	6	48	0	0	287
7:15-7:30	0	4	3	28	0	0	10	1	2	0	0	8	225	1	0	0	9	46	1	0	338
7:30-7:45	0	6	6	20	0	0	7	3	4	0	0	11	177	0	0	0	8	93	3	0	338
7:45-8:00	0	1	8	23	0	0	5	4	5	0	0	7	135	1	0	1	11	63	1	0	265
8:00-8:15	0	3	7	17	0	0	6	2	0	0	0	11	105	1	0	0	11	39	6	0	208
8:15-8:30	0	5	2	16	0	0	6	2	5	0	0	6	131	2	0	0	14	53	1	0	243
8:30-8:45	0	2	2	18	0	0	2	4	4	0	0	11	130	4	0	0	17	44	1	0	239
8:45-9:00	0	7	9	23	0	0	5	4	4	0	0	7	123	0	0	0	9	50	3	0	244
9:00-9:15	0	5	3	25	0	0	3	6	9	0	0	4	93	1	0	0	7	57	0	0	213
9:15-9:30	0	1	2	19	0	0	6	4	2	0	0	6	108	2	0	0	9	55	1	0	215
Hourly Totals																					
6:30-7:30	0	7	21	81	0	0	35	4	15	0	0	29	801	2	0	0	22	183	3	0	1203
6:45-7:45	0	12	22	90	0	0	34	6	17	0	0	32	774	1	0	0	26	238	5	0	1257
7:00-8:00	0	12	21	95	0	0	30	8	15	0	0	31	724	2	0	1	34	250	5	0	1228
7:15-8:15	0	14	24	88	0	0	28	10	11	0	0	37	642	3	0	1	39	241	11	0	1149
7:30-8:30	0	15	23	76	0	0	24	11	14	0	0	35	548	4	0	1	44	248	11	0	1054
7:45-8:45	0	11	19	74	0	0	19	12	14	0	0	35	501	8	0	1	53	199	9	0	955
8:00-9:00	0	17	20	74	0	0	19	12	13	0	0	35	489	7	0	0	51	186	11	0	934
8:15-9:15	0	19	16	82	0	0	16	16	22	0	0	28	477	7	0	0	47	204	5	0	939
8:30-9:30	0	15	16	85	0	0	16	18	19	0	0	28	454	7	0	0	42	206	5	0	911
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**
6:45-7:45	**0**	**12**	**22**	**90**	**0**	**0**	**34**	**6**	**17**	**0**	**0**	**32**	**774**	**1**	**0**	**0**	**26**	**238**	**5**	**0**	**1257**

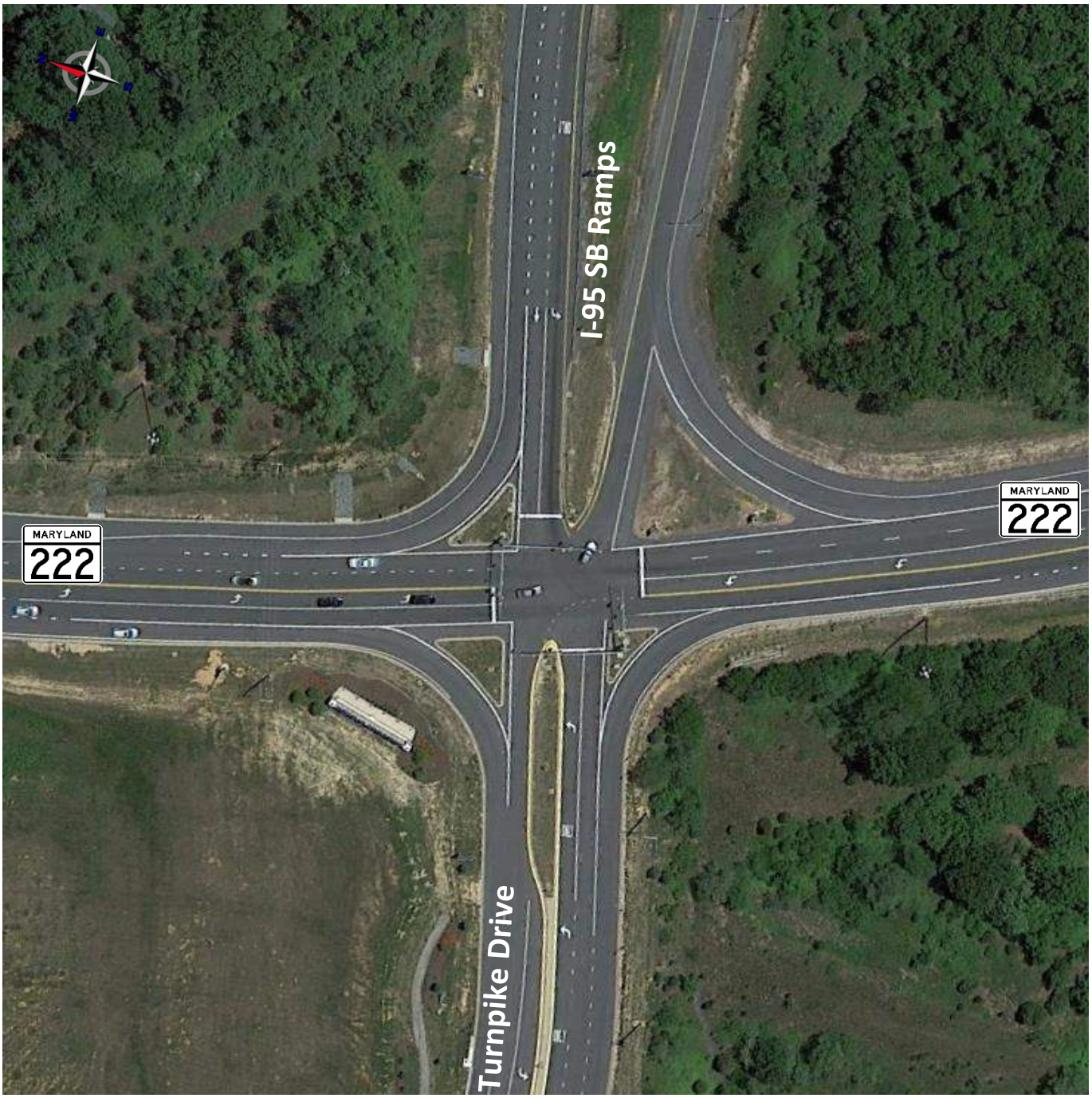
Weekday Evening Peak Hour (4 pm - 7 pm)

	MD 222 Northbound					MD 824 Southbound					MD 275 Eastbound					MD 222 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	4	4	23	0	0	5	7	14	0	0	8	84	1	0	0	41	155	3	0	349
4:15-4:30	0	4	8	20	0	0	2	8	11	0	0	5	67	1	0	0	27	170	5	0	328
4:30-4:45	0	6	9	22	0	0	2	15	10	0	0	13	101	0	0	0	22	186	3	0	389
4:45-5:00	0	5	8	24	0	0	1	10	15	0	0	8	98	6	0	1	24	169	6	0	375
5:00-5:15	0	1	11	15	0	0	9	9	14	0	0	14	99	1	0	0	25	140	3	0	341
5:15-5:30	0	0	3	24	0	0	2	4	4	0	0	9	100	3	0	0	23	158	10	0	340
5:30-5:45	0	3	4	27	0	0	3	6	7	0	0	7	104	1	0	0	15	136	7	0	320
5:45-6:00	0	2	4	12	0	0	3	4	14	0	0	8	107	0	0	0	20	132	2	0	308
6:00-6:15	0	1	4	14	0	0	1	7	6	0	0	7	95	5	0	0	19	86	3	0	248
6:15-6:30	0	3	4	12	0	0	4	5	6	0	0	2	92	5	0	0	12	95	3	0	243
6:30-6:45	0	6	6	16	0	0	3	3	5	0	0	5	80	2	0	0	14	93	4	0	237
6:45-7:00	0	1	3	17	0	0	2	0	4	0	0	4	64	0	0	0	14	79	2	0	190
Hourly Totals																					
4:00-5:00	0	19	29	89	0	0	10	40	50	0	0	34	350	8	0	1	114	680	17	0	1441
4:15-5:15	0	16	36	81	0	0	14	42	50	0	0	40	365	8	0	1	98	665	17	0	1433
4:30-5:30	0	12	31	85	0	0	14	38	43	0	0	44	398	10	0	1	94	653	22	0	1445
4:45-5:45	0	9	26	90	0	0	15	29	40	0	0	38	401	11	0	1	87	603	26	0	1376
5:00-6:00	0	6	22	78	0	0	17	23	39	0	0	38	410	5	0	0	83	566	22	0	1309
5:15-6:15	0	6	15	77	0	0	9	21	31	0	0	31	406	9	0	0	77	512	22	0	1216
5:30-6:30	0	9	16	65	0	0	11	22	33	0	0	24	398	11	0	0	66	449	15	0	1119
5:45-6:45	0	12	18	54	0	0	11	19	31	0	0	22	374	12	0	0	65	406	12	0	1036
6:00-7:00	0	11	17	59	0	0	10	15	21	0	0	18	331	12	0	0	59	353	12	0	918
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**
4:30-5:30	**0**	**12**	**31**	**85**	**0**	**0**	**14**	**38**	**43**	**0**	**0**	**44**	**398**	**10**	**0**	**1**	**94**	**653**	**22**	**0**	**1445**

Peak Hour
Turning Movement Count

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

Intersection: MD 275 & MD 222
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Tuesday, September 27, 2022
Jurisdiction: Cecil County



Aerial

Diagram

Intersection: MD 222 & I-95 SB Ramps/Turnpike Drive

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

County: Cecil

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

	Turnpike Dr Northbound					I-95 SB Ramp Southbound					MD 222 Eastbound					MD 222 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	1	1	9	0	0	20	4	1	0	0	92	112	6	0	0	15	44	38	0	343
6:45-7:00	0	4	1	10	0	0	27	4	7	0	0	95	104	10	0	0	16	37	47	0	362
7:00-7:15	0	1	3	8	0	0	27	5	4	0	0	100	109	7	0	0	10	49	30	0	353
7:15-7:30	0	4	5	9	0	0	29	6	3	0	0	104	158	4	0	0	4	75	43	0	444
7:30-7:45	0	2	4	10	0	0	34	8	8	0	0	85	92	11	0	0	17	69	50	0	390
7:45-8:00	0	4	1	7	0	0	31	2	9	0	0	76	94	11	0	0	22	78	21	0	356
8:00-8:15	0	2	2	10	0	0	27	4	10	0	0	87	81	9	0	0	30	56	30	0	348
8:15-8:30	0	6	5	12	0	0	26	4	8	0	0	67	63	17	0	0	20	44	32	0	304
8:30-8:45	0	3	3	10	0	0	29	7	7	0	0	68	79	11	0	0	21	56	36	0	330
8:45-9:00	0	3	0	12	0	0	18	8	9	0	0	47	80	17	0	0	25	58	33	0	310
9:00-9:15	0	3	2	8	2	0	20	11	9	0	0	59	73	10	0	0	27	57	28	0	307
9:15-9:30	0	5	3	11	0	0	23	5	5	0	0	64	67	5	0	0	21	69	25	0	303
Hourly Totals																					
6:30-7:30	0	10	10	36	0	0	103	19	15	0	0	391	483	27	0	0	45	205	158	0	1502
6:45-7:45	0	11	13	37	0	0	117	23	22	0	0	384	463	32	0	0	47	230	170	0	1549
7:00-8:00	0	11	13	34	0	0	121	21	24	0	0	365	453	33	0	0	53	271	144	0	1543
7:15-8:15	0	12	12	36	0	0	121	20	30	0	0	352	425	35	0	0	73	278	144	0	1538
7:30-8:30	0	14	12	39	0	0	118	18	35	0	0	315	330	48	0	0	89	247	133	0	1398
7:45-8:45	0	15	11	39	0	0	113	17	34	0	0	298	317	48	0	0	93	234	119	0	1338
8:00-9:00	0	14	10	44	0	0	100	23	34	0	0	269	303	54	0	0	96	214	131	0	1292
8:15-9:15	0	15	10	42	2	0	93	30	33	0	0	241	295	55	0	0	93	215	129	0	1253
8:30-9:30	0	14	8	41	2	0	90	31	30	0	0	238	299	43	0	0	94	240	122	0	1252

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**
6:45-7:45	**0**	**11**	**13**	**37**	**0**	**0**	**117**	**23**	**22**	**0**	**0**	**384**	**463**	**32**	**0**	**0**	**47**	**230**	**170**	**0**	**1549**

Weekday Evening Peak Hour (4 pm - 7 pm)

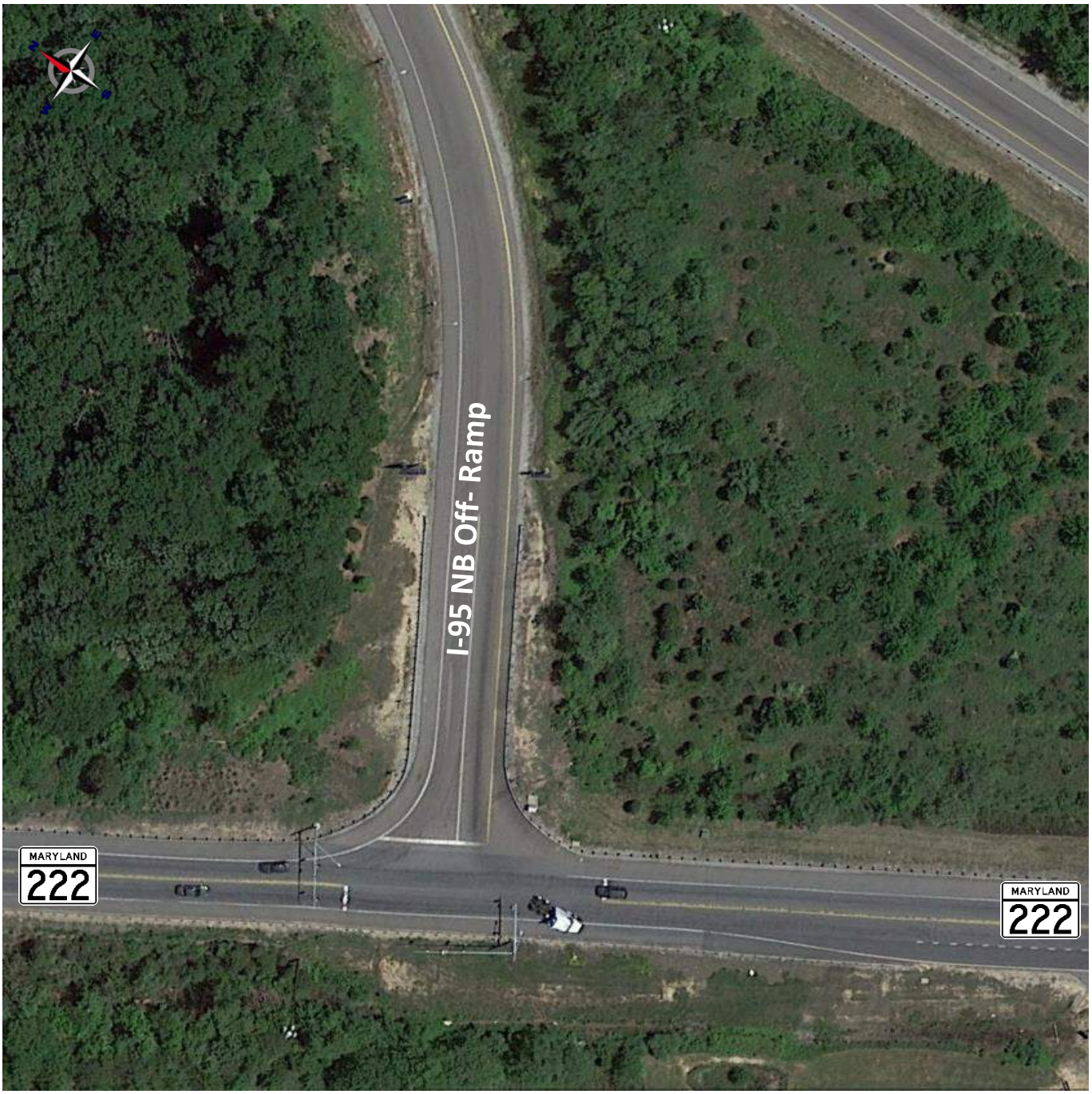
	Turnpike Dr Northbound					I-95 SB Ramp Southbound					MD 222 Eastbound					MD 222 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	19	16	39	0	0	26	7	20	0	0	32	62	14	0	0	32	160	28	0	455
4:15-4:30	0	6	9	28	0	0	34	11	17	0	0	60	90	9	0	0	26	176	33	0	499
4:30-4:45	0	9	10	33	0	0	23	6	21	0	0	62	73	11	0	0	22	143	21	0	434
4:45-5:00	0	14	17	31	0	0	17	8	9	0	0	71	76	13	0	0	32	192	19	0	499
5:00-5:15	0	6	9	18	0	0	30	9	20	0	0	64	73	10	0	0	32	150	30	0	451
5:15-5:30	0	6	8	16	0	0	19	8	15	0	0	67	55	12	0	0	17	152	26	0	401
5:30-5:45	0	10	12	24	0	0	24	4	13	0	0	51	73	13	0	0	22	131	28	0	405
5:45-6:00	0	7	8	22	0	0	20	8	10	0	0	65	83	10	0	0	27	120	20	0	400
6:00-6:15	0	9	16	17	0	0	24	3	12	0	0	62	61	11	0	0	26	131	15	0	387
6:15-6:30	0	8	13	19	0	0	24	5	13	0	0	41	47	10	0	0	30	101	24	0	335
6:30-6:45	0	3	11	14	0	0	17	6	7	0	0	46	62	7	0	0	29	95	17	0	314
6:45-7:00	0	6	12	17	0	0	22	2	11	0	0	38	66	9	0	0	26	80	15	0	304
Hourly Totals																					
4:00-5:00	0	48	52	131	0	0	100	32	67	0	0	225	301	47	0	0	112	671	101	0	1887
4:15-5:15	0	35	45	110	0	0	104	34	67	0	0	257	312	43	0	0	112	661	103	0	1883
4:30-5:30	0	35	44	98	0	0	89	31	65	0	0	264	277	46	0	0	103	637	96	0	1785
4:45-5:45	0	36	46	89	0	0	90	29	57	0	0	253	277	48	0	0	103	625	103	0	1756
5:00-6:00	0	29	37	80	0	0	93	29	58	0	0	247	284	45	0	0	98	553	104	0	1657
5:15-6:15	0	32	44	79	0	0	87	23	50	0	0	245	272	46	0	0	92	534	89	0	1593
5:30-6:30	0	34	49	82	0	0	92	20	48	0	0	219	264	44	0	0	105	483	87	0	1527
5:45-6:45	0	27	48	72	0	0	85	22	42	0	0	214	253	38	0	0	112	447	76	0	1436
6:00-7:00	0	26	52	67	0	0	87	16	43	0	0	187	236	37	0	0	111	407	71	0	1340

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**	**48**	**52**	**131**	**0**	**0**	**100**	**32**	**67**	**0**	**0**	**225**	**301**	**47**	**0**	**0**	**112**	**671**	**101**	**0**	**1887**

Peak Hour
Turning Movement Count

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

Intersection: Turnpike Dr & MD 222
Weather: Clear
Count by: CountCAM - DSS
Count Day/Date: Thursday, September 21, 2023
County: Cecil



Aerial

Diagram

Intersection: MD 222 & I-95 NB Off-Ramp

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

County: Cecil

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

	N/A Northbound					I-95 NB Off Ramp Southbound					MD 222 Eastbound					MD 222 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	0	11		24	0	0	0	144		0	0		82	0	0	261
6:45-7:00					0	0	11		25	0	0	0	138		0	0		82	0	0	256
7:00-7:15					2	0	11		17	0	0	0	140		0	0		73	0	0	241
7:15-7:30					0	0	10		25	0	0	0	196		0	0		105	0	0	336
7:30-7:45					0	0	12		29	0	0	0	145		0	0		102	0	0	288
7:45-8:00					0	0	26		32	0	0	0	126		0	0		89	0	0	273
8:00-8:15					0	0	13		34	0	0	0	115		0	0		78	0	0	240
8:15-8:30					0	0	6		27	0	0	0	111		0	0		86	0	0	230
8:30-8:45					0	0	15		24	0	0	0	113		0	0		79	0	0	231
8:45-9:00					0	0	4		32	0	0	0	108		0	0		82	0	0	226
9:00-9:15					1	0	17		38	0	0	0	103		0	0		72	0	0	230
9:15-9:30					1	0	15		33	0	0	0	103		0	0		83	0	0	234
Hourly Totals																					
6:30-7:30	0	0	0	0	2	0	43	0	91	0	0	0	618	0	0	0	0	342	0	0	1096
6:45-7:45	0	0	0	0	2	0	44	0	96	0	0	0	619	0	0	0	0	362	0	0	1123
7:00-8:00	0	0	0	0	2	0	59	0	103	0	0	0	607	0	0	0	0	369	0	0	1140
7:15-8:15	0	0	0	0	0	0	61	0	120	0	0	0	582	0	0	0	0	374	0	0	1137
7:30-8:30	0	0	0	0	0	0	57	0	122	0	0	0	497	0	0	0	0	355	0	0	1031
7:45-8:45	0	0	0	0	0	0	60	0	117	0	0	0	465	0	0	0	0	332	0	0	974
8:00-9:00	0	0	0	0	0	0	38	0	117	0	0	0	447	0	0	0	0	325	0	0	927
8:15-9:15	0	0	0	0	1	0	42	0	121	0	0	0	435	0	0	0	0	319	0	0	918
8:30-9:30	0	0	0	0	2	0	51	0	127	0	0	0	427	0	0	0	0	316	0	0	923

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**
7:00-8:00	**0**	**0**	**0**	**0**	**2**	**0**	**59**	**0**	**103**	**0**	**0**	**0**	**607**	**0**	**0**	**0**	**0**	**369**	**0**	**0**	**1140**

Weekday Evening Peak Hour (4 pm - 7 pm)

	N/A Northbound					I-95 NB Off Ramp Southbound					MD 222 Eastbound					MD 222 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	0	22		63	0	0	0	131		0	0		162	0	0	378
4:15-4:30					0	0	23		76	0	0	0	150		0	0		151	0	0	400
4:30-4:45					0	0	18		61	0	0	0	129		0	0		138	0	0	346
4:45-5:00					0	0	21		73	0	0	0	121		0	0		169	0	0	384
5:00-5:15					0	0	20		61	0	0	0	125		0	0		157	0	0	363
5:15-5:30					0	0	15		55	0	0	0	91		0	0		134	0	0	295
5:30-5:45					0	0	13		72	0	0	0	118		0	0		116	0	0	319
5:45-6:00					0	0	14		52	0	0	0	126		0	0		113	0	0	305
6:00-6:15					0	0	15		43	0	0	0	99		0	0		135	0	0	292
6:15-6:30					0	0	16		39	0	0	0	93		0	0		118	0	0	266
6:30-6:45					0	0	11		58	0	0	0	91		0	0		89	0	0	249
6:45-7:00					0	0	21		48	0	0	0	103		0	0		76	0	0	248
Hourly Totals																					
4:00-5:00	0	0	0	0	0	0	84	0	273	0	0	0	531	0	0	0	0	620	0	0	1508
4:15-5:15	0	0	0	0	0	0	82	0	271	0	0	0	525	0	0	0	0	615	0	0	1493
4:30-5:30	0	0	0	0	0	0	74	0	250	0	0	0	466	0	0	0	0	598	0	0	1388
4:45-5:45	0	0	0	0	0	0	69	0	261	0	0	0	455	0	0	0	0	576	0	0	1361
5:00-6:00	0	0	0	0	0	0	62	0	240	0	0	0	460	0	0	0	0	520	0	0	1282
5:15-6:15	0	0	0	0	0	0	57	0	222	0	0	0	434	0	0	0	0	498	0	0	1211
5:30-6:30	0	0	0	0	0	0	58	0	206	0	0	0	436	0	0	0	0	482	0	0	1182
5:45-6:45	0	0	0	0	0	0	56	0	192	0	0	0	409	0	0	0	0	455	0	0	1112
6:00-7:00	0	0	0	0	0	0	63	0	188	0	0	0	386	0	0	0	0	418	0	0	1055

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**	**0**	**0**	**0**	**0**	**0**	**84**	**0**	**273**	**0**	**0**	**0**	**531**	**0**	**0**	**0**	**0**	**620**	**0**	**0**	**1508**

Peak Hour
Turning Movement Count

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

Intersection: N/A & MD 222
Weather: Clear
Count by: CountCAM - DSS
Count Day/Date: Thursday, September 21, 2023
County: Cecil



Aerial

Diagram

Intersection: MD 222 & I-95 NB On-Ramp

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

County: Cecil

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

	N/A Northbound					I-95 NB On Ramp Southbound					MD 222 Eastbound					MD 222 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	0	0		0	0	0	25	128		0	0		80		0	233
6:45-7:00					0	0	0		0	0	0	15	132		0	0		83		0	230
7:00-7:15					2	0	0		0	0	0	25	125		0	0		74		0	224
7:15-7:30					0	0	0		0	0	0	25	180		0	0		102		0	307
7:30-7:45					2	0	0		0	0	0	22	132		0	0		98		0	252
7:45-8:00					0	0	0		0	0	0	18	133		0	0		90		0	241
8:00-8:15					0	0	0		0	0	0	13	115		0	0		76		0	204
8:15-8:30					0	0	0		0	0	0	18	100		0	0		87		0	205
8:30-8:45					0	0	0		0	0	0	24	105		0	0		83		0	212
8:45-9:00					0	0	0		0	0	0	16	94		0	0		79		0	189
9:00-9:15					0	0	0		0	0	0	18	102		0	0		69		0	189
9:15-9:30					2	0	0		0	0	0	23	95		0	0		81		0	199
Hourly Totals																					
6:30-7:30	0	0	0	0	2	0	0	0	0	0	0	90	565	0	0	0	0	339	0	0	996
6:45-7:45	0	0	0	0	4	0	0	0	0	0	0	87	569	0	0	0	0	357	0	0	1017
7:00-8:00	0	0	0	0	4	0	0	0	0	0	0	90	570	0	0	0	0	364	0	0	1028
7:15-8:15	0	0	0	0	2	0	0	0	0	0	0	78	560	0	0	0	0	366	0	0	1006
7:30-8:30	0	0	0	0	2	0	0	0	0	0	0	71	480	0	0	0	0	351	0	0	904
7:45-8:45	0	0	0	0	0	0	0	0	0	0	0	73	453	0	0	0	0	336	0	0	862
8:00-9:00	0	0	0	0	0	0	0	0	0	0	0	71	414	0	0	0	0	325	0	0	810
8:15-9:15	0	0	0	0	0	0	0	0	0	0	0	76	401	0	0	0	0	318	0	0	795
8:30-9:30	0	0	0	0	2	0	0	0	0	0	0	81	396	0	0	0	0	312	0	0	791

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**
7:00-8:00	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**90**	**570**	**0**	**0**	**0**	**0**	**364**	**0**	**0**	**1028**

Weekday Evening Peak Hour (4 pm - 7 pm)

	N/A Northbound					I-95 NB On Ramp Southbound					MD 222 Eastbound					MD 222 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	0	0		0	0	0	24	126		0	0		163		0	313
4:15-4:30					0	0	0		0	0	0	28	145		0	0		150		0	323
4:30-4:45					0	0	0		0	0	0	24	124		0	0		135		0	283
4:45-5:00					0	0	0		0	0	0	16	124		0	0		168		0	308
5:00-5:15					0	0	0		0	0	0	21	127		0	0		154		0	302
5:15-5:30					0	0	0		0	0	0	16	93		0	0		138		0	247
5:30-5:45					0	0	0		0	0	0	11	117		0	0		115		0	243
5:45-6:00					0	0	0		0	0	0	16	126		0	0		115		0	257
6:00-6:15					0	0	0		0	0	0	8	108		0	0		134		0	250
6:15-6:30					0	0	0		0	0	0	16	93		0	0		120		0	229
6:30-6:45					0	0	0		0	0	0	15	87		0	0		86		0	188
6:45-7:00					0	0	0		0	0	0	15	108		0	0		74		0	197
Hourly Totals																					
4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	92	519	0	0	0	0	616	0	0	1227
4:15-5:15	0	0	0	0	0	0	0	0	0	0	0	89	520	0	0	0	0	607	0	0	1216
4:30-5:30	0	0	0	0	0	0	0	0	0	0	0	77	468	0	0	0	0	595	0	0	1140
4:45-5:45	0	0	0	0	0	0	0	0	0	0	0	64	461	0	0	0	0	575	0	0	1100
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	64	463	0	0	0	0	522	0	0	1049
5:15-6:15	0	0	0	0	0	0	0	0	0	0	0	51	444	0	0	0	0	502	0	0	997
5:30-6:30	0	0	0	0	0	0	0	0	0	0	0	51	444	0	0	0	0	484	0	0	979
5:45-6:45	0	0	0	0	0	0	0	0	0	0	0	55	414	0	0	0	0	455	0	0	924
6:00-7:00	0	0	0	0	0	0	0	0	0	0	0	54	396	0	0	0	0	414	0	0	864

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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**92**	**519**	**0**	**0**	**0**	**0**	**616**	**0**	**0**	**1227**

Peak Hour
Turning Movement Count

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

Intersection: N/A & MD 222
Weather: Clear
Count by: CountCAM - DSS
Count Day/Date: Thursday, September 21, 2023
County: Cecil



Aerial

Diagram

Intersection: MD 222 & I-95 NB On-Ramp

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

County: Cecil

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

	N/A Northbound					I-95 NB On-Ramp Southbound					MD 222 Eastbound					MD 222 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	0	0	0	0	0	0	0	0	0	0	0	128	0	0	0		80	43	0	251
6:45-7:00	0	0	0	0	0	0	0	0	0	0	0	0	132	0	0	0		83	50	0	265
7:00-7:15	0	0	0	0	0	0	0	0	0	0	0	0	125	0	0	0		74	45	0	244
7:15-7:30	0	0	0	0	0	0	0	0	0	0	0	0	180	0	0	0		102	38	0	320
7:30-7:45	0	0	0	0	0	0	0	0	0	0	0	0	132	0	0	0		98	60	0	290
7:45-8:00	0	0	0	0	0	0	0	0	0	0	0	0	133	0	0	0		90	47	0	270
8:00-8:15	0	0	0	0	0	0	0	0	0	0	0	0	115	0	0	0		76	42	0	233
8:15-8:30	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0		87	29	0	216
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	105	0	0	0		83	33	0	221
8:45-9:00	0	0	0	0	0	0	0	0	0	0	0	0	94	0	0	0		79	37	0	210
9:00-9:15	0	0	0	0	0	0	0	0	0	0	0	0	102	0	0	0		69	52	0	223
9:15-9:30	0	0	0	0	0	0	0	0	0	0	0	0	95	0	0	0		81	30	0	206

Hourly Totals

6:30-7:30	0	0	0	0	0	0	0	0	0	0	0	0	565	0	0	0	0	339	176	0	1080
6:45-7:45	0	0	0	0	0	0	0	0	0	0	0	0	569	0	0	0	0	357	193	0	1119
7:00-8:00	0	0	0	0	0	0	0	0	0	0	0	0	570	0	0	0	0	364	190	0	1124
7:15-8:15	0	0	0	0	0	0	0	0	0	0	0	0	560	0	0	0	0	366	187	0	1113
7:30-8:30	0	0	0	0	0	0	0	0	0	0	0	0	480	0	0	0	0	351	178	0	1009
7:45-8:45	0	0	0	0	0	0	0	0	0	0	0	0	453	0	0	0	0	336	151	0	940
8:00-9:00	0	0	0	0	0	0	0	0	0	0	0	0	414	0	0	0	0	325	141	0	880
8:15-9:15	0	0	0	0	0	0	0	0	0	0	0	0	401	0	0	0	0	318	151	0	870
8:30-9:30	0	0	0	0	0	0	0	0	0	0	0	0	396	0	0	0	0	312	152	0	860

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**
7:00-8:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**570**	**0**	**0**	**0**	**0**	**364**	**190**	**0**	**1124**

Weekday Evening Peak Hour (4 pm - 7 pm)

	N/A Northbound					I-95 NB On-Ramp Southbound					MD 222 Eastbound					MD 222 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	0	0	0	0	0	0	0	0	0	0	0	126	0	0	0	0	163	50	0	339
4:15-4:30	0	0	0	0	0	0	0	0	0	0	0	0	145	0	0	0	0	150	68	0	363
4:30-4:45	0	0	0	0	0	0	0	0	0	0	0	0	124	0	0	0	0	135	55	0	314
4:45-5:00	0	0	0	0	0	0	0	0	0	0	0	0	124	0	0	0	0	168	63	0	355
5:00-5:15	0	0	0	0	0	0	0	0	0	0	0	0	127	0	0	0	0	154	49	0	330
5:15-5:30	0	0	0	0	0	0	0	0	0	0	0	0	93	0	0	0	0	138	60	0	291
5:30-5:45	0	0	0	0	0	0	0	0	0	0	0	0	117	0	0	0	0	115	58	0	290
5:45-6:00	0	0	0	0	0	0	0	0	0	0	0	0	126	0	0	0	0	115	50	0	291
6:00-6:15	0	0	0	0	0	0	0	0	0	0	0	0	108	0	0	0	0	134	35	0	277
6:15-6:30	0	0	0	0	0	0	0	0	0	0	0	0	93	0	0	0	0	120	27	0	240
6:30-6:45	0	0	0	0	2	0	0	0	0	0	0	0	87	0	0	0	0	86	28	0	201
6:45-7:00	0	0	0	0	0	0	0	0	0	0	0	0	108	0	0	0	0	74	28	0	210

Hourly Totals

4:00-5:00	0	0	0	0	0	0	0	0	0	0	0	0	519	0	0	0	0	616	236	0	1371
4:15-5:15	0	0	0	0	0	0	0	0	0	0	0	0	520	0	0	0	0	607	235	0	1362
4:30-5:30	0	0	0	0	0	0	0	0	0	0	0	0	468	0	0	0	0	595	227	0	1290
4:45-5:45	0	0	0	0	0	0	0	0	0	0	0	0	461	0	0	0	0	575	230	0	1266
5:00-6:00	0	0	0	0	0	0	0	0	0	0	0	0	463	0	0	0	0	522	217	0	1202
5:15-6:15	0	0	0	0	0	0	0	0	0	0	0	0	444	0	0	0	0	502	203	0	1149
5:30-6:30	0	0	0	0	0	0	0	0	0	0	0	0	444	0	0	0	0	484	170	0	1098
5:45-6:45	0	0	0	0	2	0	0	0	0	0	0	0	414	0	0	0	0	455	140	0	1011
6:00-7:00	0	0	0	0	2	0	0	0	0	0	0	0	396	0	0	0	0	414	118	0	930

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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**519**	**0**	**0**	**0**	**0**	**616**	**236**	**0**	**1371**

Peak Hour
Turning Movement Count

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

Intersection: MD 222 & I-95 NB On-Ramp
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Thursday, September 21, 2023
Jurisdiction: Cecil County



Aerial

Diagram

Intersection: MD 276 & Waibel Road

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

County: Cecil

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

	MD 276 Northbound					MD 276 Southbound					Waibel Rd Eastbound					N/A 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	0	21	0	0	0	0	27	2	0	0	70	0	0	0	0	0	0	0	0	120
6:45-7:00	0	0	17	0	0	0	0	30	2	0	0	47	0	0	0	0	0	0	0	0	96
7:00-7:15	0	0	18	0	0	0	0	12	12	0	0	62	0	0	0	0	0	0	0	0	104
7:15-7:30	0	0	12	0	0	0	0	14	10	0	0	68	0	0	0	0	0	0	0	0	104
7:30-7:45	0	0	24	0	0	0	0	15	20	0	0	50	0	0	0	0	0	0	0	0	109
7:45-8:00	0	0	16	0	0	0	0	17	15	0	0	25	0	1	0	0	0	0	0	0	74
8:00-8:15	0	0	13	0	0	0	0	13	10	0	0	35	0	0	0	0	0	0	0	0	71
8:15-8:30	0	1	22	0	0	1	0	16	12	0	0	42	0	0	0	0	0	0	0	0	94
8:30-8:45	0	0	17	0	0	0	0	15	9	0	0	35	0	0	0	0	0	0	0	0	76
8:45-9:00	0	0	15	0	0	0	0	14	7	0	0	18	0	0	0	0	0	0	0	0	54
9:00-9:15	0	0	14	0	0	0	0	16	15	0	0	24	0	0	0	0	0	0	0	0	69
9:15-9:30	0	1	17	0	0	0	0	16	12	0	0	23	0	0	0	0	0	0	0	0	69

Hourly Totals

6:30-7:30	0	0	68	0	0	0	0	83	26	0	0	247	0	0	0	0	0	0	0	0	424
6:45-7:45	0	0	71	0	0	0	0	71	44	0	0	227	0	0	0	0	0	0	0	0	413
7:00-8:00	0	0	70	0	0	0	0	58	57	0	0	205	0	1	0	0	0	0	0	0	391
7:15-8:15	0	0	65	0	0	0	0	59	55	0	0	178	0	1	0	0	0	0	0	0	358
7:30-8:30	0	1	75	0	0	1	0	61	57	0	0	152	0	1	0	0	0	0	0	0	348
7:45-8:45	0	1	68	0	0	1	0	61	46	0	0	137	0	1	0	0	0	0	0	0	315
8:00-9:00	0	1	67	0	0	1	0	58	38	0	0	130	0	0	0	0	0	0	0	0	295
8:15-9:15	0	1	68	0	0	1	0	61	43	0	0	119	0	0	0	0	0	0	0	0	293
8:30-9:30	0	1	63	0	0	0	0	61	43	0	0	100	0	0	0	0	0	0	0	0	268

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**
6:30-7:30	**0**	**0**	**68**	**0**	**0**	**0**	**0**	**83**	**26**	**0**	**0**	**247**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**424**

Weekday Evening Peak Hour (4 pm - 7 pm)

	MD 276 Northbound					MD 276 Southbound					Waibel Rd Eastbound					N/A 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	2	24	0	0	0	0	26	36	0	0	22	0	2	0	0	0	0	0	0	112
4:15-4:30	0	0	25	0	0	0	0	32	32	0	0	15	0	0	0	0	0	0	0	0	104
4:30-4:45	0	0	35	0	0	0	0	26	45	0	0	24	0	0	0	0	0	0	0	0	130
4:45-5:00	0	0	30	0	0	0	0	17	48	0	0	27	0	2	0	0	0	0	0	0	124
5:00-5:15	0	0	38	0	0	0	0	24	55	0	0	20	0	1	0	0	0	0	0	0	138
5:15-5:30	0	0	20	0	0	0	0	16	35	0	0	36	0	1	0	0	0	0	0	0	108
5:30-5:45	0	0	21	0	0	0	0	25	41	0	0	32	0	2	0	0	0	0	0	0	121
5:45-6:00	0	1	22	0	0	0	0	23	45	0	0	31	0	0	0	0	0	0	0	0	122
6:00-6:15	0	1	13	0	0	0	0	19	29	0	0	15	0	2	0	0	0	0	0	0	79
6:15-6:30	0	0	18	0	0	0	0	14	30	0	0	27	0	2	0	0	0	0	0	0	91
6:30-6:45	0	2	15	0	0	0	0	13	28	0	0	20	0	3	0	0	0	0	0	0	81
6:45-7:00	0	1	16	0	0	0	0	14	24	0	0	11	0	0	0	0	0	0	0	0	66

Hourly Totals

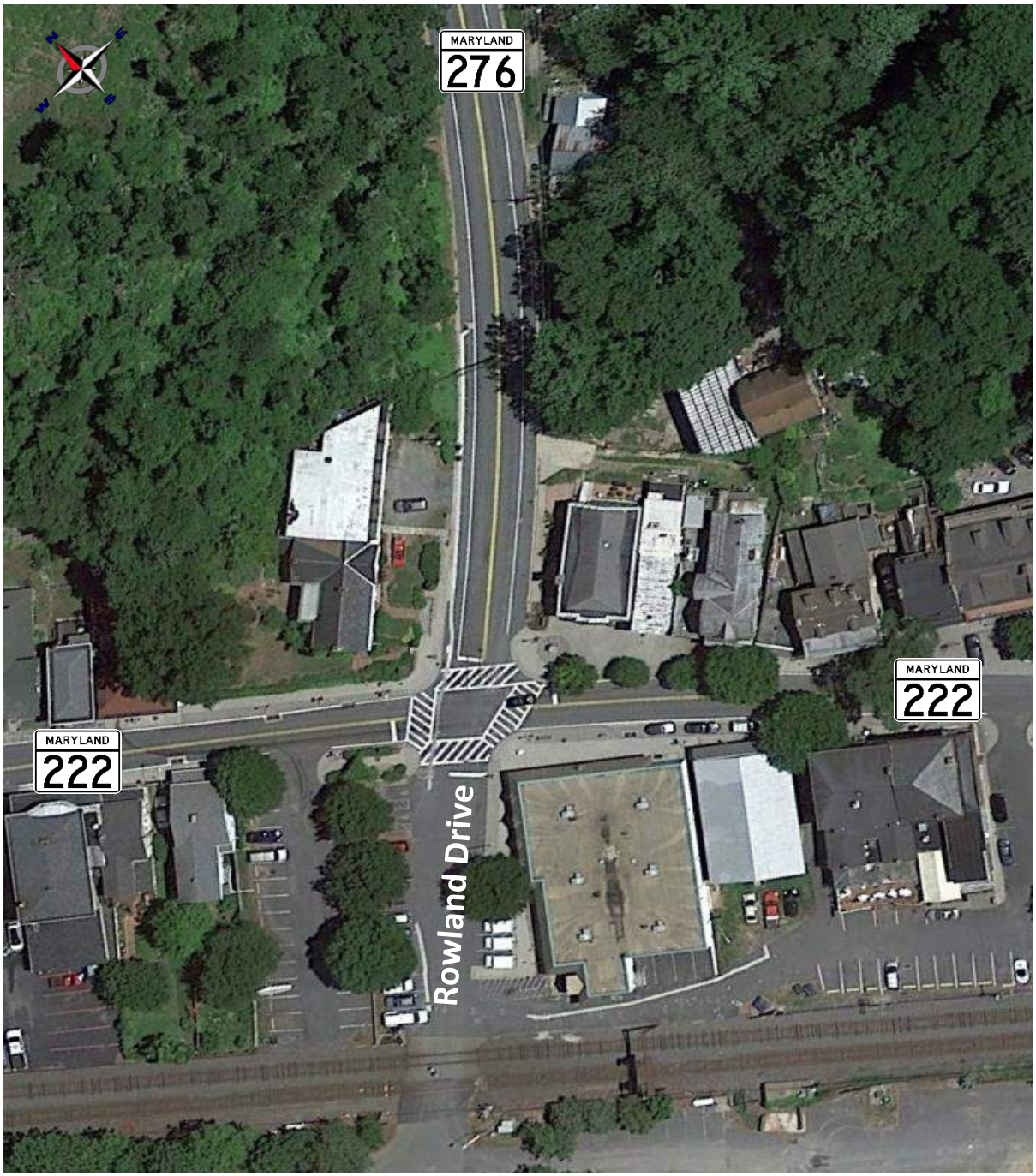
4:00-5:00	0	2	114	0	0	0	0	101	161	0	0	88	0	4	0	0	0	0	0	0	470
4:15-5:15	0	0	128	0	0	0	0	99	180	0	0	86	0	3	0	0	0	0	0	0	496
4:30-5:30	0	0	123	0	0	0	0	83	183	0	0	107	0	4	0	0	0	0	0	0	500
4:45-5:45	0	0	109	0	0	0	0	82	179	0	0	115	0	6	0	0	0	0	0	0	491
5:00-6:00	0	1	101	0	0	0	0	88	176	0	0	119	0	4	0	0	0	0	0	0	489
5:15-6:15	0	2	76	0	0	0	0	83	150	0	0	114	0	5	0	0	0	0	0	0	430
5:30-6:30	0	2	74	0	0	0	0	81	145	0	0	105	0	6	0	0	0	0	0	0	413
5:45-6:45	0	4	68	0	0	0	0	69	132	0	0	93	0	7	0	0	0	0	0	0	373
6:00-7:00	0	4	62	0	0	0	0	60	111	0	0	73	0	7	0	0	0	0	0	0	317

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**
4:30-5:30	**0**	**0**	**123**	**0**	**0**	**0**	**0**	**83**	**183**	**0**	**0**	**107**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**500**

Peak Hour
Turning Movement Count

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

Intersection: MD 276 & Waibel Rd
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Wednesday, September 28, 2022
Jurisdiction: Cecil County



Aerial

Diagram

Intersection: MD 276 & MD 222

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

County: Cecil

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

	Rowland Dr Northbound					MD 276 Southbound					MD 222 Eastbound					MD 222 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	2	2	1	0	0	1	1	3	0	0	11	19	2	0	0	0	4	1	0	47
6:45-7:00	0	0	3	1	2	0	1	1	6	0	0	15	20	0	0	0	0	5	1	0	53
7:00-7:15	0	0	0	2	2	0	2	0	3	0	0	8	23	0	0	0	0	4	0	0	42
7:15-7:30	0	0	2	3	0	0	2	0	4	0	0	11	20	0	0	0	2	7	1	0	52
7:30-7:45	0	0	2	1	2	0	3	1	2	0	0	8	19	1	0	0	1	6	0	0	44
7:45-8:00	0	1	3	3	0	0	2	0	1	0	0	6	19	1	0	0	1	4	1	0	42
8:00-8:15	0	2	1	2	1	0	0	0	7	0	0	3	18	1	0	0	2	4	0	0	40
8:15-8:30	0	1	2	1	1	0	0	0	4	1	0	4	15	1	0	0	1	9	2	0	40
8:30-8:45	0	1	0	5	0	0	2	1	7	0	0	1	16	0	0	0	1	5	2	0	41
8:45-9:00	0	0	0	1	0	0	2	0	1	0	0	6	19	0	0	0	0	9	1	0	39
9:00-9:15	0	0	2	2	0	0	0	2	2	0	0	7	23	2	0	0	0	2	3	0	45
9:15-9:30	0	4	0	2	0	0	1	1	5	0	0	2	14	1	0	0	1	1	0	1	32

Hourly Totals																					
6:30-7:30	0	2	7	7	4	0	6	2	16	0	0	45	82	2	0	0	2	20	3	0	198
6:45-7:45	0	0	7	7	6	0	8	2	15	0	0	42	82	1	0	0	3	22	2	0	197
7:00-8:00	0	1	7	9	4	0	9	1	10	0	0	33	81	2	0	0	4	21	2	0	184
7:15-8:15	0	3	8	9	3	0	7	1	14	0	0	28	76	3	0	0	6	21	2	0	181
7:30-8:30	0	4	8	7	4	0	5	1	14	1	0	21	71	4	0	0	5	23	3	0	171
7:45-8:45	0	5	6	11	2	0	4	1	19	1	0	14	68	3	0	0	5	22	5	0	166
8:00-9:00	0	4	3	9	2	0	4	1	19	1	0	14	68	2	0	0	4	27	5	0	163
8:15-9:15	0	2	4	9	1	0	4	3	14	1	0	18	73	3	0	0	2	25	8	0	167
8:30-9:30	0	5	2	10	0	0	5	4	15	0	0	16	72	3	0	0	2	17	6	1	158

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**
6:30-7:30	**0**	**2**	**7**	**7**	**4**	**0**	**6**	**2**	**16**	**0**	**0**	**45**	**82**	**2**	**0**	**0**	**2**	**20**	**3**	**0**	**198**

Weekday Evening Peak Hour (4 pm - 7 pm)

	Rowland Dr Northbound					MD 276 Southbound					MD 222 Eastbound					MD 222 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	0	3	5	0	0	5	2	10	0	0	9	23	3	0	0	7	17	3	0	87
4:15-4:30	0	2	2	1	1	0	3	3	14	1	0	9	20	4	1	0	2	34	2	2	96
4:30-4:45	0	1	3	4	3	0	0	4	13	6	1	10	21	0	0	0	4	25	2	2	88
4:45-5:00	0	3	0	1	1	0	2	2	13	2	0	10	17	1	0	0	3	28	6	0	86
5:00-5:15	0	1	2	1	1	0	5	3	16	1	0	6	19	2	0	0	6	20	2	0	83
5:15-5:30	0	0	3	2	4	0	2	1	8	0	0	9	19	3	1	1	2	18	3	1	71
5:30-5:45	0	2	2	3	0	1	1	3	9	0	0	9	19	1	0	1	6	18	3	0	78
5:45-6:00	0	2	2	2	0	0	0	1	8	0	0	12	15	2	0	0	6	13	1	0	64
6:00-6:15	0	3	4	0	0	0	2	5	8	0	0	6	20	4	0	0	4	9	0	1	65
6:15-6:30	0	2	2	3	7	0	5	4	7	2	0	5	10	1	0	0	5	14	1	0	59
6:30-6:45	0	2	2	0	8	0	1	3	2	4	0	7	15	2	0	1	4	11	3	8	53
6:45-7:00	0	1	0	5	10	0	1	2	5	1	0	10	15	3	1	0	2	11	2	0	57

Hourly Totals																					
4:00-5:00	0	6	8	11	5	0	10	11	50	9	1	38	81	8	1	0	16	104	13	4	376
4:15-5:15	0	7	7	7	6	0	10	12	56	10	1	35	77	7	1	0	15	107	12	4	374
4:30-5:30	0	5	8	8	9	0	9	10	50	9	1	35	76	6	1	1	15	91	13	3	350
4:45-5:45	0	6	7	7	6	1	10	9	46	3	0	34	74	7	1	2	17	84	14	1	329
5:00-6:00	0	5	9	8	5	1	8	8	41	1	0	36	72	8	1	2	20	69	9	1	304
5:15-6:15	0	7	11	7	4	1	5	10	33	0	0	36	73	10	1	2	18	58	7	2	285
5:30-6:30	0	9	10	8	7	1	8	13	32	2	0	32	64	8	0	1	21	54	5	1	276
5:45-6:45	0	9	10	5	15	0	8	13	25	6	0	30	60	9	0	1	19	47	5	9	271
6:00-7:00	0	8	8	8	25	0	9	14	22	7	0	28	60	10	1	1	15	45	6	9	276

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**	**6**	**8**	**11**	**5**	**0**	**10**	**11**	**50**	**9**	**1**	**38**	**81**	**8**	**1**	**0**	**16**	**104**	**13**	**4**	**376**

Peak Hour
Turning Movement Count

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

Intersection: MD 276 & MD 222
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Tuesday, September 27, 2022
Jurisdiction: Cecil County



Aerial

Diagram

Intersection: MD 275 & MD 222/MD 824

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

County: Cecil

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

	Diamond Jim Road Northbound					Driveway Southbound					MD 275 Eastbound					MD 275 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	2	0	0	0	0	2	0	1	0	0	1	210	0	0	0	0	37	4	0	257
6:45-7:00	0	0	0	2	0	0	3	0	0	0	0	1	188	1	0	0	1	48	8	0	252
7:00-7:15	0	0	0	2	0	0	3	0	2	0	0	1	187	0	0	0	0	53	2	0	250
7:15-7:30	0	1	0	3	0	0	2	0	2	0	0	0	229	1	0	0	0	50	1	0	289
7:30-7:45	0	0	0	0	0	0	1	0	1	0	0	1	171	0	0	0	1	97	2	0	274
7:45-8:00	0	0	0	1	0	0	6	0	0	0	0	1	145	3	0	0	1	68	3	0	228
8:00-8:15	0	2	0	0	0	0	1	0	1	0	0	0	112	0	0	0	1	41	2	0	160
8:15-8:30	0	0	0	1	0	0	2	0	0	0	0	0	136	3	0	0	2	55	4	0	203
8:30-8:45	0	0	0	3	0	0	3	0	0	0	0	0	139	2	0	0	1	46	3	0	197
8:45-9:00	0	11	0	6	0	0	2	0	2	0	0	0	122	1	0	0	3	57	0	0	204
9:00-9:15	0	1	0	0	0	0	2	0	2	0	0	1	102	0	0	0	1	67	3	0	179
9:15-9:30	0	1	0	1	0	0	2	0	0	0	0	1	110	0	0	0	0	60	1	0	176
Hourly Totals																					
6:30-7:30	0	3	0	7	0	0	10	0	5	0	0	3	814	2	0	0	1	188	15	0	1048
6:45-7:45	0	1	0	7	0	0	9	0	5	0	0	3	775	2	0	0	2	248	13	0	1065
7:00-8:00	0	1	0	6	0	0	12	0	5	0	0	3	732	4	0	0	2	268	8	0	1041
7:15-8:15	0	3	0	4	0	0	10	0	4	0	0	2	657	4	0	0	3	256	8	0	951
7:30-8:30	0	2	0	2	0	0	10	0	2	0	0	2	564	6	0	0	5	261	11	0	865
7:45-8:45	0	2	0	5	0	0	12	0	1	0	0	1	532	8	0	0	5	210	12	0	788
8:00-9:00	0	13	0	10	0	0	8	0	3	0	0	0	509	6	0	0	7	199	9	0	764
8:15-9:15	0	12	0	10	0	0	9	0	4	0	0	1	499	6	0	0	7	225	10	0	783
8:30-9:30	0	13	0	10	0	0	9	0	4	0	0	2	473	3	0	0	5	230	7	0	756

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**
6:45-7:45	**0**	**1**	**0**	**7**	**0**	**0**	**9**	**0**	**5**	**0**	**0**	**3**	**775**	**2**	**0**	**0**	**2**	**248**	**13**	**0**	**1065**

Weekday Evening Peak Hour (4 pm - 7 pm)

	Diamond Jim Road Northbound					Driveway Southbound					MD 275 Eastbound					MD 275 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	2	0	3	0	0	5	2	3	0	0	0	82	0	0	0	4	166	0	0	267
4:15-4:30	0	0	0	0	0	0	1	0	0	0	0	0	79	0	0	0	0	182	0	0	262
4:30-4:45	0	5	0	1	0	0	0	0	0	0	0	0	105	0	0	0	2	197	0	0	310
4:45-5:00	0	0	0	2	0	0	0	0	0	0	0	0	115	0	0	0	3	189	0	0	309
5:00-5:15	0	0	0	0	0	0	0	0	0	0	0	0	105	0	0	0	1	154	0	0	260
5:15-5:30	0	0	0	2	0	0	0	0	0	0	0	0	109	1	0	0	0	162	0	0	274
5:30-5:45	0	0	0	0	0	0	0	0	0	0	0	0	112	1	0	0	1	151	0	0	265
5:45-6:00	0	0	0	1	0	0	0	0	0	0	0	0	114	1	0	0	3	141	0	0	260
6:00-6:15	0	1	0	1	0	0	0	0	0	0	0	0	106	0	0	0	0	96	0	0	204
6:15-6:30	0	3	0	2	0	0	0	0	0	0	0	0	96	2	0	1	1	100	0	0	205
6:30-6:45	0	0	0	0	0	0	0	0	0	0	0	0	90	2	0	1	0	101	0	0	194
6:45-7:00	0	1	0	0	0	0	0	0	0	0	0	0	73	0	0	0	1	87	0	0	162
Hourly Totals																					
4:00-5:00	0	7	0	6	0	0	6	2	3	0	0	0	381	0	0	0	9	734	0	0	1148
4:15-5:15	0	5	0	3	0	0	1	0	0	0	0	0	404	0	0	0	6	722	0	0	1141
4:30-5:30	0	5	0	5	0	0	0	0	0	0	0	0	434	1	0	0	6	702	0	0	1153
4:45-5:45	0	0	0	4	0	0	0	0	0	0	0	0	441	2	0	0	5	656	0	0	1108
5:00-6:00	0	0	0	3	0	0	0	0	0	0	0	0	440	3	0	0	5	608	0	0	1059
5:15-6:15	0	1	0	4	0	0	0	0	0	0	0	0	441	3	0	0	4	550	0	0	1003
5:30-6:30	0	4	0	4	0	0	0	0	0	0	0	0	428	4	0	1	5	488	0	0	934
5:45-6:45	0	4	0	4	0	0	0	0	0	0	0	0	406	5	0	2	4	438	0	0	863
6:00-7:00	0	5	0	3	0	0	0	0	0	0	0	0	365	4	0	2	2	384	0	0	765

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**
4:30-5:30	**0**	**5**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**434**	**1**	**0**	**0**	**6**	**702**	**0**	**0**	**1153**

Peak Hour
Turning Movement Count

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

Intersection: MD 275 & Diamond Jim Road
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Tuesday, September 27, 2022
Jurisdiction: Cecil County

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

	N/A Northbound					Diamond Jim Rd Southbound					Craigtown Rd Eastbound					Craigtown Rd 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	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	2	1	0	6
6:45-7:00	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	1	0	5
7:00-7:15	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	1	0	5
7:15-7:30	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	0	0	2	0	7
7:30-7:45	0	0	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0	7
7:45-8:00	0	0	0	0	0	0	4	0	0	0	0	1	5	0	0	0	0	0	0	0	10
8:00-8:15	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	1	2	0	7
8:15-8:30	0	0	0	0	0	0	4	0	1	0	0	0	8	0	0	0	0	3	1	0	17
8:30-8:45	0	0	0	0	0	0	3	0	0	0	0	2	15	0	0	0	0	2	1	0	23
8:45-9:00	0	0	0	0	0	0	4	0	0	0	0	0	11	0	0	0	0	11	15	0	41
9:00-9:15	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	7	1	0	13
9:15-9:30	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	3	2	0	9

Hourly Totals																					
6:30-7:30	0	0	0	0	0	0	3	0	0	0	0	5	7	0	0	0	0	3	5	0	23
6:45-7:45	0	0	0	0	0	0	4	0	0	0	0	4	11	0	0	0	0	1	4	0	24
7:00-8:00	0	0	0	0	0	0	7	0	0	0	0	4	14	0	0	0	0	1	3	0	29
7:15-8:15	0	0	0	0	0	0	8	0	0	0	0	3	15	0	0	0	0	1	4	0	31
7:30-8:30	0	0	0	0	0	0	10	0	1	0	0	1	22	0	0	0	0	4	3	0	41
7:45-8:45	0	0	0	0	0	0	12	0	1	0	0	3	31	0	0	0	0	6	4	0	57
8:00-9:00	0	0	0	0	0	0	12	0	1	0	0	2	37	0	0	0	0	17	19	0	88
8:15-9:15	0	0	0	0	0	0	11	0	1	0	0	2	39	0	0	0	0	23	18	0	94
8:30-9:30	0	0	0	0	0	0	7	0	1	0	0	2	34	0	0	0	0	23	19	0	86

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**
8:15-9:15	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**1**	**0**	**0**	**2**	**39**	**0**	**0**	**0**	**0**	**23**	**18**	**0**	**94**

Weekday Evening Peak Hour (4 pm - 7 pm)

	N/A Northbound					Diamond Jim Rd Southbound					Craigtown Rd Eastbound					Craigtown Rd 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	0	0	0	0	0	3	0	3	0	0	0	2	0	0	0	0	7	5	0	20
4:15-4:30	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	10
4:30-4:45	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	5	6	0	16
4:45-5:00	0	0	0	0	0	0	0	0	3	0	0	2	6	0	0	0	0	5	0	0	16
5:00-5:15	0	0	0	0	0	0	0	0	1	0	0	0	6	0	0	0	0	5	0	0	12
5:15-5:30	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	6	0	0	11
5:30-5:45	0	0	0	0	0	0	1	0	1	0	0	0	4	0	0	0	0	0	0	0	6
5:45-6:00	0	0	0	0	0	0	0	0	2	0	0	1	2	0	0	0	0	5	0	0	10
6:00-6:15	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	1	0	9
6:15-6:30	0	0	0	0	0	0	1	0	1	0	0	1	3	0	0	0	0	0	3	0	9
6:30-6:45	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	3	0	0	6
6:45-7:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	4

Hourly Totals																					
4:00-5:00	0	0	0	0	0	0	3	0	7	0	0	2	17	0	0	0	0	22	11	0	62
4:15-5:15	0	0	0	0	0	0	0	0	5	0	0	2	21	0	0	0	0	20	6	0	54
4:30-5:30	0	0	0	0	0	0	0	0	5	0	0	4	19	0	0	0	0	21	6	0	55
4:45-5:45	0	0	0	0	0	0	1	0	5	0	0	4	19	0	0	0	0	16	0	0	45
5:00-6:00	0	0	0	0	0	0	1	0	4	0	0	3	15	0	0	0	0	16	0	0	39
5:15-6:15	0	0	0	0	0	0	1	0	3	0	0	3	13	0	0	0	0	15	1	0	36
5:30-6:30	0	0	0	0	0	0	2	0	4	0	0	2	13	0	0	0	0	9	4	0	34
5:45-6:45	0	0	0	0	0	0	2	0	3	0	0	2	11	0	0	0	0	12	4	0	34
6:00-7:00	0	0	0	0	0	0	2	0	1	0	0	1	10	0	0	0	0	9	5	0	28

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**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**7**	**0**	**0**	**2**	**17**	**0**	**0**	**0**	**0**	**22**	**11**	**0**	**62**

Peak Hour
Turning Movement Count

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

Intersection: Diamond Jim Rd & Craigtown Rd
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Tuesday, September 27, 2022
Jurisdiction: Cecil County

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

	N/A Northbound					Manor Rd Southbound					Hendley Pkwy Eastbound					Preston Dr 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45-7:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:00-7:15	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	3
7:15-7:30	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	1	0	5
7:30-7:45	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
7:45-8:00	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	1	0	8
8:00-8:15	0	0	0	0	0	1	9	0	0	0	0	0	0	0	0	0	0	0	1	0	11
8:15-8:30	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	2	0	12
8:30-8:45	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	2	0	24
8:45-9:00	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	36	0	49
9:00-9:15	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	8
9:15-9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2

Hourly Totals

6:30-7:30	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	2	0	10
6:45-7:45	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	2	0	15
7:00-8:00	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	3	0	21
7:15-8:15	0	0	0	0	0	1	25	0	0	0	0	0	0	0	0	0	0	0	3	0	29
7:30-8:30	0	0	0	0	0	1	31	0	0	0	0	0	0	0	0	0	0	0	4	0	36
7:45-8:45	0	0	0	0	0	1	48	0	0	0	0	0	0	0	0	0	0	0	6	0	55
8:00-9:00	0	0	0	0	0	1	54	0	0	0	0	0	0	0	0	0	0	0	41	0	96
8:15-9:15	0	0	0	0	0	0	49	0	0	0	0	0	0	0	0	0	0	0	44	0	93
8:30-9:30	0	0	0	0	0	0	39	0	0	0	0	0	0	0	0	0	0	0	44	0	83

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**
8:00-9:00	**0**	**0**	**0**	**0**	**0**	**1**	**54**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**41**	**0**	**96**

Weekday Evening Peak Hour (4 pm - 7 pm)

	N/A Northbound					Manor Rd Southbound					Hendley Pkwy Eastbound					Preston Dr 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	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8	0	9
4:15-4:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	7	0	9
4:30-4:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8
4:45-5:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3
5:00-5:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
5:15-5:30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2
5:30-5:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3
5:45-6:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	4
6:00-6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15-6:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	3
6:30-6:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:45-7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1

Hourly Totals

4:00-5:00	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	25	0	29
4:15-5:15	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	19	0	22
4:30-5:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	13	0	15
4:45-5:45	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	7	0	10
5:00-6:00	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	7	0	11
5:15-6:15	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	5	0	9
5:30-6:30	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	5	0	10
5:45-6:45	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	3	0	8
6:00-7:00	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	5

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**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**29**

Peak Hour
Turning Movement Count

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

Intersection: Manor Rd & Preston Dr
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Wednesday, September 28, 2022
Jurisdiction: Cecil County

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

	Manor Rd Northbound					N/A Southbound					Craigtown Rd Eastbound					Craigtown Rd 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	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	5
6:45-7:00	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1	2	0	0	6
7:00-7:15	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	5
7:15-7:30	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	1	0	0	7
7:30-7:45	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0	0	1	0	0	0	8
7:45-8:00	0	0	0	0	0	0	0	0	0	0	0	0	5	4	0	0	4	0	0	0	13
8:00-8:15	0	1	0	2	0	0	0	0	0	0	0	0	1	2	0	0	7	2	0	0	15
8:15-8:30	0	2	0	0	0	0	0	0	0	0	0	0	5	7	0	0	4	2	0	0	20
8:30-8:45	0	2	0	0	0	0	0	0	0	0	0	0	3	16	0	0	5	1	0	0	27
8:45-9:00	0	25	0	11	0	0	0	0	0	0	0	0	4	11	0	0	2	3	0	0	56
9:00-9:15	0	3	0	1	0	0	0	0	0	0	0	0	2	3	0	0	2	5	0	0	16
9:15-9:30	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	7

Hourly Totals																					
6:30-7:30	0	2	0	0	0	0	0	0	0	0	0	0	6	3	0	0	5	7	0	0	23
6:45-7:45	0	2	0	0	0	0	0	0	0	0	0	0	7	7	0	0	6	4	0	0	26
7:00-8:00	0	2	0	0	0	0	0	0	0	0	0	0	10	10	0	0	9	2	0	0	33
7:15-8:15	0	2	0	2	0	0	0	0	0	0	0	0	10	11	0	0	15	3	0	0	43
7:30-8:30	0	3	0	2	0	0	0	0	0	0	0	0	14	17	0	0	16	4	0	0	56
7:45-8:45	0	5	0	2	0	0	0	0	0	0	0	0	14	29	0	0	20	5	0	0	75
8:00-9:00	0	30	0	13	0	0	0	0	0	0	0	0	13	36	0	0	18	8	0	0	118
8:15-9:15	0	32	0	12	0	0	0	0	0	0	0	0	14	37	0	0	13	11	0	0	119
8:30-9:30	0	32	0	12	0	0	0	0	0	0	0	0	12	30	0	0	9	11	0	0	106

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**
8:15-9:15	**0**	**32**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**37**	**0**	**0**	**13**	**11**	**0**	**0**	**119**

Weekday Evening Peak Hour (4 pm - 7 pm)

	Manor Rd Northbound					N/A Southbound					Craigtown Rd Eastbound					Craigtown Rd 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	7	0	4	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	21
4:15-4:30	0	1	0	1	0	0	0	0	0	0	0	0	4	1	0	0	0	4	0	0	11
4:30-4:45	0	5	0	1	0	0	0	0	0	0	0	0	3	1	0	0	0	6	0	0	16
4:45-5:00	0	1	0	1	0	0	0	0	0	0	0	0	3	3	0	0	0	4	0	0	12
5:00-5:15	0	1	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	4	0	0	11
5:15-5:30	0	1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	5	0	0	9
5:30-5:45	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	5
5:45-6:00	0	3	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	8
6:00-6:15	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	5	0	0	9
6:15-6:30	0	1	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	7
6:30-6:45	0	1	0	0	0	0	0	0	0	0	0	0	3	1	0	0	1	2	0	0	8
6:45-7:00	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	5

Hourly Totals																					
4:00-5:00	0	14	0	7	0	0	0	0	0	0	0	0	15	5	0	0	0	19	0	0	60
4:15-5:15	0	8	0	3	0	0	0	0	0	0	0	0	15	6	0	0	0	18	0	0	50
4:30-5:30	0	8	0	2	0	0	0	0	0	0	0	0	13	6	0	0	0	19	0	0	48
4:45-5:45	0	3	0	1	0	0	0	0	0	0	0	0	13	7	0	0	0	13	0	0	37
5:00-6:00	0	5	0	1	0	0	0	0	0	0	0	0	12	4	0	0	0	11	0	0	33
5:15-6:15	0	4	0	1	0	0	0	0	0	0	0	0	9	5	0	0	0	12	0	0	31
5:30-6:30	0	4	0	2	0	0	0	0	0	0	0	0	10	4	0	0	0	9	0	0	29
5:45-6:45	0	5	0	2	0	0	0	0	0	0	0	0	10	3	0	0	1	11	0	0	32
6:00-7:00	0	3	0	1	0	0	0	0	0	0	0	0	9	4	0	0	1	11	0	0	29

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**	**14**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**5**	**0**	**0**	**0**	**19**	**0**	**0**	**60**

Peak Hour
Turning Movement Count

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

Intersection: Manor Rd & Craigtown Rd
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Wednesday, September 28, 2022
Jurisdiction: Cecil County

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

	MD 276 Northbound					MD 276 Southbound					Firetower Rd Eastbound					Camp Mtg. Grd. Rd 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	4	33	13	0	0	12	116	2	0	0	9	11	11	0	0	5	3	8	0	227
6:45-7:00	0	2	50	9	0	0	7	101	3	0	0	0	2	9	0	0	7	2	9	0	201
7:00-7:15	0	0	35	15	0	0	9	105	0	0	0	1	6	2	0	0	10	0	8	0	191
7:15-7:30	0	2	43	8	0	0	12	111	2	0	0	0	4	9	0	0	10	2	13	0	216
7:30-7:45	0	9	45	16	0	0	10	112	2	0	0	1	5	6	0	0	9	2	4	0	221
7:45-8:00	0	2	50	5	0	0	8	90	4	0	0	3	4	3	0	0	9	2	5	0	185
8:00-8:15	0	2	47	6	0	0	2	94	5	0	0	2	5	8	0	0	11	2	14	0	198
8:15-8:30	0	1	46	7	0	0	9	88	3	0	0	3	8	7	0	0	10	1	4	0	187
8:30-8:45	0	3	48	15	0	0	8	89	0	0	0	0	2	6	0	0	8	0	5	0	184
8:45-9:00	0	9	41	17	1	0	9	72	7	0	0	3	5	8	0	0	16	1	3	0	191
9:00-9:15	0	9	53	13	0	0	5	99	2	0	0	6	5	5	0	0	5	11	6	0	219
9:15-9:30	0	4	57	4	0	0	6	67	0	0	0	2	8	8	0	0	8	3	12	0	179
Hourly Totals																					
6:30-7:30	0	8	161	45	0	0	40	433	7	0	0	10	23	31	0	0	32	7	38	0	835
6:45-7:45	0	13	173	48	0	0	38	429	7	0	0	2	17	26	0	0	36	6	34	0	829
7:00-8:00	0	13	173	44	0	0	39	418	8	0	0	5	19	20	0	0	38	6	30	0	813
7:15-8:15	0	15	185	35	0	0	32	407	13	0	0	6	18	26	0	0	39	8	36	0	820
7:30-8:30	0	14	188	34	0	0	29	384	14	0	0	9	22	24	0	0	39	7	27	0	791
7:45-8:45	0	8	191	33	0	0	27	361	12	0	0	8	19	24	0	0	38	5	28	0	754
8:00-9:00	0	15	182	45	1	0	28	343	15	0	0	8	20	29	0	0	45	4	26	0	761
8:15-9:15	0	22	188	52	1	0	31	348	12	0	0	12	20	26	0	0	39	13	18	0	782
8:30-9:30	0	25	199	49	1	0	28	327	9	0	0	11	20	27	0	0	37	15	26	0	774

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**
6:30-7:30	**0**	**8**	**161**	**45**	**0**	**0**	**40**	**433**	**7**	**0**	**0**	**10**	**23**	**31**	**0**	**0**	**32**	**7**	**38**	**0**	**835**

Weekday Evening Peak Hour (4 pm - 7 pm)

	MD 276 Northbound					MD 276 Southbound					Firetower Rd Eastbound					Camp Mtg. Grd. Rd 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	7	106	15	0	0	10	67	3	0	0	5	3	8	0	0	13	10	13	0	260
4:15-4:30	0	11	139	18	0	0	10	81	4	0	0	3	6	5	0	0	23	8	13	0	321
4:30-4:45	0	8	134	21	0	0	13	60	1	0	0	6	7	6	2	0	15	7	12	2	290
4:45-5:00	0	18	127	24	0	0	17	77	1	0	0	5	11	5	2	0	10	8	9	2	312
5:00-5:15	0	6	124	14	0	0	5	80	1	0	0	6	7	1	0	0	21	6	13	0	284
5:15-5:30	0	8	90	17	0	0	9	93	4	0	0	3	7	3	0	0	26	12	6	0	278
5:30-5:45	0	5	103	13	0	0	13	97	1	0	0	1	3	5	0	0	26	9	6	0	282
5:45-6:00	0	3	82	15	0	0	8	85	5	0	0	0	6	1	0	0	21	6	5	0	237
6:00-6:15	0	4	91	14	0	0	14	62	2	0	0	0	1	6	0	0	22	3	9	0	228
6:15-6:30	0	3	57	19	0	0	9	73	2	0	0	1	6	5	0	0	15	5	8	0	203
6:30-6:45	0	7	58	13	0	0	5	70	2	0	0	2	2	2	0	0	20	3	8	0	192
6:45-7:00	0	7	58	9	0	0	6	86	0	0	0	1	2	3	0	0	16	4	5	0	197
Hourly Totals																					
4:00-5:00	0	44	506	78	0	0	50	285	9	0	0	19	27	24	4	0	61	33	47	4	1191
4:15-5:15	0	43	524	77	0	0	45	298	7	0	0	20	31	17	4	0	69	29	47	4	1215
4:30-5:30	0	40	475	76	0	0	44	310	7	0	0	20	32	15	4	0	72	33	40	4	1172
4:45-5:45	0	37	444	68	0	0	44	347	7	0	0	15	28	14	2	0	83	35	34	2	1160
5:00-6:00	0	22	399	59	0	0	35	355	11	0	0	10	23	10	0	0	94	33	30	0	1081
5:15-6:15	0	20	366	59	0	0	44	337	12	0	0	4	17	15	0	0	95	30	26	0	1025
5:30-6:30	0	15	333	61	0	0	44	317	10	0	0	2	16	17	0	0	84	23	28	0	950
5:45-6:45	0	17	288	61	0	0	36	290	11	0	0	3	15	14	0	0	78	17	30	0	860
6:00-7:00	0	21	264	55	0	0	34	291	6	0	0	4	11	16	0	0	73	15	30	0	820

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	**0**	**43**	**524**	**77**	**0**	**0**	**45**	**298**	**7**	**0**	**0**	**20**	**31**	**17**	**4**	**0**	**69**	**29**	**47**	**0**	**1215**

Peak Hour
Turning Movement Count

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

Intersection: Firetower Rd & MD 276
Weather: Clear
Count by: CountCAM - DSS
Count Day/Date: Wednesday, March 22, 2023
County: Cecil

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

	N/A Northbound					Theodore Road Southbound					Camp Mtg. Grd. Road Eastbound					Camp Mtg. Grd. Road 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		0		11	0		27	1		0			2	2	0	43
6:45-7:00					0		1		8	0		27	2		0			2	1	0	41
7:00-7:15					0		0		7	0		22	1		0			5	1	0	36
7:15-7:30					0		1		10	0		21	1		0			5	0	0	38
7:30-7:45					0		0		18	0		21	2		0			7	0	0	48
7:45-8:00					0		0		17	0		23	2		0			4	0	0	46
8:00-8:15					0		1		16	0		18	9		0			8	0	0	52
8:15-8:30					0		0		13	0		13	3		0			4	0	0	33
8:30-8:45					0		0		17	0		16	1		0			3	0	0	37
8:45-9:00					0		0		11	0		22	6		0			7	1	0	47
9:00-9:15					0		0		21	0		23	2		0			4	0	0	50
9:15-9:30					0		0		18	0		14	3		0			3	0	0	38
Hourly Totals																					
6:30-7:30	0	0	0	0	0	0	2	0	36	0	0	97	5	0	0	0	0	14	4	0	158
6:45-7:45	0	0	0	0	0	0	2	0	43	0	0	91	6	0	0	0	0	19	2	0	163
7:00-8:00	0	0	0	0	0	0	1	0	52	0	0	87	6	0	0	0	0	21	1	0	168
7:15-8:15	0	0	0	0	0	0	2	0	61	0	0	83	14	0	0	0	0	24	0	0	184
7:30-8:30	0	0	0	0	0	0	1	0	64	0	0	75	16	0	0	0	0	23	0	0	179
7:45-8:45	0	0	0	0	0	0	1	0	63	0	0	70	15	0	0	0	0	19	0	0	168
8:00-9:00	0	0	0	0	0	0	1	0	57	0	0	69	19	0	0	0	0	22	1	0	169
8:15-9:15	0	0	0	0	0	0	0	0	62	0	0	74	12	0	0	0	0	18	1	0	167
8:30-9:30	0	0	0	0	0	0	0	0	67	0	0	75	12	0	0	0	0	17	1	0	172

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**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**61**	**0**	**0**	**83**	**14**	**0**	**0**	**0**	**0**	**24**	**0**	**0**	**184**

Weekday Evening Peak Hour (4 pm - 7 pm)

	N/A Northbound					Theodore Road Southbound					Camp Mtg. Grd. Road Eastbound					Camp Mtg. Grd. Road 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		0		21	0		22	10		0			9	2	0	64
4:15-4:30					0		4		28	0		28	13		0			13	0	0	86
4:30-4:45					0		0		23	0		23	15		0			7	1	2	69
4:45-5:00					0		1		21	0		25	7		0			8	0	2	62
5:00-5:15					0		2		22	0		21	9		0			9	0	0	63
5:15-5:30					0		1		26	0		20	15		0			7	0	0	69
5:30-5:45					0		1		31	0		23	4		0			7	0	0	66
5:45-6:00					0		0		31	0		19	11		0			7	0	0	68
6:00-6:15					0		0		22	0		19	7		0			4	2	0	54
6:15-6:30					0		0		29	0		15	6		0			6	0	0	56
6:30-6:45					0		0		23	0		26	9		0			8	0	0	66
6:45-7:00					0		0		17	0		15	10		0			6	1	0	49
Hourly Totals																					
4:00-5:00	0	0	0	0	0	0	5	0	93	0	0	98	45	0	0	0	0	37	3	4	285
4:15-5:15	0	0	0	0	0	0	7	0	94	0	0	97	44	0	0	0	0	37	1	4	284
4:30-5:30	0	0	0	0	0	0	4	0	92	0	0	89	46	0	0	0	0	31	1	4	267
4:45-5:45	0	0	0	0	0	0	5	0	100	0	0	89	35	0	0	0	0	31	0	2	262
5:00-6:00	0	0	0	0	0	0	4	0	110	0	0	83	39	0	0	0	0	30	0	0	266
5:15-6:15	0	0	0	0	0	0	2	0	110	0	0	81	37	0	0	0	0	25	2	0	257
5:30-6:30	0	0	0	0	0	0	1	0	113	0	0	76	28	0	0	0	0	24	2	0	244
5:45-6:45	0	0	0	0	0	0	0	0	105	0	0	79	33	0	0	0	0	25	2	0	244
6:00-7:00	0	0	0	0	0	0	0	0	91	0	0	75	32	0	0	0	0	24	3	0	225

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**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**93**	**0**	**0**	**98**	**45**	**0**	**0**	**0**	**0**	**37**	**3**	**4**	**285**

Peak Hour
Turning Movement Count

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

Intersection: Camp Mtg. Grd. Road & Theodore Road
Weather: Clear
Count by: CountCAM - DSS
Count Day/Date: Thursday, April 13, 2023
County: Cecil

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

	MD 276 Northbound					MD 276 Southbound					Dr. Jack Rd Eastbound					Craigtown Rd 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	0	36	0	0	0	11	135	4	0	0	11	1	2	0	0	0	0	10	0	210
6:45-7:00	0	0	40	0	0	0	7	110	2	0	0	10	0	0	0	0	0	1	11	0	181
7:00-7:15	0	0	28	0	0	0	8	107	3	0	0	17	2	1	0	0	0	0	9	0	175
7:15-7:30	0	0	38	1	0	0	5	119	4	0	0	7	2	2	0	0	0	1	8	0	187
7:30-7:45	0	0	47	0	0	0	4	125	5	0	0	11	0	0	0	0	0	0	19	0	211
7:45-8:00	0	1	47	0	0	0	6	97	6	0	0	5	0	0	0	0	0	5	10	0	177
8:00-8:15	0	1	41	0	0	0	9	104	4	0	0	6	1	0	0	0	0	1	12	0	179
8:15-8:30	0	0	36	0	0	0	12	91	5	0	0	8	1	1	0	0	0	0	11	0	165
8:30-8:45	0	0	40	0	0	0	8	94	4	0	0	13	1	1	0	0	1	0	17	0	179
8:45-9:00	0	1	51	0	0	0	10	88	9	0	0	9	1	0	0	0	0	0	19	0	188
9:00-9:15	0	1	55	0	0	0	7	106	9	0	0	10	2	1	2	0	1	1	13	0	206
9:15-9:30	0	0	50	0	0	0	7	70	4	0	0	5	2	0	0	0	0	0	15	0	153
Hourly Totals																					
6:30-7:30	0	0	142	1	0	0	31	471	13	0	0	45	5	5	0	0	0	2	38	0	753
6:45-7:45	0	0	153	1	0	0	24	461	14	0	0	45	4	3	0	0	0	2	47	0	754
7:00-8:00	0	1	160	1	0	0	23	448	18	0	0	40	4	3	0	0	0	6	46	0	750
7:15-8:15	0	2	173	1	0	0	24	445	19	0	0	29	3	2	0	0	0	7	49	0	754
7:30-8:30	0	2	171	0	0	0	31	417	20	0	0	30	2	1	0	0	0	6	52	0	732
7:45-8:45	0	2	164	0	0	0	35	386	19	0	0	32	3	2	0	0	1	6	50	0	700
8:00-9:00	0	2	168	0	0	0	39	377	22	0	0	36	4	2	0	0	1	1	59	0	711
8:15-9:15	0	2	182	0	0	0	37	379	27	0	0	40	5	3	2	0	2	1	60	0	740
8:30-9:30	0	2	196	0	0	0	32	358	26	0	0	37	6	2	2	0	2	1	64	0	728

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**
6:45-7:45	**0**	**0**	**153**	**1**	**0**	**0**	**24**	**461**	**14**	**0**	**0**	**45**	**4**	**3**	**0**	**0**	**0**	**2**	**47**	**0**	**754**

Weekday Evening Peak Hour (4 pm - 7 pm)

	MD 276 Northbound					MD 276 Southbound					Dr. Jack Rd Eastbound					Craigtown Rd 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	4	112	1	0	0	9	66	13	0	0	6	2	1	0	0	0	1	18	0	233
4:15-4:30	0	3	135	0	0	0	10	82	21	0	0	7	1	3	0	0	0	2	38	0	302
4:30-4:45	0	2	131	0	0	0	9	68	7	0	0	8	1	1	1	0	0	0	28	1	255
4:45-5:00	0	0	143	1	0	0	9	66	13	0	0	14	1	1	0	0	0	0	20	2	268
5:00-5:15	0	2	123	0	0	0	3	86	22	0	0	7	2	2	0	0	0	4	27	0	278
5:15-5:30	0	2	81	1	0	0	12	103	14	0	0	11	1	1	0	0	0	2	24	0	252
5:30-5:45	0	0	95	1	0	0	14	102	16	0	0	10	2	1	0	0	0	2	27	0	270
5:45-6:00	0	1	88	1	0	0	11	86	20	0	0	11	3	2	0	0	0	1	21	0	245
6:00-6:15	0	1	78	0	0	1	11	65	15	0	0	13	1	1	0	0	0	1	25	0	212
6:15-6:30	0	1	60	0	0	0	6	77	11	0	0	9	1	0	0	0	0	0	21	0	186
6:30-6:45	0	1	67	0	0	0	7	73	17	0	0	9	1	1	0	0	0	4	14	0	194
6:45-7:00	0	1	55	0	0	0	9	85	17	0	0	8	0	1	0	0	0	4	10	0	190
Hourly Totals																					
4:00-5:00	0	9	521	2	0	0	37	282	54	0	0	35	5	6	1	0	0	3	104	3	1062
4:15-5:15	0	7	532	1	0	0	31	302	63	0	0	36	5	7	1	0	0	6	113	3	1107
4:30-5:30	0	6	478	2	0	0	33	323	56	0	0	40	5	5	1	0	0	6	99	3	1057
4:45-5:45	0	4	442	3	0	0	38	357	65	0	0	42	6	5	0	0	0	8	98	2	1070
5:00-6:00	0	5	387	3	0	0	40	377	72	0	0	39	8	6	0	0	0	9	99	0	1045
5:15-6:15	0	4	342	3	0	1	48	356	65	0	0	45	7	5	0	0	0	6	97	0	979
5:30-6:30	0	3	321	2	0	1	42	330	62	0	0	43	7	4	0	0	0	4	94	0	913
5:45-6:45	0	4	293	1	0	1	35	301	63	0	0	42	6	4	0	0	0	6	81	0	837
6:00-7:00	0	4	260	0	0	1	33	300	60	0	0	39	3	3	0	0	0	9	70	0	782

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	**0**	**7**	**532**	**1**	**0**	**0**	**31**	**302**	**63**	**0**	**0**	**36**	**5**	**7**	**1**	**0**	**0**	**6**	**113**	**0**	**1107**

Peak Hour
Turning Movement Count

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

Intersection: Dr. Jack Rd & MD 276
Weather: Clear
Count by: CountCAM - DSS
Count Day/Date: Wednesday, March 22, 2023
County: Cecil

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

	Craigtown Rd Northbound					Craigtown Rd Southbound					MD 275 Eastbound					MD 275 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	0	1	1	0	0	11	1	3	0	0	1	168	1	0	0	0	48	8	0	243
6:45-7:00	0	0	4	1	0	0	11	2	1	0	0	3	159	1	0	0	1	49	8	0	240
7:00-7:15	0	0	2	3	0	0	12	3	2	0	0	2	187	2	0	0	0	38	7	0	258
7:15-7:30	0	0	2	4	0	0	8	0	0	0	0	1	185	0	0	0	0	56	5	0	261
7:30-7:45	0	1	4	3	0	0	7	2	1	0	0	2	186	2	0	0	0	55	17	0	280
7:45-8:00	0	3	1	1	0	0	7	0	2	0	0	2	143	4	0	0	0	49	12	0	224
8:00-8:15	0	1	4	0	2	0	8	3	1	0	0	3	126	6	0	0	1	48	10	2	211
8:15-8:30	0	1	0	0	0	0	15	0	2	0	0	2	129	5	0	0	1	41	12	0	208
8:30-8:45	0	0	4	2	0	0	12	3	2	0	0	2	123	11	0	0	0	46	7	0	212
8:45-9:00	0	3	2	0	0	0	5	1	2	0	0	1	107	12	0	0	1	54	22	0	210
9:00-9:15	1	1	3	2	0	0	9	1	2	0	0	2	124	4	0	0	1	67	10	0	227
9:15-9:30	0	1	4	3	0	0	6	1	0	0	0	0	79	2	0	0	1	58	7	0	162
Hourly Totals																					
6:30-7:30	0	0	9	9	0	0	42	6	6	0	0	7	699	4	0	0	1	191	28	0	1002
6:45-7:45	0	1	12	11	0	0	38	7	4	0	0	8	717	5	0	0	1	198	37	0	1039
7:00-8:00	0	4	9	11	0	0	34	5	5	0	0	7	701	8	0	0	0	198	41	0	1023
7:15-8:15	0	5	11	8	2	0	30	5	4	0	0	8	640	12	0	0	1	208	44	2	980
7:30-8:30	0	6	9	4	2	0	37	5	6	0	0	9	584	17	0	0	2	193	51	2	927
7:45-8:45	0	5	9	3	2	0	42	6	7	0	0	9	521	26	0	0	2	184	41	2	859
8:00-9:00	0	5	10	2	2	0	40	7	7	0	0	8	485	34	0	0	3	189	51	2	845
8:15-9:15	1	5	9	4	0	0	41	5	8	0	0	7	483	32	0	0	3	208	51	0	857
8:30-9:30	1	5	13	7	0	0	32	6	6	0	0	5	433	29	0	0	3	225	46	0	811

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**
6:45-7:45	**0**	**1**	**12**	**11**	**0**	**0**	**38**	**7**	**4**	**0**	**0**	**8**	**717**	**5**	**0**	**0**	**1**	**198**	**37**	**0**	**1039**

Weekday Evening Peak Hour (4 pm - 7 pm)

	Craigtown Rd Northbound					Craigtown Rd Southbound					MD 275 Eastbound					MD 275 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	1	1	1	0	0	4	3	2	0	0	2	64	3	0	0	1	166	25	0	273
4:15-4:30	0	0	2	2	0	0	6	2	8	0	0	3	84	3	0	0	2	163	26	0	301
4:30-4:45	0	2	2	1	1	0	6	3	5	0	0	3	77	1	1	0	2	168	26	1	296
4:45-5:00	0	0	2	0	0	0	4	1	4	0	0	2	81	2	0	0	2	176	20	0	294
5:00-5:15	0	1	2	1	0	0	5	4	6	0	0	1	94	6	0	0	2	131	31	0	284
5:15-5:30	0	0	4	2	0	0	7	2	4	0	0	3	100	1	0	0	2	116	20	0	261
5:30-5:45	0	1	3	3	0	0	10	2	5	0	0	2	94	2	0	0	4	120	21	0	267
5:45-6:00	0	1	6	2	0	0	7	1	5	0	0	3	78	1	0	0	2	117	24	0	247
6:00-6:15	0	2	5	0	0	0	12	2	4	0	0	5	87	2	0	0	1	96	21	0	237
6:15-6:30	0	0	4	0	0	0	10	0	2	0	0	3	80	2	0	0	1	73	12	0	187
6:30-6:45	0	1	2	0	1	0	5	6	5	0	0	2	79	2	0	0	3	69	17	2	191
6:45-7:00	0	0	2	0	0	0	5	3	2	0	0	0	68	3	0	0	3	71	12	0	169
Hourly Totals																					
4:00-5:00	0	3	7	4	1	0	20	9	19	0	0	10	306	9	1	0	7	673	97	1	1167
4:15-5:15	0	3	8	4	1	0	21	10	23	0	0	9	336	12	1	0	8	638	103	1	1178
4:30-5:30	0	3	10	4	1	0	22	10	19	0	0	9	352	10	1	0	8	591	97	1	1138
4:45-5:45	0	2	11	6	0	0	26	9	19	0	0	8	369	11	0	0	10	543	92	0	1106
5:00-6:00	0	3	15	8	0	0	29	9	20	0	0	9	366	10	0	0	10	484	96	0	1059
5:15-6:15	0	4	18	7	0	0	36	7	18	0	0	13	359	6	0	0	9	449	86	0	1012
5:30-6:30	0	4	18	5	0	0	39	5	16	0	0	13	339	7	0	0	8	406	78	0	938
5:45-6:45	0	4	17	2	1	0	34	9	16	0	0	13	324	7	0	0	7	355	74	2	865
6:00-7:00	0	3	13	0	1	0	32	11	13	0	0	10	314	9	0	0	8	309	62	2	787

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	**0**	**3**	**8**	**4**	**1**	**0**	**21**	**10**	**23**	**0**	**0**	**9**	**336**	**12**	**1**	**0**	**8**	**638**	**103**	**0**	**1178**

Peak Hour
Turning Movement Count

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

Intersection: MD 275 & Craigtown Rd
Weather: Clear
Count by: CountCAM - DSS
Count Day/Date: Wednesday, March 22, 2023
County: Cecil

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

	MD 222 Northbound					MD 222 Southbound					Craigtown Rd Eastbound					N/A 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	1	28		0	0		5	2	0	0	6		0	0					0	42
6:45-7:00	0	0	33		0	0		7	0	0	0	2		0	0					0	42
7:00-7:15	0	0	27		0	0		12	1	0	0	6		0	0					0	46
7:15-7:30	0	0	29		0	0		4	3	0	0	6		0	0					0	42
7:30-7:45	0	0	21		0	0		5	7	0	0	8		0	0					0	41
7:45-8:00	0	0	23		0	0		7	7	0	0	7		0	0					0	44
8:00-8:15	0	0	16		0	0		8	5	0	0	5		1	0					0	35
8:15-8:30	0	0	18		0	0		9	7	0	0	4		0	0					0	38
8:30-8:45	0	1	23		0	0		5	8	0	0	5		0	0					0	42
8:45-9:00	0	1	21		0	0		14	13	0	0	15		0	0					0	64
9:00-9:15	0	0	26		0	0		8	4	0	0	6		1	0					0	45
9:15-9:30	0	1	17		0	0		13	8	0	0	5		0	0					0	44
Hourly Totals																					
6:30-7:30	0	1	117	0	0	0	0	28	6	0	0	20	0	0	0	0	0	0	0	0	172
6:45-7:45	0	0	110	0	0	0	0	28	11	0	0	22	0	0	0	0	0	0	0	0	171
7:00-8:00	0	0	100	0	0	0	0	28	18	0	0	27	0	0	0	0	0	0	0	0	173
7:15-8:15	0	0	89	0	0	0	0	24	22	0	0	26	0	1	0	0	0	0	0	0	162
7:30-8:30	0	0	78	0	0	0	0	29	26	0	0	24	0	1	0	0	0	0	0	0	158
7:45-8:45	0	1	80	0	0	0	0	29	27	0	0	21	0	1	0	0	0	0	0	0	159
8:00-9:00	0	2	78	0	0	0	0	36	33	0	0	29	0	1	0	0	0	0	0	0	179
8:15-9:15	0	2	88	0	0	0	0	36	32	0	0	30	0	1	0	0	0	0	0	0	189
8:30-9:30	0	3	87	0	0	0	0	40	33	0	0	31	0	1	0	0	0	0	0	0	195

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**
8:30-9:30	**0**	**3**	**87**	**0**	**0**	**0**	**0**	**40**	**33**	**0**	**0**	**31**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**195**

Weekday Evening Peak Hour (4 pm - 7 pm)

	MD 222 Northbound					MD 222 Southbound					Craigtown Rd Eastbound					N/A 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	1	2	23		0	0		23	7	0	0	10		1	0					0	67
4:15-4:30	0	1	22		0	2		29	6	0	0	5		2	0					0	67
4:30-4:45	0	0	19		0	0		22	4	0	0	12		1	0					0	58
4:45-5:00	0	0	27		0	0		24	12	0	0	2		0	0					0	65
5:00-5:15	0	0	27		0	0		30	9	0	0	13		1	0					0	80
5:15-5:30	0	0	28		0	0		28	12	0	0	9		0	0					0	77
5:30-5:45	0	1	28		0	1		20	8	0	0	2		0	0					0	60
5:45-6:00	0	0	26		0	0		22	4	0	0	5		1	0					0	58
6:00-6:15	0	0	22		0	0		19	2	0	0	3		2	0					0	48
6:15-6:30	1	0	12		0	0		18	4	0	0	0		0	0					0	35
6:30-6:45	0	1	17		0	0		13	9	0	0	2		0	0					0	42
6:45-7:00	0	0	18		0	0		10	5	0	0	3		0	0					0	36
Hourly Totals																					
4:00-5:00	1	3	91	0	0	2	0	98	29	0	0	29	0	4	0	0	0	0	0	0	257
4:15-5:15	0	1	95	0	0	2	0	105	31	0	0	32	0	4	0	0	0	0	0	0	270
4:30-5:30	0	0	101	0	0	0	0	104	37	0	0	36	0	2	0	0	0	0	0	0	280
4:45-5:45	0	1	110	0	0	1	0	102	41	0	0	26	0	1	0	0	0	0	0	0	282
5:00-6:00	0	1	109	0	0	1	0	100	33	0	0	29	0	2	0	0	0	0	0	0	275
5:15-6:15	0	1	104	0	0	1	0	89	26	0	0	19	0	3	0	0	0	0	0	0	243
5:30-6:30	1	1	88	0	0	1	0	79	18	0	0	10	0	3	0	0	0	0	0	0	201
5:45-6:45	1	1	77	0	0	0	0	72	19	0	0	10	0	3	0	0	0	0	0	0	183
6:00-7:00	1	1	69	0	0	0	0	60	20	0	0	8	0	2	0	0	0	0	0	0	161

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**
4:45-5:45	**0**	**1**	**110**	**0**	**0**	**1**	**0**	**102**	**41**	**0**	**0**	**26**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**282**

Peak Hour
Turning Movement Count

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Intersection: Craigtown Rd & MD 222
Weather: Clear
Count by: CountCAM - DSS
Count Day/Date: Wednesday, March 22, 2023
County: Cecil

Trip Generation Rates

Single-Family Detached Housing (ITE-210, Units)	Trip Distribution (In/Out)
Ln(Morning Trips) = 0.91 x Ln(Units) + 0.12	26/74
Ln(Evening Trips) = 0.94 x Ln(Units) + 0.27	63/37

Trip Generation Totals

			AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
Single-Family Detached Housing (ITE-210, Units)	40	units	8	24	32	26	16	42
		Total:	**8**	**24**	**32**	**26**	**16**	**42**

Notes:

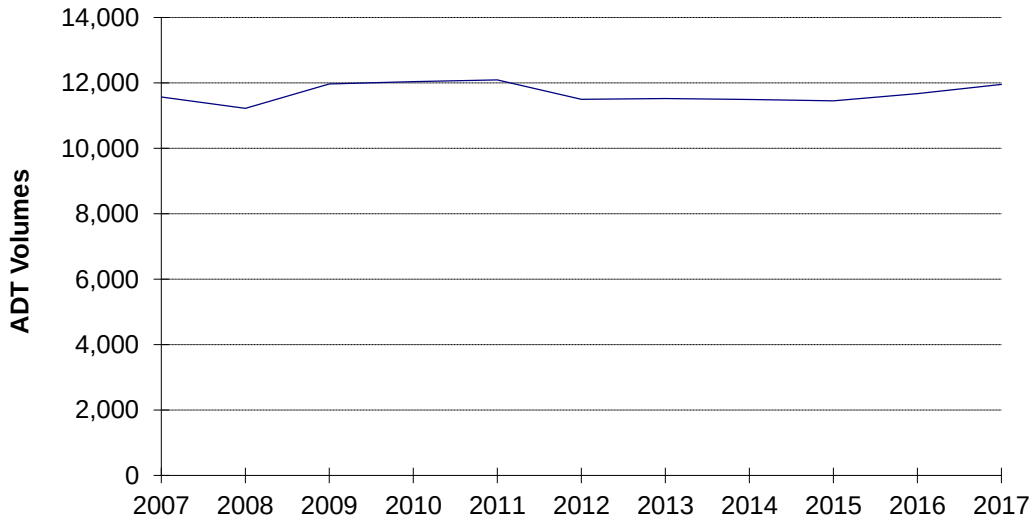
1. Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition.

Traffic Impact Analysis	Trip Generation for Homestead Drive	**Exhibit A-1**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning		

TRAFFIC GROWTH PROJECTION

LOCATION: **MD 275 East of MD 276**
REPORT DATE: 11-Jul-18
AVERAGE GROWTH: 0.37%
MATHEMATICAL GROWTH: 0.32%

Year	ADT Volume	Vol. increase	% increase	Average %
2007	11,571			
2008	11,222	-349	-3.02%	-3.02%
2009	11,970	748	6.67%	1.82%
2010	12,041	71	0.59%	1.41%
2011	12,092	51	0.42%	1.17%
2012	11,500	-592	-4.90%	-0.05%
2013	11,521	21	0.18%	-0.01%
2014	11,492	-29	-0.25%	-0.04%
2015	11,450	-42	-0.37%	-0.08%
2016	11,671	221	1.93%	0.14%
2017	11,952	281	2.41%	0.37%



TRAFFIC GROWTH
MD 275 East of MD 276

Appendix B

Level of Service (LOS) Worksheets

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: MD 275
and: MD 276
Conditions: Existing Traffic

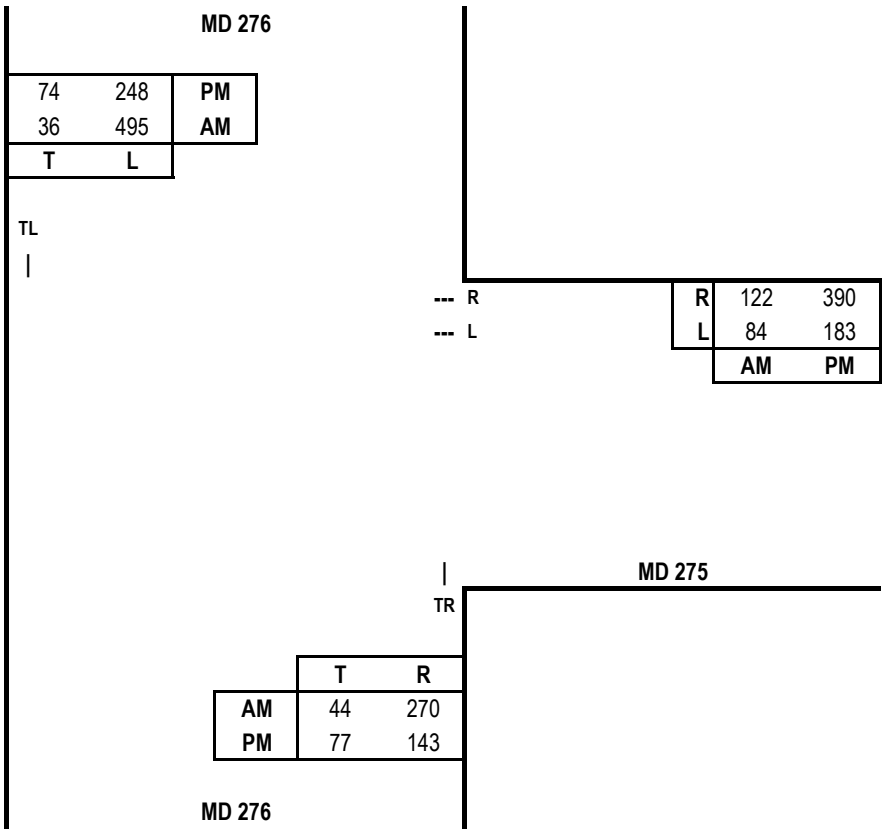
Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes

NOTES:

1: Southbound MD 276 has a protected / permitted left turn phase for the left turn movements.

2. There is a 10-12' shoulder along southbound MD 276 for through traffic to bypass as needed, but with the low through traffic and E/P left turn phasing the through traffic is not significantly impeded by lefts.



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	84	1.00	84				84
NB	314	1.00	314	495	1.00	495	809
SB	531	1.00	531				
CLV TOTAL=							**893**
Level of Service (LOS)=							**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	183	1.00	183				183
NB	220	1.00	220	248	1.00	248	468
SB	322	1.00	322				
CLV TOTAL=							**651**
Level of Service (LOS)=							**A**

Critical Lane Volume Analysis

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N

MD 275 &
MD 276
(Existing Traffic)

Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: MD 275
and: MD 276
Conditions: Background Traffic

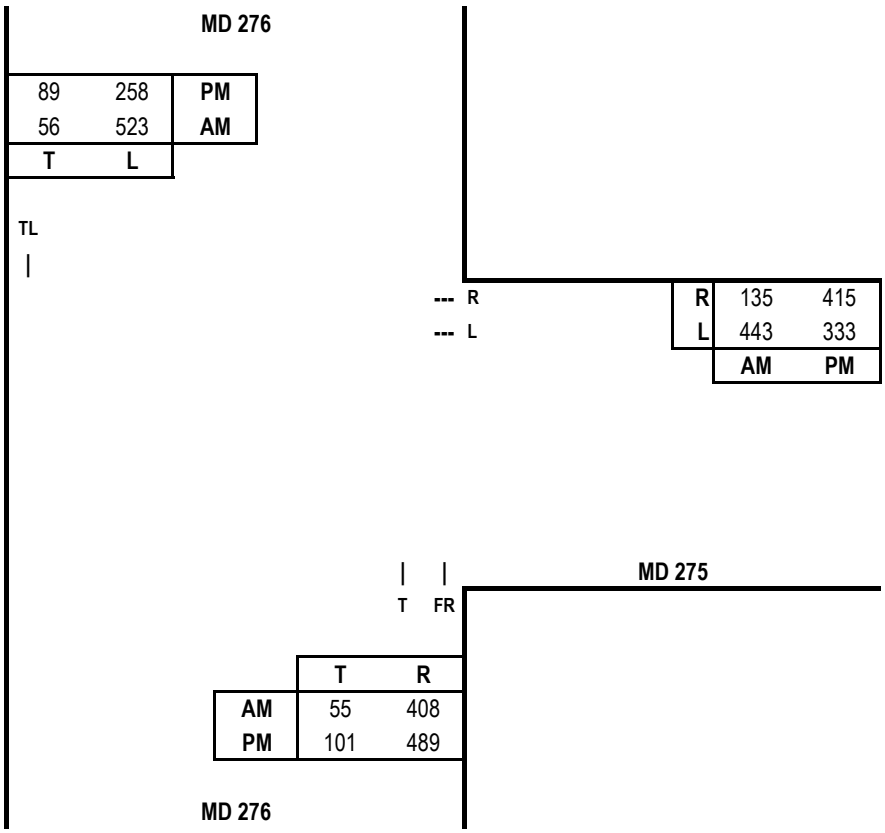
Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes

NOTES:

1: Southbound MD 276 has a protected / permitted left turn phase for the left turn movements.

2. There is a 10-12' shoulder along southbound MD 276 for through traffic to bypass as needed, but with the low through traffic and E/P left turn phasing the through traffic is not significantly impeded by lefts.



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	443	1.00	443				443
NB	55	1.00	55	523	1.00	523	579
SB	579	1.00	579				
					CLV TOTAL=		1022
					Level of Service (LOS)=		B

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	333	1.00	333				333
NB	101	1.00	101	258	1.00	258	359
SB	347	1.00	347				
					CLV TOTAL=		692
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

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MD 275 &
MD 276
(Background Traffic)

Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: MD 275
and: MD 276
Conditions: Total Traffic - Phase 1A

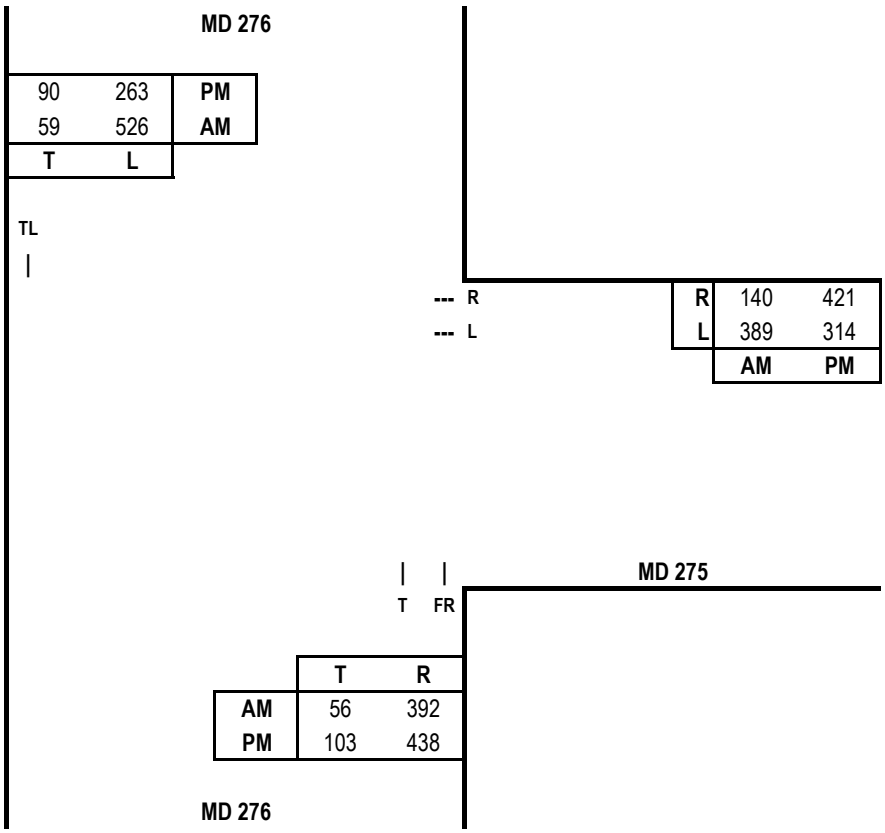
Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes

NOTES:

1: Southbound MD 276 has a protected / permitted left turn phase for the left turn movements.

2. There is a 10-12' shoulder along southbound MD 276 for through traffic to bypass as needed, but with the low through traffic and E/P left turn phasing the through traffic is not significantly impeded by lefts.



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	389	1.00	389				389
NB	56	1.00	56	526	1.00	526	585
SB	585	1.00	585				
CLV TOTAL=							**974**
Level of Service (LOS)=							**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	314	1.00	314				314
NB	103	1.00	103	263	1.00	263	366
SB	353	1.00	353				
CLV TOTAL=							**680**
Level of Service (LOS)=							**A**

Critical Lane Volume Analysis

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N

MD 275 &
MD 276
(Total Traffic - Phase 1A)

Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: MD 275
and: MD 276
Conditions: Total Traffic - Phase 2

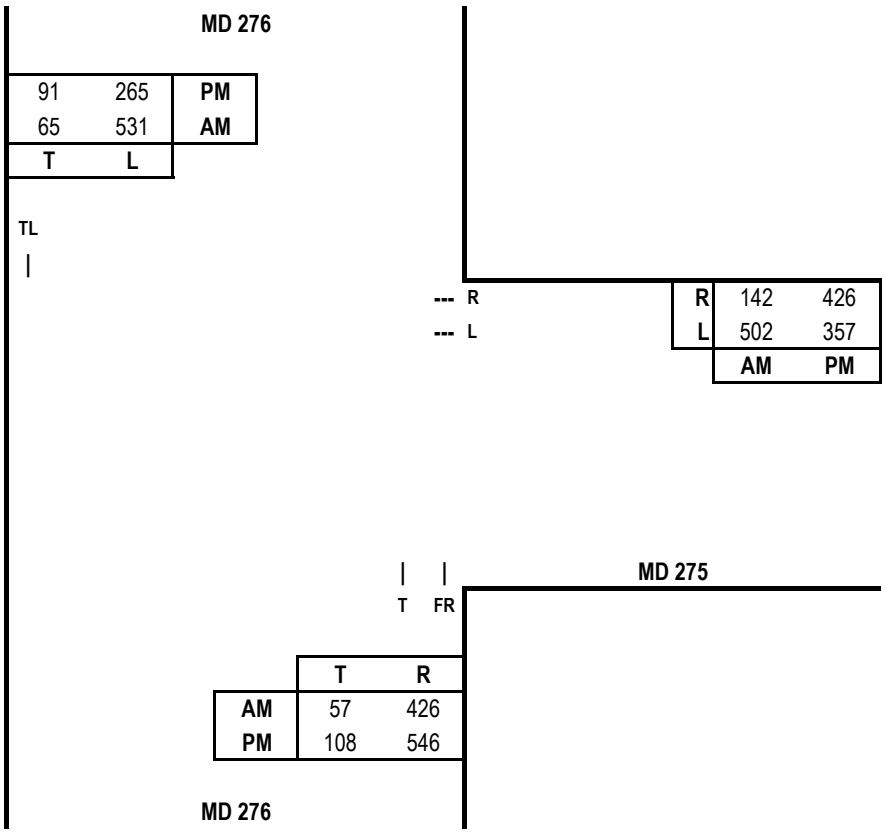
Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes

NOTES:

1: Southbound MD 276 has a protected / permitted left turn phase for the left turn movements.

2. There is a 10-12' shoulder along southbound MD 276 for through traffic to bypass as needed, but with the low through traffic and E/P left turn phasing the through traffic is not significantly impeded by lefts.



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	502	1.00	502				502
NB	57	1.00	57	531	1.00	531	596
SB	596	1.00	596				
CLV TOTAL=							**1098**
Level of Service (LOS)=							**B**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	357	1.00	357				357
NB	108	1.00	108	265	1.00	265	373
SB	356	1.00	356				
CLV TOTAL=							**730**
Level of Service (LOS)=							**A**

Critical Lane Volume Analysis

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N

MD 275 &
MD 276
(Total Traffic - Phase 2)

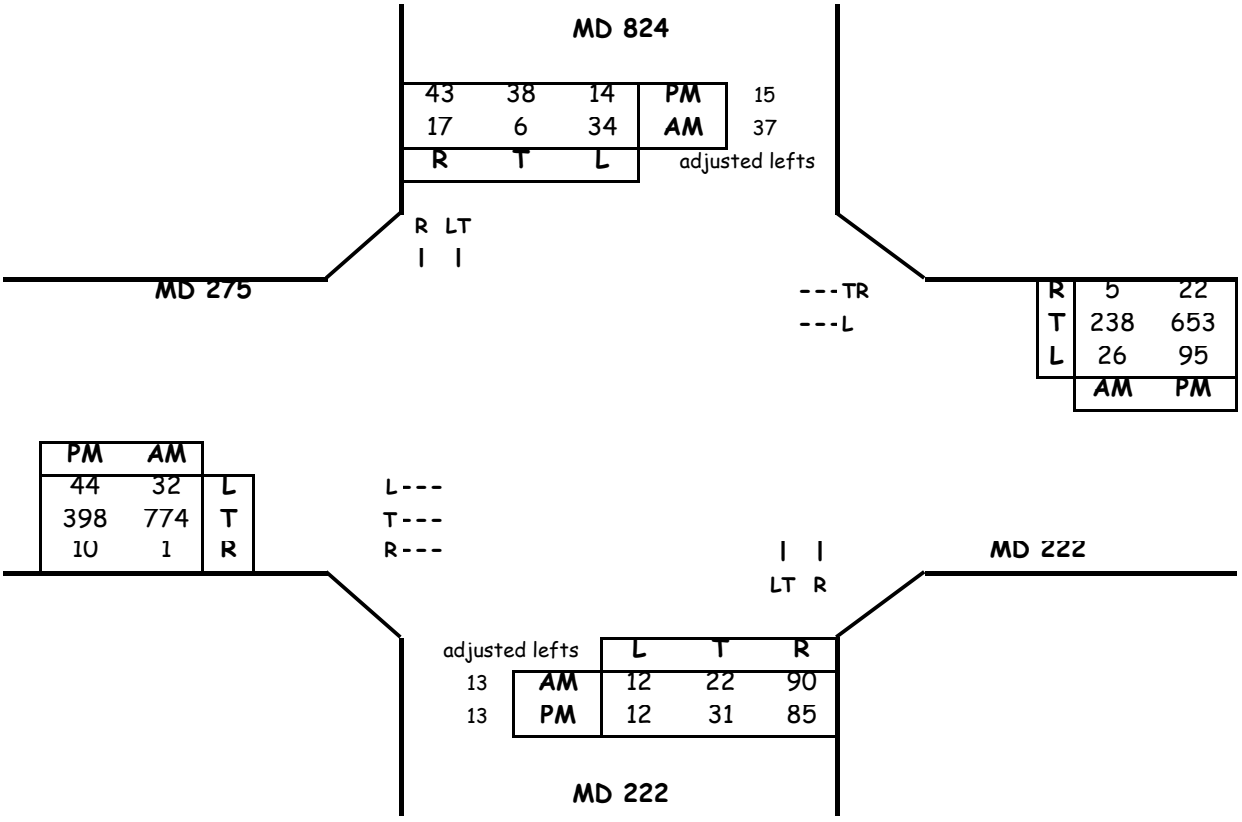
Intersection
1

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 824
Minor Street: MD 222
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	64	1.00	64	34	1	34	98
SB	43	1.00	43	12	1	12	
EB	774	1	774	26	1	26	800
WB	243	1	243	32	1	32	

CLV TOTAL= **898**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	44	1.00	44	14	1	14	65
SB	53	1.00	53	12	1	12	
EB	398	1	398	95	1	95	719
WB	675	1	675	44	1	44	

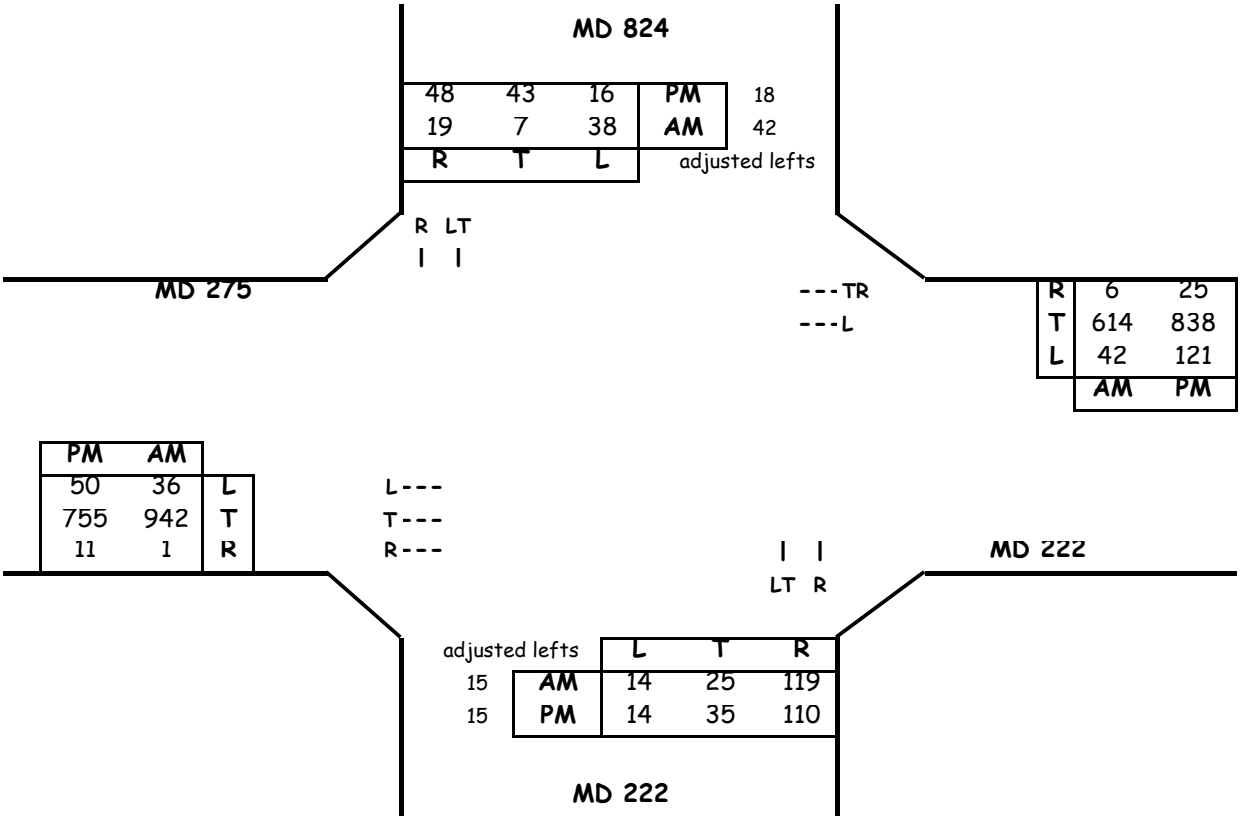
CLV TOTAL= **784**
Level of Service (LOS)= **A**

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 824
Minor Street: MD 222
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	77	1.00	77	38	1	38	115
SB	49	1.00	49	14	1	14	
EB	942	1	942	42	1	42	984
WB	620	1	620	36	1	36	

CLV TOTAL= **1099**
Level of Service (LOS)= **B**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	50	1.00	50	16	1	16	75
SB	61	1.00	61	14	1	14	
EB	755	1	755	121	1	121	913
WB	863	1	863	50	1	50	

CLV TOTAL= **988**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 824 &
MD 222
(Background Traffic)

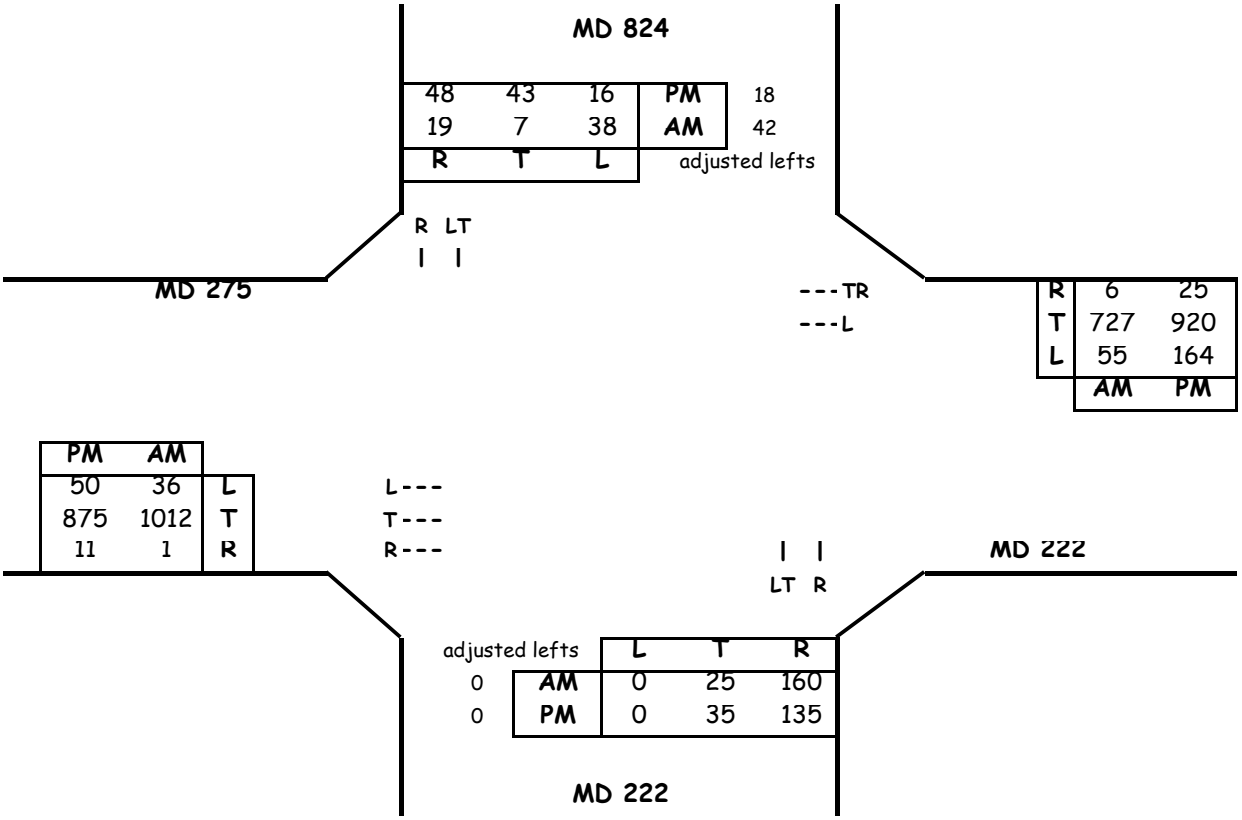
Intersection
2

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 824
Minor Street: MD 222
Study Period: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	105	1.00	105	38	1	38	143
SB	49	1.00	49	0	1	0	
EB	1012	1	1012	55	1	55	1067
WB	733	1	733	36	1	36	

CLV TOTAL= **1210**
Level of Service (LOS)= **C**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	35	1.00	35	16	1	16	61
SB	61	1.00	61	0	1	0	
EB	875	1	875	164	1	164	1039
WB	945	1	945	50	1	50	

CLV TOTAL= **1100**
Level of Service (LOS)= **B**

Critical Lane Volume Analysis

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MD 824 &
MD 222
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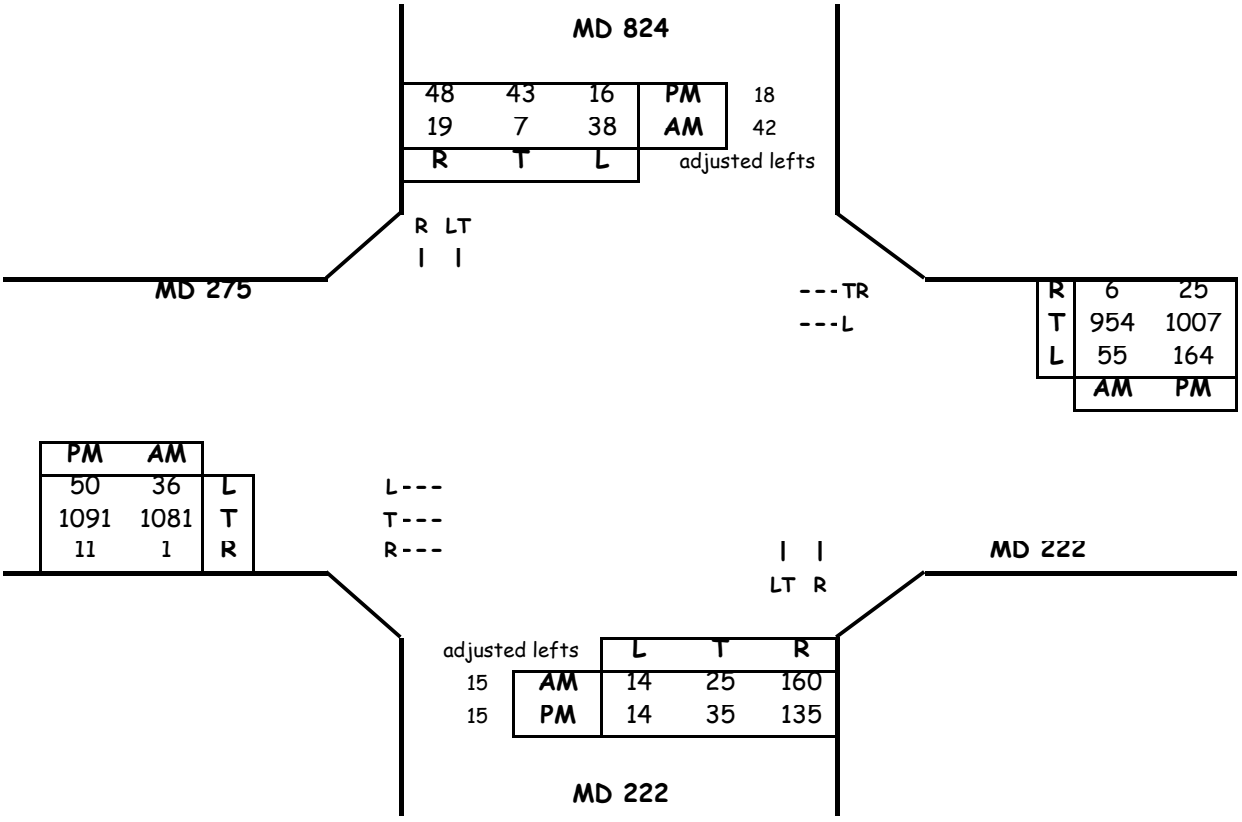
Intersection
2

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 824
Minor Street: MD 222
Study Period: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	105	1.00	105	38	1	38	143
SB	49	1.00	49	14	1	14	
EB	1081	1	1081	55	1	55	1136
WB	960	1	960	36	1	36	

CLV TOTAL= **1279**
Level of Service (LOS)= **C**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	50	1.00	50	16	1	16	75
SB	61	1.00	61	14	1	14	
EB	1091	1	1091	164	1	164	1255
WB	1032	1	1032	50	1	50	

CLV TOTAL= **1330**
Level of Service (LOS)= **D**

Critical Lane Volume Analysis

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MD 824 &
MD 222
(Total Traffic - Phase 2)

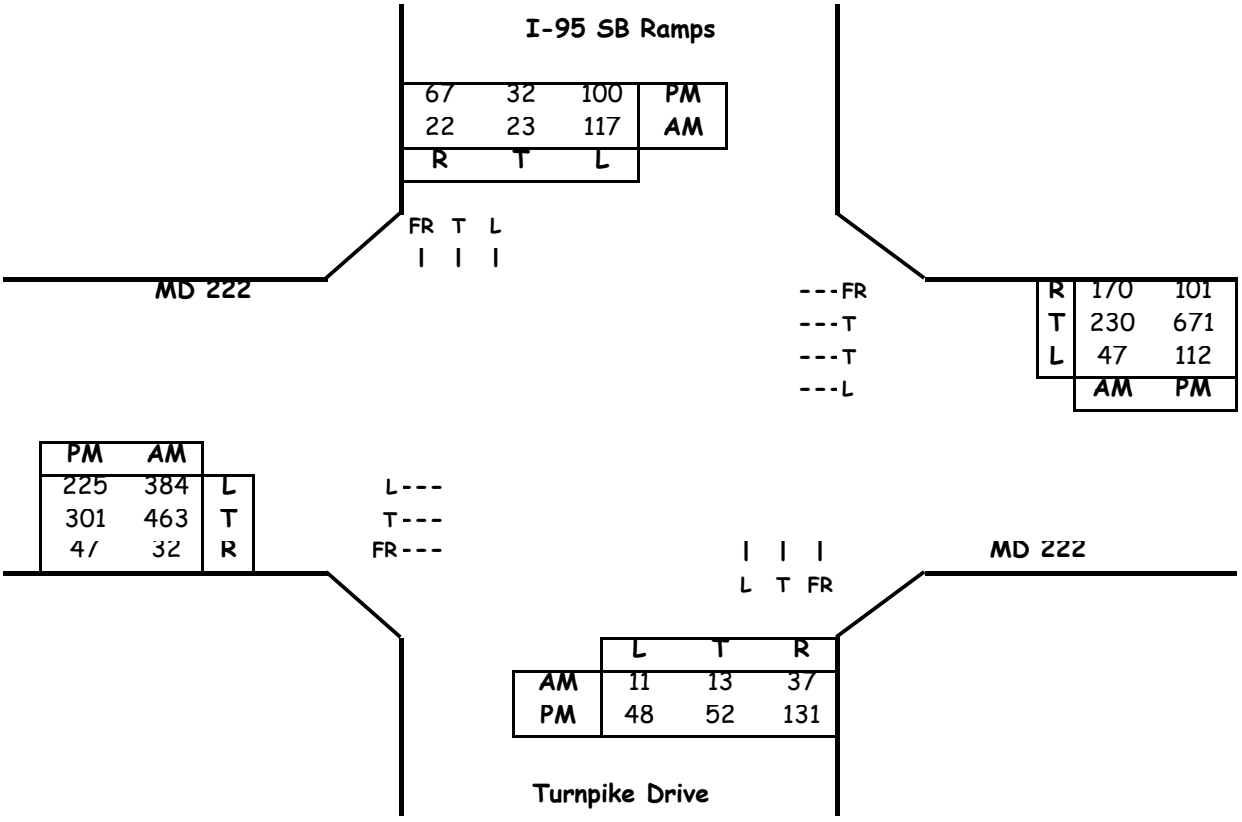
Intersection
2

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 222
Minor Street: I-95 SB Ramps
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	13	1.00	13	117	1	117	130
SB	23	1.00	23	11	1	11	
EB	463	1	463	47	1	47	511
WB	230	0.55	127	384	1	384	

CLV TOTAL= **641**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	52	1.00	52	100	1	100	152
SB	32	1.00	32	48	1	48	
EB	301	1	301	112	1	112	594
WB	671	0.55	369	225	1	225	

CLV TOTAL= **746**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 222 &
I-95 SB Ramps
(Existing Traffic)

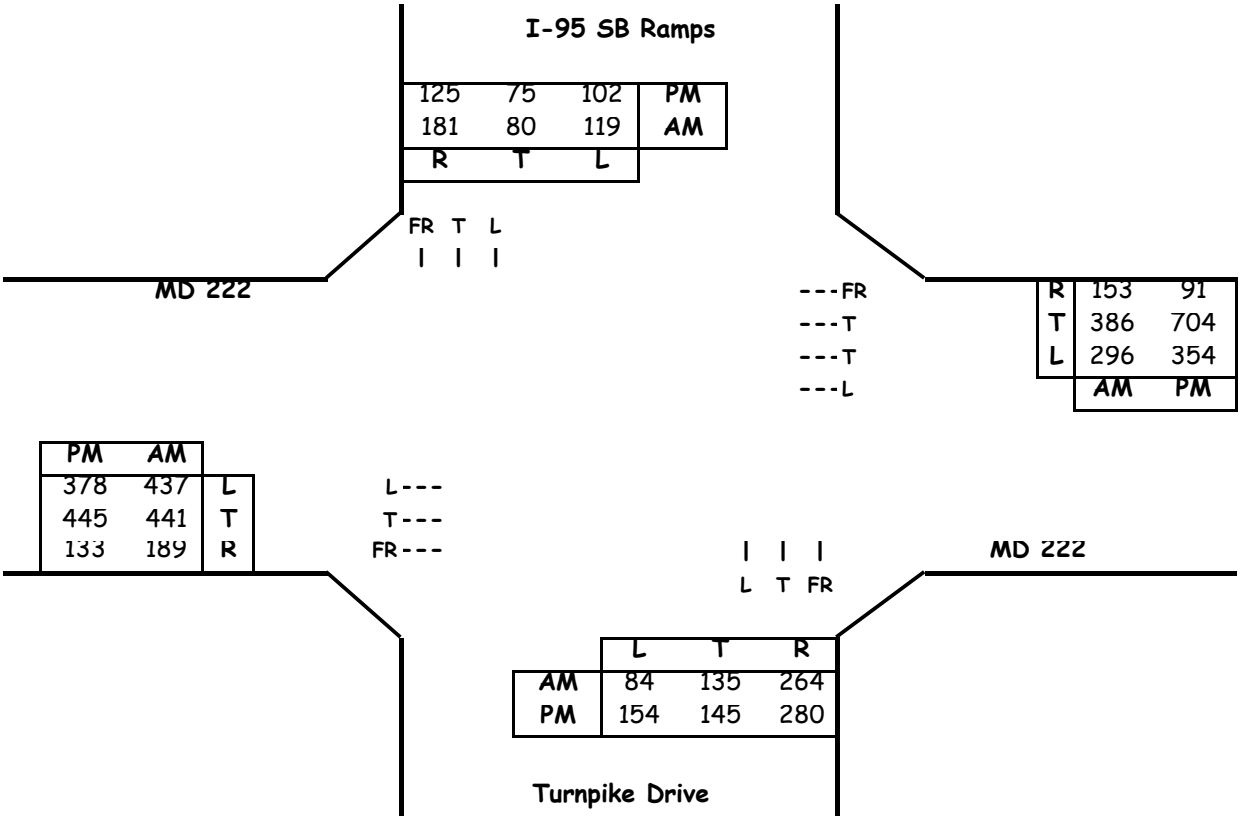
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 222
Minor Street: I-95 SB Ramps
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	135	1.00	135	119	1	119	254
SB	80	1.00	80	84	1	84	
EB	441	1	441	296	1	296	737
WB	386	0.55	212	437	1	437	

CLV TOTAL= **991**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	145	1.00	145	102	1	102	247
SB	75	1.00	75	154	1	154	
EB	445	1	445	354	1	354	799
WB	704	0.55	387	378	1	378	

CLV TOTAL= **1046**
Level of Service (LOS)= **B**

Critical Lane Volume Analysis

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MD 222 &
I-95 SB Ramps
(Background Traffic)

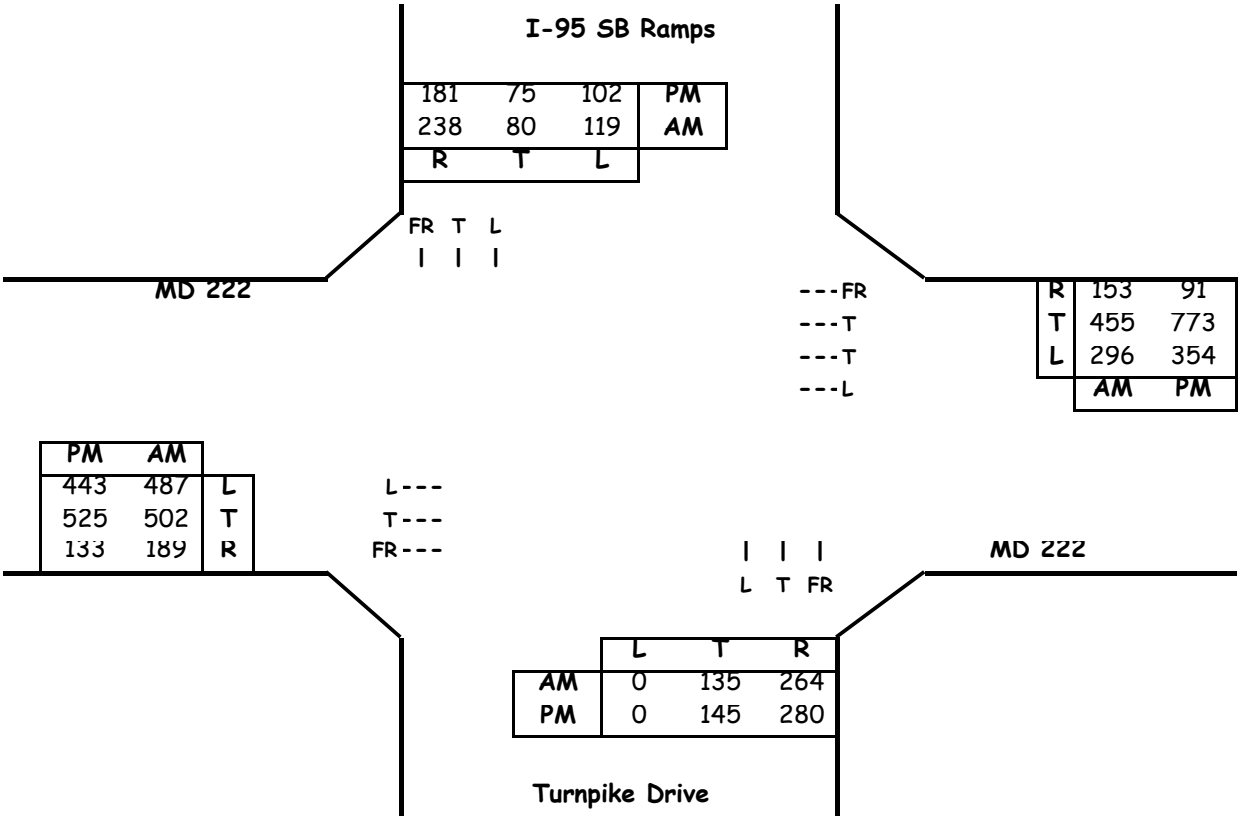
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 222
Minor Street: I-95 SB Ramps
Study Period: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	135	1.00	135	119	1	119	254
SB	80	1.00	80	0	1	0	
EB	502	1	502	296	1	296	798
WB	455	0.55	250	487	1	487	

CLV TOTAL= **1052**
Level of Service (LOS)= **B**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	145	1.00	145	102	1	102	247
SB	75	1.00	75	0	1	0	
EB	525	1	525	354	1	354	879
WB	773	0.55	425	443	1	443	

CLV TOTAL= **1126**
Level of Service (LOS)= **B**

Critical Lane Volume Analysis

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MD 222 &
I-95 SB Ramps
(Total Traffic - Phase 1A)

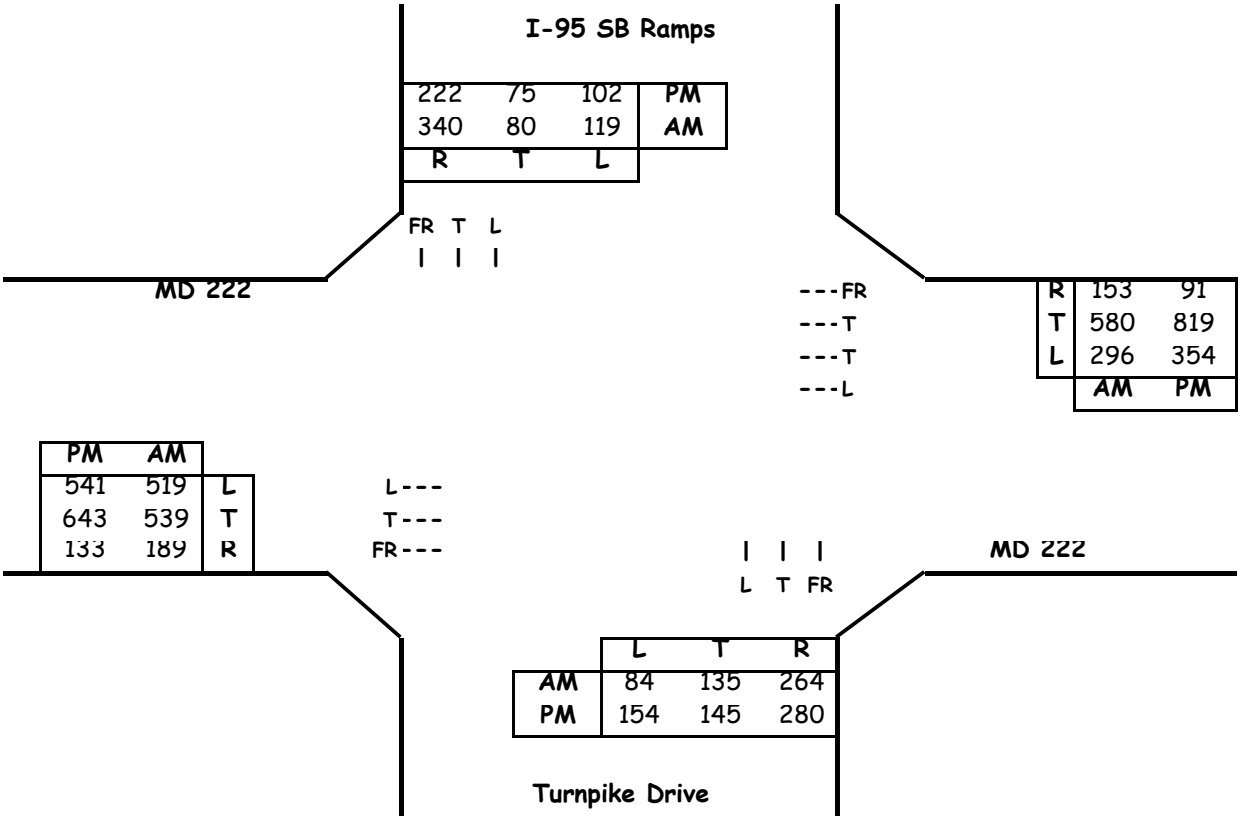
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 222
Minor Street: I-95 SB Ramps
Study Period: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	135	1.00	135	119	1	119	254
SB	80	1.00	80	84	1	84	
EB	539	1	539	296	1	296	838
WB	580	0.55	319	519	1	519	

CLV TOTAL= **1092**
Level of Service (LOS)= **B**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	145	1.00	145	102	1	102	247
SB	75	1.00	75	154	1	154	
EB	643	1	643	354	1	354	997
WB	819	0.55	450	541	1	541	

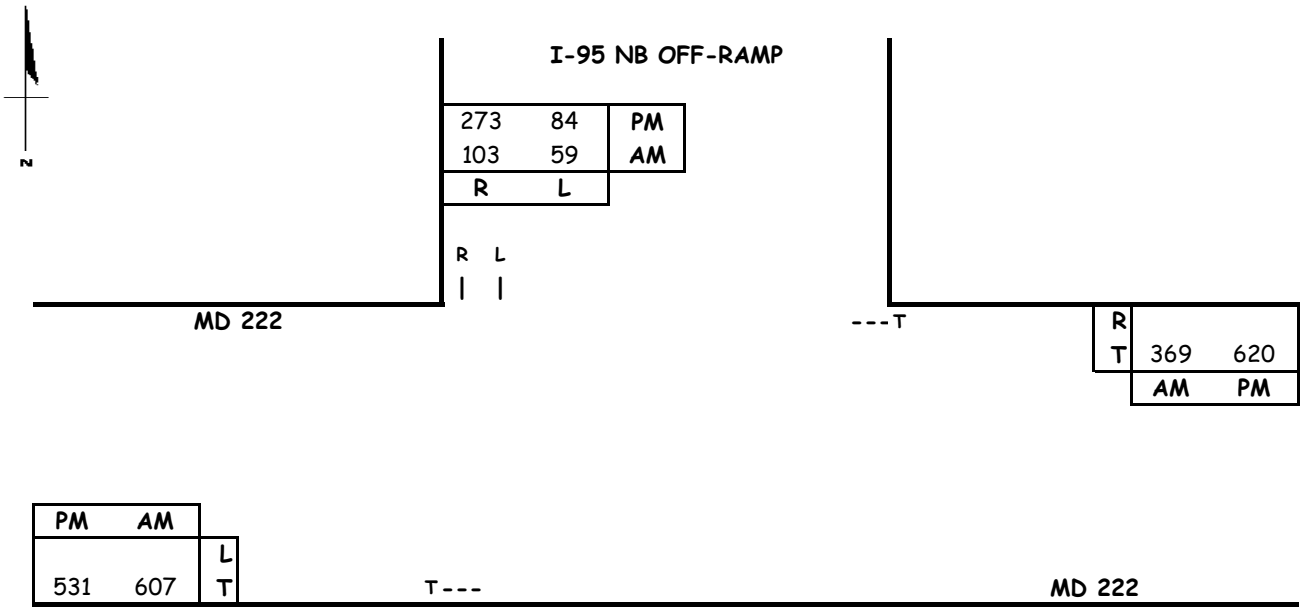
CLV TOTAL= **1244**
Level of Service (LOS)= **C**

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB OFF-RAMP
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



EB Thru - WB Thru	Assumed percentage of RTOR	Resulting RTOR's from North Leg
AM 238	50%	119 (Use 112)
PM 0	50%	0

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	59	1.00	59				59
EB	607	1.00	607				607
WB	369	1.00	369				
						CLV TOTAL=	**666**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	273	1.00	273				273
EB	531	1.00	531				620
WB	620	1.00	620				
						CLV TOTAL=	**893**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB OFF-RAMP
(Existing Traffic)

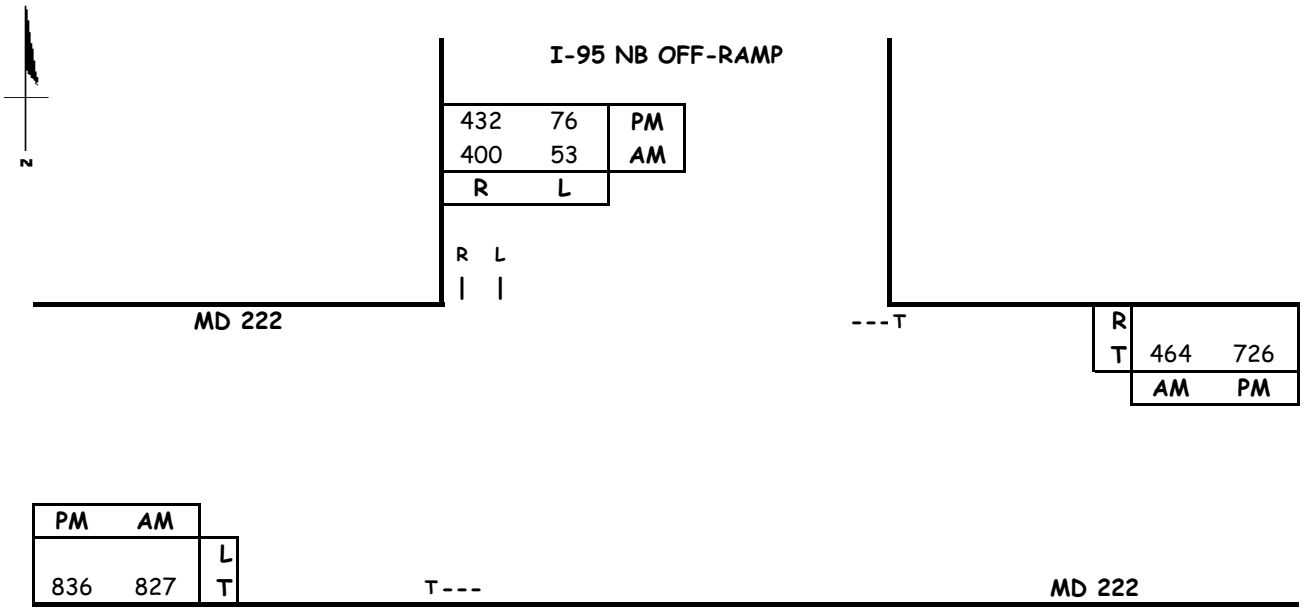
Intersection
4

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB OFF-RAMP
Conditions: Background Conditions

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



EB Thru - WB Thru	Assumed percentage of RTOR	Resulting RTOR's from North Leg
AM 363	50%	182
PM 110	50%	55

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	218	1.00	218				218
EB	827	1.00	827				827
WB	464	1.00	464				

CLV TOTAL= **1045**
Level of Service (LOS)= **B**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	377	1.00	377				377
EB	836	1.00	836				836
WB	726	1.00	726				

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

Critical Lane Volume Analysis

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MD 222 &
I-95 NB OFF-RAMP
(Background Conditions)

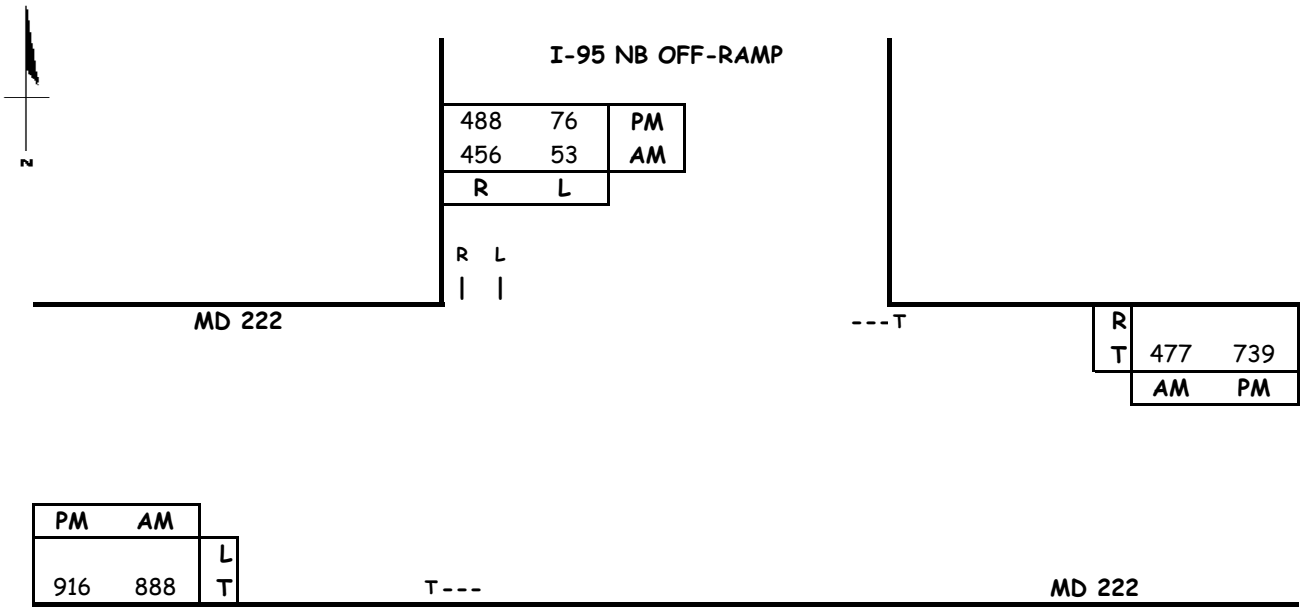
Intersection
4

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB OFF-RAMP
Conditions: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



EB Thru - WB Thru		Assumed percentage of RTOR	Resulting RTOR's from North Leg
AM	411	50%	206
PM	177	50%	89

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	250	1.00	250				250
EB	888	1.00	888				888
WB	477	1.00	477				
						CLV TOTAL=	**1138**
						Level of Service (LOS)=	**B**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	399	1.00	399				399
EB	916	1.00	916				916
WB	739	1.00	739				
						CLV TOTAL=	**1315**
						Level of Service (LOS)=	**D**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB OFF-RAMP
(Total Traffic - Phase 1A)

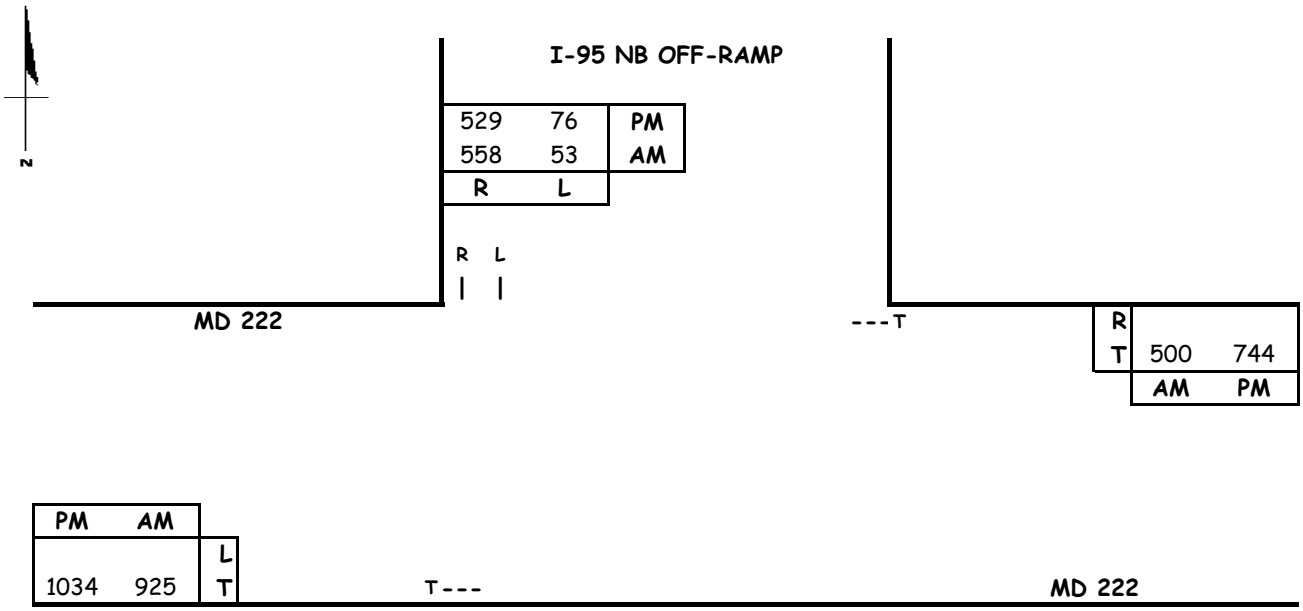
Intersection
4

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB OFF-RAMP
Conditions: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



EB Thru - WB Thru		Assumed percentage of RTOR	Resulting RTOR's from North Leg
AM	425	50%	213
PM	290	50%	145

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	345	1.00	345				345
EB	925	1.00	925				925
WB	500	1.00	500				

CLV TOTAL= **1270**
Level of Service (LOS)= **C**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	384	1.00	384				384
EB	1034	1.00	1034				1034
WB	744	1.00	744				

CLV TOTAL= **1418**
Level of Service (LOS)= **D**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB OFF-RAMP
(Total Traffic - Phase 2)

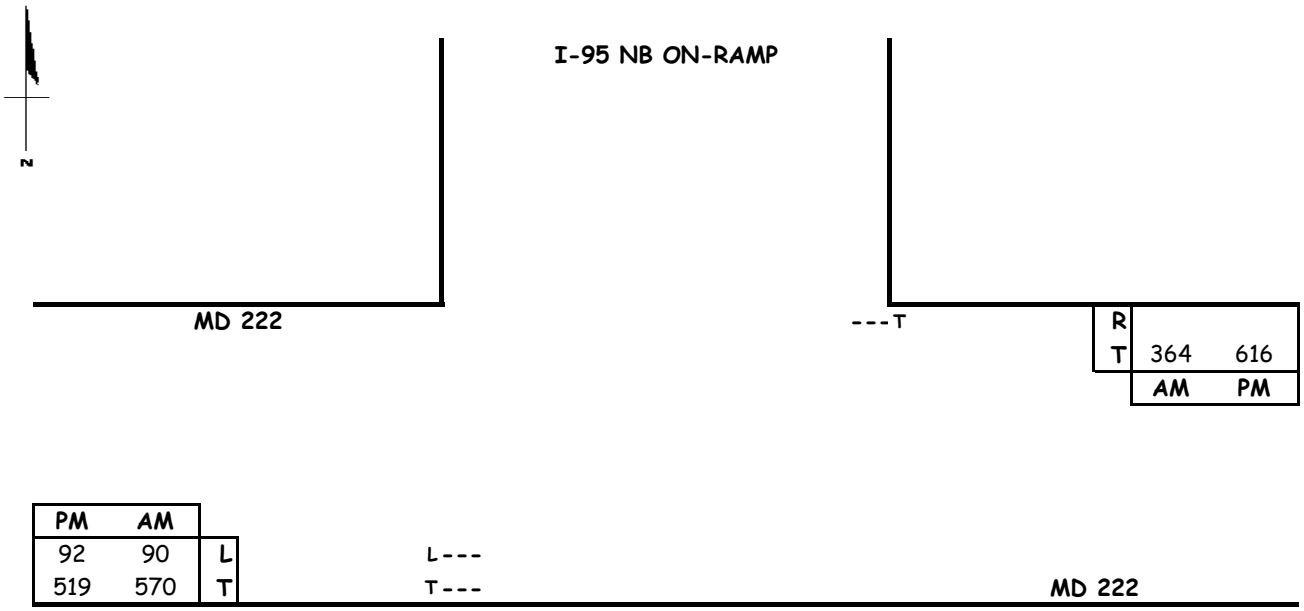
Intersection
4

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB ON-RAMP
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

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							
EB	570	1.00	570				570
WB	364	1.00	364	90	1.00	90	

CLV TOTAL= **570**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB							
EB	519	1.00	519				708
WB	616	1.00	616	92	1.00	92	

CLV TOTAL= **708**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB ON-RAMP
(Existing Traffic)

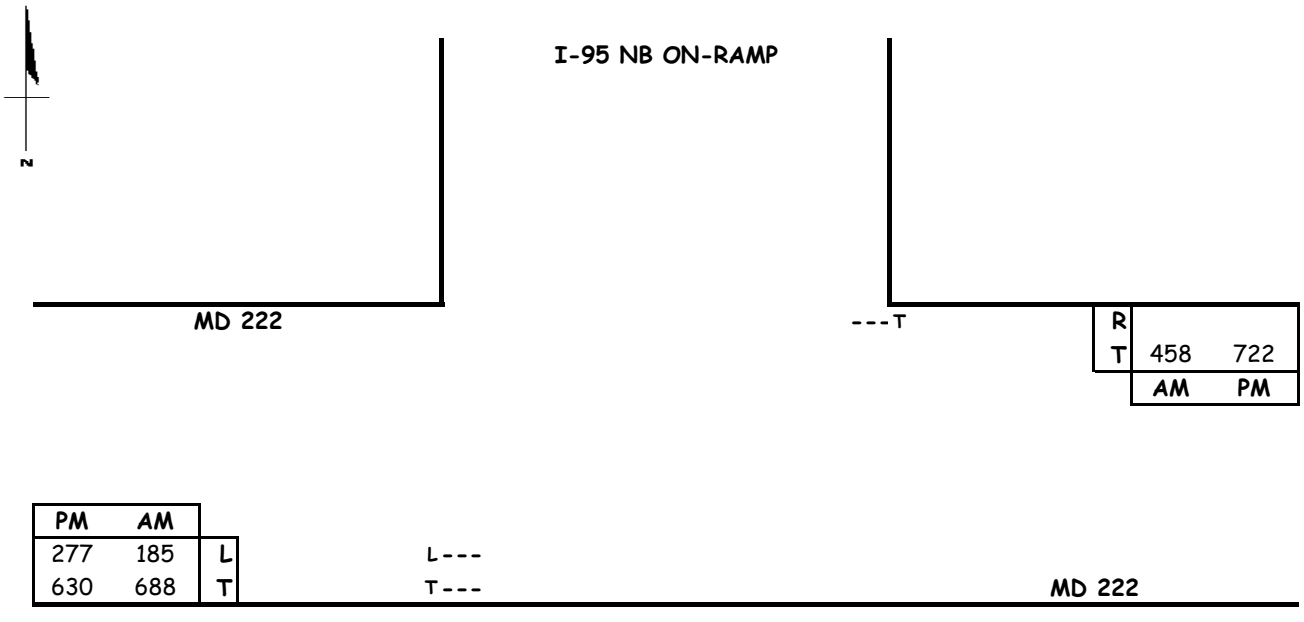
Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB ON-RAMP
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

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							
EB	688	1.00	688				688
WB	458	1.00	458	185	1.00	185	

CLV TOTAL= **688**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB							
EB	630	1.00	630				999
WB	722	1.00	722	277	1.00	277	

CLV TOTAL= **999**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB ON-RAMP
(Background Traffic)

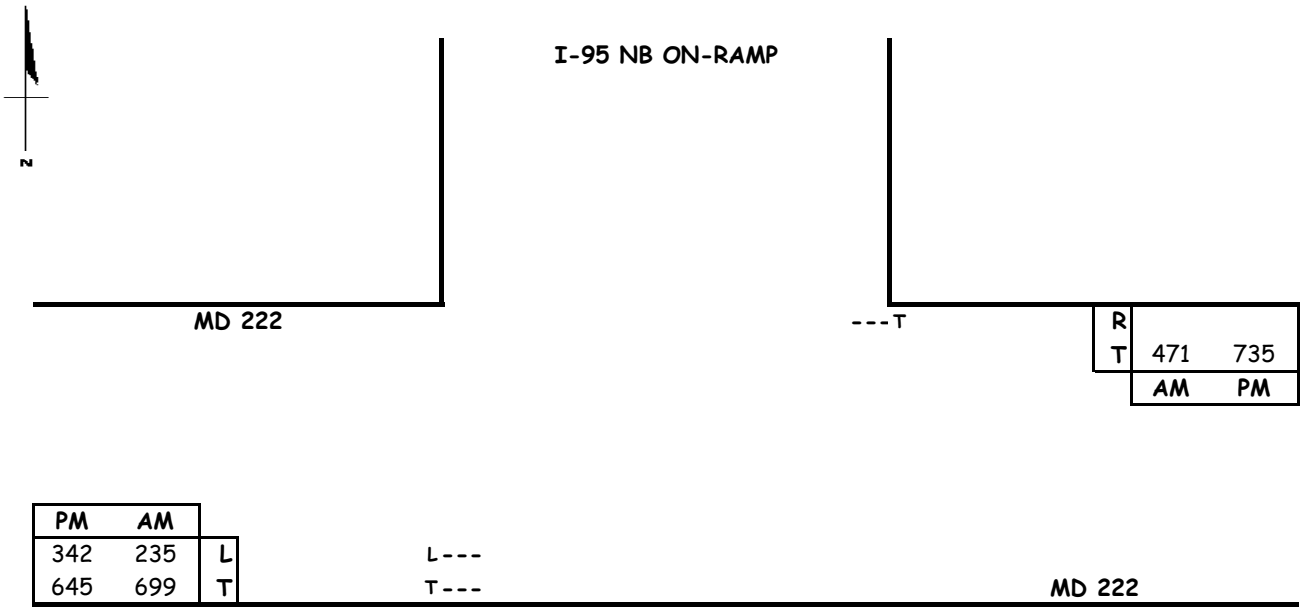
Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB ON-RAMP
Conditions: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

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							
EB	699	1.00	699				706
WB	471	1.00	471	235	1.00	235	

CLV TOTAL= **706**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB							
EB	645	1.00	645				1077
WB	735	1.00	735	342	1.00	342	

CLV TOTAL= **1077**
Level of Service (LOS)= **B**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB ON-RAMP
(Total Traffic - Phase 1A)

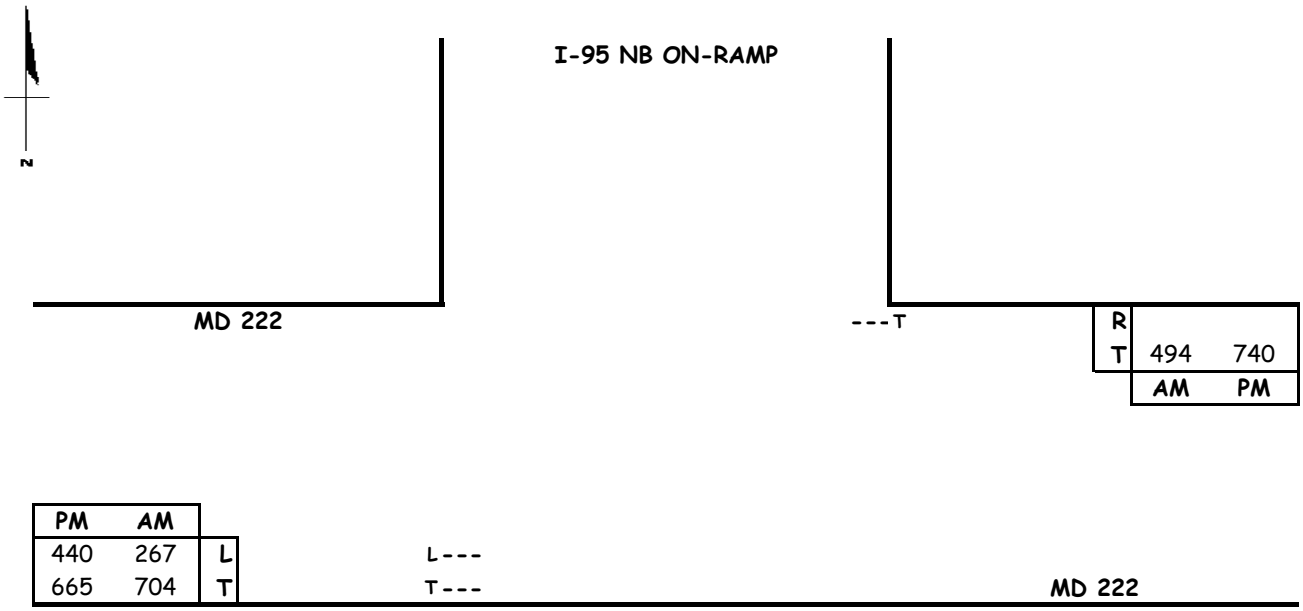
Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB ON-RAMP
Conditions: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

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							
EB	704	1.00	704				761
WB	494	1.00	494	267	1.00	267	

CLV TOTAL= **761**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB							
EB	665	1.00	665				1180
WB	740	1.00	740	440	1.00	440	

CLV TOTAL= **1180**
Level of Service (LOS)= **C**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB ON-RAMP
(Total Traffic - Phase 2)

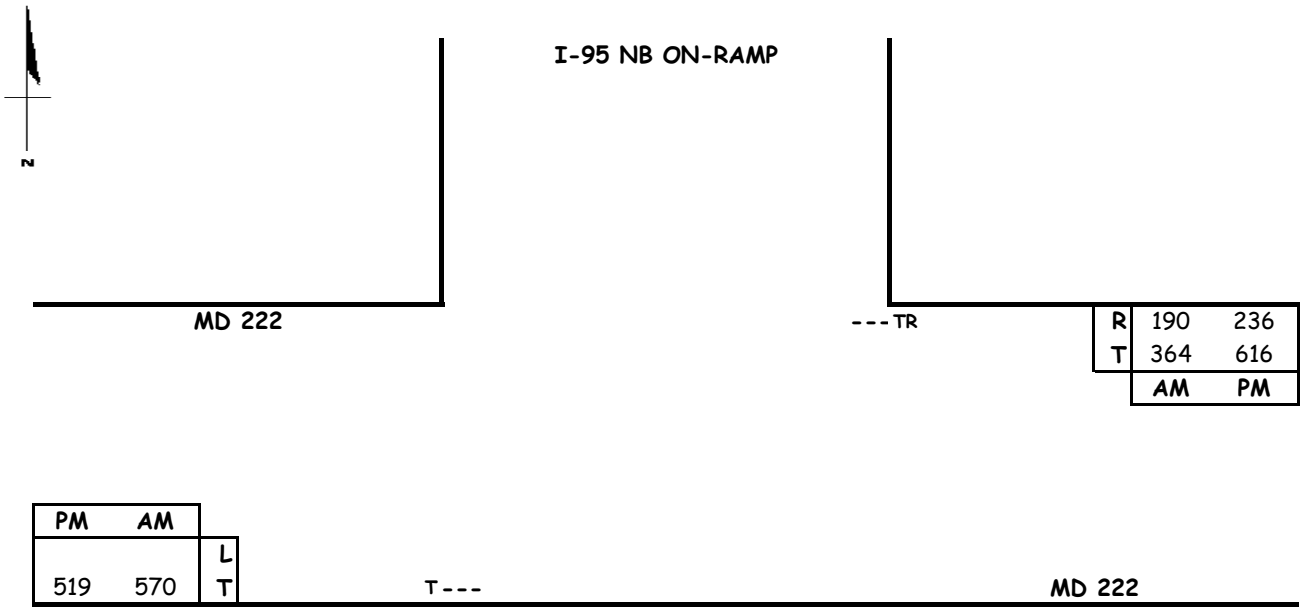
Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB ON-RAMP
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

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							
EB	570	1.00	570				570
WB	554	1.00	554				

CLV TOTAL= **570**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB							
EB	519	1.00	519				852
WB	852	1.00	852				

CLV TOTAL= **852**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB ON-RAMP
(Existing Traffic)

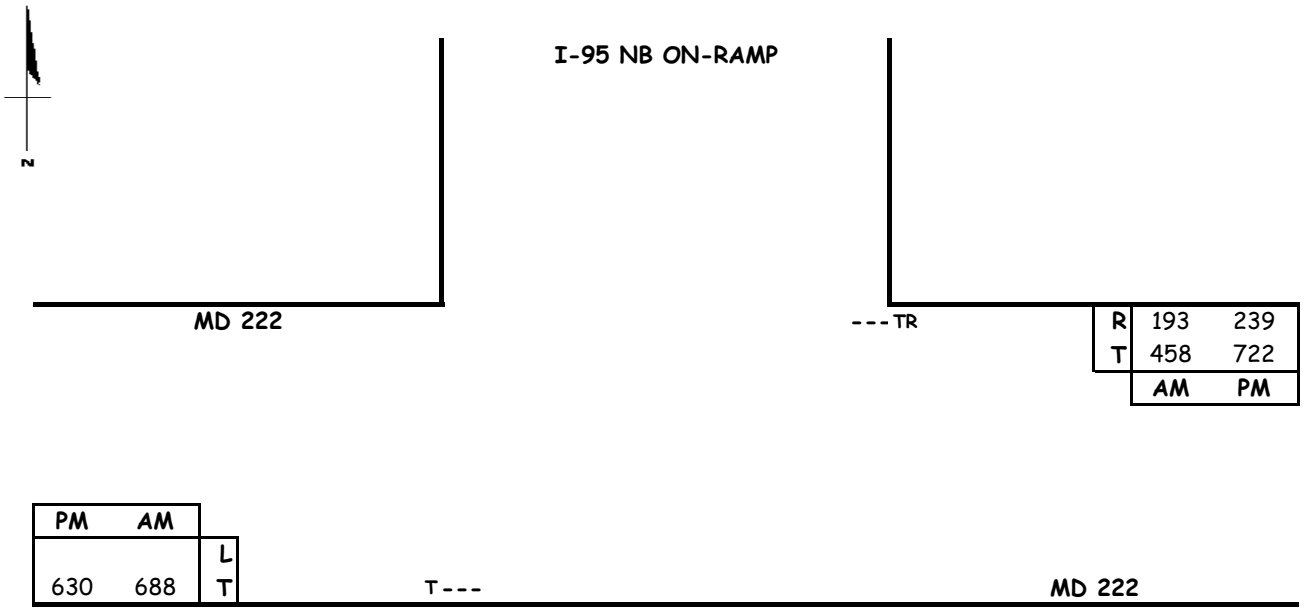
Intersection
6

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB ON-RAMP
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

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							
EB	688	1.00	688				688
WB	651	1.00	651				

CLV TOTAL= **688**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB							
EB	630	1.00	630				961
WB	961	1.00	961				

CLV TOTAL= **961**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB ON-RAMP
(Background Traffic)

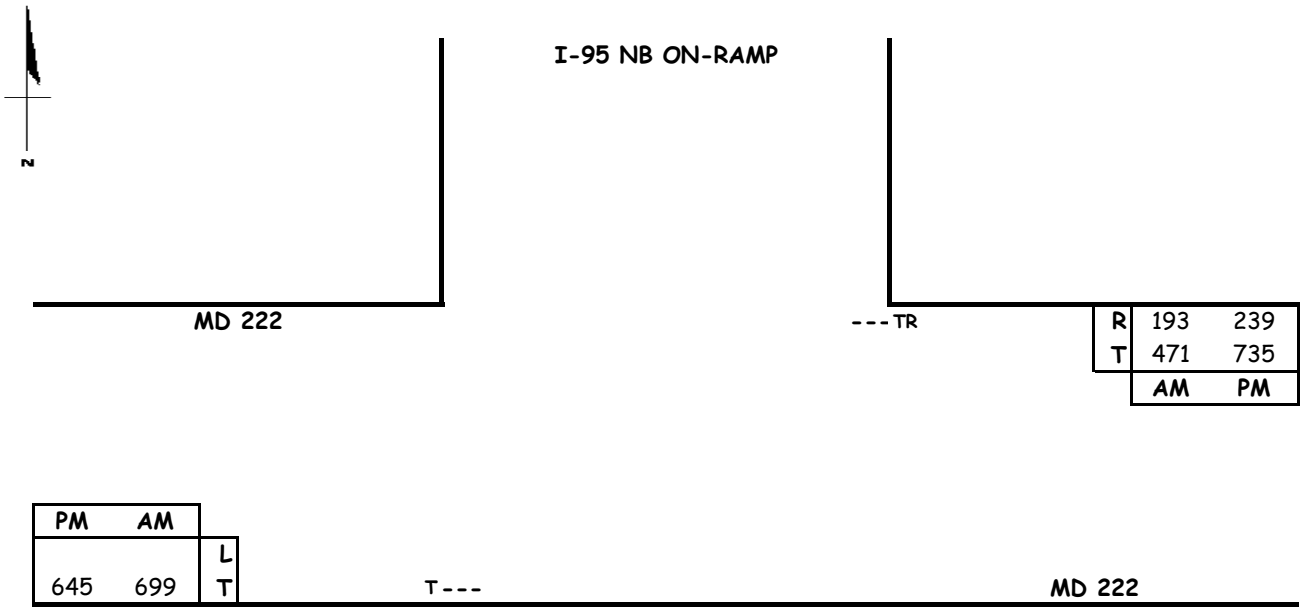
Intersection
6

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB ON-RAMP
Conditions: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

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							
EB	699	1.00	699				699
WB	664	1.00	664				

CLV TOTAL= **699**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB							
EB	645	1.00	645				974
WB	974	1.00	974				

CLV TOTAL= **974**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB ON-RAMP
(Total Traffic - Phase 1A)

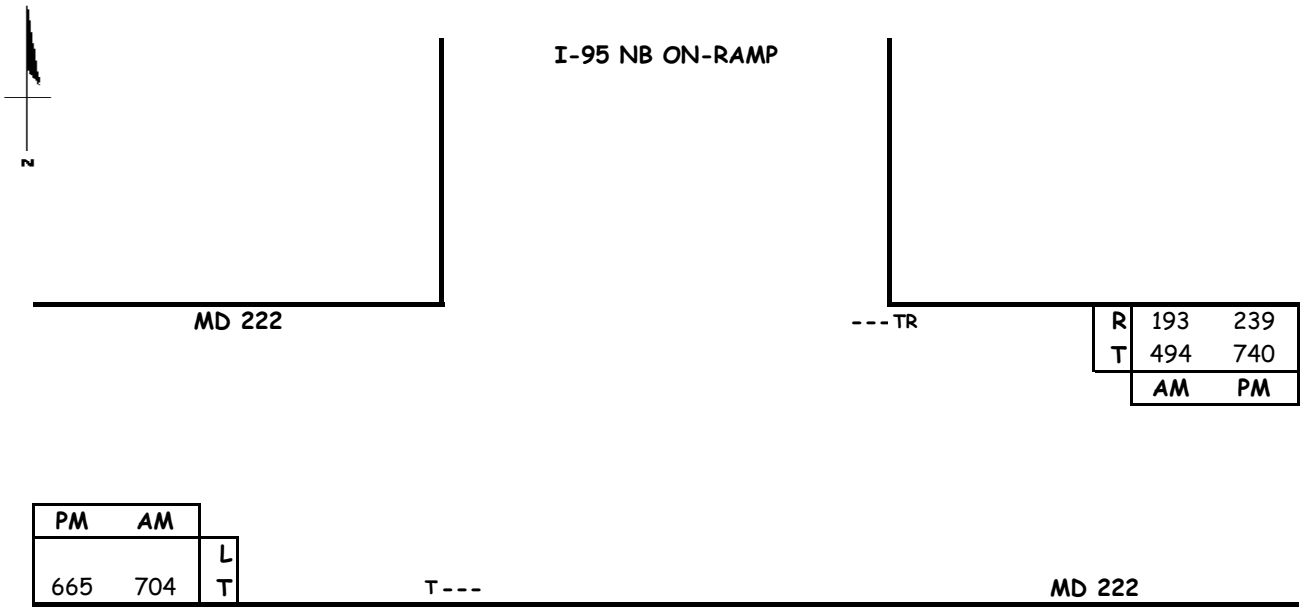
Intersection
6

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: I-95 NB ON-RAMP
Conditions: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

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							
EB	704	1.00	704				704
WB	687	1.00	687				

CLV TOTAL= **704**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB							
EB	665	1.00	665				979
WB	979	1.00	979				

CLV TOTAL= **979**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 222 &
I-95 NB ON-RAMP
(Total Traffic - Phase 2)

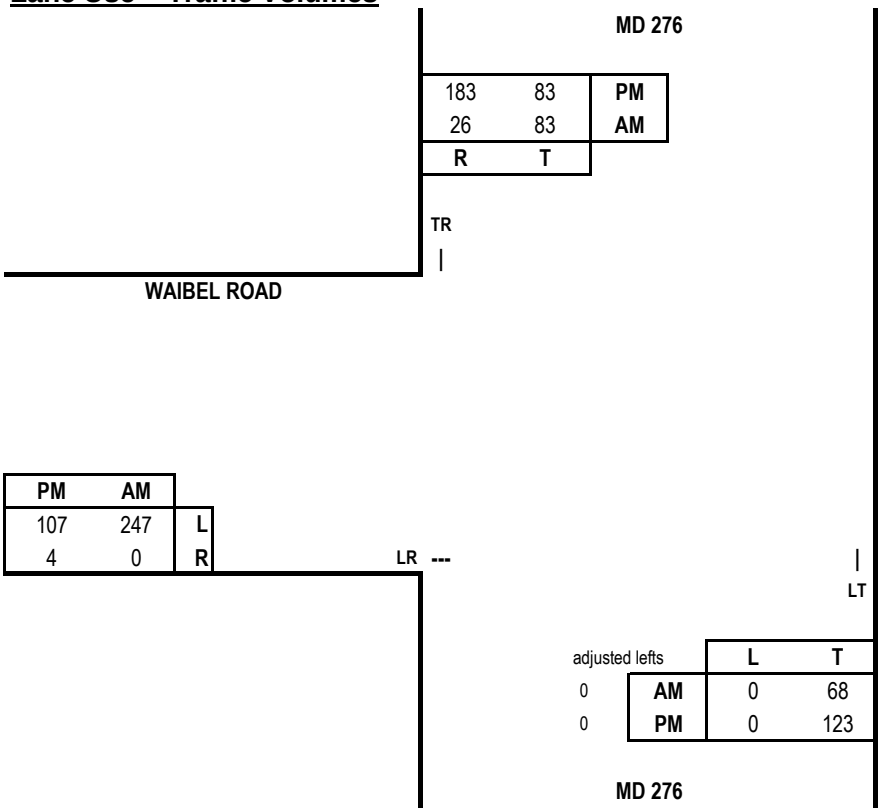
Intersection
6

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 276
and: Waibel Road
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	247	1.00	247				247
NB	68	1.00	68				109
SB	109	1.00	109	0	1.00	0	
					CLV TOTAL=		356
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	111	1.00	111				111
NB	123	1.00	123				266
SB	266	1.00	266	0	1.00	0	
					CLV TOTAL=		377
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

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MD 276 &
Waibel Road
(Existing Traffic)

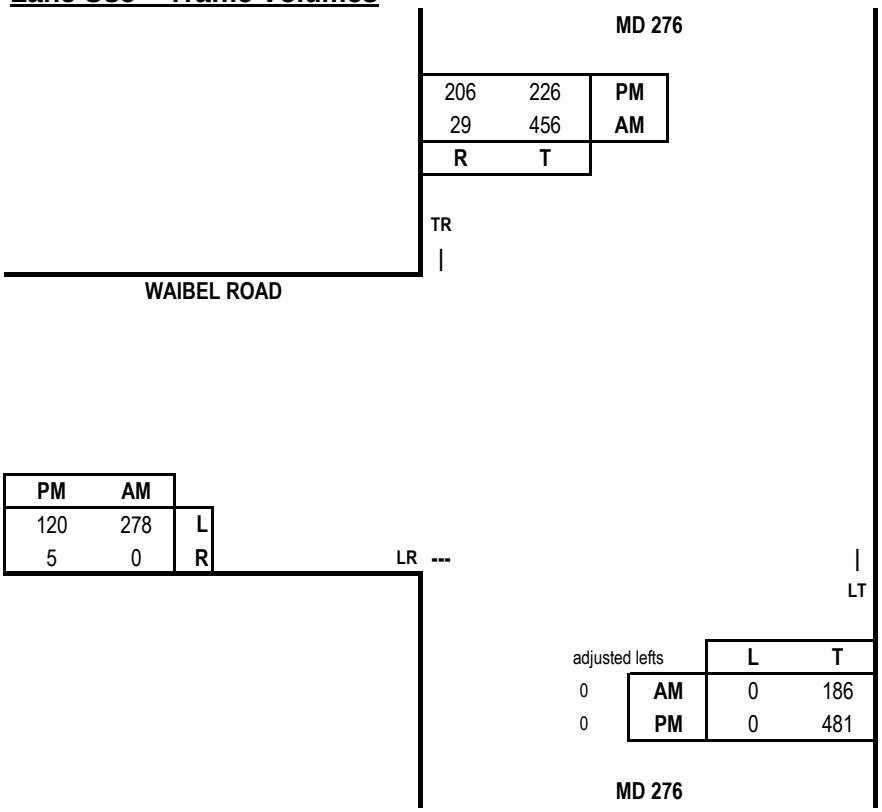
Intersection
7

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 276
and: Waibel Road
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	278	1.00	278				278
NB	186	1.00	186				485
SB	485	1.00	485	0	1.00	0	
					CLV TOTAL=		**763**
					Level of Service (LOS)=		**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	125	1.00	125				125
NB	481	1.00	481				481
SB	432	1.00	432	0	1.00	0	
					CLV TOTAL=		**606**
					Level of Service (LOS)=		**A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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SEVERNA PARK, MD 21146
www.lenharttraffic.com

MD 276 &
Waibel Road
(Background Traffic)

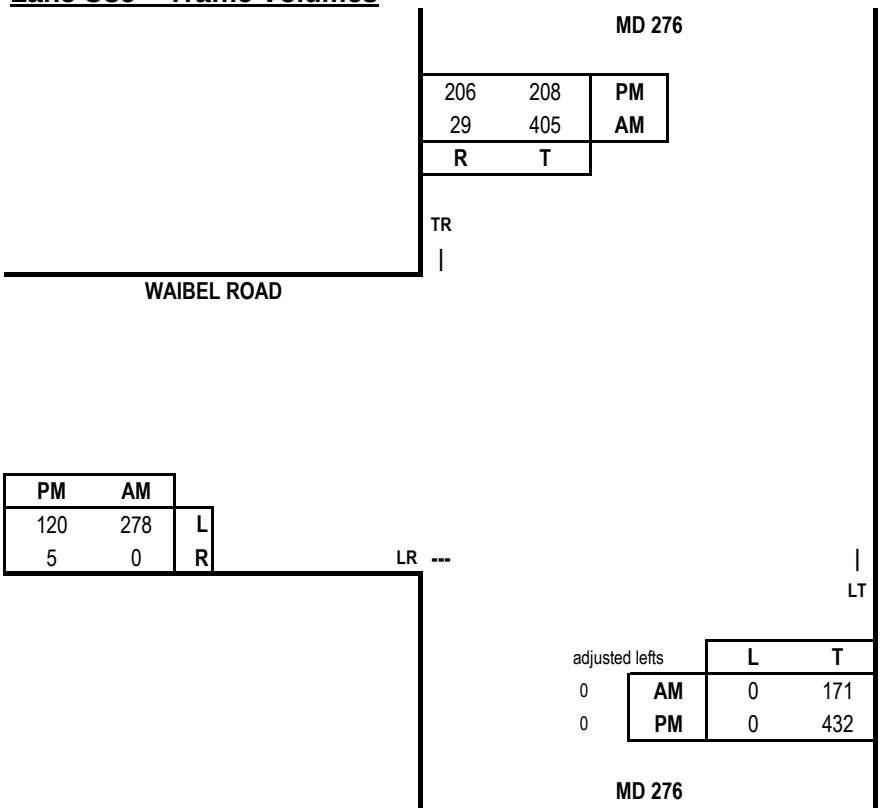
Intersection
7

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 276
and: Waibel Road
Conditions: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	278	1.00	278				278
NB	171	1.00	171				434
SB	434	1.00	434	0	1.00	0	
					CLV TOTAL=		712
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	125	1.00	125				125
NB	432	1.00	432				432
SB	414	1.00	414	0	1.00	0	
					CLV TOTAL=		557
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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MD 276 &
Waibel Road
(Total Traffic - Phase 1A)

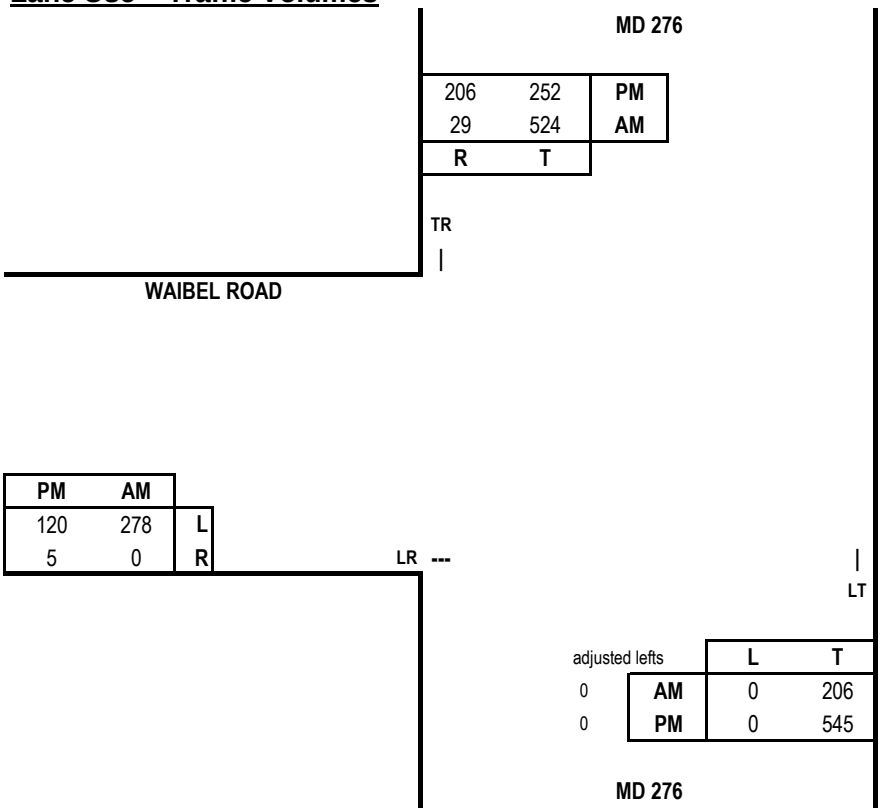
Intersection
7

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 276
and: Waibel Road
Conditions: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	278	1.00	278				278
NB	206	1.00	206				553
SB	553	1.00	553	0	1.00	0	
					CLV TOTAL=		831
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	125	1.00	125				125
NB	545	1.00	545				545
SB	458	1.00	458	0	1.00	0	
					CLV TOTAL=		670
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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MD 276 &
Waibel Road
(Total Traffic - Phase 2)

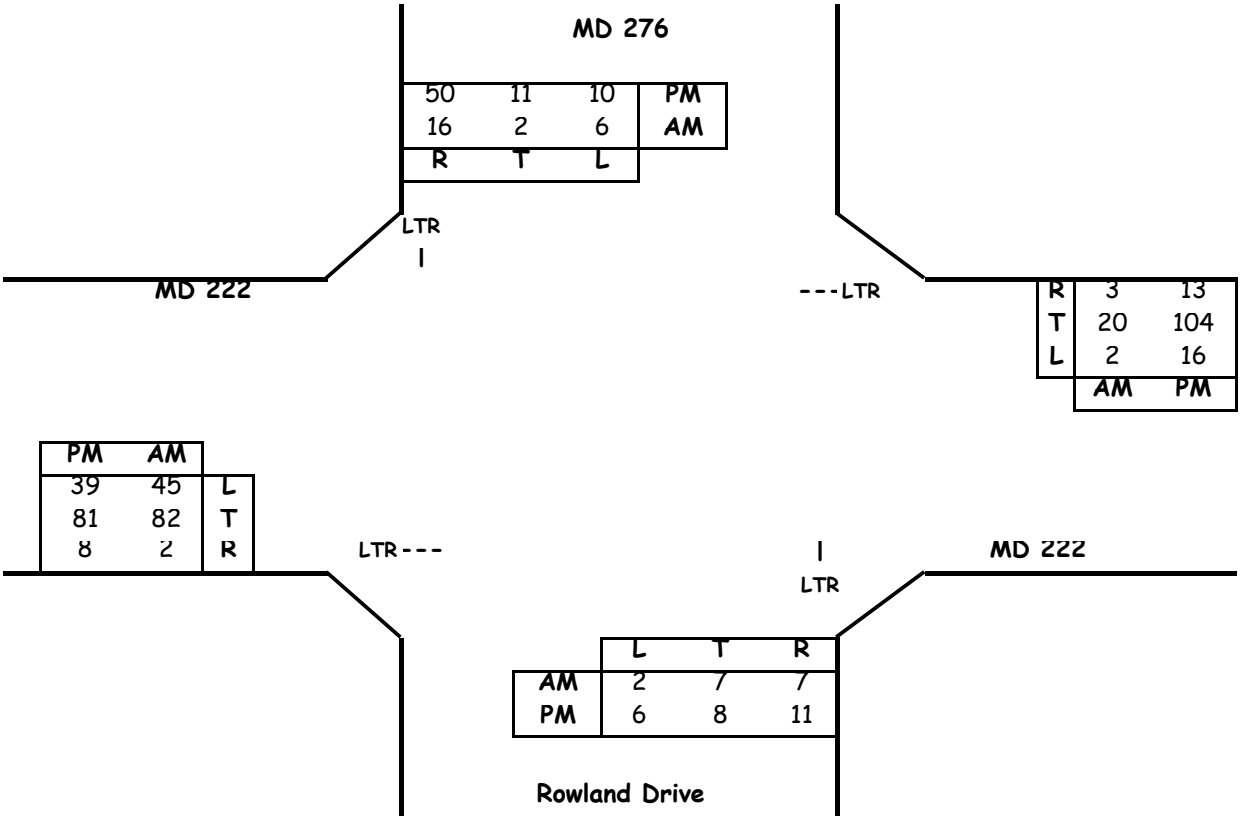
Intersection
7

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: MD 222
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	16	1.00	16	6	1	6	26
SB	24	1.00	24	2	1	2	
EB	129	1	129	2	1	2	131
WB	25	1	25	45	1	45	

CLV TOTAL= **157**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	25	1.00	25	10	1	10	77
SB	71	1.00	71	6	1	6	
EB	128	1	128	16	1	16	172
WB	133	1	133	39	1	39	

CLV TOTAL= **249**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 276 &
MD 222
(Existing Traffic)

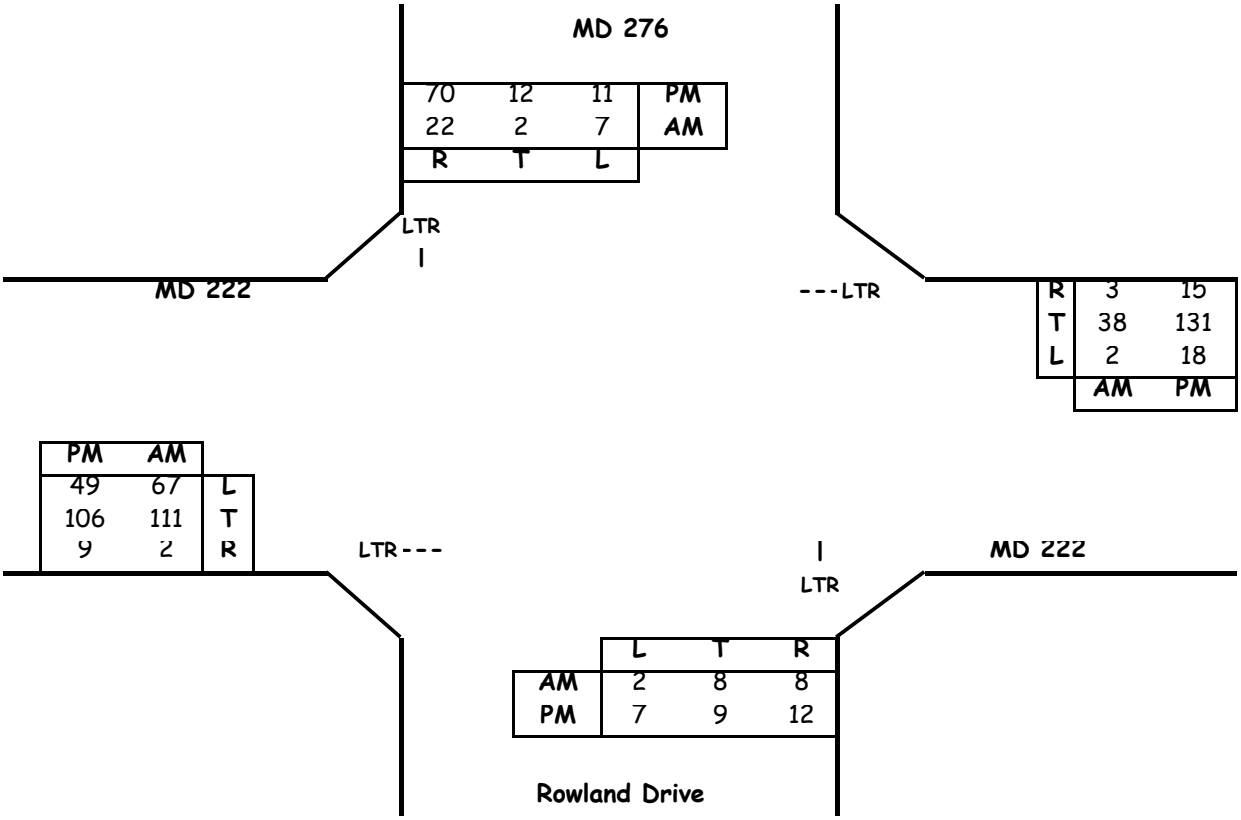
Intersection
8

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: MD 222
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	18	1.00	18	7	1	7	33
SB	31	1.00	31	2	1	2	
EB	180	1	180	2	1	2	182
WB	43	1	43	67	1	67	

CLV TOTAL= **215**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	28	1.00	28	11	1	11	100
SB	93	1.00	93	7	1	7	
EB	164	1	164	18	1	18	213
WB	164	1	164	49	1	49	

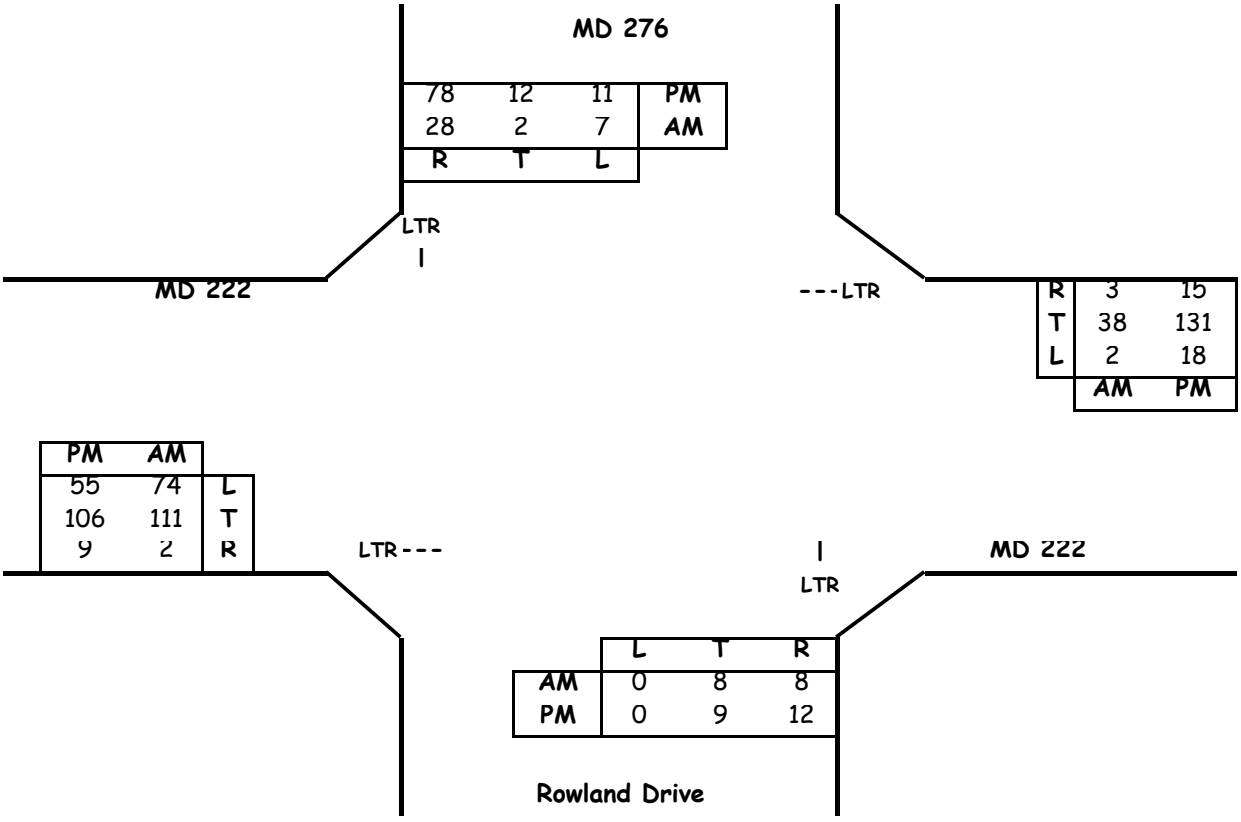
CLV TOTAL= **313**
Level of Service (LOS)= **A**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: MD 222
Study Period: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	16	1.00	16	7	1	7	37
SB	37	1.00	37	0	1	0	
EB	187	1	187	2	1	2	189
WB	43	1	43	74	1	74	

CLV TOTAL= **226**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	21	1.00	21	11	1	11	101
SB	101	1.00	101	0	1	0	
EB	170	1	170	18	1	18	219
WB	164	1	164	55	1	55	

CLV TOTAL= **320**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
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MD 276 &
MD 222
(Total Traffic - Phase 1A)

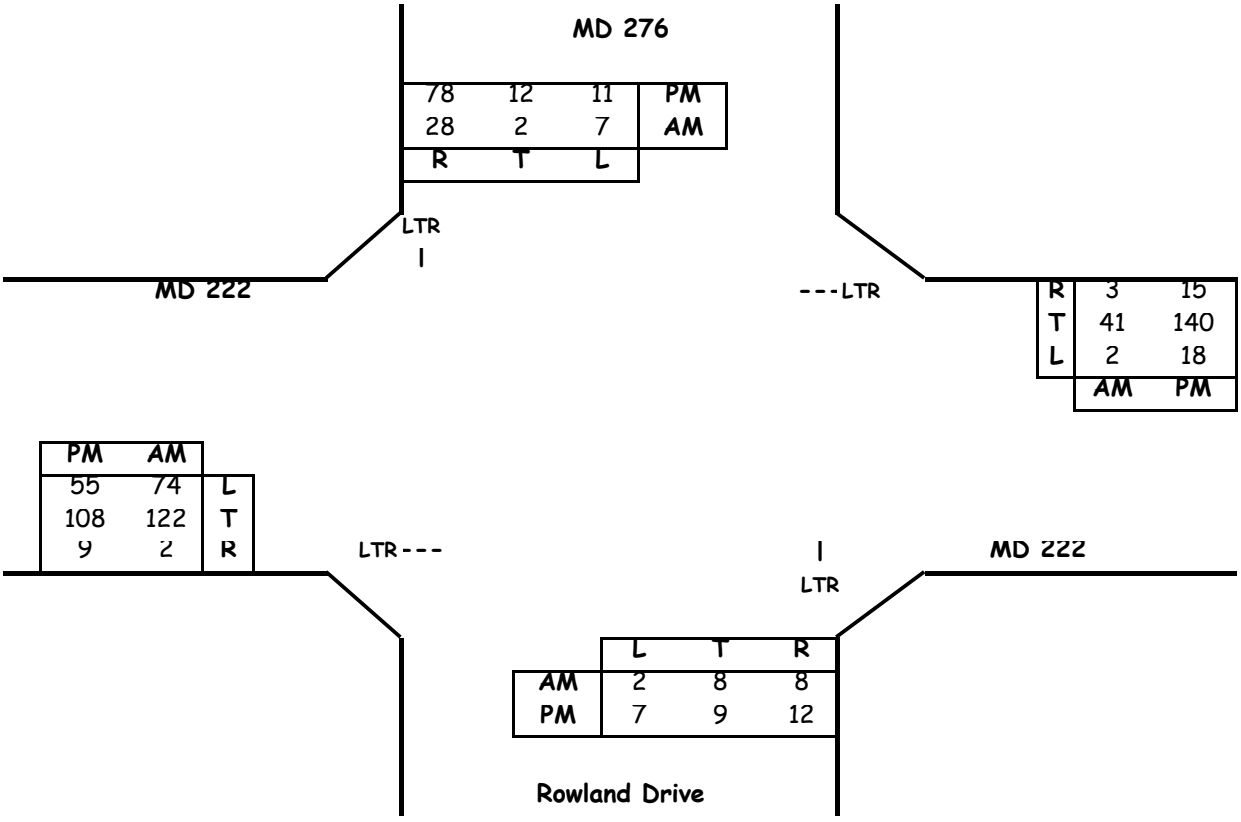
Intersection
8

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: MD 222
Study Period: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	18	1.00	18	7	1	7	39
SB	37	1.00	37	2	1	2	
EB	198	1	198	2	1	2	200
WB	46	1	46	74	1	74	

CLV TOTAL= **239**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	28	1.00	28	11	1	11	108
SB	101	1.00	101	7	1	7	
EB	172	1	172	18	1	18	228
WB	173	1	173	55	1	55	

CLV TOTAL= **336**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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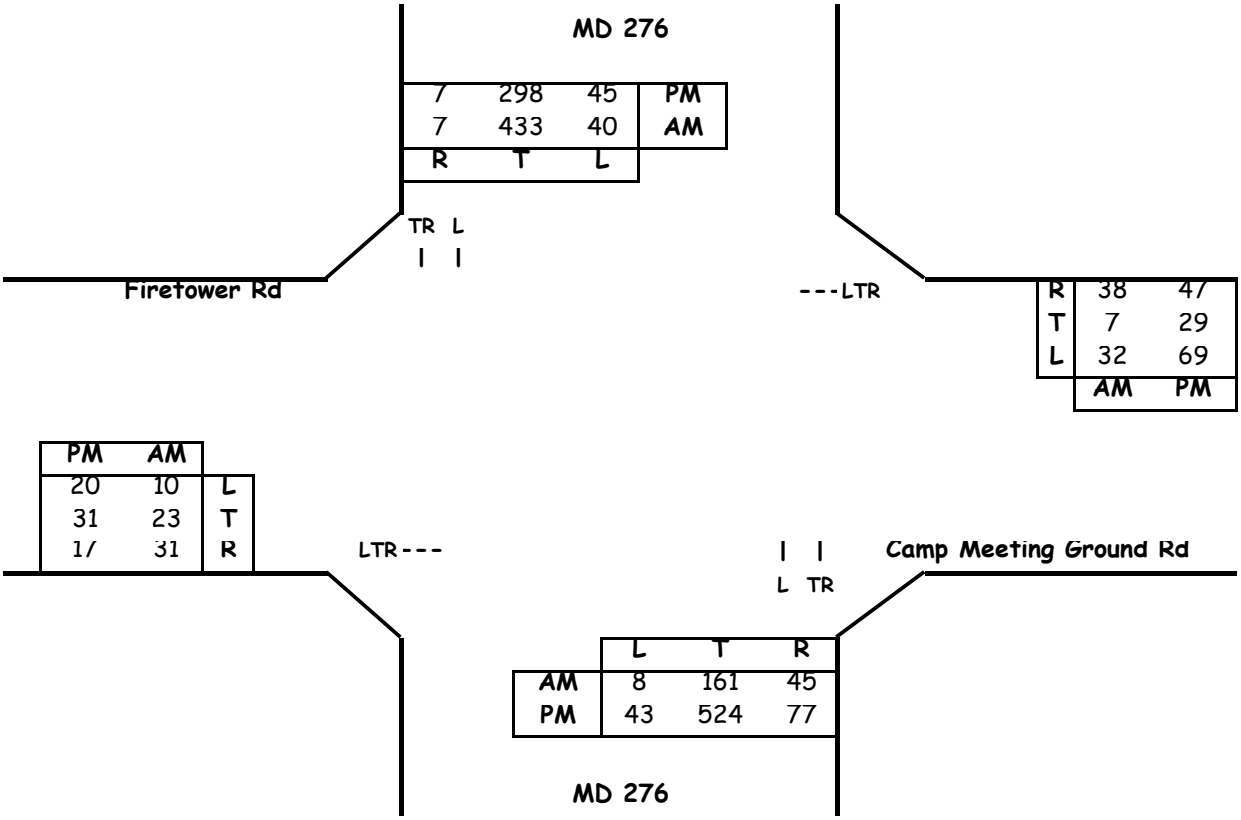
MD 276 &
MD 222
(Total Traffic - Phase 2)

Intersection
8

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: Camp Meeting Ground Rd **Analyst:** Lenhart Traffic Consulting
Study Period: Existing Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	206	1.00	206	40	1	40	448
SB	440	1.00	440	8	1	8	
EB	64	1	64	32	1	32	96
WB	77	1	77	10	1	10	

CLV TOTAL= **544**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	601	1.00	601	45	1	45	646
SB	305	1.00	305	43	1	43	
EB	68	1	68	69	1	69	165
WB	145	1	145	20	1	20	

CLV TOTAL= **811**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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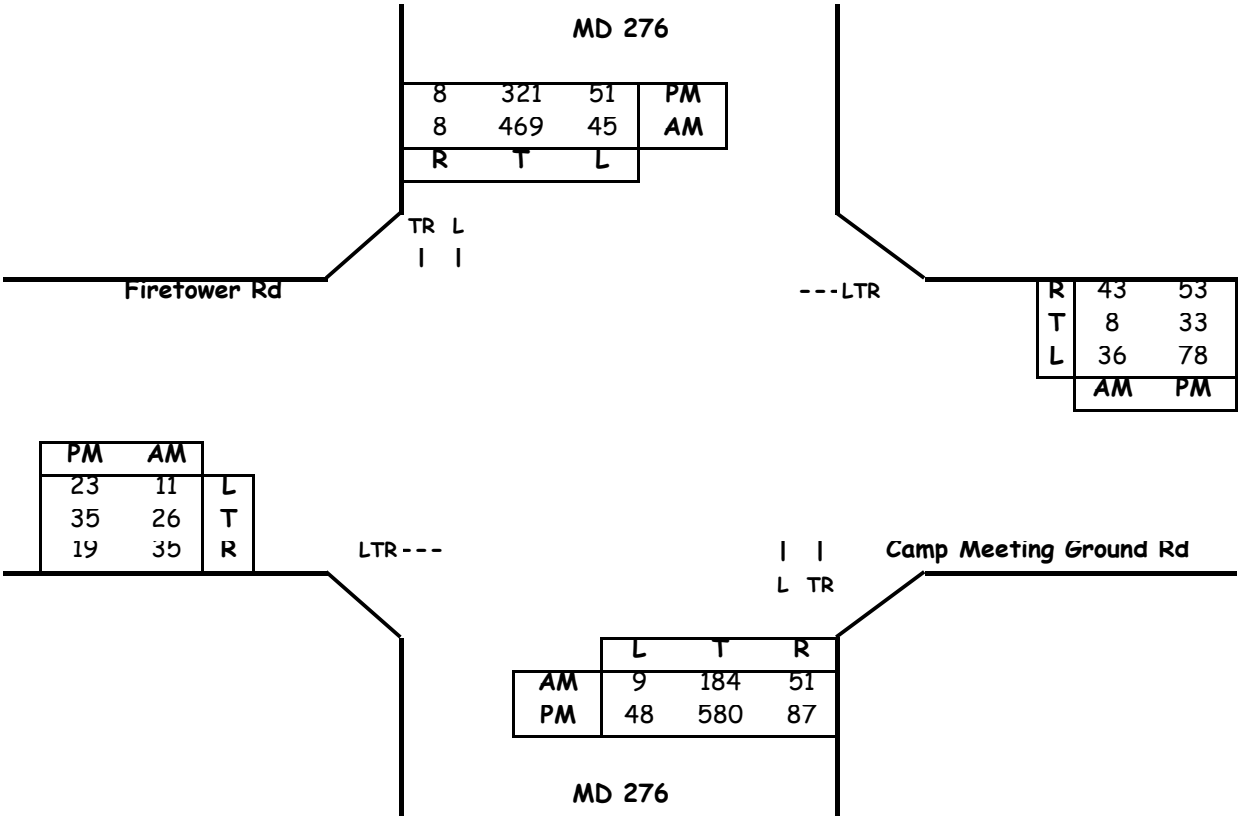
MD 276 &
Camp Meeting Ground Rd
(Existing Traffic)

Intersection
9

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: Camp Meeting Ground Rd **Analyst:** Lenhart Traffic Consulting
Study Period: Background Traffic

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	235	1.00	235	45	1	45	486
SB	477	1.00	477	9	1	9	
EB	72	1	72	36	1	36	108
WB	87	1	87	11	1	11	

CLV TOTAL= **594**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	667	1.00	667	51	1	51	718
SB	329	1.00	329	48	1	48	
EB	77	1	77	78	1	78	187
WB	164	1	164	23	1	23	

CLV TOTAL= **905**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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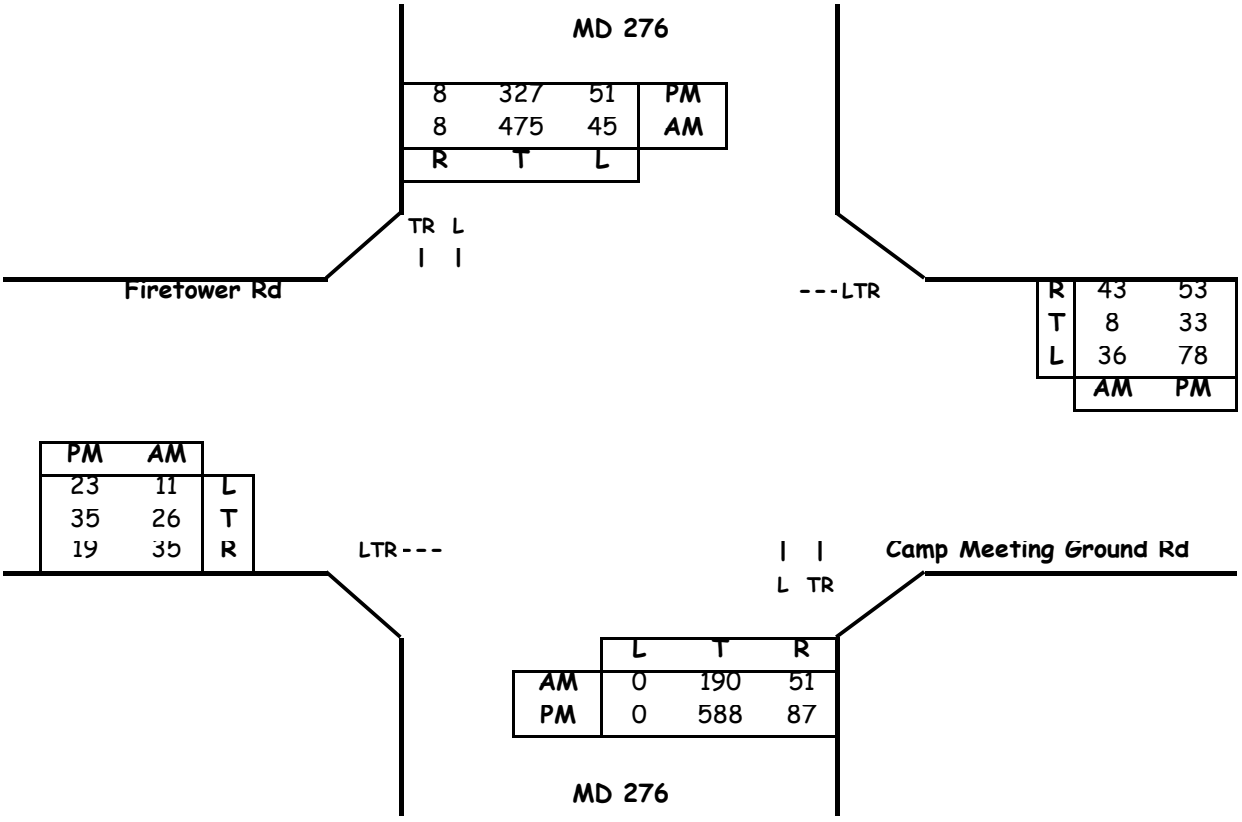
MD 276 &
Camp Meeting Ground Rd
(Background Traffic)

Intersection
9

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: Camp Meeting Ground Rd **Analyst:** Lenhart Traffic Consulting
Study Period: Total Traffic - Phase 1A

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	241	1.00	241	45	1	45	483
SB	483	1.00	483	0	1	0	
EB	72	1	72	36	1	36	108
WB	87	1	87	11	1	11	

CLV TOTAL= **591**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	675	1.00	675	51	1	51	726
SB	335	1.00	335	0	1	0	
EB	77	1	77	78	1	78	187
WB	164	1	164	23	1	23	

CLV TOTAL= **913**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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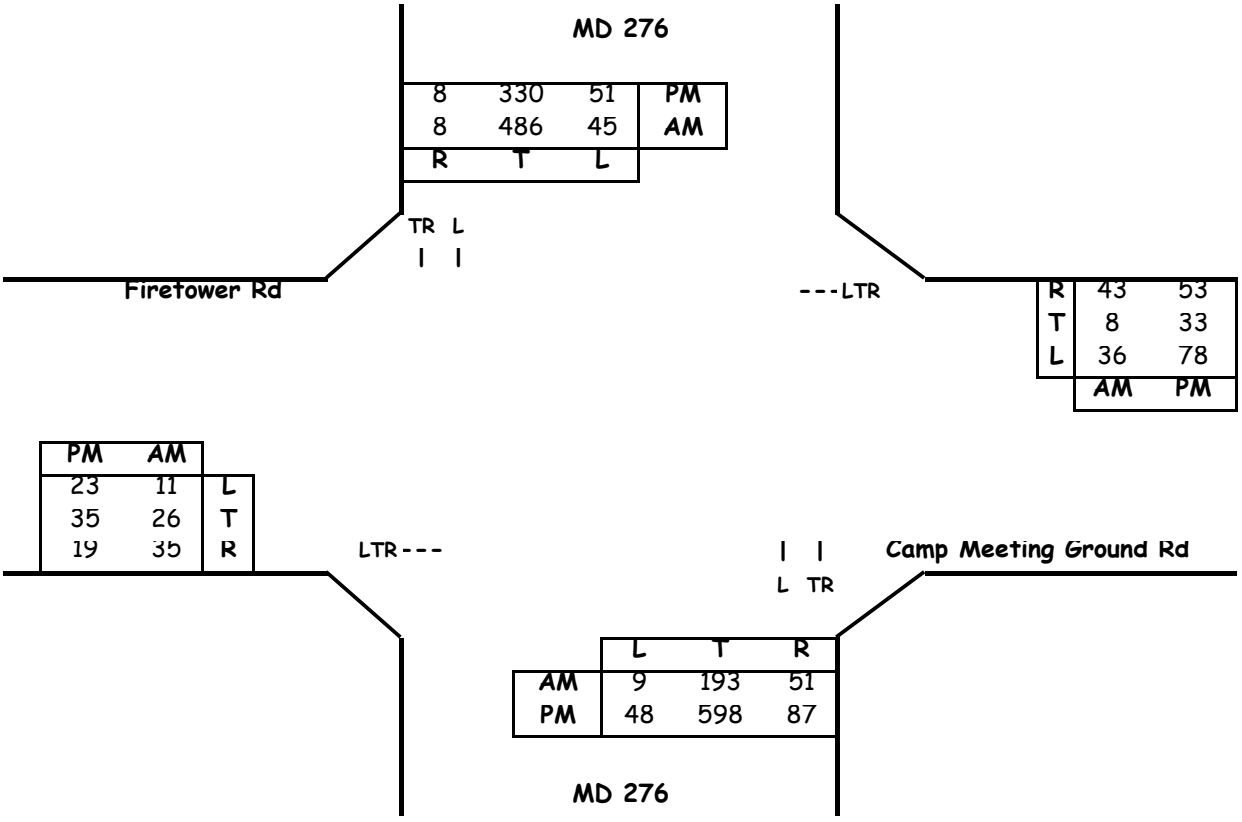
MD 276 &
Camp Meeting Ground Rd
(Total Traffic - Phase 1A)

Intersection
9

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: Camp Meeting Ground Rd **Analyst:** Lenhart Traffic Consulting
Study Period: Total Traffic - Phase 2

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	244	1.00	244	45	1	45	503
SB	494	1.00	494	9	1	9	
EB	72	1	72	36	1	36	108
WB	87	1	87	11	1	11	

CLV TOTAL= **611**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	685	1.00	685	51	1	51	736
SB	338	1.00	338	48	1	48	
EB	77	1	77	78	1	78	187
WB	164	1	164	23	1	23	

CLV TOTAL= **923**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 276 &
Camp Meeting Ground Rd
(Total Traffic - Phase 2)

Intersection
9

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Theodore Road
and: Camp Meeting Ground Road
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



THEODORE ROAD

93	5	**PM**
61	2	**AM**
R	**L**	

LR
|
CAMP MEETING GROUND ROAD

---TR

R	0	3
T	24	37
	AM	**PM**

108 91 adjusted lefts

PM	**AM**	
98	83	**L**
45	14	**T**

TL---

CAMP MEETING GROUND ROAD

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	63	1.00	63				63
EB	105	1.00	105				107
WB	24	1.00	24	83	1.00	83	
						CLV TOTAL=	**170**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	98	1.00	98				98
EB	153	1.00	153				153
WB	40	1.00	40	98	1.00	98	
						CLV TOTAL=	**251**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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Theodore Road &
Camp Meeting Ground Road
(Existing Traffic)

Intersection
10

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Theodore Road
and: Camp Meeting Ground Road
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



THEODORE ROAD

105	6	PM
69	2	AM
R	L	

LR

CAMP MEETING GROUND ROAD

---TR

R	0	3
T	27	42
	AM	PM

121 102 adjusted lefts

PM	AM	
110	93	L
51	16	T

TL---

CAMP MEETING GROUND ROAD

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	71	1.00	71				71
EB	118	1.00	118				120
WB	27	1.00	27	93	1.00	93	

CLV TOTAL= **191**

Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	111	1.00	111				111
EB	172	1.00	172				172
WB	45	1.00	45	110	1.00	110	

CLV TOTAL= **283**

Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
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Theodore Road &
Camp Meeting Ground Road
(Background Traffic)

Intersection
10

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Theodore Road
and: Camp Meeting Ground Road
Conditions: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



THEODORE ROAD

105	6	PM
69	2	AM
R	L	

LR

CAMP MEETING GROUND ROAD

---TR

R	0	3
T	27	42
	AM	PM

121 102 adjusted lefts

PM	AM	
110	93	L
51	16	T

TL---

CAMP MEETING GROUND ROAD

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	71	1.00	71				71
EB	118	1.00	118				120
WB	27	1.00	27	93	1.00	93	
						CLV TOTAL=	191
						Level of Service (LOS)=	A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	111	1.00	111				111
EB	172	1.00	172				172
WB	45	1.00	45	110	1.00	110	
						CLV TOTAL=	283
						Level of Service (LOS)=	A

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Theodore Road
and: Camp Meeting Ground Road
Conditions: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



THEODORE ROAD

105	6	PM
69	2	AM
R	L	

LR
|
CAMP MEETING GROUND ROAD

---TR

R	0	3
T	27	42
	AM	PM

121 102 adjusted lefts

PM	AM	
110	93	L
51	16	T

TL---

CAMP MEETING GROUND ROAD

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	71	1.00	71				71
EB	118	1.00	118				120
WB	27	1.00	27	93	1.00	93	
						CLV TOTAL=	191
						Level of Service (LOS)=	A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	111	1.00	111				111
EB	172	1.00	172				172
WB	45	1.00	45	110	1.00	110	
						CLV TOTAL=	283
						Level of Service (LOS)=	A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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Theodore Road &
Camp Meeting Ground Road
(Total Traffic - Phase 2)

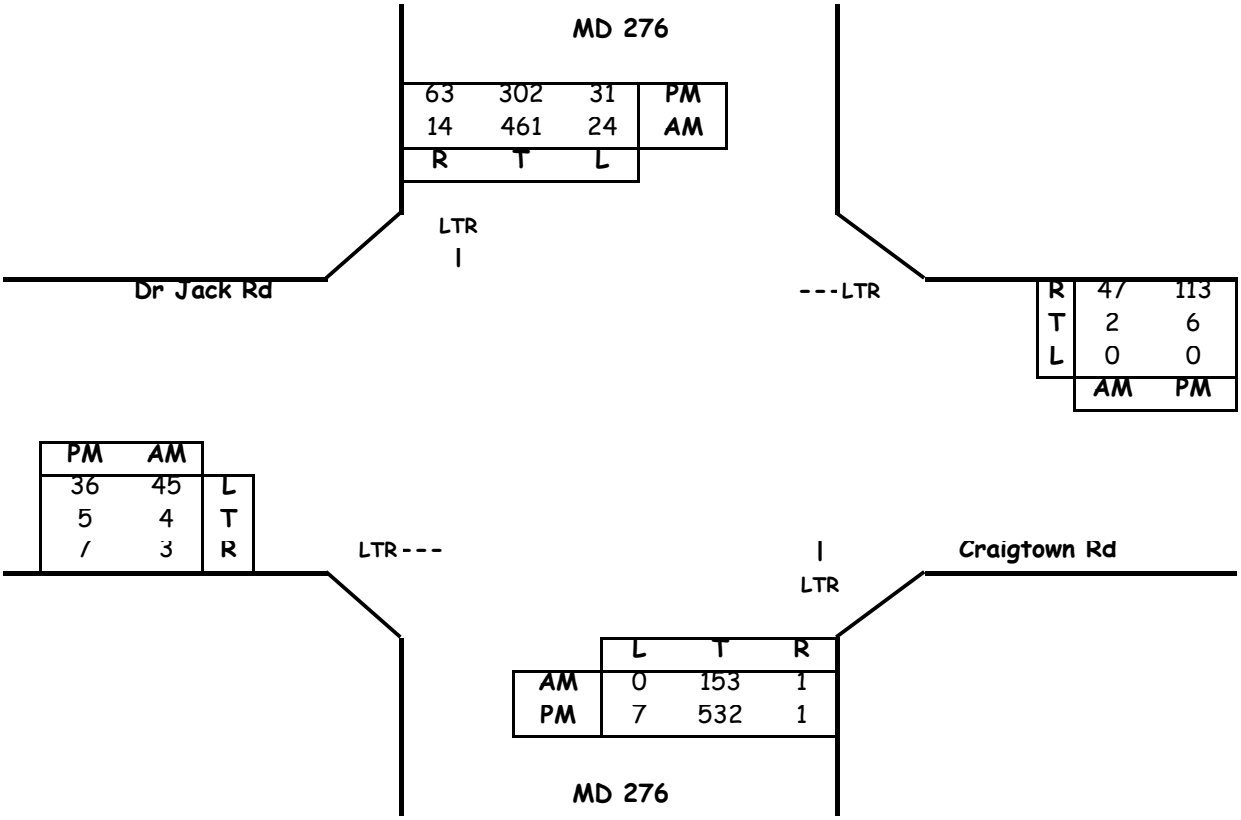
Intersection
10

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: Craigtown Rd
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	154	1.00	154	24	1	24	499
SB	499	1.00	499	0	1	0	
EB	52	1	52	0	1	0	94
WB	49	1	49	45	1	45	

CLV TOTAL= **593**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	540	1.00	540	31	1	31	571
SB	396	1.00	396	7	1	7	
EB	48	1	48	0	1	0	155
WB	119	1	119	36	1	36	

CLV TOTAL= **726**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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

MD 276 & Craigtown Rd
(Existing Traffic)

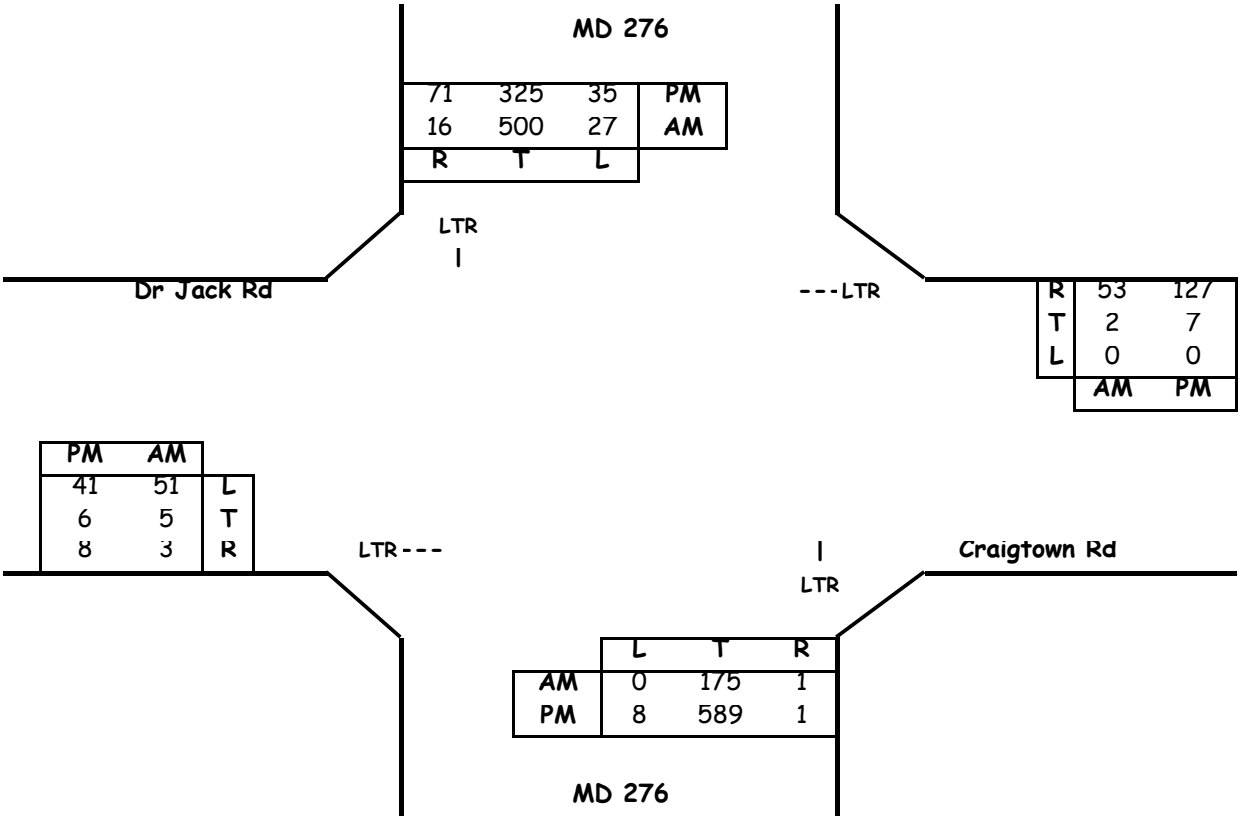
Intersection 11

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: Craigtown Rd
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	176	1.00	176	27	1	27	543
SB	543	1.00	543	0	1	0	
EB	59	1	59	0	1	0	106
WB	55	1	55	51	1	51	

CLV TOTAL= **649**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	598	1.00	598	35	1	35	633
SB	431	1.00	431	8	1	8	
EB	55	1	55	0	1	0	175
WB	134	1	134	41	1	41	

CLV TOTAL= **808**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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SEVERNA PARK, MD 21146
www.lenharttraffic.com

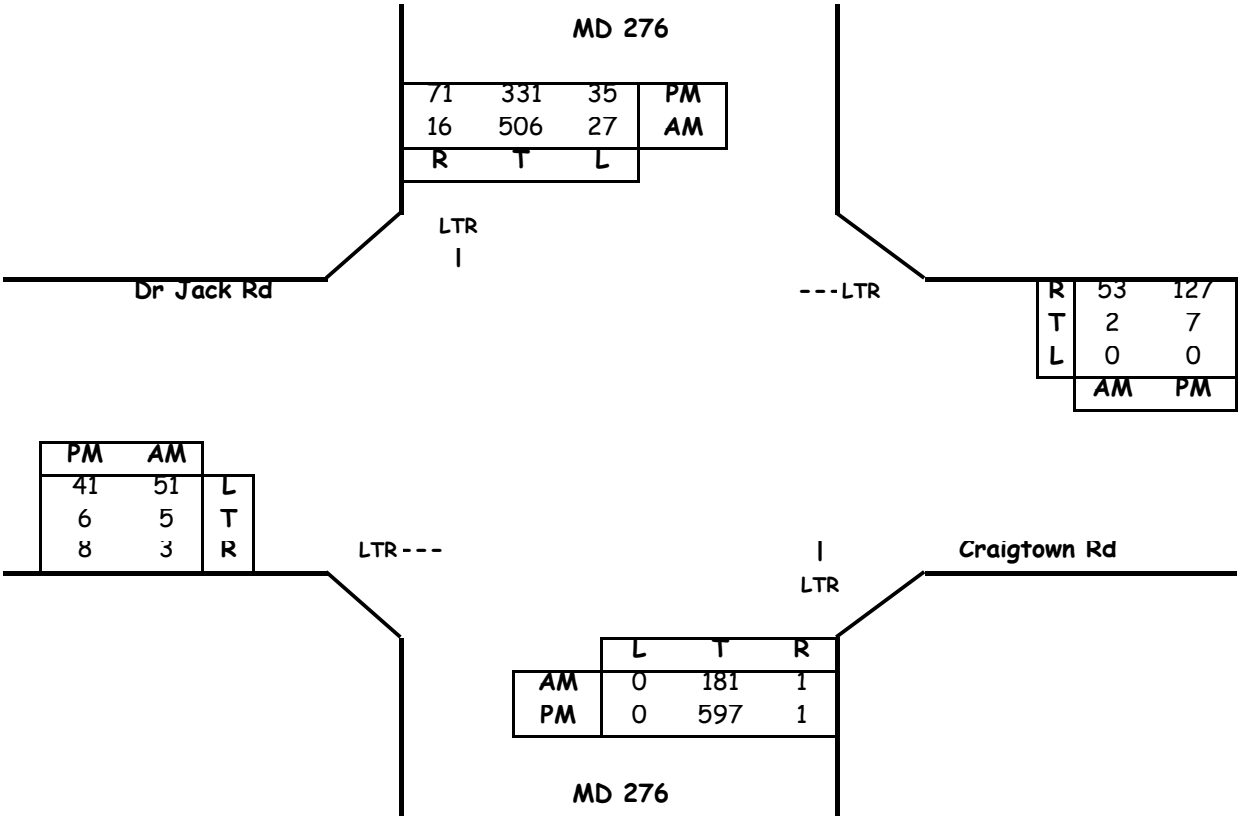
MD 276 &
Craigtown Rd
(Background Traffic)

Intersection
11

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: Craigtown Rd
Study Period: Total Traffic - Phase 1A
Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	182	1.00	182	27	1	27	549
SB	549	1.00	549	0	1	0	
EB	59	1	59	0	1	0	106
WB	55	1	55	51	1	51	

CLV TOTAL= **655**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	598	1.00	598	35	1	35	633
SB	437	1.00	437	0	1	0	
EB	55	1	55	0	1	0	175
WB	134	1	134	41	1	41	

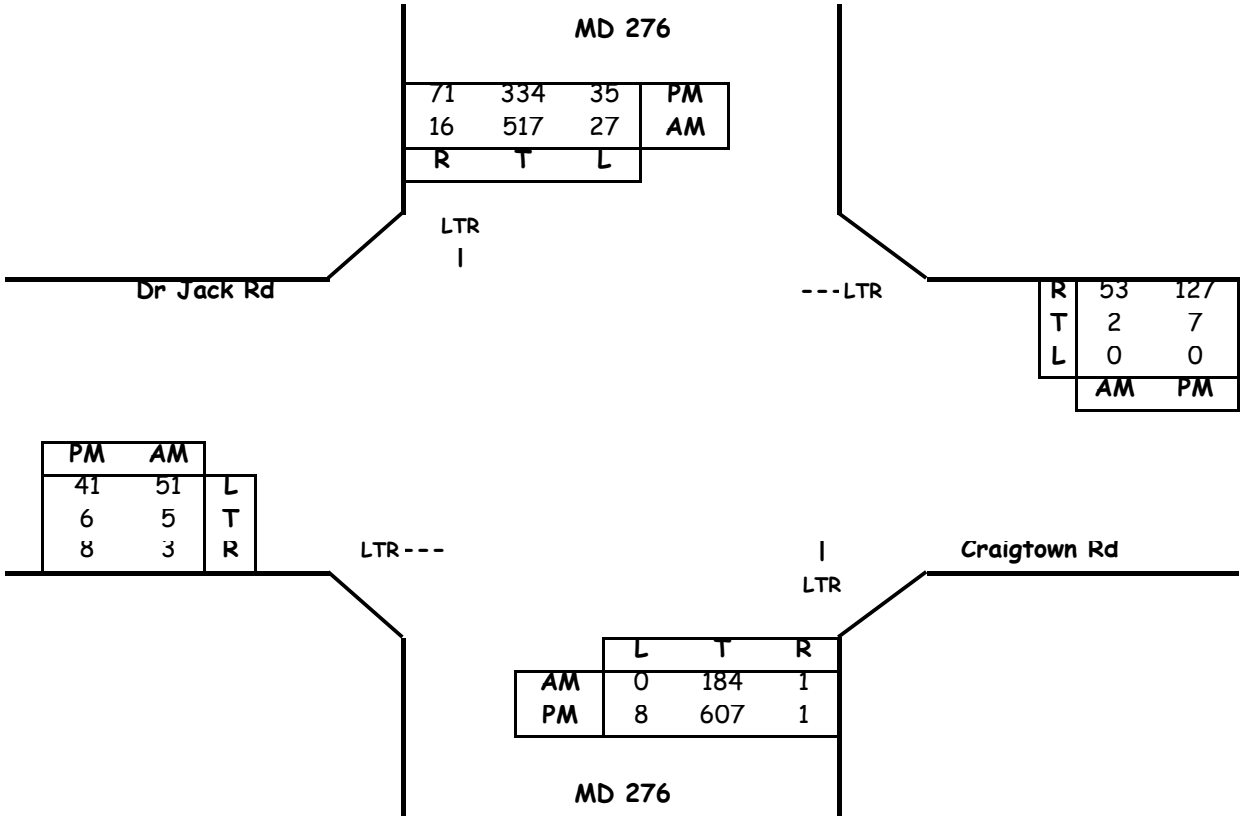
CLV TOTAL= **808**
Level of Service (LOS)= **A**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 276
Minor Street: Craigtown Rd
Study Period: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	185	1.00	185	27	1	27	560
SB	560	1.00	560	0	1	0	
EB	59	1	59	0	1	0	106
WB	55	1	55	51	1	51	

CLV TOTAL= **666**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	616	1.00	616	35	1	35	651
SB	440	1.00	440	8	1	8	
EB	55	1	55	0	1	0	175
WB	134	1	134	41	1	41	

CLV TOTAL= **826**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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MD 276 &
Craigtown Rd
(Total Traffic - Phase 2)

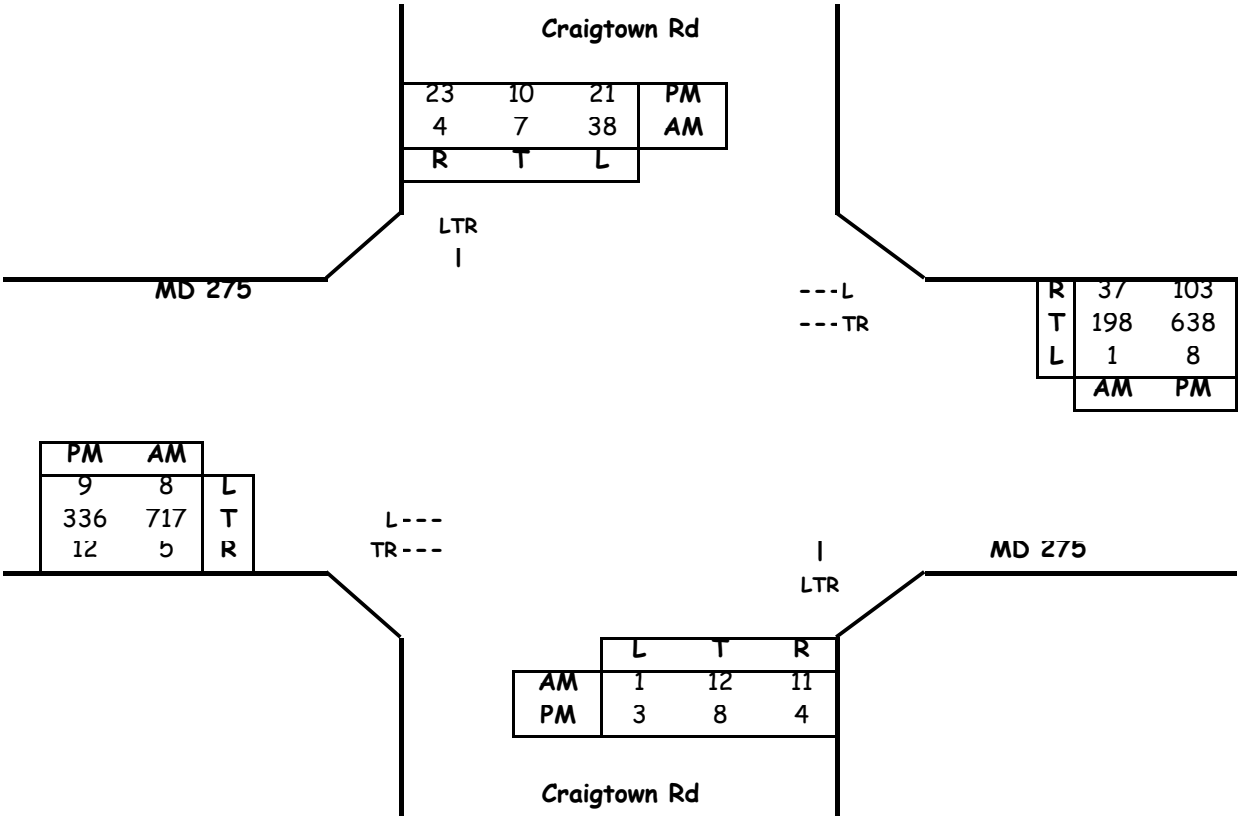
Intersection
11

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: Craigtown Rd
Minor Street: MD 275
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	24	1.00	24	38	1	38	62
SB	49	1.00	49	1	1	1	
EB	722	1	722	1	1	1	723
WB	235	1	235	8	1	8	
						CLV TOTAL=	**785**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	15	1.00	15	21	1	21	57
SB	54	1.00	54	3	1	3	
EB	348	1	348	8	1	8	750
WB	741	1	741	9	1	9	
						CLV TOTAL=	**807**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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Craigtown Rd &
MD 275
(Existing Traffic)

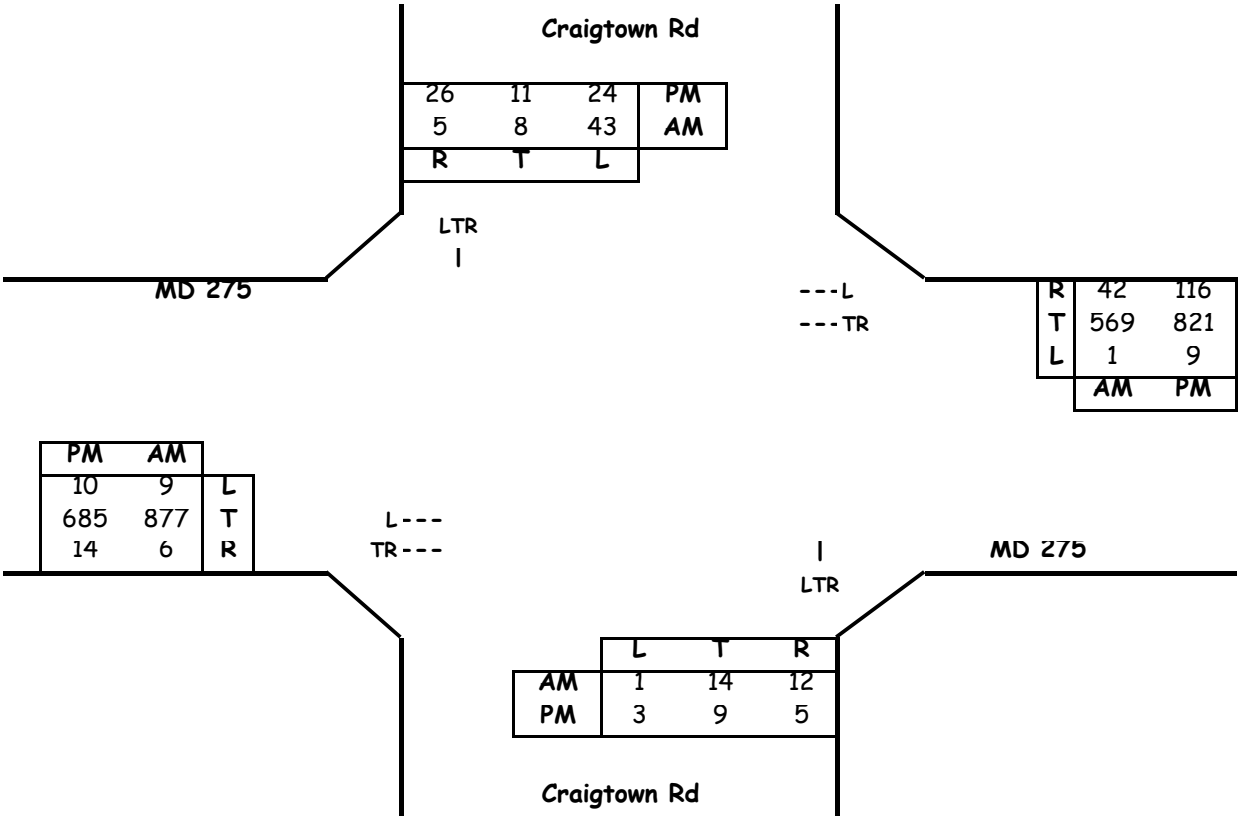
Intersection
12

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: Craigtown Rd
Minor Street: MD 275
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	27	1.00	27	43	1	43	70
SB	56	1.00	56	1	1	1	
EB	883	1	883	1	1	1	884
WB	611	1	611	9	1	9	

CLV TOTAL= **954**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	17	1.00	17	24	1	24	64
SB	61	1.00	61	3	1	3	
EB	699	1	699	9	1	9	947
WB	937	1	937	10	1	10	

CLV TOTAL= **1011**
Level of Service (LOS)= **B**

Critical Lane Volume Analysis

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Craigtown Rd & MD 275
(Background Traffic)

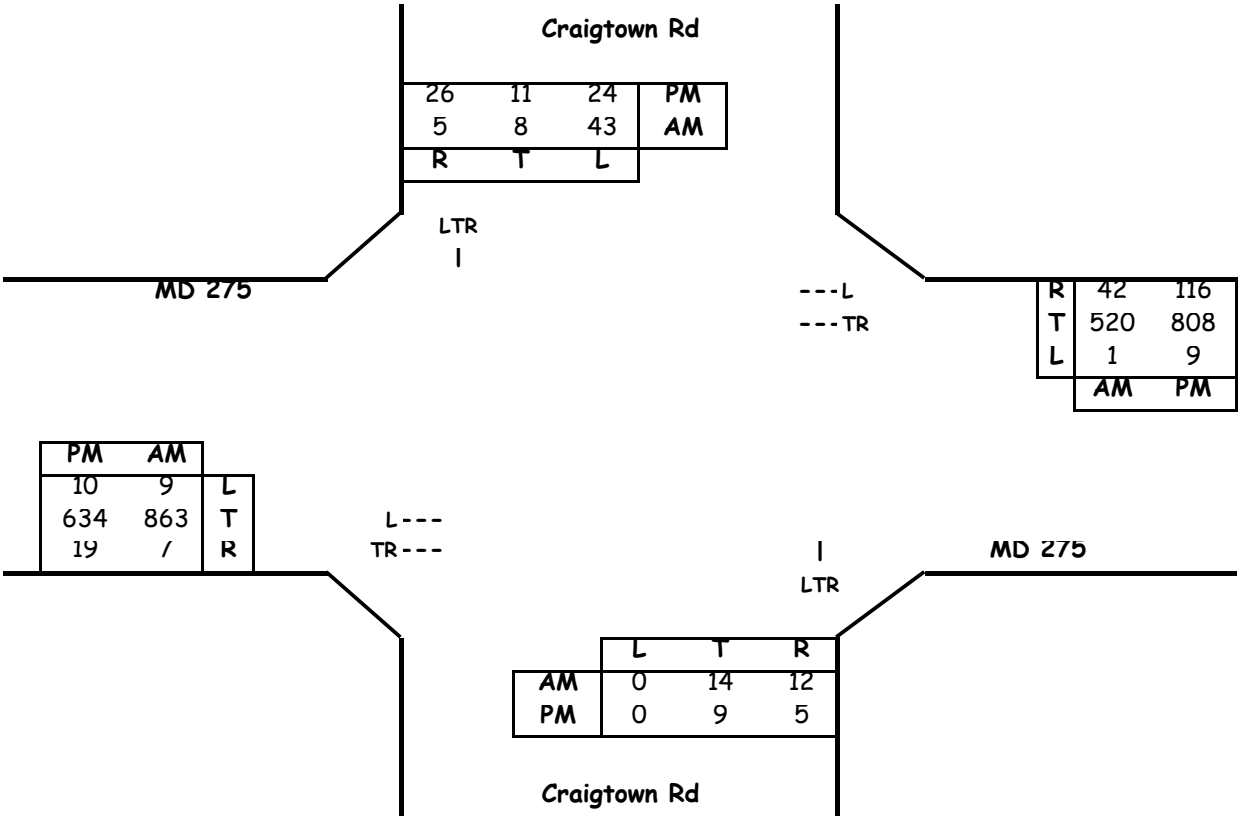
Intersection 12

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: Craigtown Rd
Minor Street: MD 275
Study Period: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	26	1.00	26	43	1	43	69
SB	56	1.00	56	0	1	0	
EB	870	1	870	1	1	1	871
WB	562	1	562	9	1	9	

CLV TOTAL= **940**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	14	1.00	14	24	1	24	61
SB	61	1.00	61	0	1	0	
EB	653	1	653	9	1	9	934
WB	924	1	924	10	1	10	

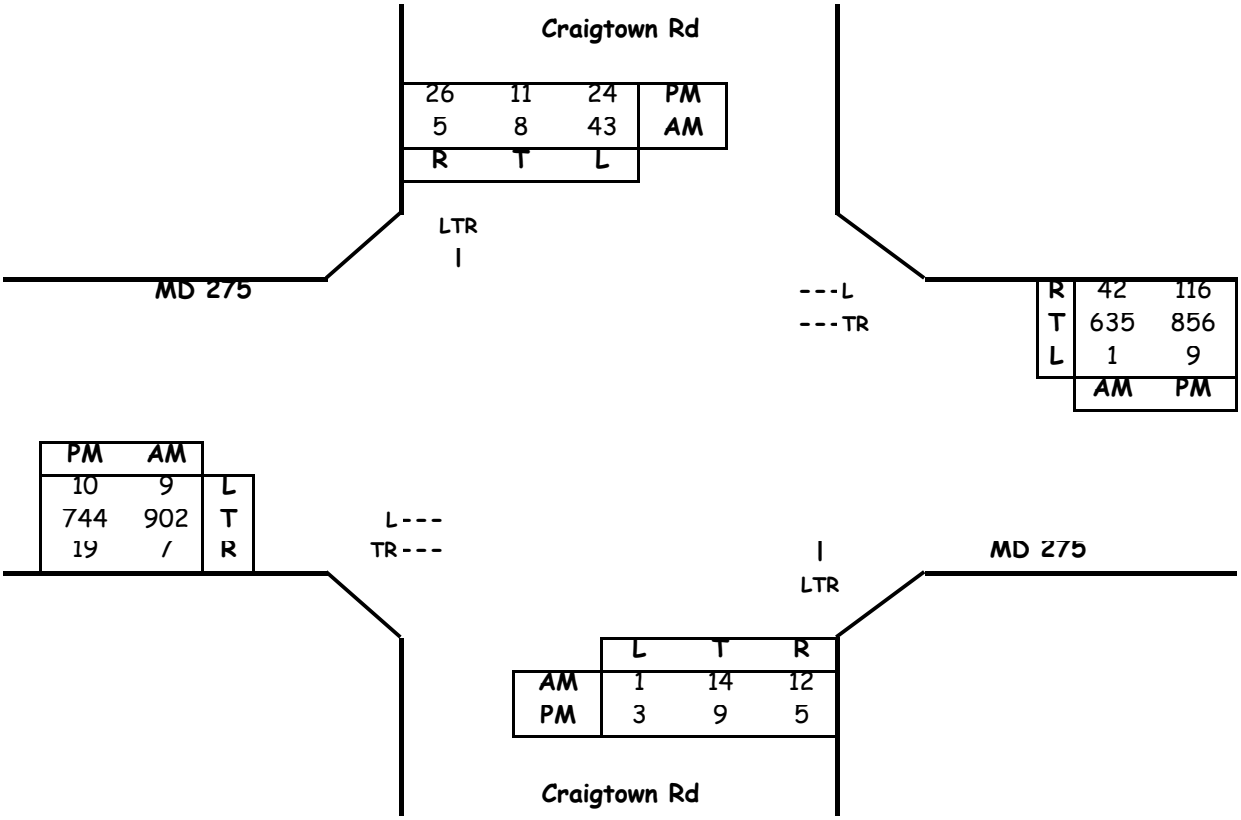
CLV TOTAL= **995**
Level of Service (LOS)= **A**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: Craigtown Rd
Minor Street: MD 275
Study Period: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	27	1.00	27	43	1	43	70
SB	56	1.00	56	1	1	1	
EB	909	1	909	1	1	1	910
WB	677	1	677	9	1	9	

CLV TOTAL= **980**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	17	1.00	17	24	1	24	64
SB	61	1.00	61	3	1	3	
EB	763	1	763	9	1	9	982
WB	972	1	972	10	1	10	

CLV TOTAL= **1046**
Level of Service (LOS)= **B**

Critical Lane Volume Analysis

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Craigtown Rd &
MD 275
(Total Traffic - Phase 2)

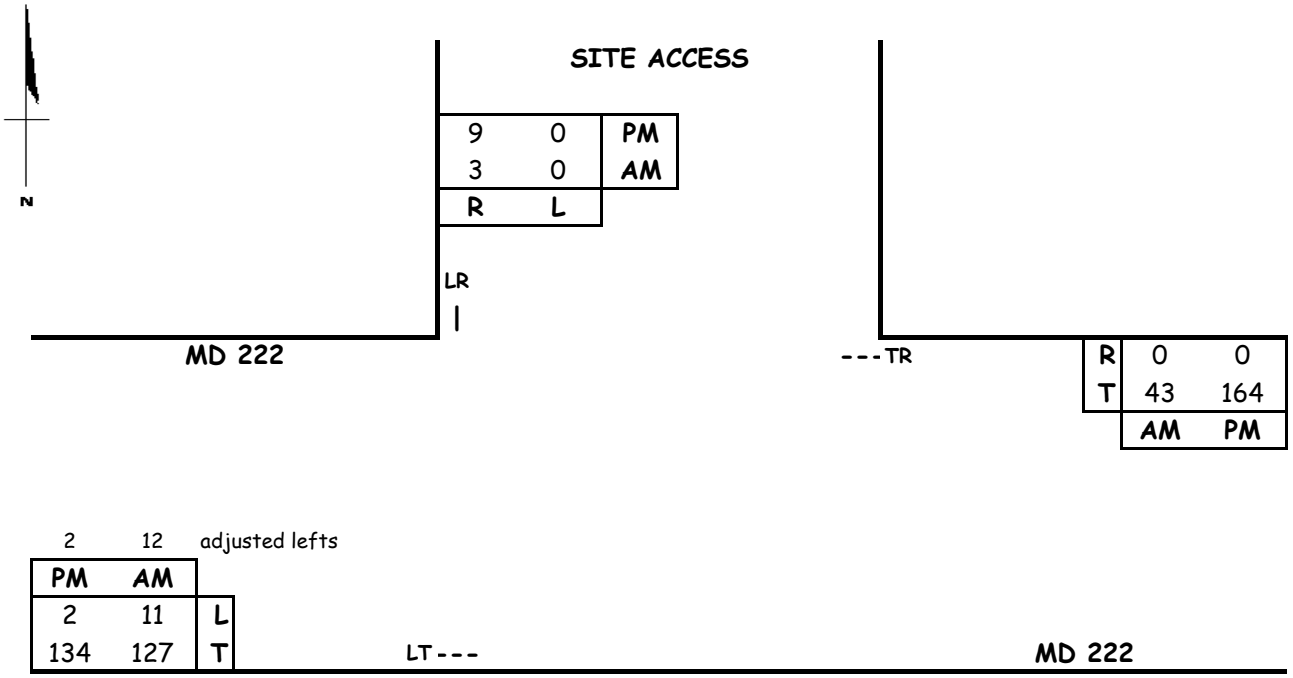
Intersection
12

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Site Access
and: MD 222
Conditions: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

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	3	1.00	3				3
EB	139	1.00	139				139
WB	43	1.00	43	11	1.00	11	
					CLV TOTAL=		142
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	9	1.00	9				9
EB	136	1.00	136				166
WB	164	1.00	164	2	1.00	2	
					CLV TOTAL=		175
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

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Site Access &
MD 222
(Total Traffic - Phase 2)

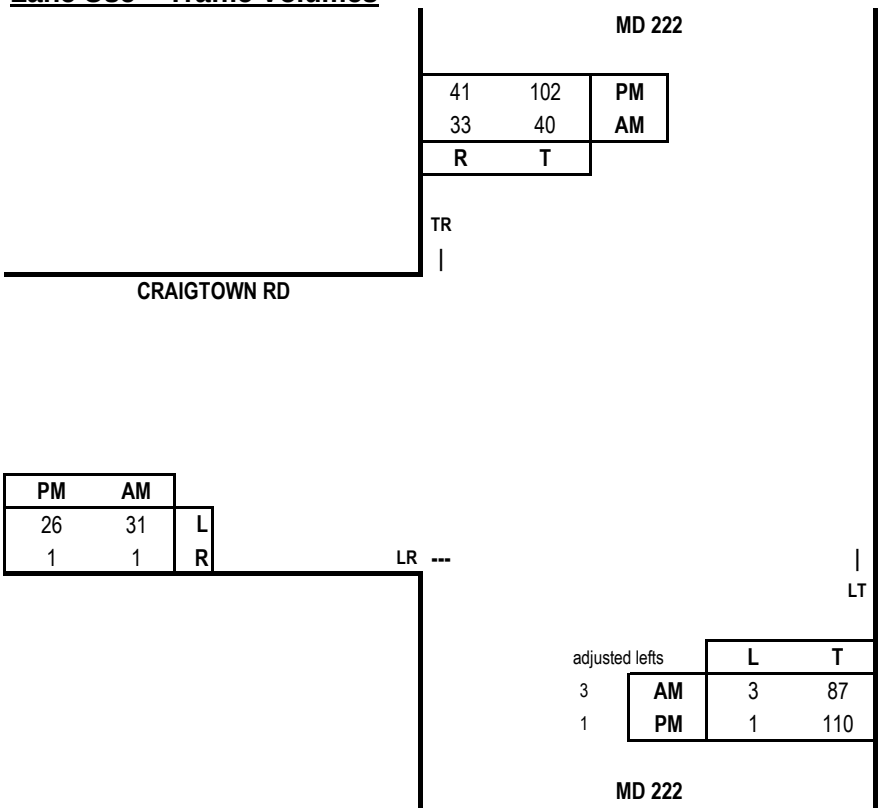
Intersection
2

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: Craigtown Rd
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	32	1.00	32				32
NB	90	1.00	90				90
SB	73	1.00	73	3	1.00	3	
					CLV TOTAL=		**122**
					Level of Service (LOS)=		**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	27	1.00	27				27
NB	111	1.00	111				144
SB	143	1.00	143	1	1.00	1	
					CLV TOTAL=		**171**
					Level of Service (LOS)=		**A**

Critical Lane Volume Analysis

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MD 222 &
Craigtown Rd
(Existing Traffic)

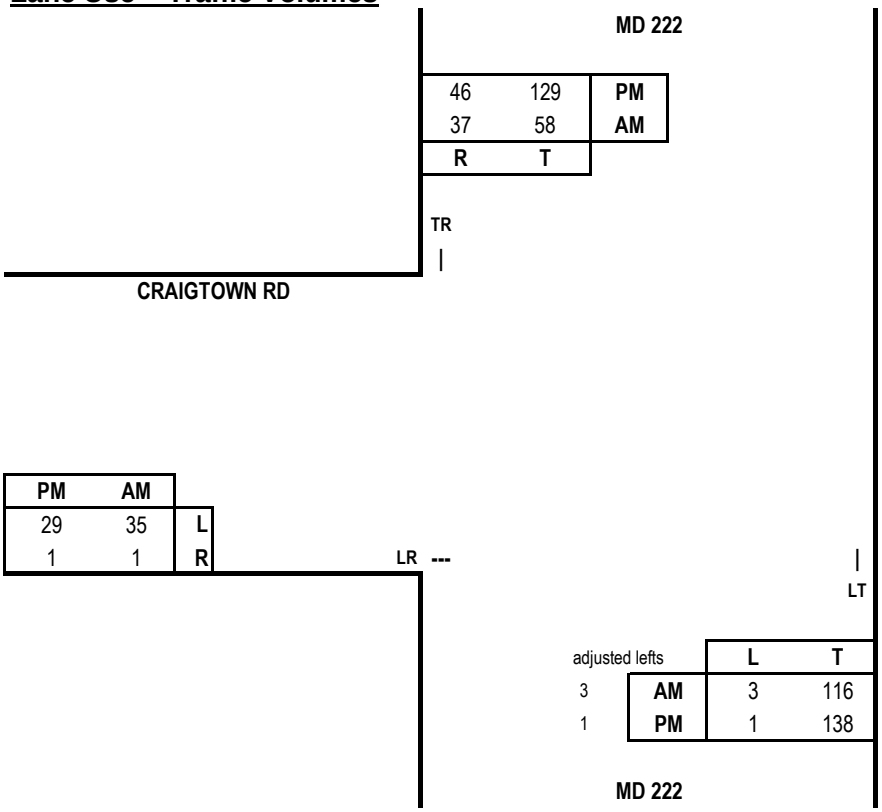
Intersection
14

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: Craigtown Rd
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	36	1.00	36				36
NB	119	1.00	119				119
SB	95	1.00	95	3	1.00	3	
					CLV TOTAL=		**155**
					Level of Service (LOS)=		**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	30	1.00	30				30
NB	139	1.00	139				176
SB	175	1.00	175	1	1.00	1	
					CLV TOTAL=		**206**
					Level of Service (LOS)=		**A**

Critical Lane Volume Analysis

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MD 222 &
Craigtown Rd
(Background Traffic)

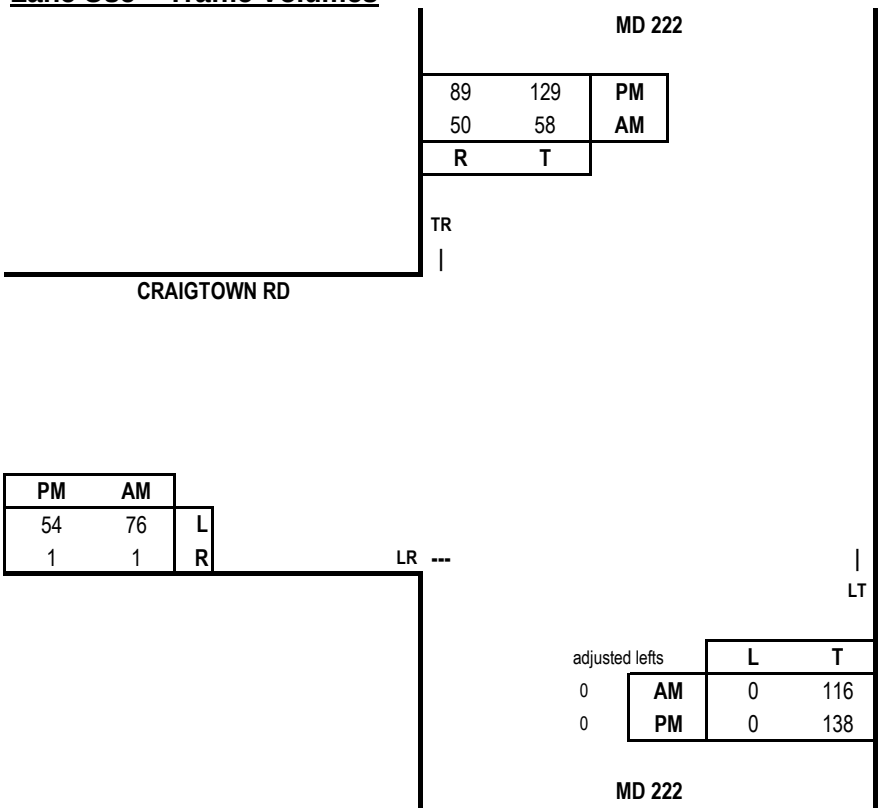
Intersection
14

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: Craigtown Rd
Conditions: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	77	1.00	77				77
NB	116	1.00	116				116
SB	108	1.00	108	0	1.00	0	
					CLV TOTAL=		193
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	55	1.00	55				55
NB	138	1.00	138				218
SB	218	1.00	218	0	1.00	0	
					CLV TOTAL=		273
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

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MD 222 &
Craigtown Rd
(Total Traffic - Phase 1A)

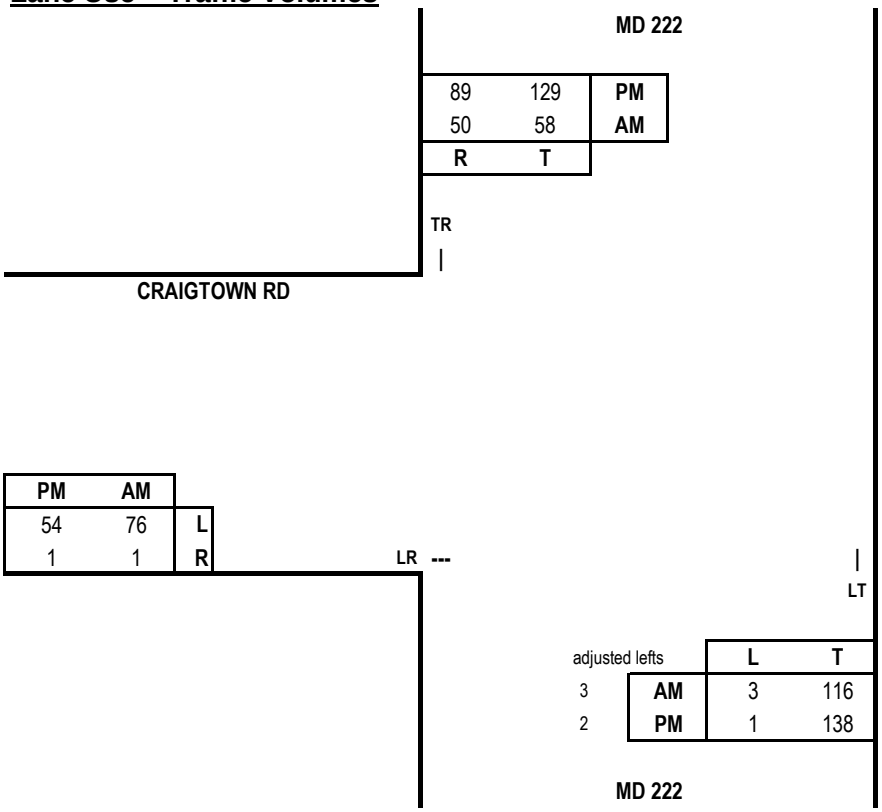
Intersection
14

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 222
and: Craigtown Rd
Conditions: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	77	1.00	77				77
NB	119	1.00	119				119
SB	108	1.00	108	3	1.00	3	
					CLV TOTAL=		196
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	55	1.00	55				55
NB	140	1.00	140				219
SB	218	1.00	218	1	1.00	1	
					CLV TOTAL=		274
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

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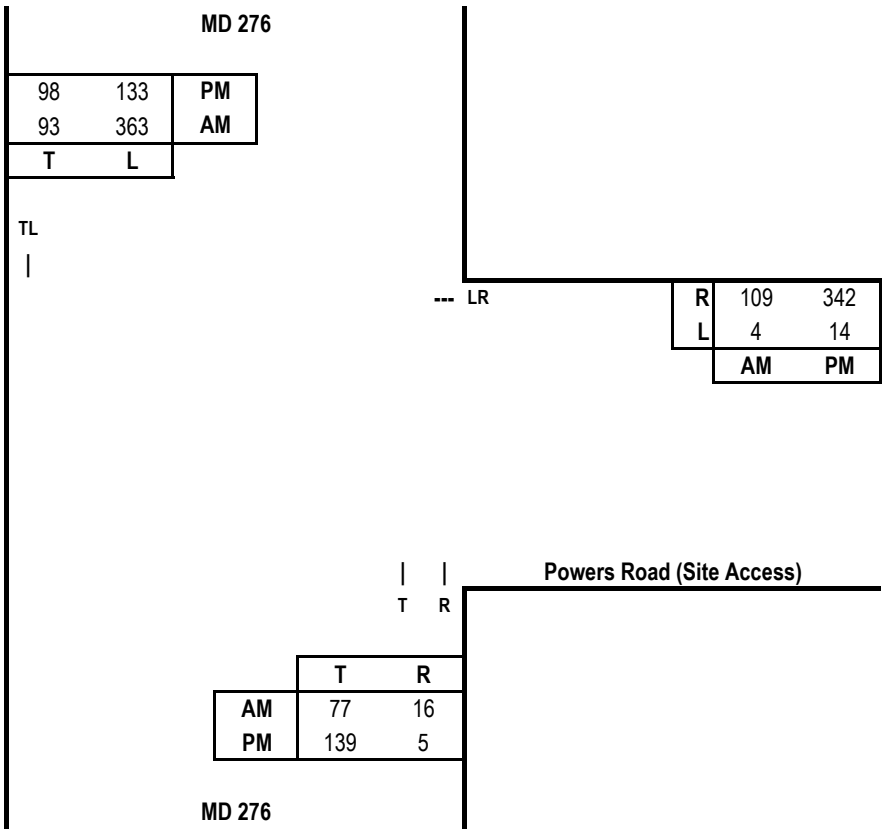
MD 222 &
Craigtown Rd
(Total Traffic - Phase 2)

Intersection
14

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 276 **Analyst:** Lenhart Traffic Consulting
and: Powers Road (Site Access)
Conditions: Background 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
WB	113	1.00	113				113
NB	77	1.00	77	363	1.00	363	440
SB	93	1.00	93				
					CLV TOTAL=		553
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	356	1.00	356				356
NB	139	1.00	139	133	1.00	133	272
SB	98	1.00	98				
					CLV TOTAL=		628
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

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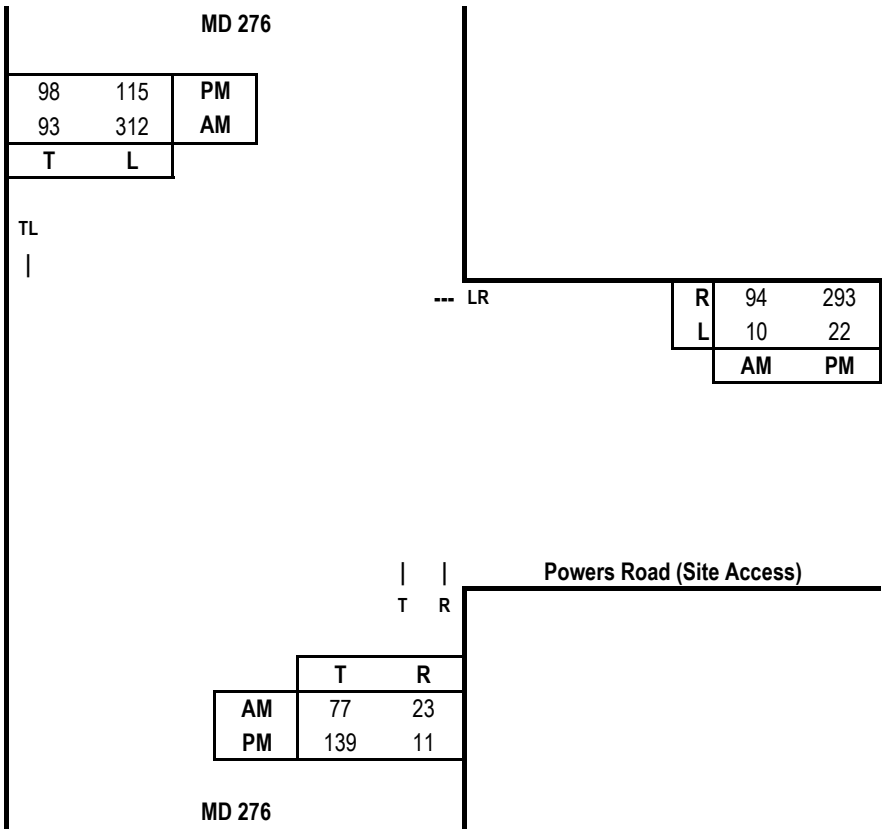
MD 276 &
Powers Road (Site Access)
(Background Traffic)

Intersection
A

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 276 **Analyst:** Lenhart Traffic Consulting
and: Powers Road (Site Access)
Conditions: Total Traffic - Phase 1A

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	104	1.00	104				104
NB	77	1.00	77	312	1.00	312	389
SB	93	1.00	93				
					CLV TOTAL=		**493**
					Level of Service (LOS)=		**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	315	1.00	315				315
NB	139	1.00	139	115	1.00	115	254
SB	98	1.00	98				
					CLV TOTAL=		**569**
					Level of Service (LOS)=		**A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
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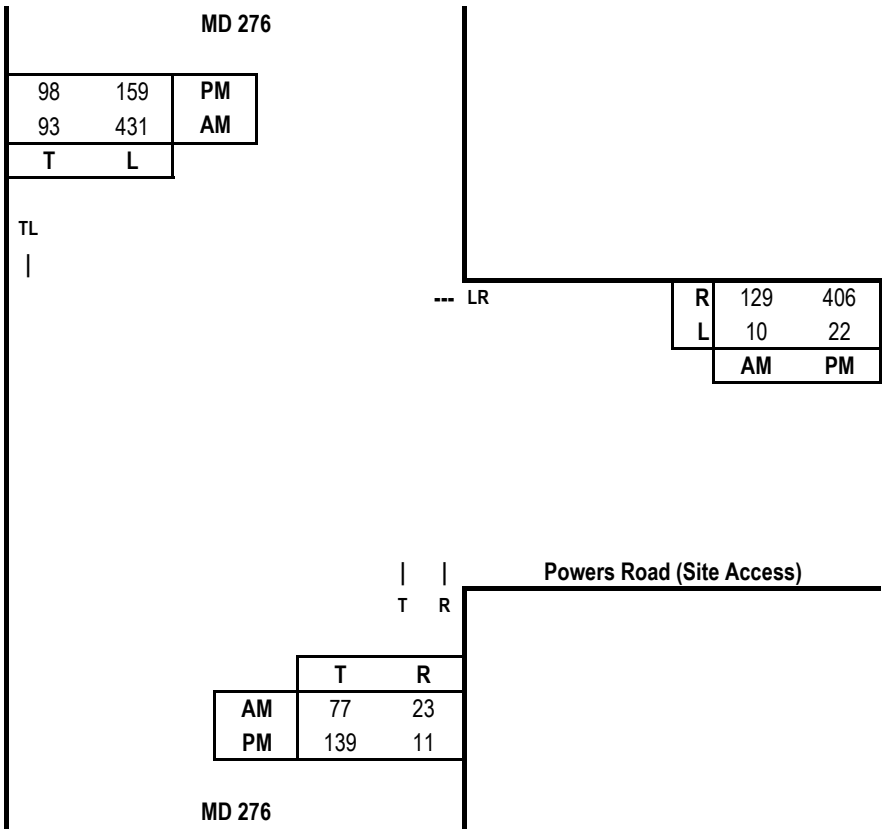
MD 276 &
Powers Road (Site Access)
(Total Traffic - Phase 1A)

Intersection
A

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: MD 276 **Analyst:** Lenhart Traffic Consulting
and: Powers Road (Site Access)
Conditions: Total Traffic - Phase 2

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
WB	139	1.00	139				139
NB	77	1.00	77	431	1.00	431	508
SB	93	1.00	93				
						CLV TOTAL=	**647**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
WB	428	1.00	428				428
NB	139	1.00	139	159	1.00	159	298
SB	98	1.00	98				
						CLV TOTAL=	**726**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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N

MD 276 &
Powers Road (Site Access)
(Total Traffic - Phase 2)

Intersection
A

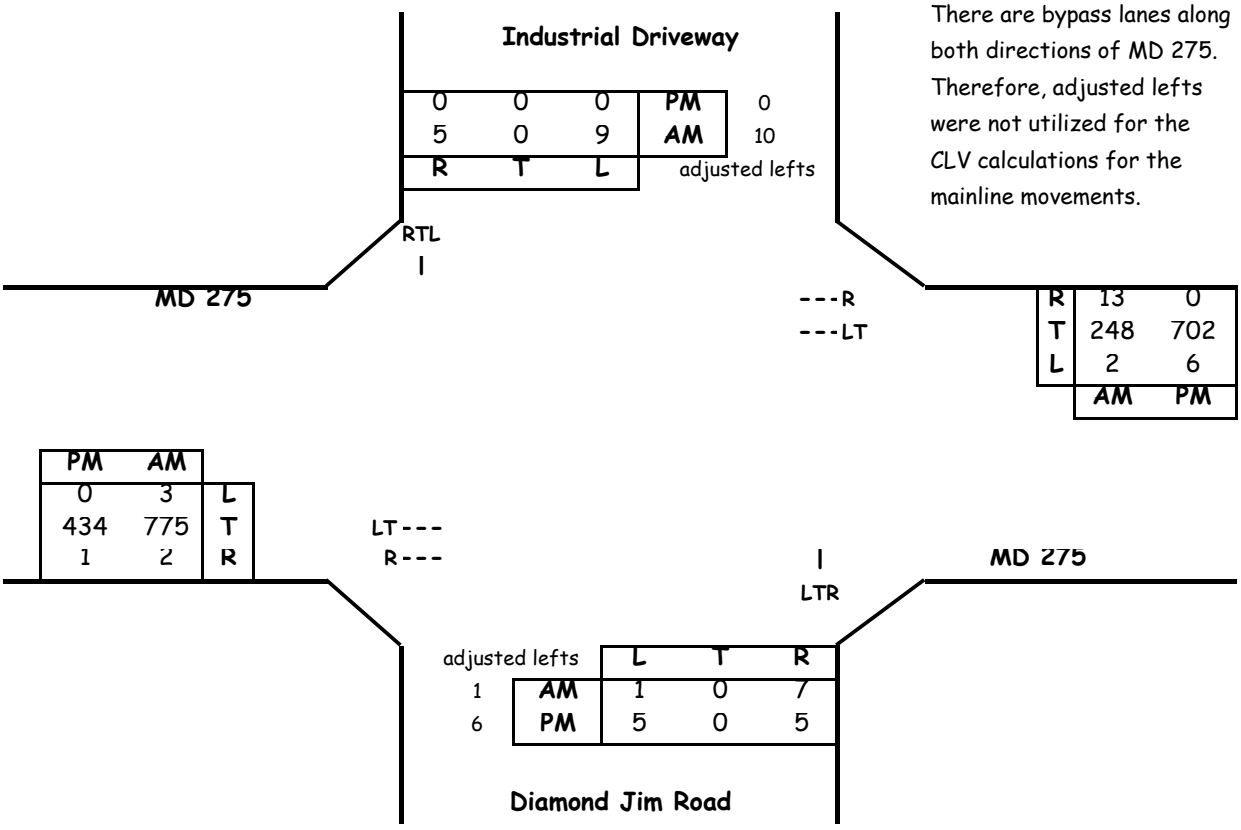
CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 275
Minor Street: Diamond Jim Road
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes

Note:
1. There are bypass lanes along both directions of MD 275. Therefore, adjusted lefts were not utilized for the CLV calculations for the mainline movements.



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	8	1.00	8	9	1	9	17
SB	15	1.00	15	1	1	1	
EB	775	1	775	2	1	2	777
WB	248	1	248	3	1	3	

CLV TOTAL= **794**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	11	1.00	11	0	1	0	11
SB	0	1.00	0	5	1	5	
EB	434	1	434	6	1	6	702
WB	702	1	702	0	1	0	

CLV TOTAL= **713**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 275 &
Diamond Jim Road
(Existing Traffic)

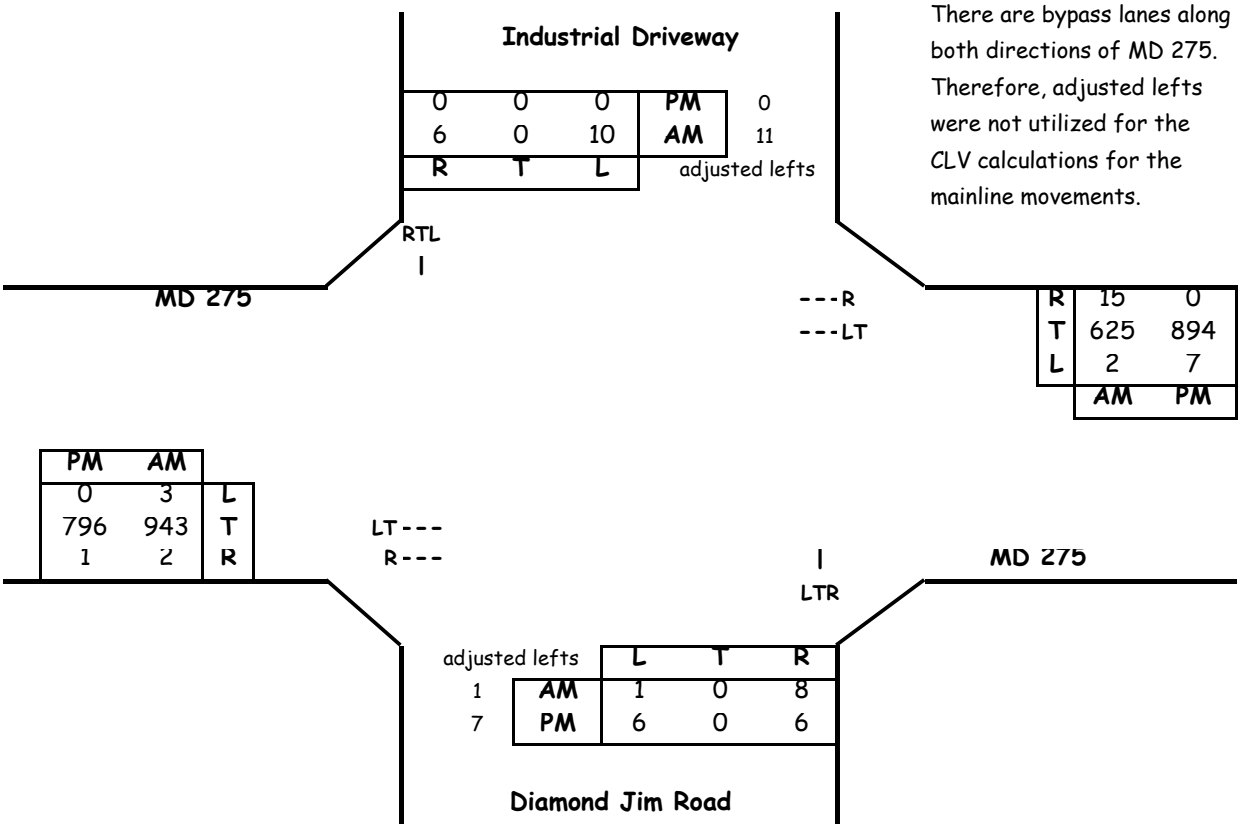
Intersection
C

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 275
Minor Street: Diamond Jim Road
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Note:
1. There are bypass lanes along both directions of MD 275. Therefore, adjusted lefts were not utilized for the CLV calculations for the mainline movements.

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	9	1.00	9	10	1	10	19
SB	17	1.00	17	1	1	1	
EB	943	1	943	2	1	2	945
WB	625	1	625	3	1	3	
						CLV TOTAL=	**964**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	13	1.00	13	0	1	0	13
SB	0	1.00	0	6	1	6	
EB	796	1	796	7	1	7	894
WB	894	1	894	0	1	0	
						CLV TOTAL=	**907**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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MD 275 &
Diamond Jim Road
(Background Traffic)

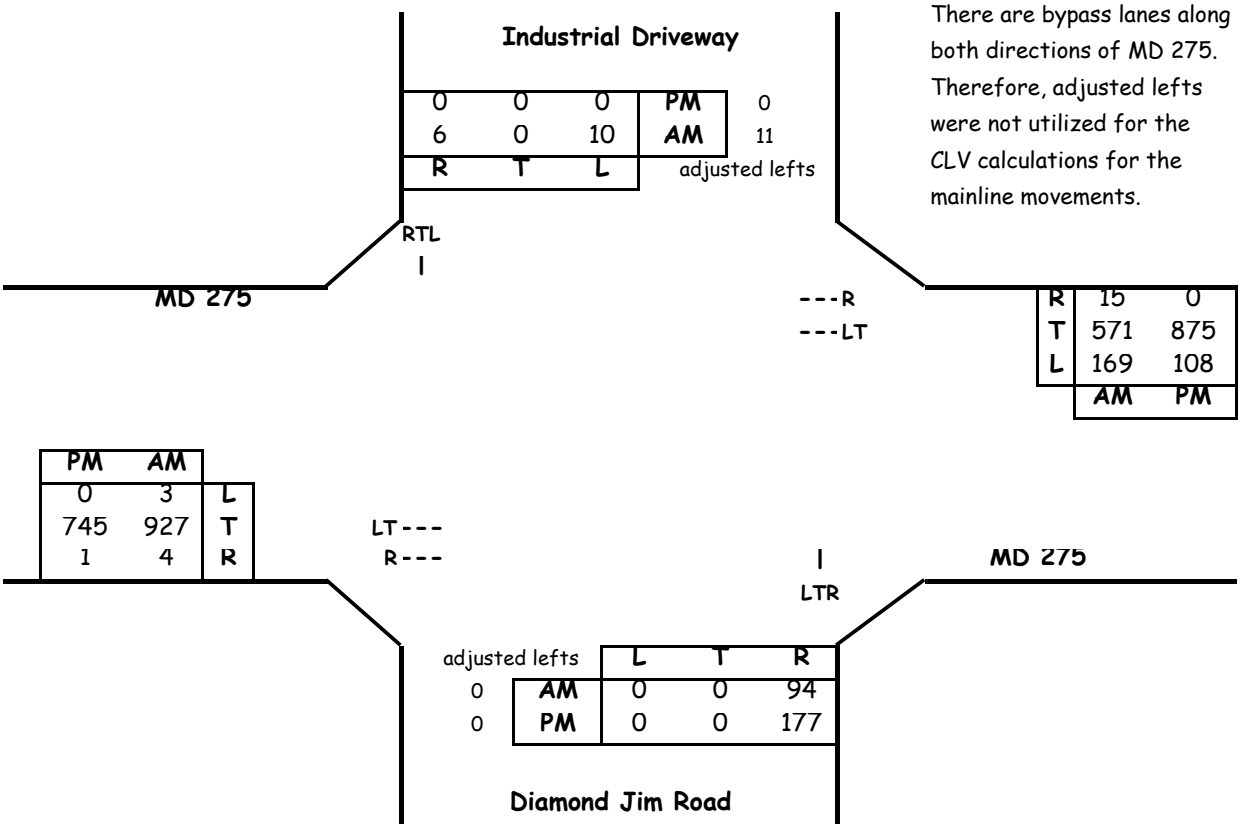
Intersection
C

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 275
Minor Street: Diamond Jim Road
Study Period: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Note:
1. There are bypass lanes along both directions of MD 275. Therefore, adjusted lefts were not utilized for the CLV calculations for the mainline movements.

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	94	1.00	94	10	1	10	104
SB	17	1.00	17	0	1	0	
EB	930	1	930	169	1	169	1099
WB	740	1	740	3	1	3	

CLV TOTAL= **1203**
Level of Service (LOS)= **C**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	177	1.00	177	0	1	0	177
SB	0	1.00	0	0	1	0	
EB	745	1	745	108	1	108	983
WB	983	1	983	0	1	0	

CLV TOTAL= **1160**
Level of Service (LOS)= **C**

Critical Lane Volume Analysis

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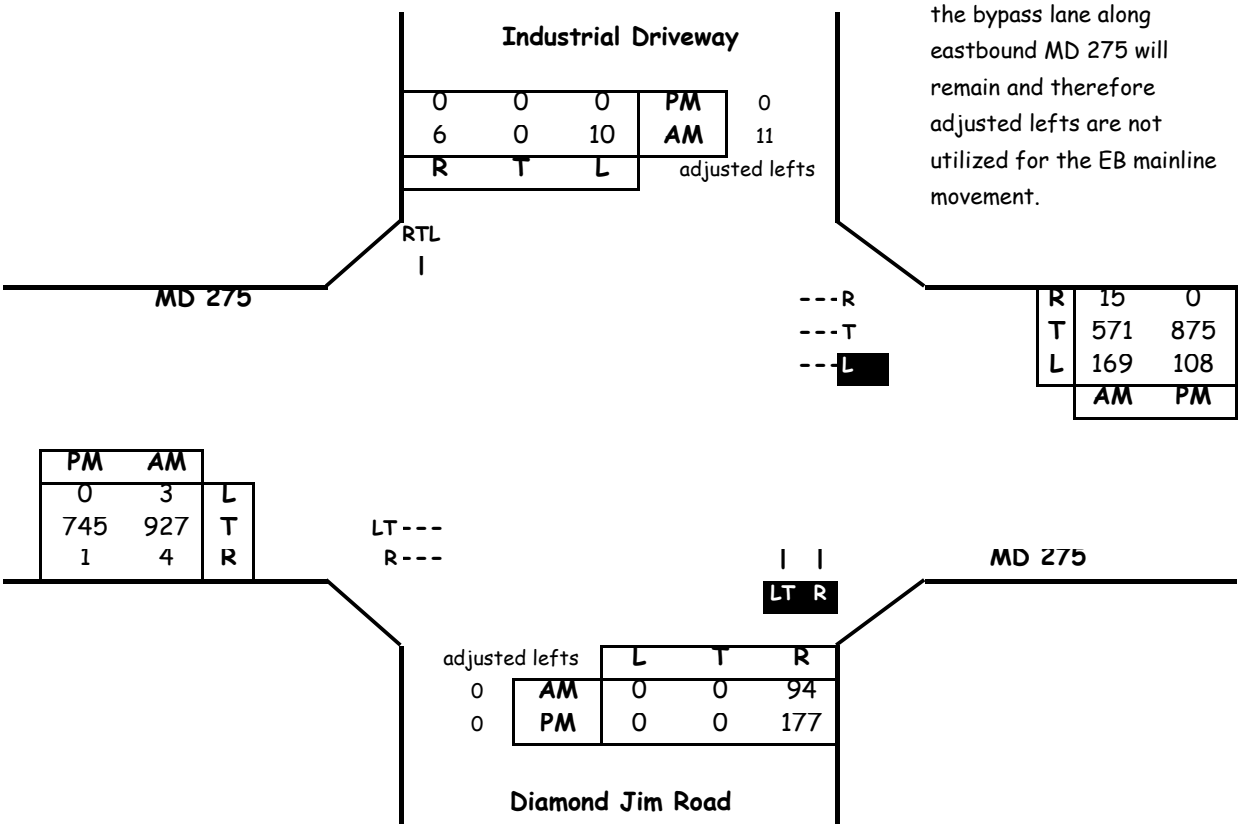
MD 275 &
Diamond Jim Road
(Total Traffic - Phase 1A)

Intersection
C

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 275
Minor Street: Diamond Jim Road **Analyst:** Lenhart Traffic Consulting
Study Period: Total Traffic Phase 1A w/ Improvements

Lane Use + Traffic Volumes



Note:
1. Under proposed conditions, the bypass lane along eastbound MD 275 will remain and therefore adjusted lefts are not utilized for the EB mainline movement.

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	0	1.00	0	10	1	10	17
SB	17	1.00	17	0	1	0	
EB	930	1	930	169	1	169	1099
WB	571	1	571	3	1	3	

CLV TOTAL= **1116**
Level of Service (LOS)= **B**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	69	1.00	69	0	1	0	69
SB	0	1.00	0	0	1	0	
EB	745	1	745	108	1	108	875
WB	875	1	875	0	1	0	

CLV TOTAL= **944**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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MD 275 &
Diamond Jim Road
(Total Traffic Phase 1A w/ Improvements)

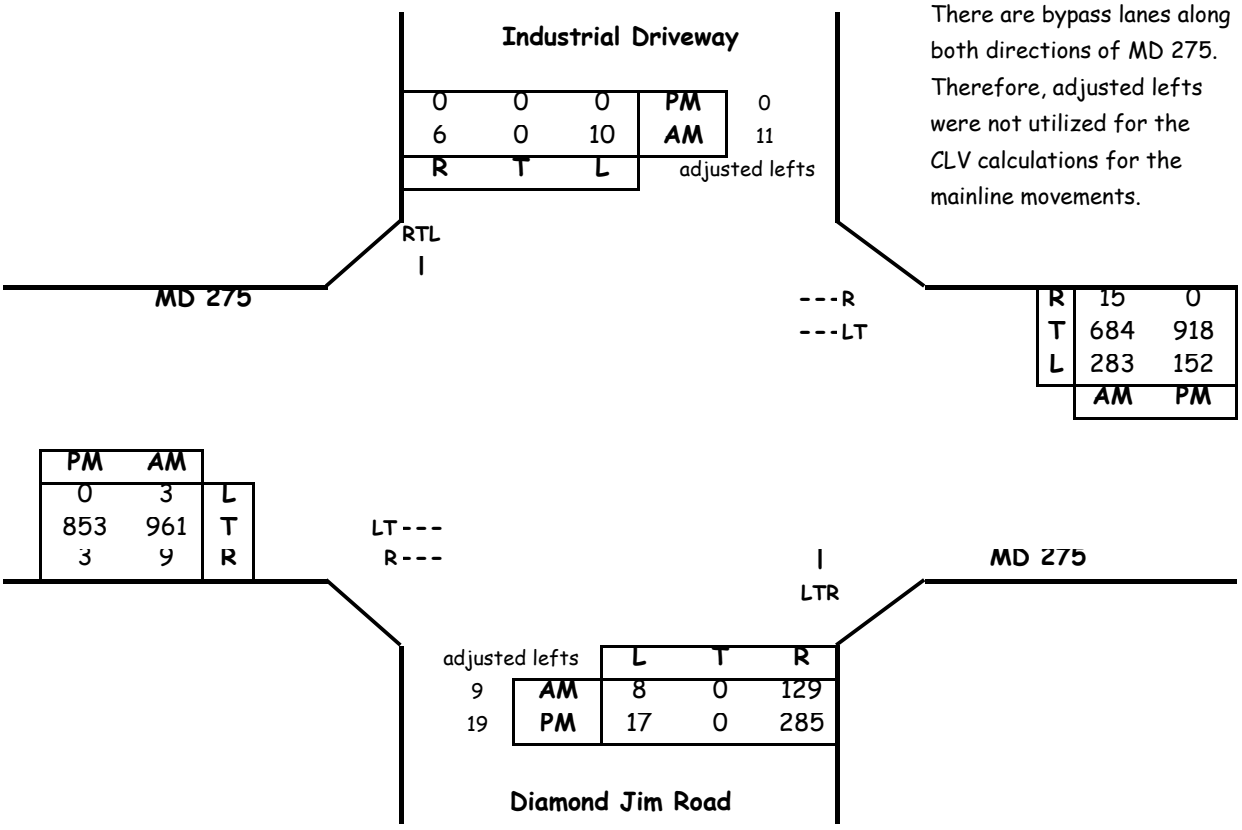
Intersection
C-i

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 275
Minor Street: Diamond Jim Road
Study Period: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Note:
1. There are bypass lanes along both directions of MD 275. Therefore, adjusted lefts were not utilized for the CLV calculations for the mainline movements.

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	138	1.00	138	10	1	10	148
SB	17	1.00	17	8	1	8	
EB	964	1	964	283	1	283	1247
WB	967	1	967	3	1	3	

CLV TOTAL= **1395**
Level of Service (LOS)= **D**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	304	1.00	304	0	1	0	304
SB	0	1.00	0	17	1	17	
EB	853	1	853	152	1	152	1070
WB	1070	1	1070	0	1	0	

CLV TOTAL= **1374**
Level of Service (LOS)= **D**

Critical Lane Volume Analysis

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MD 275 &
Diamond Jim Road
(Total Traffic - Phase 2)

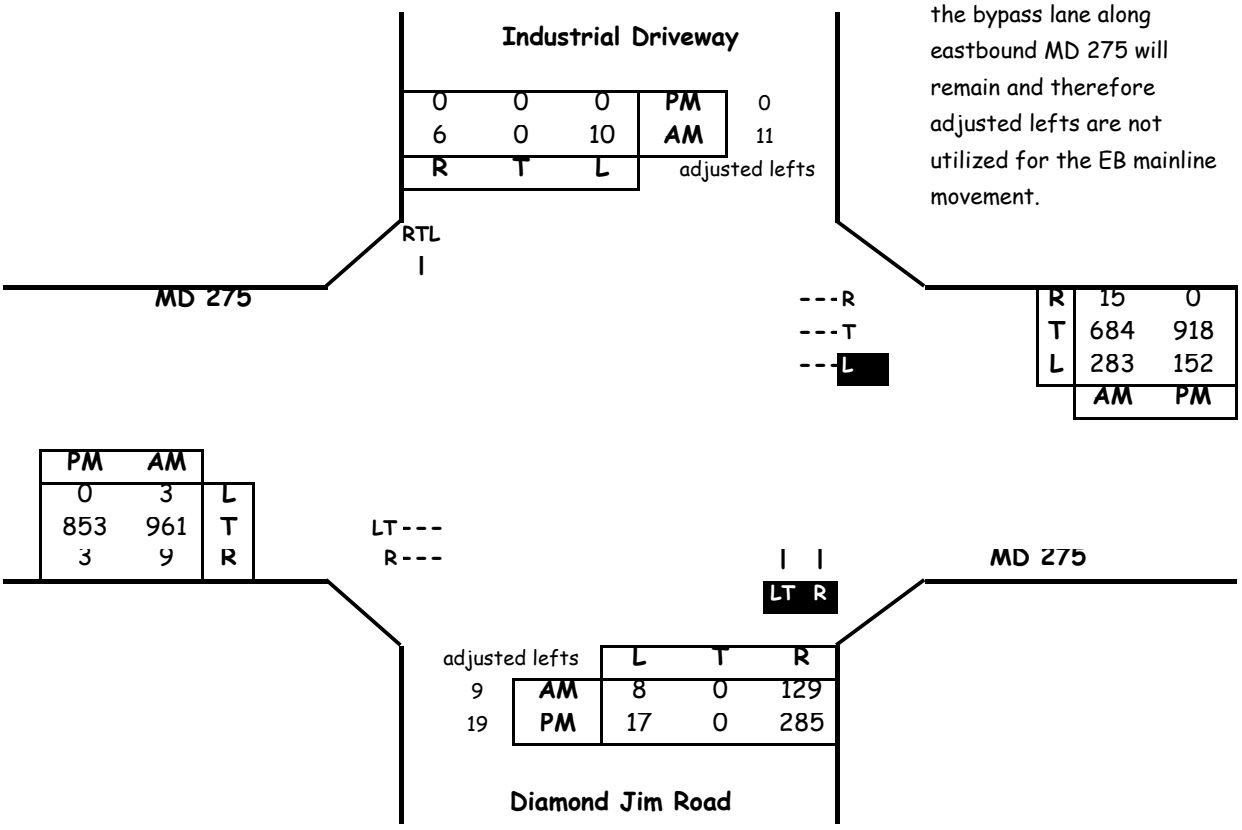
Intersection
C

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: MD 275
Minor Street: Diamond Jim Road **Analyst:** Lenhart Traffic Consulting
Study Period: Total Traffic Phase 2 w/ Improvements

Lane Use + Traffic Volumes

Note:
1. Under proposed conditions, the bypass lane along eastbound MD 275 will remain and therefore adjusted lefts are not utilized for the EB mainline movement.



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	9	1.00	9	10	1	10	25
SB	17	1.00	17	8	1	8	
EB	961	1	961	283	1	283	1244
WB	684	1	684	3	1	3	

CLV TOTAL= **1269**
Level of Service (LOS)= **C**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	133	1.00	133	0	1	0	133
SB	0	1.00	0	17	1	17	
EB	853	1	853	152	1	152	1005
WB	918	1	918	0	1	0	

CLV TOTAL= **1138**
Level of Service (LOS)= **B**

Critical Lane Volume Analysis

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MD 275 &
Diamond Jim Road
(Total Traffic Phase 2 w/ Improvements)

Intersection
C-i

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Diamond Jim Road
and: Craigtown Road
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



DIAMOND JIM ROAD

7	3	PM
1	11	AM
R	L	

LR
|

CRAIGTOWN ROAD

---TR

R	18	11
T	23	22
	AM	PM

2 2 adjusted lefts

PM	AM	
2	2	L
17	39	T

LT---

CRAIGTOWN ROAD

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	41	1.00	41				43
WB	41	1.00	41	2	1.00	2	
					CLV TOTAL=		55
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	10	1.00	10				10
EB	19	1.00	19				35
WB	33	1.00	33	2	1.00	2	
					CLV TOTAL=		45
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

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Diamond Jim Road &
Craigtown Road
(Existing Traffic)

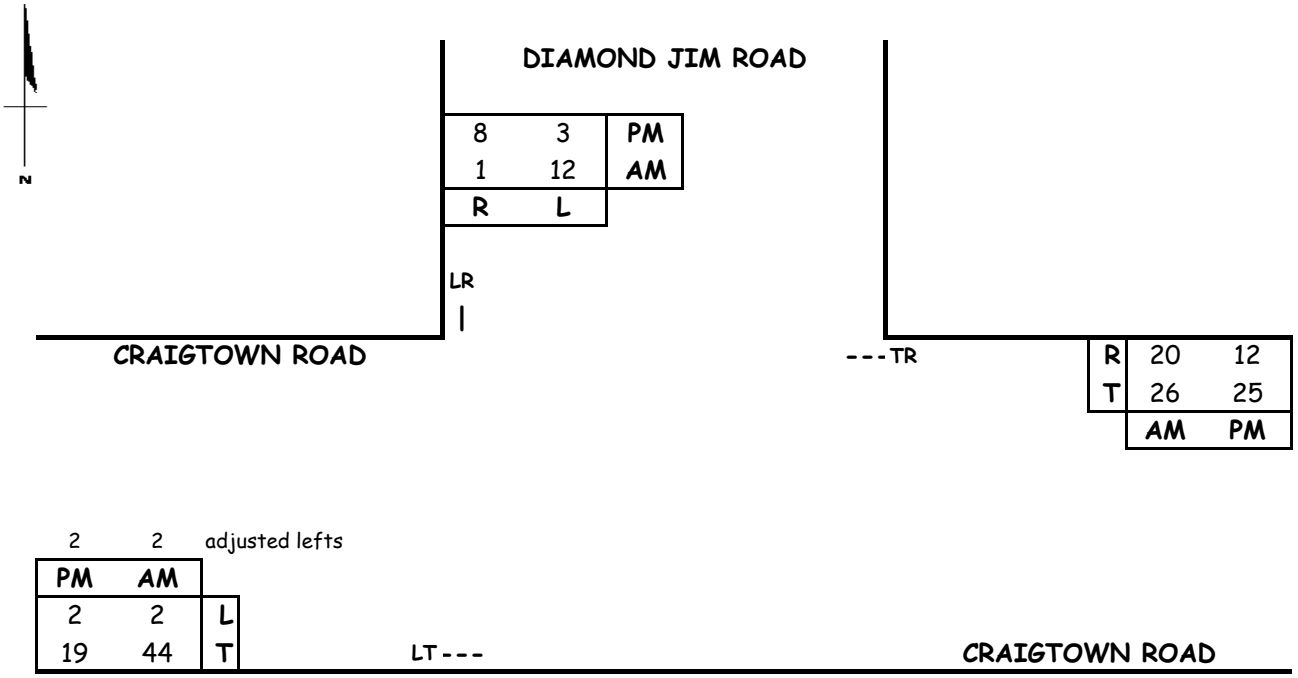
Intersection
D

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Diamond Jim Road
and: Craigtown Road
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

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	13	1.00	13				13
EB	46	1.00	46				48
WB	46	1.00	46	2	1.00	2	

CLV TOTAL= **61**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	11	1.00	11				11
EB	21	1.00	21				39
WB	37	1.00	37	2	1.00	2	

CLV TOTAL= **50**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Diamond Jim Road &
Craigtown Road
(Background Traffic)

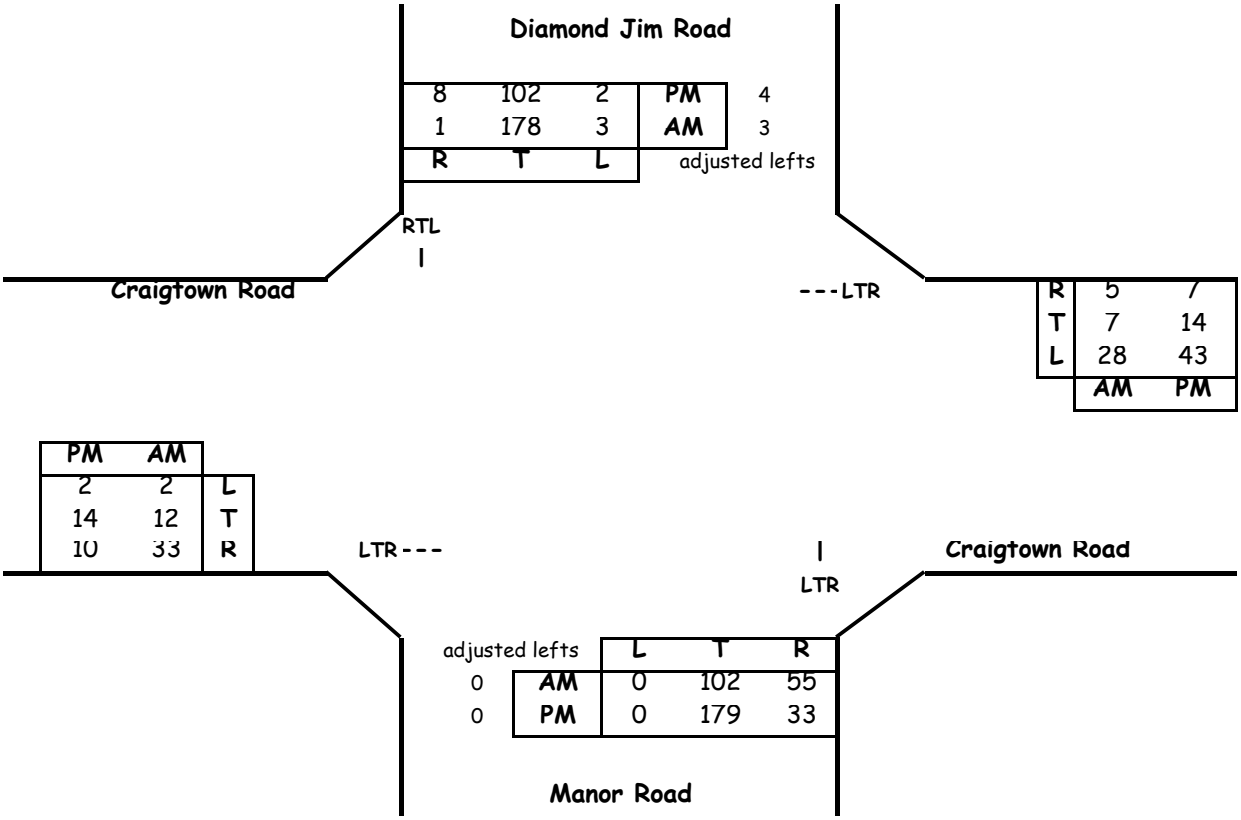
Intersection
D

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: Craigtown Road
Minor Street: Manor Road
Study Period: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	157	1.00	157	3	1	3	182
SB	182	1.00	182	0	1	0	
EB	47	1	47	28	1	28	75
WB	40	1	40	2	1	2	

CLV TOTAL= **257**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	212	1.00	212	2	1	2	214
SB	114	1.00	114	0	1	0	
EB	26	1	26	43	1	43	69
WB	64	1	64	2	1	2	

CLV TOTAL= **283**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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Craigtown Road & Manor Road
(Total Traffic - Phase 1A)

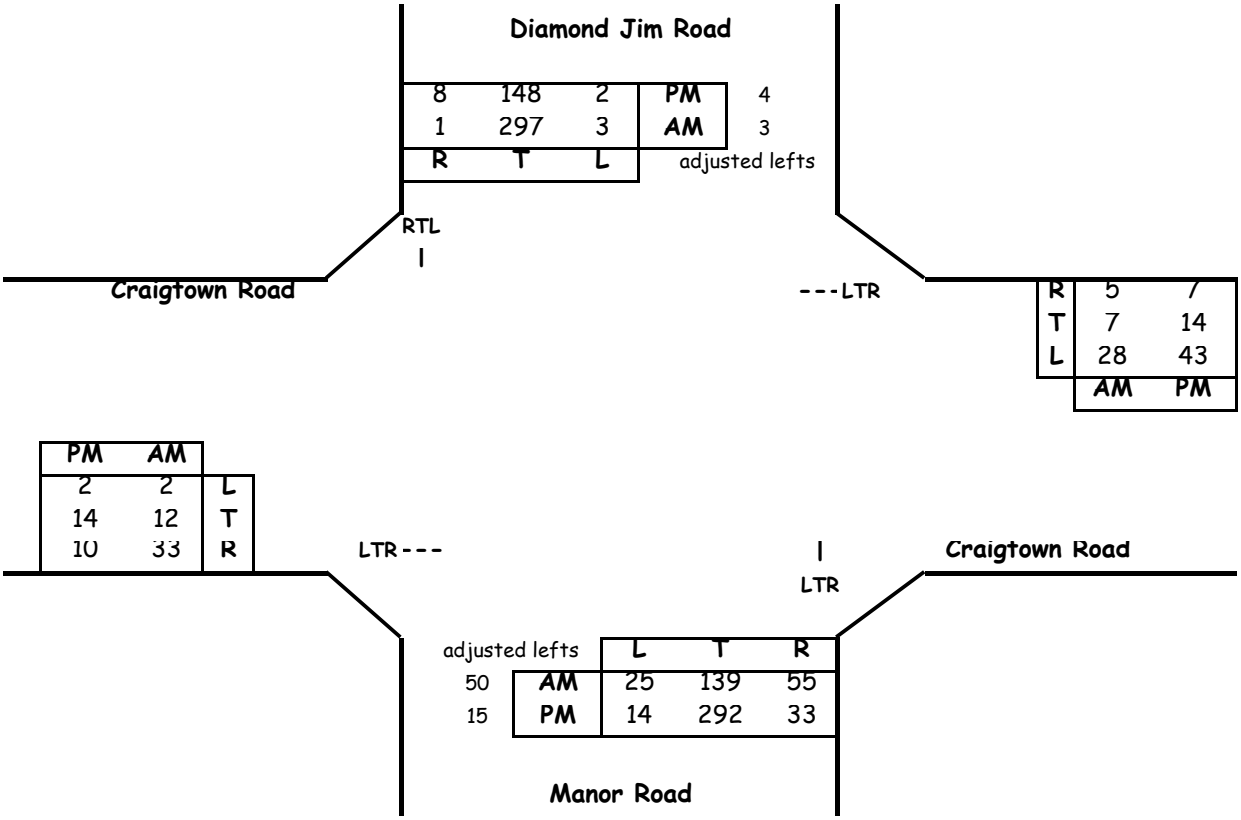
Intersection D

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Main Line: Craigtown Road
Minor Street: Manor Road
Study Period: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	244	1.00	244	3	1	3	326
SB	301	1.00	301	25	1	25	
EB	47	1	47	28	1	28	75
WB	40	1	40	2	1	2	

CLV TOTAL= **401**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	340	1.00	340	2	1	2	342
SB	160	1.00	160	14	1	14	
EB	26	1	26	43	1	43	69
WB	64	1	64	2	1	2	

CLV TOTAL= **411**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Craigtown Road & Manor Road
(Total Traffic - Phase 2)

Intersection D

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Craigtown Road
Minor Street: Manor Road
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

CRAIGTOWN ROAD **---TL**

	AM	PM
T	11	19
L	13	0
adjusted lefts	14	0

PM	AM	
15	14	T
5	37	R

TR---

CRAIGTOWN ROAD

LR

Manor Road

	L	R
AM	32	12
PM	14	7

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	44	1.00	44				44
EB	51	1.00	51	13	1.00	13	64
WB	25	1.00	25				
						CLV TOTAL=	**108**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	21	1.00	21				21
EB	20	1.00	20	0	1.00	0	20
WB	19	1.00	19				
						CLV TOTAL=	**41**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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Craigtown Road & Manor Road
(Existing Traffic)

Intersection E

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Craigtown Road **Analyst: Lenhart Traffic Consulting**
Minor Street: Manor Road
Study Period: Background Traffic

CRAIGTOWN ROAD **---TL**

	AM	PM
T	12	21
L	15	0
adjusted lefts	17	0

PM	AM	
17	16	T
6	42	R

TR---

CRAIGTOWN ROAD

LR

	L	R
AM	36	14
PM	16	8

Manor Road

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	50	1.00	50				50
EB	58	1.00	58	15	1.00	15	73
WB	29	1.00	29				
						CLV TOTAL=	**123**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	24	1.00	24				24
EB	23	1.00	23	0	1.00	0	23
WB	21	1.00	21				
						CLV TOTAL=	**47**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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Craigtown Road & Manor Road
(Background Traffic)

Intersection E

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Manor Road
and: Hendley Parkway
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



MANOR ROAD

0	4	PM
0	55	AM
R	L	

LR
|

HENDLEY PARKWAY

---TR

R	41	25
T	0	0
	AM	PM

0 0 adjusted lefts

PM	AM	
0	0	L
0	0	T

LT---

PRESTON DRIVE

Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
SB	55	1.00	55				55
EB	0	1.00	0				41
WB	41	1.00	41	0	1.00	0	

CLV TOTAL= **96**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	4	1.00	4				4
EB	0	1.00	0				25
WB	25	1.00	25	0	1.00	0	

CLV TOTAL= **29**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

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Manor Road &
Hendley Parkway
(Existing Traffic)

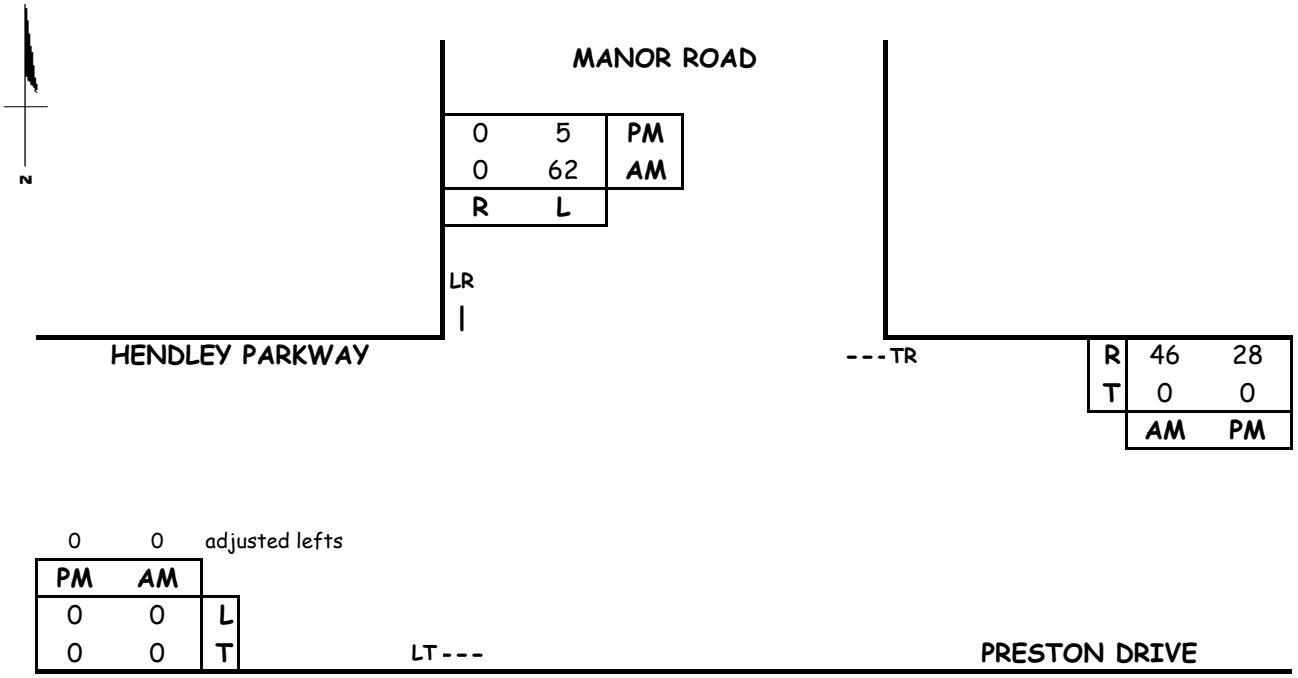
Intersection
F

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Manor Road
and: Hendley Parkway
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

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	62	1.00	62				62
EB	0	1.00	0				46
WB	46	1.00	46	0	1.00	0	

CLV TOTAL= **108**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	5	1.00	5				5
EB	0	1.00	0				28
WB	28	1.00	28	0	1.00	0	

CLV TOTAL= **33**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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Manor Road &
Hendley Parkway
(Background Traffic)

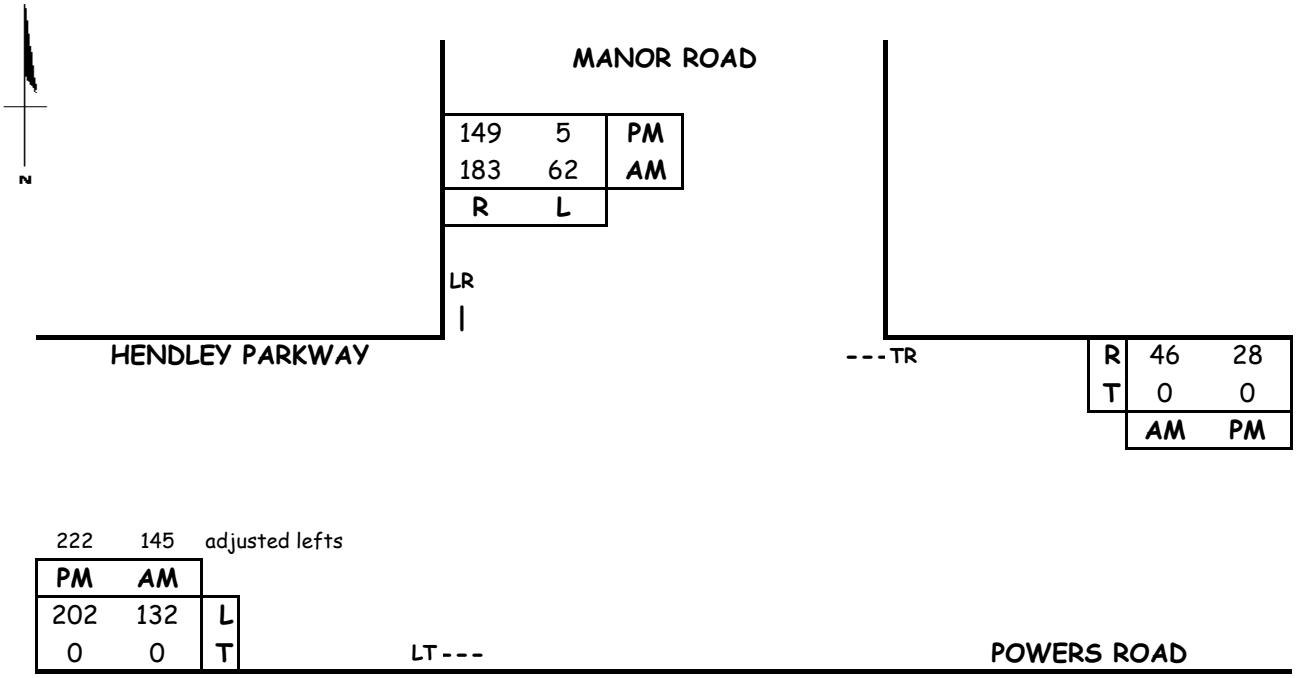
Intersection
F

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Manor Road
and: Hendley Parkway
Conditions: Total Traffic - Phase 1A

Analyst: Lenhart Traffic Consulting

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	245	1.00	245				245
EB	145	1.00	145				178
WB	46	1.00	46	132	1.00	132	
						CLV TOTAL=	**423**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	154	1.00	154				154
EB	222	1.00	222				230
WB	28	1.00	28	202	1.00	202	
						CLV TOTAL=	**384**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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

Manor Road &
Hendley Parkway
(Total Traffic - Phase 1A)

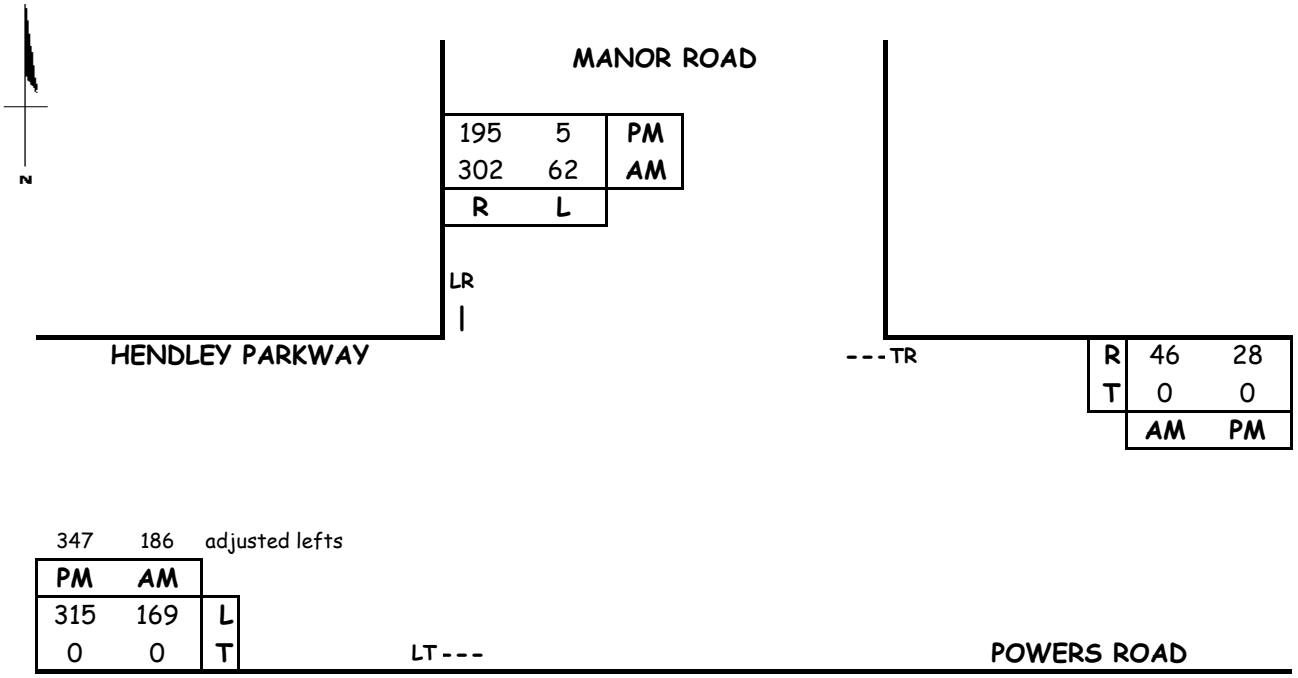
Intersection
F

CRITICAL LANE VOLUME (CLV) METHODOLOGY
for MSHA

Intersection of: Manor Road
and: Hendley Parkway
Conditions: Total Traffic - Phase 2

Analyst: Lenhart Traffic Consulting

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	364	1.00	364				364
EB	186	1.00	186				215
WB	46	1.00	46	169	1.00	169	
						CLV TOTAL=	**579**
						Level of Service (LOS)=	**A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
SB	200	1.00	200				200
EB	347	1.00	347				347
WB	28	1.00	28	315	1.00	315	
						CLV TOTAL=	**547**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

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Hendley Parkway
(Total Traffic - Phase 2)

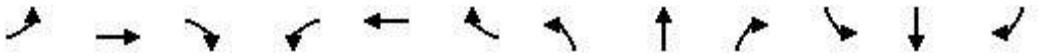
Intersection
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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	84	122	44	270	495	36
Future Volume (vph)	84	122	44	270	495	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5			7.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.88			1.00
Flt Protected	0.95	1.00	1.00			0.96
Satd. Flow (prot)	1770	1583	1647			1780
Flt Permitted	0.95	1.00	1.00			0.49
Satd. Flow (perm)	1770	1583	1647			904
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	133	48	293	538	39
RTOR Reduction (vph)	0	111	88	0	0	0
Lane Group Flow (vph)	91	22	253	0	0	577
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	9.7	16.1	62.4			73.8
Effective Green, g (s)	9.7	16.1	62.4			73.8
Actuated g/C Ratio	0.10	0.17	0.65			0.77
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	178	347	1070			753
v/s Ratio Prot	c0.05	0.00	0.15			c0.05
v/s Ratio Perm		0.01				c0.54
v/c Ratio	0.51	0.06	0.24			0.77
Uniform Delay, d1	40.9	33.6	6.9			6.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	4.9	0.1	0.2			4.7
Delay (s)	45.8	33.7	7.2			10.9
Level of Service	D	C	A			B
Approach Delay (s)	38.6		7.2			10.9
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

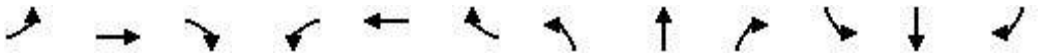
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	774	1	26	238	5	12	22	90	34	6	17
Future Volume (vph)	32	774	1	26	238	5	12	22	90	34	6	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1857			1831	1583	1770	1662	
Flt Permitted	0.59	1.00	1.00	0.26	1.00			0.88	1.00	0.73	1.00	
Satd. Flow (perm)	1102	1863	1583	482	1857			1645	1583	1365	1662	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	841	1	28	259	5	13	24	98	37	7	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	35	841	1	28	264	0	0	37	98	37	9	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		Free	8		
Actuated Green, G (s)	74.7	71.0	71.0	74.5	70.9			7.4	100.0	7.4	7.4	
Effective Green, g (s)	76.7	74.0	74.0	76.5	73.9			9.4	100.0	9.4	9.4	
Actuated g/C Ratio	0.77	0.74	0.74	0.76	0.74			0.09	1.00	0.09	0.09	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0			6.0		6.0	6.0	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	876	1378	1171	427	1372			154	1583	128	156	
v/s Ratio Prot	0.00	c0.45		0.00	0.14						0.01	
v/s Ratio Perm	0.03		0.00	0.05				0.02	c0.06	c0.03		
v/c Ratio	0.04	0.61	0.00	0.07	0.19			0.24	0.06	0.29	0.06	
Uniform Delay, d1	2.8	6.2	3.4	4.6	4.0			42.0	0.0	42.2	41.3	
Progression Factor	1.00	1.00	1.00	1.16	1.05			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	2.0	0.0	0.1	0.3			0.8	0.1	1.3	0.1	
Delay (s)	2.8	8.2	3.4	5.5	4.5			42.8	0.1	43.4	41.4	
Level of Service	A	A	A	A	A			D	A	D	D	
Approach Delay (s)		8.0			4.6			11.8			42.6	
Approach LOS		A			A			B			D	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	384	463	32	47	230	170	11	13	37	117	23	22
Future Volume (vph)	384	463	32	47	230	170	11	13	37	117	23	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	0.0	3.0	3.0	3.0	1.0	3.0	4.0	1.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1583	1770	3539	1468	1770	1863	1583	1517	1863	1357
Flt Permitted	0.56	1.00	1.00	0.46	1.00	1.00	0.74	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	971	1863	1583	848	3539	1468	1380	1863	1583	1011	1863	1357
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	417	503	35	51	250	185	12	14	40	127	25	24
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	0	0	0	21
Lane Group Flow (vph)	417	503	35	51	250	106	12	14	40	127	25	3
Heavy Vehicles (%)	10%	2%	2%	2%	2%	10%	2%	2%	2%	19%	2%	19%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		Free	6		6	4		Free	8		8
Actuated Green, G (s)	71.1	61.1	100.0	58.3	53.3	53.3	2.5	1.5	100.0	14.9	8.9	8.9
Effective Green, g (s)	73.1	65.1	100.0	62.3	57.3	57.3	10.5	5.5	100.0	18.9	12.9	12.9
Actuated g/C Ratio	0.73	0.65	1.00	0.62	0.57	0.57	0.10	0.06	1.00	0.19	0.13	0.13
Clearance Time (s)	5.0	7.0		5.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	808	1212	1583	592	2027	841	164	102	1583	253	240	175
v/s Ratio Prot	c0.08	0.27		0.01	0.07		0.00	0.01		c0.06	0.01	
v/s Ratio Perm	c0.30		0.02	0.05		0.07	0.00		0.03	0.03		0.00
v/c Ratio	0.52	0.42	0.02	0.09	0.12	0.13	0.07	0.14	0.03	0.50	0.10	0.02
Uniform Delay, d1	4.9	8.3	0.0	7.4	9.8	9.8	40.3	45.0	0.0	35.9	38.4	38.0
Progression Factor	0.77	0.65	1.00	0.92	0.93	0.64	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.9	0.0	0.1	0.1	0.3	0.2	0.6	0.0	1.6	0.2	0.0
Delay (s)	4.3	6.3	0.0	6.8	9.3	6.6	40.5	45.6	0.0	37.5	38.6	38.1
Level of Service	A	A	A	A	A	A	D	D	A	D	D	D
Approach Delay (s)		5.2			8.0			17.1			37.7	
Approach LOS		A			A			B			D	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (vph)	0	607	369	0	59	103
Future Volume (vph)	0	607	369	0	59	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1543	1380
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1543	1380
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	660	401	0	64	112
RTOR Reduction (vph)	0	0	0	0	0	100
Lane Group Flow (vph)	0	660	401	0	64	12
Heavy Vehicles (%)	2%	2%	2%	2%	17%	17%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases						4
Actuated Green, G (s)		79.5	79.5		9.5	9.5
Effective Green, g (s)		81.5	81.5		10.5	10.5
Actuated g/C Ratio		0.82	0.82		0.10	0.10
Clearance Time (s)		6.0	6.0		5.0	5.0
Vehicle Extension (s)		5.0	5.0		3.0	3.0
Lane Grp Cap (vph)		1518	1518		162	144
v/s Ratio Prot		c0.35	0.22		c0.04	
v/s Ratio Perm						0.01
v/c Ratio		0.43	0.26		0.40	0.08
Uniform Delay, d1		2.7	2.2		41.8	40.4
Progression Factor		0.88	1.00		1.00	1.00
Incremental Delay, d2		0.9	0.4		1.6	0.2
Delay (s)		3.2	2.6		43.4	40.6
Level of Service		A	A		D	D
Approach Delay (s)		3.2	2.6		41.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	570	364	0	0	0
Future Volume (Veh/h)	90	570	364	0	0	0
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)	98	620	396	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		590				
pX, platoon unblocked						
vC, conflicting volume	396				902	396
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	396				902	396
tC, single (s)	4.4				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	91				100	100
cM capacity (veh/h)	1071				252	603

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	305	413	396
Volume Left	98	0	0
Volume Right	0	0	0
cSH	1071	1700	1700
Volume to Capacity	0.09	0.24	0.23
Queue Length 95th (ft)	8	0	0
Control Delay (s)	3.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.4		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	570	364	190	0	0
Future Volume (Veh/h)	0	570	364	190	0	0
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	620	396	207	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1072				
pX, platoon unblocked						
vC, conflicting volume	603				810	500
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	603				810	500
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	100
cM capacity (veh/h)	971				318	517

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	310	310	603
Volume Left	0	0	0
Volume Right	0	0	207
cSH	1700	1700	1700
Volume to Capacity	0.18	0.18	0.35
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

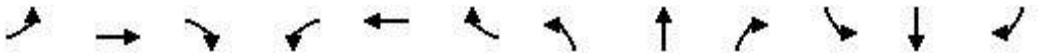
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		34.1%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	247	0	0	68	83	26
Future Volume (Veh/h)	247	0	0	68	83	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	268	0	0	74	90	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1067	
pX, platoon unblocked						
vC, conflicting volume	164	90	118			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	164	90	118			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	100	100			
cM capacity (veh/h)	827	968	1470			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	268	74	90	28
Volume Left	268	0	0	0
Volume Right	0	0	0	28
cSH	827	1470	1700	1700
Volume to Capacity	0.32	0.00	0.05	0.02
Queue Length 95th (ft)	35	0	0	0
Control Delay (s)	11.4	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	11.4	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	45	82	2	2	20	3	2	7	7	6	2	16
Future Volume (vph)	45	82	2	2	20	3	2	7	7	6	2	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	89	2	2	22	3	2	8	8	7	2	17

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	140	27	18	26
Volume Left (vph)	49	2	2	7
Volume Right (vph)	2	3	8	17
Hadj (s)	0.10	-0.02	-0.21	-0.30
Departure Headway (s)	4.1	4.1	4.1	4.0
Degree Utilization, x	0.16	0.03	0.02	0.03
Capacity (veh/h)	860	857	837	864
Control Delay (s)	7.9	7.2	7.2	7.1
Approach Delay (s)	7.9	7.2	7.2	7.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.7			
Level of Service	A			
Intersection Capacity Utilization	23.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	23	31	32	7	38	8	161	45	40	433	7
Future Volume (vph)	10	23	31	32	7	38	8	161	45	40	433	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	0.97		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1727			1704		1770	1802		1770	1858	
Flt Permitted		0.93			0.83		0.49	1.00		0.62	1.00	
Satd. Flow (perm)		1613			1449		912	1802		1152	1858	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	25	34	35	8	41	9	175	49	43	471	8
RTOR Reduction (vph)	0	31	0	0	37	0	0	12	0	0	1	0
Lane Group Flow (vph)	0	39	0	0	47	0	9	212	0	43	478	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		4.4			4.4		23.8	23.8		23.8	23.8	
Effective Green, g (s)		4.4			4.4		23.8	23.8		23.8	23.8	
Actuated g/C Ratio		0.10			0.10		0.54	0.54		0.54	0.54	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		160			144		491	970		620	1000	
v/s Ratio Prot								0.12			c0.26	
v/s Ratio Perm		0.02			c0.03		0.01			0.04		
v/c Ratio		0.25			0.33		0.02	0.22		0.07	0.48	
Uniform Delay, d1		18.4			18.5		4.8	5.3		4.9	6.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			1.3		0.0	0.3		0.1	1.0	
Delay (s)		19.2			19.9		4.8	5.7		5.0	7.4	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		19.2			19.9			5.6			7.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	83	14	24	0	2	61
Future Volume (Veh/h)	83	14	24	0	2	61
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)	90	15	26	0	2	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		400				
pX, platoon unblocked						
vC, conflicting volume	26				221	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	26				221	26
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	94
cM capacity (veh/h)	1588				724	1050

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	105	26	68
Volume Left	90	0	2
Volume Right	0	0	66
cSH	1588	1700	1036
Volume to Capacity	0.06	0.02	0.07
Queue Length 95th (ft)	5	0	5
Control Delay (s)	6.4	0.0	8.7
Lane LOS	A		A
Approach Delay (s)	6.4	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	4	3	0	2	47	0	153	1	24	461	14
Future Volume (Veh/h)	45	4	3	0	2	47	0	153	1	24	461	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	4	3	0	2	51	0	166	1	26	501	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1181	
pX, platoon unblocked	0.87	0.87	0.87	0.87	0.87		0.87					
vC, conflicting volume	779	728	508	732	734	166	516			167		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	671	611	360	617	619	166	368			167		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	84	99	99	100	99	94	100			98		
cM capacity (veh/h)	298	349	595	340	345	878	1035			1411		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	56	53	167	542
Volume Left	49	0	0	26
Volume Right	3	51	1	15
cSH	309	829	1035	1411
Volume to Capacity	0.18	0.06	0.00	0.02
Queue Length 95th (ft)	16	5	0	1
Control Delay (s)	19.2	9.6	0.0	0.6
Lane LOS	C	A		A
Approach Delay (s)	19.2	9.6	0.0	0.6
Approach LOS	C	A		

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	54.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	717	5	1	198	37	1	12	11	38	7	4
Future Volume (Veh/h)	8	717	5	1	198	37	1	12	11	38	7	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	779	5	1	215	40	1	13	12	41	8	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	255			784			1024	1056	782	1052	1039	235
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	255			784			1024	1056	782	1052	1039	235
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	94	97	78	97	100
cM capacity (veh/h)	1310			834			206	223	395	188	229	804

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	9	784	1	255	26	53
Volume Left	9	0	1	0	1	41
Volume Right	0	5	0	40	12	4
cSH	1310	1700	834	1700	278	206
Volume to Capacity	0.01	0.46	0.00	0.15	0.09	0.26
Queue Length 95th (ft)	1	0	0	0	8	25
Control Delay (s)	7.8	0.0	9.3	0.0	19.3	28.5
Lane LOS	A		A		C	D
Approach Delay (s)	0.1		0.0		19.3	28.5
Approach LOS					C	D

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	54.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	1	3	87	40	33
Future Volume (Veh/h)	31	1	3	87	40	33
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	1	3	95	43	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					330	
pX, platoon unblocked						
vC, conflicting volume	162	61	79			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	162	61	79			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	827	1004	1519			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	35	98	79
Volume Left	34	3	0
Volume Right	1	0	36
cSH	831	1519	1700
Volume to Capacity	0.04	0.00	0.05
Queue Length 95th (ft)	3	0	0
Control Delay (s)	9.5	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.5	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	17.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	12	4	68	83	4
Future Volume (Veh/h)	12	12	4	68	83	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	13	4	74	90	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	174	92	94			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174	92	94			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	814	965	1500			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	26	78	94
Volume Left	13	4	0
Volume Right	13	0	4
cSH	883	1500	1700
Volume to Capacity	0.03	0.00	0.06
Queue Length 95th (ft)	2	0	0
Control Delay (s)	9.2	0.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.2	0.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	775	2	2	248	13	1	0	7	9	0	5
Future Volume (Veh/h)	3	775	2	2	248	13	1	0	7	9	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	842	2	2	270	14	1	0	8	10	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	284			844			993	1137	422	712	1131	142
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	284			844			993	1137	422	712	1131	142
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	99	97	100	99
cM capacity (veh/h)	1275			788			198	199	580	314	201	880

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	424	423	137	149	9	15
Volume Left	3	0	2	0	1	10
Volume Right	0	2	0	14	8	5
cSH	1275	1700	788	1700	653	400
Volume to Capacity	0.00	0.25	0.00	0.09	0.01	0.04
Queue Length 95th (ft)	0	0	0	0	1	3
Control Delay (s)	0.1	0.0	0.2	0.0	12.6	14.4
Lane LOS	A		A		B	B
Approach Delay (s)	0.0		0.1		12.6	14.4
Approach LOS					B	B

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	38.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	39	23	18	11	1
Future Volume (Veh/h)	2	39	23	18	11	1
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)	2	42	25	20	12	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	45				81	35
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	45				81	35
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1563				920	1038

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	44	45	13
Volume Left	2	0	12
Volume Right	0	20	1
cSH	1563	1700	928
Volume to Capacity	0.00	0.03	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.3	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	41	55	0
Future Volume (Veh/h)	0	0	0	41	55	0
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	0	0	45	60	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	45				22	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	45				22	22
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	100
cM capacity (veh/h)	1563				994	1054

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	45	60
Volume Left	0	0	60
Volume Right	0	45	0
cSH	1700	1700	994
Volume to Capacity	0.00	0.03	0.06
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	14	37	13	11	32	12
Future Volume (Veh/h)	14	37	13	11	32	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)	15	40	14	12	35	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)						
pX, platoon unblocked						
vC, conflicting volume			55		75	35
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			55		75	35
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	99
cM capacity (veh/h)			1550		920	1038

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	55	26	48
Volume Left	0	14	35
Volume Right	40	0	13
cSH	1700	1550	949
Volume to Capacity	0.03	0.01	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	4.0	9.0
Lane LOS		A	A
Approach Delay (s)	0.0	4.0	9.0
Approach LOS			A

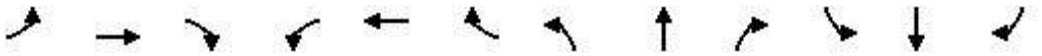
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	443	135	55	408	523	56
Future Volume (vph)	443	135	55	408	523	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5	4.0		7.5
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.96
Satd. Flow (prot)	1770	1583	1863	1583		1782
Flt Permitted	0.95	1.00	1.00	1.00		0.61
Satd. Flow (perm)	1770	1583	1863	1583		1138
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	147	60	443	568	61
RTOR Reduction (vph)	0	70	0	0	0	0
Lane Group Flow (vph)	482	77	60	443	0	629
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		Free	6	
Actuated Green, G (s)	30.9	55.2	32.9	105.6		62.2
Effective Green, g (s)	30.9	55.2	32.9	105.6		62.2
Actuated g/C Ratio	0.29	0.52	0.31	1.00		0.59
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	517	902	580	1583		818
v/s Ratio Prot	c0.27	0.02	0.03			c0.18
v/s Ratio Perm		0.03		0.28		c0.28
v/c Ratio	0.93	0.09	0.10	0.28		0.77
Uniform Delay, d1	36.3	12.6	25.9	0.0		16.3
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	24.6	0.0	0.2	0.4		4.4
Delay (s)	61.0	12.6	26.0	0.4		20.7
Level of Service	E	B	C	A		C
Approach Delay (s)	49.7		3.5			20.7
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	105.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

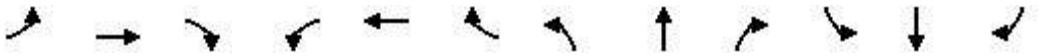
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	942	1	42	614	6	14	25	119	38	7	19
Future Volume (vph)	36	942	1	42	614	6	14	25	119	38	7	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1860			1830	1583	1770	1660	
Flt Permitted	0.35	1.00	1.00	0.18	1.00			0.87	1.00	0.73	1.00	
Satd. Flow (perm)	652	1863	1583	338	1860			1620	1583	1359	1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	1024	1	46	667	7	15	27	129	41	8	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	39	1024	1	46	674	0	0	42	129	41	10	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		Free	8		
Actuated Green, G (s)	75.6	72.6	72.6	75.6	72.6			6.4	100.0	6.4	6.4	
Effective Green, g (s)	77.6	75.6	75.6	77.6	75.6			8.4	100.0	8.4	8.4	
Actuated g/C Ratio	0.78	0.76	0.76	0.78	0.76			0.08	1.00	0.08	0.08	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0			6.0		6.0	6.0	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	550	1408	1196	319	1406			136	1583	114	139	
v/s Ratio Prot	0.00	c0.55		0.01	0.36						0.01	
v/s Ratio Perm	0.05		0.00	0.11				0.03	c0.08	c0.03		
v/c Ratio	0.07	0.73	0.00	0.14	0.48			0.31	0.08	0.36	0.07	
Uniform Delay, d1	3.2	6.6	3.0	6.9	4.7			43.1	0.0	43.3	42.2	
Progression Factor	1.00	1.00	1.00	0.64	1.19			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	3.3	0.0	0.2	1.1			1.3	0.1	1.9	0.2	
Delay (s)	3.2	9.9	3.0	4.6	6.7			44.4	0.1	45.2	42.4	
Level of Service	A	A	A	A	A			D	A	D	D	
Approach Delay (s)		9.7			6.5			11.0			44.0	
Approach LOS		A			A			B			D	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	441	189	296	386	153	84	135	264	119	80	181
Future Volume (vph)	437	441	189	296	386	153	84	135	264	119	80	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	0.0	3.0	3.0	3.0	1.0	3.0	4.0	1.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1583	1770	3539	1468	1770	1863	1583	1517	1863	1313
Flt Permitted	0.42	1.00	1.00	0.39	1.00	1.00	0.70	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	719	1863	1583	718	3539	1468	1305	1863	1583	705	1863	1313
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	475	479	205	322	420	166	91	147	287	129	87	197
RTOR Reduction (vph)	0	0	0	0	0	94	0	0	0	0	0	163
Lane Group Flow (vph)	475	479	205	322	420	72	91	147	287	129	87	34
Heavy Vehicles (%)	10%	2%	2%	2%	2%	10%	2%	2%	2%	19%	2%	23%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		Free	6		6	4		Free	8		8
Actuated Green, G (s)	63.5	45.8	100.0	52.1	39.4	39.4	15.5	11.5	100.0	19.5	13.5	13.5
Effective Green, g (s)	65.5	49.8	100.0	56.1	43.4	43.4	23.5	15.5	100.0	26.5	17.5	17.5
Actuated g/C Ratio	0.66	0.50	1.00	0.56	0.43	0.43	0.24	0.16	1.00	0.26	0.18	0.18
Clearance Time (s)	5.0	7.0		5.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	665	927	1583	557	1535	637	343	288	1583	268	326	229
v/s Ratio Prot	c0.15	0.26		0.08	0.12		0.02	c0.08		c0.05	0.05	
v/s Ratio Perm	c0.32		0.13	0.24		0.05	0.04		0.18	0.08		0.03
v/c Ratio	0.71	0.52	0.13	0.58	0.27	0.11	0.27	0.51	0.18	0.48	0.27	0.15
Uniform Delay, d1	9.1	17.0	0.0	12.4	18.2	16.8	30.8	38.8	0.0	29.7	35.7	35.0
Progression Factor	0.88	1.05	1.00	0.96	0.94	0.68	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	1.6	0.1	1.4	0.4	0.3	0.4	1.5	0.3	1.4	0.4	0.3
Delay (s)	10.9	19.5	0.1	13.2	17.4	11.9	31.3	40.3	0.3	31.1	36.1	35.3
Level of Service	B	B	A	B	B	B	C	D	A	C	D	D
Approach Delay (s)		12.5			14.9			16.8			34.1	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	827	464	0	53	400
Future Volume (vph)	0	827	464	0	53	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1676		1517	1417
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1676		1517	1417
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	899	504	0	58	435
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	899	504	0	58	435
Heavy Vehicles (%)	2%	2%	2%	2%	19%	14%
Parking (#/hr)			0			
Turn Type		NA	NA		Prot	Free
Protected Phases		2	6		4	
Permitted Phases						Free
Actuated Green, G (s)		80.9	80.9		8.1	100.0
Effective Green, g (s)		82.9	82.9		9.1	100.0
Actuated g/C Ratio		0.83	0.83		0.09	1.00
Clearance Time (s)		6.0	6.0		5.0	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		1544	1389		138	1417
v/s Ratio Prot		c0.48	0.30		0.04	
v/s Ratio Perm						c0.31
v/c Ratio		0.58	0.36		0.42	0.31
Uniform Delay, d1		2.8	2.1		43.0	0.0
Progression Factor		0.94	1.00		1.00	1.00
Incremental Delay, d2		1.5	0.7		2.1	0.6
Delay (s)		4.2	2.8		45.0	0.6
Level of Service		A	A		D	A
Approach Delay (s)		4.2	2.8		5.8	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	688	458	0	0	0
Future Volume (Veh/h)	185	688	458	0	0	0
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)	201	748	498	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		590				
pX, platoon unblocked						
vC, conflicting volume	498				1274	498
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	498				1274	498
tC, single (s)	4.4				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	80				100	100
cM capacity (veh/h)	989				127	518

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	450	499	498
Volume Left	201	0	0
Volume Right	0	0	0
cSH	989	1700	1700
Volume to Capacity	0.20	0.29	0.29
Queue Length 95th (ft)	19	0	0
Control Delay (s)	5.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	2.6		0.0
Approach LOS			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	688	458	193	0	0
Future Volume (Veh/h)	0	688	458	193	0	0
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	748	498	210	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1072				
pX, platoon unblocked						
vC, conflicting volume	708				977	603
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	708				977	603
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	100
cM capacity (veh/h)	887				248	442

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	374	374	708
Volume Left	0	0	0
Volume Right	0	0	210
cSH	1700	1700	1700
Volume to Capacity	0.22	0.22	0.42
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

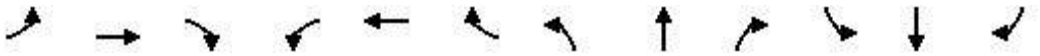
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		39.2%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	278	0	0	186	456	29
Future Volume (Veh/h)	278	0	0	186	456	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	302	0	0	202	496	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1067	
pX, platoon unblocked						
vC, conflicting volume	698	496	528			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	698	496	528			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	26	100	100			
cM capacity (veh/h)	407	574	1039			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	302	202	496	32
Volume Left	302	0	0	0
Volume Right	0	0	0	32
cSH	407	1039	1700	1700
Volume to Capacity	0.74	0.00	0.29	0.02
Queue Length 95th (ft)	149	0	0	0
Control Delay (s)	35.4	0.0	0.0	0.0
Lane LOS	E			
Approach Delay (s)	35.4	0.0	0.0	
Approach LOS	E			

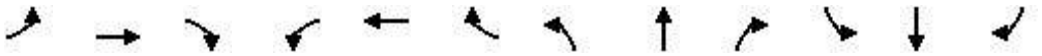
Intersection Summary			
Average Delay	10.4		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	67	111	2	2	38	3	2	8	8	7	2	22
Future Volume (vph)	67	111	2	2	38	3	2	8	8	7	2	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	73	121	2	2	41	3	2	9	9	8	2	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	196	46	20	34
Volume Left (vph)	73	2	2	8
Volume Right (vph)	2	3	9	24
Hadj (s)	0.10	0.00	-0.22	-0.34
Departure Headway (s)	4.2	4.2	4.3	4.1
Degree Utilization, x	0.23	0.05	0.02	0.04
Capacity (veh/h)	848	832	791	823
Control Delay (s)	8.4	7.5	7.4	7.3
Approach Delay (s)	8.4	7.5	7.4	7.3
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	26.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	26	35	36	8	43	9	184	51	45	469	8
Future Volume (vph)	11	26	35	36	8	43	9	184	51	45	469	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	0.97		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1727			1703		1770	1802		1770	1858	
Flt Permitted		0.93			0.83		0.47	1.00		0.60	1.00	
Satd. Flow (perm)		1611			1445		868	1802		1120	1858	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	28	38	39	9	47	10	200	55	49	510	9
RTOR Reduction (vph)	0	34	0	0	42	0	0	12	0	0	1	0
Lane Group Flow (vph)	0	44	0	0	53	0	10	243	0	49	518	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		4.5			4.5		25.3	25.3		25.3	25.3	
Effective Green, g (s)		4.5			4.5		25.3	25.3		25.3	25.3	
Actuated g/C Ratio		0.10			0.10		0.55	0.55		0.55	0.55	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		158			141		479	995		618	1026	
v/s Ratio Prot								0.14			c0.28	
v/s Ratio Perm		0.03			c0.04		0.01			0.04		
v/c Ratio		0.28			0.37		0.02	0.24		0.08	0.50	
Uniform Delay, d1		19.1			19.3		4.6	5.3		4.8	6.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			1.7		0.0	0.4		0.2	1.1	
Delay (s)		20.1			21.0		4.7	5.7		5.0	7.5	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		20.1			21.0			5.6			7.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	45.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	16	27	0	2	69
Future Volume (Veh/h)	93	16	27	0	2	69
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)	101	17	29	0	2	75
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		400				
pX, platoon unblocked						
vC, conflicting volume	29				248	29
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29				248	29
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	93
cM capacity (veh/h)	1584				693	1046

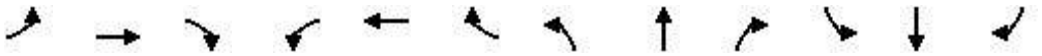
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	118	29	77
Volume Left	101	0	2
Volume Right	0	0	75
cSH	1584	1700	1032
Volume to Capacity	0.06	0.02	0.07
Queue Length 95th (ft)	5	0	6
Control Delay (s)	6.4	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	6.4	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	5	3	0	2	53	0	175	1	27	500	16
Future Volume (Veh/h)	51	5	3	0	2	53	0	175	1	27	500	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	5	3	0	2	58	0	190	1	29	543	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1181	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	859	800	552	806	808	190	560			191		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	740	670	375	676	680	190	385			191		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	98	99	100	99	93	100			98		
cM capacity (veh/h)	256	312	566	299	308	851	989			1383		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	63	60	191	589
Volume Left	55	0	0	29
Volume Right	3	58	1	17
cSH	267	804	989	1383
Volume to Capacity	0.24	0.07	0.00	0.02
Queue Length 95th (ft)	22	6	0	2
Control Delay (s)	22.6	9.8	0.0	0.6
Lane LOS	C	A		A
Approach Delay (s)	22.6	9.8	0.0	0.6
Approach LOS	C	A		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	877	6	1	569	42	1	14	12	43	8	5
Future Volume (Veh/h)	9	877	6	1	569	42	1	14	12	43	8	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	953	7	1	618	46	1	15	13	47	9	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	664			960			1606	1642	956	1636	1623	641
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	664			960			1606	1642	956	1636	1623	641
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			99	85	96	30	91	99
cM capacity (veh/h)	925			717			77	99	313	68	101	475

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	10	960	1	664	29	61
Volume Left	10	0	1	0	1	47
Volume Right	0	7	0	46	13	5
cSH	925	1700	717	1700	140	77
Volume to Capacity	0.01	0.56	0.00	0.39	0.21	0.79
Queue Length 95th (ft)	1	0	0	0	19	97
Control Delay (s)	8.9	0.0	10.0	0.0	37.2	143.1
Lane LOS	A		B		E	F
Approach Delay (s)	0.1		0.0		37.2	143.1
Approach LOS					E	F

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	63.0%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	1	3	116	58	37
Future Volume (Veh/h)	35	1	3	116	58	37
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	1	3	126	63	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					330	
pX, platoon unblocked						
vC, conflicting volume	215	83	103			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215	83	103			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	772	976	1489			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	39	129	103
Volume Left	38	3	0
Volume Right	1	0	40
cSH	776	1489	1700
Volume to Capacity	0.05	0.00	0.06
Queue Length 95th (ft)	4	0	0
Control Delay (s)	9.9	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.9	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	14	4	0	109	5	77	16	363	93	5
Future Volume (Veh/h)	14	0	14	4	0	109	5	77	16	363	93	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	15	4	0	118	5	84	17	395	101	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						10						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	988	1004	104	1000	990	84	106			101		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	988	1004	104	1000	990	84	106			101		
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.5	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.5	2.2			2.3		
p0 queue free %	90	100	98	97	100	87	100			73		
cM capacity (veh/h)	155	175	951	156	179	915	1485			1455		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	30	122	89	17	395	106
Volume Left	15	4	5	0	395	0
Volume Right	15	118	0	17	0	5
cSH	267	946	1485	1700	1455	1700
Volume to Capacity	0.11	0.13	0.00	0.01	0.27	0.06
Queue Length 95th (ft)	9	11	0	0	28	0
Control Delay (s)	20.2	10.1	0.4	0.0	8.4	0.0
Lane LOS	C	B	A		A	
Approach Delay (s)	20.2	10.1	0.4		6.6	
Approach LOS	C	B				

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	41.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	943	2	2	625	15	1	0	8	10	0	6
Future Volume (Veh/h)	3	943	2	2	625	15	1	0	8	10	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1025	2	2	679	16	1	0	9	11	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	695			1027			1382	1731	514	1214	1724	348
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	695			1027			1382	1731	514	1214	1724	348
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	98	92	100	99
cM capacity (veh/h)	897			672			101	87	506	134	88	649

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	516	514	342	356	10	18
Volume Left	3	0	2	0	1	11
Volume Right	0	2	0	16	9	7
cSH	897	1700	672	1700	562	194
Volume to Capacity	0.00	0.30	0.00	0.21	0.02	0.09
Queue Length 95th (ft)	0	0	0	0	1	8
Control Delay (s)	0.1	0.0	0.1	0.0	15.1	25.4
Lane LOS	A		A		C	D
Approach Delay (s)	0.0		0.0		15.1	25.4
Approach LOS					C	D

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	42.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	44	26	20	12	1
Future Volume (Veh/h)	2	44	26	20	12	1
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)	2	48	28	22	13	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	50				91	39
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50				91	39
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1557				908	1033

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	50	50	14
Volume Left	2	0	13
Volume Right	0	22	1
cSH	1557	1700	916
Volume to Capacity	0.00	0.03	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.3	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	13.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	46	62	0
Future Volume (Veh/h)	0	0	0	46	62	0
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	0	0	50	67	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	50				25	25
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50				25	25
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	100
cM capacity (veh/h)	1557				991	1051

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	50	67
Volume Left	0	0	67
Volume Right	0	50	0
cSH	1700	1700	991
Volume to Capacity	0.00	0.03	0.07
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	13.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	16	41	15	12	36	14
Future Volume (Veh/h)	16	41	15	12	36	14
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)	17	45	16	13	39	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			62		84	40
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			62		84	40
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	99
cM capacity (veh/h)			1541		907	1032

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	62	29	54
Volume Left	0	16	39
Volume Right	45	0	15
cSH	1700	1541	939
Volume to Capacity	0.04	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	4.1	9.1
Lane LOS		A	A
Approach Delay (s)	0.0	4.1	9.1
Approach LOS			A

Intersection Summary			
Average Delay		4.2	
Intersection Capacity Utilization		18.1%	ICU Level of Service A
Analysis Period (min)		15	



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	389	140	56	392	526	59
Future Volume (vph)	389	140	56	392	526	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5	4.0		7.5
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.96
Satd. Flow (prot)	1770	1583	1863	1583		1783
Flt Permitted	0.95	1.00	1.00	1.00		0.61
Satd. Flow (perm)	1770	1583	1863	1583		1141
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	423	152	61	426	572	64
RTOR Reduction (vph)	0	73	0	0	0	0
Lane Group Flow (vph)	423	79	61	426	0	636
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		Free	6	
Actuated Green, G (s)	30.6	55.6	33.5	106.6		63.5
Effective Green, g (s)	30.6	55.6	33.5	106.6		63.5
Actuated g/C Ratio	0.29	0.52	0.31	1.00		0.60
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	508	899	585	1583		830
v/s Ratio Prot	c0.24	0.02	0.03			c0.18
v/s Ratio Perm		0.03		0.27		c0.28
v/c Ratio	0.83	0.09	0.10	0.27		0.77
Uniform Delay, d1	35.6	12.8	25.9	0.0		16.0
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	12.4	0.0	0.2	0.4		4.3
Delay (s)	48.0	12.8	26.1	0.4		20.3
Level of Service	D	B	C	A		C
Approach Delay (s)	38.7		3.6			20.3
Approach LOS	D		A			C

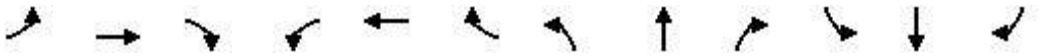
Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	106.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1012	1	55	727	6	14	25	160	38	7	19
Future Volume (vph)	36	1012	1	55	727	6	14	25	160	38	7	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1860			1830	1583	1770	1660	
Flt Permitted	0.29	1.00	1.00	0.14	1.00			0.87	1.00	0.73	1.00	
Satd. Flow (perm)	544	1863	1583	254	1860			1620	1583	1359	1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	1100	1	60	790	7	15	27	174	41	8	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	39	1100	1	60	797	0	0	42	174	41	10	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		Free	8		
Actuated Green, G (s)	74.6	71.6	71.6	76.6	72.6			6.4	100.0	6.4	6.4	
Effective Green, g (s)	76.6	74.6	74.6	78.6	75.6			8.4	100.0	8.4	8.4	
Actuated g/C Ratio	0.77	0.75	0.75	0.79	0.76			0.08	1.00	0.08	0.08	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0			6.0		6.0	6.0	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	465	1389	1180	275	1406			136	1583	114	139	
v/s Ratio Prot	0.00	c0.59		c0.01	0.43						0.01	
v/s Ratio Perm	0.06		0.00	0.16				0.03	c0.11	c0.03		
v/c Ratio	0.08	0.79	0.00	0.22	0.57			0.31	0.11	0.36	0.07	
Uniform Delay, d1	3.9	7.9	3.2	10.1	5.2			43.1	0.0	43.3	42.2	
Progression Factor	1.00	1.00	1.00	1.73	1.59			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	4.7	0.0	0.4	1.6			1.3	0.1	1.9	0.2	
Delay (s)	4.0	12.6	3.2	17.9	9.8			44.4	0.1	45.2	42.4	
Level of Service	A	B	A	B	A			D	A	D	D	
Approach Delay (s)		12.3			10.4			8.7			44.0	
Approach LOS		B			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	487	502	189	296	455	153	84	135	264	119	80	238
Future Volume (vph)	487	502	189	296	455	153	84	135	264	119	80	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	0.0	3.0	3.0	3.0	1.0	3.0	4.0	1.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1583	1770	3539	1468	1770	1863	1583	1517	1863	1346
Flt Permitted	0.35	1.00	1.00	0.35	1.00	1.00	0.70	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	613	1863	1583	651	3539	1468	1305	1863	1583	705	1863	1346
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	529	546	205	322	495	166	91	147	287	129	87	259
RTOR Reduction (vph)	0	0	0	0	0	99	0	0	0	0	0	214
Lane Group Flow (vph)	529	546	205	322	495	67	91	147	287	129	87	45
Heavy Vehicles (%)	10%	2%	2%	2%	2%	10%	2%	2%	2%	19%	2%	20%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		Free	6		6	4		Free	8		8
Actuated Green, G (s)	63.5	45.8	100.0	48.8	36.1	36.1	15.5	11.5	100.0	19.5	13.5	13.5
Effective Green, g (s)	65.5	49.8	100.0	52.8	40.1	40.1	23.5	15.5	100.0	26.5	17.5	17.5
Actuated g/C Ratio	0.66	0.50	1.00	0.53	0.40	0.40	0.24	0.16	1.00	0.26	0.18	0.18
Clearance Time (s)	5.0	7.0		5.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	652	927	1583	508	1419	588	343	288	1583	268	326	235
v/s Ratio Prot	c0.20	0.29		0.09	0.14		0.02	c0.08		c0.05	0.05	
v/s Ratio Perm	c0.33		0.13	0.24		0.05	0.04		0.18	0.08		0.03
v/c Ratio	0.81	0.59	0.13	0.63	0.35	0.11	0.27	0.51	0.18	0.48	0.27	0.19
Uniform Delay, d1	10.3	17.8	0.0	14.3	20.9	18.8	30.8	38.8	0.0	29.7	35.7	35.2
Progression Factor	0.90	1.12	1.00	1.14	0.94	0.69	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	2.0	0.1	2.5	0.6	0.4	0.4	1.5	0.3	1.4	0.4	0.4
Delay (s)	15.0	22.1	0.1	18.7	20.4	13.3	31.3	40.3	0.3	31.1	36.1	35.6
Level of Service	B	C	A	B	C	B	C	D	A	C	D	D
Approach Delay (s)		15.7			18.6			16.8			34.5	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	888	477	0	53	456
Future Volume (vph)	0	888	477	0	53	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1517	1429
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1517	1429
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	965	518	0	58	496
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	965	518	0	58	496
Heavy Vehicles (%)	2%	2%	2%	2%	19%	13%
Turn Type		NA	NA		Prot	Free
Protected Phases		2	6		4	
Permitted Phases						Free
Actuated Green, G (s)		80.9	80.9		8.1	100.0
Effective Green, g (s)		82.9	82.9		9.1	100.0
Actuated g/C Ratio		0.83	0.83		0.09	1.00
Clearance Time (s)		6.0	6.0		5.0	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		1544	1544		138	1429
v/s Ratio Prot		c0.52	0.28		0.04	
v/s Ratio Perm						c0.35
v/c Ratio		0.62	0.34		0.42	0.35
Uniform Delay, d1		3.0	2.0		43.0	0.0
Progression Factor		1.03	1.00		1.00	1.00
Incremental Delay, d2		1.8	0.6		2.1	0.7
Delay (s)		4.9	2.6		45.0	0.7
Level of Service		A	A		D	A
Approach Delay (s)		4.9	2.6		5.3	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	235	699	471	0	0	0
Future Volume (Veh/h)	235	699	471	0	0	0
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)	255	760	512	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		590				
pX, platoon unblocked						
vC, conflicting volume	512				1402	512
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	512				1402	512
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	74				100	100
cM capacity (veh/h)	983				97	507

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	508	507	512
Volume Left	255	0	0
Volume Right	0	0	0
cSH	983	1700	1700
Volume to Capacity	0.26	0.30	0.30
Queue Length 95th (ft)	26	0	0
Control Delay (s)	6.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	3.3		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	699	471	193	0	0
Future Volume (Veh/h)	0	699	471	193	0	0
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	760	512	210	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1072				
pX, platoon unblocked						
vC, conflicting volume	722				997	617
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722				997	617
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	100
cM capacity (veh/h)	876				241	433

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	380	380	722
Volume Left	0	0	0
Volume Right	0	0	210
cSH	1700	1700	1700
Volume to Capacity	0.22	0.22	0.42
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

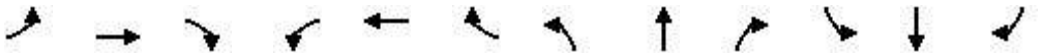
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		39.9%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	278	0	0	171	405	29
Future Volume (Veh/h)	278	0	0	171	405	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	302	0	0	186	440	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1067	
pX, platoon unblocked						
vC, conflicting volume	626	440	472			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	626	440	472			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	33	100	100			
cM capacity (veh/h)	448	617	1090			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	302	186	440	32
Volume Left	302	0	0	0
Volume Right	0	0	0	32
cSH	448	1090	1700	1700
Volume to Capacity	0.67	0.00	0.26	0.02
Queue Length 95th (ft)	122	0	0	0
Control Delay (s)	28.1	0.0	0.0	0.0
Lane LOS	D			
Approach Delay (s)	28.1	0.0	0.0	
Approach LOS	D			

Intersection Summary			
Average Delay	8.8		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	74	111	2	2	38	3	2	8	8	7	2	28
Future Volume (vph)	74	111	2	2	38	3	2	8	8	7	2	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	121	2	2	41	3	2	9	9	8	2	30

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	203	46	20	40
Volume Left (vph)	80	2	2	8
Volume Right (vph)	2	3	9	30
Hadj (s)	0.11	0.00	-0.22	-0.38
Departure Headway (s)	4.2	4.2	4.3	4.1
Degree Utilization, x	0.24	0.05	0.02	0.05
Capacity (veh/h)	844	827	785	815
Control Delay (s)	8.5	7.5	7.4	7.3
Approach Delay (s)	8.5	7.5	7.4	7.3
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.1			
Level of Service	A			
Intersection Capacity Utilization	27.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	26	35	36	8	43	9	190	51	45	475	8
Future Volume (vph)	11	26	35	36	8	43	9	190	51	45	475	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	0.97		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1727			1703		1770	1804		1770	1858	
Flt Permitted		0.93			0.83		0.46	1.00		0.60	1.00	
Satd. Flow (perm)		1611			1445		859	1804		1113	1858	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	28	38	39	9	47	10	207	55	49	516	9
RTOR Reduction (vph)	0	34	0	0	42	0	0	11	0	0	1	0
Lane Group Flow (vph)	0	44	0	0	53	0	10	251	0	49	524	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		4.5			4.5		25.5	25.5		25.5	25.5	
Effective Green, g (s)		4.5			4.5		25.5	25.5		25.5	25.5	
Actuated g/C Ratio		0.10			0.10		0.55	0.55		0.55	0.55	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		157			141		476	1000		616	1029	
v/s Ratio Prot								0.14			c0.28	
v/s Ratio Perm		0.03			c0.04		0.01			0.04		
v/c Ratio		0.28			0.37		0.02	0.25		0.08	0.51	
Uniform Delay, d1		19.2			19.4		4.6	5.3		4.8	6.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			1.7		0.1	0.4		0.2	1.1	
Delay (s)		20.2			21.1		4.7	5.7		4.9	7.5	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		20.2			21.1			5.6			7.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	16	27	0	2	69
Future Volume (Veh/h)	93	16	27	0	2	69
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)	101	17	29	0	2	75
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		400				
pX, platoon unblocked						
vC, conflicting volume	29				248	29
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29				248	29
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	93
cM capacity (veh/h)	1584				693	1046

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	118	29	77
Volume Left	101	0	2
Volume Right	0	0	75
cSH	1584	1700	1032
Volume to Capacity	0.06	0.02	0.07
Queue Length 95th (ft)	5	0	6
Control Delay (s)	6.4	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	6.4	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	5	3	0	2	53	0	181	1	27	506	16
Future Volume (Veh/h)	51	5	3	0	2	53	0	181	1	27	506	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	5	3	0	2	58	0	197	1	29	550	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1181	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	873	814	558	820	822	198	567			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	753	683	378	689	693	198	388			198		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	78	98	99	100	99	93	100			98		
cM capacity (veh/h)	249	305	561	292	301	844	982			1375		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	63	60	198	596
Volume Left	55	0	0	29
Volume Right	3	58	1	17
cSH	260	796	982	1375
Volume to Capacity	0.24	0.08	0.00	0.02
Queue Length 95th (ft)	23	6	0	2
Control Delay (s)	23.2	9.9	0.0	0.6
Lane LOS	C	A		A
Approach Delay (s)	23.2	9.9	0.0	0.6
Approach LOS	C	A		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	863	7	1	520	42	1	14	12	43	8	5
Future Volume (Veh/h)	9	863	7	1	520	42	1	14	12	43	8	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	938	8	1	565	46	1	15	13	47	9	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	611			946			1538	1575	942	1568	1556	588
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	611			946			1538	1575	942	1568	1556	588
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			99	86	96	39	92	99
cM capacity (veh/h)	968			725			87	109	319	76	111	509

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	10	946	1	611	29	61
Volume Left	10	0	1	0	1	47
Volume Right	0	8	0	46	13	5
cSH	968	1700	725	1700	152	86
Volume to Capacity	0.01	0.56	0.00	0.36	0.19	0.71
Queue Length 95th (ft)	1	0	0	0	17	86
Control Delay (s)	8.8	0.0	10.0	0.0	34.1	113.0
Lane LOS	A		A		D	F
Approach Delay (s)	0.1		0.0		34.1	113.0
Approach LOS					D	F

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	62.3%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	1	3	116	58	50
Future Volume (Veh/h)	76	1	3	116	58	50
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	1	3	126	63	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					330	
pX, platoon unblocked						
vC, conflicting volume	222	90	117			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	90	117			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	765	968	1471			

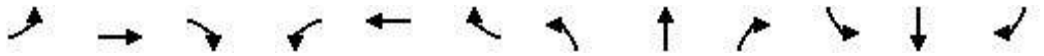
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	84	129	117
Volume Left	83	3	0
Volume Right	1	0	54
cSH	767	1471	1700
Volume to Capacity	0.11	0.00	0.07
Queue Length 95th (ft)	9	0	0
Control Delay (s)	10.3	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.3	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	14	10	0	94	5	77	23	312	93	5
Future Volume (Veh/h)	14	0	14	10	0	94	5	77	23	312	93	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	15	11	0	102	5	84	25	339	101	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						10						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	876	900	104	888	878	84	106			109		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	876	900	104	888	878	84	106			109		
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.5	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.5	2.2			2.3		
p0 queue free %	92	100	98	94	100	89	100			77		
cM capacity (veh/h)	196	212	951	194	219	915	1485			1445		

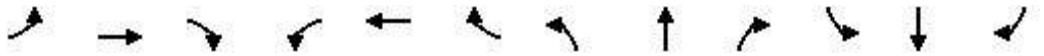
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	30	113	89	25	339	106
Volume Left	15	11	5	0	339	0
Volume Right	15	102	0	25	0	5
cSH	325	1014	1485	1700	1445	1700
Volume to Capacity	0.09	0.11	0.00	0.01	0.23	0.06
Queue Length 95th (ft)	8	9	0	0	23	0
Control Delay (s)	17.2	10.9	0.4	0.0	8.3	0.0
Lane LOS	C	B	A		A	
Approach Delay (s)	17.2	10.9	0.3		6.3	
Approach LOS	C	B				

Intersection Summary				
Average Delay	6.5			
Intersection Capacity Utilization	38.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	927	4	169	571	15	6	0	94	10	0	6
Future Volume (vph)	3	927	4	169	571	15	6	0	94	10	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1770	1863	1495	1671	1863	1583		1444	1292		1713	
Flt Permitted	0.41	1.00	1.00	0.06	1.00	1.00		0.75	1.00		0.89	
Satd. Flow (perm)	755	1863	1495	101	1863	1583		1133	1292		1571	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	1008	4	184	621	16	7	0	102	11	0	7
RTOR Reduction (vph)	0	0	2	0	0	5	0	0	83	0	15	0
Lane Group Flow (vph)	3	1008	2	184	621	11	0	7	19	0	3	0
Heavy Vehicles (%)	2%	2%	8%	8%	2%	2%	25%	25%	25%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	66.0	65.1	65.1	80.5	75.1	75.1		20.0	20.0		20.0	
Effective Green, g (s)	66.0	65.1	65.1	80.5	75.1	75.1		20.0	20.0		20.0	
Actuated g/C Ratio	0.60	0.59	0.59	0.74	0.69	0.69		0.18	0.18		0.18	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	463	1107	888	230	1277	1085		206	235		286	
v/s Ratio Prot	0.00	c0.54		c0.08	0.33							
v/s Ratio Perm	0.00		0.00	0.51		0.01		0.01	c0.01		0.00	
v/c Ratio	0.01	0.91	0.00	0.80	0.49	0.01		0.03	0.08		0.01	
Uniform Delay, d1	8.7	19.6	9.0	34.0	8.1	5.4		36.8	37.1		36.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	11.1	0.0	17.8	0.3	0.0		0.3	0.7		0.1	
Delay (s)	8.7	30.7	9.0	51.8	8.4	5.4		37.1	37.8		36.7	
Level of Service	A	C	A	D	A	A		D	D		D	
Approach Delay (s)		30.6			18.1			37.7			36.7	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	12	33	28	7	5	25	102	55	3	178	1
Future Volume (Veh/h)	2	12	33	28	7	5	25	102	55	3	178	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	13	36	30	8	5	27	111	60	3	193	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1250	
pX, platoon unblocked												
vC, conflicting volume	404	424	194	437	395	141	194			171		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	404	424	194	437	395	141	194			171		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	96	94	98	99	98			100		
cM capacity (veh/h)	539	510	848	489	530	907	1379			1406		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	51	43	198	197
Volume Left	2	30	27	3
Volume Right	36	5	60	1
cSH	712	525	1379	1406
Volume to Capacity	0.07	0.08	0.02	0.00
Queue Length 95th (ft)	6	7	1	0
Control Delay (s)	10.4	12.5	1.2	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.4	12.5	1.2	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	132	0	0	46	62	183
Future Volume (Veh/h)	132	0	0	46	62	183
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)	143	0	0	50	67	199
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						7
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	50				311	25
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50				311	25
tC, single (s)	4.3				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.4
p0 queue free %	90				89	81
cM capacity (veh/h)	1421				613	1034

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	143	50	266
Volume Left	143	0	67
Volume Right	0	50	199
cSH	1421	1700	1382
Volume to Capacity	0.10	0.03	0.19
Queue Length 95th (ft)	8	0	18
Control Delay (s)	7.8	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	7.8	0.0	9.9
Approach LOS			A

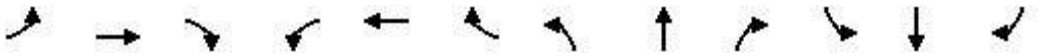
Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	502	142	57	426	531	65
Future Volume (vph)	502	142	57	426	531	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5	4.0		7.5
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.96
Satd. Flow (prot)	1770	1583	1863	1583		1783
Flt Permitted	0.95	1.00	1.00	1.00		0.62
Satd. Flow (perm)	1770	1583	1863	1583		1147
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	546	154	62	463	577	71
RTOR Reduction (vph)	0	74	0	0	0	0
Lane Group Flow (vph)	546	80	62	463	0	648
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		Free	6	
Actuated Green, G (s)	30.9	56.4	34.5	108.4		65.0
Effective Green, g (s)	30.9	56.4	34.5	108.4		65.0
Actuated g/C Ratio	0.29	0.52	0.32	1.00		0.60
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	504	896	592	1583		837
v/s Ratio Prot	c0.31	0.02	0.03			c0.18
v/s Ratio Perm		0.03		0.29		c0.28
v/c Ratio	1.08	0.09	0.10	0.29		0.77
Uniform Delay, d1	38.8	13.1	26.1	0.0		16.2
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	64.5	0.0	0.2	0.5		4.5
Delay (s)	103.2	13.1	26.2	0.5		20.7
Level of Service	F	B	C	A		C
Approach Delay (s)	83.4		3.5			20.7
Approach LOS	F		A			C

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	108.4	Sum of lost time (s)	17.5
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

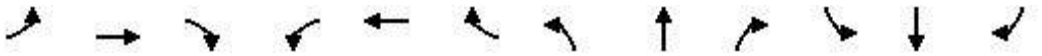
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1081	1	55	954	6	14	25	160	38	7	19
Future Volume (vph)	36	1081	1	55	954	6	14	25	160	38	7	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1861			1830	1583	1770	1660	
Flt Permitted	0.17	1.00	1.00	0.10	1.00			0.87	1.00	0.73	1.00	
Satd. Flow (perm)	325	1863	1583	186	1861			1620	1583	1359	1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	1175	1	60	1037	7	15	27	174	41	8	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	39	1175	1	60	1044	0	0	42	174	41	10	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		Free	8		
Actuated Green, G (s)	74.6	71.6	71.6	76.6	72.6			6.4	100.0	6.4	6.4	
Effective Green, g (s)	76.6	74.6	74.6	78.6	75.6			8.4	100.0	8.4	8.4	
Actuated g/C Ratio	0.77	0.75	0.75	0.79	0.76			0.08	1.00	0.08	0.08	
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0			6.0		6.0	6.0	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	306	1389	1180	225	1406			136	1583	114	139	
v/s Ratio Prot	0.01	c0.63		c0.01	0.56						0.01	
v/s Ratio Perm	0.09		0.00	0.20				0.03	c0.11	c0.03		
v/c Ratio	0.13	0.85	0.00	0.27	0.74			0.31	0.11	0.36	0.07	
Uniform Delay, d1	7.2	8.7	3.2	13.8	6.8			43.1	0.0	43.3	42.2	
Progression Factor	1.00	1.00	1.00	2.13	1.08			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	6.5	0.0	0.5	3.1			1.3	0.1	1.9	0.2	
Delay (s)	7.4	15.2	3.2	29.9	10.4			44.4	0.1	45.2	42.4	
Level of Service	A	B	A	C	B			D	A	D	D	
Approach Delay (s)		15.0			11.5			8.7			44.0	
Approach LOS		B			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	519	539	189	296	580	153	84	135	264	119	80	340
Future Volume (vph)	519	539	189	296	580	153	84	135	264	119	80	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	0.0	3.0	3.0	3.0	1.0	3.0	4.0	1.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1615	1770	3539	1468	1770	1863	1583	1517	1863	1369
Flt Permitted	0.25	1.00	1.00	0.35	1.00	1.00	0.70	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	425	1863	1615	646	3539	1468	1305	1863	1583	705	1863	1369
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	564	586	205	322	630	166	91	147	287	129	87	370
RTOR Reduction (vph)	0	0	0	0	0	108	0	0	0	0	0	305
Lane Group Flow (vph)	564	586	205	322	630	58	91	147	287	129	87	65
Heavy Vehicles (%)	10%	2%	0%	2%	2%	10%	2%	2%	2%	19%	2%	18%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		Free	6		6	4		Free	8		8
Actuated Green, G (s)	63.5	45.4	100.0	44.3	31.2	31.2	15.5	11.5	100.0	19.5	13.5	13.5
Effective Green, g (s)	65.5	49.4	100.0	48.3	35.2	35.2	23.5	15.5	100.0	26.5	17.5	17.5
Actuated g/C Ratio	0.66	0.49	1.00	0.48	0.35	0.35	0.24	0.16	1.00	0.26	0.18	0.18
Clearance Time (s)	5.0	7.0		5.0	7.0	7.0	5.0	7.0		5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	634	920	1615	481	1245	516	343	288	1583	268	326	239
v/s Ratio Prot	c0.26	0.31		0.10	0.18		0.02	c0.08		c0.05	0.05	
v/s Ratio Perm	c0.32		0.13	0.22		0.04	0.04		0.18	0.08		0.05
v/c Ratio	0.89	0.64	0.13	0.67	0.51	0.11	0.27	0.51	0.18	0.48	0.27	0.27
Uniform Delay, d1	17.6	18.7	0.0	16.8	25.5	21.9	30.8	38.8	0.0	29.7	35.7	35.7
Progression Factor	0.66	0.98	1.00	1.17	0.96	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.5	2.3	0.1	3.3	1.4	0.4	0.4	1.5	0.3	1.4	0.4	0.6
Delay (s)	22.1	20.7	0.1	22.9	25.8	18.3	31.3	40.3	0.3	31.1	36.1	36.3
Level of Service	C	C	A	C	C	B	C	D	A	C	D	D
Approach Delay (s)		18.1			23.9			16.8			35.1	
Approach LOS		B			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	925	500	0	53	558
Future Volume (vph)	0	925	500	0	53	558
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1517	1429
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1517	1429
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1005	543	0	58	607
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1005	543	0	58	607
Heavy Vehicles (%)	2%	2%	2%	2%	19%	13%
Turn Type		NA	NA		Prot	Free
Protected Phases		2	6		4	
Permitted Phases						Free
Actuated Green, G (s)		80.9	80.9		8.1	100.0
Effective Green, g (s)		82.9	82.9		9.1	100.0
Actuated g/C Ratio		0.83	0.83		0.09	1.00
Clearance Time (s)		6.0	6.0		5.0	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		1544	1544		138	1429
v/s Ratio Prot		c0.54	0.29		0.04	
v/s Ratio Perm						c0.42
v/c Ratio		0.65	0.35		0.42	0.42
Uniform Delay, d1		3.2	2.1		43.0	0.0
Progression Factor		1.07	1.00		1.00	1.00
Incremental Delay, d2		1.9	0.6		2.1	0.9
Delay (s)		5.3	2.7		45.0	0.9
Level of Service		A	A		D	A
Approach Delay (s)		5.3	2.7		4.8	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	267	704	494	0	0	0
Future Volume (Veh/h)	267	704	494	0	0	0
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)	290	765	537	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		590				
pX, platoon unblocked						
vC, conflicting volume	537				1500	537
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	537				1500	537
tC, single (s)	4.4				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	69				100	100
cM capacity (veh/h)	942				78	488

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	545	510	537
Volume Left	290	0	0
Volume Right	0	0	0
cSH	942	1700	1700
Volume to Capacity	0.31	0.30	0.32
Queue Length 95th (ft)	33	0	0
Control Delay (s)	7.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	3.8		0.0
Approach LOS			

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization		59.9%	ICU Level of Service B
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	704	494	193	0	0
Future Volume (Veh/h)	0	704	494	193	0	0
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	765	537	210	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1072				
pX, platoon unblocked						
vC, conflicting volume	747				1024	642
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	747				1024	642
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	100
cM capacity (veh/h)	857				231	417

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	382	382	747
Volume Left	0	0	0
Volume Right	0	0	210
cSH	1700	1700	1700
Volume to Capacity	0.23	0.23	0.44
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

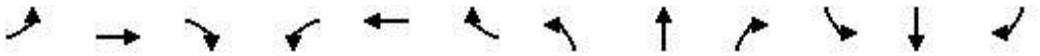
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	278	0	0	206	524	29
Future Volume (Veh/h)	278	0	0	206	524	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	302	0	0	224	570	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1067	
pX, platoon unblocked						
vC, conflicting volume	794	570	602			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	794	570	602			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	15	100	100			
cM capacity (veh/h)	357	521	975			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	302	224	570	32
Volume Left	302	0	0	0
Volume Right	0	0	0	32
cSH	357	975	1700	1700
Volume to Capacity	0.85	0.00	0.34	0.02
Queue Length 95th (ft)	194	0	0	0
Control Delay (s)	51.4	0.0	0.0	0.0
Lane LOS	F			
Approach Delay (s)	51.4	0.0	0.0	
Approach LOS	F			

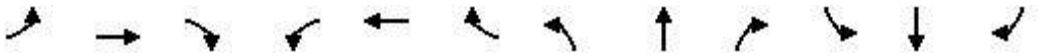
Intersection Summary			
Average Delay	13.8		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	74	122	2	2	41	3	2	8	8	7	2	28
Future Volume (vph)	74	122	2	2	41	3	2	8	8	7	2	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	133	2	2	45	3	2	9	9	8	2	30

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	215	50	20	40
Volume Left (vph)	80	2	2	8
Volume Right (vph)	2	3	9	30
Hadj (s)	0.10	0.01	-0.22	-0.38
Departure Headway (s)	4.2	4.3	4.3	4.1
Degree Utilization, x	0.25	0.06	0.02	0.05
Capacity (veh/h)	844	824	777	806
Control Delay (s)	8.6	7.5	7.4	7.3
Approach Delay (s)	8.6	7.5	7.4	7.3
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	27.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	26	35	36	8	43	9	193	51	45	486	8
Future Volume (vph)	11	26	35	36	8	43	9	193	51	45	486	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.93		1.00	0.97		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1727			1703		1770	1805		1770	1858	
Flt Permitted		0.93			0.83		0.44	1.00		0.60	1.00	
Satd. Flow (perm)		1611			1445		811	1805		1110	1858	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	28	38	39	9	47	10	210	55	49	528	9
RTOR Reduction (vph)	0	33	0	0	41	0	0	12	0	0	1	0
Lane Group Flow (vph)	0	45	0	0	54	0	10	253	0	49	536	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.5			6.5		25.3	25.3		25.3	25.3	
Effective Green, g (s)		6.5			6.5		25.3	25.3		25.3	25.3	
Actuated g/C Ratio		0.14			0.14		0.53	0.53		0.53	0.53	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		219			196		429	955		587	983	
v/s Ratio Prot								0.14			c0.29	
v/s Ratio Perm		0.03			c0.04		0.01			0.04		
v/c Ratio		0.21			0.28		0.02	0.27		0.08	0.55	
Uniform Delay, d1		18.4			18.5		5.4	6.2		5.5	7.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.8		0.1	0.4		0.2	1.4	
Delay (s)		18.8			19.3		5.4	6.6		5.7	8.8	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		18.8			19.3			6.5			8.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

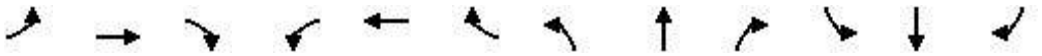
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	16	27	0	2	69
Future Volume (Veh/h)	93	16	27	0	2	69
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)	101	17	29	0	2	75
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		400				
pX, platoon unblocked						
vC, conflicting volume	29				248	29
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29				248	29
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	93
cM capacity (veh/h)	1584				693	1046

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	118	29	77
Volume Left	101	0	2
Volume Right	0	0	75
cSH	1584	1700	1032
Volume to Capacity	0.06	0.02	0.07
Queue Length 95th (ft)	5	0	6
Control Delay (s)	6.4	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	6.4	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	5	3	0	2	53	0	184	1	27	517	16
Future Volume (Veh/h)	51	5	3	0	2	53	0	184	1	27	517	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	5	3	0	2	58	0	200	1	29	562	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1181	
pX, platoon unblocked	0.81	0.81	0.81	0.81	0.81		0.81					
vC, conflicting volume	888	830	570	834	838	200	579			201		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	748	676	357	682	686	200	368			201		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	77	98	99	100	99	93	100			98		
cM capacity (veh/h)	244	299	559	286	295	840	969			1371		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	63	60	201	608
Volume Left	55	0	0	29
Volume Right	3	58	1	17
cSH	254	792	969	1371
Volume to Capacity	0.25	0.08	0.00	0.02
Queue Length 95th (ft)	24	6	0	2
Control Delay (s)	23.8	9.9	0.0	0.6
Lane LOS	C	A		A
Approach Delay (s)	23.8	9.9	0.0	0.6
Approach LOS	C	A		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	59.4%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	902	7	1	635	42	1	14	12	43	8	5
Future Volume (Veh/h)	9	902	7	1	635	42	1	14	12	43	8	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	980	8	1	690	46	1	15	13	47	9	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	736			988			1706	1742	984	1736	1723	713
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	736			988			1706	1742	984	1736	1723	713
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	82	96	17	90	99
cM capacity (veh/h)	870			699			65	86	301	56	88	432

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	10	988	1	736	29	61
Volume Left	10	0	1	0	1	47
Volume Right	0	8	0	46	13	5
cSH	870	1700	699	1700	124	64
Volume to Capacity	0.01	0.58	0.00	0.43	0.23	0.95
Queue Length 95th (ft)	1	0	0	0	21	115
Control Delay (s)	9.2	0.0	10.2	0.0	42.7	204.4
Lane LOS	A		B		E	F
Approach Delay (s)	0.1		0.0		42.7	204.4
Approach LOS					E	F

Intersection Summary				
Average Delay	7.6			
Intersection Capacity Utilization	64.3%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	126	42	0	0	3
Future Volume (Veh/h)	11	126	42	0	0	3
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)	12	137	46	0	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	46				207	46
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	46				207	46
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	100
cM capacity (veh/h)	1562				775	1023

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	149	46	3
Volume Left	12	0	0
Volume Right	0	0	3
cSH	1562	1700	1023
Volume to Capacity	0.01	0.03	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	0.6	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	1	3	116	58	50
Future Volume (Veh/h)	76	1	3	116	58	50
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	1	3	126	63	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					330	
pX, platoon unblocked						
vC, conflicting volume	222	90	63			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	90	63			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	765	968	1540			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	84	129	117
Volume Left	83	3	0
Volume Right	1	0	54
cSH	767	1540	1700
Volume to Capacity	0.11	0.00	0.07
Queue Length 95th (ft)	9	0	0
Control Delay (s)	10.3	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.3	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

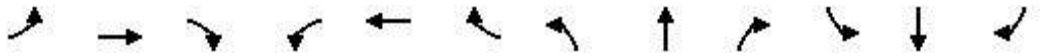
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	14	10	0	129	5	77	23	431	93	5
Future Volume (Veh/h)	14	0	14	10	0	129	5	77	23	431	93	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	15	11	0	140	5	84	25	468	101	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						10						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1134	1158	104	1146	1136	84	106			109		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1134	1158	104	1146	1136	84	106			109		
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.5	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.5	2.2			2.3		
p0 queue free %	87	100	98	91	100	85	100			68		
cM capacity (veh/h)	114	132	951	117	136	915	1485			1445		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	30	151	89	25	468	106
Volume Left	15	11	5	0	468	0
Volume Right	15	140	0	25	0	5
cSH	203	987	1485	1700	1445	1700
Volume to Capacity	0.15	0.15	0.00	0.01	0.32	0.06
Queue Length 95th (ft)	13	13	0	0	36	0
Control Delay (s)	25.7	11.8	0.4	0.0	8.7	0.0
Lane LOS	D	B	A		A	
Approach Delay (s)	25.7	11.8	0.3		7.1	
Approach LOS	D	B				

Intersection Summary				
Average Delay	7.7			
Intersection Capacity Utilization	45.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	961	9	283	684	15	8	0	129	10	0	6
Future Volume (vph)	3	961	9	283	684	15	8	0	129	10	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1770	1863	1495	1671	1863	1583		1444	1292		1713	
Flt Permitted	0.35	1.00	1.00	0.05	1.00	1.00		0.75	1.00		0.89	
Satd. Flow (perm)	646	1863	1495	94	1863	1583		1133	1292		1564	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	1045	10	308	743	16	9	0	140	11	0	7
RTOR Reduction (vph)	0	0	4	0	0	5	0	0	117	0	15	0
Lane Group Flow (vph)	3	1045	6	308	743	11	0	9	23	0	3	0
Heavy Vehicles (%)	2%	2%	8%	8%	2%	2%	25%	25%	25%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	71.5	70.6	70.6	88.7	83.3	83.3		19.6	19.6		19.6	
Effective Green, g (s)	71.5	70.6	70.6	88.7	83.3	83.3		19.6	19.6		19.6	
Actuated g/C Ratio	0.61	0.60	0.60	0.76	0.71	0.71		0.17	0.17		0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	402	1121	899	253	1323	1124		189	215		261	
v/s Ratio Prot	0.00	0.56		c0.14	0.40							
v/s Ratio Perm	0.00		0.00	c0.78		0.01		0.01	c0.02		0.00	
v/c Ratio	0.01	0.93	0.01	1.22	0.56	0.01		0.05	0.11		0.01	
Uniform Delay, d1	9.1	21.2	9.3	42.2	8.2	5.0		41.0	41.4		40.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	13.6	0.0	128.2	0.5	0.0		0.5	1.0		0.1	
Delay (s)	9.2	34.7	9.3	170.4	8.7	5.0		41.5	42.5		40.8	
Level of Service	A	C	A	F	A	A		D	D		D	
Approach Delay (s)		34.4			55.4			42.4			40.8	
Approach LOS		C			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	117.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	12	33	28	7	5	25	139	55	3	297	1
Future Volume (Veh/h)	2	12	33	28	7	5	25	139	55	3	297	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	13	36	30	8	5	27	151	60	3	323	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1250	
pX, platoon unblocked												
vC, conflicting volume	574	594	324	607	565	181	324			211		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	574	594	324	607	565	181	324			211		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	95	92	98	99	98			100		
cM capacity (veh/h)	414	408	717	372	424	862	1236			1360		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	51	43	238	327
Volume Left	2	30	27	3
Volume Right	36	5	60	1
cSH	587	408	1236	1360
Volume to Capacity	0.09	0.11	0.02	0.00
Queue Length 95th (ft)	7	9	2	0
Control Delay (s)	11.7	14.9	1.1	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	11.7	14.9	1.1	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	43.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	169	0	0	46	62	302
Future Volume (Veh/h)	169	0	0	46	62	302
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)	184	0	0	50	67	328
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						7
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	50				393	25
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50				393	25
tC, single (s)	4.3				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.4
p0 queue free %	87				87	68
cM capacity (veh/h)	1421				532	1034

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	184	50	395
Volume Left	184	0	67
Volume Right	0	50	328
cSH	1421	1700	1245
Volume to Capacity	0.13	0.03	0.32
Queue Length 95th (ft)	11	0	34
Control Delay (s)	7.9	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	7.9	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	183	390	77	143	248	74
Future Volume (vph)	183	390	77	143	248	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5			7.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.91			1.00
Flt Protected	0.95	1.00	1.00			0.96
Satd. Flow (prot)	1770	1583	1700			1794
Flt Permitted	0.95	1.00	1.00			0.54
Satd. Flow (perm)	1770	1583	1700			999
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	424	84	155	270	80
RTOR Reduction (vph)	0	294	43	0	0	0
Lane Group Flow (vph)	199	130	196	0	0	350
Turn Type	Prot	pm+ov	NA		pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	15.0	20.8	29.3			40.1
Effective Green, g (s)	15.0	20.8	29.3			40.1
Actuated g/C Ratio	0.22	0.31	0.43			0.59
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	392	604	736			660
v/s Ratio Prot	c0.11	0.02	0.12			c0.05
v/s Ratio Perm		0.06				c0.27
v/c Ratio	0.51	0.22	0.27			0.53
Uniform Delay, d1	23.1	17.4	12.3			8.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	2.2	0.2	0.4			0.8
Delay (s)	25.2	17.5	12.7			9.0
Level of Service	C	B	B			A
Approach Delay (s)	20.0		12.7			9.0
Approach LOS	B		B			A

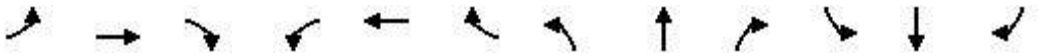
Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	398	10	95	653	22	12	31	85	14	38	43
Future Volume (vph)	44	398	10	95	653	22	12	31	85	14	38	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			6.0	4.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1854			1837	1583	1770	1714	
Flt Permitted	0.31	1.00	1.00	0.46	1.00			0.88	1.00	0.73	1.00	
Satd. Flow (perm)	576	1863	1583	860	1854			1632	1583	1353	1714	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	433	11	103	710	24	13	34	92	15	41	47
RTOR Reduction (vph)	0	0	3	0	1	0	0	0	0	0	39	0
Lane Group Flow (vph)	48	433	8	103	733	0	0	47	92	15	49	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		Free	8		
Actuated Green, G (s)	86.5	81.4	81.4	90.1	83.2			9.7	120.0	9.7	9.7	
Effective Green, g (s)	88.5	84.4	84.4	92.1	86.2			11.7	120.0	11.7	11.7	
Actuated g/C Ratio	0.74	0.70	0.70	0.77	0.72			0.10	1.00	0.10	0.10	
Clearance Time (s)	6.0	8.0	8.0	6.0	8.0			8.0		8.0	8.0	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	485	1310	1113	719	1331			159	1583	131	167	
v/s Ratio Prot	0.01	0.23		c0.01	c0.40						0.03	
v/s Ratio Perm	0.07		0.00	0.10				c0.03	c0.06	0.01		
v/c Ratio	0.10	0.33	0.01	0.14	0.55			0.30	0.06	0.11	0.29	
Uniform Delay, d1	5.5	6.9	5.3	3.7	7.9			50.3	0.0	49.4	50.3	
Progression Factor	1.00	1.00	1.00	0.83	1.15			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.7	0.0	0.1	1.6			1.0	0.1	0.4	1.0	
Delay (s)	5.6	7.6	5.3	3.2	10.7			51.4	0.1	49.8	51.3	
Level of Service	A	A	A	A	B			D	A	D	D	
Approach Delay (s)		7.3			9.7			17.4			51.1	
Approach LOS		A			A			B			D	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	301	47	112	671	101	48	52	131	100	32	67
Future Volume (vph)	225	301	47	112	671	101	48	52	131	100	32	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	3.0	0.0	4.0	3.0	3.0	2.0	2.0	4.0	2.0	2.0	2.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1583	1770	3539	1468	1770	1863	1583	1641	1863	1468
Flt Permitted	0.29	1.00	1.00	0.53	1.00	1.00	0.73	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	507	1863	1583	982	3539	1468	1368	1863	1583	925	1863	1468
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	327	51	122	729	110	52	57	142	109	35	73
RTOR Reduction (vph)	0	0	0	0	0	48	0	0	0	0	0	63
Lane Group Flow (vph)	245	327	51	122	729	62	52	57	142	109	35	10
Heavy Vehicles (%)	10%	2%	2%	2%	2%	10%	2%	2%	2%	10%	2%	10%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		Free	6		6	4		Free	8		8
Actuated Green, G (s)	79.1	67.1	120.0	71.7	63.4	63.4	14.8	7.8	120.0	24.4	12.6	12.6
Effective Green, g (s)	83.1	71.1	120.0	75.7	67.4	67.4	22.8	11.8	120.0	29.6	16.6	16.6
Actuated g/C Ratio	0.69	0.59	1.00	0.63	0.56	0.56	0.19	0.10	1.00	0.25	0.14	0.14
Clearance Time (s)	6.0	7.0		6.0	7.0	7.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	483	1103	1583	687	1987	824	296	183	1583	322	257	203
v/s Ratio Prot	c0.06	0.18		0.02	0.21		0.02	c0.03		c0.04	0.02	
v/s Ratio Perm	c0.29		0.03	0.10		0.04	0.02		0.09	0.04		0.01
v/c Ratio	0.51	0.30	0.03	0.18	0.37	0.07	0.18	0.31	0.09	0.34	0.14	0.05
Uniform Delay, d1	8.2	12.1	0.0	8.9	14.5	12.0	40.6	50.3	0.0	36.5	45.4	44.9
Progression Factor	1.36	0.82	1.00	0.95	0.88	0.47	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.7	0.0	0.1	0.5	0.2	0.3	1.0	0.1	0.6	0.2	0.1
Delay (s)	12.0	10.6	0.0	8.5	13.3	5.9	40.8	51.3	0.1	37.2	45.6	45.0
Level of Service	B	B	A	A	B	A	D	D	A	D	D	D
Approach Delay (s)		10.3			11.8			20.2			41.2	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	531	620	0	84	273
Future Volume (vph)	0	531	620	0	84	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		5.0	5.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1612	1442
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1612	1442
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	577	674	0	91	297
RTOR Reduction (vph)	0	0	0	0	0	259
Lane Group Flow (vph)	0	577	674	0	91	38
Heavy Vehicles (%)	2%	2%	2%	2%	12%	12%
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases						4
Actuated Green, G (s)		95.1	95.1		12.4	12.4
Effective Green, g (s)		97.1	97.1		13.4	13.4
Actuated g/C Ratio		0.81	0.81		0.11	0.11
Clearance Time (s)		6.5	6.5		6.0	6.0
Vehicle Extension (s)		5.0	5.0		3.0	3.0
Lane Grp Cap (vph)		1507	1507		180	161
v/s Ratio Prot		0.31	c0.36		c0.06	
v/s Ratio Perm						0.03
v/c Ratio		0.38	0.45		0.51	0.24
Uniform Delay, d1		3.2	3.4		50.2	48.6
Progression Factor		0.93	1.00		1.00	1.00
Incremental Delay, d2		0.7	1.0		2.2	0.8
Delay (s)		3.7	4.4		52.4	49.4
Level of Service		A	A		D	D
Approach Delay (s)		3.7	4.4		50.1	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	92	519	616	0	0	0
Future Volume (Veh/h)	92	519	616	0	0	0
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)	100	564	670	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		590				
pX, platoon unblocked						
vC, conflicting volume	670				1152	670
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	670				1152	670
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	88				100	100
cM capacity (veh/h)	864				169	399

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	288	376	670
Volume Left	100	0	0
Volume Right	0	0	0
cSH	864	1700	1700
Volume to Capacity	0.12	0.22	0.39
Queue Length 95th (ft)	10	0	0
Control Delay (s)	4.2	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.8		0.0
Approach LOS			

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		56.1%	ICU Level of Service B
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	519	616	236	0	0
Future Volume (Veh/h)	0	519	616	236	0	0
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	564	670	257	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1072				
pX, platoon unblocked						
vC, conflicting volume	927				1080	798
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	927				1080	798
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	100
cM capacity (veh/h)	733				213	329

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	282	282	927
Volume Left	0	0	0
Volume Right	0	0	257
cSH	1700	1700	1700
Volume to Capacity	0.17	0.17	0.55
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

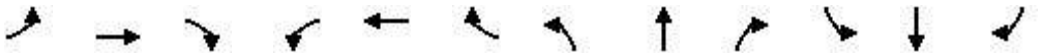
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		50.1%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	4	0	123	83	183
Future Volume (Veh/h)	107	4	0	123	83	183
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	4	0	134	90	199
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1067	
pX, platoon unblocked						
vC, conflicting volume	224	90	289			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	224	90	289			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	100	100			
cM capacity (veh/h)	764	968	1273			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	120	134	90	199
Volume Left	116	0	0	0
Volume Right	4	0	0	199
cSH	770	1273	1700	1700
Volume to Capacity	0.16	0.00	0.05	0.12
Queue Length 95th (ft)	14	0	0	0
Control Delay (s)	10.5	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	10.5	0.0	0.0	
Approach LOS	B			

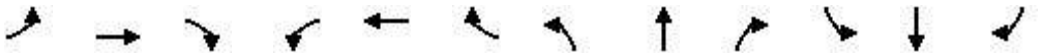
Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	39	81	8	16	104	13	6	8	11	10	11	50
Future Volume (vph)	39	81	8	16	104	13	6	8	11	10	11	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	88	9	17	113	14	7	9	12	11	12	54

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	139	144	28	77
Volume Left (vph)	42	17	7	11
Volume Right (vph)	9	14	12	54
Hadj (s)	0.06	0.00	-0.17	-0.36
Departure Headway (s)	4.3	4.3	4.5	4.2
Degree Utilization, x	0.17	0.17	0.03	0.09
Capacity (veh/h)	802	805	749	791
Control Delay (s)	8.2	8.2	7.6	7.6
Approach Delay (s)	8.2	8.2	7.6	7.6
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	25.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	31	17	69	29	47	43	524	77	45	298	7
Future Volume (vph)	20	31	17	69	29	47	43	524	77	45	298	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1775			1740		1770	1827		1770	1856	
Flt Permitted		0.84			0.81		0.56	1.00		0.33	1.00	
Satd. Flow (perm)		1522			1446		1044	1827		619	1856	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	34	18	75	32	51	47	570	84	49	324	8
RTOR Reduction (vph)	0	15	0	0	27	0	0	6	0	0	1	0
Lane Group Flow (vph)	0	59	0	0	131	0	47	648	0	49	331	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.6			8.6		30.0	30.0		30.0	30.0	
Effective Green, g (s)		8.6			8.6		30.0	30.0		30.0	30.0	
Actuated g/C Ratio		0.16			0.16		0.55	0.55		0.55	0.55	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		239			227		573	1003		340	1019	
v/s Ratio Prot								c0.35			0.18	
v/s Ratio Perm		0.04			c0.09		0.05			0.08		
v/c Ratio		0.25			0.58		0.08	0.65		0.14	0.32	
Uniform Delay, d1		20.2			21.3		5.8	8.6		6.0	6.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			3.5		0.2	2.3		0.6	0.5	
Delay (s)		20.7			24.8		6.0	10.9		6.6	7.3	
Level of Service		C			C		A	B		A	A	
Approach Delay (s)		20.7			24.8			10.6			7.2	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	54.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	98	45	37	3	5	93
Future Volume (Veh/h)	98	45	37	3	5	93
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)	107	49	40	3	5	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		400				
pX, platoon unblocked						
vC, conflicting volume	43				304	42
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43				304	42
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				99	90
cM capacity (veh/h)	1566				640	1029

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	156	43	106
Volume Left	107	0	5
Volume Right	0	3	101
cSH	1566	1700	1001
Volume to Capacity	0.07	0.03	0.11
Queue Length 95th (ft)	5	0	9
Control Delay (s)	5.3	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	5.3	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	5	7	0	6	113	7	532	1	31	302	63
Future Volume (Veh/h)	36	5	7	0	6	113	7	532	1	31	302	63
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	5	8	0	7	123	8	578	1	34	328	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1181	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	1151	1025	362	1035	1058	578	396			579		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1134	1002	308	1013	1038	578	344			579		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	68	98	99	100	97	76	99			97		
cM capacity (veh/h)	123	222	699	195	212	515	1160			995		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	130	587	430
Volume Left	39	0	8	34
Volume Right	8	123	1	68
cSH	148	478	1160	995
Volume to Capacity	0.35	0.27	0.01	0.03
Queue Length 95th (ft)	36	27	1	3
Control Delay (s)	41.8	15.3	0.2	1.1
Lane LOS	E	C	A	A
Approach Delay (s)	41.8	15.3	0.2	1.1
Approach LOS	E	C		

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	55.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	336	12	8	638	103	3	8	4	21	10	23
Future Volume (Veh/h)	9	336	12	8	638	103	3	8	4	21	10	23
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	365	13	9	693	112	3	9	4	23	11	25
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	805			378			1133	1214	372	1160	1165	749
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	805			378			1133	1214	372	1160	1165	749
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	95	99	86	94	94
cM capacity (veh/h)	819			1180			159	178	674	162	190	412

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	10	378	9	805	16	59
Volume Left	10	0	9	0	3	23
Volume Right	0	13	0	112	4	25
cSH	819	1700	1180	1700	212	227
Volume to Capacity	0.01	0.22	0.01	0.47	0.08	0.26
Queue Length 95th (ft)	1	0	1	0	6	25
Control Delay (s)	9.4	0.0	8.1	0.0	23.3	26.4
Lane LOS	A		A		C	D
Approach Delay (s)	0.2		0.1		23.3	26.4
Approach LOS					C	D

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	52.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	1	1	110	102	41
Future Volume (Veh/h)	26	1	1	110	102	41
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	1	1	120	111	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					330	
pX, platoon unblocked	0.99	0.99	0.99			
vC, conflicting volume	256	134	156			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244	121	144			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	737	922	1426			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	29	121	156
Volume Left	28	1	0
Volume Right	1	0	45
cSH	742	1426	1700
Volume to Capacity	0.04	0.00	0.09
Queue Length 95th (ft)	3	0	0
Control Delay (s)	10.0	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	10.0	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	8	13	123	87	13
Future Volume (Veh/h)	8	8	13	123	87	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	9	14	134	95	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	264	102	109			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	264	102	109			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	718	953	1481			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	18	148	109
Volume Left	9	14	0
Volume Right	9	0	14
cSH	819	1481	1700
Volume to Capacity	0.02	0.01	0.06
Queue Length 95th (ft)	2	1	0
Control Delay (s)	9.5	0.8	0.0
Lane LOS	A	A	
Approach Delay (s)	9.5	0.8	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	434	1	6	702	0	5	0	5	0	0	0
Future Volume (Veh/h)	0	434	1	6	702	0	5	0	5	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	472	1	7	763	0	5	0	5	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	763			473			868	1250	236	1016	1250	382
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	763			473			868	1250	236	1016	1250	382
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	100	99	100	100	100
cM capacity (veh/h)	845			1085			245	171	765	190	170	616

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	236	237	388	382	10	0
Volume Left	0	0	7	0	5	0
Volume Right	0	1	0	0	5	0
cSH	845	1700	1085	1700	490	1700
Volume to Capacity	0.00	0.14	0.01	0.22	0.02	0.00
Queue Length 95th (ft)	0	0	0	0	2	0
Control Delay (s)	0.0	0.0	0.2	0.0	14.9	0.0
Lane LOS			A		B	A
Approach Delay (s)	0.0		0.1		14.9	0.0
Approach LOS					B	A

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	33.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	17	22	11	3	7
Future Volume (Veh/h)	2	17	22	11	3	7
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)	2	18	24	12	3	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	36				52	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36				52	30
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1575				955	1044

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	36	11
Volume Left	2	0	3
Volume Right	0	12	8
cSH	1575	1700	1019
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.7	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	0.7	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	25	4	0
Future Volume (Veh/h)	0	0	0	25	4	0
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	0	0	27	4	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	27				14	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	27				14	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1587				1006	1067

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	27	4
Volume Left	0	0	4
Volume Right	0	27	0
cSH	1700	1700	1006
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	15	4	0	19	14	7
Future Volume (Veh/h)	15	4	0	19	14	7
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)	16	4	0	21	15	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			20		39	18
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			20		39	18
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1596		973	1061

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	20	21	23
Volume Left	0	0	15
Volume Right	4	0	8
cSH	1700	1596	1002
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

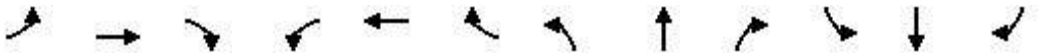
Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	333	415	101	489	258	89
Future Volume (vph)	333	415	101	489	258	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5	4.0		7.5
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.96
Satd. Flow (prot)	1770	1583	1863	1583		1796
Flt Permitted	0.95	1.00	1.00	1.00		0.57
Satd. Flow (perm)	1770	1583	1863	1583		1058
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	362	451	110	532	280	97
RTOR Reduction (vph)	0	236	0	0	0	0
Lane Group Flow (vph)	362	215	110	532	0	377
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		Free	6	
Actuated Green, G (s)	22.5	33.9	19.8	71.2		36.2
Effective Green, g (s)	22.5	33.9	19.8	71.2		36.2
Actuated g/C Ratio	0.32	0.48	0.28	1.00		0.51
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	559	864	518	1583		656
v/s Ratio Prot	c0.20	0.04	0.06			c0.09
v/s Ratio Perm		0.10		0.34		c0.20
v/c Ratio	0.65	0.25	0.21	0.34		0.57
Uniform Delay, d1	20.9	11.1	19.7	0.0		12.2
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.5	0.2	0.4	0.6		1.2
Delay (s)	24.5	11.2	20.1	0.6		13.4
Level of Service	C	B	C	A		B
Approach Delay (s)	17.1		3.9			13.4
Approach LOS	B		A			B

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	17.5
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

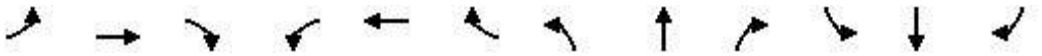
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	755	11	121	838	25	14	35	110	16	43	48
Future Volume (vph)	50	755	11	121	838	25	14	35	110	16	43	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			6.0	4.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1855			1837	1583	1770	1716	
Flt Permitted	0.22	1.00	1.00	0.25	1.00			0.83	1.00	0.72	1.00	
Satd. Flow (perm)	413	1863	1583	460	1855			1555	1583	1346	1716	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	821	12	132	911	27	15	38	120	17	47	52
RTOR Reduction (vph)	0	0	3	0	1	0	0	0	0	0	33	0
Lane Group Flow (vph)	54	821	9	132	937	0	0	53	120	17	66	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		Free	8		
Actuated Green, G (s)	86.9	82.9	82.9	93.1	86.0			8.0	120.0	8.0	8.0	
Effective Green, g (s)	88.9	85.9	85.9	95.1	89.0			10.0	120.0	10.0	10.0	
Actuated g/C Ratio	0.74	0.72	0.72	0.79	0.74			0.08	1.00	0.08	0.08	
Clearance Time (s)	6.0	8.0	8.0	6.0	8.0			8.0		8.0	8.0	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	362	1333	1133	452	1375			129	1583	112	143	
v/s Ratio Prot	0.01	0.44		c0.02	c0.51						c0.04	
v/s Ratio Perm	0.10		0.01	0.21				0.03	0.08	0.01		
v/c Ratio	0.15	0.62	0.01	0.29	0.68			0.41	0.08	0.15	0.46	
Uniform Delay, d1	7.2	8.7	4.9	6.5	8.1			52.2	0.0	51.1	52.4	
Progression Factor	1.00	1.00	1.00	1.16	1.40			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	2.1	0.0	0.3	2.4			2.1	0.1	0.6	2.4	
Delay (s)	7.4	10.8	4.9	7.9	13.8			54.3	0.1	51.7	54.8	
Level of Service	A	B	A	A	B			D	A	D	D	
Approach Delay (s)		10.5			13.0			16.7			54.3	
Approach LOS		B			B			B			D	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	378	445	133	354	704	91	154	145	280	102	75	125
Future Volume (vph)	378	445	133	354	704	91	154	145	280	102	75	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	3.0	0.0	4.0	3.0	3.0	2.0	2.0	4.0	2.0	2.0	2.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1583	1770	3539	1468	1770	1863	1583	1641	1863	1468
Flt Permitted	0.20	1.00	1.00	0.40	1.00	1.00	0.49	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	338	1863	1583	740	3539	1468	914	1863	1583	689	1863	1468
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	411	484	145	385	765	99	167	158	304	111	82	136
RTOR Reduction (vph)	0	0	0	0	0	61	0	0	0	0	0	119
Lane Group Flow (vph)	411	484	145	385	765	38	167	158	304	111	82	17
Heavy Vehicles (%)	10%	2%	2%	2%	2%	10%	2%	2%	2%	10%	2%	10%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		Free	6		6	4		Free	8		8
Actuated Green, G (s)	76.5	54.0	120.0	58.9	42.4	42.4	26.7	12.8	120.0	22.3	10.6	10.6
Effective Green, g (s)	78.5	58.0	120.0	62.9	46.4	46.4	34.5	16.8	120.0	30.3	14.6	14.6
Actuated g/C Ratio	0.65	0.48	1.00	0.52	0.39	0.39	0.29	0.14	1.00	0.25	0.12	0.12
Clearance Time (s)	6.0	7.0		6.0	7.0	7.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	547	900	1583	546	1368	567	390	260	1583	298	226	178
v/s Ratio Prot	c0.19	0.26		0.11	0.22		c0.06	c0.08		0.05	0.04	
v/s Ratio Perm	c0.30		0.09	0.26		0.03	0.06		0.19	0.05		0.01
v/c Ratio	0.75	0.54	0.09	0.71	0.56	0.07	0.43	0.61	0.19	0.37	0.36	0.09
Uniform Delay, d1	19.1	21.6	0.0	17.8	28.8	23.2	33.8	48.5	0.0	36.1	48.4	46.8
Progression Factor	1.16	1.63	1.00	1.24	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	2.0	0.1	3.8	1.5	0.2	0.8	4.0	0.3	0.8	1.0	0.2
Delay (s)	27.3	37.4	0.1	26.0	28.2	23.4	34.5	52.5	0.3	36.9	49.4	47.0
Level of Service	C	D	A	C	C	C	C	D	A	D	D	D
Approach Delay (s)		28.2			27.1			22.5			44.2	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	836	726	0	76	432
Future Volume (vph)	0	836	726	0	76	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		5.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1597	1455
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1597	1455
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	909	789	0	83	470
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	909	789	0	83	470
Heavy Vehicles (%)	2%	2%	2%	2%	13%	11%
Turn Type		NA	NA		Prot	Free
Protected Phases		2	6		4	
Permitted Phases						Free
Actuated Green, G (s)		97.2	97.2		10.3	120.0
Effective Green, g (s)		99.2	99.2		11.3	120.0
Actuated g/C Ratio		0.83	0.83		0.09	1.00
Clearance Time (s)		6.5	6.5		6.0	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		1540	1540		150	1455
v/s Ratio Prot		c0.49	0.42		c0.05	
v/s Ratio Perm						0.32
v/c Ratio		0.59	0.51		0.55	0.32
Uniform Delay, d1		3.5	3.1		51.9	0.0
Progression Factor		1.05	1.00		1.00	1.00
Incremental Delay, d2		1.6	1.2		4.4	0.6
Delay (s)		5.3	4.3		56.3	0.6
Level of Service		A	A		E	A
Approach Delay (s)		5.3	4.3		9.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	277	630	722	0	0	0
Future Volume (Veh/h)	277	630	722	0	0	0
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)	301	685	785	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		590				
pX, platoon unblocked						
vC, conflicting volume	785				1730	785
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	785				1730	785
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	61				100	100
cM capacity (veh/h)	779				49	336

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	529	457	785
Volume Left	301	0	0
Volume Right	0	0	0
cSH	779	1700	1700
Volume to Capacity	0.39	0.27	0.46
Queue Length 95th (ft)	46	0	0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	5.1		0.0
Approach LOS			

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	630	722	239	0	0
Future Volume (Veh/h)	0	630	722	239	0	0
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	685	785	260	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1072				
pX, platoon unblocked						
vC, conflicting volume	1045				1258	915
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1045				1258	915
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	100
cM capacity (veh/h)	661				163	275

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	342	342	1045
Volume Left	0	0	0
Volume Right	0	0	260
cSH	1700	1700	1700
Volume to Capacity	0.20	0.20	0.61
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

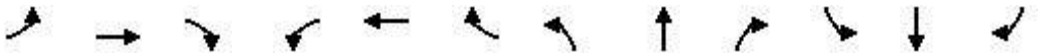
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		55.9%	ICU Level of Service B
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	5	0	481	226	206
Future Volume (Veh/h)	120	5	0	481	226	206
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	5	0	523	246	224
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1067	
pX, platoon unblocked						
vC, conflicting volume	769	246	470			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	769	246	470			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	65	99	100			
cM capacity (veh/h)	369	793	1092			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	135	523	246	224
Volume Left	130	0	0	0
Volume Right	5	0	0	224
cSH	377	1092	1700	1700
Volume to Capacity	0.36	0.00	0.14	0.13
Queue Length 95th (ft)	40	0	0	0
Control Delay (s)	19.8	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	19.8	0.0	0.0	
Approach LOS	C			

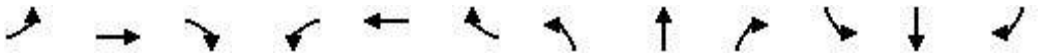
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	49	106	9	18	131	15	7	9	12	11	12	70
Future Volume (vph)	49	106	9	18	131	15	7	9	12	11	12	70
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	115	10	20	142	16	8	10	13	12	13	76

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	178	178	31	101
Volume Left (vph)	53	20	8	12
Volume Right (vph)	10	16	13	76
Hadj (s)	0.06	0.00	-0.17	-0.39
Departure Headway (s)	4.5	4.4	4.7	4.4
Degree Utilization, x	0.22	0.22	0.04	0.12
Capacity (veh/h)	777	779	703	756
Control Delay (s)	8.7	8.6	7.9	8.0
Approach Delay (s)	8.7	8.6	7.9	8.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.5			
Level of Service	A			
Intersection Capacity Utilization	31.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	35	19	78	33	53	48	580	87	51	321	8
Future Volume (vph)	23	35	19	78	33	53	48	580	87	51	321	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1773			1740		1770	1826		1770	1856	
Flt Permitted		0.86			0.81		0.55	1.00		0.25	1.00	
Satd. Flow (perm)		1546			1437		1019	1826		470	1856	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	38	21	85	36	58	52	630	95	55	349	9
RTOR Reduction (vph)	0	17	0	0	26	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	67	0	0	153	0	52	718	0	55	357	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.2			12.2		31.2	31.2		31.2	31.2	
Effective Green, g (s)		12.2			12.2		31.2	31.2		31.2	31.2	
Actuated g/C Ratio		0.21			0.21		0.53	0.53		0.53	0.53	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		317			295		535	959		246	974	
v/s Ratio Prot								c0.39			0.19	
v/s Ratio Perm		0.04			c0.11		0.05			0.12		
v/c Ratio		0.21			0.52		0.10	0.75		0.22	0.37	
Uniform Delay, d1		19.6			21.0		7.1	11.0		7.6	8.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			1.5		0.2	4.4		1.3	0.7	
Delay (s)		19.9			22.5		7.3	15.4		8.9	9.0	
Level of Service		B			C		A	B		A	A	
Approach Delay (s)		19.9			22.5			14.9			8.9	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	51	42	3	6	105
Future Volume (Veh/h)	110	51	42	3	6	105
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)	120	55	46	3	7	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		400				
pX, platoon unblocked						
vC, conflicting volume	49				342	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49				342	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	89
cM capacity (veh/h)	1558				603	1022

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	175	49	121
Volume Left	120	0	7
Volume Right	0	3	114
cSH	1558	1700	982
Volume to Capacity	0.08	0.03	0.12
Queue Length 95th (ft)	6	0	10
Control Delay (s)	5.3	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	5.3	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	6	8	0	7	127	8	589	1	35	325	71
Future Volume (Veh/h)	41	6	8	0	7	127	8	589	1	35	325	71
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	7	9	0	8	138	9	640	1	38	353	77
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1181	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	1268	1126	392	1138	1164	640	430			641		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1248	1094	296	1107	1135	640	337			641		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	51	96	99	100	95	71	99			96		
cM capacity (veh/h)	91	187	685	159	177	475	1124			943		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	61	146	650	468
Volume Left	45	0	9	38
Volume Right	9	138	1	77
cSH	112	435	1124	943
Volume to Capacity	0.54	0.34	0.01	0.04
Queue Length 95th (ft)	64	36	1	3
Control Delay (s)	70.1	17.4	0.2	1.2
Lane LOS	F	C	A	A
Approach Delay (s)	70.1	17.4	0.2	1.2
Approach LOS	F	C		

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	64.6%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	685	14	9	821	116	3	9	5	24	11	26
Future Volume (Veh/h)	10	685	14	9	821	116	3	9	5	24	11	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	745	15	10	892	126	3	10	5	26	12	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1018			760			1720	1812	752	1752	1757	955
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1018			760			1720	1812	752	1752	1757	955
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			95	87	99	55	85	91
cM capacity (veh/h)	682			852			56	76	410	58	83	313

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	760	10	1018	18	66
Volume Left	11	0	10	0	3	26
Volume Right	0	15	0	126	5	28
cSH	682	1700	852	1700	91	97
Volume to Capacity	0.02	0.45	0.01	0.60	0.20	0.68
Queue Length 95th (ft)	1	0	1	0	17	85
Control Delay (s)	10.4	0.0	9.3	0.0	53.9	99.2
Lane LOS	B		A		F	F
Approach Delay (s)	0.1		0.1		53.9	99.2
Approach LOS					F	F

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	63.8%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	1	1	138	129	46
Future Volume (Veh/h)	29	1	1	138	129	46
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	1	1	150	140	50
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					330	
pX, platoon unblocked	0.99	0.99	0.99			
vC, conflicting volume	317	165	190			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300	146	171			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	681	888	1386			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	33	151	190
Volume Left	32	1	0
Volume Right	1	0	50
cSH	686	1386	1700
Volume to Capacity	0.05	0.00	0.11
Queue Length 95th (ft)	4	0	0
Control Delay (s)	10.5	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	10.5	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	9	14	0	342	15	139	5	133	98	15
Future Volume (Veh/h)	9	0	9	14	0	342	15	139	5	133	98	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	10	15	0	372	16	151	5	145	107	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						10						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	588	593	115	590	596	151	123			156		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	588	593	115	590	596	151	123			156		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1			4.4		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.5		
p0 queue free %	95	100	99	96	100	57	99			88		
cM capacity (veh/h)	218	366	937	363	365	872	1464			1260		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	387	167	5	145	123
Volume Left	10	15	16	0	145	0
Volume Right	10	372	0	5	0	16
cSH	354	907	1464	1700	1260	1700
Volume to Capacity	0.06	0.43	0.01	0.00	0.12	0.07
Queue Length 95th (ft)	4	54	1	0	10	0
Control Delay (s)	15.8	12.3	0.8	0.0	8.2	0.0
Lane LOS	C	B	A		A	
Approach Delay (s)	15.8	12.3	0.8		4.5	
Approach LOS	C	B				

Intersection Summary				
Average Delay	7.6			
Intersection Capacity Utilization	42.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	796	1	7	894	0	6	0	6	0	0	0
Future Volume (Veh/h)	0	796	1	7	894	0	6	0	6	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	865	1	8	972	0	7	0	7	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	972			866			1368	1854	433	1424	1854	486
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	972			866			1368	1854	433	1424	1854	486
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			93	100	99	100	100	100
cM capacity (veh/h)	705			773			105	72	571	94	72	527

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	432	434	494	486	14	0
Volume Left	0	0	8	0	7	0
Volume Right	0	1	0	0	7	0
cSH	705	1700	773	1700	210	1700
Volume to Capacity	0.00	0.26	0.01	0.29	0.07	0.00
Queue Length 95th (ft)	0	0	1	0	5	0
Control Delay (s)	0.0	0.0	0.3	0.0	26.6	0.0
Lane LOS			A		D	A
Approach Delay (s)	0.0		0.1		26.6	0.0
Approach LOS					D	A

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	39.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	19	25	12	3	8
Future Volume (Veh/h)	2	19	25	12	3	8
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)	2	21	27	13	3	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	40				58	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				58	34
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1570				947	1040

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	23	40	12
Volume Left	2	0	3
Volume Right	0	13	9
cSH	1570	1700	1015
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.6	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	28	5	0
Future Volume (Veh/h)	0	0	0	28	5	0
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	0	0	30	5	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	30				15	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30				15	15
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1583				1004	1065

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	30	5
Volume Left	0	0	5
Volume Right	0	30	0
cSH	1700	1700	1004
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	17	6	0	21	16	8
Future Volume (Veh/h)	17	6	0	21	16	8
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)	18	7	0	23	17	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			25		44	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			25		44	22
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1589		966	1056

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	23	26
Volume Left	0	0	17
Volume Right	7	0	9
cSH	1700	1589	995
Volume to Capacity	0.01	0.00	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	314	421	103	438	263	90
Future Volume (vph)	314	421	103	438	263	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5	4.0		7.5
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.96
Satd. Flow (prot)	1770	1583	1863	1583		1796
Flt Permitted	0.95	1.00	1.00	1.00		0.57
Satd. Flow (perm)	1770	1583	1863	1583		1056
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	341	458	112	476	286	98
RTOR Reduction (vph)	0	245	0	0	0	0
Lane Group Flow (vph)	341	213	112	476	0	384
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		Free	6	
Actuated Green, G (s)	20.9	32.4	19.9	69.8		36.4
Effective Green, g (s)	20.9	32.4	19.9	69.8		36.4
Actuated g/C Ratio	0.30	0.46	0.29	1.00		0.52
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	529	848	531	1583		672
v/s Ratio Prot	c0.19	0.04	0.06			c0.09
v/s Ratio Perm		0.09		0.30		c0.20
v/c Ratio	0.64	0.25	0.21	0.30		0.57
Uniform Delay, d1	21.2	11.3	19.0	0.0		11.4
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.7	0.2	0.4	0.5		1.2
Delay (s)	24.9	11.5	19.4	0.5		12.6
Level of Service	C	B	B	A		B
Approach Delay (s)	17.2		4.1			12.6
Approach LOS	B		A			B

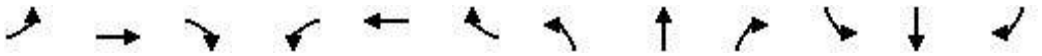
Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	17.5
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	875	11	164	920	25	14	35	135	16	43	48
Future Volume (vph)	50	875	11	164	920	25	14	35	135	16	43	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			6.0	4.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1855			1837	1583	1770	1716	
Flt Permitted	0.18	1.00	1.00	0.18	1.00			0.83	1.00	0.72	1.00	
Satd. Flow (perm)	333	1863	1583	337	1855			1555	1583	1346	1716	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	951	12	178	1000	27	15	38	147	17	47	52
RTOR Reduction (vph)	0	0	3	0	1	0	0	0	0	0	33	0
Lane Group Flow (vph)	54	951	9	178	1026	0	0	53	147	17	66	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		Free	8		
Actuated Green, G (s)	86.5	82.5	82.5	93.5	86.0			8.0	120.0	8.0	8.0	
Effective Green, g (s)	88.5	85.5	85.5	95.5	89.0			10.0	120.0	10.0	10.0	
Actuated g/C Ratio	0.74	0.71	0.71	0.80	0.74			0.08	1.00	0.08	0.08	
Clearance Time (s)	6.0	8.0	8.0	6.0	8.0			8.0		8.0	8.0	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	305	1327	1127	369	1375			129	1583	112	143	
v/s Ratio Prot	0.01	0.51		c0.03	c0.55						c0.04	
v/s Ratio Perm	0.12		0.01	0.35				0.03	0.09	0.01		
v/c Ratio	0.18	0.72	0.01	0.48	0.75			0.41	0.09	0.15	0.46	
Uniform Delay, d1	9.2	10.1	5.0	11.0	9.0			52.2	0.0	51.1	52.4	
Progression Factor	1.00	1.00	1.00	5.61	1.03			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	3.3	0.0	0.8	3.0			2.1	0.1	0.6	2.4	
Delay (s)	9.5	13.5	5.0	62.6	12.2			54.3	0.1	51.7	54.8	
Level of Service	A	B	A	E	B			D	A	D	D	
Approach Delay (s)		13.2			19.7			14.5			54.3	
Approach LOS		B			B			B			D	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	443	525	133	354	773	91	154	145	280	102	75	181
Future Volume (vph)	443	525	133	354	773	91	154	145	280	102	75	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	3.0	0.0	4.0	3.0	3.0	2.0	2.0	4.0	2.0	2.0	2.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1583	1770	3539	1468	1770	1863	1583	1641	1863	1468
Flt Permitted	0.13	1.00	1.00	0.32	1.00	1.00	0.49	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	232	1863	1583	589	3539	1468	914	1863	1583	689	1863	1468
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	571	145	385	840	99	167	158	304	111	82	197
RTOR Reduction (vph)	0	0	0	0	0	64	0	0	0	0	0	173
Lane Group Flow (vph)	482	571	145	385	840	35	167	158	304	111	82	24
Heavy Vehicles (%)	10%	2%	2%	2%	2%	10%	2%	2%	2%	10%	2%	10%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		Free	6		6	4		Free	8		8
Actuated Green, G (s)	76.5	52.6	120.0	55.9	38.0	38.0	26.7	12.8	120.0	22.3	10.6	10.6
Effective Green, g (s)	78.5	56.6	120.0	59.9	42.0	42.0	34.5	16.8	120.0	30.3	14.6	14.6
Actuated g/C Ratio	0.65	0.47	1.00	0.50	0.35	0.35	0.29	0.14	1.00	0.25	0.12	0.12
Clearance Time (s)	6.0	7.0		6.0	7.0	7.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	556	878	1583	489	1238	513	390	260	1583	298	226	178
v/s Ratio Prot	c0.25	0.31		0.13	0.24		c0.06	c0.08		0.05	0.04	
v/s Ratio Perm	c0.32		0.09	0.26		0.02	0.06		0.19	0.05		0.02
v/c Ratio	0.87	0.65	0.09	0.79	0.68	0.07	0.43	0.61	0.19	0.37	0.36	0.13
Uniform Delay, d1	28.7	24.2	0.0	20.3	33.2	26.0	33.8	48.5	0.0	36.1	48.4	47.1
Progression Factor	0.70	1.46	1.00	1.33	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	3.1	0.1	7.5	2.7	0.2	0.8	4.0	0.3	0.8	1.0	0.3
Delay (s)	31.4	38.3	0.1	34.5	33.8	26.2	34.5	52.5	0.3	36.9	49.4	47.4
Level of Service	C	D	A	C	C	C	C	D	A	D	D	D
Approach Delay (s)		30.9			33.5			22.5			44.8	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (vph)	0	916	739	0	76	488
Future Volume (vph)	0	916	739	0	76	488
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		5.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1597	1455
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1597	1455
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	996	803	0	83	530
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	996	803	0	83	530
Heavy Vehicles (%)	2%	2%	2%	2%	13%	11%
Turn Type		NA	NA		Prot	Free
Protected Phases		2	6		4	
Permitted Phases						Free
Actuated Green, G (s)		97.2	97.2		10.3	120.0
Effective Green, g (s)		99.2	99.2		11.3	120.0
Actuated g/C Ratio		0.83	0.83		0.09	1.00
Clearance Time (s)		6.5	6.5		6.0	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		1540	1540		150	1455
v/s Ratio Prot		c0.53	0.43		c0.05	
v/s Ratio Perm						0.36
v/c Ratio		0.65	0.52		0.55	0.36
Uniform Delay, d1		3.9	3.2		51.9	0.0
Progression Factor		1.23	1.00		1.00	1.00
Incremental Delay, d2		1.9	1.3		4.4	0.7
Delay (s)		6.7	4.4		56.3	0.7
Level of Service		A	A		E	A
Approach Delay (s)		6.7	4.4		8.2	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	342	645	735	0	0	0
Future Volume (Veh/h)	342	645	735	0	0	0
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)	372	701	799	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		590				
pX, platoon unblocked						
vC, conflicting volume	799				1894	799
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	799				1894	799
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	52				100	100
cM capacity (veh/h)	770				32	328

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	606	467	799
Volume Left	372	0	0
Volume Right	0	0	0
cSH	770	1700	1700
Volume to Capacity	0.48	0.27	0.47
Queue Length 95th (ft)	67	0	0
Control Delay (s)	11.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	6.6		0.0
Approach LOS			

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	645	735	239	0	0
Future Volume (Veh/h)	0	645	735	239	0	0
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	701	799	260	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1072				
pX, platoon unblocked						
vC, conflicting volume	1059				1280	929
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1059				1280	929
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	100
cM capacity (veh/h)	653				158	269

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	350	350	1059
Volume Left	0	0	0
Volume Right	0	0	260
cSH	1700	1700	1700
Volume to Capacity	0.21	0.21	0.62
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

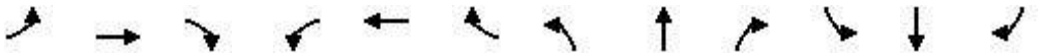
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		56.6%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	5	0	432	208	206
Future Volume (Veh/h)	120	5	0	432	208	206
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	5	0	470	226	224
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1067	
pX, platoon unblocked						
vC, conflicting volume	696	226	450			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	696	226	450			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	99	100			
cM capacity (veh/h)	408	813	1110			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	135	470	226	224
Volume Left	130	0	0	0
Volume Right	5	0	0	224
cSH	415	1110	1700	1700
Volume to Capacity	0.33	0.00	0.13	0.13
Queue Length 95th (ft)	35	0	0	0
Control Delay (s)	17.8	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	17.8	0.0	0.0	
Approach LOS	C			

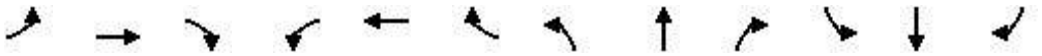
Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	55	106	9	18	131	15	7	9	12	11	12	78
Future Volume (vph)	55	106	9	18	131	15	7	9	12	11	12	78
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	115	10	20	142	16	8	10	13	12	13	85

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	185	178	31	110
Volume Left (vph)	60	20	8	12
Volume Right (vph)	10	16	13	85
Hadj (s)	0.07	0.00	-0.17	-0.41
Departure Headway (s)	4.5	4.4	4.7	4.4
Degree Utilization, x	0.23	0.22	0.04	0.13
Capacity (veh/h)	771	772	694	755
Control Delay (s)	8.8	8.7	7.9	8.0
Approach Delay (s)	8.8	8.7	7.9	8.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.6			
Level of Service	A			
Intersection Capacity Utilization	33.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	35	19	78	33	53	48	588	87	51	327	8
Future Volume (vph)	23	35	19	78	33	53	48	588	87	51	327	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1773			1740		1770	1827		1770	1856	
Flt Permitted		0.86			0.81		0.54	1.00		0.25	1.00	
Satd. Flow (perm)		1547			1437		1014	1827		459	1856	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	38	21	85	36	58	52	639	95	55	355	9
RTOR Reduction (vph)	0	17	0	0	26	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	67	0	0	153	0	52	727	0	55	363	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.2			12.2		31.5	31.5		31.5	31.5	
Effective Green, g (s)		12.2			12.2		31.5	31.5		31.5	31.5	
Actuated g/C Ratio		0.20			0.20		0.53	0.53		0.53	0.53	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		316			293		535	963		242	979	
v/s Ratio Prot								c0.40			0.20	
v/s Ratio Perm		0.04			c0.11		0.05			0.12		
v/c Ratio		0.21			0.52		0.10	0.76		0.23	0.37	
Uniform Delay, d1		19.8			21.1		7.0	11.1		7.6	8.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			1.7		0.2	4.5		1.4	0.7	
Delay (s)		20.1			22.8		7.2	15.6		8.9	9.0	
Level of Service		C			C		A	B		A	A	
Approach Delay (s)		20.1			22.8			15.0			8.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	51	42	3	6	105
Future Volume (Veh/h)	110	51	42	3	6	105
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)	120	55	46	3	7	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		400				
pX, platoon unblocked						
vC, conflicting volume	49				342	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49				342	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	89
cM capacity (veh/h)	1558				603	1022

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	175	49	121
Volume Left	120	0	7
Volume Right	0	3	114
cSH	1558	1700	982
Volume to Capacity	0.08	0.03	0.12
Queue Length 95th (ft)	6	0	10
Control Delay (s)	5.3	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	5.3	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	6	8	0	7	127	8	597	1	35	331	71
Future Volume (Veh/h)	41	6	8	0	7	127	8	597	1	35	331	71
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	7	9	0	8	138	9	649	1	38	360	77
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1181	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	1284	1142	398	1154	1180	650	437			650		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1264	1110	299	1123	1152	650	341			650		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	49	96	99	100	95	71	99			96		
cM capacity (veh/h)	88	183	679	155	173	469	1117			936		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	61	146	659	475
Volume Left	45	0	9	38
Volume Right	9	138	1	77
cSH	108	429	1117	936
Volume to Capacity	0.56	0.34	0.01	0.04
Queue Length 95th (ft)	67	37	1	3
Control Delay (s)	74.4	17.7	0.2	1.2
Lane LOS	F	C	A	A
Approach Delay (s)	74.4	17.7	0.2	1.2
Approach LOS	F	C		

Intersection Summary				
Average Delay	5.8			
Intersection Capacity Utilization	65.0%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	634	19	9	808	116	3	9	5	24	11	26
Future Volume (Veh/h)	10	634	19	9	808	116	3	9	5	24	11	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	689	21	10	878	126	3	10	5	26	12	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1004			710			1654	1746	700	1682	1693	941
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1004			710			1654	1746	700	1682	1693	941
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			95	88	99	61	87	91
cM capacity (veh/h)	690			889			63	84	440	66	90	319

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	710	10	1004	18	66
Volume Left	11	0	10	0	3	26
Volume Right	0	21	0	126	5	28
cSH	690	1700	889	1700	101	107
Volume to Capacity	0.02	0.42	0.01	0.59	0.18	0.61
Queue Length 95th (ft)	1	0	1	0	15	76
Control Delay (s)	10.3	0.0	9.1	0.0	48.2	81.5
Lane LOS	B		A		E	F
Approach Delay (s)	0.2		0.1		48.2	81.5
Approach LOS					E	F

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	63.1%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	54	1	1	138	129	89
Future Volume (Veh/h)	54	1	1	138	129	89
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	1	1	150	140	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					330	
pX, platoon unblocked	0.97	0.97	0.97			
vC, conflicting volume	340	188	237			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	310	154	204			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	100	100			
cM capacity (veh/h)	664	869	1333			

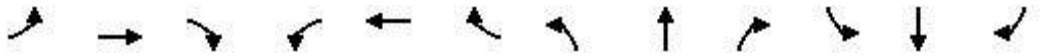
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	60	151	237
Volume Left	59	1	0
Volume Right	1	0	97
cSH	667	1333	1700
Volume to Capacity	0.09	0.00	0.14
Queue Length 95th (ft)	7	0	0
Control Delay (s)	10.9	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	10.9	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	9	22	0	293	15	139	11	115	98	15
Future Volume (Veh/h)	9	0	9	22	0	293	15	139	11	115	98	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	10	24	0	318	16	151	12	125	107	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						10						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	548	560	115	550	556	151	123			163		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	548	560	115	550	556	151	123			163		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1			4.4		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.5		
p0 queue free %	96	100	99	94	100	64	99			90		
cM capacity (veh/h)	260	389	937	392	391	872	1464			1252		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	342	167	12	125	123
Volume Left	10	24	16	0	125	0
Volume Right	10	318	0	12	0	16
cSH	407	938	1464	1700	1252	1700
Volume to Capacity	0.05	0.36	0.01	0.01	0.10	0.07
Queue Length 95th (ft)	4	42	1	0	8	0
Control Delay (s)	14.3	11.7	0.8	0.0	8.2	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.3	11.7	0.7		4.1	
Approach LOS	B	B				

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	39.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	745	1	108	875	0	12	0	177	0	0	0
Future Volume (vph)	0	745	1	108	875	0	12	0	177	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5			4.5	4.5			
Lane Util. Factor		1.00	1.00	1.00	1.00			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1863	1223	1367	1863			1626	1455			
Flt Permitted		1.00	1.00	0.09	1.00			0.76	1.00			
Satd. Flow (perm)		1863	1223	136	1863			1296	1455			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	810	1	117	951	0	13	0	192	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	146	0	0	0
Lane Group Flow (vph)	0	810	1	117	951	0	0	13	46	0	0	0
Heavy Vehicles (%)	2%	2%	32%	32%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm			
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)		41.7	41.7	54.4	54.4			20.0	20.0			
Effective Green, g (s)		41.7	41.7	54.4	54.4			20.0	20.0			
Actuated g/C Ratio		0.50	0.50	0.65	0.65			0.24	0.24			
Clearance Time (s)		4.5	4.5	4.5	4.5			4.5	4.5			
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		931	611	209	1215			310	348			
v/s Ratio Prot		c0.43		0.05	c0.51							
v/s Ratio Perm			0.00	0.31				0.01	c0.03			
v/c Ratio		0.87	0.00	0.56	0.78			0.04	0.13			
Uniform Delay, d1		18.5	10.4	14.5	10.3			24.3	24.9			
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2		8.9	0.0	3.2	3.4			0.3	0.8			
Delay (s)		27.3	10.4	17.8	13.7			24.6	25.7			
Level of Service		C	B	B	B			C	C			
Approach Delay (s)		27.3			14.1			25.6			0.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	14	10	43	14	7	14	179	33	2	102	8
Future Volume (Veh/h)	2	14	10	43	14	7	14	179	33	2	102	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	15	11	47	15	8	15	195	36	2	111	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1250	
pX, platoon unblocked												
vC, conflicting volume	378	380	116	381	367	213	120			231		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	378	380	116	381	367	213	120			231		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	99	92	97	99	99			100		
cM capacity (veh/h)	557	546	937	553	555	827	1468			1337		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	70	246	122
Volume Left	2	47	15	2
Volume Right	11	8	36	9
cSH	654	575	1468	1337
Volume to Capacity	0.04	0.12	0.01	0.00
Queue Length 95th (ft)	3	10	1	0
Control Delay (s)	10.8	12.1	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.8	12.1	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	35.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	202	0	0	28	5	149
Future Volume (Veh/h)	202	0	0	28	5	149
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)	220	0	0	30	5	162
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						7
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	30				455	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30				455	15
tC, single (s)	4.2				6.4	6.5
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.6
p0 queue free %	86				99	84
cM capacity (veh/h)	1526				482	984

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	220	30	167
Volume Left	220	0	5
Volume Right	0	30	162
cSH	1526	1700	1014
Volume to Capacity	0.14	0.02	0.16
Queue Length 95th (ft)	13	0	15
Control Delay (s)	7.8	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	7.8	0.0	9.5
Approach LOS			A

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	357	426	108	546	265	91
Future Volume (vph)	357	426	108	546	265	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5	4.0		7.5
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.96
Satd. Flow (prot)	1770	1583	1863	1583		1796
Flt Permitted	0.95	1.00	1.00	1.00		0.57
Satd. Flow (perm)	1770	1583	1863	1583		1054
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	463	117	593	288	99
RTOR Reduction (vph)	0	237	0	0	0	0
Lane Group Flow (vph)	388	226	117	593	0	387
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		Free	6	
Actuated Green, G (s)	24.7	36.0	20.1	73.6		36.4
Effective Green, g (s)	24.7	36.0	20.1	73.6		36.4
Actuated g/C Ratio	0.34	0.49	0.27	1.00		0.49
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	594	881	508	1583		635
v/s Ratio Prot	c0.22	0.04	0.06			c0.09
v/s Ratio Perm		0.10		0.37		c0.21
v/c Ratio	0.65	0.26	0.23	0.37		0.61
Uniform Delay, d1	20.8	11.0	20.7	0.0		13.5
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.5	0.2	0.5	0.7		1.7
Delay (s)	24.3	11.1	21.2	0.7		15.1
Level of Service	C	B	C	A		B
Approach Delay (s)	17.1		4.1			15.1
Approach LOS	B		A			B

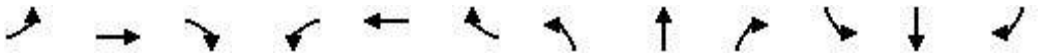
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	73.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1091	11	164	1007	25	14	35	135	16	43	48
Future Volume (vph)	50	1091	11	164	1007	25	14	35	135	16	43	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			6.0	4.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1856			1837	1583	1770	1716	
Flt Permitted	0.13	1.00	1.00	0.06	1.00			0.83	1.00	0.72	1.00	
Satd. Flow (perm)	245	1863	1583	110	1856			1555	1583	1346	1716	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	1186	12	178	1095	27	15	38	147	17	47	52
RTOR Reduction (vph)	0	0	4	0	1	0	0	0	0	0	33	0
Lane Group Flow (vph)	54	1186	9	178	1121	0	0	53	147	17	66	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6			4		Free	8		
Actuated Green, G (s)	86.0	82.0	82.0	94.0	86.0			8.0	120.0	8.0	8.0	
Effective Green, g (s)	88.0	85.0	85.0	96.0	89.0			10.0	120.0	10.0	10.0	
Actuated g/C Ratio	0.73	0.71	0.71	0.80	0.74			0.08	1.00	0.08	0.08	
Clearance Time (s)	6.0	8.0	8.0	6.0	8.0			8.0		8.0	8.0	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	243	1319	1121	212	1376			129	1583	112	143	
v/s Ratio Prot	0.01	c0.64		c0.06	0.60						c0.04	
v/s Ratio Perm	0.15		0.01	0.61				0.03	0.09	0.01		
v/c Ratio	0.22	0.90	0.01	0.84	0.81			0.41	0.09	0.15	0.46	
Uniform Delay, d1	12.8	14.1	5.1	37.5	10.1			52.2	0.0	51.1	52.4	
Progression Factor	1.00	1.00	1.00	2.19	1.07			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	10.0	0.0	17.1	3.6			2.1	0.1	0.6	2.4	
Delay (s)	13.2	24.0	5.1	99.4	14.4			54.3	0.1	51.7	54.8	
Level of Service	B	C	A	F	B			D	A	D	D	
Approach Delay (s)		23.4			26.1			14.5			54.3	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	541	643	133	354	819	91	154	145	280	102	75	222
Future Volume (vph)	541	643	133	354	819	91	154	145	280	102	75	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	3.0	0.0	4.0	3.0	3.0	2.0	2.0	4.0	2.0	2.0	2.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1641	1863	1583	1770	3539	1468	1770	1863	1583	1641	1863	1468
Flt Permitted	0.11	1.00	1.00	0.13	1.00	1.00	0.49	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	182	1863	1583	236	3539	1468	914	1863	1583	689	1863	1468
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	588	699	145	385	890	99	167	158	304	111	82	241
RTOR Reduction (vph)	0	0	0	0	0	69	0	0	0	0	0	212
Lane Group Flow (vph)	588	699	145	385	890	30	167	158	304	111	82	29
Heavy Vehicles (%)	10%	2%	2%	2%	2%	10%	2%	2%	2%	10%	2%	10%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		Free	6		6	4		Free	8		8
Actuated Green, G (s)	76.5	48.6	120.0	53.9	32.0	32.0	26.7	12.8	120.0	22.3	10.6	10.6
Effective Green, g (s)	78.5	52.6	120.0	57.9	36.0	36.0	34.5	16.8	120.0	30.3	14.6	14.6
Actuated g/C Ratio	0.65	0.44	1.00	0.48	0.30	0.30	0.29	0.14	1.00	0.25	0.12	0.12
Clearance Time (s)	6.0	7.0		6.0	7.0	7.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0	5.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	611	816	1583	419	1061	440	390	260	1583	298	226	178
v/s Ratio Prot	c0.32	0.38		0.18	0.25		c0.06	c0.08		0.05	0.04	
v/s Ratio Perm	c0.30		0.09	0.26		0.02	0.06		0.19	0.05		0.02
v/c Ratio	0.96	0.86	0.09	0.92	0.84	0.07	0.43	0.61	0.19	0.37	0.36	0.16
Uniform Delay, d1	32.6	30.3	0.0	33.3	39.3	30.0	33.8	48.5	0.0	36.1	48.4	47.2
Progression Factor	0.64	1.46	1.00	1.21	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.3	7.5	0.1	23.0	7.2	0.3	0.8	4.0	0.3	0.8	1.0	0.4
Delay (s)	41.1	51.9	0.1	63.2	44.3	30.3	34.5	52.5	0.3	36.9	49.4	47.7
Level of Service	D	D	A	E	D	C	C	D	A	D	D	D
Approach Delay (s)		42.2			48.6			22.5			45.2	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰	↱
Traffic Volume (vph)	0	1034	744	0	76	529
Future Volume (vph)	0	1034	744	0	76	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		5.0	3.0
Lane Util. Factor		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		1597	1417
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		1597	1417
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1124	809	0	83	575
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1124	809	0	83	575
Heavy Vehicles (%)	2%	2%	2%	2%	13%	14%
Turn Type		NA	NA		Prot	Free
Protected Phases		2	6		4	
Permitted Phases						Free
Actuated Green, G (s)		97.2	97.2		10.3	120.0
Effective Green, g (s)		99.2	99.2		11.3	120.0
Actuated g/C Ratio		0.83	0.83		0.09	1.00
Clearance Time (s)		6.5	6.5		6.0	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		1540	1540		150	1417
v/s Ratio Prot		c0.60	0.43		0.05	
v/s Ratio Perm						c0.41
v/c Ratio		0.73	0.53		0.55	0.41
Uniform Delay, d1		4.5	3.2		51.9	0.0
Progression Factor		1.61	1.00		1.00	1.00
Incremental Delay, d2		2.4	1.3		4.4	0.9
Delay (s)		9.7	4.5		56.3	0.9
Level of Service		A	A		E	A
Approach Delay (s)		9.7	4.5		7.9	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	440	665	740	0	0	0
Future Volume (Veh/h)	440	665	740	0	0	0
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)	478	723	804	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		590				
pX, platoon unblocked						
vC, conflicting volume	804				2122	804
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	804				2122	804
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	38				100	100
cM capacity (veh/h)	766				16	326

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	719	482	804
Volume Left	478	0	0
Volume Right	0	0	0
cSH	766	1700	1700
Volume to Capacity	0.62	0.28	0.47
Queue Length 95th (ft)	111	0	0
Control Delay (s)	15.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	9.3		0.0
Approach LOS			

Intersection Summary			
Average Delay		5.6	
Intersection Capacity Utilization		76.8%	ICU Level of Service D
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	665	740	239	0	0
Future Volume (Veh/h)	0	665	740	239	0	0
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	723	804	260	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1072				
pX, platoon unblocked						
vC, conflicting volume	1064				1296	934
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1064				1296	934
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	100
cM capacity (veh/h)	651				154	267

Direction, Lane #	EB 1	EB 2	WB 1
Volume Total	362	362	1064
Volume Left	0	0	0
Volume Right	0	0	260
cSH	1700	1700	1700
Volume to Capacity	0.21	0.21	0.63
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

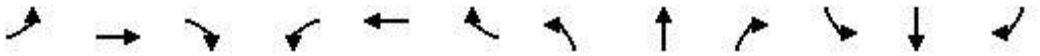
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		56.8%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	5	0	545	252	206
Future Volume (Veh/h)	120	5	0	545	252	206
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	5	0	592	274	224
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1067	
pX, platoon unblocked						
vC, conflicting volume	866	274	498			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	866	274	498			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	60	99	100			
cM capacity (veh/h)	324	765	1066			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	135	592	274	224
Volume Left	130	0	0	0
Volume Right	5	0	0	224
cSH	331	1066	1700	1700
Volume to Capacity	0.41	0.00	0.16	0.13
Queue Length 95th (ft)	48	0	0	0
Control Delay (s)	23.2	0.0	0.0	0.0
Lane LOS	C			
Approach Delay (s)	23.2	0.0	0.0	
Approach LOS	C			

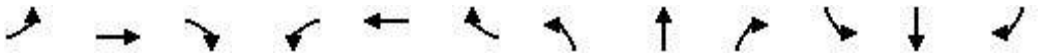
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	55	108	9	18	140	15	7	9	12	11	12	78
Future Volume (vph)	55	108	9	18	140	15	7	9	12	11	12	78
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	117	10	20	152	16	8	10	13	12	13	85

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	187	188	31	110
Volume Left (vph)	60	20	8	12
Volume Right (vph)	10	16	13	85
Hadj (s)	0.07	0.00	-0.17	-0.41
Departure Headway (s)	4.5	4.4	4.7	4.4
Degree Utilization, x	0.23	0.23	0.04	0.13
Capacity (veh/h)	768	771	688	749
Control Delay (s)	8.9	8.8	7.9	8.1
Approach Delay (s)	8.9	8.8	7.9	8.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.6			
Level of Service	A			
Intersection Capacity Utilization	34.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	35	19	78	33	53	48	598	87	51	330	8
Future Volume (vph)	23	35	19	78	33	53	48	598	87	51	330	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1773			1740		1770	1827		1770	1856	
Flt Permitted		0.86			0.81		0.54	1.00		0.24	1.00	
Satd. Flow (perm)		1548			1437		1010	1827		446	1856	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	38	21	85	36	58	52	650	95	55	359	9
RTOR Reduction (vph)	0	17	0	0	26	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	67	0	0	153	0	52	738	0	55	367	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.2			12.2		31.9	31.9		31.9	31.9	
Effective Green, g (s)		12.2			12.2		31.9	31.9		31.9	31.9	
Actuated g/C Ratio		0.20			0.20		0.53	0.53		0.53	0.53	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Vehicle Extension (s)		3.0			3.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		314			291		536	969		236	985	
v/s Ratio Prot								c0.40			0.20	
v/s Ratio Perm		0.04			c0.11		0.05			0.12		
v/c Ratio		0.21			0.52		0.10	0.76		0.23	0.37	
Uniform Delay, d1		20.0			21.4		7.0	11.1		7.5	8.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			1.7		0.2	4.6		1.4	0.7	
Delay (s)		20.3			23.1		7.2	15.7		9.0	8.9	
Level of Service		C			C		A	B		A	A	
Approach Delay (s)		20.3			23.1			15.2			8.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	51	42	3	6	105
Future Volume (Veh/h)	110	51	42	3	6	105
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)	120	55	46	3	7	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		400				
pX, platoon unblocked						
vC, conflicting volume	49				342	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49				342	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	89
cM capacity (veh/h)	1558				603	1022

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	175	49	121
Volume Left	120	0	7
Volume Right	0	3	114
cSH	1558	1700	982
Volume to Capacity	0.08	0.03	0.12
Queue Length 95th (ft)	6	0	10
Control Delay (s)	5.3	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	5.3	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	6	8	0	7	127	8	607	1	35	334	71
Future Volume (Veh/h)	41	6	8	0	7	127	8	607	1	35	334	71
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	7	9	0	8	138	9	660	1	38	363	77
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1181	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91		0.91					
vC, conflicting volume	1298	1156	402	1168	1194	660	440			661		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1279	1125	299	1138	1166	660	342			661		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	47	96	99	100	95	70	99			96		
cM capacity (veh/h)	85	179	677	151	169	463	1114			927		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	61	146	670	478
Volume Left	45	0	9	38
Volume Right	9	138	1	77
cSH	105	422	1114	927
Volume to Capacity	0.58	0.35	0.01	0.04
Queue Length 95th (ft)	69	38	1	3
Control Delay (s)	78.7	18.0	0.2	1.2
Lane LOS	F	C	A	A
Approach Delay (s)	78.7	18.0	0.2	1.2
Approach LOS	F	C		

Intersection Summary				
Average Delay	6.0			
Intersection Capacity Utilization	65.2%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	744	19	9	856	116	3	9	5	24	11	26
Future Volume (Veh/h)	10	744	19	9	856	116	3	9	5	24	11	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	809	21	10	930	126	3	10	5	26	12	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1056			830			1826	1918	820	1854	1865	993
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1056			830			1826	1918	820	1854	1865	993
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			93	85	99	46	83	91
cM capacity (veh/h)	659			802			46	65	375	48	71	298

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	11	830	10	1056	18	66
Volume Left	11	0	10	0	3	26
Volume Right	0	21	0	126	5	28
cSH	659	1700	802	1700	78	82
Volume to Capacity	0.02	0.49	0.01	0.62	0.23	0.80
Queue Length 95th (ft)	1	0	1	0	20	102
Control Delay (s)	10.6	0.0	9.5	0.0	64.8	137.7
Lane LOS	B		A		F	F
Approach Delay (s)	0.1		0.1		64.8	137.7
Approach LOS					F	F

Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	65.6%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	127	163	0	0	9
Future Volume (Veh/h)	2	127	163	0	0	9
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)	2	138	177	0	0	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	177				319	177
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	177				319	177
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1399				673	866

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	140	177	10
Volume Left	2	0	0
Volume Right	0	0	10
cSH	1399	1700	866
Volume to Capacity	0.00	0.10	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.1	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		18.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	54	1	1	138	129	89
Future Volume (Veh/h)	54	1	1	138	129	89
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	1	1	150	140	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					330	
pX, platoon unblocked	0.97	0.97	0.97			
vC, conflicting volume	340	188	140			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	310	154	105			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	100	100			
cM capacity (veh/h)	664	869	1449			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	60	151	237
Volume Left	59	1	0
Volume Right	1	0	97
cSH	667	1449	1700
Volume to Capacity	0.09	0.00	0.14
Queue Length 95th (ft)	7	0	0
Control Delay (s)	10.9	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	10.9	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		

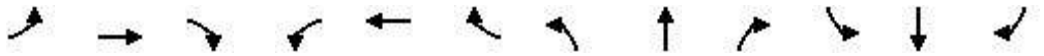
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	9	22	0	406	15	139	11	159	98	15
Future Volume (Veh/h)	9	0	9	22	0	406	15	139	11	159	98	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	10	24	0	441	16	151	12	173	107	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						10						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	644	656	115	646	652	151	123			163		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	644	656	115	646	652	151	123			163		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.1			4.4		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.5		
p0 queue free %	94	100	99	93	100	49	99			86		
cM capacity (veh/h)	169	328	937	327	330	872	1464			1252		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	465	167	12	173	123
Volume Left	10	24	16	0	173	0
Volume Right	10	441	0	12	0	16
cSH	287	920	1464	1700	1252	1700
Volume to Capacity	0.07	0.51	0.01	0.01	0.14	0.07
Queue Length 95th (ft)	6	73	1	0	12	0
Control Delay (s)	18.5	13.5	0.8	0.0	8.3	0.0
Lane LOS	C	B	A		A	
Approach Delay (s)	18.5	13.5	0.7		4.9	
Approach LOS	C	B				

Intersection Summary				
Average Delay	8.5			
Intersection Capacity Utilization	46.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	853	3	152	918	0	17	0	285	0	0	0
Future Volume (vph)	0	853	3	152	918	0	17	0	285	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5			4.5	4.5			
Lane Util. Factor		1.00	1.00	1.00	1.00			1.00	1.00			
Frt		1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1863	1223	1367	1863			1626	1455			
Flt Permitted		1.00	1.00	0.07	1.00			0.76	1.00			
Satd. Flow (perm)		1863	1223	101	1863			1296	1455			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	927	3	165	998	0	18	0	310	0	0	0
RTOR Reduction (vph)	0	0	1	0	0	0	0	0	199	0	0	0
Lane Group Flow (vph)	0	927	2	165	998	0	0	18	111	0	0	0
Heavy Vehicles (%)	2%	2%	32%	32%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm			
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)		52.7	52.7	67.3	67.3			20.1	20.1			
Effective Green, g (s)		52.7	52.7	67.3	67.3			20.1	20.1			
Actuated g/C Ratio		0.55	0.55	0.70	0.70			0.21	0.21			
Clearance Time (s)		4.5	4.5	4.5	4.5			4.5	4.5			
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		1018	668	203	1300			270	303			
v/s Ratio Prot		c0.50		0.09	c0.54							
v/s Ratio Perm			0.00	0.48				0.01	c0.08			
v/c Ratio		0.91	0.00	0.81	0.77			0.07	0.36			
Uniform Delay, d1		19.7	9.9	28.0	9.5			30.6	32.7			
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2		11.9	0.0	21.4	2.8			0.5	3.4			
Delay (s)		31.6	9.9	49.4	12.2			31.1	36.1			
Level of Service		C	A	D	B			C	D			
Approach Delay (s)		31.6			17.5			35.8			0.0	
Approach LOS		C			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	96.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	14	10	43	14	7	14	292	33	2	148	8
Future Volume (Veh/h)	2	14	10	43	14	7	14	292	33	2	148	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	15	11	47	15	8	15	317	36	2	161	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1250	
pX, platoon unblocked												
vC, conflicting volume	550	552	166	553	539	335	170			353		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	550	552	166	553	539	335	170			353		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	99	89	97	99	99			100		
cM capacity (veh/h)	425	436	879	423	444	707	1407			1206		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	70	368	172
Volume Left	2	47	15	2
Volume Right	11	8	36	9
cSH	542	448	1407	1206
Volume to Capacity	0.05	0.16	0.01	0.00
Queue Length 95th (ft)	4	14	1	0
Control Delay (s)	12.0	14.5	0.4	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	12.0	14.5	0.4	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	315	0	0	28	5	195
Future Volume (Veh/h)	315	0	0	28	5	195
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)	342	0	0	30	5	212
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						7
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	30				699	15
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30				699	15
tC, single (s)	4.2				6.4	6.5
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.6
p0 queue free %	78				98	78
cM capacity (veh/h)	1526				315	984

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	342	30	217
Volume Left	342	0	5
Volume Right	0	30	212
cSH	1526	1700	1007
Volume to Capacity	0.22	0.02	0.22
Queue Length 95th (ft)	22	0	20
Control Delay (s)	8.0	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	8.0	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	502	142	57	426	531	65
Future Volume (vph)	502	142	57	426	531	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	7.5	4.0		7.5
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.96
Satd. Flow (prot)	1770	1583	1863	1583		1783
Flt Permitted	0.95	1.00	1.00	1.00		0.63
Satd. Flow (perm)	1770	1583	1863	1583		1181
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	546	154	62	463	577	71
RTOR Reduction (vph)	0	81	0	0	0	0
Lane Group Flow (vph)	546	73	62	463	0	648
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		Free	6	
Actuated Green, G (s)	39.5	56.6	44.5	118.6		66.6
Effective Green, g (s)	39.5	56.6	44.5	118.6		66.6
Actuated g/C Ratio	0.33	0.48	0.38	1.00		0.56
Clearance Time (s)	5.0	5.0	7.5			7.5
Vehicle Extension (s)	5.0	3.0	5.0			3.0
Lane Grp Cap (vph)	589	822	699	1583		749
v/s Ratio Prot	c0.31	0.01	0.03			c0.12
v/s Ratio Perm		0.03		0.29		c0.36
v/c Ratio	0.93	0.09	0.09	0.29		0.87
Uniform Delay, d1	38.2	16.9	23.9	0.0		22.2
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	21.6	0.0	0.1	0.5		10.2
Delay (s)	59.7	17.0	24.1	0.5		32.4
Level of Service	E	B	C	A		C
Approach Delay (s)	50.3		3.3			32.4
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	LT
Maximum Queue (ft)	137	67	95	388
Average Queue (ft)	56	37	45	159
95th Queue (ft)	110	59	78	295
Link Distance (ft)	294		998	3303
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		275		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: MD 222 & MD 275 & MD 824

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	T	L	TR	LT	L	TR
Maximum Queue (ft)	47	195	52	124	62	72	54
Average Queue (ft)	9	78	12	33	24	31	15
95th Queue (ft)	32	166	38	84	53	66	40
Link Distance (ft)		1122		287	264		1635
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		250			60	
Storage Blk Time (%)		0				4	0
Queuing Penalty (veh)		0				1	0

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	L	T	T	L	T	L	T
Maximum Queue (ft)	214	157	54	109	96	46	46	248	55
Average Queue (ft)	86	58	15	36	25	11	13	113	20
95th Queue (ft)	164	125	38	79	68	37	38	207	48
Link Distance (ft)	609	609		582	582		709		807
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			530			350		400	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 4: MD 222 & I-95 NB Off-Ramp

Movement	EB	WB	SB	SB
Directions Served	T	T	L	R
Maximum Queue (ft)	129	155	134	91
Average Queue (ft)	41	28	54	45
95th Queue (ft)	107	97	109	77
Link Distance (ft)	889	553	502	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				185
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: MD 222 & I-95 NB On-Ramp

Movement	EB
Directions Served	LT
Maximum Queue (ft)	81
Average Queue (ft)	23
95th Queue (ft)	60
Link Distance (ft)	553
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: MD 222 & I95 NB On-Ramp

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

Intersection: 7: MD 276 & Waibel Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	85
Average Queue (ft)	41
95th Queue (ft)	68
Link Distance (ft)	800
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: MD 276 & MD 222

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	79	39	34	30
Average Queue (ft)	35	15	11	14
95th Queue (ft)	57	39	31	33
Link Distance (ft)	746	789	196	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: MD 276 & Firetower Road/Camp Meeting Ground Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	89	73	28	91	47	142
Average Queue (ft)	34	35	5	33	14	63
95th Queue (ft)	67	66	21	76	41	119
Link Distance (ft)	524	350		1124		1531
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			300		325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: Camp Meeting Ground Road & Theodore Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	34	38
Average Queue (ft)	2	14
95th Queue (ft)	16	29
Link Distance (ft)	350	905
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: MD 276 & Doctor Jack Road/Craigtown Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	66	56	48
Average Queue (ft)	28	23	6
95th Queue (ft)	55	46	28
Link Distance (ft)	552	579	1124
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Craigtown Road & MD 275

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	22	11	47	77
Average Queue (ft)	2	1	16	31
95th Queue (ft)	13	7	44	65
Link Distance (ft)			521	529
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	270	270		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: MD 222 & Craigtown Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	42
Average Queue (ft)	15
95th Queue (ft)	37
Link Distance (ft)	491
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: MD 276 & Homestead Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	36	11
Average Queue (ft)	16	0
95th Queue (ft)	41	6
Link Distance (ft)	238	1295
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Diamond Jim Road/Ind. Driveway & MD 275

Movement	EB	WB	NB	NB	SB
Directions Served	LT	LT	LT	R	LTR
Maximum Queue (ft)	9	47	5	24	26
Average Queue (ft)	0	2	0	4	10
95th Queue (ft)	4	24	5	19	30
Link Distance (ft)	309	290	1120		686
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				300	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 17: Craigtown Road & Diamond Jim Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	34
Average Queue (ft)	0	11
95th Queue (ft)	4	34
Link Distance (ft)	459	1120
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Hendley Parkway/Preston Drive & Manor Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	49
Average Queue (ft)	26
95th Queue (ft)	47
Link Distance (ft)	371
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Manor Road & Craigtown Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	23	61
Average Queue (ft)	1	24
95th Queue (ft)	11	49
Link Distance (ft)	509	371
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	B22	NB	SB
Directions Served	L	R	T	T	LT
Maximum Queue (ft)	362	294	109	81	394
Average Queue (ft)	217	71	10	25	202
95th Queue (ft)	356	216	67	63	340
Link Distance (ft)	294		633	998	3303
Upstream Blk Time (%)	5	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)		275			
Storage Blk Time (%)	6	0			
Queuing Penalty (veh)	8	1			

Intersection: 2: MD 222 & MD 275 & MD 824

Movement	EB	EB	WB	WB	B61	NB	SB	SB
Directions Served	L	T	L	TR	T	LT	L	TR
Maximum Queue (ft)	42	211	78	141	24	83	79	81
Average Queue (ft)	14	78	24	28	1	29	32	18
95th Queue (ft)	38	163	56	82	11	66	67	52
Link Distance (ft)		1122		287	592	264		1635
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		250				60	
Storage Blk Time (%)		0					3	0
Queuing Penalty (veh)		0					1	0

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	L	T	T	L	T	R	L	T
Maximum Queue (ft)	291	291	225	161	135	183	289	179	208	148
Average Queue (ft)	140	145	96	91	74	61	124	18	94	59
95th Queue (ft)	234	246	168	146	124	121	236	118	175	120
Link Distance (ft)	592	592		700	700		710			809
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			530			220		200	400	
Storage Blk Time (%)							2	0		
Queuing Penalty (veh)							8	0		

Intersection: 4: MD 222 & I-95 NB Off-Ramp

Movement	EB	B55	WB	SB
Directions Served	T	T	T	L
Maximum Queue (ft)	166	278	108	133
Average Queue (ft)	36	9	32	55
95th Queue (ft)	105	141	84	115
Link Distance (ft)	334	700	540	
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: MD 222 & I-95 NB On-Ramp

Movement	EB	WB
Directions Served	LT	T
Maximum Queue (ft)	94	4
Average Queue (ft)	44	0
95th Queue (ft)	80	3
Link Distance (ft)	540	438
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: MD 222 & I95 NB On-Ramp

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

Intersection: 7: MD 276 & Waibel Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	196
Average Queue (ft)	74
95th Queue (ft)	138
Link Distance (ft)	800
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: MD 276 & MD 222

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	70	52	25	35
Average Queue (ft)	39	23	12	17
95th Queue (ft)	61	45	32	37
Link Distance (ft)	746	789	196	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: MD 276 & Firetower Road/Camp Meeting Ground Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	79	98	28	102	70	172
Average Queue (ft)	36	41	3	34	19	70
95th Queue (ft)	66	79	16	76	49	130
Link Distance (ft)	524	350		1124		1531
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			300		325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: Camp Meeting Ground Road & Theodore Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	40	44
Average Queue (ft)	5	15
95th Queue (ft)	25	30
Link Distance (ft)	350	905
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: MD 276 & Doctor Jack Road/Craigtown Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	78	56	58
Average Queue (ft)	33	25	6
95th Queue (ft)	63	47	29
Link Distance (ft)	552	579	1124
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Craigtown Road & MD 275

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	35	11	3	51	165
Average Queue (ft)	4	0	0	19	63
95th Queue (ft)	19	6	2	46	157
Link Distance (ft)			307	521	527
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	270	270			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: MD 222 & Craigtown Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	45
Average Queue (ft)	18
95th Queue (ft)	37
Link Distance (ft)	491
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: MD 276 & Homestead Drive/Powers Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LT	LT	L
Maximum Queue (ft)	41	34	6	88
Average Queue (ft)	17	3	0	28
95th Queue (ft)	40	19	6	73
Link Distance (ft)	329	1068	1292	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				350
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: Diamond Jim Road/Ind. Driveway & MD 275

Movement	EB	WB	NB	NB	SB
Directions Served	LT	LT	LT	R	LTR
Maximum Queue (ft)	46	25	5	24	40
Average Queue (ft)	3	1	0	5	11
95th Queue (ft)	21	12	4	20	33
Link Distance (ft)	309	290	1120		686
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				300	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 17: Craigtown Road & Diamond Jim Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	33
Average Queue (ft)	0	10
95th Queue (ft)	4	32
Link Distance (ft)	459	1120
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Hendley Parkway/Preston Drive & Manor Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	26
95th Queue (ft)	48
Link Distance (ft)	371
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Manor Road & Craigtown Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	31	41
Average Queue (ft)	1	25
95th Queue (ft)	12	45
Link Distance (ft)	509	371
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Bend

Movement	SE
Directions Served	T
Maximum Queue (ft)	184
Average Queue (ft)	10
95th Queue (ft)	101
Link Distance (ft)	294
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 18

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	B22	NB	SB
Directions Served	L	R	T	T	LT
Maximum Queue (ft)	333	292	12	66	360
Average Queue (ft)	172	52	0	20	191
95th Queue (ft)	282	150	8	56	312
Link Distance (ft)	294		633	998	3303
Upstream Blk Time (%)	1	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)		275			
Storage Blk Time (%)	1	0			
Queuing Penalty (veh)	2	0			

Intersection: 2: MD 222 & MD 275 & MD 824

Movement	EB	EB	WB	WB	B58	NB	SB	SB
Directions Served	L	T	L	TR	T	LT	L	TR
Maximum Queue (ft)	89	290	91	151	54	90	74	66
Average Queue (ft)	19	114	32	39	2	30	33	17
95th Queue (ft)	58	235	71	103	40	67	71	47
Link Distance (ft)		1122		287	594	264		1635
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		250				60	
Storage Blk Time (%)		1					5	0
Queuing Penalty (veh)		0					1	0

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	EB	EB	WB	WB	WB	B59	NB	NB	NB	SB	SB
Directions Served	L	T	L	T	T	T	L	T	R	L	T
Maximum Queue (ft)	329	306	200	181	182	64	154	229	88	219	127
Average Queue (ft)	169	180	102	106	94	2	57	108	6	92	61
95th Queue (ft)	278	289	169	166	158	45	113	193	65	177	111
Link Distance (ft)	594	594		672	672	341		710			807
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			530				220		200	400	
Storage Blk Time (%)								1	0		
Queuing Penalty (veh)								3	0		

Intersection: 4: MD 222 & I-95 NB Off-Ramp

Movement	EB	WB	SB
Directions Served	T	T	L
Maximum Queue (ft)	190	127	143
Average Queue (ft)	54	35	56
95th Queue (ft)	147	94	114
Link Distance (ft)	341	541	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: MD 222 & I-95 NB On-Ramp

Movement	EB	WB
Directions Served	LT	T
Maximum Queue (ft)	137	4
Average Queue (ft)	48	0
95th Queue (ft)	100	3
Link Distance (ft)	541	438
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: MD 222 & I95 NB On-Ramp

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

Intersection: 7: MD 276 & Waibel Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	199
Average Queue (ft)	82
95th Queue (ft)	150
Link Distance (ft)	800
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: MD 276 & MD 222

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	79	47	30	36
Average Queue (ft)	40	22	11	17
95th Queue (ft)	64	45	32	38
Link Distance (ft)	746	789	196	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: MD 276 & Firetower Road/Camp Meeting Ground Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	102	111	35	112	60	186
Average Queue (ft)	37	42	6	36	18	72
95th Queue (ft)	75	82	25	81	45	143
Link Distance (ft)	524	350		1124		1531
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			300		325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: Camp Meeting Ground Road & Theodore Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	36	39
Average Queue (ft)	3	15
95th Queue (ft)	20	30
Link Distance (ft)	350	905
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: MD 276 & Doctor Jack Road/Craigtown Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	83	58	46
Average Queue (ft)	32	26	4
95th Queue (ft)	62	47	22
Link Distance (ft)	552	579	1124
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Craigtown Road & MD 275

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	31	11	3	81	113
Average Queue (ft)	4	1	0	23	46
95th Queue (ft)	20	8	2	59	92
Link Distance (ft)			320	521	529
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	270	270			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: MD 222 & Craigtown Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	62
Average Queue (ft)	25
95th Queue (ft)	46
Link Distance (ft)	491
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: MD 276 & Homestead Drive/Powers Road

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LT	LT	R	L
Maximum Queue (ft)	43	54	10	11	116
Average Queue (ft)	18	10	0	0	30
95th Queue (ft)	43	35	7	8	82
Link Distance (ft)	234	1068	1290		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				400	350
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 16: Diamond Jim Road/Ind. Driveway & MD 275

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	R	LT	R	LTR
Maximum Queue (ft)	64	610	19	244	188	22	52	147	47
Average Queue (ft)	3	290	1	108	86	2	7	61	10
95th Queue (ft)	40	479	9	190	161	14	33	124	36
Link Distance (ft)		1379			1183		1170		679
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	250		630	400		250		300	
Storage Blk Time (%)		11							
Queuing Penalty (veh)		1							

Intersection: 17: Diamond Jim Road & Craigtown Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	55	64	29	6
Average Queue (ft)	27	27	3	0
95th Queue (ft)	51	52	19	4
Link Distance (ft)	339	588	344	1170
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Powers Road/Preston Drive & Diamond Jim Road

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	52	8	61	100
Average Queue (ft)	8	0	28	54
95th Queue (ft)	33	5	52	84
Link Distance (ft)	470	548	344	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				175
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 22: Bend

Movement	SE
Directions Served	T
Maximum Queue (ft)	128
Average Queue (ft)	12
95th Queue (ft)	112
Link Distance (ft)	294
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 8

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	B22	NB	SB
Directions Served	L	R	T	T	LT
Maximum Queue (ft)	378	294	301	79	406
Average Queue (ft)	253	97	35	25	214
95th Queue (ft)	397	276	165	61	336
Link Distance (ft)	294		633	998	3303
Upstream Blk Time (%)	11	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)		275			
Storage Blk Time (%)	13	0			
Queuing Penalty (veh)	18	1			

Intersection: 2: MD 222 & MD 275 & MD 824

Movement	EB	EB	WB	WB	B62	B62	NB	SB	SB
Directions Served	L	T	L	TR	T		LT	L	TR
Maximum Queue (ft)	222	396	76	223	314	21	74	72	57
Average Queue (ft)	29	147	31	70	20	1	27	30	20
95th Queue (ft)	95	314	66	173	134	9	63	65	49
Link Distance (ft)		1122		287	597	597	264		1635
Upstream Blk Time (%)				0					
Queuing Penalty (veh)				1					
Storage Bay Dist (ft)	200		250					60	
Storage Blk Time (%)		2		0				3	0
Queuing Penalty (veh)		1		0				1	0

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	EB	EB	WB	WB	WB	B63	NB	NB	NB	SB	SB	SB
Directions Served	L	T	L	T	T	T	L	T	R	L	T	R
Maximum Queue (ft)	419	364	234	209	202	265	144	253	134	221	134	175
Average Queue (ft)	215	188	115	138	123	13	59	97	7	88	60	8
95th Queue (ft)	361	322	199	200	189	121	115	178	73	163	114	77
Link Distance (ft)	597	597		701	701	336		709			807	
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						0						
Storage Bay Dist (ft)			530				220		200	400		450
Storage Blk Time (%)								1	0			
Queuing Penalty (veh)								3	0			

Intersection: 4: MD 222 & I-95 NB Off-Ramp

Movement	EB	B55	WB	SB
Directions Served	T	T	T	L
Maximum Queue (ft)	215	141	126	136
Average Queue (ft)	65	9	40	54
95th Queue (ft)	177	142	103	112
Link Distance (ft)	336	701	541	
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: MD 222 & I-95 NB On-Ramp

Movement	EB	EB	WB
Directions Served	LT	T	T
Maximum Queue (ft)	132	25	4
Average Queue (ft)	59	1	0
95th Queue (ft)	107	17	3
Link Distance (ft)	541	541	438
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: MD 222 & I95 NB On-Ramp

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

Intersection: 7: MD 276 & Waibel Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	240
Average Queue (ft)	106
95th Queue (ft)	194
Link Distance (ft)	800
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: MD 276 & MD 222

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	90	52	30	48
Average Queue (ft)	44	25	11	18
95th Queue (ft)	69	47	31	40
Link Distance (ft)	746	789	196	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: MD 276 & Firetower Road/Camp Meeting Ground Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	86	112	29	123	57	184
Average Queue (ft)	37	46	5	37	20	75
95th Queue (ft)	72	88	21	83	49	145
Link Distance (ft)	524	350		1124		1531
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			300		325	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: Camp Meeting Ground Road & Theodore Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	43	38
Average Queue (ft)	4	15
95th Queue (ft)	24	29
Link Distance (ft)	350	905
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: MD 276 & Doctor Jack Road/Craigtown Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	81	53	62
Average Queue (ft)	32	24	6
95th Queue (ft)	61	45	34
Link Distance (ft)	552	579	1124
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Craigtown Road & MD 275

Movement	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR
Maximum Queue (ft)	27	3	64	144
Average Queue (ft)	4	0	25	53
95th Queue (ft)	21	2	56	114
Link Distance (ft)		319	521	529
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	270			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 13: MD 222 & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	34
Average Queue (ft)	0	4
95th Queue (ft)	5	21
Link Distance (ft)	468	596
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: MD 222 & Craigtown Road

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	59	11
Average Queue (ft)	25	0
95th Queue (ft)	46	5
Link Distance (ft)	491	369
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: MD 276 & Homestead Dr/Powers Road

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LT	LT	R	L
Maximum Queue (ft)	48	45	10	8	120
Average Queue (ft)	19	8	0	0	42
95th Queue (ft)	46	30	5	5	102
Link Distance (ft)	277	1069	1289		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				400	350
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 16: Diamond Jim Road/Ind. Driveway & MD 275

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	R	LT	R	LTR
Maximum Queue (ft)	15	815	145	378	623	33	53	266	43
Average Queue (ft)	2	416	6	227	160	3	8	103	13
95th Queue (ft)	11	719	95	384	523	17	34	198	37
Link Distance (ft)		1379			1183		1170		679
Upstream Blk Time (%)					1				
Queuing Penalty (veh)					0				
Storage Bay Dist (ft)	250		630	400		250		300	
Storage Blk Time (%)		22	0	3	0			0	
Queuing Penalty (veh)		3	0	24	1			0	

Intersection: 17: Diamond Jim Road & Craigtown Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	67	65	56	16
Average Queue (ft)	27	28	7	1
95th Queue (ft)	55	57	33	10
Link Distance (ft)	339	588	344	1170
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Powers Road/Preston Drive & Diamond Jim Road

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	73	66	128
Average Queue (ft)	13	31	77
95th Queue (ft)	49	55	112
Link Distance (ft)	470	344	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			175
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 22: Bend

Movement	SE
Directions Served	T
Maximum Queue (ft)	196
Average Queue (ft)	7
95th Queue (ft)	82
Link Distance (ft)	294
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 53

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	LT
Maximum Queue (ft)	177	158	154	217
Average Queue (ft)	83	70	53	89
95th Queue (ft)	140	116	111	171
Link Distance (ft)	294		998	3303
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		275		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: MD 222 & MD 275 & MD 824

Movement	EB	EB	WB	WB	B54	B61	B61	NB	SB	SB
Directions Served	L	T	L	TR	T	T		LT	L	TR
Maximum Queue (ft)	64	181	157	342	27	200	71	83	80	135
Average Queue (ft)	16	61	33	113	1	7	2	33	18	50
95th Queue (ft)	44	135	90	249	12	82	44	72	55	102
Link Distance (ft)		1122		287	332	609	609	264		1635
Upstream Blk Time (%)			0	0						
Queuing Penalty (veh)			0	4						
Storage Bay Dist (ft)	200		250						60	
Storage Blk Time (%)		0		1					0	8
Queuing Penalty (veh)		0		1					0	1

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	L	T	T	L	T	L	T
Maximum Queue (ft)	197	174	84	191	194	101	109	167	92
Average Queue (ft)	92	68	30	99	84	38	43	80	26
95th Queue (ft)	160	142	62	170	162	83	89	143	64
Link Distance (ft)	609	609		582	582		709		807
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			530			350		400	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 4: MD 222 & I-95 NB Off-Ramp

Movement	EB	WB	SB	SB
Directions Served	T	T	L	R
Maximum Queue (ft)	163	232	267	209
Average Queue (ft)	57	86	79	117
95th Queue (ft)	128	175	172	197
Link Distance (ft)	889	553	502	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				185
Storage Blk Time (%)			0	2
Queuing Penalty (veh)			1	2

Intersection: 5: MD 222 & I-95 NB On-Ramp

Movement	EB	EB
Directions Served	LT	T
Maximum Queue (ft)	89	11
Average Queue (ft)	31	0
95th Queue (ft)	67	8
Link Distance (ft)	553	553
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: MD 222 & I95 NB On-Ramp

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

Intersection: 7: MD 276 & Waibel Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	28
95th Queue (ft)	48
Link Distance (ft)	800
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: MD 276 & MD 222

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	76	68	29	53
Average Queue (ft)	38	36	14	25
95th Queue (ft)	64	55	35	44
Link Distance (ft)	746	789	196	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: MD 276 & Firetower Road/Camp Meeting Ground Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	86	146	64	261	74	135
Average Queue (ft)	39	65	24	115	26	56
95th Queue (ft)	75	114	55	205	57	110
Link Distance (ft)	524	350		1124		1531
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			300		325	
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 10: Camp Meeting Ground Road & Theodore Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	31	58
Average Queue (ft)	4	20
95th Queue (ft)	22	41
Link Distance (ft)	350	905
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: MD 276 & Doctor Jack Road/Craigtown Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	91	98	47	74
Average Queue (ft)	31	42	3	16
95th Queue (ft)	64	75	20	52
Link Distance (ft)	552	579	3303	1124
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Craigtown Road & MD 275

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	25	26	4	34	67
Average Queue (ft)	2	2	0	12	27
95th Queue (ft)	14	13	3	36	57
Link Distance (ft)			326	521	529
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	270	270			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: MD 222 & Craigtown Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	15
95th Queue (ft)	40
Link Distance (ft)	491
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: MD 276 & Homestead Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	36	15
Average Queue (ft)	13	1
95th Queue (ft)	38	7
Link Distance (ft)	238	1295
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Diamond Jim Road/Ind. Driveway & MD 275

Movement	WB	NB	NB
Directions Served	LT	LT	R
Maximum Queue (ft)	84	31	23
Average Queue (ft)	6	5	3
95th Queue (ft)	42	22	15
Link Distance (ft)	290	1120	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Craigtown Road & Diamond Jim Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	34
Average Queue (ft)	8
95th Queue (ft)	29
Link Distance (ft)	1120
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Hendley Parkway/Preston Drive & Manor Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	3
95th Queue (ft)	18
Link Distance (ft)	371
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Manor Road & Craigtown Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	16
95th Queue (ft)	40
Link Distance (ft)	371
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 9

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	242	180	103	196
Average Queue (ft)	135	69	45	98
95th Queue (ft)	215	128	89	170
Link Distance (ft)	294		998	3303
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)		275		
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 2: MD 222 & MD 275 & MD 824

Movement	EB	EB	EB	WB	WB	B54	B61	B61	NB	SB	SB
Directions Served	L	T	R	L	TR	T	T		LT	L	TR
Maximum Queue (ft)	79	268	44	155	266	43	375	203	99	76	164
Average Queue (ft)	26	113	1	44	61	2	37	10	34	16	62
95th Queue (ft)	60	199	31	96	185	27	209	97	80	53	124
Link Distance (ft)		1122			287	347	592	592	264		1635
Upstream Blk Time (%)					0						
Queuing Penalty (veh)					5						
Storage Bay Dist (ft)	200		200	250						60	
Storage Blk Time (%)		1	0		1					0	20
Queuing Penalty (veh)		0	0		1					0	3

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	EB	EB	WB	WB	WB	B63	B63	NB	NB	NB	SB	SB
Directions Served	L	T	L	T	T	T		L	T	R	L	T
Maximum Queue (ft)	373	401	295	260	258	352	71	210	260	134	188	130
Average Queue (ft)	184	234	147	172	163	32	2	105	112	6	82	64
95th Queue (ft)	304	367	248	248	248	194	50	174	196	65	154	112
Link Distance (ft)	592	592		700	700	334	334		710			809
Upstream Blk Time (%)						0	0					
Queuing Penalty (veh)						2	0					
Storage Bay Dist (ft)			530					220		200	400	
Storage Blk Time (%)								0	1	0		
Queuing Penalty (veh)								0	3	0		

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	SB
Directions Served	R
Maximum Queue (ft)	34
Average Queue (ft)	1
95th Queue (ft)	24
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	450
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: MD 222 & I-95 NB Off-Ramp

Movement	EB	B55	WB	SB
Directions Served	T	T	T	L
Maximum Queue (ft)	302	428	206	168
Average Queue (ft)	97	28	81	71
95th Queue (ft)	232	255	178	134
Link Distance (ft)	334	700	540	
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: MD 222 & I-95 NB On-Ramp

Movement	EB	EB	WB
Directions Served	LT	T	T
Maximum Queue (ft)	144	16	13
Average Queue (ft)	75	1	0
95th Queue (ft)	124	11	5
Link Distance (ft)	540	540	438
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: MD 222 & I95 NB On-Ramp

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

Intersection: 7: MD 276 & Waibel Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	96
Average Queue (ft)	36
95th Queue (ft)	71
Link Distance (ft)	800
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: MD 276 & MD 222

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	64	72	30	55
Average Queue (ft)	40	40	14	27
95th Queue (ft)	61	61	35	45
Link Distance (ft)	746	789	196	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: MD 276 & Firetower Road/Camp Meeting Ground Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	94	170	64	258	76	135
Average Queue (ft)	38	73	21	129	29	62
95th Queue (ft)	76	127	52	208	63	115
Link Distance (ft)	524	350		1124		1531
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			300		325	
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 10: Camp Meeting Ground Road & Theodore Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	40	50
Average Queue (ft)	7	20
95th Queue (ft)	30	39
Link Distance (ft)	350	905
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: MD 276 & Doctor Jack Road/Craigtown Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	74	107	60	82
Average Queue (ft)	34	47	4	18
95th Queue (ft)	64	84	30	58
Link Distance (ft)	552	579	3303	1124
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Craigtown Road & MD 275

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	28	32	11	64	108
Average Queue (ft)	5	5	0	17	41
95th Queue (ft)	20	22	5	50	84
Link Distance (ft)			307	521	527
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	270	270			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: MD 222 & Craigtown Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	35
Average Queue (ft)	15
95th Queue (ft)	34
Link Distance (ft)	491
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: MD 276 & Homestead Drive/Powers Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LT	LT	L
Maximum Queue (ft)	37	47	22	99
Average Queue (ft)	13	8	1	25
95th Queue (ft)	36	31	10	69
Link Distance (ft)	329	1068	1292	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				350
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: Diamond Jim Road/Ind. Driveway & MD 275

Movement	WB	WB	NB	NB
Directions Served	LT	TR	LT	R
Maximum Queue (ft)	116	34	27	23
Average Queue (ft)	11	1	4	4
95th Queue (ft)	63	12	19	19
Link Distance (ft)	290		1120	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		250		300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Craigtown Road & Diamond Jim Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	18	30
Average Queue (ft)	1	9
95th Queue (ft)	8	30
Link Distance (ft)	459	1120
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Hendley Parkway/Preston Drive & Manor Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	6
95th Queue (ft)	25
Link Distance (ft)	371
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: Manor Road & Craigtown Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	34
Average Queue (ft)	17
95th Queue (ft)	42
Link Distance (ft)	371
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 16

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	259	222	104	220
Average Queue (ft)	121	72	43	103
95th Queue (ft)	201	143	84	180
Link Distance (ft)	294		998	3303
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)		275		
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	1	0		

Intersection: 2: MD 222 & MD 275 & MD 824

Movement	EB	EB	EB	WB	WB	B54	B58	B58	NB	SB	SB
Directions Served	L	T	R	L	TR	T	T		LT	L	TR
Maximum Queue (ft)	162	348	44	229	305	42	516	522	107	78	163
Average Queue (ft)	30	161	1	75	120	2	175	74	37	19	61
95th Queue (ft)	90	284	31	152	265	24	510	334	86	60	126
Link Distance (ft)		1122			287	345	594	594	264		1635
Upstream Blk Time (%)				0	1			0			
Queuing Penalty (veh)				0	8			0			
Storage Bay Dist (ft)	200		200	250						60	
Storage Blk Time (%)		3	0		1					1	17
Queuing Penalty (veh)		2	0		2					1	3

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	EB	EB	EB	WB	WB	WB	B59	B59	NB	NB	NB	SB
Directions Served	L	T	R	L	T	T	T		L	T	R	L
Maximum Queue (ft)	415	507	184	322	393	406	361	150	218	294	178	172
Average Queue (ft)	213	287	10	152	220	214	50	9	111	120	10	73
95th Queue (ft)	356	447	127	260	348	361	250	102	191	216	87	138
Link Distance (ft)	594	594			672	672	341	341		710		
Upstream Blk Time (%)		0					1	0				
Queuing Penalty (veh)		1					4	1				
Storage Bay Dist (ft)			550	530					220		200	400
Storage Blk Time (%)		0							0	2	0	
Queuing Penalty (veh)		0							1	7	0	

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	144	28
Average Queue (ft)	64	1
95th Queue (ft)	120	20
Link Distance (ft)	807	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		450
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: MD 222 & I-95 NB Off-Ramp

Movement	EB	B55	WB	SB
Directions Served	T	T	T	L
Maximum Queue (ft)	304	565	210	166
Average Queue (ft)	120	28	88	73
95th Queue (ft)	270	255	185	135
Link Distance (ft)	341	672	541	
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	1		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: MD 222 & I-95 NB On-Ramp

Movement	EB	EB	WB
Directions Served	LT	T	T
Maximum Queue (ft)	243	40	31
Average Queue (ft)	93	2	1
95th Queue (ft)	181	23	14
Link Distance (ft)	541	541	438
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: MD 222 & I95 NB On-Ramp

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

Intersection: 7: MD 276 & Waibel Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	85
Average Queue (ft)	36
95th Queue (ft)	67
Link Distance (ft)	800
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: MD 276 & MD 222

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	75	70	30	60
Average Queue (ft)	42	39	15	28
95th Queue (ft)	65	63	35	50
Link Distance (ft)	746	789	196	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: MD 276 & Firetower Road/Camp Meeting Ground Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	94	165	60	269	78	136
Average Queue (ft)	40	82	22	132	33	62
95th Queue (ft)	78	137	51	231	68	112
Link Distance (ft)	524	350		1124		1531
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			300		325	
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 10: Camp Meeting Ground Road & Theodore Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	44	51
Average Queue (ft)	5	19
95th Queue (ft)	26	38
Link Distance (ft)	350	905
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: MD 276 & Doctor Jack Road/Craigtown Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	73	118	50	111
Average Queue (ft)	33	44	4	21
95th Queue (ft)	62	81	24	67
Link Distance (ft)	552	579	3303	1124
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Craigtown Road & MD 275

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	29	31	18	51	116
Average Queue (ft)	6	4	1	15	43
95th Queue (ft)	23	20	7	43	95
Link Distance (ft)			320	521	529
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	270	270			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: MD 222 & Craigtown Road

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	51	5
Average Queue (ft)	22	0
95th Queue (ft)	42	4
Link Distance (ft)	491	369
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: MD 276 & Homestead Drive/Powers Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LT	LT	L
Maximum Queue (ft)	34	47	15	79
Average Queue (ft)	14	15	1	18
95th Queue (ft)	38	38	9	56
Link Distance (ft)	234	1068	1290	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				350
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: Diamond Jim Road/Ind. Driveway & MD 275

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	LT	R
Maximum Queue (ft)	336	5	186	261	51	206
Average Queue (ft)	184	0	76	141	9	79
95th Queue (ft)	300	3	144	224	33	158
Link Distance (ft)	1379			1183	1170	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		630	400			300
Storage Blk Time (%)	2			0		
Queuing Penalty (veh)	0			0		

Intersection: 17: Diamond Jim Road & Craigtown Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	66	31	30
Average Queue (ft)	17	33	2	1
95th Queue (ft)	43	55	14	15
Link Distance (ft)	339	588	344	1170
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Powers Road/Preston Drive & Diamond Jim Road

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	65	4	30	120
Average Queue (ft)	10	0	3	62
95th Queue (ft)	39	3	19	94
Link Distance (ft)	470	548	344	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				175
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 22: Bend

Movement	SE
Directions Served	T
Maximum Queue (ft)	62
Average Queue (ft)	2
95th Queue (ft)	44
Link Distance (ft)	294
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 30

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	B22	NB	SB
Directions Served	L	R	T	T	LT
Maximum Queue (ft)	265	224	34	91	228
Average Queue (ft)	131	82	2	42	109
95th Queue (ft)	219	156	34	80	192
Link Distance (ft)	294		633	998	3303
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)		275			
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	1	0			

Intersection: 2: MD 222 & MD 275 & MD 824

Movement	EB	EB	EB	WB	WB	B54	B62	B62	NB	SB	SB
Directions Served	L	T	R	L	TR	T	T		LT	L	TR
Maximum Queue (ft)	190	685	45	246	340	179	538	587	111	84	145
Average Queue (ft)	36	316	4	96	181	10	219	104	38	19	55
95th Queue (ft)	117	635	56	185	325	107	549	397	84	61	112
Link Distance (ft)		1122			287	342	597	597	264		1635
Upstream Blk Time (%)		0		0	1	0	0	0			
Queuing Penalty (veh)		0		0	17	4	0	2			
Storage Bay Dist (ft)	200		200	250						60	
Storage Blk Time (%)		13			2					0	16
Queuing Penalty (veh)		8			4					0	3

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	EB	EB	EB	B62	B62	B54	B54	WB	WB	WB	WB	B55
Directions Served	L	T	R	T	T	T	T	L	T	T	R	T
Maximum Queue (ft)	554	644	460	91	185	63	59	511	569	589	308	93
Average Queue (ft)	296	502	157	31	62	8	7	243	331	334	18	10
95th Queue (ft)	490	733	579	195	268	84	67	445	539	551	178	119
Link Distance (ft)	597	597		342	342	287	287		701	701		393
Upstream Blk Time (%)	0	13		1	3	0	0		1	0		1
Queuing Penalty (veh)	3	79		8	19	1	0		4	3		8
Storage Bay Dist (ft)			550					530			550	
Storage Blk Time (%)		15	0					0	2	2	0	
Queuing Penalty (veh)		20	0					0	8	2	0	

Intersection: 3: Turnpike Drive/I-95 SB Ramps & MD 222

Movement	B63	B63	NB	NB	NB	SB	SB	SB
Directions Served	T		L	T	R	L	T	R
Maximum Queue (ft)	365	329	186	328	180	148	134	64
Average Queue (ft)	112	17	102	118	13	81	64	2
95th Queue (ft)	375	139	172	230	101	136	120	33
Link Distance (ft)	336	336		709			807	
Upstream Blk Time (%)	1	0						
Queuing Penalty (veh)	9	1						
Storage Bay Dist (ft)			220		200	400		450
Storage Blk Time (%)			0	2	0			
Queuing Penalty (veh)			1	8	0			

Intersection: 4: MD 222 & I-95 NB Off-Ramp

Movement	EB	B63	B55	WB	SB
Directions Served	T	T	T	T	L
Maximum Queue (ft)	391	6	722	264	200
Average Queue (ft)	197	0	33	101	77
95th Queue (ft)	378	5	283	226	150
Link Distance (ft)	336	393	701	541	
Upstream Blk Time (%)	1		0		
Queuing Penalty (veh)	11		1		
Storage Bay Dist (ft)					300
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: MD 222 & I-95 NB On-Ramp

Movement	EB	EB	WB
Directions Served	LT	T	T
Maximum Queue (ft)	333	171	4
Average Queue (ft)	142	12	0
95th Queue (ft)	280	120	3
Link Distance (ft)	541	541	438
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: MD 222 & I95 NB On-Ramp

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

Intersection: 7: MD 276 & Waibel Road

Movement	EB	B65
Directions Served	LR	T
Maximum Queue (ft)	88	49
Average Queue (ft)	37	2
95th Queue (ft)	68	34
Link Distance (ft)	800	386
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: MD 276 & MD 222

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	63	71	39	56
Average Queue (ft)	39	41	16	29
95th Queue (ft)	60	62	38	49
Link Distance (ft)	746	789	196	336
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: MD 276 & Firetower Road/Camp Meeting Ground Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	104	142	111	310	82	138
Average Queue (ft)	42	73	25	151	34	62
95th Queue (ft)	81	119	75	261	68	119
Link Distance (ft)	524	350		1124		1531
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			300		325	
Storage Blk Time (%)				1		
Queuing Penalty (veh)				0		

Intersection: 10: Camp Meeting Ground Road & Theodore Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	54	48
Average Queue (ft)	9	17
95th Queue (ft)	38	33
Link Distance (ft)	350	905
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: MD 276 & Doctor Jack Road/Craigtown Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	72	112	42	163
Average Queue (ft)	32	49	4	27
95th Queue (ft)	62	89	22	90
Link Distance (ft)	552	579	3303	1124
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Craigtown Road & MD 275

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	25	3	40	16	56	180
Average Queue (ft)	3	0	5	1	18	59
95th Queue (ft)	17	2	24	7	49	136
Link Distance (ft)		284		319	521	529
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	270		270			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 13: MD 222 & Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	23	31
Average Queue (ft)	1	8
95th Queue (ft)	11	30
Link Distance (ft)	468	596
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: MD 222 & Craigtown Road

Movement	EB
Directions Served	LR
Maximum Queue (ft)	41
Average Queue (ft)	20
95th Queue (ft)	38
Link Distance (ft)	491
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: MD 276 & Homestead Dr/Powers Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LT	LT	L
Maximum Queue (ft)	30	47	18	107
Average Queue (ft)	14	13	1	30
95th Queue (ft)	38	35	9	81
Link Distance (ft)	277	1069	1289	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				350
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: Diamond Jim Road/Ind. Driveway & MD 275

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	LT	R
Maximum Queue (ft)	487	30	254	283	234	305
Average Queue (ft)	248	1	104	150	19	147
95th Queue (ft)	415	12	197	250	116	257
Link Distance (ft)	1379			1183	1170	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		630	400			300
Storage Blk Time (%)	7			1		1
Queuing Penalty (veh)	0			1		0

Intersection: 17: Diamond Jim Road & Craigtown Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	50	72	38	6
Average Queue (ft)	19	32	2	0
95th Queue (ft)	45	58	18	4
Link Distance (ft)	339	588	344	1170
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Powers Road/Preston Drive & Diamond Jim Road

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	81	4	30	137
Average Queue (ft)	16	0	3	67
95th Queue (ft)	54	3	17	112
Link Distance (ft)	470	548	344	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				175
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 22: Bend

Movement	SE
Directions Served	T
Maximum Queue (ft)	124
Average Queue (ft)	4
95th Queue (ft)	63
Link Distance (ft)	294
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

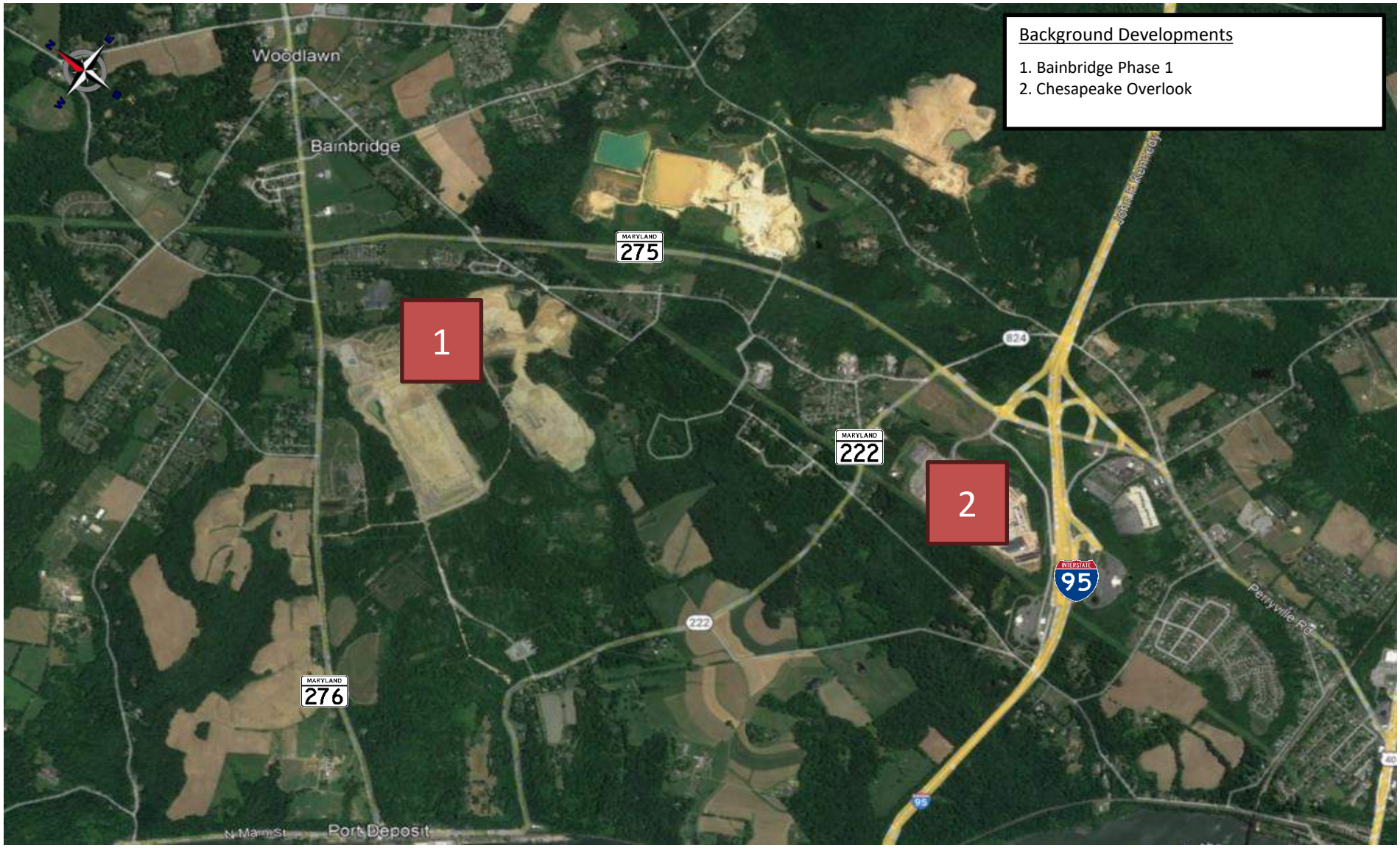
Network wide Queuing Penalty: 227

Intersection: 1: MD 276 & MD 275

Movement	WB	WB	B22	NB	SB
Directions Served	L	R	T	T	LT
Maximum Queue (ft)	365	294	125	82	406
Average Queue (ft)	236	79	12	27	224
95th Queue (ft)	370	242	72	63	353
Link Distance (ft)	294		633	998	1648
Upstream Blk Time (%)	5	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)		275			
Storage Blk Time (%)	6	0			
Queuing Penalty (veh)	9	1			

Appendix C

Background Developments



Traffic Impact Analysis

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

Background Development Location Map

Exhibit C-1a

Trip Generation Rates

Warehousing (ksf, ITE-150)	Trip Distribution (In/Out)
Morning Trips = 0.12 x ksf + 23.62	77/23
Evening Trips = 0.12 x ksf + 26.48	28/72

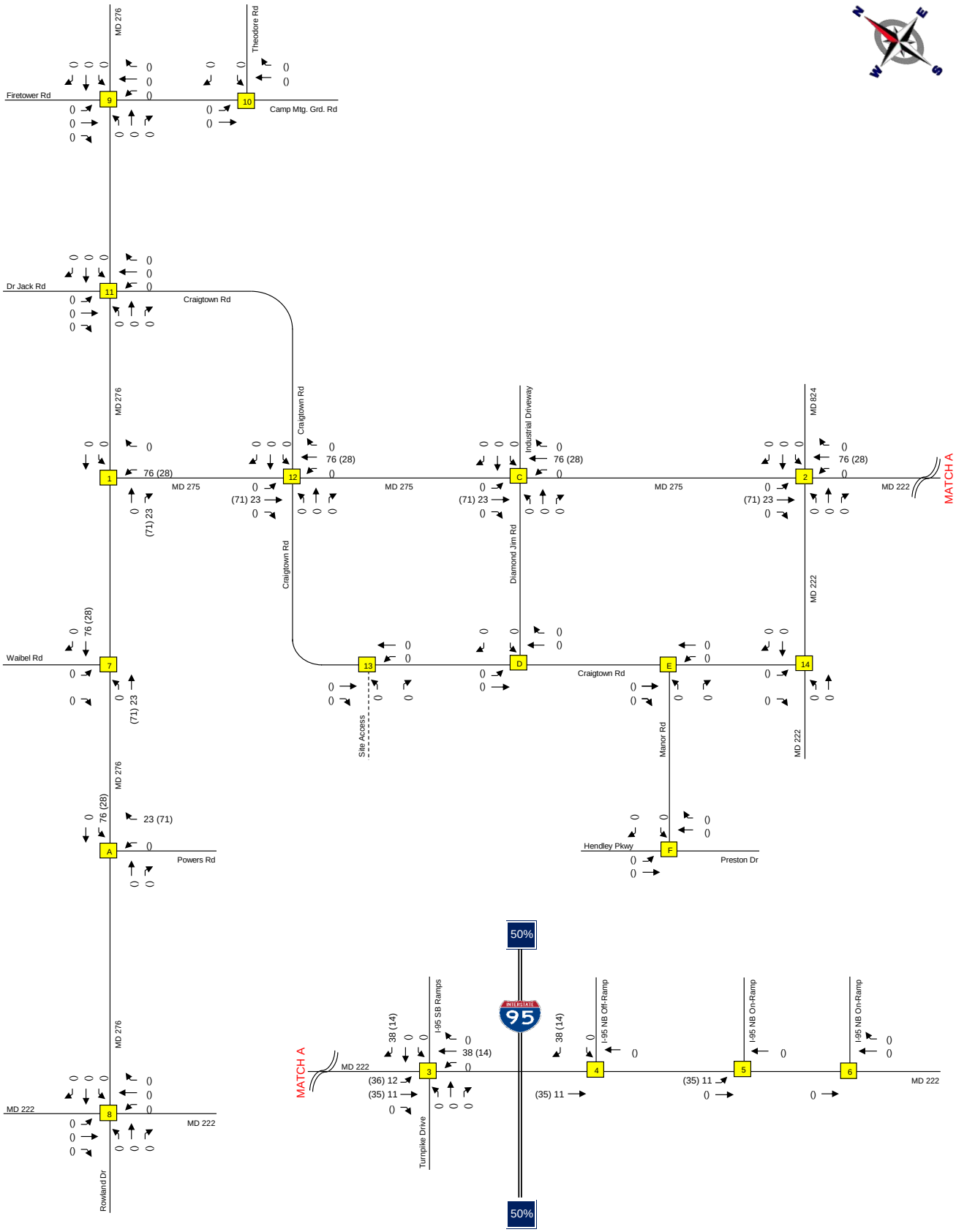
Trip Generation Totals

		AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Warehousing (ksf, ITE-150)	max of 3,900,000 sq.ft.	379	113	492	138	356	494
	Total:	**379**	**113**	**492**	**138**	**356**	**494**
	20% Trucks:	76	23	98	28	71	99
	80% Passenger Vehicles:	303	90	394	110	285	395

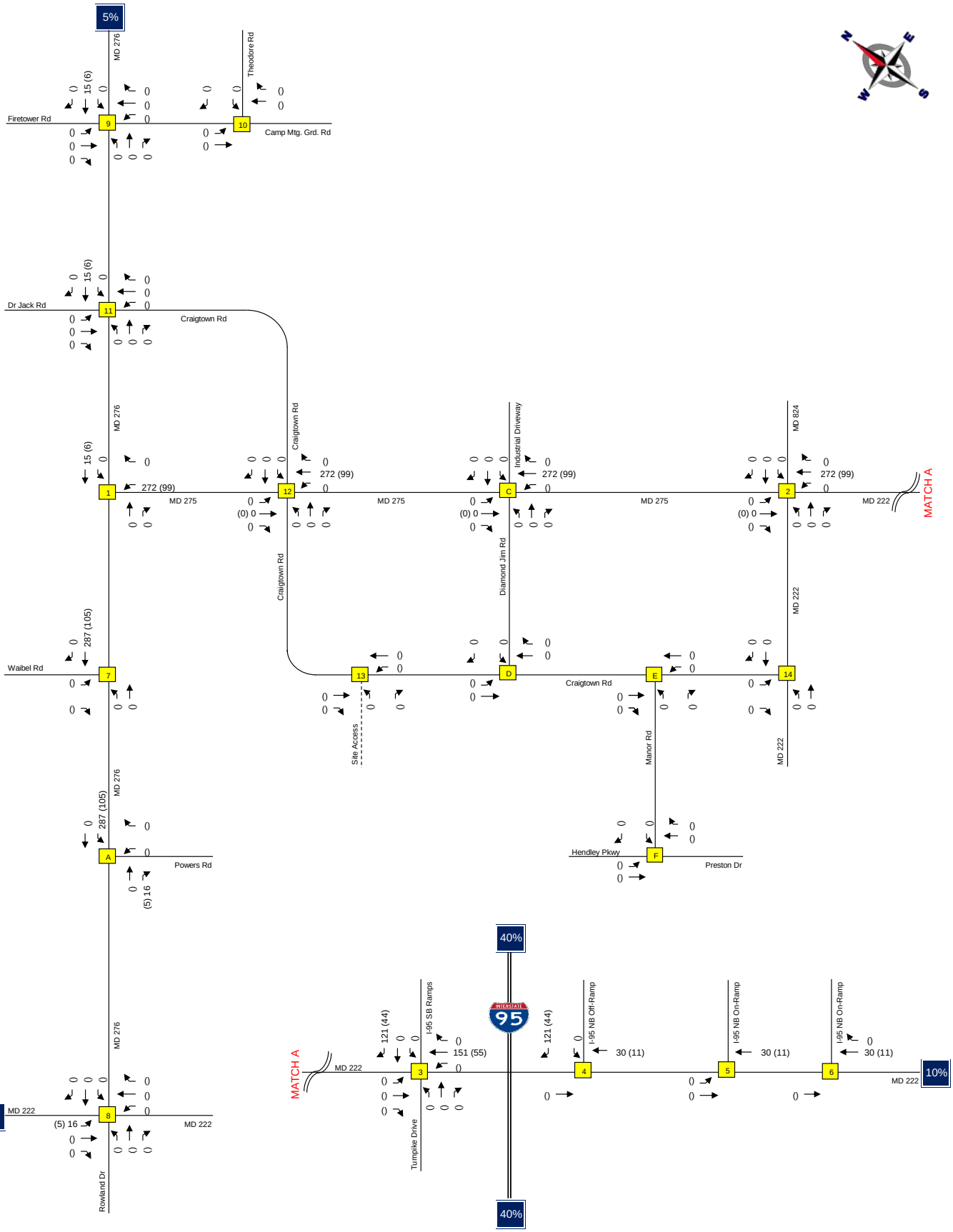
Notes:

1. Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition.
2. Per Table I.1 of the ITE Trip Generation Manual, 9th Edition, included in Appendix A, 20% of vehicle trips for the Warehousing Land Use are truck trips.

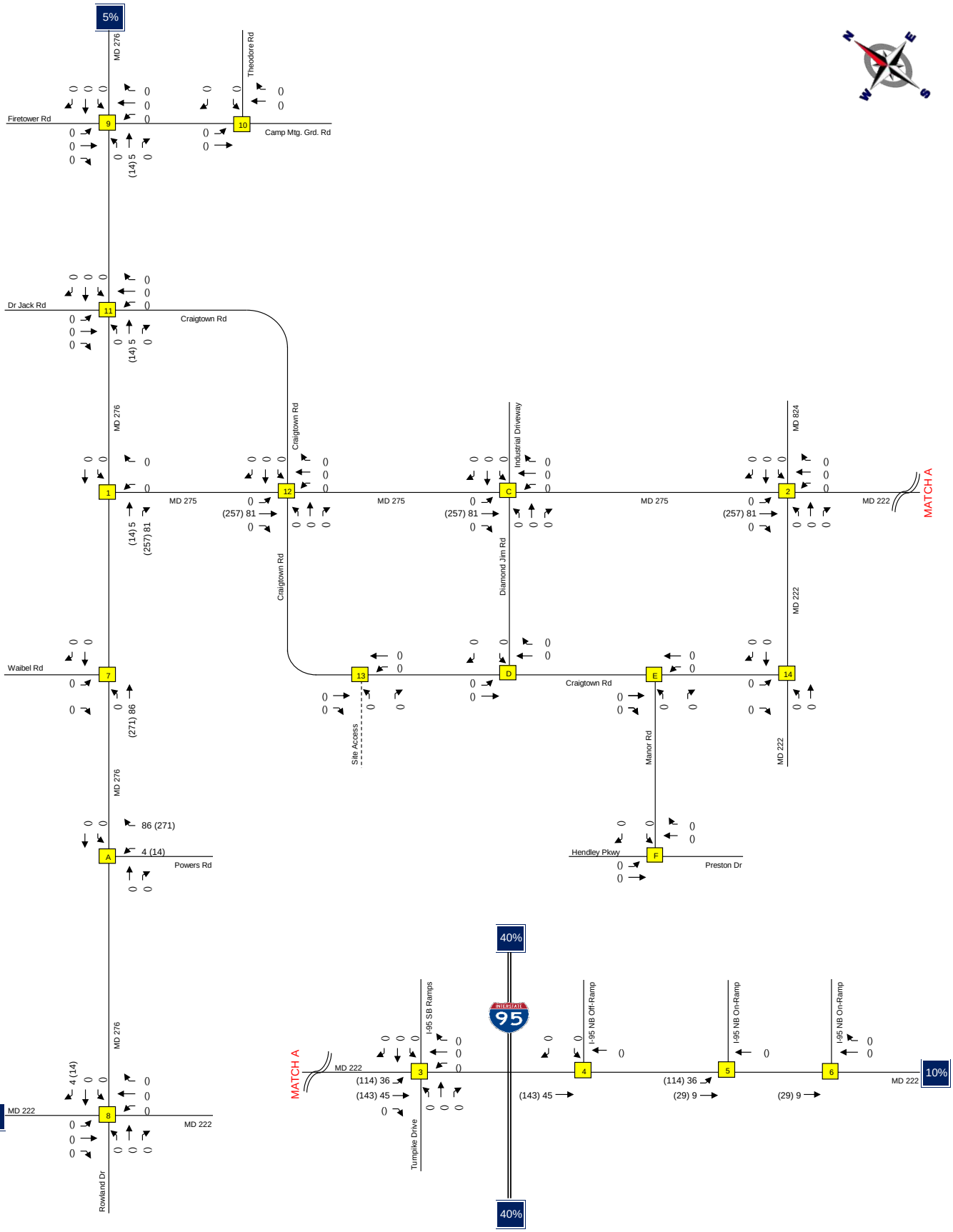
Traffic Impact Analysis	Trip Generation for Bainbridge Phase 1	**Exhibit C-1b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning		



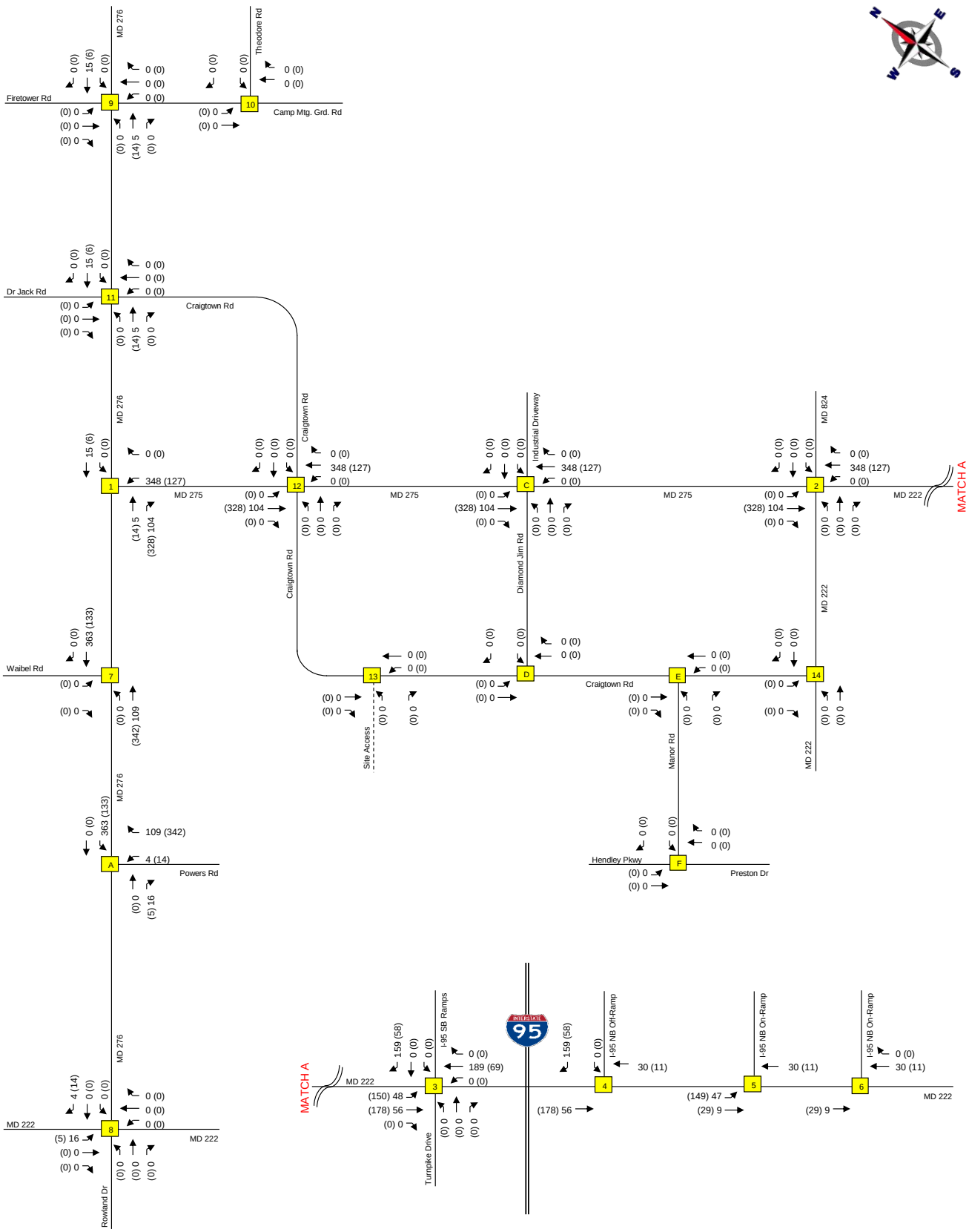
Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Site Trip Assignment - Truck Trips Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit C-2a**



Traffic Impact Analysis	Site Trip Assignment - Passenger Vehicle Trips - Inbound	**Exhibit C-2b**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Site Trip Assignment - Passenger Vehicle Trips - Outbound Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit C-2c**



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

Trip Generation Totals (Obtained From June 2021 Chesapeake Overlook TIS)

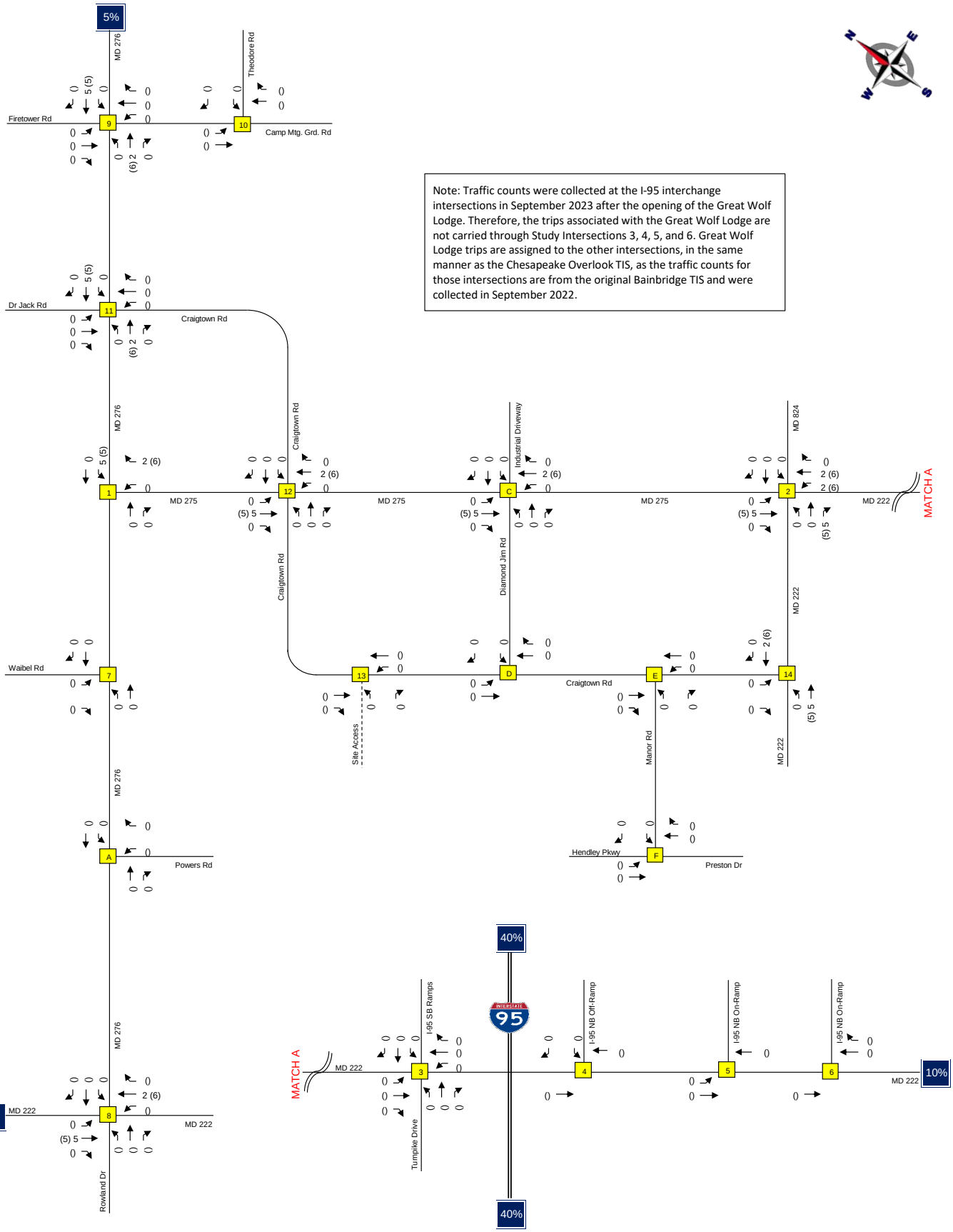
		AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Great Wolf Lodge (Occupied Rooms, Local Rates)	700 rooms	106	41	147	93	124	217
Internal Trips:		4	10	14	29	17	46
Fast Food Rest. w/ Drive-Thru (ksf, ITE-934) [Double ITE Trips]	4,750 sq. ft.	195	187	382	161	149	310
Internal Trips:		42	28	70	58	75	133
Pass-by Trips (49% AM/50% PM):		75	78	153	52	37	89
High Turnover (Sit-Down) Rest. (ksf, ITE-932)	7,400 sq.ft.	41	33	74	45	27	72
Internal Trips:		9	5	14	16	13	29
Pass-by Trips (0% AM/43% PM):		0	0	0	12	6	18
Convenience Store / Gas Station w/16-24 VFP (ksf, ITE-945)	5,500 sq.ft.	258	259	517	207	207	414
Internal Trips:		25	33	58	49	48	97
Pass-by Trips (76% AM/75% PM):		177	172	349	120	121	241
Multifamily Housing, Mid-Rise (ITE-221, Urban/Suburban, Units)	100 units	9	25	34	27	17	44
Internal Trips:		0	5	5	16	12	28
Shopping Plaza w/out Supermarket (40-150ksf) (ksf, ITE-821)	50,000 sq.ft.	110	67	177	156	169	325
Internal Trips:		10	9	19	37	40	77
Pass-by Trips (0% AM/40% PM):		0	0	0	40	44	84

Primary Off-site Great Wolf Lodge Trips:	**102**	**31**	**133**	**64**	**107**	**171**
Primary Off-site Commercial Trips (Restaurants, Gas, Retail):	**266**	**221**	**487**	**185**	**168**	**353**
Primary Off-site Residential Trips:	**9**	**20**	**29**	**11**	**5**	**16**
Total Pass-by Trips:	**252**	**250**	**502**	**224**	**208**	**432**

Notes:

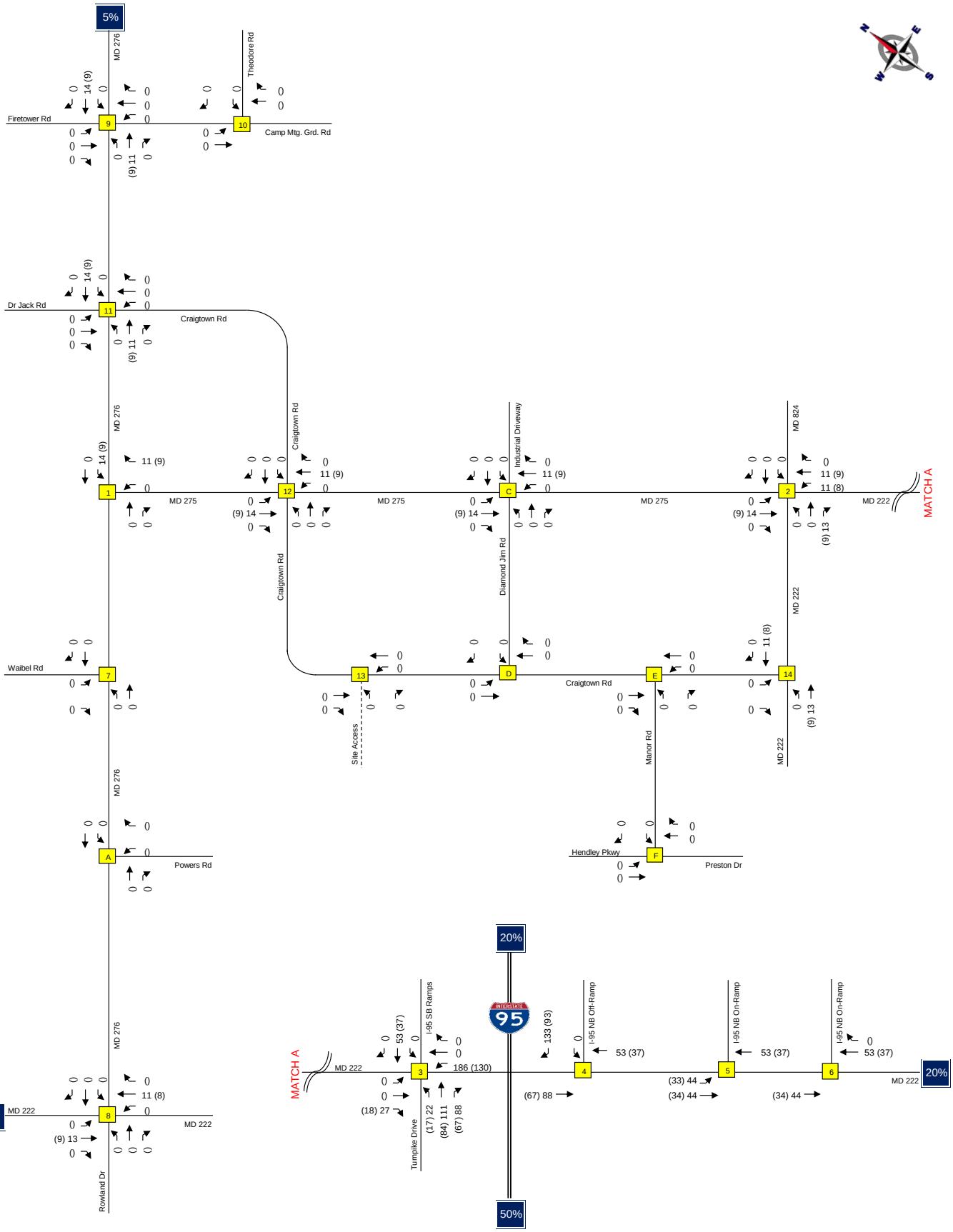
1. Trip Generation obtained from the June 2021 Chesapeake Overlook TIS by Traffic Group.
2. The trip generation rates used in the Traffic Group TIS are shown on the next page.

Traffic Impact Analysis	Trip Generation for Chesapeake Overlook	**Exhibit C-4**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning		

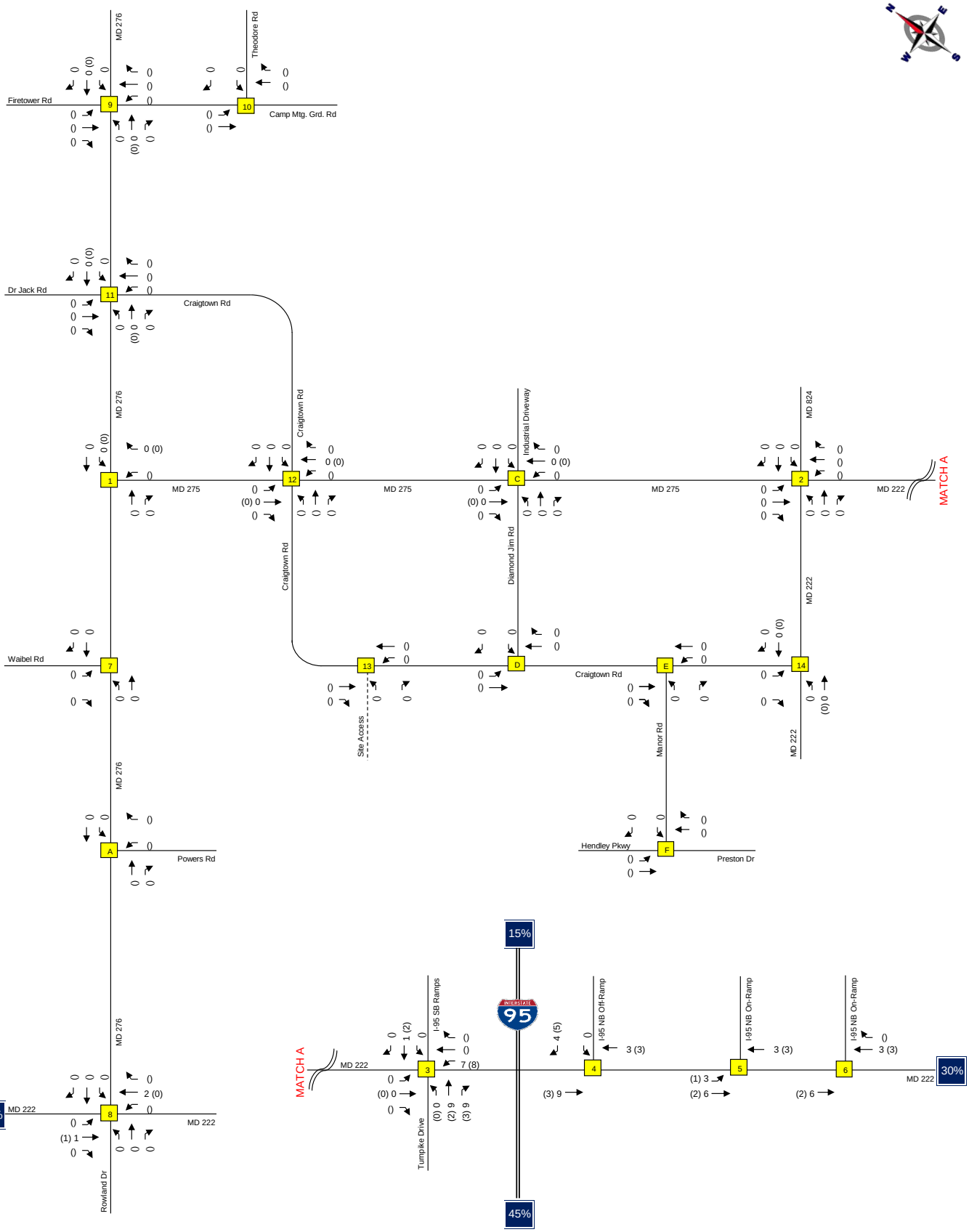


Note: Traffic counts were collected at the I-95 interchange intersections in September 2023 after the opening of the Great Wolf Lodge. Therefore, the trips associated with the Great Wolf Lodge are not carried through Study Intersections 3, 4, 5, and 6. Great Wolf Lodge trips are assigned to the other intersections, in the same manner as the Chesapeake Overlook TIS, as the traffic counts for those intersections are from the original Bainbridge TIS and were collected in September 2022.

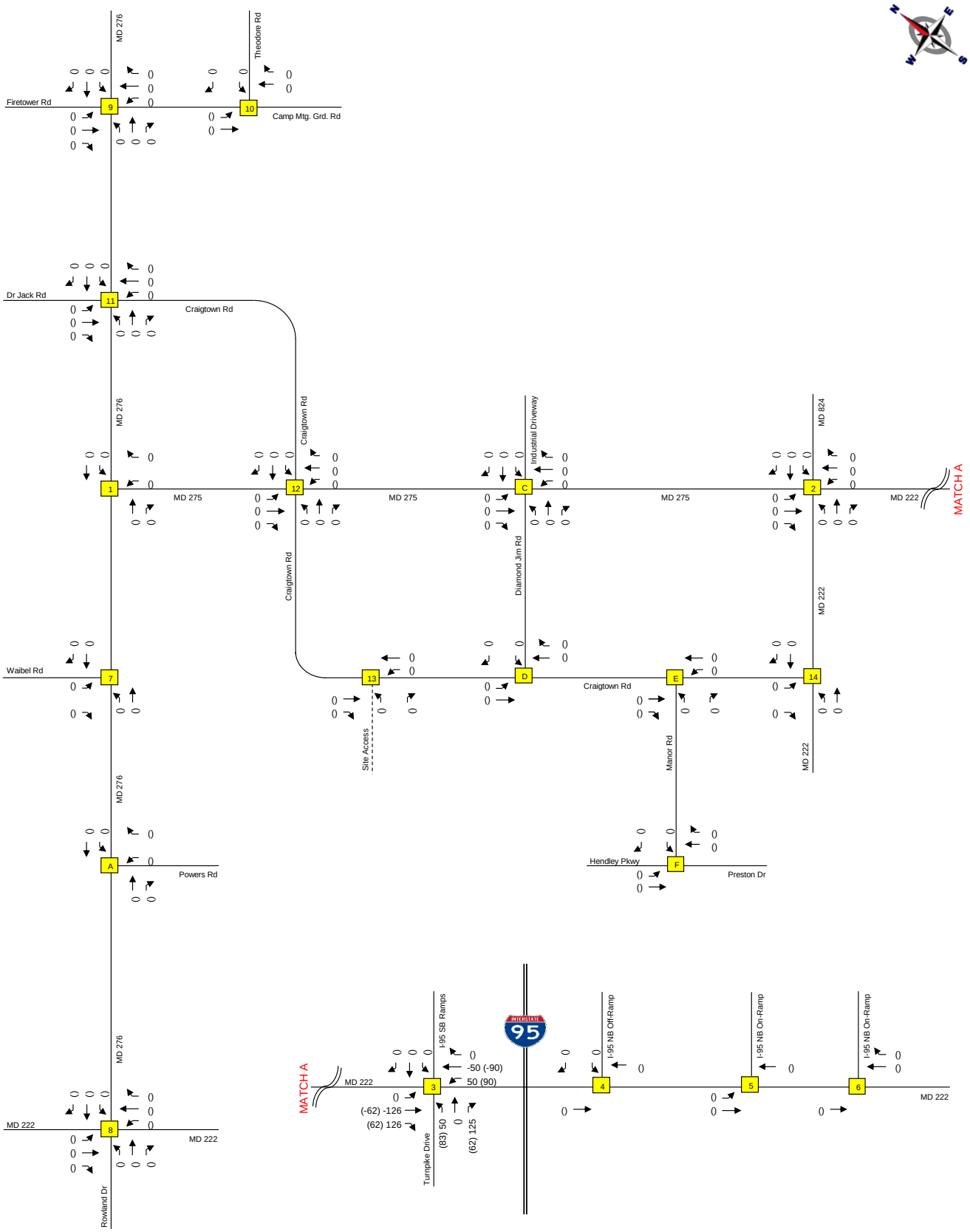
Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Chesapeake Overlook Trip Assignment - Primary Great Wolf Lodge Trips Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit C-5a**



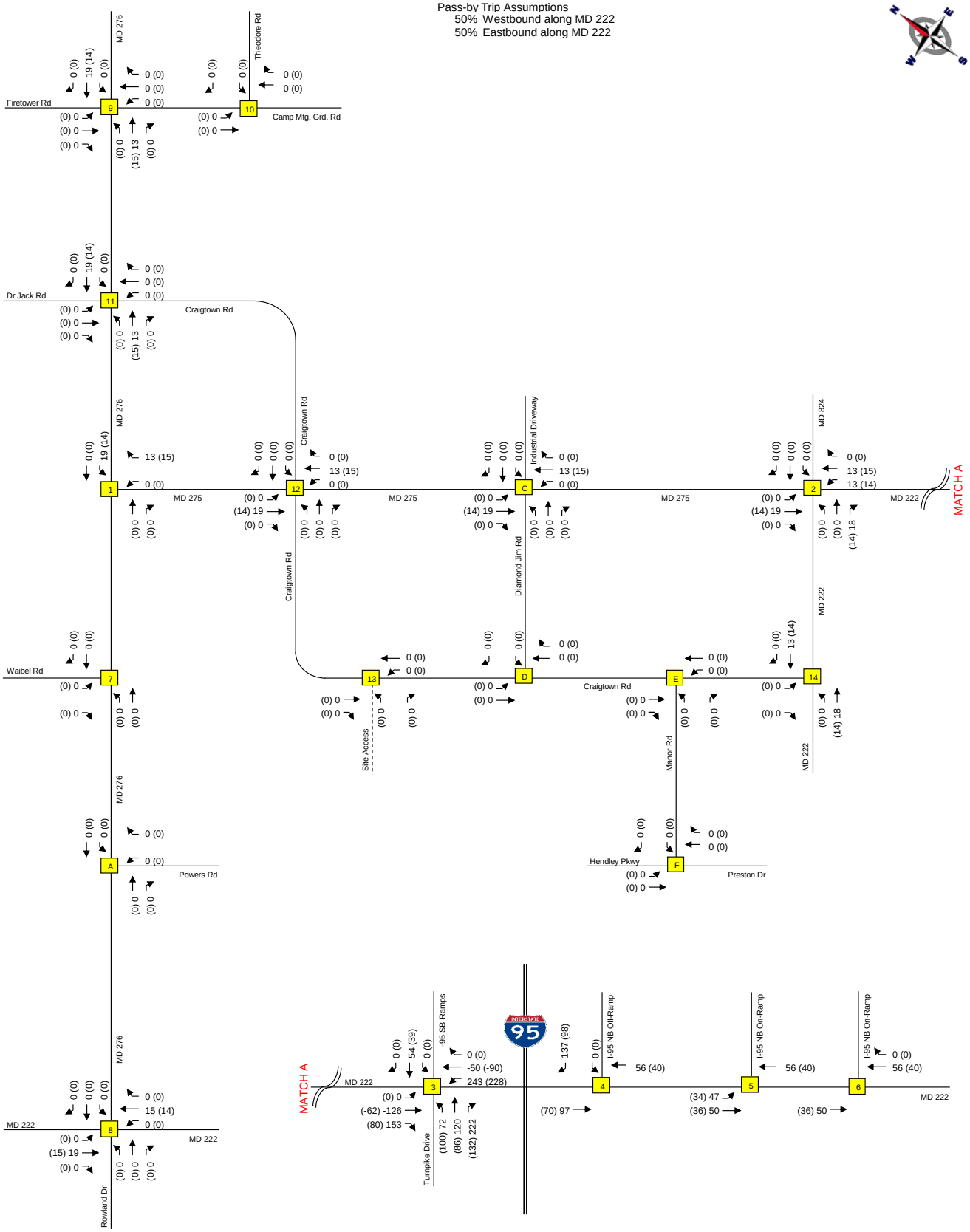
Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Chesapeake Overlook Trip Assignment - Primary Commercial Trips Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit C-5b**



Traffic Impact Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Chesapeake Overlook Trip Assignment - Primary Residential Trips Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	**Exhibit C-5c**



Traffic Impact Analysis	Chesapeake Overlook Trip Assignment - Total Pass-by Trips	**Exhibit C-5d**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	



Traffic Impact Analysis	Chesapeake Overlook Trip Assignment - Combined Trips	**Exhibit C-6**
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Key: xx = AM Peak Vol's (xx) = PM Peak Vol's	

Appendix D

Chesapeake Overlook Internal Trip Calculation

NO LONGER INCLUDED

Appendix E

Traffic Signal Warrant Analysis (TSWA) for MD 275 & Diamond Jim Road

Left-turns from MD 275 as Minor Movement

13-Hour Turning Movement Count (6:00 am - 7:00 pm)

	Diamond Jim Road Northbound				Industrial Driveway Southbound				MD 275 Eastbound				MD 275 Westbound				
Time:	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Total
6:00-6:15	0	0	2	0	3	0	1	0	0	163	0	0	0	30	5	0	204
6:15-6:30	0	0	1	0	2	0	1	0	2	175	0	0	0	39	3	0	223
6:30-6:45	2	0	0	0	2	0	1	0	1	210	0	0	0	37	4	0	257
6:45-7:00	0	0	2	0	3	0	0	0	1	188	1	0	1	48	8	0	252
7:00-7:15	0	0	2	0	3	0	2	0	1	187	0	0	0	53	2	0	250
7:15-7:30	1	0	3	0	2	0	2	0	0	229	1	0	0	50	1	0	289
7:30-7:45	0	0	0	0	1	0	1	0	1	171	0	0	1	97	2	0	274
7:45-8:00	0	0	1	0	6	0	0	0	1	145	3	0	1	68	3	0	228
8:00-8:15	2	0	0	0	1	0	1	0	0	112	0	0	1	41	2	0	160
8:15-8:30	0	0	1	0	2	0	0	0	0	136	3	0	2	55	4	0	203
8:30-8:45	0	0	3	0	3	0	0	0	0	139	2	0	1	46	3	0	197
8:45-9:00	11	0	6	0	2	0	2	0	0	122	1	0	3	57	0	0	204
9:00-9:15	1	0	0	0	2	0	2	0	1	102	0	0	1	67	3	0	179
9:15-9:30	1	0	1	0	2	0	0	0	1	110	0	0	0	60	1	0	176
9:30-9:45	0	0	1	0	1	0	1	0	0	101	2	0	0	65	2	0	173
9:45-10:00	1	0	1	0	3	0	0	0	0	112	1	0	2	70	1	0	191
10:00-10:15	1	0	2	0	1	0	2	0	1	77	2	0	1	54	4	0	145
10:15-10:30	1	0	0	0	2	0	1	0	1	103	2	0	0	65	2	0	177
10:30-10:45	0	0	2	0	3	0	0	0	0	85	0	0	1	66	5	0	162
10:45-11:00	0	1	0	0	6	0	0	0	0	75	0	0	1	59	2	0	144
11:00-11:15	1	0	1	0	2	1	0	0	2	70	0	0	0	73	1	0	151
11:15-11:30	1	0	1	0	1	0	3	0	0	84	0	0	0	69	1	0	160
11:30-11:45	0	0	0	0	0	0	1	0	1	84	0	0	2	69	3	0	160
11:45-12:00	0	0	0	0	1	0	1	0	0	75	0	0	0	74	0	0	151
12:00-12:15	0	0	0	0	0	0	0	0	0	79	1	0	0	72	0	0	152
12:15-12:30	1	0	1	0	1	0	1	0	0	81	1	0	0	87	2	0	175
12:30-12:45	0	0	0	0	2	0	0	0	0	86	1	0	1	73	2	0	165
12:45-1:00	1	0	0	0	0	0	0	0	0	70	1	0	2	86	1	0	161
1:00-1:15	3	0	2	0	2	0	1	0	0	64	3	0	0	120	4	0	199
1:15-1:30	1	0	2	0	2	0	0	0	1	84	3	0	0	86	1	0	180
1:30-1:45	2	0	0	0	5	0	0	0	0	89	3	0	2	89	2	0	192
1:45-2:00	6	0	2	0	2	0	0	0	0	76	1	0	2	84	1	0	174
2:00-2:15	7	0	1	0	0	0	0	0	0	79	1	0	2	89	1	0	180
2:15-2:30	1	0	2	0	0	0	0	0	0	94	1	0	1	107	1	0	207
2:30-2:45	1	0	1	0	1	0	0	0	0	104	1	0	0	131	0	0	239
2:45-3:00	1	0	3	0	0	0	1	0	0	89	1	0	1	123	0	0	219
3:00-3:15	1	0	1	0	0	0	0	0	0	73	0	0	0	148	1	0	224
3:15-3:30	2	0	1	0	2	0	0	0	0	76	0	0	0	176	0	0	257
3:30-3:45	1	0	0	0	0	0	0	0	0	95	1	0	1	136	3	0	237
3:45-4:00	4	0	1	0	0	0	0	0	0	88	1	0	2	161	2	0	259
4:00-4:15	2	0	3	0	5	2	3	0	0	82	0	0	4	166	0	0	267
4:15-4:30	0	0	0	0	1	0	0	0	0	79	0	0	0	182	0	0	262
4:30-4:45	5	0	1	0	0	0	0	0	0	105	0	0	2	197	0	0	310
4:45-5:00	0	0	2	0	0	0	0	0	0	115	0	0	3	189	0	0	309
5:00-5:15	0	0	0	0	0	0	0	0	0	105	0	0	1	154	0	0	260
5:15-5:30	0	0	2	0	0	0	0	0	0	109	1	0	0	162	0	0	274
5:30-5:45	0	0	0	0	0	0	0	0	0	112	1	0	1	151	0	0	265
5:45-6:00	0	0	1	0	0	0	0	0	0	114	1	0	3	141	0	0	260
6:00-6:15	1	0	1	0	0	0	0	0	0	106	0	0	0	96	0	0	204
6:15-6:30	3	0	2	0	0	0	0	0	0	96	2	0	2	100	0	0	205
6:30-6:45	0	0	0	0	0	0	0	0	0	90	2	0	1	101	0	0	194
6:45-7:00	1	0	0	0	0	0	0	0	0	73	0	0	1	87	0	0	162

	Diamond Jim Road Northbound				Industrial Driveway Southbound				MD 275 Eastbound				MD 275 Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Total
Hourly Totals																	
6:00-7:00	2	0	5	0	10	0	3	0	4	736	1	0	1	154	20	0	936
7:00-8:00	1	0	6	0	12	0	5	0	3	732	4	0	2	268	8	0	1041
8:00-9:00	13	0	10	0	8	0	3	0	0	509	6	0	7	199	9	0	764
9:00-10:00	3	0	3	0	8	0	3	0	2	425	3	0	3	262	7	0	719
10:00-11:00	2	1	4	0	12	0	3	0	2	340	4	0	3	244	13	0	628
11:00-12:00	2	0	2	0	4	1	5	0	3	313	0	0	2	285	5	0	622
12:00-1:00	2	0	1	0	3	0	1	0	0	316	4	0	3	318	5	0	653
1:00-2:00	12	0	6	0	11	0	1	0	1	313	10	0	4	379	8	0	745
2:00-3:00	10	0	7	0	1	0	1	0	0	366	4	0	4	450	2	0	845
3:00-4:00	8	0	3	0	2	0	0	0	0	332	2	0	3	621	6	0	977
4:00-5:00	7	0	6	0	6	2	3	0	0	381	0	0	9	734	0	0	1148
5:00-6:00	0	0	3	0	0	0	0	0	0	440	3	0	5	608	0	0	1059
6:00-7:00	5	0	3	0	0	0	0	0	0	365	4	0	4	384	0	0	765

Peak Hour
Turning Movement Count

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

Intersection: MD 275 & Diamond Jim Road
Weather: Clear
Count by: Count Cam
Count Day/Date: Tuesday, September 27, 2022
Jurisdiction: Cecil County

Table 4C-1. Warrant 1, Eight Hour Vehicular Volume

Condition A -- Minimum Vehicular Volume									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher volume minor street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B -- Interruption of Continuous Traffic									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher volume minor street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Source: Manual on Uniform Traffic Control Devices (MUTCD) 2003 Edition

[a] Basic minimum hourly volume.

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures.

[c] May be used when the major street speed exceeds 40 mph or in an isolated community with a population < 10,000.

[d] May be used in combination of Conditions A and B after adequate trial of other remedial measures when the major street exceeds 40 mph or in an isolated community with a population of < 10,000.

Existing Intersection Turning Movement Count

Hour Beginning	Diamond Jim Road			Industrial Driveway			MD 275			MD 275		
	Northbound			Southbound			Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	2	0	5	10	0	3	4	736	1	1	154	20
7:00 AM	1	0	6	12	0	5	3	732	4	2	268	8
8:00 AM	13	0	10	8	0	3	0	509	6	7	199	9
9:00 AM	3	0	3	8	0	3	2	425	3	3	262	7
10:00 AM	2	1	4	12	0	3	2	340	4	3	244	13
11:00 AM	2	0	2	4	1	5	3	313	0	2	285	5
12:00 PM	2	0	1	3	0	1	0	316	4	3	318	5
1:00 PM	12	0	6	11	0	1	1	313	10	4	379	8
2:00 PM	10	0	7	1	0	1	0	366	4	4	450	2
3:00 PM	8	0	3	2	0	0	0	332	2	3	621	6
4:00 PM	7	0	6	6	2	3	0	381	0	9	734	0
5:00 PM	0	0	3	0	0	0	0	440	3	5	608	0
6:00 PM	5	0	3	0	0	0	0	365	4	4	384	0

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Existing
Hourly Volumes

Exhibit
E-2

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Square Feet	Average Daily Traffic
Daily Trips = 7.62 x Units - 50.48	3,900,000 sq.ft.	6200

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing (ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 3100		3100
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	364	276	88
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	404	263	141
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	386	234	152
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	445	270	175
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	373	188	185
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	452	223	229
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	538	296	242
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	383	208	175
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	437	244	193
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	556	201	355
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	459	158	301
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	421	147	274
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	236	61	175
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**5454**	**2769**	**2685**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes for Phase 1 (Background Traffic)

Exhibit E-3

Trip Assignment for Phase 1 Warehousing (Truck Trips)

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM			7					11		22	33	
7:00 AM			11					17		21	32	
8:00 AM			12					18		19	28	
9:00 AM			14					21		22	32	
10:00 AM			15					22		15	23	
11:00 AM			19					27		18	27	
12:00 PM			19					29		23	36	
1:00 PM			14					21		17	25	
2:00 PM			16					23		20	29	
3:00 PM			28					43		16	24	
4:00 PM			24					36		13	19	
5:00 PM			22					33		11	18	
6:00 PM			14					21		5	7	

Note: The northbound right and eastbound through movement include trips exiting the site (orange). The westbound through and westbound left movements includes trips entering the site (green). The trip distribution percentages are detailed below.

Warehouse Trips

20% of warehousing trips are truck trips per the ITE Trip Generation Manual, 9th Edition.

Outbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as eastbound through movements.

100% of trips are generated east of the intersection (northbound right outbound)

Inbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as westbound through movements.

100% of trips are generated east of the intersection (westbound left inbound)

Trip Assignment for Phase 1 Warehousing (Truck Trips)

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM			25					38		80	119	
7:00 AM			41					61		75	114	
8:00 AM			43					66		67	101	
9:00 AM			50					76		77	117	
10:00 AM			53					80		54	81	
11:00 AM			66					99		65	96	
12:00 PM			69					105		85	128	
1:00 PM			50					76		60	90	
2:00 PM			56					83		71	105	
3:00 PM			103					153		58	87	
4:00 PM			87					130		46	68	
5:00 PM			79					118		42	64	
6:00 PM			50					76		18	26	

Note: The northbound right and eastbound through movement include trips exiting the site (orange). The westbound through and westbound left movements includes trips entering the site (green). The trip distribution percentages are detailed below.

Warehouse Trips

80% of warehousing trips are passenger car trips per the ITE Trip Generation Manual, 9th Edition.

Outbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as eastbound through movements.

90% of trips are generated east of the intersection (northbound right outbound)

10% of trips are generated west of the intersection, but are assumed to utilize the access along MD 276

Inbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as westbound through movements.

90% of trips are generated east of the intersection (westbound left inbound)

10% of trips are generated west of the intersection, but are assumed to utilize the access along MD 276

Intersection Turning Movement Count

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	2	0	37	10	0	3	4	785	1	103	306	20
7:00 AM	1	0	58	12	0	5	3	810	4	98	414	8
8:00 AM	13	0	65	8	0	3	0	593	6	93	328	9
9:00 AM	3	0	67	8	0	3	2	522	3	102	411	7
10:00 AM	2	1	72	12	0	3	2	442	4	72	348	13
11:00 AM	2	0	87	4	1	5	3	439	0	85	408	5
12:00 PM	2	0	89	3	0	1	0	450	4	111	482	5
1:00 PM	12	0	70	11	0	1	1	410	10	81	494	8
2:00 PM	10	0	79	1	0	1	0	472	4	95	584	2
3:00 PM	8	0	134	2	0	0	0	528	2	77	732	6
4:00 PM	7	0	117	6	2	3	0	547	0	68	821	0
5:00 PM	0	0	104	0	0	0	0	591	3	58	690	0
6:00 PM	5	0	67	0	0	0	0	462	4	27	417	0

Note: Volumes above are the existing turning movement count plus the Phase 1 trip assignments.

Intersection Input Values

Major = 2 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Note: MD 275 has a posted speed limit of 50 MPH within the vicinity of the intersection.

Required Traffic Volumes

	Major	Minor
Condition A Use	420	105
Condition B Use	630	53
Combination A & B Use	Major	Minor
for Condition A	336	84
&	&	&
for Condition B	504	42

Results of Warrant 1 Analysis

Time Begin	Main Line	Minor - Westbound Left	Warrant #1 Condition A	Warrant #1 Condition B	Warrant #1 Condition A&B
6:00 AM	790	103	0	1	1
7:00 AM	817	98	0	1	1
8:00 AM	599	93	0	0	1
9:00 AM	527	102	0	0	1
10:00 AM	448	72	0	0	0
11:00 AM	442	85	0	0	0
12:00 PM	454	111	1	0	0
1:00 PM	421	81	0	0	0
2:00 PM	476	95	0	0	0
3:00 PM	530	77	0	0	0
4:00 PM	547	68	0	0	0
5:00 PM	594	58	0	0	0
6:00 PM	466	27	0	0	0
Number of Hours Satisfied?			1	2	4
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

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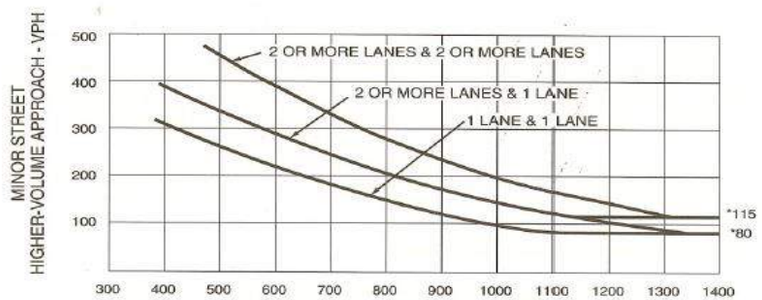
Traffic Engineering & Transportation Planning

TSWA for Phase 1 of Bainbridge

**** Warrant #1 is Not Satisfied ****

Exhibit E-5a

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	2	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor - Westbound Left	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	790	103		1
7:00 AM	817	98		1
8:00 AM	599	93		0
9:00 AM	527	102		0
10:00 AM	448	72		0
11:00 AM	442	85		0
12:00 PM	454	111	N/A	0
1:00 PM	421	81		0
2:00 PM	476	95		0
3:00 PM	530	77		0
4:00 PM	547	68		0
5:00 PM	594	58		0
6:00 PM	466	27		0
Number of Hours Satisfied?				2
Warrant 2 Satisfied?				No

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	TSWA for Phase 1 of Bainbridge **** Warrant #2 is Not Satisfied ****	**Exhibit E-5b**

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Multifamily Low-Rise Housing (ITE-220)	Units	Average Daily Traffic
Daily Trips = 6.41 x Units + 75.31	306 units	2037

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Multifamily Low-Rise Housing (ITE-220)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 1019		1018
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	4.2%	1.4%	6.9%	85	15	70
7:00 AM - 8:00 AM	6.5%	2.0%	10.8%	132	22	110
8:00 AM - 9:00 AM	5.8%	3.1%	8.5%	119	33	86
9:00 AM - 10:00 AM	3.9%	2.9%	4.9%	79	29	50
10:00 AM- 11:00 AM	3.6%	2.4%	4.8%	73	24	49
11:00 AM - 12:00 PM	4.3%	3.8%	4.7%	87	39	48
12:00 PM - 1:00 PM	4.3%	4.5%	4.1%	88	46	42
1:00 PM - 2:00 PM	4.2%	4.0%	4.4%	86	41	45
2:00 PM - 3:00 PM	5.2%	5.6%	4.9%	107	57	50
3:00 PM - 4:00 PM	6.1%	6.9%	5.3%	125	71	54
4:00 PM - 5:00 PM	7.9%	10.1%	5.6%	160	103	57
5:00 PM - 6:00 PM	9.5%	11.4%	7.6%	193	116	77
6:00 PM - 7:00 PM	8.2%	9.7%	6.7%	167	99	68
Total 6:00 AM - 7:00 PM	**73.6%**	**68.0%**	**79.2%**	**1501**	**695**	**806**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes for Phase 1A (Residential)

Exhibit E-6a

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Square Feet	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	1,000,000 sq.ft.	1618

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing (ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 809		809
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	95	72	23
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	106	69	37
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	101	61	40
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	116	70	46
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	97	49	48
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	118	58	60
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	140	77	63
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	100	54	46
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	114	64	50
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	145	52	93
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	120	41	79
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	110	39	71
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	62	16	46
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1424**	**722**	**702**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes for Phase 1A (Warehousing)

Exhibit E-6b

Trip Assignment for Phase 1A Residential

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM			32							7		
7:00 AM			50							10		
8:00 AM			39							15		
9:00 AM			23							13		
10:00 AM			22							11		
11:00 AM			22							18		
12:00 PM			19							21		
1:00 PM			20							18		
2:00 PM			23							26		
3:00 PM			24							32		
4:00 PM			26							46		
5:00 PM			35							52		
6:00 PM			31							45		

Note: The northbound right movement includes trips exiting the site (orange). The westbound left movement includes trips entering the site (green). The trip distribution percentages are detailed below.

Residential Trips

Outbound

90% of trips are generated east of the intersection (northbound right outbound)

50% of trips destined to the east of the intersection are assumed to utilize an alternate route to access MD 175 eastbound.

10% of trips are generated west of the intersection, and are assumed to utilize alternate routes to access the site.

Inbound

90% of trips are generated east of the intersection (westbound left inbound)

50% of trips destined to the east of the intersection are assumed to utilize an alternate route to access MD 175 eastbound.

10% of trips are generated west of the intersection, and are assumed to utilize alternate routes to access the site.

Trip Assignment for Phase 1A Warehousing (Truck Trips)

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM			2					3		5	9	
7:00 AM			3					4		6	8	
8:00 AM			3					5		5	7	
9:00 AM			3					6		6	8	
10:00 AM			4					6		4	6	
11:00 AM			5					7		5	7	
12:00 PM			5					8		6	9	
1:00 PM			3					6		5	6	
2:00 PM			4					6		5	8	
3:00 PM			8					11		4	6	
4:00 PM			7					9		3	5	
5:00 PM			5					9		3	5	
6:00 PM			3					6		1	2	

Note: The northbound right and eastbound through movement include trips exiting the site (orange). The westbound through and westbound left movements includes trips entering the site (green). The trip distribution percentages are detailed below.

Warehouse Trips

20% of warehousing trips are truck trips per the ITE Trip Generation Manual, 9th Edition.

Outbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as eastbound through movements.

100% of trips are generated east of the intersection (northbound right outbound)

Inbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as westbound through movements.

100% of trips are generated east of the intersection (westboundleft inbound)

Trip Assignment for Phase 1A Warehousing (Passenger Car Trips)

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM			7					10		21	31	
7:00 AM			11					16		20	30	
8:00 AM			12					17		18	26	
9:00 AM			13					20		20	30	
10:00 AM			14					21		14	21	
11:00 AM			17					26		17	25	
12:00 PM			18					27		22	33	
1:00 PM			13					20		16	23	
2:00 PM			14					22		18	28	
3:00 PM			27					40		15	22	
4:00 PM			23					34		12	18	
5:00 PM			20					31		11	17	
6:00 PM			13					20		5	7	

Note: The northbound right and eastbound through movement include trips exiting the site (orange). The westbound through and westbound left movements includes trips entering the site (green). The trip distribution percentages are detailed below.

Warehouse Trips

80% of warehousing trips are passenger car trips per the ITE Trip Generation Manual, 9th Edition.

Outbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as eastbound through movements.

90% of trips are generated east of the intersection (northbound right outbound)

10% of trips are generated west of the intersection, but are assumed to utilize the access along MD 276

Inbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as westbound through movements.

90% of trips are generated east of the intersection (westbound .left inbound)

10% of trips are generated west of the intersection, but are assumed to utilize the access along MD 276

Intersection Turning Movement Count

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	2	0	78	10	0	3	4	798	1	136	346	20
7:00 AM	1	0	122	12	0	5	3	830	4	134	452	8
8:00 AM	13	0	119	8	0	3	0	615	6	131	361	9
9:00 AM	3	0	106	8	0	3	2	548	3	141	449	7
10:00 AM	2	1	112	12	0	3	2	469	4	101	375	13
11:00 AM	2	0	131	4	1	5	3	472	0	125	440	5
12:00 PM	2	0	131	3	0	1	0	485	4	160	524	5
1:00 PM	12	0	106	11	0	1	1	436	10	120	523	8
2:00 PM	10	0	120	1	0	1	0	500	4	144	620	2
3:00 PM	8	0	193	2	0	0	0	579	2	128	760	6
4:00 PM	7	0	173	6	2	3	0	590	0	129	844	0
5:00 PM	0	0	164	0	0	0	0	631	3	124	712	0
6:00 PM	5	0	114	0	0	0	0	488	4	78	426	0

Note: Volumes above are the existing turning movement count plus the Phase 1 and 1A trip assignments.

Intersection Input Values

Major = 2 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Note: MD 275 has a posted speed limit of 50 MPH within the vicinity of the intersection.

Required Traffic Volumes

	Major	Minor
Condition A Use	420	105
Condition B Use	630	53
Combination A & B Use	Major	Minor
for Condition A	336	84
&	&	&
for Condition B	504	42

Results of Warrant 1 Analysis

Time Begin	Main Line	Minor - Westbound Left	Warrant #1 Condition A	Warrant #1 Condition B	Warrant #1 Condition A&B
6:00 AM	803	136	1	1	1
7:00 AM	837	134	1	1	1
8:00 AM	621	131	1	0	1
9:00 AM	553	141	1	0	1
10:00 AM	475	101	0	0	0
11:00 AM	475	125	1	0	0
12:00 PM	489	160	1	0	0
1:00 PM	447	120	1	0	0
2:00 PM	504	144	1	0	1
3:00 PM	581	128	1	0	1
4:00 PM	590	129	1	0	1
5:00 PM	634	124	1	1	1
6:00 PM	492	78	0	0	0
Number of Hours Satisfied?			11	3	8
Condition Satisfied?			Yes	No	Yes

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc.

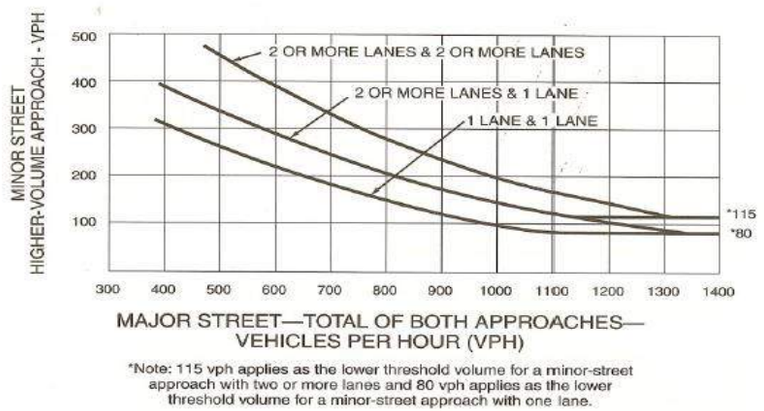
Traffic Engineering & Transportation Planning

TSWA for Phase 1A of Bainbridge

**** Warrant #1 is Satisfied ****

Exhibit E-8a

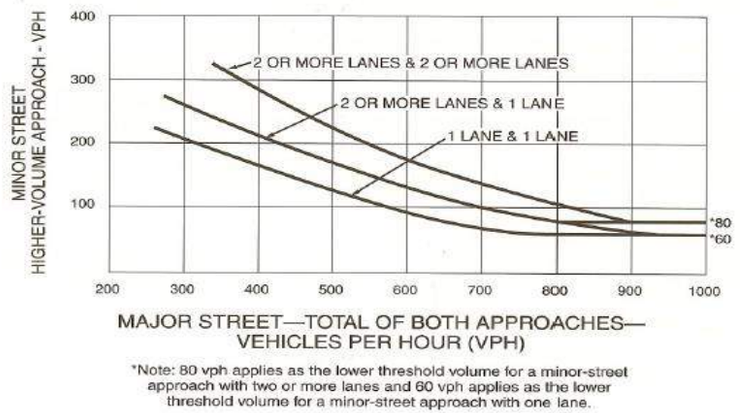
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	2	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor - Westbound Left	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	803	136		1
7:00 AM	837	134		1
8:00 AM	621	131		1
9:00 AM	553	141		0
10:00 AM	475	101		0
11:00 AM	475	125		0
12:00 PM	489	160	N/A	0
1:00 PM	447	120		0
2:00 PM	504	144		0
3:00 PM	581	128		0
4:00 PM	590	129		1
5:00 PM	634	124		1
6:00 PM	492	78		0
Number of Hours Satisfied?				5
Warrant 2 Satisfied?				Yes

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	TSWA for Phase 1A of Bainbridge **** Warrant #2 is Satisfied ****	**Exhibit E-8b**

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Square Feet	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	2,500,000 sq.ft.	3988

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing (ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 1994		
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	234	177	57
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	260	169	91
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	248	150	98
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	286	173	113
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	240	121	119
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	291	144	147
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	346	190	156
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	247	135	112
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	281	157	124
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	358	130	228
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	295	101	194
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	271	95	176
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	152	39	113
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**3509**	**1781**	**1728**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
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Diurnal Hourly Traffic Volumes for Phase 2 (Warehousing)

Exhibit E-9

Trip Assignment for Phase 2 Warehousing (Truck Trips)

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM			4					7		14	21	
7:00 AM			7					11		14	20	
8:00 AM			8					12		12	18	
9:00 AM			9					14		14	21	
10:00 AM			10					14		9	15	
11:00 AM			11					18		12	17	
12:00 PM			12					19		15	23	
1:00 PM			9					13		11	16	
2:00 PM			10					15		12	19	
3:00 PM			19					27		10	16	
4:00 PM			16					23		8	12	
5:00 PM			14					21		8	11	
6:00 PM			9					14		3	5	

Note: The northbound right and eastbound through movement include trips exiting the site (orange). The westbound through and westbound left movements includes trips entering the site (green). The trip distribution percentages are detailed below.

Warehouse Trips

20% of warehousing trips are truck trips per the ITE Trip Generation Manual, 9th Edition.

Outbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as eastbound through movements.

100% of trips are generated east of the intersection (northbound right outbound)

Inbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as westbound through movements.

100% of trips are generated east of the intersection (westboundleft inbound)

Trip Assignment for Phase 2 Warehousing (Passenger Car Trips)

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM			16					25		51	76	
7:00 AM			27					39		49	73	
8:00 AM			29					42		43	65	
9:00 AM			32					49		50	75	
10:00 AM			35					51		35	52	
11:00 AM			42					64		42	62	
12:00 PM			45					67		55	82	
1:00 PM			33					48		39	58	
2:00 PM			35					54		45	68	
3:00 PM			66					98		38	56	
4:00 PM			56					84		29	44	
5:00 PM			51					76		27	41	
6:00 PM			32					49		11	17	

Note: The northbound right and eastbound through movement include trips exiting the site (orange). The westbound through and westbound left movements includes trips entering the site (green). The trip distribution percentages are detailed below.

Warehouse Trips

80% of warehousing trips are passenger car trips per the ITE Trip Generation Manual, 9th Edition.

Outbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as eastbound through movements.

90% of trips are generated east of the intersection (northbound right outbound)

10% of trips are generated west of the intersection, but are assumed to utilize the access along MD 276

Inbound

60% of trips are assumed to utilize the site access along MD 276. These trips pass through the intersection as westbound through movements.

90% of trips are generated east of the intersection (westbound .left inbound)

10% of trips are generated west of the intersection, but are assumed to utilize the access along MD 276

Intersection Turning Movement Count

Hour Beginning	Diamond Jim Road Northbound			Industrial Driveway Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	2	0	98	10	0	3	4	830	1	201	443	20
7:00 AM	1	0	156	12	0	5	3	880	4	197	545	8
8:00 AM	13	0	156	8	0	3	0	669	6	186	444	9
9:00 AM	3	0	147	8	0	3	2	611	3	205	545	7
10:00 AM	2	1	157	12	0	3	2	534	4	145	442	13
11:00 AM	2	0	184	4	1	5	3	554	0	179	519	5
12:00 PM	2	0	188	3	0	1	0	571	4	230	629	5
1:00 PM	12	0	148	11	0	1	1	497	10	170	597	8
2:00 PM	10	0	165	1	0	1	0	569	4	201	707	2
3:00 PM	8	0	278	2	0	0	0	704	2	176	832	6
4:00 PM	7	0	245	6	2	3	0	697	0	166	900	0
5:00 PM	0	0	229	0	0	0	0	728	3	159	764	0
6:00 PM	5	0	155	0	0	0	0	551	4	92	448	0

Note: Volumes above are the existing turning movement count plus the Phases 1, 1A, and 2 trip assignments.

Intersection Input Values

Major = 2 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Note: MD 275 has a posted speed limit of 50 MPH within the vicinity of the intersection.

Required Traffic Volumes

	Major	Minor
Condition A Use	420	105
Condition B Use	630	53
Combination A & B Use	Major	Minor
for Condition A	336	84
&	&	&
for Condition B	504	42

Results of Warrant 1 Analysis

Time Begin	Main Line	Minor - Westbound Left	Warrant #1 Condition A	Warrant #1 Condition B	Warrant #1 Condition A&B
6:00 AM	835	201	1	1	1
7:00 AM	887	197	1	1	1
8:00 AM	675	186	1	1	1
9:00 AM	616	205	1	0	1
10:00 AM	540	145	1	0	1
11:00 AM	557	179	1	0	1
12:00 PM	575	230	1	0	1
1:00 PM	508	170	1	0	1
2:00 PM	573	201	1	0	1
3:00 PM	706	176	1	1	1
4:00 PM	697	166	1	1	1
5:00 PM	731	159	1	1	1
6:00 PM	555	92	0	0	1
Number of Hours Satisfied?			12	6	13
Condition Satisfied?			Yes	No	Yes

Eight Hours must be satisfied to satisfy Warrant #1 →

***Results →

Lenhart Traffic Consulting, Inc.

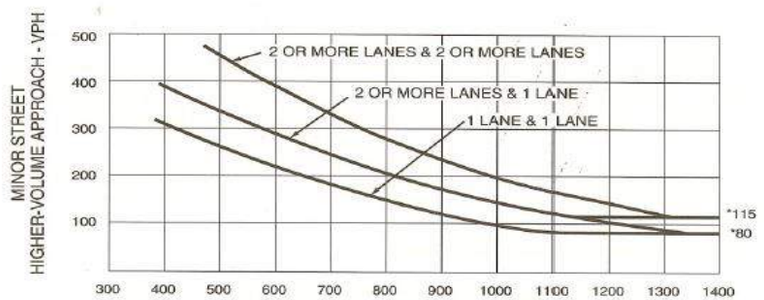
Traffic Engineering & Transportation Planning

TSWA for Phase 2 of Bainbridge

**** Warrant #1 is Satisfied ****

Exhibit E-11a

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	2	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor - Westbound Left	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	835	201		1
7:00 AM	887	197		1
8:00 AM	675	186		1
9:00 AM	616	205		1
10:00 AM	540	145		0
11:00 AM	557	179		1
12:00 PM	575	230	N/A	1
1:00 PM	508	170		0
2:00 PM	573	201		1
3:00 PM	706	176		1
4:00 PM	697	166		1
5:00 PM	731	159		1
6:00 PM	555	92		0
Number of Hours Satisfied?				10
Warrant 2 Satisfied?				Yes

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	TSWA for Phase 2 of Bainbridge **** Warrant #2 is Satisfied ****	**Exhibit E-11b**

Appendix F

Truck Percentage Calculations for I-95/MD 222 Interchange Intersections

I-95 On Ramps (Both Directions)

AM Peak PM Peak
Existing Truck Percentages: 14.6%

Morning Peak Hour	Existing			Background				Phase 1A				Phase 2			
	Total Vehicles	Heavy Vehicles	Passenger Cars	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage
Intersection 5															
Eastbound Left	90	13	77	185	24	161	13.0%	235	29	206	12.3%	267	41	226	15.4%
Intersection 6															
Westbound Right	190	28	162	193	28	165	14.5%	193	28	165	14.5%	193	28	165	14.5%

I-95 SB to MD 222

	AM Peak	PM Peak
Existing Truck Percentages:	19.2%	

Morning Peak Hour	Existing			Background				Phase 1A				Phase 2			
	Total Vehicles	Heavy Vehicles	Passenger Cars	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage
Intersection 3															
Southbound Left	117	22	95	119	22	97	18.5%	119	22	97	18.5%	119	22	97	18.5%
Southbound Right	22	4	18	181	42	139	23.2%	238	47	191	19.7%	340	60	280	17.6%

I-95 NB to MD 222

	AM Peak	PM Peak
Existing Truck Percentages:	16.8%	11.9%

Morning Peak Hour	Existing			Background				Phase 1A				Phase 2			
	Total Vehicles	Heavy Vehicles	Passenger Cars	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage
Intersection 4															
Southbound Left	59	10	49	53	10	43	18.9%	53	10	43	18.9%	53	10	43	18.9%
Southbound Right	103	17	86	400	55	345	13.8%	456	60	396	13.2%	558	73	485	13.1%

Evening Peak Hour	Existing			Background				Phase 1A				Phase 2			
	Total Vehicles	Heavy Vehicles	Passenger Cars	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage	Total Vehicles	Heavy Vehicles	Passenger Cars	Heay Veh. Percentage
Intersection 4															
Southbound Left	84	10	74	76	10	66	13.2%	76	10	66	13.2%	76	10	66	13.2%
Southbound Right	273	32	241	432	46	386	10.6%	488	54	434	11.1%	529	74	455	14.0%

Appendix G

Traffic Signal Warrant Analysis: MD 276 & Craigtown Road/Dr Jack Road

13-Hour Turning Movement Count (6:00 am - 7:00 pm)

	MD 276 Northbound				MD 276 Southbound				Dr. Jack Rd Eastbound				Craigtown Rd Westbound				
Time:	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Total
6:00-6:15	1	32	0	0	10	122	2	0	3	1	0	0	0	0	5	0	176
6:15-6:30	0	23	0	0	6	123	4	0	7	0	2	0	0	1	12	0	178
6:30-6:45	0	36	0	0	11	135	4	0	11	1	2	0	0	0	10	0	210
6:45-7:00	0	40	0	0	7	110	2	0	10	0	0	0	0	1	11	0	181
7:00-7:15	0	28	0	0	8	107	3	0	17	2	1	0	0	0	9	0	175
7:15-7:30	0	38	1	0	5	119	4	0	7	2	2	0	0	1	8	0	187
7:30-7:45	0	47	0	0	4	125	5	0	11	0	0	0	0	0	19	0	211
7:45-8:00	1	47	0	0	6	97	6	0	5	0	0	0	0	5	10	0	177
8:00-8:15	1	41	0	0	9	104	4	0	6	1	0	0	0	1	12	0	179
8:15-8:30	0	36	0	0	12	91	5	0	8	1	1	0	0	0	11	0	165
8:30-8:45	0	40	0	0	8	94	4	0	13	1	1	0	1	0	17	0	179
8:45-9:00	1	51	0	0	10	88	9	0	9	1	0	0	0	0	19	0	188
9:00-9:15	1	55	0	0	7	106	9	0	10	2	1	2	1	1	13	0	208
9:15-9:30	0	50	0	0	7	70	4	0	5	2	0	0	0	0	15	0	153
9:30-9:45	1	44	0	0	8	84	6	0	3	0	1	0	1	1	13	0	162
9:45-10:00	0	46	0	0	7	74	5	0	6	1	1	0	0	2	23	0	165
10:00-10:15	1	49	0	0	2	69	7	0	6	1	0	0	1	2	8	1	147
10:15-10:30	0	40	0	0	7	64	4	0	4	0	1	0	0	2	12	0	134
10:30-10:45	0	40	0	0	7	76	11	0	5	0	2	0	0	1	7	0	149
10:45-11:00	2	58	0	0	7	64	10	0	4	0	1	0	1	0	9	0	156
11:00-11:15	1	48	0	0	7	71	4	0	1	2	1	0	0	2	11	0	148
11:15-11:30	0	43	0	0	8	60	3	0	8	3	0	1	0	3	19	0	148
11:30-11:45	2	54	0	0	6	61	8	0	7	0	0	0	1	3	17	0	159
11:45-12:00	1	43	1	0	9	60	6	0	3	1	0	0	0	1	16	0	141
12:00-12:15	0	45	0	0	7	67	8	0	7	0	1	0	0	0	16	0	151
12:15-12:30	0	55	1	0	6	67	7	0	7	1	1	0	1	2	13	0	161
12:30-12:45	2	61	0	0	7	72	6	0	8	4	1	0	1	0	15	0	177
12:45-1:00	1	44	0	0	9	63	4	0	5	2	0	0	1	2	16	0	147
1:00-1:15	1	47	0	0	9	53	8	0	3	2	0	0	0	5	14	0	142
1:15-1:30	0	59	0	0	16	85	9	0	9	1	0	0	1	1	25	0	206
1:30-1:45	0	42	1	0	6	83	9	0	2	0	1	0	1	5	27	0	177
1:45-2:00	2	56	0	0	7	60	10	0	7	1	1	0	0	1	31	0	176
2:00-2:15	2	82	0	0	7	58	10	0	7	2	1	1	0	0	22	0	192
2:15-2:30	0	72	0	0	3	70	6	0	7	1	2	1	0	2	22	0	186
2:30-2:45	2	71	0	0	11	65	19	0	5	1	0	0	0	2	26	0	202
2:45-3:00	0	65	0	0	14	74	10	0	3	5	1	0	0	1	15	1	189
3:00-3:15	1	90	0	0	10	68	9	0	5	0	1	0	1	1	24	0	210
3:15-3:30	2	85	0	0	4	70	17	0	5	1	0	0	1	0	24	0	209
3:30-3:45	3	89	0	0	9	64	12	0	6	2	0	0	0	0	21	0	206
3:45-4:00	1	102	0	0	7	70	15	0	6	2	1	0	0	0	21	0	225
4:00-4:15	4	112	1	0	9	66	13	0	6	2	1	0	0	1	18	0	233
4:15-4:30	3	135	0	0	10	82	21	0	7	1	3	0	0	2	38	0	302
4:30-4:45	2	131	0	0	9	68	7	0	8	1	1	1	0	0	28	1	257
4:45-5:00	0	143	1	0	9	66	13	0	14	1	1	0	0	0	20	2	270
5:00-5:15	2	123	0	0	3	86	22	0	7	2	2	0	0	4	27	0	278
5:15-5:30	2	81	1	0	12	103	14	0	11	1	1	0	0	2	24	0	252
5:30-5:45	0	95	1	0	14	102	16	0	10	2	1	0	0	2	27	0	270
5:45-6:00	1	88	1	0	11	86	20	0	11	3	2	0	0	1	21	0	245
6:00-6:15	1	78	0	0	11	65	15	0	13	1	1	0	0	1	25	0	211
6:15-6:30	1	60	0	0	6	77	11	0	9	1	0	0	0	0	21	0	186
6:30-6:45	1	67	0	0	7	73	17	0	9	1	1	0	0	4	14	0	194
6:45-7:00	1	55	0	0	9	85	17	0	8	0	1	0	0	4	10	0	190

	MD 276 Northbound				MD 276 Southbound				Dr. Jack Rd Eastbound				Craigtown Rd Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Total
Hourly Totals																	
6:00-7:00	1	131	0	0	34	490	12	0	31	2	4	0	0	2	38	0	745
7:00-8:00	1	160	1	0	23	448	18	0	40	4	3	0	0	6	46	0	750
8:00-9:00	2	168	0	0	39	377	22	0	36	4	2	0	1	1	59	0	711
9:00-10:00	2	195	0	0	29	334	24	0	24	5	3	2	2	4	64	0	688
10:00-11:00	3	187	0	0	23	273	32	0	19	1	4	0	2	5	36	1	586
11:00-12:00	4	188	1	0	30	252	21	0	19	6	1	1	1	9	63	0	596
12:00-1:00	3	205	1	0	29	269	25	0	27	7	3	0	3	4	60	0	636
1:00-2:00	3	204	1	0	38	281	36	0	21	4	2	0	2	12	97	0	701
2:00-3:00	4	290	0	0	35	267	45	0	22	9	4	2	0	5	85	1	769
3:00-4:00	7	366	0	0	30	272	53	0	22	5	2	0	2	1	90	0	850
4:00-5:00	9	521	2	0	37	282	54	0	35	5	6	1	0	3	104	3	1062
5:00-6:00	5	387	3	0	40	377	72	0	39	8	6	0	0	9	99	0	1045
6:00-7:00	4	260	0	0	33	300	60	0	39	3	3	0	0	9	70	0	781

Peak Hour
Turning Movement Count

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

Intersection: MD 97 & Tilton Drive
Weather: Clear
Count by: Count Cam
Count Day/Date: Wednesday, May 31, 2023
County: Montgomery

Table 4C-1. Warrant 1, Eight Hour Vehicular Volume

Condition A -- Minimum Vehicular Volume									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher volume minor street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B -- Interruption of Continuous Traffic									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher volume minor street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Source: Manual on Uniform Traffic Control Devices (MUTCD) 2003 Edition

[a] Basic minimum hourly volume.

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures.

[c] May be used when the major street speed exceeds 40 mph or in an isolated community with a population < 10,000.

[d] May be used in combination of Conditions A and B after adequate trial of other remedial measures when the major street exceeds 40 mph or in an isolated community with a population of < 10,000.

Existing Intersection Turning Movement Count

Hour Beginning	MD 276			MD 276			Dr. Jack Road			Craigtown Road		
	Northbound			Southbound			Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	1	131	0	34	490	12	31	2	4	0	2	38
7:00 AM	1	160	1	23	448	18	40	4	3	0	6	46
8:00 AM	2	168	0	39	377	22	36	4	2	1	1	59
9:00 AM	2	195	0	29	334	24	24	5	3	2	4	64
10:00 AM	3	187	0	23	273	32	19	1	4	2	5	36
11:00 AM	4	188	1	30	252	21	19	6	1	1	9	63
12:00 PM	3	205	1	29	269	25	27	7	3	3	4	60
1:00 PM	3	204	1	38	281	36	21	4	2	2	12	97
2:00 PM	4	290	0	35	267	45	22	9	4	0	5	85
3:00 PM	7	366	0	30	272	53	22	5	2	2	1	90
4:00 PM	9	521	2	37	282	54	35	5	6	0	3	104
5:00 PM	5	387	3	40	377	72	39	8	6	0	9	99
6:00 PM	4	260	0	33	300	60	39	3	3	0	9	70

Lenhart Traffic Consulting, Inc.

Traffic Engineering & Transportation Planning

Existing Peak Hour Volumes

MD 276 & Craigtown Road/Dr Jack Road

Exhibit G-2a

Intersection Turning Movement Count

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	1	131	0	34	490	12	31	2	4	0	2	38
7:00 AM	1	160	1	23	448	18	40	4	3	0	6	46
8:00 AM	2	168	0	39	377	22	36	4	2	1	1	59
9:00 AM	2	195	0	29	334	24	24	5	3	2	4	64
10:00 AM	3	187	0	23	273	32	19	1	4	2	5	36
11:00 AM	4	188	1	30	252	21	19	6	1	1	9	63
12:00 PM	3	205	1	29	269	25	27	7	3	3	4	60
1:00 PM	3	204	1	38	281	36	21	4	2	2	12	97
2:00 PM	4	290	0	35	267	45	22	9	4	0	5	85
3:00 PM	7	366	0	30	272	53	22	5	2	2	1	90
4:00 PM	9	521	2	37	282	54	35	5	6	0	3	104
5:00 PM	5	387	3	40	377	72	39	8	6	0	9	99
6:00 PM	4	260	0	33	300	60	39	3	3	0	9	70

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
Condition B Use	525	53
Combination A & B Use for Condition A	280	84
& for Condition B	420	42

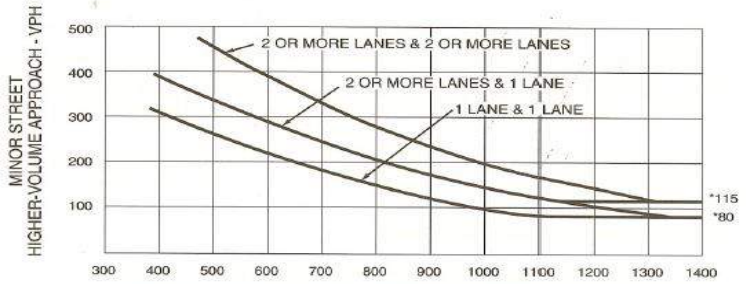
Results of Warrant 1 Analysis

Time Begin	Main Line	Minor	Warrant #1 Condition A	Warrant #1 Condition B	Warrant #1 Condition A&B
6:00 AM	132	37	0	0	0
7:00 AM	162	47	0	0	0
8:00 AM	170	42	0	0	0
9:00 AM	197	32	0	0	0
10:00 AM	190	24	0	0	0
11:00 AM	193	26	0	0	0
12:00 PM	209	37	0	0	0
1:00 PM	208	27	0	0	0
2:00 PM	294	35	0	0	0
3:00 PM	373	29	0	0	0
4:00 PM	532	46	0	0	0
5:00 PM	395	53	0	0	0
6:00 PM	264	45	0	0	0
Number of Hours Satisfied?			0	0	0
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Existing Conditions **** Warrant #1 is Not Satisfied ****	**Exhibit G-2b**

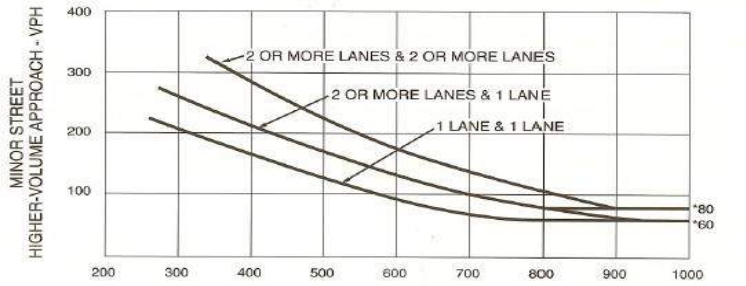
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	132	37		0
7:00 AM	162	47		0
8:00 AM	170	42		0
9:00 AM	197	32		0
10:00 AM	190	24		0
11:00 AM	193	26		0
12:00 PM	209	37	N/A	0
1:00 PM	208	27		0
2:00 PM	294	35		0
3:00 PM	373	29		0
4:00 PM	532	46		0
5:00 PM	395	53		0
6:00 PM	264	45		0
Number of Hours Satisfied?				0
Warrant 2 Satisfied?				No

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis Under Existing Conditions **** Warrant #2 is Not Satisfied ****	**Exhibit G-2c**

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	3,900,000 sq.ft	6200

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	3100	3100
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	364	276	88
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	404	263	141
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	386	234	152
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	445	270	175
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	373	188	185
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	452	223	229
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	538	296	242
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	383	208	175
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	437	244	193
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	556	201	355
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	459	158	301
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	421	147	274
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	236	61	175
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**5454**	**2769**	**2685**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1
(All Vehicles)

Exhibit G-3a

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	3,900,000 sq.ft	2113

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	1057	1056
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	124	94	30
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	138	90	48
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	132	80	52
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	152	92	60
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	127	64	63
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	154	76	78
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	183	101	82
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	131	71	60
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	149	83	66
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	189	68	121
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	156	53	103
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	143	50	93
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	80	20	60
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1858**	**942**	**916**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1
(Heavy Vehicles)

Exhibit G-3b

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	3,900,000 sq.ft	4087

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 2044		2043
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	240	182	58
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	266	173	93
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	254	154	100
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	293	178	115
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	246	124	122
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	298	147	151
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	355	195	160
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	252	137	115
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	288	161	127
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	367	133	234
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	303	105	198
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	278	97	181
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	156	41	115
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**3596**	**1827**	**1769**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1
(Passenger Cars)

Exhibit G-3c

Trip Assignment for Bainbridge Phase 1 (Heavy Truck Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM												
7:00 AM												
8:00 AM												
9:00 AM												
10:00 AM												
11:00 AM												
12:00 PM												
1:00 PM												
2:00 PM												
3:00 PM												
4:00 PM												
5:00 PM												
6:00 PM												

Note: The trip distribution is based on the trip distribution and diversions utilized for the Phase 1 Bainbridge warehousing development, which is considered a background development for this project. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

50% of trips to/from I-95 NB and do not pass through the intersection

50% of trips to/from I-95 SB and do not pass through the intersection

Inbound

50% of trips to/from I-95 NB and do not pass through the intersection

50% of trips to/from I-95 SB and do not pass through the intersection

Trip Assignment for Bainbridge Phase 1 (Passenger Car Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		3			9							
7:00 AM		5			9							
8:00 AM		5			8							
9:00 AM		6			9							
10:00 AM		6			6							
11:00 AM		8			7							
12:00 PM		8			10							
1:00 PM		6			7							
2:00 PM		6			8							
3:00 PM		12			7							
4:00 PM		10			5							
5:00 PM		9			5							
6:00 PM		6			2							

Note: The trip distribution is based on the trip distribution and diversions utilized for the Phase 1 Bainbridge warehousing development, which is considered a background development for this project. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as northbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as southbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	1,000,000 sq.ft	1618

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	809	809
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	95	72	23
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	106	69	37
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	101	61	40
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	116	70	46
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	97	49	48
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	118	58	60
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	140	77	63
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	100	54	46
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	114	64	50
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	145	52	93
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	120	41	79
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	110	39	71
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	62	16	46
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1424**	**722**	**702**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	1,000,000 sq.ft	547

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	274	273
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	32	24	8
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	36	24	12
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	34	21	13
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	39	24	15
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	33	17	16
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	40	20	20
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	47	26	21
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	34	19	15
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	39	22	17
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	49	18	31
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	40	13	27
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	37	13	24
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	21	6	15
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**481**	**247**	**234**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
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(Heavy Vehicles)

Exhibit G-5b

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	1,000,000 sq.ft	1071

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	536	535
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	63	48	15
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	70	45	25
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	67	40	27
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	77	46	31
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	64	32	32
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	78	38	40
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	93	51	42
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	66	35	31
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	75	42	33
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	96	34	62
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	80	28	52
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	73	26	47
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	41	10	31
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**943**	**475**	**468**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1A
(Passenger Cars)

Exhibit
G-5c

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Multifamily Housing, Low-Rise (ITE-220)	Density	Average Daily Traffic
Daily Trips = 6.41 x units + 75.31	306 sq. ft.	2037

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Multifamily Housing, Low-Rise(ITE-220)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	1019	1018
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	4.2%	1.4%	6.9%	85	15	70
7:00 AM - 8:00 AM	6.5%	2.0%	10.8%	132	22	110
8:00 AM - 9:00 AM	5.8%	3.1%	8.5%	119	33	86
9:00 AM - 10:00 AM	3.9%	2.9%	4.9%	79	29	50
10:00 AM- 11:00 AM	3.6%	2.4%	4.8%	73	24	49
11:00 AM - 12:00 PM	4.3%	3.8%	4.7%	87	39	48
12:00 PM - 1:00 PM	4.3%	4.5%	4.1%	88	46	42
1:00 PM - 2:00 PM	4.2%	4.0%	4.4%	86	41	45
2:00 PM - 3:00 PM	5.2%	5.6%	4.9%	107	57	50
3:00 PM - 4:00 PM	6.1%	6.9%	5.3%	125	71	54
4:00 PM - 5:00 PM	7.9%	10.1%	5.6%	160	103	57
5:00 PM - 6:00 PM	9.5%	11.4%	7.6%	193	116	77
6:00 PM - 7:00 PM	8.2%	9.7%	6.7%	167	99	68
Total 6:00 AM - 7:00 PM	**73.6%**	**68.0%**	**79.2%**	**1501**	**695**	**806**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).
3. ITE does not provide diurnal percentages for ITE-822. Diurnal percentages for ITE-820 (Shopping Center) were utilized.

Trip Assignment for Bainbridge Phase 1A (Heavy Truck Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM												
7:00 AM												
8:00 AM												
9:00 AM												
10:00 AM												
11:00 AM												
12:00 PM												
1:00 PM												
2:00 PM												
3:00 PM												
4:00 PM												
5:00 PM												
6:00 PM												

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

50% of trips to/from I-95 NB and do not pass through the intersection

50% of trips to/from I-95 SB and do not pass through the intersection

Inbound

50% of trips to/from I-95 NB and do not pass through the intersection

50% of trips to/from I-95 SB and do not pass through the intersection

Trip Assignment for Bainbridge Phase 1A (Passenger Car Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		1			2							
7:00 AM		1			2							
8:00 AM		1			2							
9:00 AM		2			2							
10:00 AM		2			2							
11:00 AM		2			2							
12:00 PM		2			3							
1:00 PM		2			2							
2:00 PM		2			2							
3:00 PM		3			2							
4:00 PM		3			1							
5:00 PM		2			1							
6:00 PM		2			1							

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as northbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as southbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Trip Assignment for Bainbridge Phase 1A (Residential)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		1			2							
7:00 AM		1			2							
8:00 AM		1			2							
9:00 AM		2			2							
10:00 AM		2			2							
11:00 AM		2			2							
12:00 PM		2			3							
1:00 PM		2			2							
2:00 PM		2			2							
3:00 PM		3			2							
4:00 PM		3			1							
5:00 PM		2			1							
6:00 PM		2			1							

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge residential development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as northbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as southbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Intersection Turning Movement Count

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	1	136	0	34	503	12	31	2	4	0	2	38
7:00 AM	1	167	1	23	461	18	40	4	3	0	6	46
8:00 AM	2	175	0	39	389	22	36	4	2	1	1	59
9:00 AM	2	205	0	29	347	24	24	5	3	2	4	64
10:00 AM	3	197	0	23	283	32	19	1	4	2	5	36
11:00 AM	4	200	1	30	263	21	19	6	1	1	9	63
12:00 PM	3	217	1	29	285	25	27	7	3	3	4	60
1:00 PM	3	214	1	38	292	36	21	4	2	2	12	97
2:00 PM	4	300	0	35	279	45	22	9	4	0	5	85
3:00 PM	7	384	0	30	283	53	22	5	2	2	1	90
4:00 PM	9	537	2	37	289	54	35	5	6	0	3	104
5:00 PM	5	400	3	40	384	72	39	8	6	0	9	99
6:00 PM	4	270	0	33	304	60	39	3	3	0	9	70

Note: Volumes above combine the existing peak hour count with the Bainbridge Phase 1 background trips, assigned on Exhibits G-4a and G-4b, and the trips associated with Phase 1A, assigned on Exhibits G-6a, G-6b and G-6c.

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
	Major	Minor
Condition B Use	525	53
Combination A & B Use	Major	Minor
for Condition A	280	84
	&	&
for Condition B	420	42

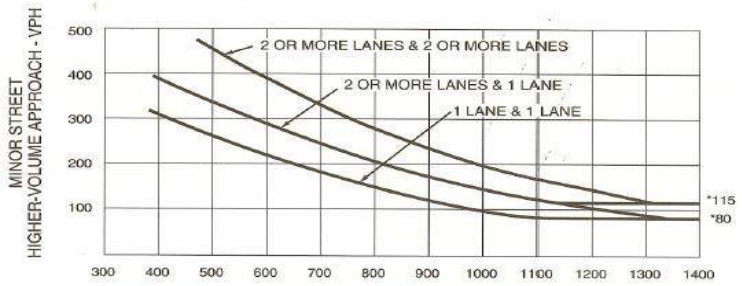
Results of Warrant 1 Analysis

Time Begin	Main Line	Minor	Warrant #1 Condition A	Condition B	Condition A&B
6:00 AM	686	37	0	0	0
7:00 AM	671	47	0	0	0
8:00 AM	627	42	0	0	0
9:00 AM	607	32	0	0	0
10:00 AM	538	24	0	0	0
11:00 AM	519	26	0	0	0
12:00 PM	560	37	0	0	0
1:00 PM	584	27	0	0	0
2:00 PM	663	35	0	0	0
3:00 PM	757	29	0	0	0
4:00 PM	928	46	0	0	0
5:00 PM	904	53	0	1	0
6:00 PM	671	45	0	0	0
Number of Hours Satisfied?			0	1	0
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 1A **** Warrant #1 is Not Satisfied ****	**Exhibit G-7a**

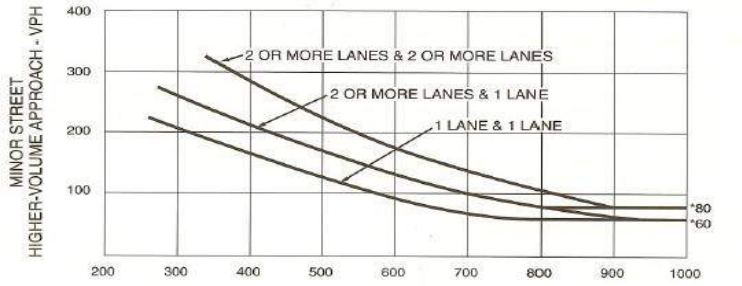
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	686	37		0
7:00 AM	671	47		0
8:00 AM	627	42		0
9:00 AM	607	32		0
10:00 AM	538	24		0
11:00 AM	519	26		0
12:00 PM	560	37	N/A	0
1:00 PM	584	27		0
2:00 PM	663	35		0
3:00 PM	757	29		0
4:00 PM	928	46		0
5:00 PM	904	53		0
6:00 PM	671	45		0
Number of Hours Satisfied?				0
Warrant 2 Satisfied?				No

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 1A **** Warrant #2 is Not Satisfied ****	**Exhibit G-7b**

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	2,500,000 sq.ft	3988

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 1994		
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	234	177	57
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	260	169	91
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	248	150	98
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	286	173	113
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	240	121	119
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	291	144	147
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	346	190	156
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	247	135	112
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	281	157	124
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	358	130	228
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	295	101	194
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	271	95	176
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	152	39	113
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**3509**	**1781**	**1728**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 2
(All Vehicles)

Exhibit G-8a

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	2,500,000 sq.ft	1357

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	679	678
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	80	61	19
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	89	58	31
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	85	52	33
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	97	59	38
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	82	41	41
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	99	49	50
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	118	65	53
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	84	46	38
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	96	54	42
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	122	44	78
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	100	34	66
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	92	32	60
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	52	14	38
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1196**	**609**	**587**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 2
(Heavy Vehicles)

Exhibit
G-8b

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	2,500,000 sq.ft	2631

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	1316	1315
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	154	116	38
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	171	111	60
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	163	98	65
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	189	114	75
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	158	80	78
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	192	95	97
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	228	125	103
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	163	89	74
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	185	103	82
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	236	86	150
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	195	67	128
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	179	63	116
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	100	25	75
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**2313**	**1172**	**1141**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1A
(Passenger Cars)

Exhibit
G-8c

Trip Assignment for Bainbridge Phase 2 (Heavy Truck Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM												
7:00 AM												
8:00 AM												
9:00 AM												
10:00 AM												
11:00 AM												
12:00 PM												
1:00 PM												
2:00 PM												
3:00 PM												
4:00 PM												
5:00 PM												
6:00 PM												

Note: The trip distribution is based on the trip distribution utilized for the Phase 2 Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

50% of trips to/from I-95 NB and do not pass through the intersection

50% of trips to/from I-95 SB and do not pass through the intersection

Inbound

50% of trips to/from I-95 NB and do not pass through the intersection

50% of trips to/from I-95 SB and do not pass through the intersection

Trip Assignment for Bainbridge Phase 2 (Passenger Car Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		2			6							
7:00 AM		3			6							
8:00 AM		3			5							
9:00 AM		4			6							
10:00 AM		4			4							
11:00 AM		5			5							
12:00 PM		5			6							
1:00 PM		4			4							
2:00 PM		4			5							
3:00 PM		8			4							
4:00 PM		6			3							
5:00 PM		6			3							
6:00 PM		4			1							

Note: The trip distribution is based on the trip distribution utilized for the Phase 2 Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as northbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as southbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Intersection Turning Movement Count

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Dr Jack Road Eastbound			Craigtown Road Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	1	138	0	34	509	12	31	2	4	0	2	38
7:00 AM	1	170	1	23	467	18	40	4	3	0	6	46
8:00 AM	2	178	0	39	394	22	36	4	2	1	1	59
9:00 AM	2	209	0	29	353	24	24	5	3	2	4	64
10:00 AM	3	201	0	23	287	32	19	1	4	2	5	36
11:00 AM	4	205	1	30	268	21	19	6	1	1	9	63
12:00 PM	3	222	1	29	291	25	27	7	3	3	4	60
1:00 PM	3	218	1	38	296	36	21	4	2	2	12	97
2:00 PM	4	304	0	35	284	45	22	9	4	0	5	85
3:00 PM	7	392	0	30	287	53	22	5	2	2	1	90
4:00 PM	9	543	2	37	292	54	35	5	6	0	3	104
5:00 PM	5	406	3	40	387	72	39	8	6	0	9	99
6:00 PM	4	274	0	33	305	60	39	3	3	0	9	70

Note: Volumes above combine the trips associated with Phase 2, assigned on Exhibits G-9a and G-9b, with the Phase 1A totals shown on Exhibit G-7a.

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
	Major	Minor
Condition B Use	525	53
	Major	Minor
Combination A & B Use for Condition A	280	84
& for Condition B	420	42

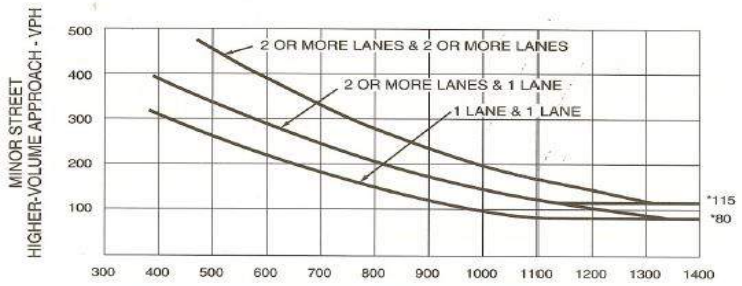
Results of Warrant 1 Analysis

Time Begin	Main Line	Minor	Warrant #1 Condition A	Condition B	Condition A&B
6:00 AM	694	37	0	0	0
7:00 AM	680	47	0	0	0
8:00 AM	635	42	0	0	0
9:00 AM	617	32	0	0	0
10:00 AM	546	24	0	0	0
11:00 AM	529	26	0	0	0
12:00 PM	571	37	0	0	0
1:00 PM	592	27	0	0	0
2:00 PM	672	35	0	0	0
3:00 PM	769	29	0	0	0
4:00 PM	937	46	0	0	0
5:00 PM	913	53	0	1	0
6:00 PM	676	45	0	0	0
Number of Hours Satisfied?			0	1	0
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 2 **** Warrant #1 is Not Satisfied ****	**Exhibit G-10a**

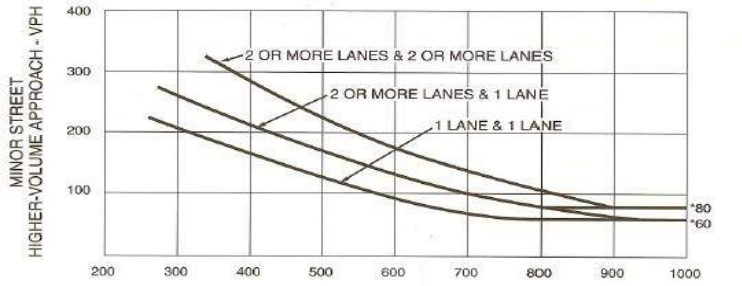
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	694	37		0
7:00 AM	680	47		0
8:00 AM	635	42		0
9:00 AM	617	32		0
10:00 AM	546	24		0
11:00 AM	529	26		0
12:00 PM	571	37	N/A	0
1:00 PM	592	27		0
2:00 PM	672	35		0
3:00 PM	769	29		0
4:00 PM	937	46		0
5:00 PM	913	53		0
6:00 PM	676	45		0
Number of Hours Satisfied?				0
Warrant 2 Satisfied?				No

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 2 **** Warrant #2 is Not Satisfied ****	**Exhibit G-10b**

Appendix H

Traffic Signal Warrant Analysis: MD 275 & Craigtown Road

13-Hour Turning Movement Count (6:00 am - 7:00 pm)

	Craigtown Rd Northbound				Craigtown Rd Southbound				MD 275 Eastbound				MD 275 Westbound				
Time:	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Total
6:00-6:15	0	0	0	0	13	1	0	0	4	142	1	0	0	26	6	0	193
6:15-6:30	0	2	2	0	9	0	2	0	2	170	1	0	0	27	11	0	226
6:30-6:45	0	1	1	0	11	1	3	0	1	168	1	0	0	48	8	0	243
6:45-7:00	0	4	1	0	11	2	1	0	3	159	1	0	1	49	8	0	240
7:00-7:15	0	2	3	0	12	3	2	0	2	187	2	0	0	38	7	0	258
7:15-7:30	0	2	4	0	8	0	0	0	1	185	0	0	0	56	5	0	261
7:30-7:45	1	4	3	0	7	2	1	0	2	186	2	0	0	55	17	0	280
7:45-8:00	3	1	1	0	7	0	2	0	2	143	4	0	0	49	12	0	224
8:00-8:15	1	4	0	2	8	3	1	0	3	126	6	0	1	48	10	2	215
8:15-8:30	1	0	0	0	15	0	2	0	2	129	5	0	1	41	12	0	208
8:30-8:45	0	4	2	0	12	3	2	0	2	123	11	0	0	46	7	0	212
8:45-9:00	3	2	0	0	5	1	2	0	1	107	12	0	1	54	22	0	210
9:00-9:15	1	3	2	0	9	1	2	0	2	124	4	0	1	67	10	0	226
9:15-9:30	1	4	3	0	6	1	0	0	0	79	2	0	1	58	7	0	162
9:30-9:45	0	3	0	0	9	3	0	0	5	98	3	0	1	49	15	0	186
9:45-10:00	2	2	2	0	8	2	2	0	3	82	2	1	2	34	21	0	163
10:00-10:15	1	1	5	0	4	1	2	0	4	84	2	0	0	55	11	0	170
10:15-10:30	1	3	1	0	4	1	3	0	2	77	3	0	2	43	9	0	149
10:30-10:45	0	2	2	0	14	0	2	0	2	91	2	0	0	43	12	0	170
10:45-11:00	2	1	1	0	10	1	0	0	1	75	1	0	2	60	8	0	162
11:00-11:15	1	0	3	0	10	1	1	0	3	87	0	0	0	44	13	0	163
11:15-11:30	0	0	1	0	9	2	1	0	4	73	0	0	1	47	17	0	155
11:30-11:45	0	1	1	0	4	1	3	0	2	72	0	0	0	62	14	0	160
11:45-12:00	0	1	2	0	11	1	2	0	2	77	0	0	2	56	15	2	171
12:00-12:15	0	9	3	0	5	5	1	0	3	77	2	0	1	52	13	0	171
12:15-12:30	1	1	0	0	8	1	4	0	3	69	2	0	1	61	14	0	165
12:30-12:45	1	3	1	0	7	0	2	0	0	73	2	0	1	64	12	0	166
12:45-1:00	1	1	1	0	3	2	1	0	1	64	4	0	1	60	19	0	158
1:00-1:15	0	2	1	0	9	1	2	0	1	69	6	0	1	60	13	0	165
1:15-1:30	0	3	1	0	5	3	1	0	1	90	12	0	2	68	12	0	198
1:30-1:45	0	2	3	0	10	4	3	0	0	78	10	0	2	66	30	0	208
1:45-2:00	3	9	1	0	8	2	4	0	2	70	2	0	1	63	22	0	187
2:00-2:15	1	4	0	0	9	1	3	0	1	85	1	0	3	89	14	0	211
2:15-2:30	0	1	3	0	6	0	2	0	4	73	6	0	2	79	16	0	192
2:30-2:45	0	5	1	0	8	2	2	0	0	74	4	0	2	98	23	0	219
2:45-3:00	1	3	0	0	15	4	1	0	4	96	4	0	2	97	16	0	243
3:00-3:15	0	1	3	0	8	2	2	0	1	90	4	0	2	130	28	0	271
3:15-3:30	0	2	3	0	8	3	2	0	1	77	1	0	1	116	27	0	241
3:30-3:45	0	3	1	0	7	0	1	0	1	66	2	0	2	131	29	0	243
3:45-4:00	0	2	1	0	6	0	4	0	1	84	0	0	3	130	22	0	253
4:00-4:15	1	1	1	0	4	3	2	0	2	64	3	0	1	166	25	0	273
4:15-4:30	0	2	2	0	6	2	8	0	3	84	3	0	2	163	26	0	301
4:30-4:45	2	2	1	1	6	3	5	0	3	77	1	1	2	168	26	1	299
4:45-5:00	0	2	0	0	4	1	4	0	2	81	2	0	2	176	20	0	294
5:00-5:15	1	2	1	0	5	4	6	0	1	94	6	0	2	131	31	0	284
5:15-5:30	0	4	2	0	7	2	4	0	3	100	1	0	2	116	20	0	261
5:30-5:45	1	3	3	0	10	2	5	0	2	94	2	0	4	120	21	0	267
5:45-6:00	1	6	2	0	7	1	5	0	3	78	1	0	2	117	24	0	247
6:00-6:15	2	5	0	0	12	2	4	0	5	87	2	0	1	96	21	0	237
6:15-6:30	0	4	0	0	10	0	2	0	3	80	2	0	1	73	12	0	187
6:30-6:45	1	2	0	1	5	6	5	0	2	79	2	0	3	69	17	2	194
6:45-7:00	0	2	0	0	5	3	2	0	0	68	3	0	3	71	12	0	169

	Craigtown Rd Northbound				Craigtown Rd Southbound				MD 275 Eastbound				MD 275 Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Total
Hourly Totals																	
6:00-7:00	0	7	4	0	44	4	6	0	10	639	4	0	1	150	33	0	902
7:00-8:00	4	9	11	0	34	5	5	0	7	701	8	0	0	198	41	0	1023
8:00-9:00	5	10	2	2	40	7	7	0	8	485	34	0	3	189	51	2	845
9:00-10:00	4	12	7	0	32	7	4	0	10	383	11	1	5	208	53	0	737
10:00-11:00	4	7	9	0	32	3	7	0	9	327	8	0	4	201	40	0	651
11:00-12:00	1	2	7	0	34	5	7	0	11	309	0	0	3	209	59	2	649
12:00-1:00	3	14	5	0	23	8	8	0	7	283	10	0	4	237	58	0	660
1:00-2:00	3	16	6	0	32	10	10	0	4	307	30	0	6	257	77	0	758
2:00-3:00	2	13	4	0	38	7	8	0	9	328	15	0	9	363	69	0	865
3:00-4:00	0	8	8	0	29	5	9	0	4	317	7	0	8	507	106	0	1008
4:00-5:00	3	7	4	1	20	9	19	0	10	306	9	1	7	673	97	1	1167
5:00-6:00	3	15	8	0	29	9	20	0	9	366	10	0	10	484	96	0	1059
6:00-7:00	3	13	0	1	32	11	13	0	10	314	9	0	8	309	62	2	787

Peak Hour
Turning Movement Count

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

Intersection: MD 97 & Tilton Drive
Weather: Clear
Count by: Count Cam
Count Day/Date: Wednesday, May 31, 2023
County: Montgomery

Table 4C-1. Warrant 1, Eight Hour Vehicular Volume

Condition A -- Minimum Vehicular Volume									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher volume minor street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B -- Interruption of Continuous Traffic									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher volume minor street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Source: Manual on Uniform Traffic Control Devices (MUTCD) 2003 Edition

[a] Basic minimum hourly volume.

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures.

[c] May be used when the major street speed exceeds 40 mph or in an isolated community with a population < 10,000.

[d] May be used in combination of Conditions A and B after adequate trial of other remedial measures when the major street exceeds 40 mph or in an isolated community with a population of < 10,000.

Existing Intersection Turning Movement Count

Hour Beginning	Craigtown Road			Craigtown Road			MD 275			MD 275		
	Northbound			Southbound			Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	0	7	4	44	4	6	10	639	4	1	150	33
7:00 AM	4	9	11	34	5	5	7	701	8	0	198	41
8:00 AM	5	10	2	40	7	7	8	485	34	3	189	51
9:00 AM	4	12	7	32	7	4	10	383	11	5	208	53
10:00 AM	4	7	9	32	3	7	9	327	8	4	201	40
11:00 AM	1	2	7	34	5	7	11	309	0	3	209	59
12:00 PM	3	14	5	23	8	8	7	283	10	4	237	58
1:00 PM	3	16	6	32	10	10	4	307	30	6	257	77
2:00 PM	2	13	4	38	7	8	9	328	15	9	363	69
3:00 PM	0	8	8	29	5	9	4	317	7	8	507	106
4:00 PM	3	7	4	20	9	19	10	306	9	7	673	97
5:00 PM	3	15	8	29	9	20	9	366	10	10	484	96
6:00 PM	3	13	0	32	11	13	10	314	9	8	309	62

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Existing Peak Hour Volumes MD 275 & Craigtown Road	**Exhibit H-2a**

Intersection Turning Movement Count

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	0	7	4	44	4	6	10	639	4	1	150	33
7:00 AM	4	9	11	34	5	5	7	701	8	0	198	41
8:00 AM	5	10	2	40	7	7	8	485	34	3	189	51
9:00 AM	4	12	7	32	7	4	10	383	11	5	208	53
10:00 AM	4	7	9	32	3	7	9	327	8	4	201	40
11:00 AM	1	2	7	34	5	7	11	309	0	3	209	59
12:00 PM	3	14	5	23	8	8	7	283	10	4	237	58
1:00 PM	3	16	6	32	10	10	4	307	30	6	257	77
2:00 PM	2	13	4	38	7	8	9	328	15	9	363	69
3:00 PM	0	8	8	29	5	9	4	317	7	8	507	106
4:00 PM	3	7	4	20	9	19	10	306	9	7	673	97
5:00 PM	3	15	8	29	9	20	9	366	10	10	484	96
6:00 PM	3	13	0	32	11	13	10	314	9	8	309	62

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
Condition B Use	525	53
Combination A & B Use for Condition A	280	84
& for Condition B	420	42

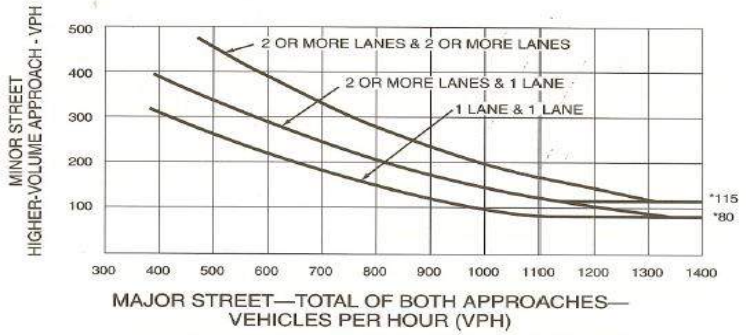
Results of Warrant 1 Analysis

Time Begin	Main Line	Minor	Warrant #1 Condition A	Warrant #1 Condition B	Warrant #1 Condition A&B
6:00 AM	837	54	0	1	0
7:00 AM	955	44	0	0	0
8:00 AM	770	54	0	1	0
9:00 AM	670	43	0	0	0
10:00 AM	589	42	0	0	0
11:00 AM	591	46	0	0	0
12:00 PM	599	39	0	0	0
1:00 PM	681	52	0	0	0
2:00 PM	793	53	0	1	0
3:00 PM	949	43	0	0	0
4:00 PM	1102	48	0	0	0
5:00 PM	975	58	0	1	0
6:00 PM	712	56	0	1	0
Number of Hours Satisfied?			0	5	0
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Existing Conditions **** Warrant #1 is Not Satisfied ****	**Exhibit H-2b**

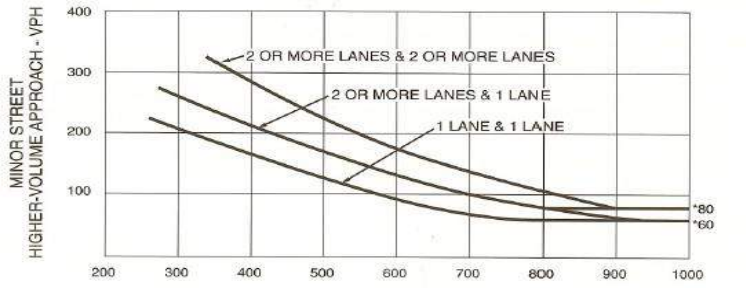
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	837	54		0
7:00 AM	955	44		0
8:00 AM	770	54		0
9:00 AM	670	43		0
10:00 AM	589	42		0
11:00 AM	591	46		0
12:00 PM	599	39	N/A	0
1:00 PM	681	52		0
2:00 PM	793	53		0
3:00 PM	949	43		0
4:00 PM	1102	48		0
5:00 PM	975	58		0
6:00 PM	712	56		0
Number of Hours Satisfied?				0
Warrant 2 Satisfied?				No

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis Under Existing Conditions **** Warrant #2 is Not Satisfied ****	**Exhibit H-2c**

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	3,900,000 sq.ft	6200

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	3100	3100
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	364	276	88
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	404	263	141
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	386	234	152
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	445	270	175
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	373	188	185
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	452	223	229
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	538	296	242
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	383	208	175
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	437	244	193
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	556	201	355
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	459	158	301
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	421	147	274
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	236	61	175
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**5454**	**2769**	**2685**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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

Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1
(All Vehicles)

Exhibit
H-3a

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	3,900,000 sq.ft	2113

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	1057	1056
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	124	94	30
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	138	90	48
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	132	80	52
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	152	92	60
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	127	64	63
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	154	76	78
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	183	101	82
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	131	71	60
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	149	83	66
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	189	68	121
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	156	53	103
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	143	50	93
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	80	20	60
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1858**	**942**	**916**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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SEVERNA PARK, MD 21146
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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1
(Heavy Vehicles)

Exhibit H-3b

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	3,900,000 sq.ft	4087

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 2044		2043
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	240	182	58
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	266	173	93
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	254	154	100
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	293	178	115
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	246	124	122
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	298	147	151
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	355	195	160
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	252	137	115
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	288	161	127
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	367	133	234
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	303	105	198
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	278	97	181
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	156	41	115
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**3596**	**1827**	**1769**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1
(Passenger Cars)

Exhibit H-3c

Trip Assignment for Bainbridge Phase 1 (Heavy Truck Trips)

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM								18			56	
7:00 AM								29			54	
8:00 AM								31			48	
9:00 AM								36			55	
10:00 AM								38			38	
11:00 AM								47			46	
12:00 PM								49			61	
1:00 PM								36			43	
2:00 PM								40			50	
3:00 PM								73			41	
4:00 PM								62			32	
5:00 PM								56			30	
6:00 PM								36			12	

Note: The trip distribution is based on the trip distribution and diversions utilized for the Phase 1 Bainbridge warehousing development, which is considered a background development for this project. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

50% of trips to/from I-95 NB and will pass through the intersection as an eastbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as an eastbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection

Inbound

50% of trips to/from I-95 NB and will pass through the intersection as a westbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as a westbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection

Trip Assignment for Bainbridge Phase 1 (Passenger Car Trips)

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM								31			98	
7:00 AM								50			93	
8:00 AM								54			83	
9:00 AM								62			96	
10:00 AM								66			67	
11:00 AM								82			79	
12:00 PM								86			105	
1:00 PM								62			74	
2:00 PM								69			87	
3:00 PM								126			72	
4:00 PM								107			57	
5:00 PM								98			52	
6:00 PM								62			22	

Note: The trip distribution is based on the trip distribution and diversions utilized for the Phase 1 Bainbridge warehousing development, which is considered a background development for this project. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and pass through the intersection as eastbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and pass through the intersection as eastbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and pass through the intersection as eastbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and do not pass through the intersection

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and pass through the intersection as westbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and pass through the intersection as westbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and pass through the intersection as westbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and do not pass through the intersection

5% of trips to/from MD 222 to the west and do not pass through the intersection

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	1,000,000 sq.ft	1618

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	809	809
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	95	72	23
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	106	69	37
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	101	61	40
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	116	70	46
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	97	49	48
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	118	58	60
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	140	77	63
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	100	54	46
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	114	64	50
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	145	52	93
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	120	41	79
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	110	39	71
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	62	16	46
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1424**	**722**	**702**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1A
(All Vehicles)

Exhibit H-5a

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	1,000,000 sq.ft	547

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	274	273
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	32	24	8
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	36	24	12
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	34	21	13
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	39	24	15
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	33	17	16
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	40	20	20
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	47	26	21
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	34	19	15
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	39	22	17
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	49	18	31
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	40	13	27
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	37	13	24
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	21	6	15
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**481**	**247**	**234**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
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(Heavy Vehicles)

Exhibit H-5b

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	1,000,000 sq.ft	1071

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	536	535
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	63	48	15
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	70	45	25
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	67	40	27
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	77	46	31
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	64	32	32
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	78	38	40
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	93	51	42
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	66	35	31
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	75	42	33
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	96	34	62
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	80	28	52
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	73	26	47
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	41	10	31
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**943**	**475**	**468**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1A
(Passenger Cars)

Exhibit
H-5c

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Multifamily Housing, Low-Rise (ITE-220)	Density	Average Daily Traffic
Daily Trips = 6.41 x units + 75.31	306 sq. ft.	2037

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Multifamily Housing, Low-Rise(ITE-220)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	1019	1018
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	4.2%	1.4%	6.9%	85	15	70
7:00 AM - 8:00 AM	6.5%	2.0%	10.8%	132	22	110
8:00 AM - 9:00 AM	5.8%	3.1%	8.5%	119	33	86
9:00 AM - 10:00 AM	3.9%	2.9%	4.9%	79	29	50
10:00 AM- 11:00 AM	3.6%	2.4%	4.8%	73	24	49
11:00 AM - 12:00 PM	4.3%	3.8%	4.7%	87	39	48
12:00 PM - 1:00 PM	4.3%	4.5%	4.1%	88	46	42
1:00 PM - 2:00 PM	4.2%	4.0%	4.4%	86	41	45
2:00 PM - 3:00 PM	5.2%	5.6%	4.9%	107	57	50
3:00 PM - 4:00 PM	6.1%	6.9%	5.3%	125	71	54
4:00 PM - 5:00 PM	7.9%	10.1%	5.6%	160	103	57
5:00 PM - 6:00 PM	9.5%	11.4%	7.6%	193	116	77
6:00 PM - 7:00 PM	8.2%	9.7%	6.7%	167	99	68
Total 6:00 AM - 7:00 PM	**73.6%**	**68.0%**	**79.2%**	**1501**	**695**	**806**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).
3. ITE does not provide diurnal percentages for ITE-822. Diurnal percentages for ITE-820 (Shopping Center) were utilized.

Trip Assignment for Bainbridge Phase 1A (Heavy Truck Trips)

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM								5			14	
7:00 AM								7			14	
8:00 AM								8			13	
9:00 AM								9			14	
10:00 AM								10			10	
11:00 AM								12			12	
12:00 PM								13			16	
1:00 PM								9			11	
2:00 PM								10			13	
3:00 PM								19			11	
4:00 PM								16			8	
5:00 PM								14			8	
6:00 PM								9			4	

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

50% of trips to/from I-95 NB and will pass through the intersection as an eastbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as an eastbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection

Inbound

50% of trips to/from I-95 NB and will pass through the intersection as a westbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as a westbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection

Trip Assignment for Bainbridge Phase 1A (Passenger Car Trips)

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM								8			26	
7:00 AM								14			24	
8:00 AM								15			22	
9:00 AM								17			25	
10:00 AM								17			17	
11:00 AM								22			21	
12:00 PM								23			28	
1:00 PM								17			19	
2:00 PM								18			23	
3:00 PM								33			18	
4:00 PM								28			15	
5:00 PM								25			14	
6:00 PM								17			5	

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and pass through the intersection as eastbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and pass through the intersection as eastbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and pass through the intersection as eastbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and do not pass through the intersection

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and pass through the intersection as westbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and pass through the intersection as westbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and pass through the intersection as westbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and do not pass through the intersection

5% of trips to/from MD 222 to the west and do not pass through the intersection

Trip Assignment for Bainbridge Phase 1A (Residential)

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM									1		4	
7:00 AM									1		6	
8:00 AM									2		4	
9:00 AM									1		3	
10:00 AM									1		2	
11:00 AM									2		2	
12:00 PM									2		2	
1:00 PM									2		2	
2:00 PM									3		3	
3:00 PM									4		3	
4:00 PM									5		3	
5:00 PM									6		4	
6:00 PM									5		3	

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge residential development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as westbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as eastbound rights

5% of trips to/from MD 222 to the west and do not pass through the intersection

Intersection Turning Movement Count

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	0	7	4	44	4	6	10	701	5	1	348	33
7:00 AM	4	9	11	34	5	5	7	801	9	0	389	41
8:00 AM	5	10	2	40	7	7	8	593	36	3	359	51
9:00 AM	4	12	7	32	7	4	10	507	12	5	401	53
10:00 AM	4	7	9	32	3	7	9	458	9	4	335	40
11:00 AM	1	2	7	34	5	7	11	472	2	3	369	59
12:00 PM	3	14	5	23	8	8	7	454	12	4	449	58
1:00 PM	3	16	6	32	10	10	4	431	32	6	406	77
2:00 PM	2	13	4	38	7	8	9	465	18	9	539	69
3:00 PM	0	8	8	29	5	9	4	568	11	8	652	106
4:00 PM	3	7	4	20	9	19	10	519	14	7	788	97
5:00 PM	3	15	8	29	9	20	9	559	16	10	592	96
6:00 PM	3	13	0	32	11	13	10	438	14	8	355	62

Note: Volumes above combine the existing peak hour count with the Bainbridge Phase 1 background trips, assigned on Exhibits H-4a and H-4b, and the trips associated with Phase 1A, assigned on Exhibits H-6a, H-6b and H-6c.

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
	Major	Minor
Condition B Use	525	53
Combination A & B Use	Major	Minor
for Condition A	280	84
	&	&
for Condition B	420	42

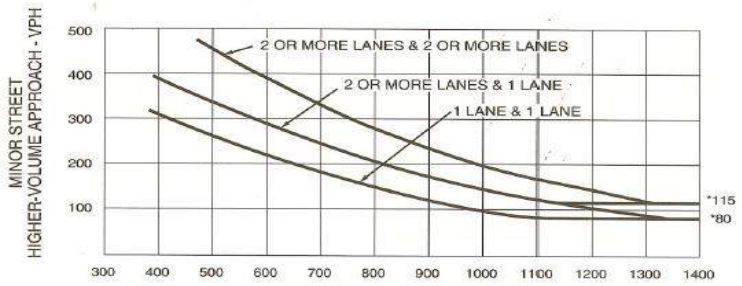
Results of Warrant 1 Analysis

Time Begin	Main Line	Minor	Warrant #1 Condition A	Warrant #1 Condition B	Warrant #1 Condition A&B
6:00 AM	1098	54	0	1	0
7:00 AM	1247	44	0	0	0
8:00 AM	1050	54	0	1	0
9:00 AM	988	43	0	0	0
10:00 AM	855	42	0	0	0
11:00 AM	916	46	0	0	0
12:00 PM	984	39	0	0	0
1:00 PM	956	52	0	0	0
2:00 PM	1109	53	0	1	0
3:00 PM	1349	43	0	0	0
4:00 PM	1435	48	0	0	0
5:00 PM	1282	58	0	1	0
6:00 PM	887	56	0	1	0
Number of Hours Satisfied?			0	5	0
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 1A **** Warrant #1 is Not Satisfied ****	**Exhibit H-7a**

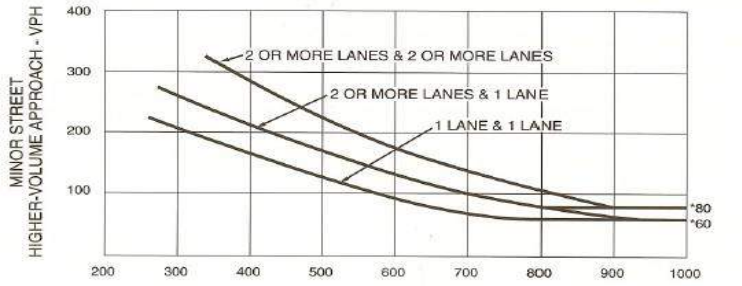
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	1098	54		0
7:00 AM	1247	44		0
8:00 AM	1050	54		0
9:00 AM	988	43		0
10:00 AM	855	42		0
11:00 AM	916	46		0
12:00 PM	984	39	N/A	0
1:00 PM	956	52		0
2:00 PM	1109	53		0
3:00 PM	1349	43		0
4:00 PM	1435	48		0
5:00 PM	1282	58		0
6:00 PM	887	56		0
Number of Hours Satisfied?				0
Warrant 2 Satisfied?				No

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 1A **** Warrant #2 is Not Satisfied ****	**Exhibit H-7b**

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	2,500,000 sq.ft	3988

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 1994		
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	234	177	57
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	260	169	91
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	248	150	98
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	286	173	113
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	240	121	119
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	291	144	147
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	346	190	156
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	247	135	112
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	281	157	124
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	358	130	228
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	295	101	194
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	271	95	176
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	152	39	113
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**3509**	**1781**	**1728**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 2
(All Vehicles)

Exhibit H-8a

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	2,500,000 sq.ft	1357

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	679	678
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	80	61	19
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	89	58	31
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	85	52	33
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	97	59	38
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	82	41	41
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	99	49	50
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	118	65	53
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	84	46	38
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	96	54	42
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	122	44	78
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	100	34	66
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	92	32	60
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	52	14	38
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1196**	**609**	**587**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 2
(Heavy Vehicles)

Exhibit
H-8b

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	2,500,000 sq.ft	2631

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 1316		1315
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	154	116	38
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	171	111	60
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	163	98	65
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	189	114	75
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	158	80	78
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	192	95	97
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	228	125	103
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	163	89	74
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	185	103	82
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	236	86	150
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	195	67	128
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	179	63	116
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	100	25	75
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**2313**	**1172**	**1141**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 2
(Passenger Cars)

Exhibit
H-8c

Trip Assignment for Bainbridge Phase 2 (Heavy Truck Trips)

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM								11			37	
7:00 AM								19			35	
8:00 AM								20			31	
9:00 AM								23			35	
10:00 AM								25			25	
11:00 AM								30			29	
12:00 PM								32			39	
1:00 PM								23			28	
2:00 PM								25			32	
3:00 PM								47			26	
4:00 PM								40			20	
5:00 PM								36			19	
6:00 PM								23			8	

Note: The trip distribution is based on the trip distribution utilized for the Phase 2 Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

50% of trips to/from I-95 NB and will pass through the intersection as an eastbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as an eastbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection

Inbound

50% of trips to/from I-95 NB and will pass through the intersection as a westbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as a westbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection

Trip Assignment for Bainbridge Phase 2 (Passenger Car Trips)

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM								34			104	
7:00 AM								54			100	
8:00 AM								59			88	
9:00 AM								68			103	
10:00 AM								70			72	
11:00 AM								87			86	
12:00 PM								93			113	
1:00 PM								67			80	
2:00 PM								74			93	
3:00 PM								135			77	
4:00 PM								115			60	
5:00 PM								104			57	
6:00 PM								68			23	

Note: The trip distribution is based on the trip distribution utilized for the Phase 2 Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as northbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and pass through the intersection as southbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Intersection Turning Movement Count

Hour Beginning	Craigtown Road Northbound			Craigtown Road Southbound			MD 275 Eastbound			MD 275 Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	0	7	4	44	4	6	10	746	5	1	489	33
7:00 AM	4	9	11	34	5	5	7	874	9	0	524	41
8:00 AM	5	10	2	40	7	7	8	672	36	3	478	51
9:00 AM	4	12	7	32	7	4	10	598	12	5	539	53
10:00 AM	4	7	9	32	3	7	9	553	9	4	432	40
11:00 AM	1	2	7	34	5	7	11	589	2	3	484	59
12:00 PM	3	14	5	23	8	8	7	579	12	4	601	58
1:00 PM	3	16	6	32	10	10	4	521	32	6	514	77
2:00 PM	2	13	4	38	7	8	9	564	18	9	664	69
3:00 PM	0	8	8	29	5	9	4	750	11	8	755	106
4:00 PM	3	7	4	20	9	19	10	674	14	7	868	97
5:00 PM	3	15	8	29	9	20	9	699	16	10	668	96
6:00 PM	3	13	0	32	11	13	10	529	14	8	386	62

Note: Volumes above combine the trips associated with Phase 2, assigned on Exhibits H-9a and H-9b, with the Phase 1A totals shown on Exhibit H-7a.

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
	Major	Minor
Condition B Use	525	53
	Major	Minor
Combination A & B Use for Condition A	280	84
& for Condition B	420	42

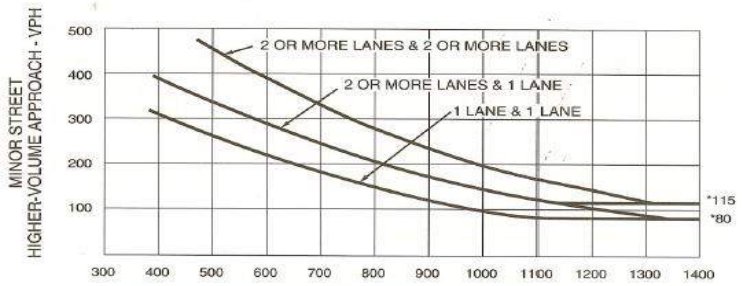
Results of Warrant 1 Analysis

Time Begin	Main Line	Minor	Warrant #1 Condition A	Warrant #1 Condition B	Warrant #1 Condition A&B
6:00 AM	1284	54	0	1	0
7:00 AM	1455	44	0	0	0
8:00 AM	1248	54	0	1	0
9:00 AM	1217	43	0	0	0
10:00 AM	1047	42	0	0	0
11:00 AM	1148	46	0	0	0
12:00 PM	1261	39	0	0	0
1:00 PM	1154	52	0	0	0
2:00 PM	1333	53	0	1	0
3:00 PM	1634	43	0	0	0
4:00 PM	1670	48	0	0	0
5:00 PM	1498	58	0	1	0
6:00 PM	1009	56	0	1	0
Number of Hours Satisfied?			0	5	0
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 2 **** Warrant #1 is Not Satisfied ****	**Exhibit H-10a**

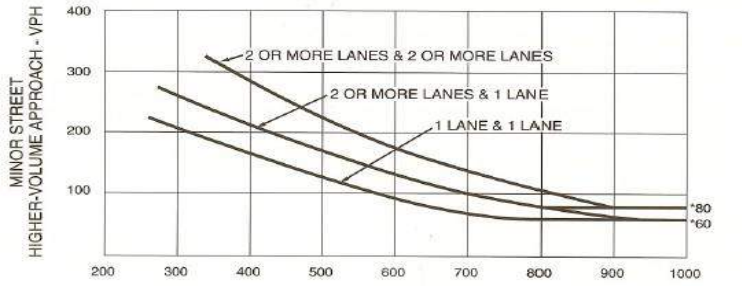
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	1284	54		0
7:00 AM	1455	44		0
8:00 AM	1248	54		0
9:00 AM	1217	43		0
10:00 AM	1047	42		0
11:00 AM	1148	46		0
12:00 PM	1261	39	N/A	0
1:00 PM	1154	52		0
2:00 PM	1333	53		0
3:00 PM	1634	43		0
4:00 PM	1670	48		0
5:00 PM	1498	58		0
6:00 PM	1009	56		0
Number of Hours Satisfied?				0
Warrant 2 Satisfied?				No

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 2 **** Warrant #2 is Not Satisfied ****	**Exhibit H-10b**

Appendix I

Traffic Signal Warrant Analysis: MD 276 & Waibel Road

13-Hour Turning Movement Count (6:00 am - 7:00 pm)

	MD 276 Northbound				MD 276 Southbound				Waibel Rd Eastbound				N/A Westbound				
Time:	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Total
6:00-6:15	0	16	0	0	0	8	6	0	27	0	0	0	0	0	0	0	57
6:15-6:30	0	15	0	0	0	13	6	0	42	0	0	0	0	0	0	0	76
6:30-6:45	0	20	0	0	0	27	1	0	71	0	0	0	0	0	0	0	119
6:45-7:00	0	17	0	0	0	31	2	0	43	0	0	0	0	0	0	0	93
7:00-7:15	0	19	0	0	0	12	7	0	63	0	0	0	0	0	0	0	101
7:15-7:30	0	13	0	0	0	14	7	0	66	0	0	0	0	0	0	0	100
7:30-7:45	0	23	0	0	0	15	18	0	51	0	0	0	0	0	0	0	107
7:45-8:00	0	16	0	0	0	17	15	0	25	0	1	0	0	0	0	0	74
8:00-8:15	0	13	0	0	0	13	10	0	35	0	0	0	0	0	0	0	71
8:15-8:30	0	22	0	0	0	16	13	0	42	0	0	0	0	0	0	0	93
8:30-8:45	0	18	0	0	0	15	9	0	35	0	0	0	0	0	0	0	77
8:45-9:00	0	13	0	0	0	14	7	0	16	0	0	0	0	0	0	0	50
9:00-9:15	0	16	0	0	0	17	15	0	22	0	0	0	0	0	0	0	70
9:15-9:30	1	19	0	0	0	16	12	0	21	0	0	0	0	0	0	0	69
9:30-9:45	0	12	0	0	0	19	14	0	23	0	1	0	0	0	0	0	69
9:45-10:00	1	19	0	0	0	16	2	0	18	0	1	0	0	0	0	0	57
10:00-10:15	0	17	0	0	0	15	8	0	17	0	1	0	0	0	0	0	58
10:15-10:30	0	27	0	0	0	19	9	0	17	0	0	0	0	0	0	0	72
10:30-10:45	0	18	0	0	0	23	11	0	17	0	2	0	0	0	0	0	71
10:45-11:00	0	12	0	0	0	28	5	0	15	0	1	0	0	0	0	0	61
11:00-11:15	1	19	0	0	0	22	15	0	9	0	1	0	0	0	0	0	67
11:15-11:30	0	17	0	0	0	11	11	0	15	0	0	0	0	0	0	0	54
11:30-11:45	0	15	0	0	0	18	7	0	12	0	0	0	0	0	0	0	52
11:45-12:00	0	15	0	0	0	18	11	0	9	0	0	0	0	0	0	0	53
12:00-12:15	0	26	0	0	0	26	13	0	20	0	0	0	0	0	0	0	85
12:15-12:30	0	27	0	0	0	20	14	0	15	0	0	0	0	0	0	0	76
12:30-12:45	0	19	0	0	0	26	12	0	15	0	0	0	0	0	0	0	72
12:45-1:00	0	16	0	0	0	25	16	0	12	0	0	0	0	0	0	0	69
1:00-1:15	0	24	0	0	0	17	18	0	10	0	0	0	0	0	0	0	69
1:15-1:30	0	20	0	0	0	22	17	0	14	0	0	0	0	0	0	0	73
1:30-1:45	0	22	0	0	0	26	19	0	21	0	0	0	0	0	0	0	88
1:45-2:00	0	20	0	0	0	17	19	0	18	0	0	0	0	0	0	0	74
2:00-2:15	0	17	0	0	0	14	21	0	25	0	0	0	0	0	0	0	77
2:15-2:30	1	16	0	0	0	18	18	0	24	0	1	0	0	0	0	0	78
2:30-2:45	1	18	0	0	0	18	29	0	21	0	0	0	0	0	0	0	87
2:45-3:00	0	14	0	0	0	28	17	0	25	0	0	0	0	0	0	0	84
3:00-3:15	0	17	0	0	0	27	30	0	14	0	0	0	0	0	0	0	88
3:15-3:30	0	23	0	0	0	23	33	0	11	0	0	0	0	0	0	0	90
3:30-3:45	1	18	0	0	0	29	34	0	22	0	0	0	0	0	0	0	104
3:45-4:00	0	14	0	0	0	22	31	0	17	0	1	0	0	0	0	0	85
4:00-4:15	2	23	0	0	0	26	36	0	22	0	2	0	0	0	0	0	111
4:15-4:30	0	25	0	0	0	32	31	0	15	0	0	0	0	0	0	0	103
4:30-4:45	0	35	0	0	0	29	38	0	24	0	0	0	0	0	0	0	126
4:45-5:00	0	30	0	0	0	18	49	0	27	0	1	0	0	0	0	0	125
5:00-5:15	0	38	0	0	0	23	55	0	20	0	1	0	0	0	0	0	137
5:15-5:30	0	20	0	0	0	16	35	0	36	0	1	0	0	0	0	0	108
5:30-5:45	0	22	0	0	0	25	43	0	31	0	2	0	0	0	0	0	123
5:45-6:00	1	22	0	0	0	22	46	0	31	0	0	0	0	0	0	0	122
6:00-6:15	0	13	0	0	0	19	29	0	15	0	3	0	0	0	0	0	79
6:15-6:30	0	18	0	0	0	14	31	0	27	0	1	0	0	0	0	0	91
6:30-6:45	2	15	0	0	0	13	29	0	20	0	3	0	0	0	0	0	82
6:45-7:00	1	17	0	0	0	14	24	0	10	0	0	0	0	0	0	0	66

	MD 276 Northbound				MD 276 Southbound				Waibel Rd Eastbound				N/A Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Total
Hourly Totals																	
6:00-7:00	0	68	0	0	0	79	15	0	183	0	0	0	0	0	0	0	345
7:00-8:00	0	71	0	0	0	58	47	0	205	0	1	0	0	0	0	0	382
8:00-9:00	0	66	0	0	0	58	39	0	128	0	0	0	0	0	0	0	291
9:00-10:00	2	66	0	0	0	68	43	0	84	0	2	0	0	0	0	0	265
10:00-11:00	0	74	0	0	0	85	33	0	66	0	4	0	0	0	0	0	262
11:00-12:00	1	66	0	0	0	69	44	0	45	0	1	0	0	0	0	0	226
12:00-1:00	0	88	0	0	0	97	55	0	62	0	0	0	0	0	0	0	302
1:00-2:00	0	86	0	0	0	82	73	0	63	0	0	0	0	0	0	0	304
2:00-3:00	2	65	0	0	0	78	85	0	95	0	1	0	0	0	0	0	326
3:00-4:00	1	72	0	0	0	101	128	0	64	0	1	0	0	0	0	0	367
4:00-5:00	2	113	0	0	0	105	154	0	88	0	3	0	0	0	0	0	465
5:00-6:00	1	102	0	0	0	86	179	0	118	0	4	0	0	0	0	0	490
6:00-7:00	3	63	0	0	0	60	113	0	72	0	7	0	0	0	0	0	318

Peak Hour
Turning Movement Count

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

Intersection: MD 276 & Waibel Road
Weather: Clear
Count by: Count Cam
Count Day/Date: Wednesday, September 28, 2022
County: Cecil

Table 4C-1. Warrant 1, Eight Hour Vehicular Volume

Condition A -- Minimum Vehicular Volume									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher volume minor street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B -- Interruption of Continuous Traffic									
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher volume minor street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Source: Manual on Uniform Traffic Control Devices (MUTCD) 2003 Edition

[a] Basic minimum hourly volume.

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures.

[c] May be used when the major street speed exceeds 40 mph or in an isolated community with a population < 10,000.

[d] May be used in combination of Conditions A and B after adequate trial of other remedial measures when the major street exceeds 40 mph or in an isolated community with a population of < 10,000.

Existing Intersection Turning Movement Count

Hour Beginning	MD 276			MD 276			Waibel Road			N/A		
	Northbound			Southbound			Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	0	68	0	0	79	15	183	0	0	0	0	0
7:00 AM	0	71	0	0	58	47	205	0	1	0	0	0
8:00 AM	0	66	0	0	58	39	128	0	0	0	0	0
9:00 AM	2	66	0	0	68	43	84	0	2	0	0	0
10:00 AM	0	74	0	0	85	33	66	0	4	0	0	0
11:00 AM	1	66	0	0	69	44	45	0	1	0	0	0
12:00 PM	0	88	0	0	97	55	62	0	0	0	0	0
1:00 PM	0	86	0	0	82	73	63	0	0	0	0	0
2:00 PM	2	65	0	0	78	85	95	0	1	0	0	0
3:00 PM	1	72	0	0	101	128	64	0	1	0	0	0
4:00 PM	2	113	0	0	105	154	88	0	3	0	0	0
5:00 PM	1	102	0	0	86	179	118	0	4	0	0	0
6:00 PM	3	63	0	0	60	113	72	0	7	0	0	0

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Existing Peak Hour Volumes MD 275 & Waibel Road	**Exhibit I-2a**

Intersection Turning Movement Count

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	0	68	0	0	79	15	183	0	0	0	0	0
7:00 AM	0	71	0	0	58	47	205	0	1	0	0	0
8:00 AM	0	66	0	0	58	39	128	0	0	0	0	0
9:00 AM	2	66	0	0	68	43	84	0	2	0	0	0
10:00 AM	0	74	0	0	85	33	66	0	4	0	0	0
11:00 AM	1	66	0	0	69	44	45	0	1	0	0	0
12:00 PM	0	88	0	0	97	55	62	0	0	0	0	0
1:00 PM	0	86	0	0	82	73	63	0	0	0	0	0
2:00 PM	2	65	0	0	78	85	95	0	1	0	0	0
3:00 PM	1	72	0	0	101	128	64	0	1	0	0	0
4:00 PM	2	113	0	0	105	154	88	0	3	0	0	0
5:00 PM	1	102	0	0	86	179	118	0	4	0	0	0
6:00 PM	3	63	0	0	60	113	72	0	7	0	0	0

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
Condition B Use	525	53
Combination A & B Use for Condition A	280	84
& for Condition B	420	42

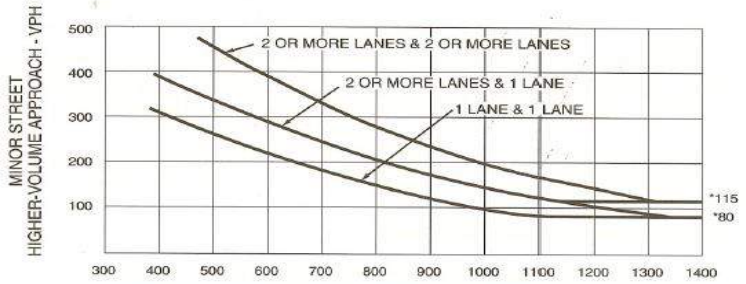
Results of Warrant 1 Analysis

Time Begin	Main Line	Minor	Warrant #1 Condition A	Warrant #1 Condition B	Warrant #1 Condition A&B
6:00 AM	162	183	0	0	0
7:00 AM	176	206	0	0	0
8:00 AM	163	128	0	0	0
9:00 AM	179	86	0	0	0
10:00 AM	192	70	0	0	0
11:00 AM	180	46	0	0	0
12:00 PM	240	62	0	0	0
1:00 PM	241	63	0	0	0
2:00 PM	230	96	0	0	0
3:00 PM	302	65	0	0	0
4:00 PM	374	91	0	0	0
5:00 PM	368	122	1	0	0
6:00 PM	239	79	0	0	0
Number of Hours Satisfied?			1	0	0
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Existing Conditions **** Warrant #1 is Not Satisfied ****	**Exhibit I-2b**

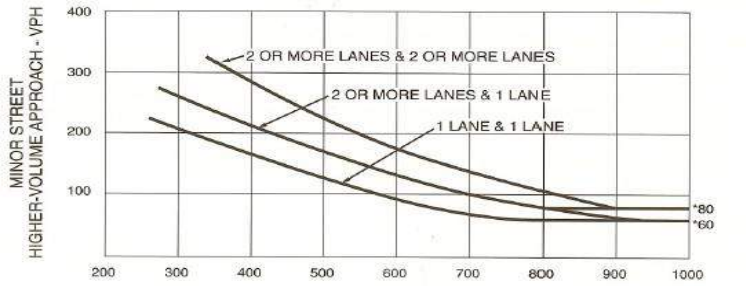
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	162	183		0
7:00 AM	176	206		0
8:00 AM	163	128		0
9:00 AM	179	86		0
10:00 AM	192	70		0
11:00 AM	180	46		0
12:00 PM	240	62	N/A	0
1:00 PM	241	63		0
2:00 PM	230	96		0
3:00 PM	302	65		0
4:00 PM	374	91		0
5:00 PM	368	122		0
6:00 PM	239	79		0
Number of Hours Satisfied?				0
Warrant 2 Satisfied?				No

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis Under Existing Conditions **** Warrant #2 is Not Satisfied ****	**Exhibit I-2c**

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	3,900,000 sq.ft	6200

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	3100	3100
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	364	276	88
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	404	263	141
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	386	234	152
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	445	270	175
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	373	188	185
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	452	223	229
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	538	296	242
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	383	208	175
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	437	244	193
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	556	201	355
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	459	158	301
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	421	147	274
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	236	61	175
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**5454**	**2769**	**2685**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	3,900,000 sq.ft	2113

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	1057	1056
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	124	94	30
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	138	90	48
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	132	80	52
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	152	92	60
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	127	64	63
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	154	76	78
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	183	101	82
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	131	71	60
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	149	83	66
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	189	68	121
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	156	53	103
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	143	50	93
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	80	20	60
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1858**	**942**	**916**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	3,900,000 sq.ft	4087

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 2044		2043
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	240	182	58
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	266	173	93
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	254	154	100
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	293	178	115
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	246	124	122
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	298	147	151
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	355	195	160
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	252	137	115
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	288	161	127
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	367	133	234
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	303	105	198
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	278	97	181
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	156	41	115
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**3596**	**1827**	**1769**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1
(Passenger Cars)

Exhibit
I-3a

Trip Assignment for Bainbridge Phase 1 (Heavy Truck Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		18			56							
7:00 AM		29			54							
8:00 AM		31			48							
9:00 AM		36			55							
10:00 AM		38			38							
11:00 AM		47			46							
12:00 PM		49			61							
1:00 PM		36			43							
2:00 PM		40			50							
3:00 PM		73			41							
4:00 PM		62			32							
5:00 PM		56			30							
6:00 PM		36			12							

Note: The trip distribution is based on the trip distribution and diversions utilized for the Phase 1 Bainbridge warehousing development, which is considered a background development for this project. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

100% of trips to/from I-95 and will pass through the intersection as a northbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection

Inbound

100% of trips to/from I-95 and will pass through the intersection as a southbound through
40% of trips will use the Diamond Jim Road access and will not pass through the intersection

Trip Assignment for Bainbridge Phase 1 (Passenger Car Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		34			107							
7:00 AM		55			102							
8:00 AM		59			91							
9:00 AM		68			105							
10:00 AM		72			73							
11:00 AM		89			87							
12:00 PM		94			115							
1:00 PM		68			81							
2:00 PM		75			95							
3:00 PM		138			78							
4:00 PM		117			62							
5:00 PM		107			57							
6:00 PM		68			24							

Note: The trip distribution is based on the trip distribution and diversions utilized for the Phase 1 Bainbridge warehousing development, which is considered a background development for this project. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and pass through the intersection as northbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and pass through the intersection as northbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and pass through the intersection as northbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and pass through the intersection as northbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and pass through the intersection as southbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and pass through the intersection as southbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and pass through the intersection as southbound throughs
40% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and pass through the intersection as southbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	1,000,000 sq.ft	1618

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	809	809
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	95	72	23
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	106	69	37
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	101	61	40
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	116	70	46
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	97	49	48
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	118	58	60
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	140	77	63
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	100	54	46
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	114	64	50
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	145	52	93
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	120	41	79
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	110	39	71
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	62	16	46
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1424**	**722**	**702**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	1,000,000 sq.ft	547

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	274	273
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	32	24	8
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	36	24	12
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	34	21	13
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	39	24	15
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	33	17	16
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	40	20	20
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	47	26	21
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	34	19	15
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	39	22	17
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	49	18	31
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	40	13	27
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	37	13	24
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	21	6	15
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**481**	**247**	**234**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1A
(Heavy Vehicles)

Exhibit
I-5b

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	1,000,000 sq.ft	1071

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	536	535
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	63	48	15
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	70	45	25
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	67	40	27
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	77	46	31
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	64	32	32
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	78	38	40
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	93	51	42
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	66	35	31
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	75	42	33
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	96	34	62
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	80	28	52
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	73	26	47
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	41	10	31
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**943**	**475**	**468**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 1A
(Passenger Cars)

Exhibit
I-5c

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Multifamily Housing, Low-Rise (ITE-220)	Density	Average Daily Traffic
Daily Trips = 6.41 x units + 75.31	306 sq. ft.	2037

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Multifamily Housing, Low-Rise(ITE-220)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	1019	1018
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	4.2%	1.4%	6.9%	85	15	70
7:00 AM - 8:00 AM	6.5%	2.0%	10.8%	132	22	110
8:00 AM - 9:00 AM	5.8%	3.1%	8.5%	119	33	86
9:00 AM - 10:00 AM	3.9%	2.9%	4.9%	79	29	50
10:00 AM- 11:00 AM	3.6%	2.4%	4.8%	73	24	49
11:00 AM - 12:00 PM	4.3%	3.8%	4.7%	87	39	48
12:00 PM - 1:00 PM	4.3%	4.5%	4.1%	88	46	42
1:00 PM - 2:00 PM	4.2%	4.0%	4.4%	86	41	45
2:00 PM - 3:00 PM	5.2%	5.6%	4.9%	107	57	50
3:00 PM - 4:00 PM	6.1%	6.9%	5.3%	125	71	54
4:00 PM - 5:00 PM	7.9%	10.1%	5.6%	160	103	57
5:00 PM - 6:00 PM	9.5%	11.4%	7.6%	193	116	77
6:00 PM - 7:00 PM	8.2%	9.7%	6.7%	167	99	68
Total 6:00 AM - 7:00 PM	**73.6%**	**68.0%**	**79.2%**	**1501**	**695**	**806**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).
3. ITE does not provide diurnal percentages for ITE-822. Diurnal percentages for ITE-820 (Shopping Center) were utilized.

Trip Assignment for Bainbridge Phase 1A (Heavy Truck Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		4			12							
7:00 AM		6			12							
8:00 AM		7			11							
9:00 AM		8			12							
10:00 AM		8			9							
11:00 AM		10			10							
12:00 PM		11			13							
1:00 PM		8			10							
2:00 PM		9			11							
3:00 PM		16			9							
4:00 PM		14			7							
5:00 PM		12			7							
6:00 PM		8			3							

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

50% of trips to/from I-95 NB and will pass through the intersection as northbound throughs
50% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as northbound throughs
50% of trips will use the Diamond Jim Road access and will not pass through the intersection

Inbound

50% of trips to/from I-95 NB and will pass through the intersection as southbound throughs
50% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as southbound throughs
50% of trips will use the Diamond Jim Road access and will not pass through the intersection

Trip Assignment for Bainbridge Phase 1A (Passenger Car Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		8			24							
7:00 AM		13			23							
8:00 AM		14			20							
9:00 AM		16			23							
10:00 AM		16			16							
11:00 AM		20			19							
12:00 PM		21			26							
1:00 PM		16			18							
2:00 PM		17			21							
3:00 PM		31			17							
4:00 PM		26			14							
5:00 PM		24			13							
6:00 PM		16			5							

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and pass through the intersection as northbound throughs
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and pass through the intersection as northbound throughs
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and pass through the intersection as northbound throughs
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and pass through the intersection as northbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and pass through the intersection as southbound throughs
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and pass through the intersection as southbound throughs
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and pass through the intersection as southbound throughs
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and will pass through the intesection as southbound throughs

5% of trips to/from MD 222 to the south and do not pass through the intersection

Trip Assignment for Bainbridge Phase 1A (Residential)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM												
7:00 AM												
8:00 AM												
9:00 AM												
10:00 AM												
11:00 AM												
12:00 PM												
1:00 PM												
2:00 PM												
3:00 PM												
4:00 PM												
5:00 PM												
6:00 PM												

Note: The trip distribution is based on the trip distribution utilized for the Phase 1A Bainbridge residential development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and do not pass through the intersection

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and do not pass through the intersection

40% of trips to/from I-95 SB and do not pass through the intersection

10% of trips to/from MD 222 to the east and do not pass through the intersection

5% of trips to/from MD 276 to the north and do not pass through the intersection

5% of trips to/from MD 222 to the west and do not pass through the intersection

Intersection Turning Movement Count

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	0	132	0	0	278	15	183	0	0	0	0	0
7:00 AM	0	174	0	0	249	47	205	0	1	0	0	0
8:00 AM	0	177	0	0	228	39	128	0	0	0	0	0
9:00 AM	2	194	0	0	263	43	84	0	2	0	0	0
10:00 AM	0	208	0	0	221	33	66	0	4	0	0	0
11:00 AM	1	232	0	0	231	44	45	0	1	0	0	0
12:00 PM	0	263	0	0	312	55	62	0	0	0	0	0
1:00 PM	0	214	0	0	234	73	63	0	0	0	0	0
2:00 PM	2	206	0	0	255	85	95	0	1	0	0	0
3:00 PM	1	330	0	0	246	128	64	0	1	0	0	0
4:00 PM	2	332	0	0	220	154	88	0	3	0	0	0
5:00 PM	1	301	0	0	193	179	118	0	4	0	0	0
6:00 PM	3	191	0	0	104	113	72	0	7	0	0	0

Note: Volumes above combine the existing peak hour count with the Bainbridge Phase 1 background trips, assigned on Exhibits I-4a and I-4b, and the trips associated with Phase 1A, assigned on Exhibits I-6a, I-6b and I-6c.

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
	Major	Minor
Condition B Use	525	53
Combination A & B Use	Major	Minor
for Condition A	280	84
	&	&
for Condition B	420	42

Results of Warrant 1 Analysis

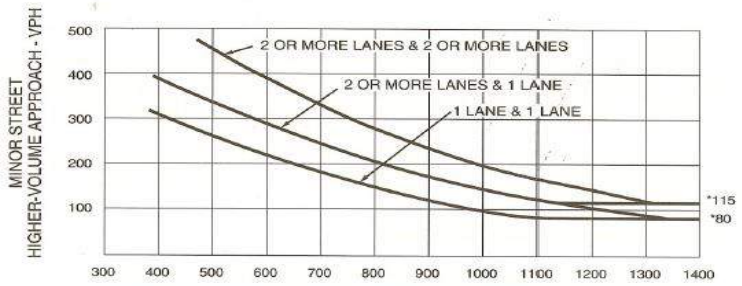
Time Begin	Main Line	Minor	Warrant #1 Condition A	Condition B	Condition A&B
6:00 AM	425	183	1	0	1
7:00 AM	470	205	1	0	1
8:00 AM	444	128	1	0	1
9:00 AM	502	84	0	0	1
10:00 AM	462	66	0	0	0
11:00 AM	508	45	0	0	0
12:00 PM	630	62	0	1	0
1:00 PM	521	63	0	0	0
2:00 PM	548	95	0	1	1
3:00 PM	705	64	0	1	0
4:00 PM	708	88	0	1	1
5:00 PM	674	118	1	1	1
6:00 PM	411	72	0	0	0
Number of Hours Satisfied?			4	5	7
Condition Satisfied?			No	No	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 1A **** Warrant #1 is Not Satisfied ****	**Exhibit I-7a**

d

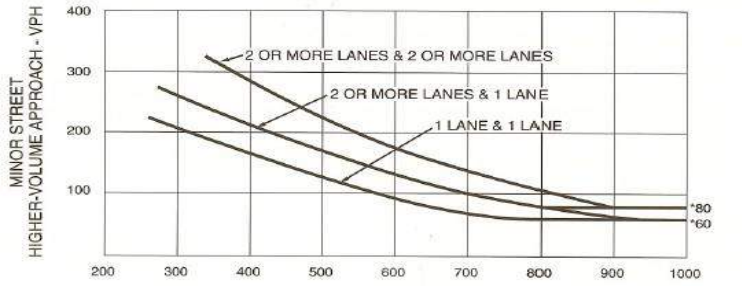
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	425	183		1
7:00 AM	470	205		1
8:00 AM	444	128		0
9:00 AM	502	84		0
10:00 AM	462	66		0
11:00 AM	508	45		0
12:00 PM	630	62	N/A	0
1:00 PM	521	63		0
2:00 PM	548	95		0
3:00 PM	705	64		0
4:00 PM	708	88		1
5:00 PM	674	118		1
6:00 PM	411	72		0
Number of Hours Satisfied?				4
Warrant 2 Satisfied?				Yes

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 1A **** Warrant #2 is Satisfied ****	**Exhibit I-7b**

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing (ITE-150)	Density	Average Daily Traffic
Daily Trips = 1.58 x ksf + 38.29	2,500,000 sq.ft	3988

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated ADT = 1994		
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	234	177	57
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	260	169	91
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	248	150	98
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	286	173	113
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	240	121	119
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	291	144	147
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	346	190	156
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	247	135	112
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	281	157	124
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	358	130	228
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	295	101	194
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	271	95	176
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	152	39	113
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**3509**	**1781**	**1728**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
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(All Vehicles)

Exhibit
I-8a

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Truck Trips (ITE-150)	Density	Average Daily Traffic
Daily Trips = 0.54 x ksf + 7.47	2,500,000 sq.ft	1357

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Truck Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	679	678
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	80	61	19
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	89	58	31
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	85	52	33
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	97	59	38
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	82	41	41
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	99	49	50
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	118	65	53
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	84	46	38
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	96	54	42
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	122	44	78
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	100	34	66
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	92	32	60
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	52	14	38
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**1196**	**609**	**587**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
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(Heavy Vehicles)

Exhibit
I-8b

Calculation of Average Daily Traffic (ADT)

(based on ITE Trip Generation Manual, 11th Edition)

Warehousing Passenger Car Trips (ITE-150)	Density	Average Daily Traffic
Pass. Car Trips = (Overall Trips) - (Truck Trips)	2,500,000 sq.ft	2631

Calculation of Hourly Trips

(based on Diurnal Percentages)

Time	Warehousing Passenger Car Trips(ITE-150)					
	Diurnal Percentages from ITE 11th Edition			Trips Generated		
				ADT =	1316	1315
	Total	In	Out	Total	In	Out
6:00 AM - 7:00 AM	5.9%	9.0%	2.8%	154	116	38
7:00 AM - 8:00 AM	6.5%	8.6%	4.6%	171	111	60
8:00 AM - 9:00 AM	6.2%	7.6%	4.9%	163	98	65
9:00 AM - 10:00 AM	7.2%	8.8%	5.7%	189	114	75
10:00 AM- 11:00 AM	6.0%	6.0%	6.0%	158	80	78
11:00 AM - 12:00 PM	7.3%	7.2%	7.4%	192	95	97
12:00 PM - 1:00 PM	8.7%	9.6%	7.8%	228	125	103
1:00 PM - 2:00 PM	6.2%	6.7%	5.6%	163	89	74
2:00 PM - 3:00 PM	7.1%	7.9%	6.2%	185	103	82
3:00 PM - 4:00 PM	9.0%	6.4%	11.4%	236	86	150
4:00 PM - 5:00 PM	7.4%	5.0%	9.7%	195	67	128
5:00 PM - 6:00 PM	6.8%	4.7%	8.8%	179	63	116
6:00 PM - 7:00 PM	3.8%	1.9%	5.6%	100	25	75
Total 6:00 AM - 7:00 PM	**88.0%**	**89.4%**	**86.6%**	**2313**	**1172**	**1141**

Notes:

1. Total diurnal percentages taken from ITE Trip Generation Manual, 11th Edition and represent the percentage of daily traffic during each 60-minute period.

2. The sum of the total diurnal percentages does not equal 100% because not all vehicles travel into or out of the site between the hours of 6:00 AM to 7:00 PM. The remaining percentage represents the vehicular trips outside of this timeframe (7:00 PM to 6:00 AM).

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Diurnal Hourly Traffic Volumes
for Bainbridge Phase 2
(Passenger Cars)

Exhibit
I-8c

Trip Assignment for Bainbridge Phase 2 (Heavy Truck Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		10			31							
7:00 AM		16			29							
8:00 AM		17			26							
9:00 AM		19			30							
10:00 AM		21			21							
11:00 AM		25			25							
12:00 PM		27			33							
1:00 PM		19			23							
2:00 PM		21			27							
3:00 PM		39			22							
4:00 PM		33			17							
5:00 PM		30			16							
6:00 PM		19			7							

Note: The trip distribution is based on the trip distribution utilized for the Phase 2 Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

50% of trips to/from I-95 NB and will pass through the intersection as an eastbound through
50% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as an eastbound through
50% of trips will use the Diamond Jim Road access and will not pass through the intersection

Inbound

50% of trips to/from I-95 NB and will pass through the intersection as a westbound through
50% of trips will use the Diamond Jim Road access and will not pass through the intersection
50% of trips to/from I-95 SB and will pass through the intersection as a westbound through
50% of trips will use the Diamond Jim Road access and will not pass through the intersection

Trip Assignment for Bainbridge Phase 2 (Passenger Car Trips)

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM		19			58							
7:00 AM		30			56							
8:00 AM		33			49							
9:00 AM		38			57							
10:00 AM		39			40							
11:00 AM		49			48							
12:00 PM		52			63							
1:00 PM		37			45							
2:00 PM		41			52							
3:00 PM		75			43							
4:00 PM		64			34							
5:00 PM		58			32							
6:00 PM		38			13							

Note: The trip distribution is based on the trip distribution utilized for the Phase 2 Bainbridge warehousing development. Movements shaded orange represent outbound movements from the site and movements shaded green represent inbound movements to the site.

Residential Trips

Outbound

40% of trips to/from I-95 NB and do not pass through the intersection
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and do not pass through the intersection
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and do not pass through the intersection
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and pass through the intersection as northbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Inbound

40% of trips to/from I-95 NB and do not pass through the intersection
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
40% of trips to/from I-95 SB and do not pass through the intersection
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
10% of trips to/from MD 222 to the east and do not pass through the intersection
50% of these trips will use the Diamond Jim Road access and will not pass through the intersection
5% of trips to/from MD 276 to the north and pass through the intersection as southbound throughs

5% of trips to/from MD 222 to the west and do not pass through the intersection

Intersection Turning Movement Count

Hour Beginning	MD 276 Northbound			MD 276 Southbound			Waibel Road Eastbound			N/A Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
6:00 AM	0	161	0	0	367	15	183	0	0	0	0	0
7:00 AM	0	220	0	0	334	47	205	0	1	0	0	0
8:00 AM	0	227	0	0	303	39	128	0	0	0	0	0
9:00 AM	2	251	0	0	350	43	84	0	2	0	0	0
10:00 AM	0	268	0	0	282	33	66	0	4	0	0	0
11:00 AM	1	306	0	0	304	44	45	0	1	0	0	0
12:00 PM	0	342	0	0	408	55	62	0	0	0	0	0
1:00 PM	0	270	0	0	302	73	63	0	0	0	0	0
2:00 PM	2	268	0	0	334	85	95	0	1	0	0	0
3:00 PM	1	444	0	0	311	128	64	0	1	0	0	0
4:00 PM	2	429	0	0	271	154	88	0	3	0	0	0
5:00 PM	1	389	0	0	241	179	118	0	4	0	0	0
6:00 PM	3	248	0	0	124	113	72	0	7	0	0	0

Note: Volumes above combine the trips associated with Phase 2, assigned on Exhibits I-9a and I-9b, with the Phase 1A totals shown on Exhibit I-7a.

Intersection Input Values

Major = 1 Lane(s)
Minor = 1 Lane(s)

Reduced Volumes (Y/N)?[c] Y

Required Traffic Volumes

	Major	Minor
Condition A Use	350	105
	Major	Minor
Condition B Use	525	53
Combination A & B Use	Major	Minor
for Condition A	280	84
	&	&
for Condition B	420	42

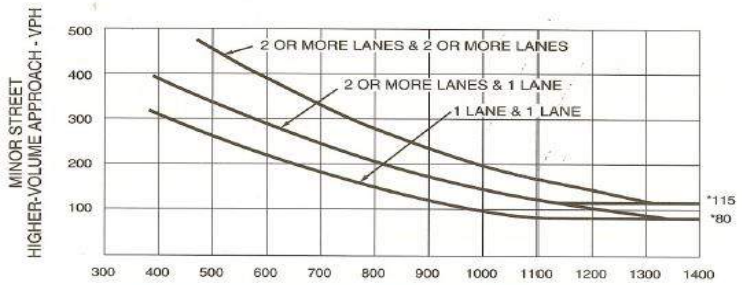
Results of Warrant 1 Analysis

Time Begin	Main Line	Minor	Warrant #1 Condition A	Condition B	Condition A&B
6:00 AM	543	183	1	1	1
7:00 AM	601	205	1	1	1
8:00 AM	569	128	1	1	1
9:00 AM	646	84	0	1	1
10:00 AM	583	66	0	1	0
11:00 AM	655	45	0	0	0
12:00 PM	805	62	0	1	0
1:00 PM	645	63	0	1	0
2:00 PM	689	95	0	1	1
3:00 PM	884	64	0	1	0
4:00 PM	856	88	0	1	1
5:00 PM	810	118	1	1	1
6:00 PM	488	72	0	0	0
Number of Hours Satisfied?			4	11	7
Condition Satisfied?			No	Yes	No

Eight Hours must be satisfied to satisfy Warrant #1 →
***Results →

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 2 **** Warrant #1 is Satisfied ****	**Exhibit I-10a**

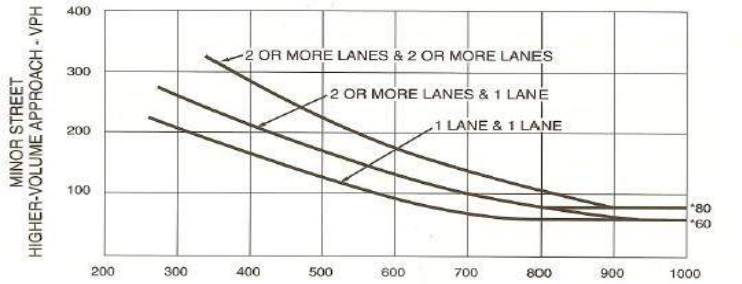
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Intersection Input Values

Major =	1	Lane(s)
Minor =	1	Lane(s)
Reduced Volumes (Y/N)?[c]	Y	

Results of Warrant 2 Analysis

Time Begin	Main Line	Minor	Warrant #2 Regular	Warrant #2 Reduced (70% Factor)
6:00 AM	543	183		1
7:00 AM	601	205		1
8:00 AM	569	128		1
9:00 AM	646	84		0
10:00 AM	583	66		0
11:00 AM	655	45		0
12:00 PM	805	62	N/A	1
1:00 PM	645	63		0
2:00 PM	689	95		1
3:00 PM	884	64		1
4:00 PM	856	88		1
5:00 PM	810	118		1
6:00 PM	488	72		0
Number of Hours Satisfied?				8
Warrant 2 Satisfied?				Yes

← 4 Hours Required

Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning	Traffic Signal Warrant Analysis under Total Conditions Phase 2 **** Warrant #2 is Satisfied ****	**Exhibit I-10b**

Appendix J

I-95 Merge/Diverge HCM Report Sheets

HCS Freeway Diverge Report

Project Information			
Analyst	Lenhart Traffic Consulting	Date	7/2/2024
Agency		Analysis Year	2028
Jurisdiction	Cecil County	Time Analyzed	AM Peak Hour
Project Description	I-95 NB Diverge	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	1400
Terrain Type	Rolling	Rolling
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2103	611
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	15.00	19.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.769	0.725
Flow Rate (v_i), pc/h	2909	897
Capacity (c_{md}), pc/h	7200	2000
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.40	0.45

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	712
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2197	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	59.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	16.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	10.5

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HCS Freeway Diverge Report

Project Information			
Analyst	Lenhart Traffic Consulting	Date	7/12/2024
Agency		Analysis Year	2028
Jurisdiction	Cecil County	Time Analyzed	PM Peak Hour
Project Description	I-95 NB Diverge	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	1400
Terrain Type	Rolling	Rolling
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1900	605
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	15.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.769	0.781
Flow Rate (v_i), pc/h	2628	824
Capacity (c_{md}), pc/h	7200	2000
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.37	0.41

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	621
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2007	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	59.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	14.7
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	8.9

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HCS Freeway Merge Report

Project Information			
Analyst	Lenhart Traffic Consulting	Date	7/9/2024
Agency		Analysis Year	2028
Jurisdiction	Cecil County	Time Analyzed	AM Peak Hour
Project Description	I-95 NB Merge	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	400
Terrain Type	Rolling	Rolling
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2103	460
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	15.00	15.40
Heavy Vehicle Adjustment Factor (f_{HV})	0.769	0.765
Flow Rate (v_i), pc/h	2909	640
Capacity (c_{md}), pc/h	7050	2000
Adjusted Capacity (c_{mda}), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.32

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1196
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1713	Outer Lanes Freeway Speed (S_O), mi/h	64.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2353	Ramp Junction Speed (S), mi/h	60.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.1

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HCS Freeway Merge Report

Project Information			
Analyst	Lenhart Traffic Consulting	Date	7/9/2024
Agency		Analysis Year	2028
Jurisdiction	Cecil County	Time Analyzed	PM Peak Hour
Project Description	I-95 NB Merge	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	400
Terrain Type	Rolling	Rolling
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1900	679
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	15.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.769	0.833
Flow Rate (v_i), pc/h	2628	867
Capacity (c_{md}), pc/h	7050	2000
Adjusted Capacity (c_{mda}), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1080
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1548	Outer Lanes Freeway Speed (S_O), mi/h	64.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2415	Ramp Junction Speed (S), mi/h	60.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	19.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.5

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HCS Freeway Diverge Report

Project Information			
Analyst	Lenhart Traffic Consulting	Date	7/9/2024
Agency		Analysis Year	2028
Jurisdiction	Cecil County	Time Analyzed	AM Peak Hour
Project Description	I-95 SB Diverge	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	420
Terrain Type	Rolling	Rolling
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2286	539
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	15.00	19.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.769	0.725
Flow Rate (v_i), pc/h	3162	791
Capacity (c_{md}), pc/h	7200	2000
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.44	0.40

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	842
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	56.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2320	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.4
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	17.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	20.4

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HCS Freeway Diverge Report

Project Information			
Analyst	Lenhart Traffic Consulting	Date	7/9/2024
Agency		Analysis Year	2028
Jurisdiction	Cecil County	Time Analyzed	PM Peak Hour
Project Description	I-95 SB Diverge	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	35.0
Segment Length (L) / Deceleration Length (LD), ft	1500	420
Terrain Type	Rolling	Rolling
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2457	399
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	15.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.769	0.833
Flow Rate (v_i), pc/h	3399	510
Capacity (c_{md}), pc/h	7200	2000
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1005
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	56.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2394	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	61.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	18.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.1

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HCS Freeway Merge Report

Project Information			
Analyst	Lenhart Traffic Consulting	Date	7/9/2024
Agency		Analysis Year	2028
Jurisdiction	Cecil County	Time Analyzed	AM Peak Hour
Project Description	I-95 SB Merge	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1100
Terrain Type	Rolling	Rolling
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2286	807
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	15.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.769	0.833
Flow Rate (v_i), pc/h	3162	1031
Capacity (c_{md}), pc/h	7050	2000
Adjusted Capacity (c_{mda}), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.59	0.52

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1240
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	1922	Outer Lanes Freeway Speed (S_O), mi/h	64.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2953	Ramp Junction Speed (S), mi/h	60.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.2

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HCS Freeway Merge Report

Project Information			
Analyst	Lenhart Traffic Consulting	Date	7/9/2024
Agency		Analysis Year	2028
Jurisdiction	Cecil County	Time Analyzed	PM Peak Hour
Project Description	I-95 SB Merge	Units	U.S. Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	66.8	35.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1100
Terrain Type	Rolling	Rolling
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs, CAF_{CAV}	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2457	777
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	15.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.769	0.833
Flow Rate (v_i), pc/h	3399	992
Capacity (c_{md}), pc/h	7050	2000
Adjusted Capacity (c_{mda}), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.62	0.50

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1332
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2067	Outer Lanes Freeway Speed (S_O), mi/h	63.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3059	Ramp Junction Speed (S), mi/h	60.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.1

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Maryland Department of Transportation
State Highway Administration
Data Services Division
Volume Detail Report

Location ID: B1614

Location: IS95-.50 MI N OF MD222

County: Cecil

Date Range: 09/13/2023 **to** 09/14/2023

Week Of: 09/10/2023 Direction:NorthBound

Begin Hour	09/10 Sun	09/11 Mon	09/12 Tue	09/13 Wed	09/14 Thu	09/15 Fri	09/16 Sat	DAILY AVG	WEEKDAY AVG	WEEKEND AVG
0:00	0	0	0	424	489	0	0	457	457	0
1:00	0	0	0	490	469	0	0	480	480	0
2:00	0	0	0	401	436	0	0	419	419	0
3:00	0	0	0	414	412	0	0	413	413	0
4:00	0	0	0	574	606	0	0	590	590	0
5:00	0	0	0	809	837	0	0	823	823	0
6:00	0	0	0	1,349	1,503	0	0	1,426	1,426	0
7:00	0	0	0	1,765	1,718	0	0	1,742	1,742	0
8:00	0	0	0	1,693	1,713	0	0	1,703	1,703	0
9:00	0	0	0	1,663	1,704	0	0	1,684	1,684	0
10:00	0	0	0	1,864	1,923	0	0	1,894	1,894	0
11:00	0	0	0	2,126	2,168	0	0	2,147	2,147	0
12:00	0	0	0	1,959	2,022	0	0	1,991	1,991	0
13:00	0	0	0	1,915	1,964	0	0	1,940	1,940	0
14:00	0	0	0	1,958	1,999	0	0	1,979	1,979	0
15:00	0	0	0	1,967	2,054	0	0	2,011	2,011	0
16:00	0	0	0	1,976	2,025	0	0	2,001	2,001	0
17:00	0	0	0	1,651	1,650	0	0	1,651	1,651	0
18:00	0	0	0	1,445	1,444	0	0	1,445	1,445	0
19:00	0	0	0	1,338	1,369	0	0	1,354	1,354	0
20:00	0	0	0	1,315	1,338	0	0	1,327	1,327	0
21:00	0	0	0	1,120	1,129	0	0	1,125	1,125	0
22:00	0	0	0	846	809	0	0	828	828	0
23:00	0	0	0	502	516	0	0	509	509	0
TOTAL	**0**	**0**	**0**	**31,564**	**32,297**	**0**	**0**	**31,931**	**31,931**	**0**
AM Peak Hour	**0:00**	**0:00**	**0:00**	**11:00**	**11:00**	**0:00**	**0:00**			
6PM-12PM Volume	**0**	**0**	**0**	**2,126**	**2,168**	**0**	**0**			
PM Peak Hour	**0:00**	**0:00**	**0:00**	**16:00**	**15:00**	**0:00**	**0:00**			
PM Peak Volume	**0**	**0**	**0**	**1,976**	**2,054**	**0**	**0**			

Maryland Department of Transportation
State Highway Administration
Data Services Division
Volume Detail Report

Location ID: B1614

Location: IS95-.50 MI N OF MD222

County: Cecil

Date Range: 09/13/2023 **to** 09/14/2023

Week Of: 09/10/2023 Direction:SouthBound

Begin Hour	09/10 Sun	09/11 Mon	09/12 Tue	09/13 Wed	09/14 Thu	09/15 Fri	09/16 Sat	DAILY AVG	WEEKDAY AVG	WEEKEND AVG
0:00	0	0	0	529	523	0	0	526	526	0
1:00	0	0	0	379	391	0	0	385	385	0
2:00	0	0	0	355	381	0	0	368	368	0
3:00	0	0	0	411	420	0	0	416	416	0
4:00	0	0	0	783	806	0	0	795	795	0
5:00	0	0	0	1,081	1,083	0	0	1,082	1,082	0
6:00	0	0	0	1,646	1,675	0	0	1,661	1,661	0
7:00	0	0	0	1,872	1,981	0	0	1,927	1,927	0
8:00	0	0	0	1,746	1,763	0	0	1,755	1,755	0
9:00	0	0	0	1,788	1,770	0	0	1,779	1,779	0
10:00	0	0	0	1,982	2,027	0	0	2,005	2,005	0
11:00	0	0	0	2,174	2,210	0	0	2,192	2,192	0
12:00	0	0	0	1,907	1,901	0	0	1,904	1,904	0
13:00	0	0	0	1,919	1,960	0	0	1,940	1,940	0
14:00	0	0	0	2,322	2,361	0	0	2,342	2,342	0
15:00	0	0	0	2,350	2,411	0	0	2,381	2,381	0
16:00	0	0	0	2,025	2,143	0	0	2,084	2,084	0
17:00	0	0	0	1,953	2,022	0	0	1,988	1,988	0
18:00	0	0	0	1,708	1,740	0	0	1,724	1,724	0
19:00	0	0	0	1,428	1,470	0	0	1,449	1,449	0
20:00	0	0	0	1,165	1,137	0	0	1,151	1,151	0
21:00	0	0	0	973	1,004	0	0	989	989	0
22:00	0	0	0	803	839	0	0	821	821	0
23:00	0	0	0	651	612	0	0	632	632	0
TOTAL	**0**	**0**	**0**	**33,950**	**34,630**	**0**	**0**	**34,290**	**34,290**	**0**
AM Peak Hour	**0:00**	**0:00**	**0:00**	**11:00**	**11:00**	**0:00**	**0:00**			
6PM-12PM Volume	**0**	**0**	**0**	**2,174**	**2,210**	**0**	**0**			
PM Peak Hour	**0:00**	**0:00**	**0:00**	**15:00**	**15:00**	**0:00**	**0:00**			
PM Peak Volume	**0**	**0**	**0**	**2,350**	**2,411**	**0**	**0**			

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Maryland Department of Transportation
State Highway Administration
Data Services Division
Volume Detail Report

Location ID: B1614

Location: IS95-.50 MI N OF MD222

County: Cecil

Date Range: 09/13/2023 **to** 09/14/2023

***** Summary Of Total Report *****

Begin Hour	SUN	MON	TUE	WED	THU	FRI	SAT	DAILY AVG	WEEKDAY AVG	WEEKEND AVG
0:00	0	0	0	953	1,012	0	0	983	983	0
1:00	0	0	0	869	860	0	0	865	865	0
2:00	0	0	0	756	817	0	0	787	787	0
3:00	0	0	0	825	832	0	0	829	829	0
4:00	0	0	0	1,357	1,412	0	0	1,385	1,385	0
5:00	0	0	0	1,890	1,920	0	0	1,905	1,905	0
6:00	0	0	0	2,995	3,178	0	0	3,087	3,087	0
7:00	0	0	0	3,637	3,699	0	0	3,668	3,668	0
8:00	0	0	0	3,439	3,476	0	0	3,458	3,458	0
9:00	0	0	0	3,451	3,474	0	0	3,463	3,463	0
10:00	0	0	0	3,846	3,950	0	0	3,898	3,898	0
11:00	0	0	0	4,300	4,378	0	0	4,339	4,339	0
12:00	0	0	0	3,866	3,923	0	0	3,895	3,895	0
13:00	0	0	0	3,834	3,924	0	0	3,879	3,879	0
14:00	0	0	0	4,280	4,360	0	0	4,320	4,320	0
15:00	0	0	0	4,317	4,465	0	0	4,391	4,391	0
16:00	0	0	0	4,001	4,168	0	0	4,085	4,085	0
17:00	0	0	0	3,604	3,672	0	0	3,638	3,638	0
18:00	0	0	0	3,153	3,184	0	0	3,169	3,169	0
19:00	0	0	0	2,766	2,839	0	0	2,803	2,803	0
20:00	0	0	0	2,480	2,475	0	0	2,478	2,478	0
21:00	0	0	0	2,093	2,133	0	0	2,113	2,113	0
22:00	0	0	0	1,649	1,648	0	0	1,649	1,649	0
23:00	0	0	0	1,153	1,128	0	0	1,141	1,141	0
TOTAL	**0**	**0**	**0**	**65,514**	**66,927**	**0**	**0**	**66,221**	**66,221**	**0**
AM Peak Hour	**0:00**	**0:00**	**0:00**	**11:00**	**11:00**	**0:00**	**0:00**			
6PM-12PM Volume	**0**	**0**	**0**	**4,300**	**4,378**	**0**	**0**			
PM Peak Hour	**0:00**	**0:00**	**0:00**	**15:00**	**15:00**	**0:00**	**0:00**			
PM Peak Volume	**0**	**0**	**0**	**4,317**	**4,465**	**0**	**0**			

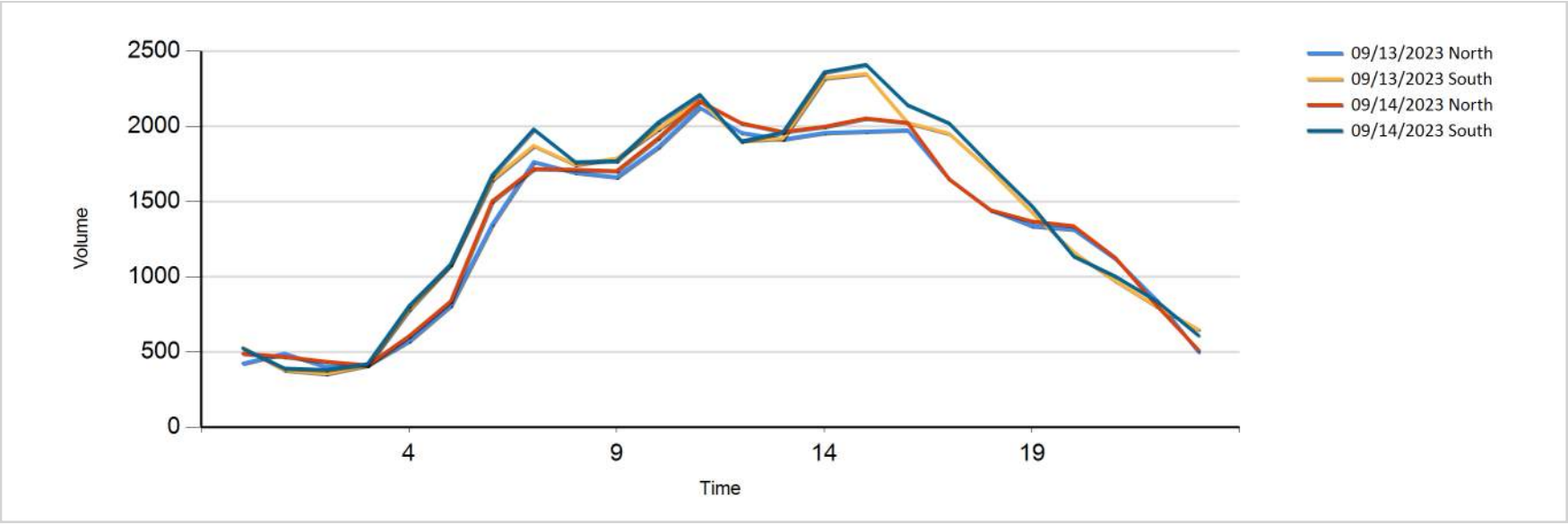
Maryland Department of Transportation
State Highway Administration
Data Services Division
Volume Detail Report

Location ID: B1614

Location: IS95-.50 MI N OF MD222

County: Cecil

Date Range: 09/13/2023 **to** 09/14/2023



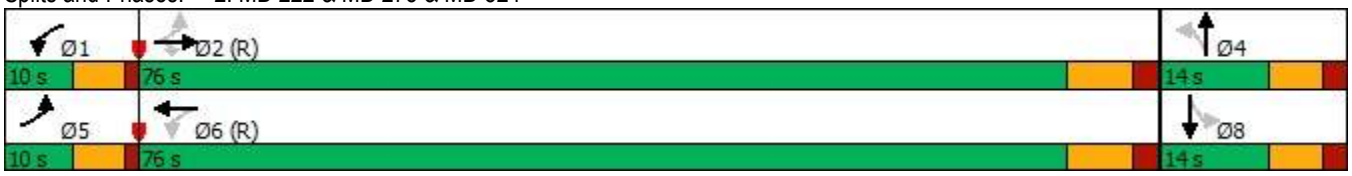
Appendix K

Recommended Signal Timings

Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	NBTL	EBL	WBTL	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize						
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	10	76	14	10	76	14
Maximum Split (%)	10.0%	76.0%	14.0%	10.0%	76.0%	14.0%
Minimum Split (s)	10	32	14	10	32	14
Yellow Time (s)	4	5	4	4	5	4
All-Red Time (s)	1	2	2	1	2	2
Minimum Initial (s)	5	25	8	5	25	8
Vehicle Extension (s)	3	6	3	3	6	3
Minimum Gap (s)	3	6	3	3	6	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	22	32	8	22	32	8
End Time (s)	32	8	22	32	8	22
Yield/Force Off (s)	27	1	16	27	1	16
Yield/Force Off 170(s)	27	1	16	27	1	16
Local Start Time (s)	90	0	76	90	0	76
Local Yield (s)	95	69	84	95	69	84
Local Yield 170(s)	95	69	84	95	69	84

Intersection Summary	
Cycle Length	100
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 32 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

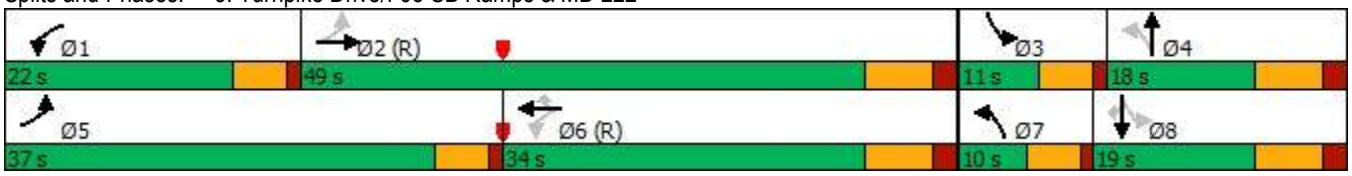
Splits and Phases: 2: MD 222 & MD 275 & MD 824



Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	SBL	NBTL	EBL	WBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize								
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	22	49	11	18	37	34	10	19
Maximum Split (%)	22.0%	49.0%	11.0%	18.0%	37.0%	34.0%	10.0%	19.0%
Minimum Split (s)	11	32	10	16	11	32	10	16
Yellow Time (s)	4	5	4	5	4	5	4	5
All-Red Time (s)	1	2	1	2	1	2	1	2
Minimum Initial (s)	5	25	5	5	5	25	5	5
Vehicle Extension (s)	3	5	3	3	3	5	3	3
Minimum Gap (s)	3	5	3	3	3	5	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								
Flash Dont Walk (s)								
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	73	95	44	55	73	10	44	54
End Time (s)	95	44	55	73	10	44	54	73
Yield/Force Off (s)	90	37	50	66	5	37	49	66
Yield/Force Off 170(s)	90	37	50	66	5	37	49	66
Local Start Time (s)	63	85	34	45	63	0	34	44
Local Yield (s)	80	27	40	56	95	27	39	56
Local Yield 170(s)	80	27	40	56	95	27	39	56

Intersection Summary	
Cycle Length	100
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 10 (10%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

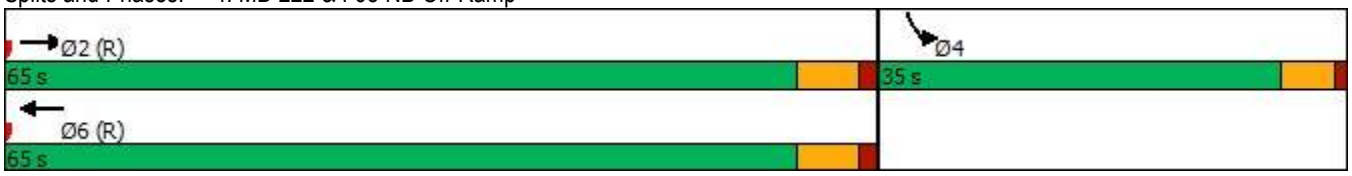
Splits and Phases: 3: Turnpike Drive/I-95 SB Ramps & MD 222



Phase Number	2	4	6
Movement	EBT	SBL	WBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	C-Max
Maximum Split (s)	65	35	65
Maximum Split (%)	65.0%	35.0%	65.0%
Minimum Split (s)	26	11	26
Yellow Time (s)	4.5	4	4.5
All-Red Time (s)	1.5	1	1.5
Minimum Initial (s)	20	5	20
Vehicle Extension (s)	5	3	5
Minimum Gap (s)	5	3	5
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)			
Flash Dont Walk (s)			
Dual Entry	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	97	62	97
End Time (s)	62	97	62
Yield/Force Off (s)	56	92	56
Yield/Force Off 170(s)	56	92	56
Local Start Time (s)	0	65	0
Local Yield (s)	59	95	59
Local Yield 170(s)	59	95	59

Intersection Summary	
Cycle Length	100
Control Type	Actuated-Coordinated
Natural Cycle	45
Offset: 97 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

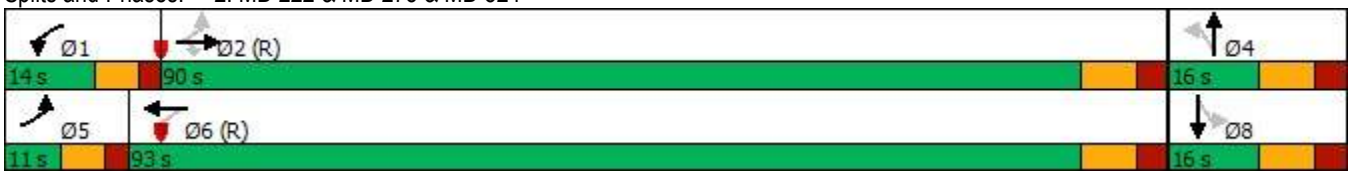
Splits and Phases: 4: MD 222 & I-95 NB Off-Ramp



Phase Number	1	2	4	5	6	8
Movement	WBL	EBTL	NBTL	EBL	WBTL	SBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize						
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	14	90	16	11	93	16
Maximum Split (%)	11.7%	75.0%	13.3%	9.2%	77.5%	13.3%
Minimum Split (s)	11	33	16	11	33	16
Yellow Time (s)	4	5	5	4	5	5
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	5	25	8	5	25	8
Vehicle Extension (s)	3	6	3	3	6	3
Minimum Gap (s)	3	6	3	3	6	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	116	10	100	116	7	100
End Time (s)	10	100	116	7	100	116
Yield/Force Off (s)	4	92	108	1	92	108
Yield/Force Off 170(s)	4	92	108	1	92	108
Local Start Time (s)	106	0	90	106	117	90
Local Yield (s)	114	82	98	111	82	98
Local Yield 170(s)	114	82	98	111	82	98

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 10 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

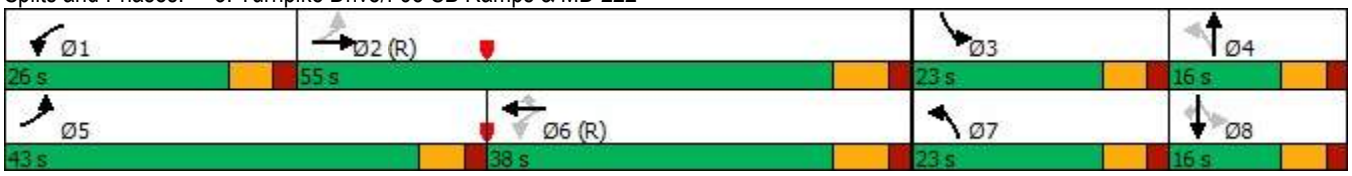
Splits and Phases: 2: MD 222 & MD 275 & MD 824



Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	SBL	NBTL	EBL	WBTL	NBL	SBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize								
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	55	23	16	43	38	23	16
Maximum Split (%)	21.7%	45.8%	19.2%	13.3%	35.8%	31.7%	19.2%	13.3%
Minimum Split (s)	11	28	10	16	11	28	10	16
Yellow Time (s)	4	5	4	4	4	5	4	4
All-Red Time (s)	2	2	2	2	2	2	2	2
Minimum Initial (s)	5	20	4	8	5	20	4	8
Vehicle Extension (s)	3	5	3	3	3	5	3	3
Minimum Gap (s)	3	5	3	3	3	5	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								
Flash Dont Walk (s)								
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	69	95	30	53	69	112	30	53
End Time (s)	95	30	53	69	112	30	53	69
Yield/Force Off (s)	89	23	47	63	106	23	47	63
Yield/Force Off 170(s)	89	23	47	63	106	23	47	63
Local Start Time (s)	77	103	38	61	77	0	38	61
Local Yield (s)	97	31	55	71	114	31	55	71
Local Yield 170(s)	97	31	55	71	114	31	55	71

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 112 (93%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

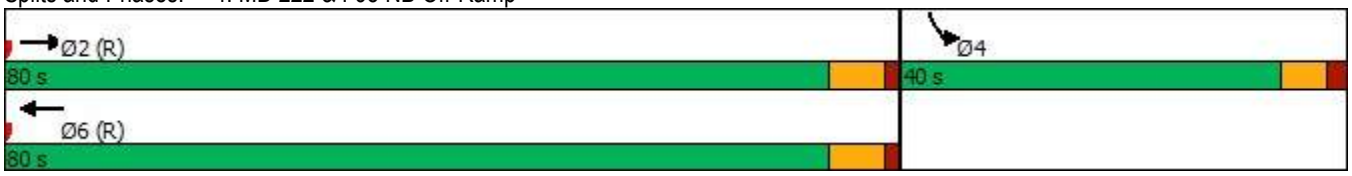
Splits and Phases: 3: Turnpike Drive/I-95 SB Ramps & MD 222



Phase Number	2	4	6
Movement	EBT	SBL	WBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	C-Max
Maximum Split (s)	80	40	80
Maximum Split (%)	66.7%	33.3%	66.7%
Minimum Split (s)	26.5	11	26.5
Yellow Time (s)	5	4	5
All-Red Time (s)	1.5	2	1.5
Minimum Initial (s)	20	5	20
Vehicle Extension (s)	5	3	5
Minimum Gap (s)	5	3	5
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)			
Flash Dont Walk (s)			
Dual Entry	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	92	52	92
End Time (s)	52	92	52
Yield/Force Off (s)	45.5	86	45.5
Yield/Force Off 170(s)	45.5	86	45.5
Local Start Time (s)	0	80	0
Local Yield (s)	73.5	114	73.5
Local Yield 170(s)	73.5	114	73.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	50
Offset: 92 (77%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

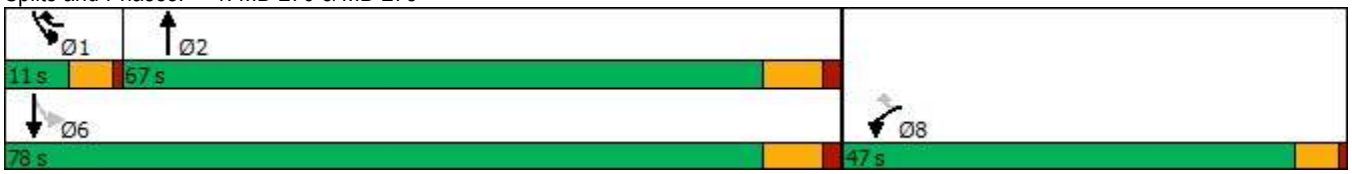
Splits and Phases: 4: MD 222 & I-95 NB Off-Ramp



Phase Number	1	2	6	8
Movement	SBL	NBT	SBTL	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	None	None	None
Maximum Split (s)	11	67	78	47
Maximum Split (%)	8.8%	53.6%	62.4%	37.6%
Minimum Split (s)	10	32.5	32.5	10
Yellow Time (s)	4	5.5	5.5	4
All-Red Time (s)	1	2	2	1
Minimum Initial (s)	5	25	25	5
Vehicle Extension (s)	3	5	3	5
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	11	0	78
End Time (s)	11	78	78	0
Yield/Force Off (s)	6	70.5	70.5	120
Yield/Force Off 170(s)	6	70.5	70.5	120
Local Start Time (s)	114	0	114	67
Local Yield (s)	120	59.5	59.5	109
Local Yield 170(s)	120	59.5	59.5	109

Intersection Summary	
Cycle Length	125
Control Type	Actuated-Uncoordinated
Natural Cycle	90

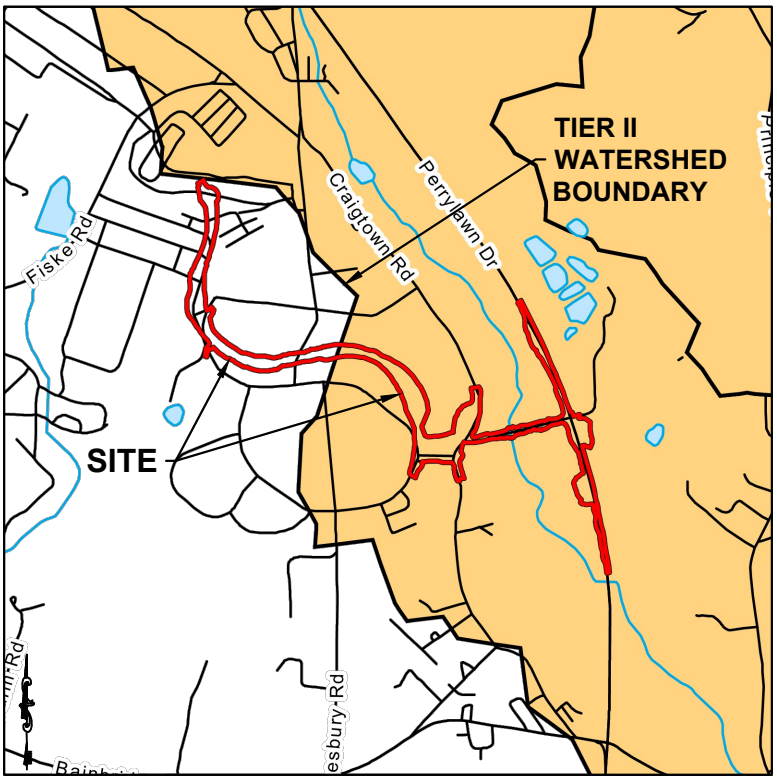
Splits and Phases: 1: MD 276 & MD 275



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BAINBRIDGE-POWERS ROAD EXTENSION

TIER II BUFFER EXHIBIT



SOURCE: ADC THE MAP PEOPLE // PERMITTED USE NUMBER: 20711184

VICINITY MAP
1"=2,000'

LEGEND

- PROJECT BOUNDARY
- LOD — PROPOSED LIMIT OF DISTURBANCE
- PERENNIAL/INTERMITTENT STREAM
- W — NONTIDAL WETLAND
- WB — 25-FOOT NONTIDAL WETLAND BUFFER
- EXISTING TREELINE
- T2B — 100' TIER II BUFFER
- BUFFER IMAPCT RESULTING IN TIER II BUFFER <100'
- EXISTING CONTOURS
- PROPOSED CONTOURS

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BAINBRIDGE-POWERS ROAD EXTENSION
Tier II Avoidance and Minimization Forest Buffer Exhibit
Cecil County, Maryland

VICINITY MAP AND LEGEND
Date: **June 16, 2025**

Scale: N/A | ***Sheet: 1 of 7***

BAINBRIDGE-POWERS ROAD EXTENSION

TIER II BUFFER EXHIBIT

Tier II Buffer Impact		
Number	**Reason**	**AC**
1	Grading	0.10
2	Grading , Roadway, and Stormwater Management	0.59
3	Roadway and Grading	0.53
4	Roadway and Grading	0.54
5	Stormwater Outfall	0.03
6	Stormwater Outfalls	0.09
7	Roadway	0.09
Total		**1.97**

Tier II Buffer Expansion:
The Project area is limited to the LOD as this is a linear project through multiple parcels with mixed ownership. There is no buffer expansion within the LOD area.

Post-Construction Buffer Wdith:
The Project area is limited to the LOD as this is a linear project through multiple parcels with mixed ownership. Impacts to Tier II Buffer remove the entire buffer within the LOD.

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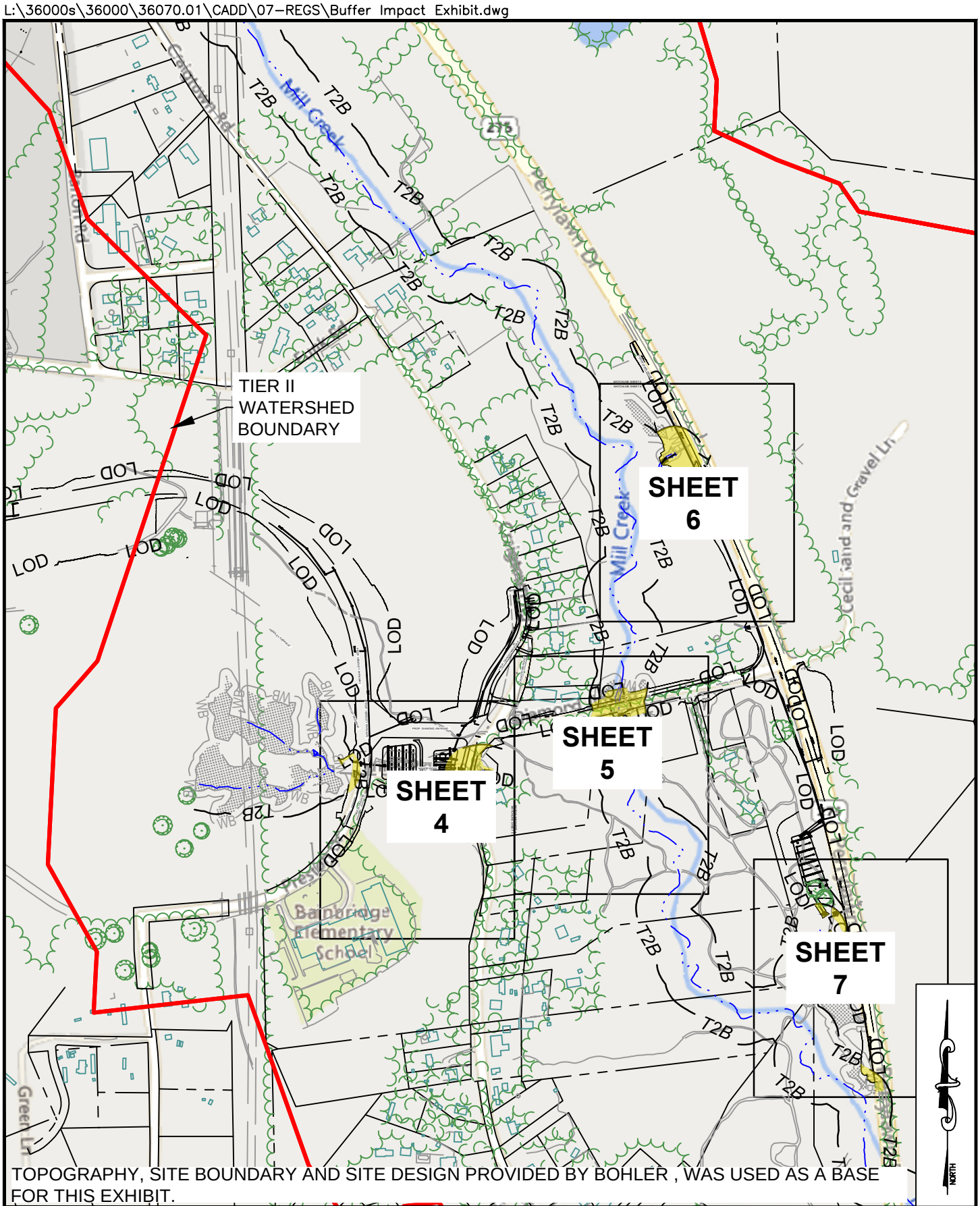
BAINBRIDGE-POWERS ROAD EXTENSION
Tier II Avoidance and Minimization
Forest Buffer Exhibit
Cecil County, Maryland

SUMMARY TABLES

Date: **June 16, 2025**

Scale: N/A

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TOPOGRAPHY, SITE BOUNDARY AND SITE DESIGN PROVIDED BY BOHLER , WAS USED AS A BASE FOR THIS EXHIBIT.

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization Forest Buffer Exhibit

Cecil County, Maryland

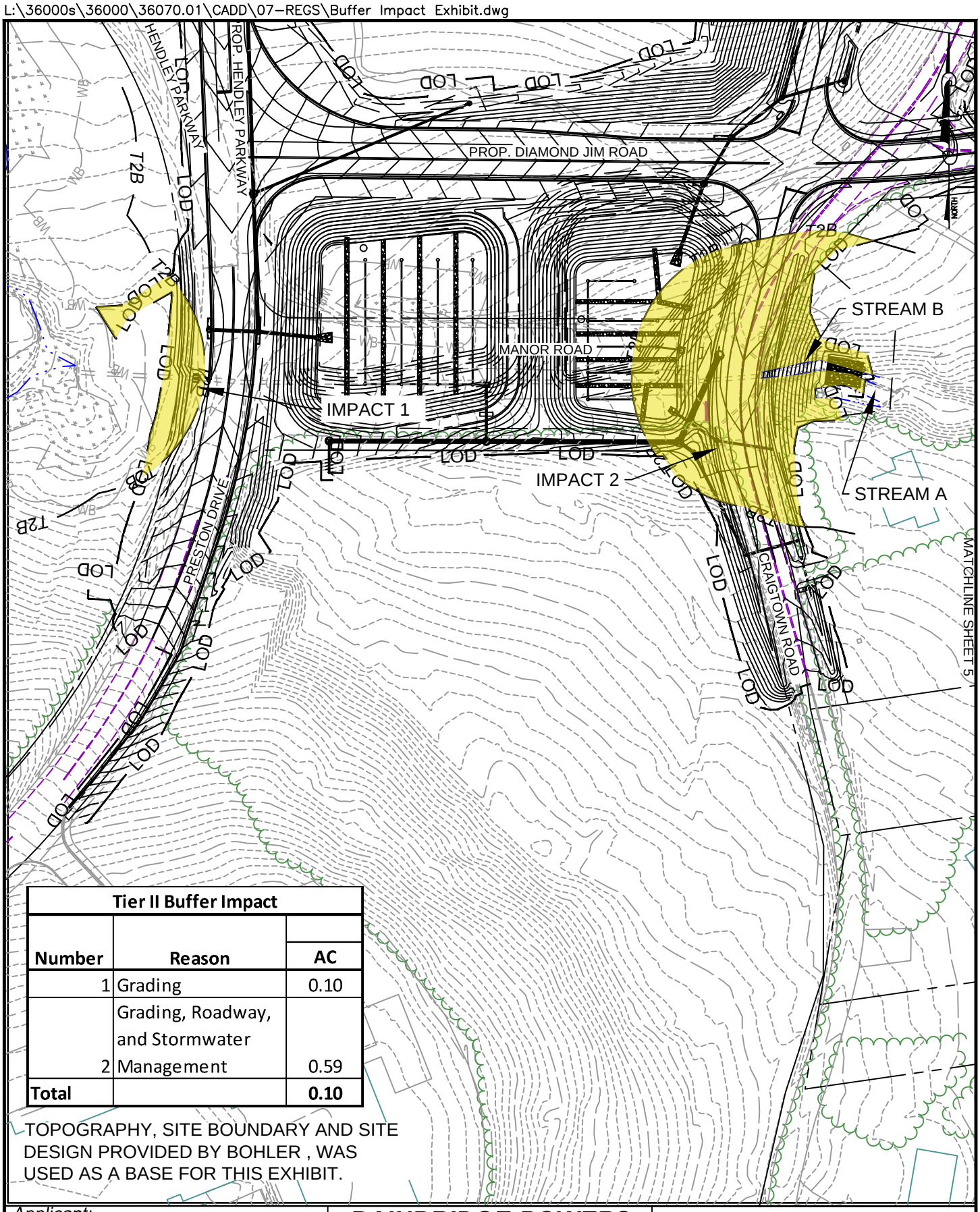
OVERALL EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 500'

Sheet: 3 of 7

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Tier II Buffer Impact		
Number	Reason	AC
1	Grading	0.10
2	Grading, Roadway, and Stormwater Management	0.59
Total		**0.10**

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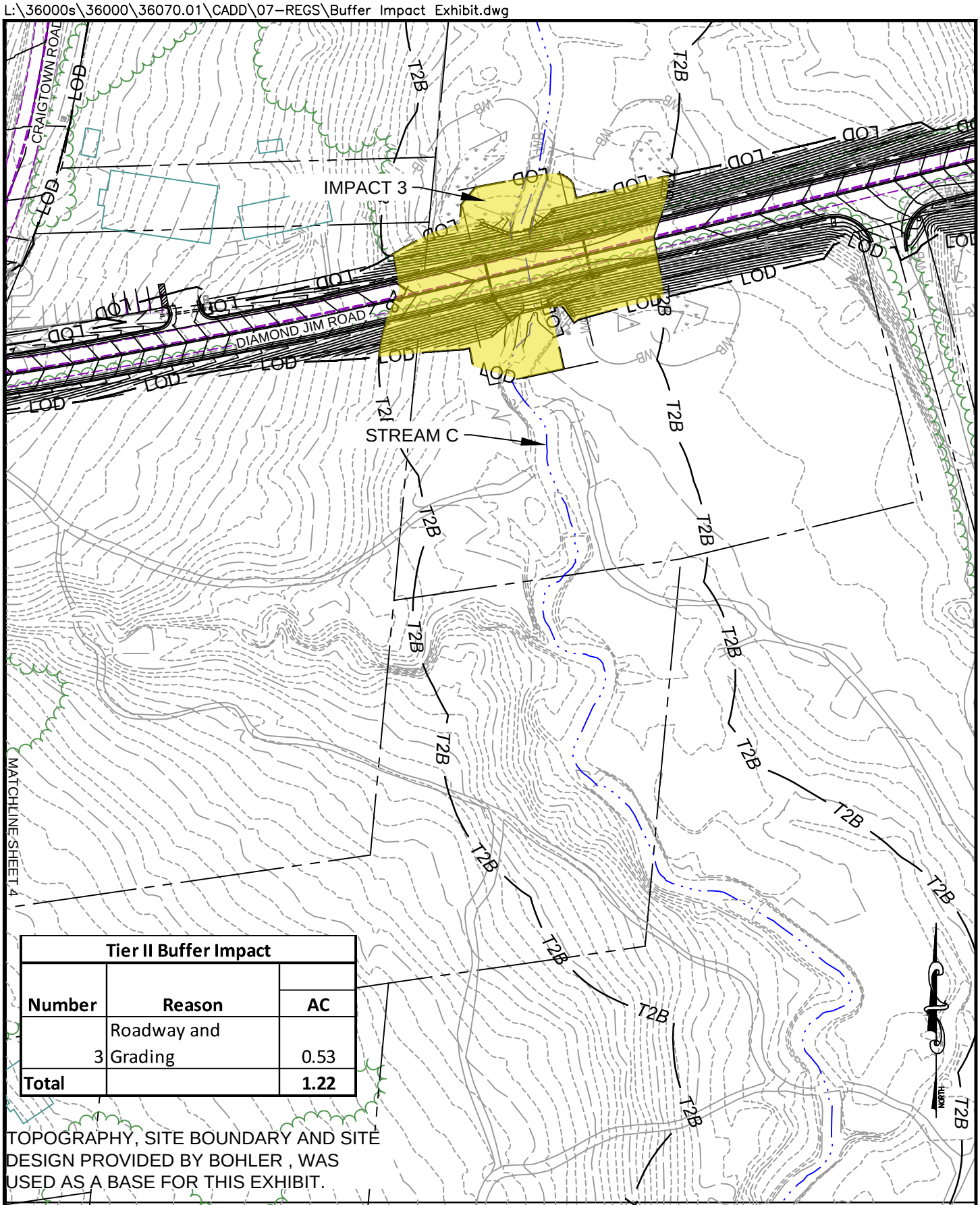
IMPACT EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 4 of 7

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Tier II Buffer Impact		
Number	Reason	AC
3	Roadway and Grading	0.53
Total		1.22

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization Forest Buffer Exhibit

Cecil County, Maryland

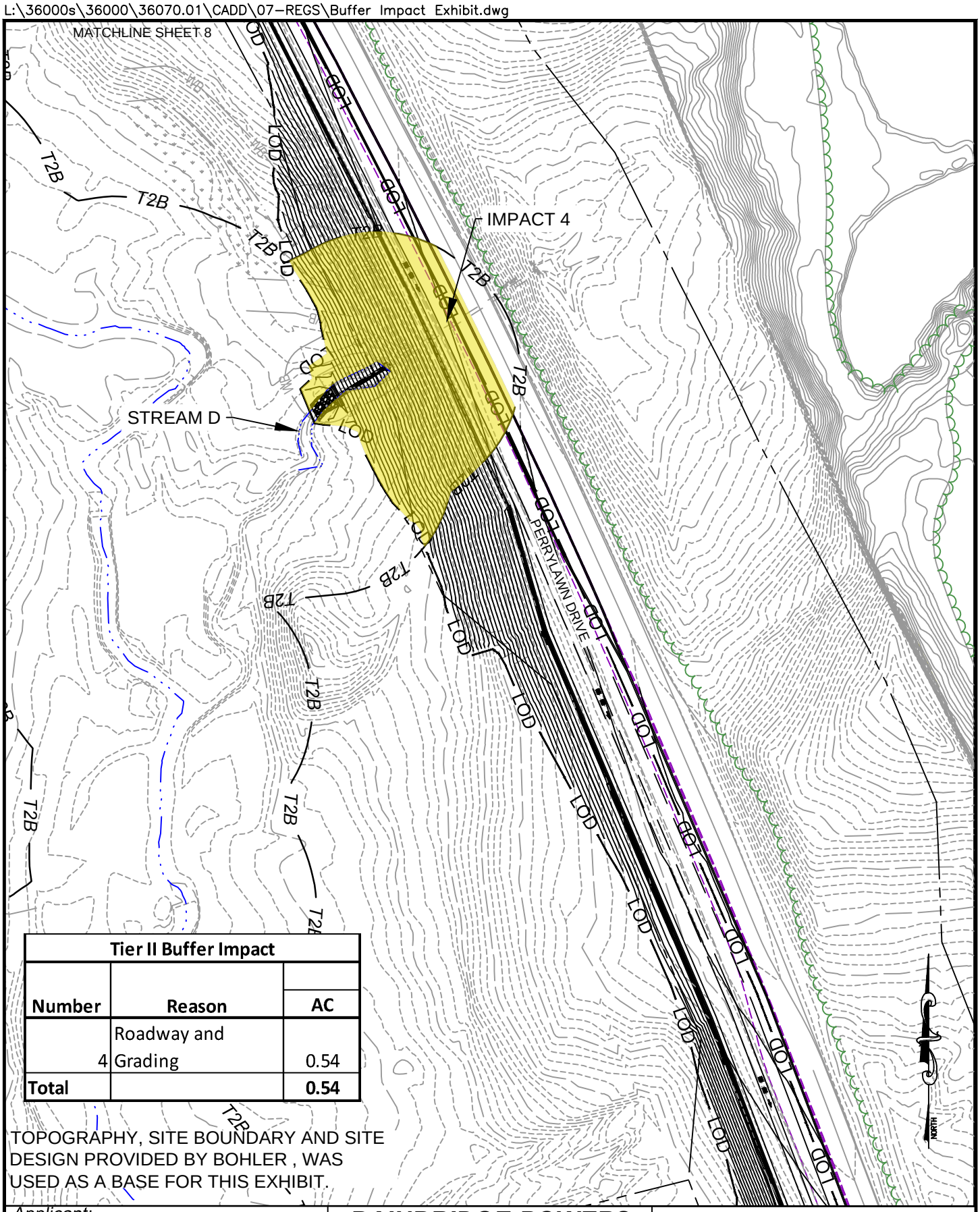
IMPACT EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 5 of 7

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Tier II Buffer Impact		
Number	Reason	AC
4	Roadway and Grading	0.54
Total		**0.54**

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization
Forest Buffer Exhibit
Cecil County, Maryland

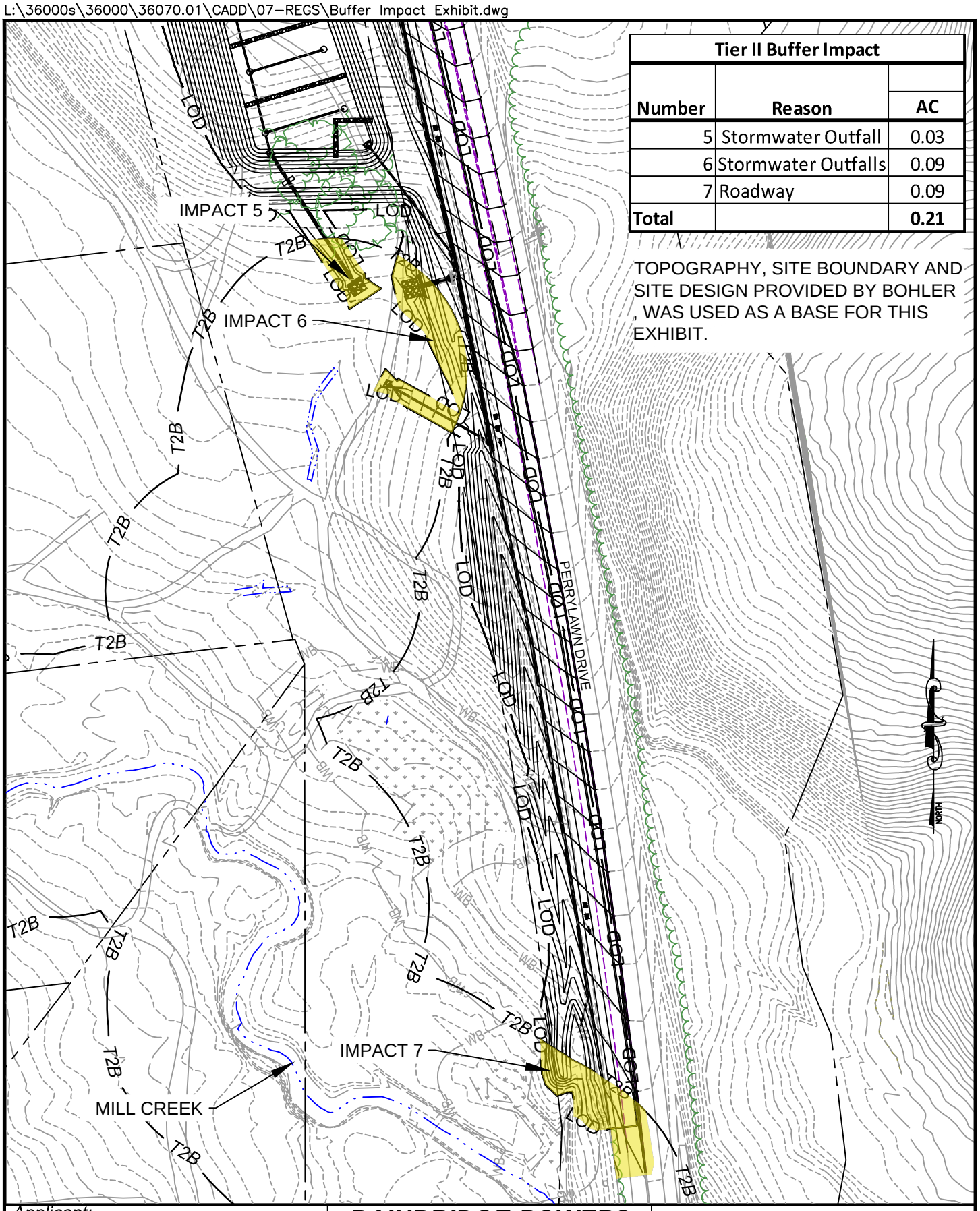
IMPACT EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 6 of 7

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Tier II Buffer Impact		
Number	Reason	AC
5	Stormwater Outfall	0.03
6	Stormwater Outfalls	0.09
7	Roadway	0.09
Total		**0.21**

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization
Forest Buffer Exhibit
Cecil County, Maryland

IMPACT EXHIBIT

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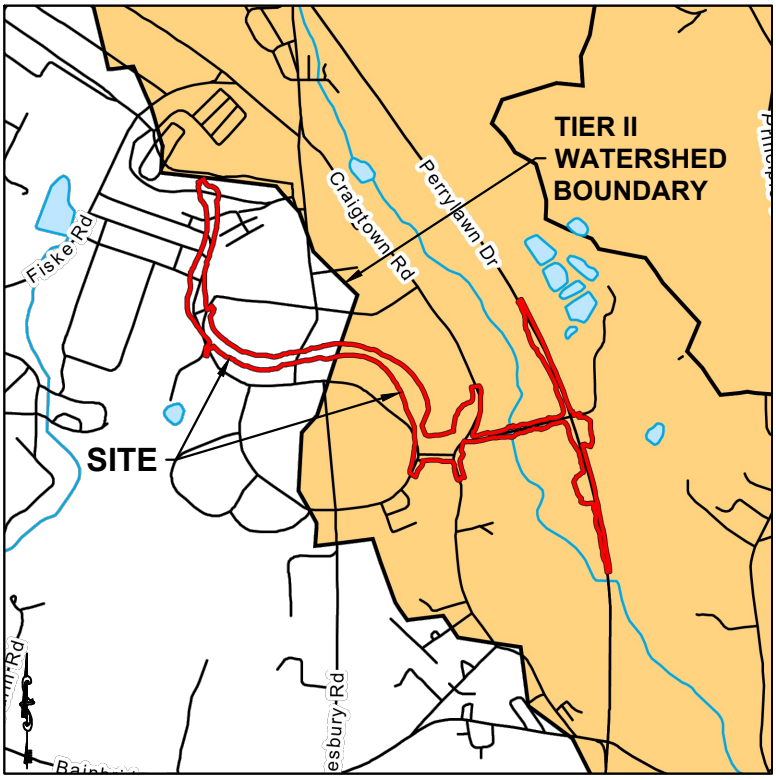
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Sheet: 7 of 7

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BAINBRIDGE-POWERS ROAD EXTENSION

FOREST COVER EXHIBIT



SOURCE: ADC THE MAP PEOPLE
PERMITTED USE NUMBER: 20711184

VICINITY MAP
1"=2,000'

Impact Summary	Acres
Permanent Forest Loss	14.93

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BAINBRIDGE-POWERS ROAD EXTENSION
Tier II Avoidance and Minimization
Forest Cover Exhibit
Cecil County, Maryland

VICINITY MAP AND IMPACT SUMMARY
Date: **June 16, 2025**

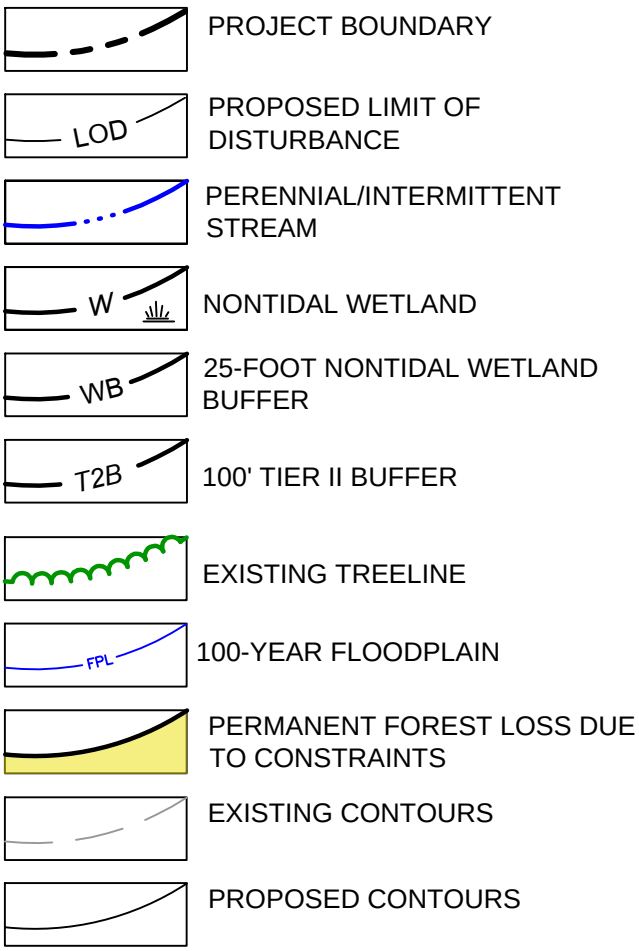
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BAINBRIDGE-POWERS ROAD EXTENSION

FOREST COVER EXHIBIT

LEGEND



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BAINBRIDGE-POWERS ROAD EXTENSION
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Cecil County, Maryland

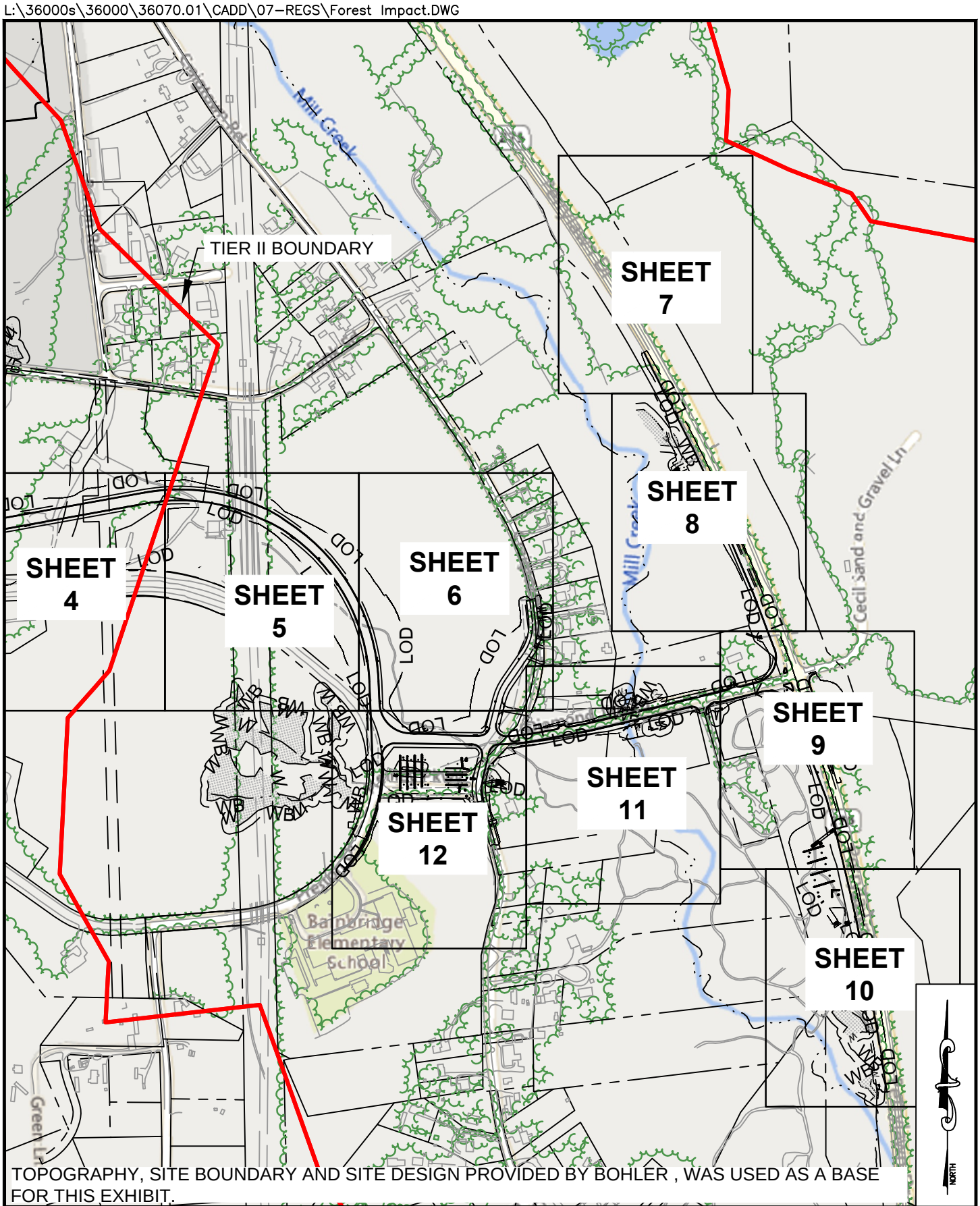
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Date: **June 16, 2025**

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Sheet: 2 of 12

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization Forest Cover Exhibit

Cecil County, Maryland

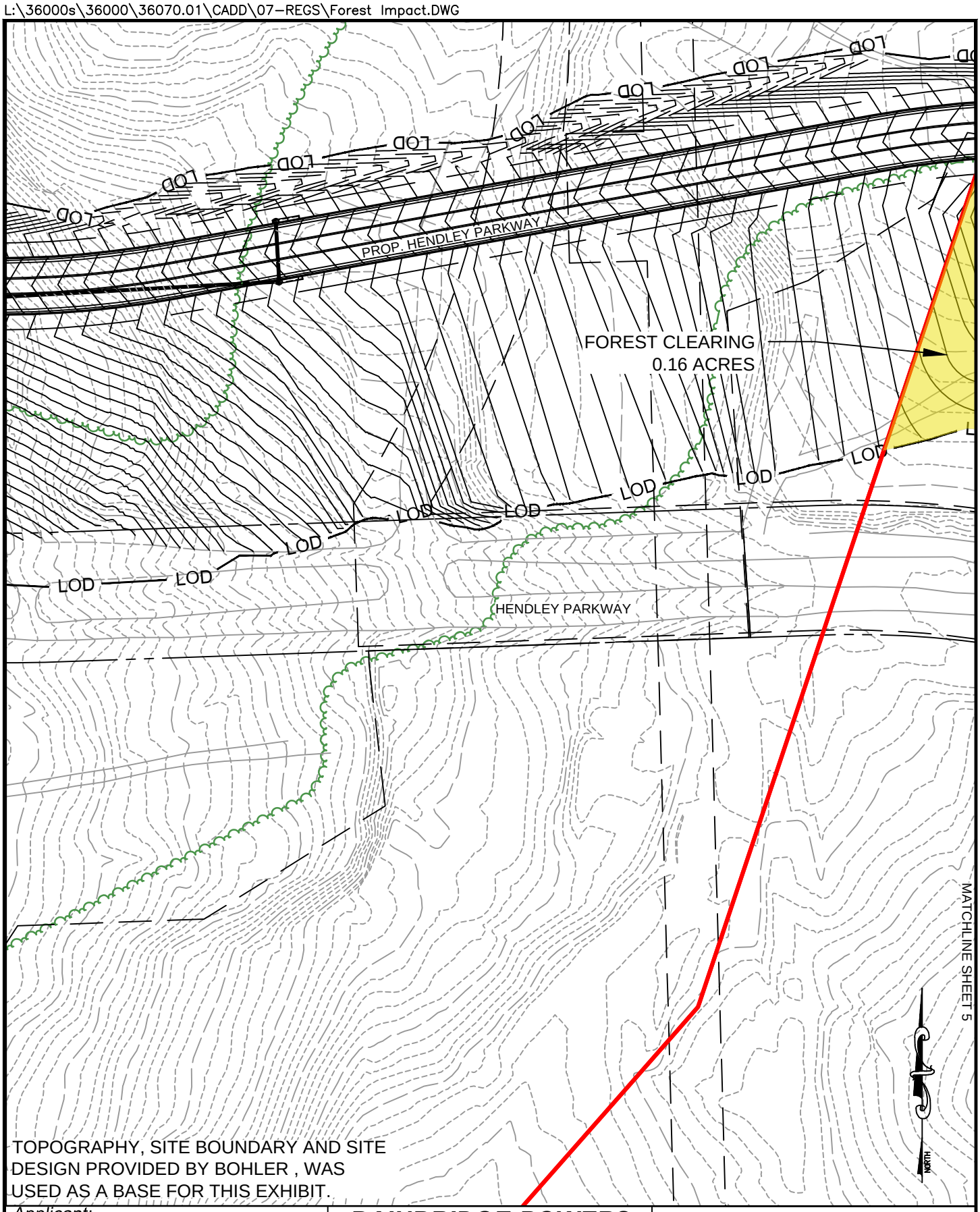
OVERALL EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 700'

Sheet: 3 of 12

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization
Forest Cover Exhibit
Cecil County, Maryland

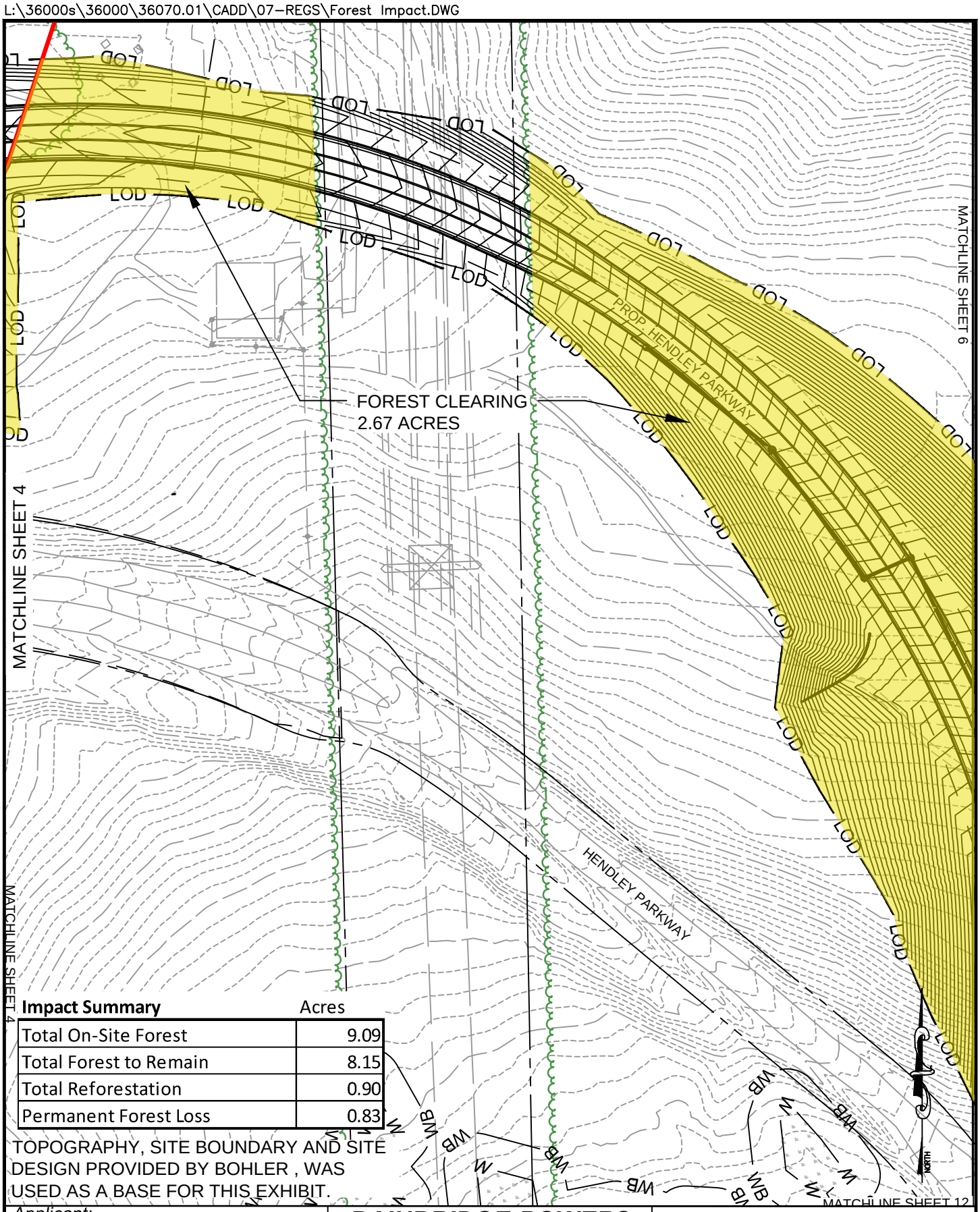
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Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 4 of 12

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Impact Summary	Acres
Total On-Site Forest	9.09
Total Forest to Remain	8.15
Total Reforestation	0.90
Permanent Forest Loss	0.83

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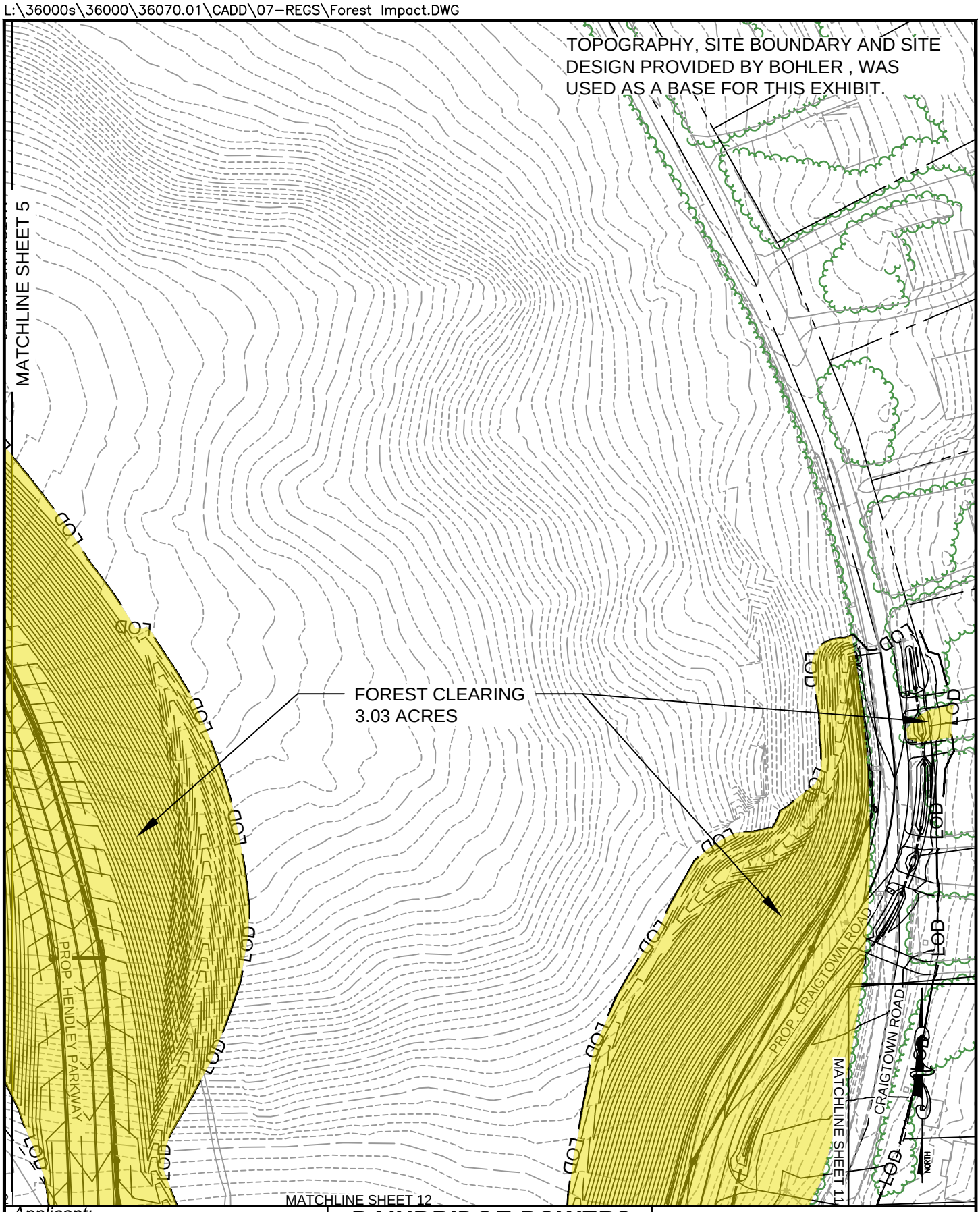
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Sheet: 5 of 12

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Cecil County, Maryland

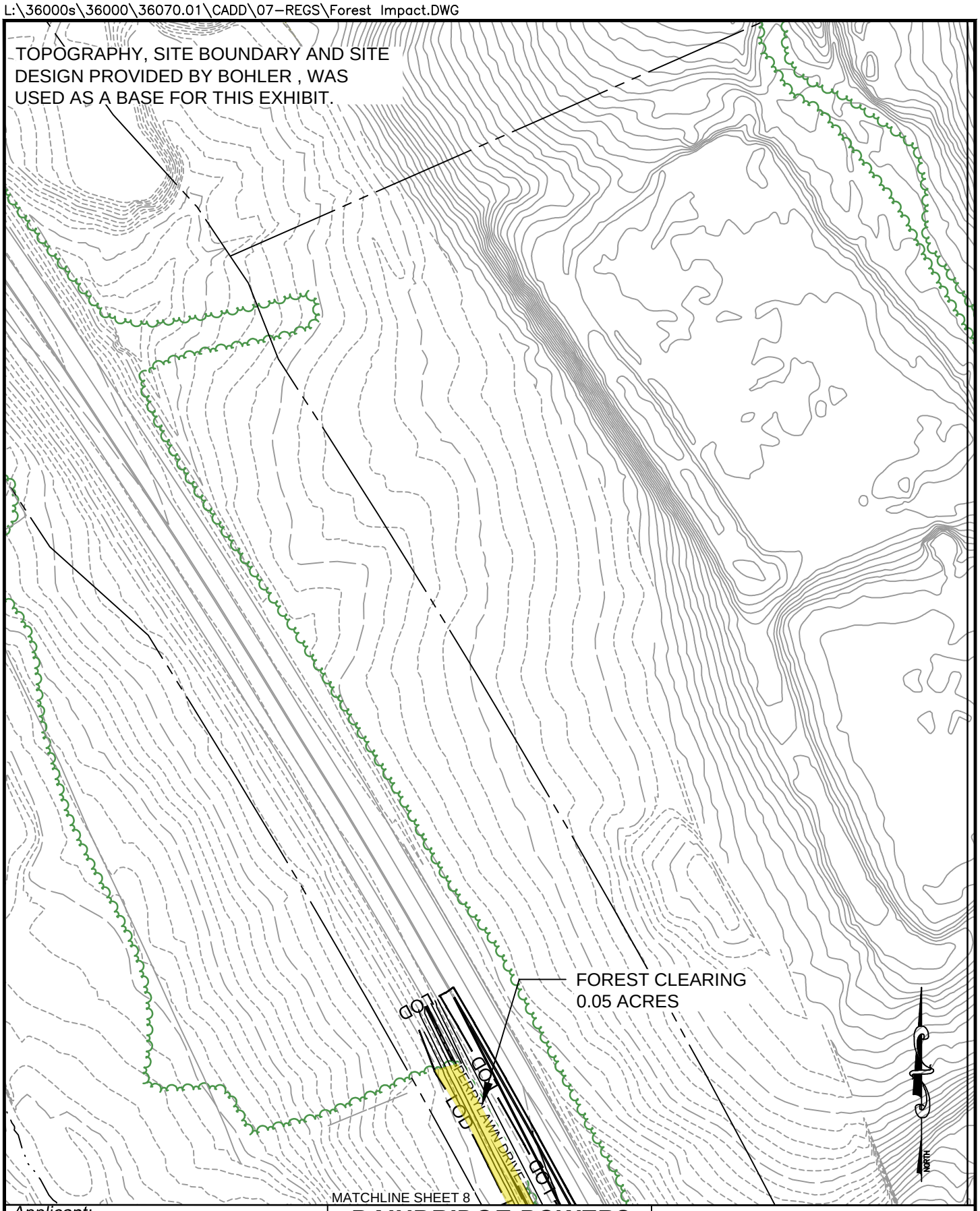
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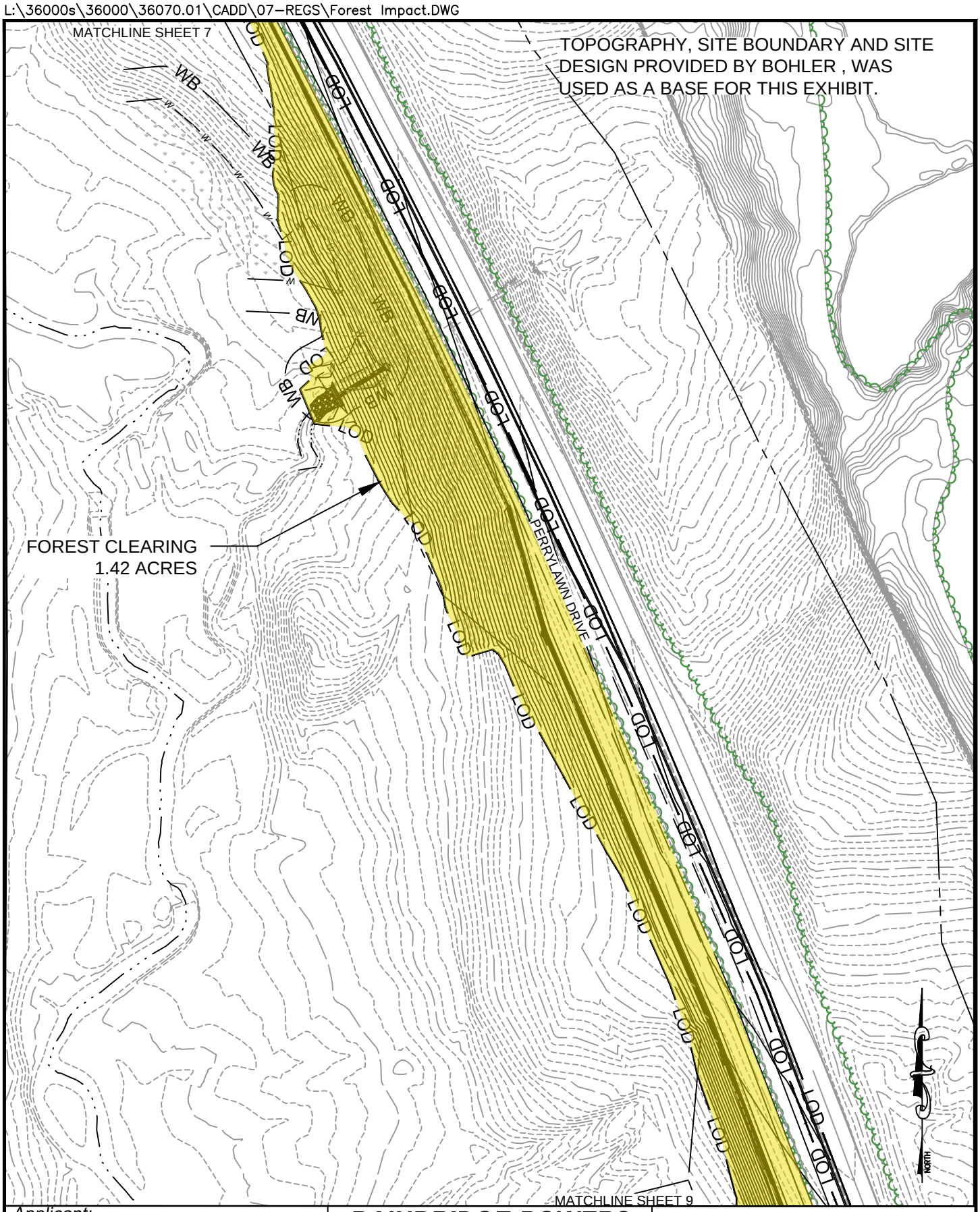
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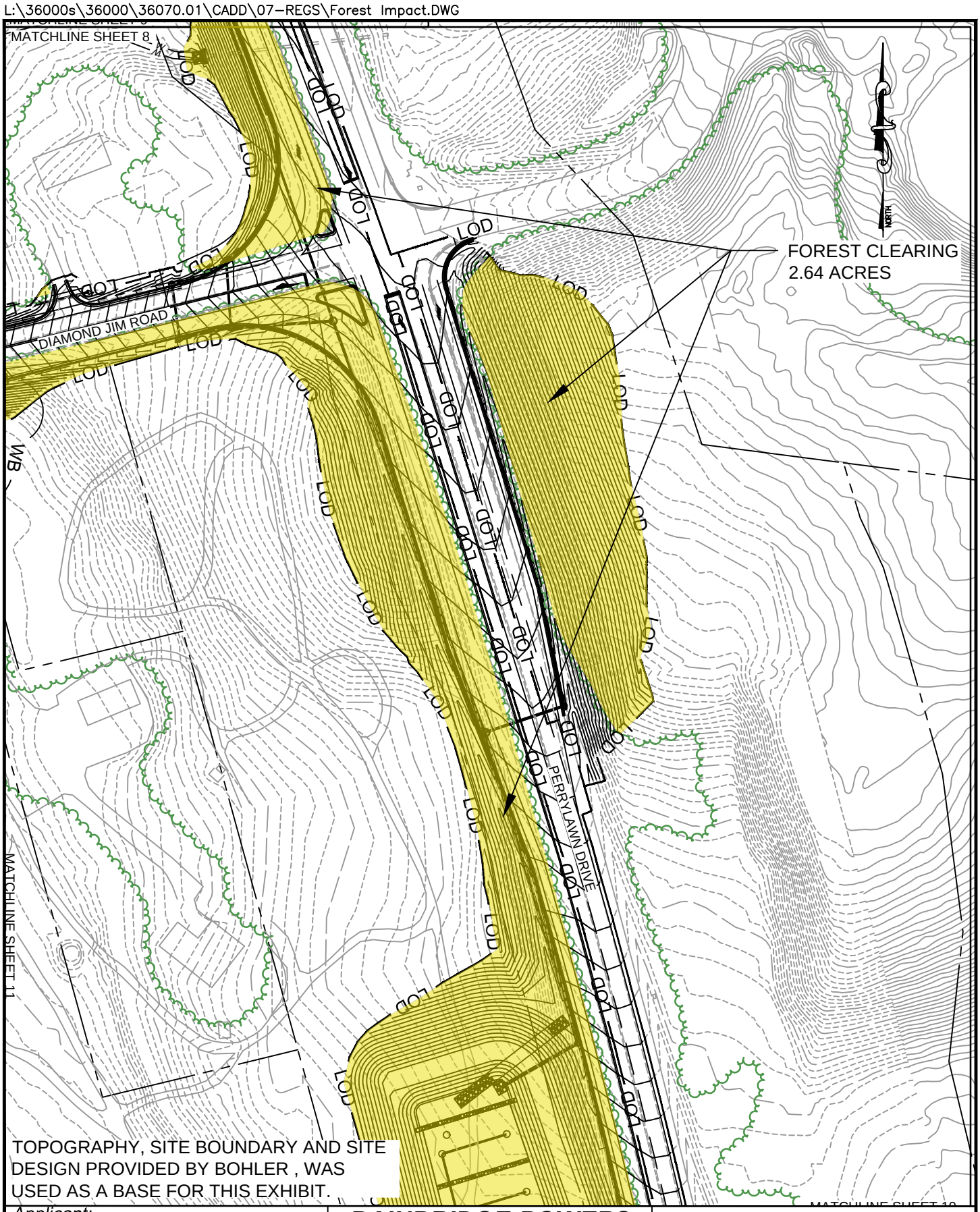
Sheet: 7 of 12

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BAINBRIDGE-POWERS ROAD EXTENSION

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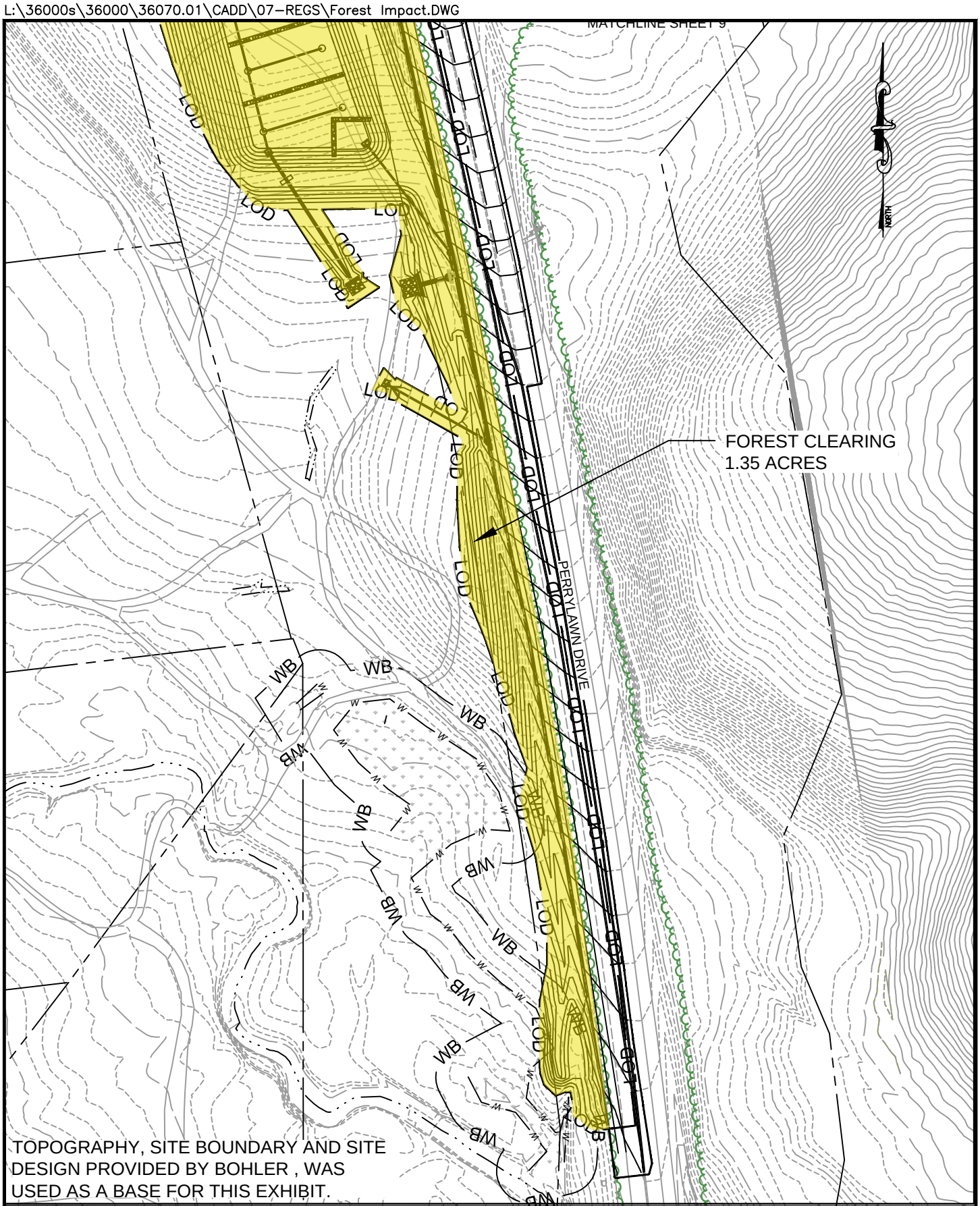
IMPACT EXHIBIT

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Scale: 1" = 100'

Sheet: 9 of 12

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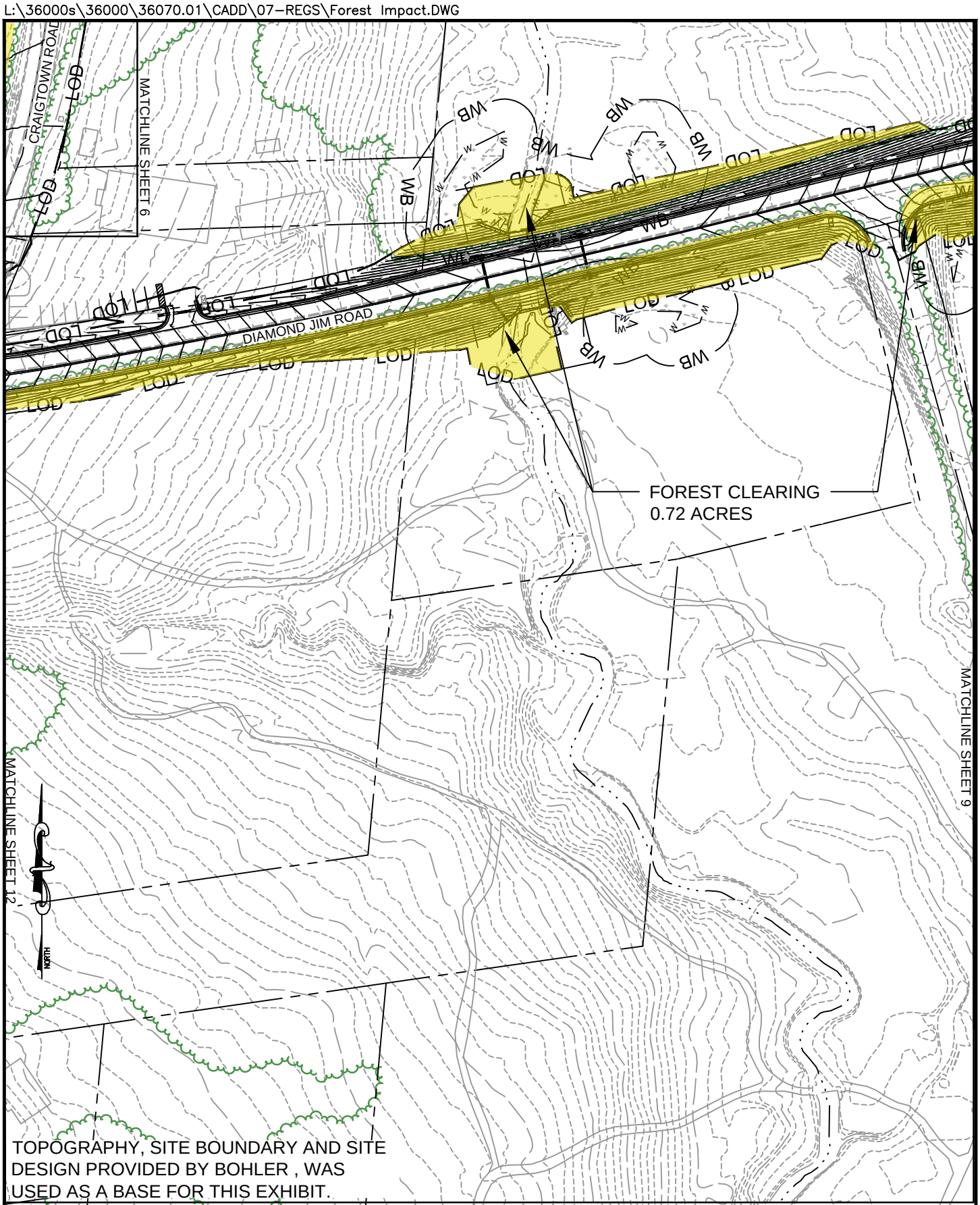
IMPACT EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 10 of 12

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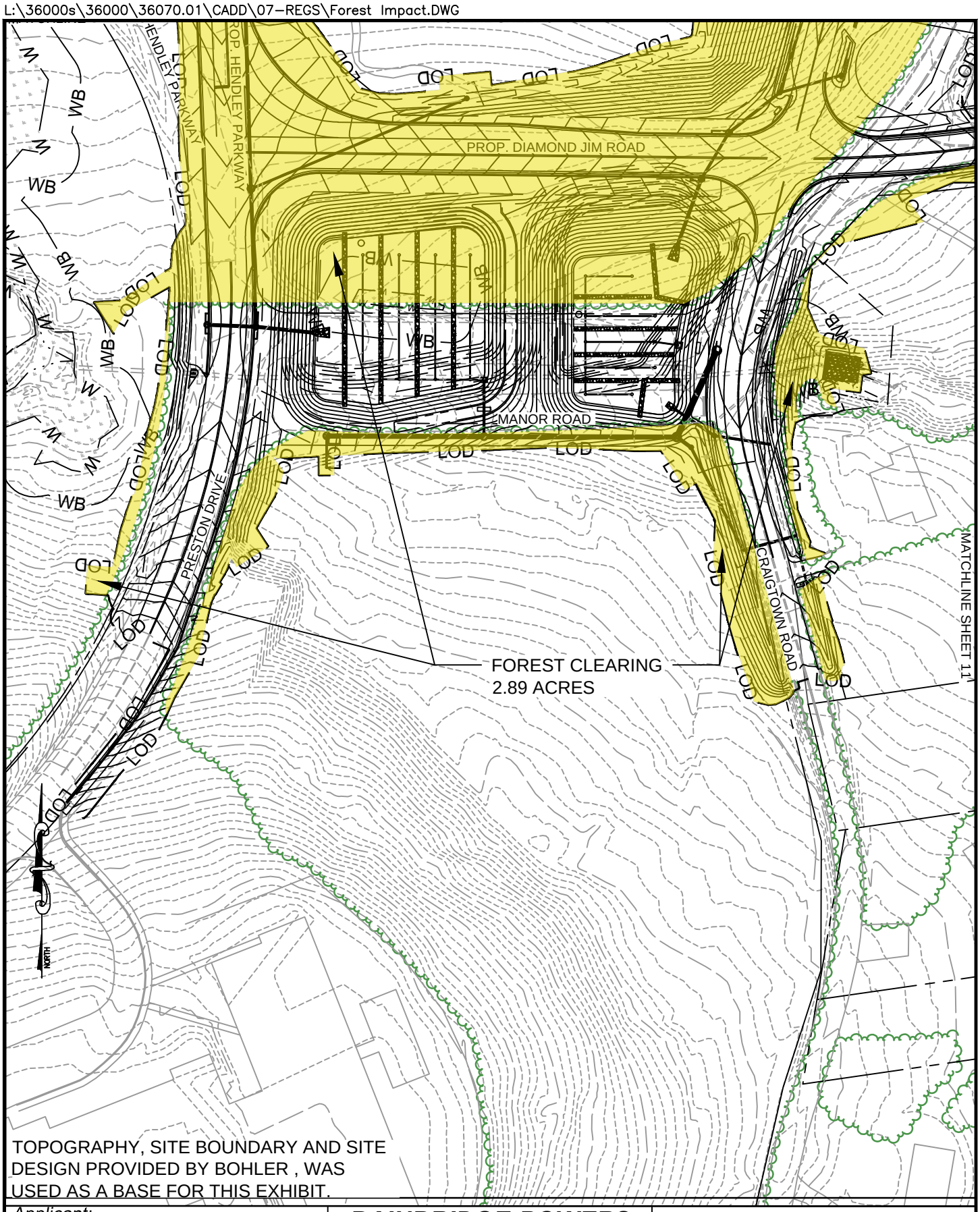
IMPACT EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 11 of 12

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Tier II Avoidance and Minimization
Forest Cover Exhibit
Cecil County, Maryland

IMPACT EXHIBIT

Date: **June 16, 2025**

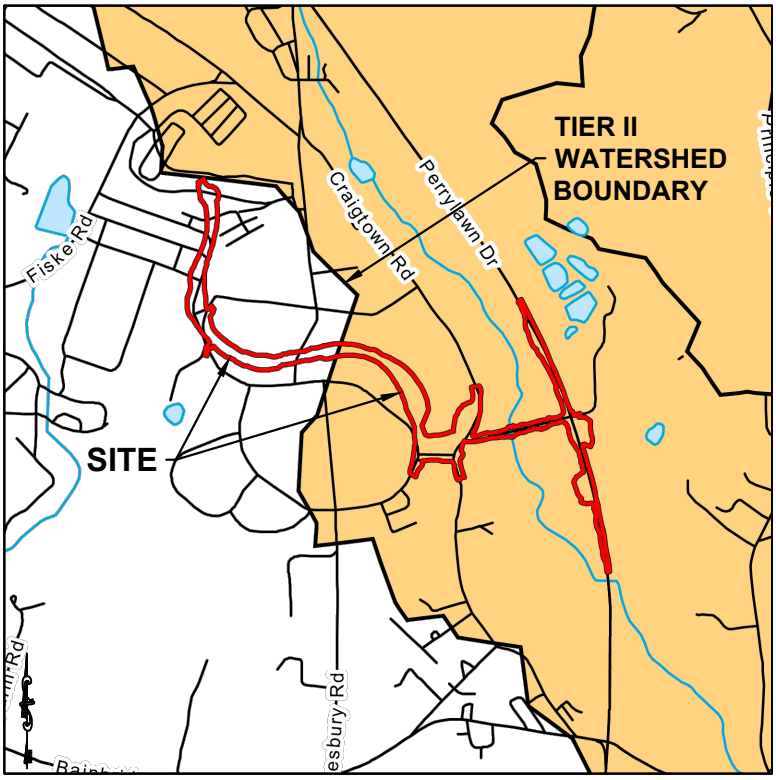
Scale: 1" = 100'

Sheet: 12 of 12

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BAINBRIDGE-POWERS ROAD EXTENSION

IMPERVIOUS COVER EXHIBIT



SOURCE: ADC THE MAP PEOPLE
PERMITTED USE NUMBER: 20711184

VICINITY MAP
1"=2,000'

	Acres
Existing Untreated Impervious	4.94
Existing Untreated Impervious to be Removed	0.90
New Treated Impervious	2.98
New Untreated Impervious	0.30

Applicant:
Bainbridge Development Corporation
748 Jacob Tome Memorial Highway / PO Box 2
Port Deposit, MD 21904

Agent:
Wetland Studies and Solutions, Inc.
1131 Benfield Boulevard, Suite L
Millersville, Maryland 21108
(Phone) 410-672-5990 (Fax) 410-672-5993

BAINBRIDGE-POWERS ROAD EXTENSION
Tier II Avoidance and Minimization
Impervious Cover Exhibit
Cecil County, Maryland

VICINITY MAP AND IMPACT SUMMARY
Date: **June 16, 2025**

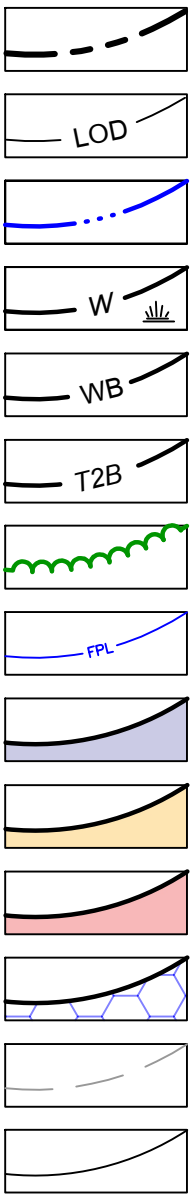
Scale: N/A

Sheet: 1 of 12

BAINBRIDGE-POWERS ROAD EXTENSION

IMPERVIOUS COVER EXHIBIT

LEGEND



PROJECT BOUNDARY

PROPOSED LIMIT OF DISTURBANCE

PERENNIAL/INTERMITTENT STREAM

NONTIDAL WETLAND

25-FOOT NONTIDAL WETLAND BUFFER

100' TIER II BUFFER

EXISTING TREELINE

100-YEAR FLOODPLAIN

NEW TREATED IMPERVIOUS SURFACE

NEW UNTREATED IMPERVIOUS SURFACE

EXISTING UNTREATED IMPERVIOUS SURFACE TO BE REMOVED

EXISTING UNTREATED IMPERVIOUS SURFACE

EXISTING CONTOURS

NEW CONTOURS

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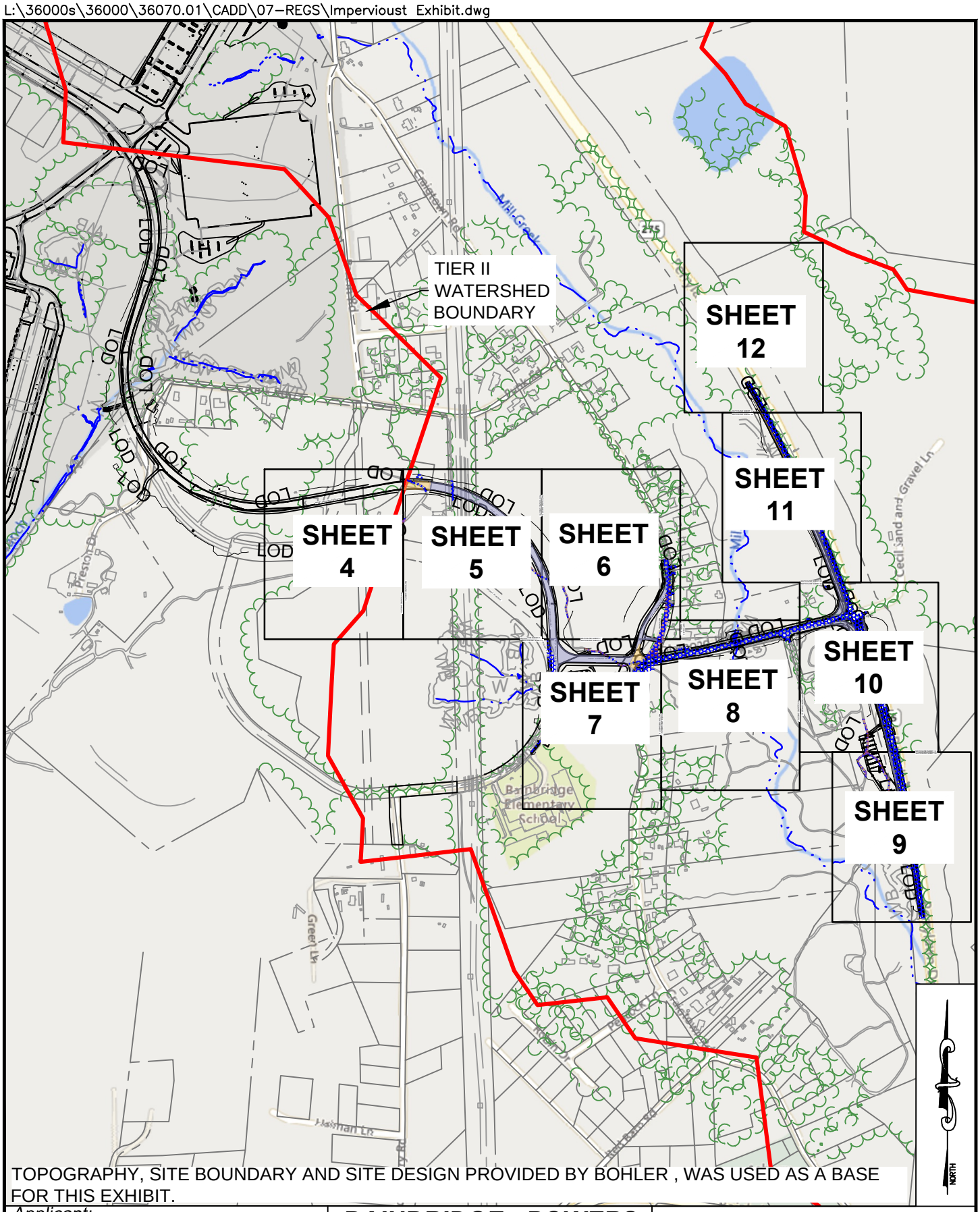
BAINBRIDGE-POWERS ROAD EXTENSION
Tier II Avoidance and Minimization
Impervious Cover Exhibit
Cecil County, Maryland

LEGEND

Date: **June 16, 2025**

Scale: N/A

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BAINBRIDGE - POWERS ROAD EXTENSION

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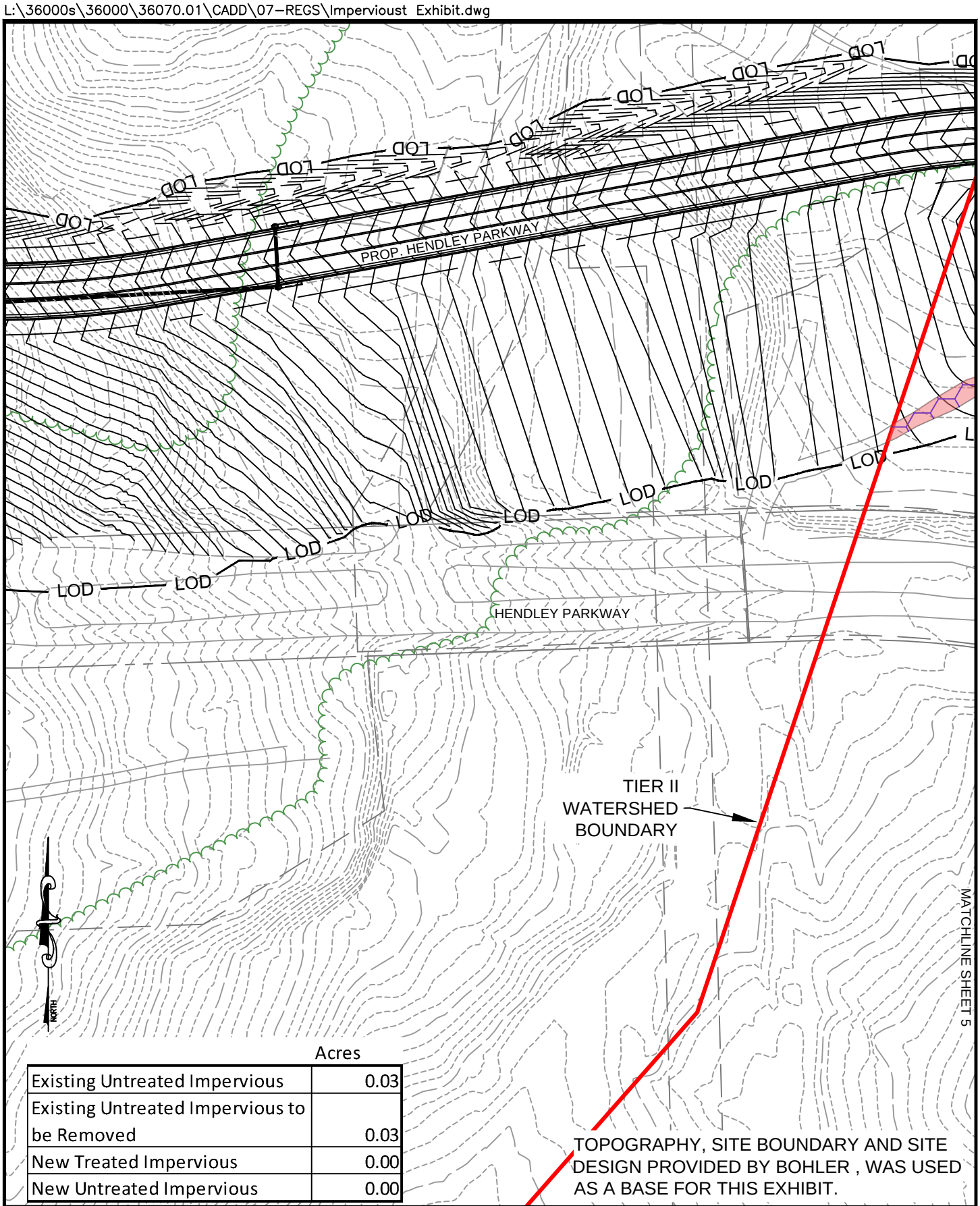
OVERALL EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 700'

Sheet: 3 of 12

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	Acres
Existing Untreated Impervious	0.03
Existing Untreated Impervious to be Removed	0.03
New Treated Impervious	0.00
New Untreated Impervious	0.00

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization
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Cecil County, Maryland

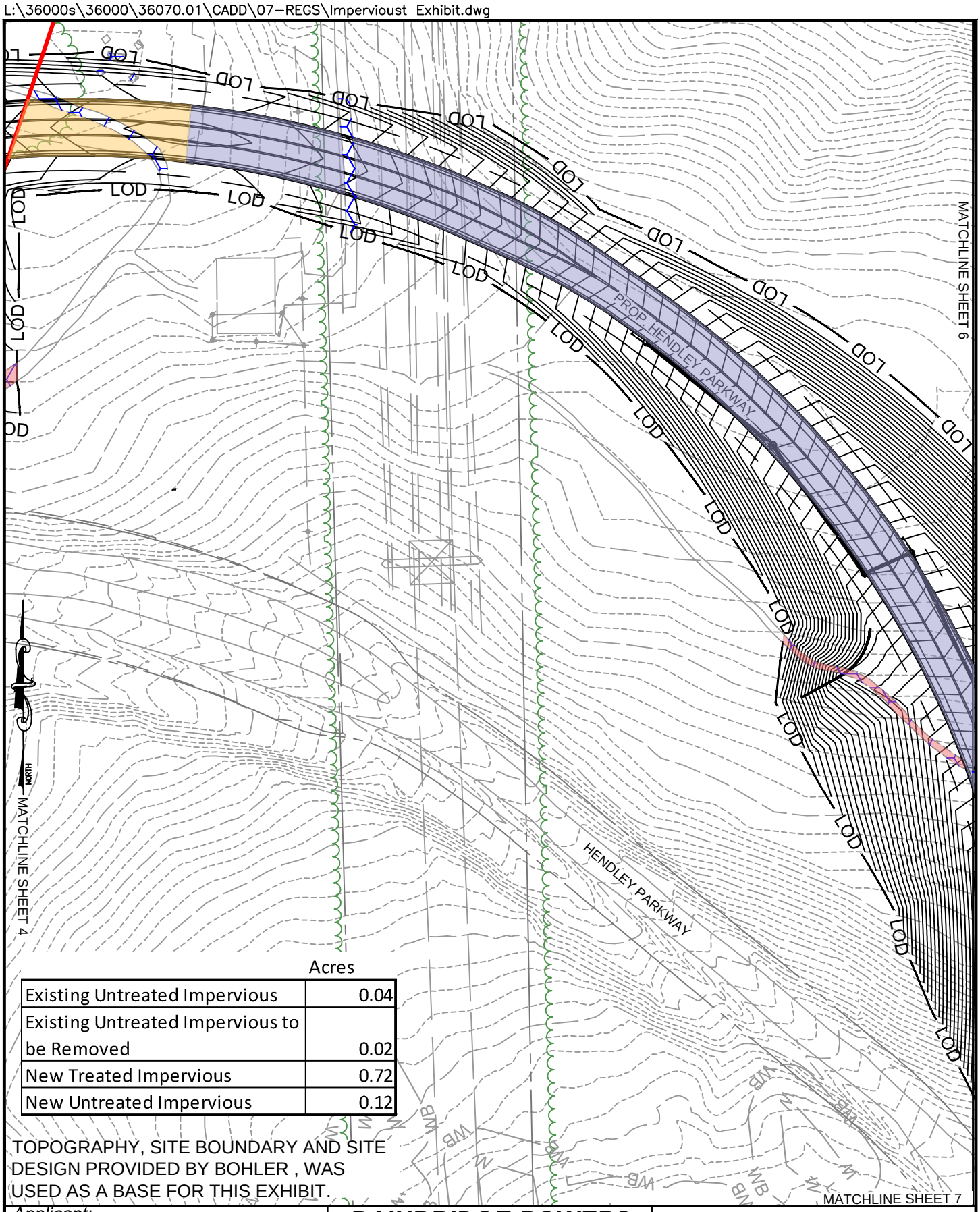
IMPACT EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 4 of 12

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	Acres
Existing Untreated Impervious	0.04
Existing Untreated Impervious to be Removed	0.02
New Treated Impervious	0.72
New Untreated Impervious	0.12

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BAINBRIDGE-POWERS ROAD EXTENSION

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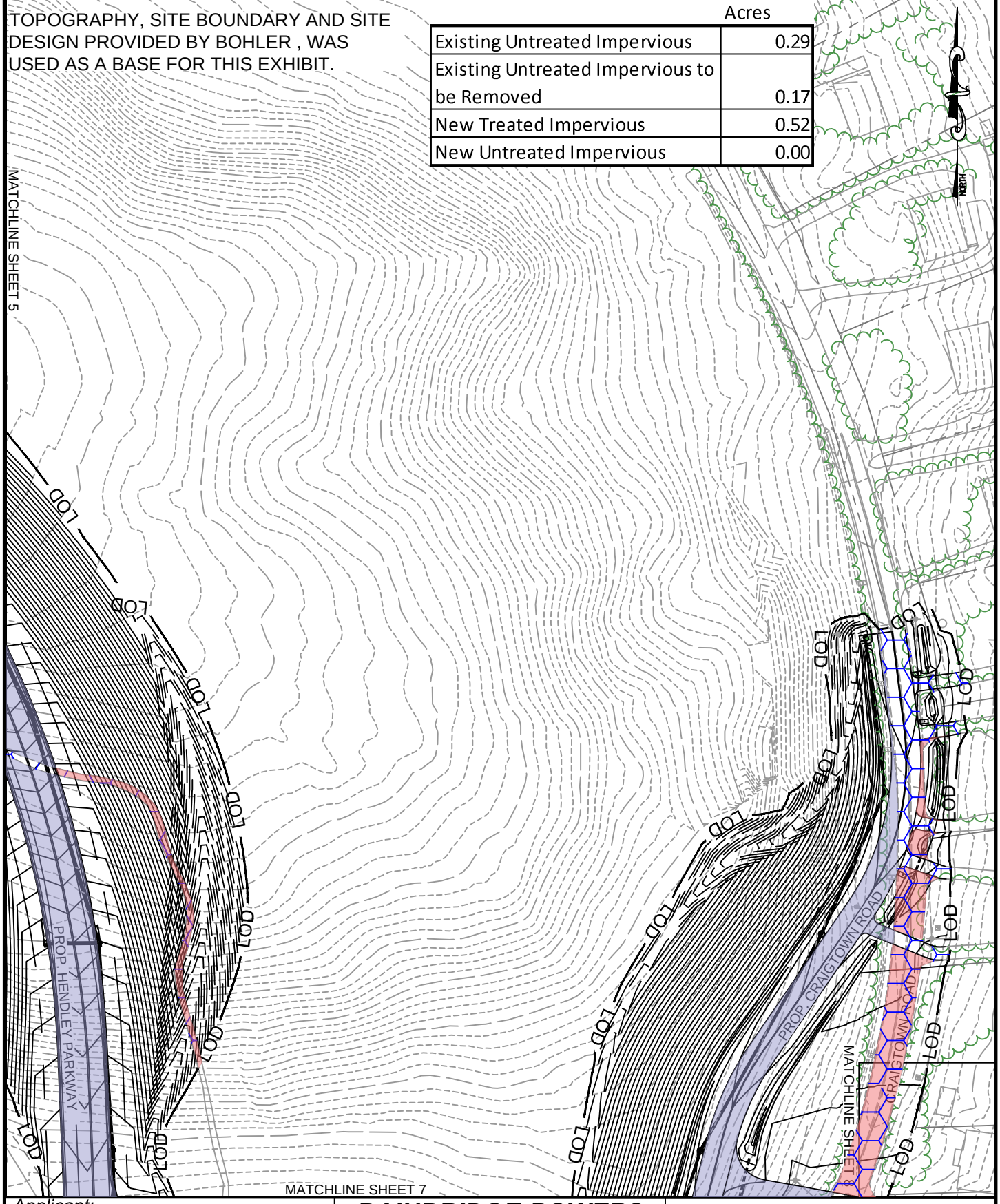
Scale: 1" = 100'

Sheet: 5 of 12

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TOPOGRAPHY, SITE BOUNDARY AND SITE DESIGN PROVIDED BY BOHLER , WAS USED AS A BASE FOR THIS EXHIBIT.

	Acres
Existing Untreated Impervious	0.29
Existing Untreated Impervious to be Removed	0.17
New Treated Impervious	0.52
New Untreated Impervious	0.00



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BAINBRIDGE-POWERS ROAD EXTENSION

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Cecil County, Maryland

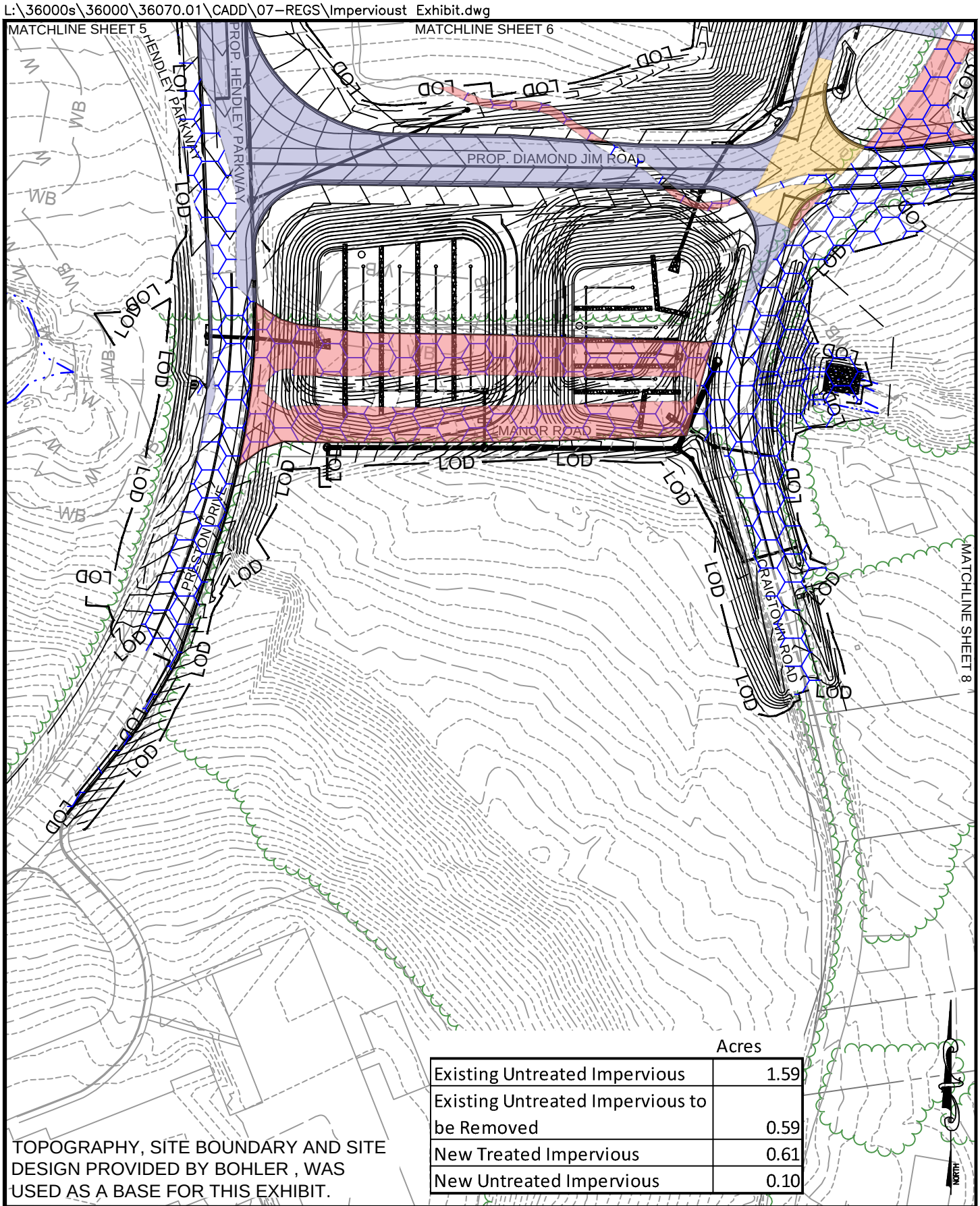
IMPACT EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 6 of 12

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	Acres
Existing Untreated Impervious	1.59
Existing Untreated Impervious to be Removed	0.59
New Treated Impervious	0.61
New Untreated Impervious	0.10

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization
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Cecil County, Maryland

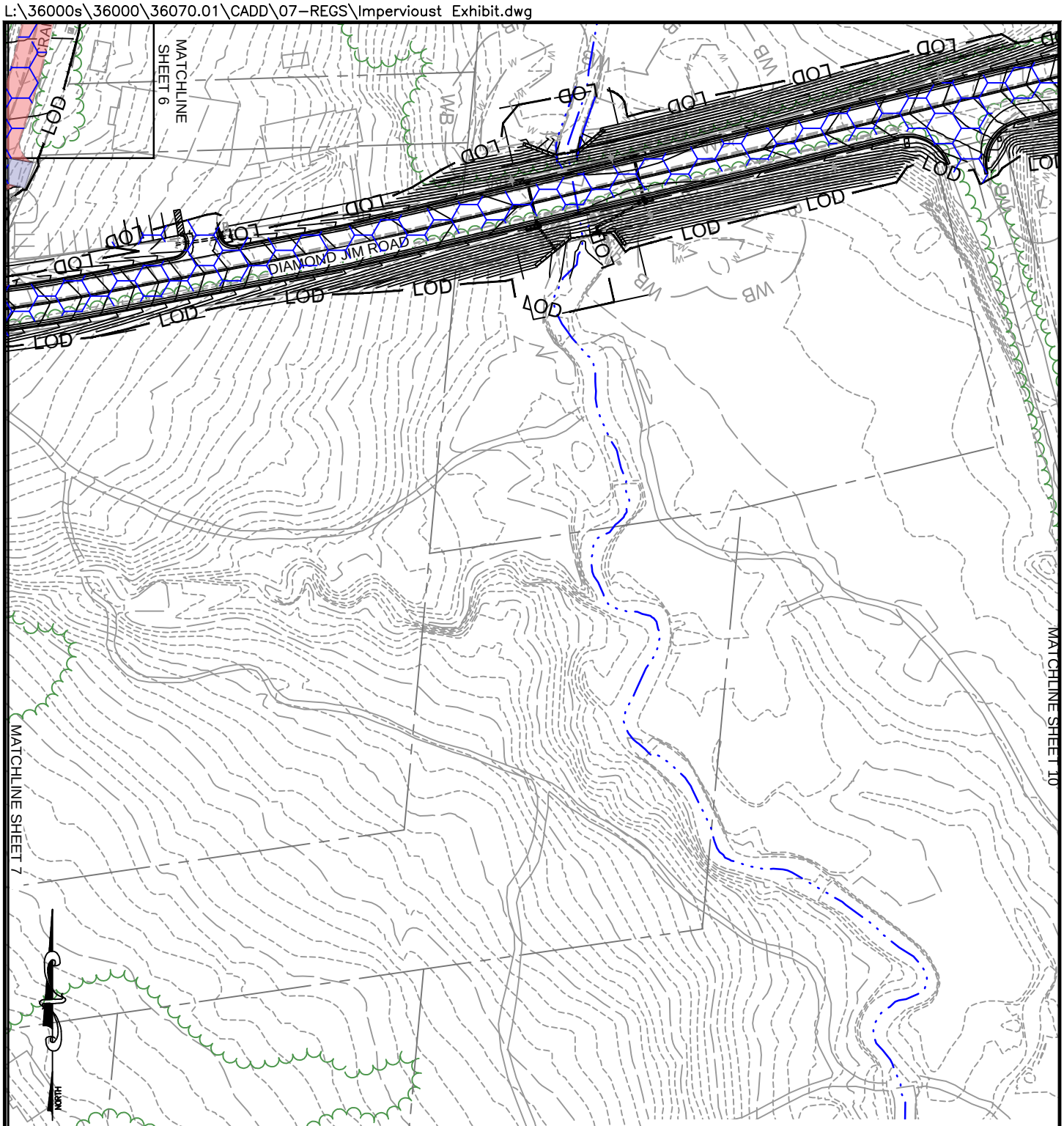
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Scale: 1" = 100'

Sheet: 7 of 12

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	Acres
Existing Untreated Impervious	0.48
Existing Untreated Impervious to be Removed	0.00
New Treated Impervious	0.01
New Untreated Impervious	0.00

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BAINBRIDGE-POWERS ROAD EXTENSION

Tier II Avoidance and Minimization
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Cecil County, Maryland

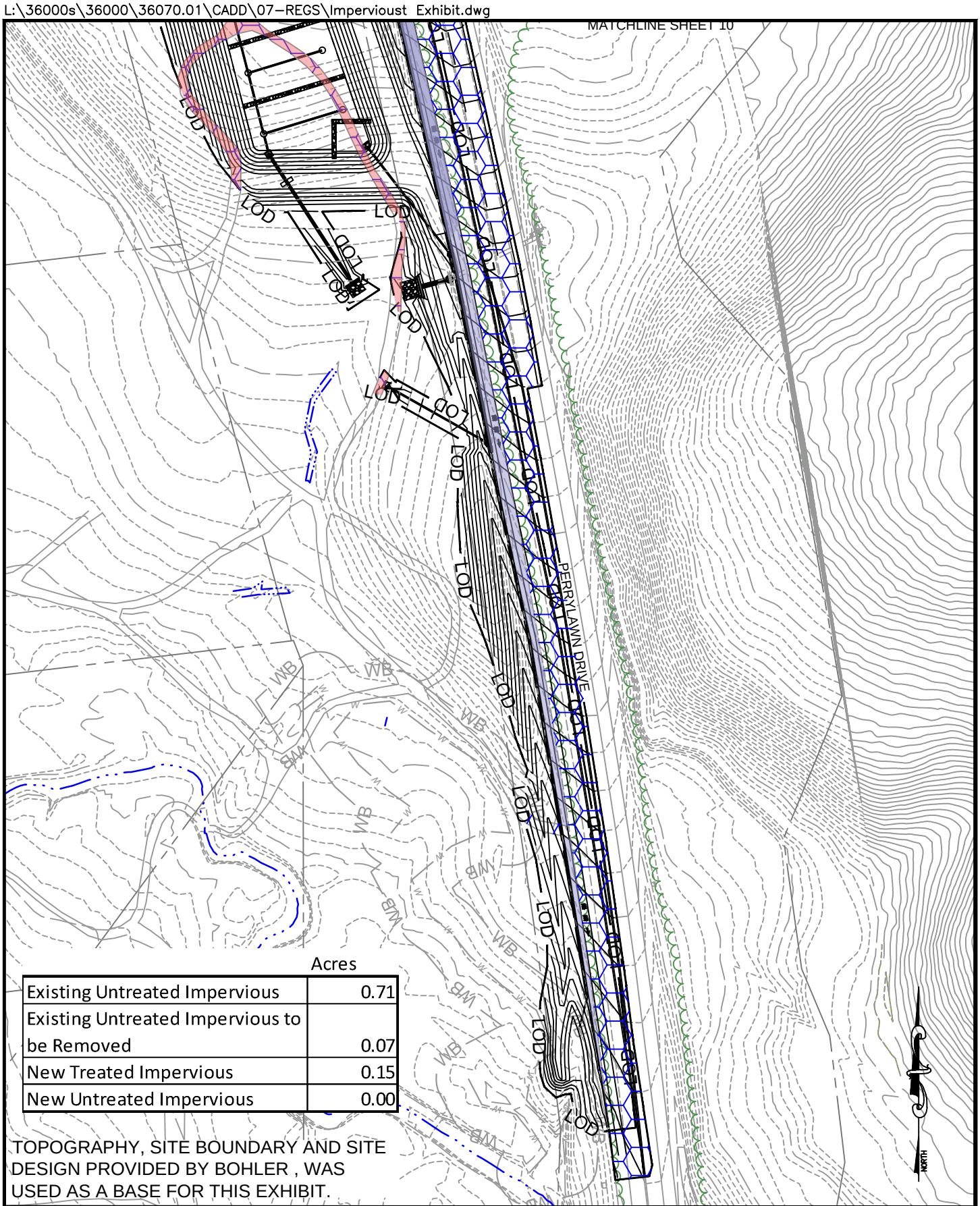
IMPACT EXHIBIT

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Scale: 1" = 100'

Sheet: 8 of 12

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	Acres
Existing Untreated Impervious	0.71
Existing Untreated Impervious to be Removed	0.07
New Treated Impervious	0.15
New Untreated Impervious	0.00

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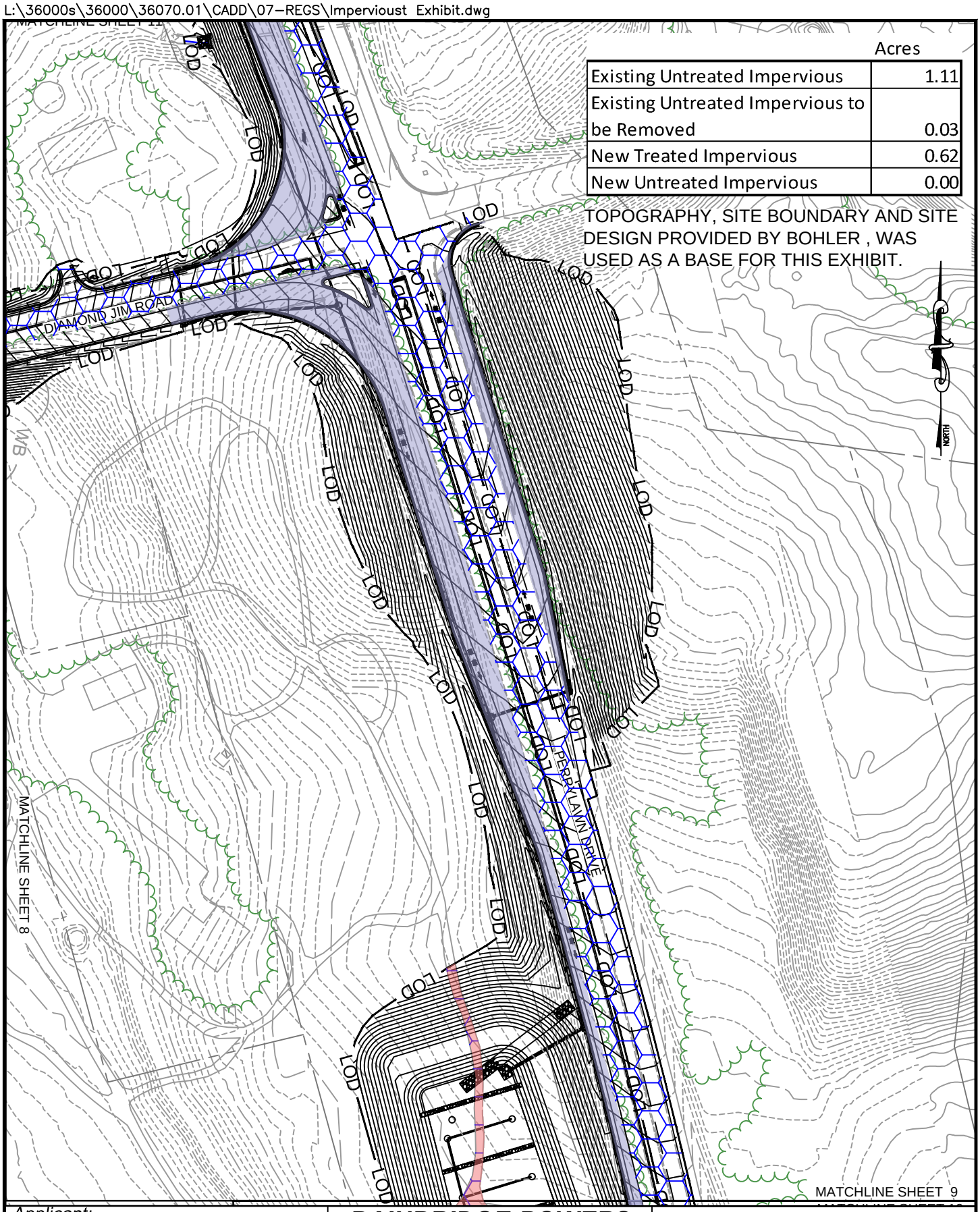
IMPACT EXHIBIT

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Scale: 1" = 100'

Sheet: 9 of 12

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	Acres
Existing Untreated Impervious	1.11
Existing Untreated Impervious to be Removed	0.03
New Treated Impervious	0.62
New Untreated Impervious	0.00

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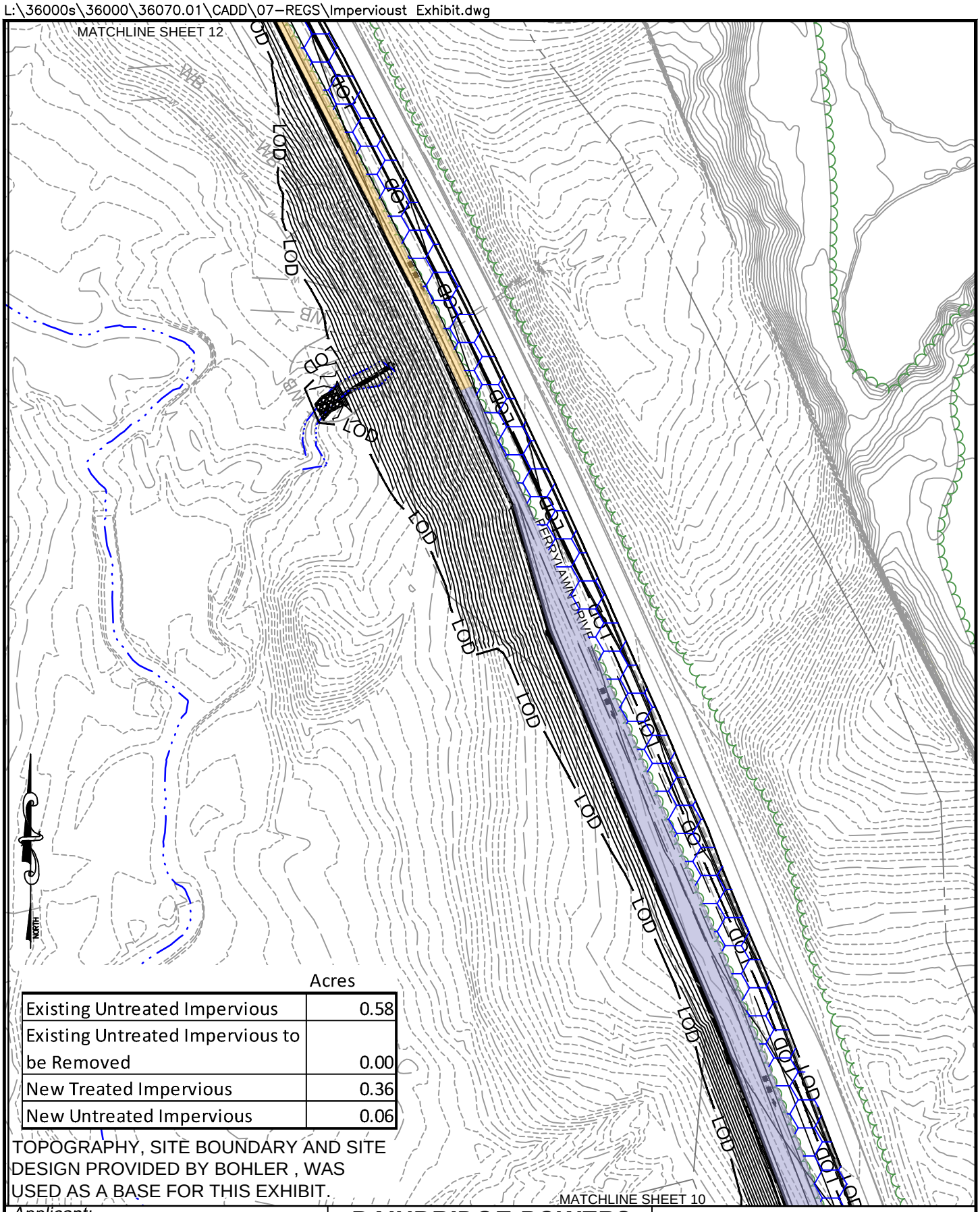
IMPACT EXHIBIT

Date: **June 16, 2025**

Scale: 1" = 100'

Sheet: 10 of 12

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	Acres
Existing Untreated Impervious	0.58
Existing Untreated Impervious to be Removed	0.00
New Treated Impervious	0.36
New Untreated Impervious	0.06

TOPOGRAPHY, SITE BOUNDARY AND SITE DESIGN PROVIDED BY BOHLER , WAS USED AS A BASE FOR THIS EXHIBIT.

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BAINBRIDGE-POWERS ROAD EXTENSION

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Impervious Cover Exhibit
Cecil County, Maryland

IMPACT EXHIBIT

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Scale: 1" = 100'

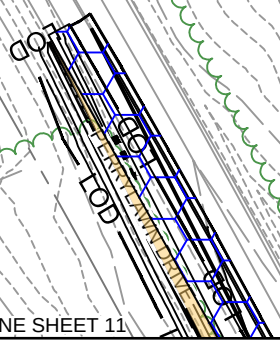
Sheet: 11 of 12

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	Acres
Existing Untreated Impervious	0.11
Existing Untreated Impervious to be Removed	0.00
New Treated Impervious	0.00
New Untreated Impervious	0.02

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LOD
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LOD

Appendix D

FOREST CONSERVATION PLAN
PHASE 1A
POWERS ROAD EXTENSION

MRP INDUSTRIAL NE LLC

LOCATION OF SITE

BAINBRIDGE NAVAL BASE
PORT DEPOSIT, MD 21904
TAX MAP 29, GRID 1, PARCEL 648
TOWN OF PORT DEPOSIT

REFORESTATION PLANTING SCHEDULE

	A	B	C	D	E	F	TOTAL				
ACREAGE	2.6	2.1	1.9	0.6	1.0	0.3	8.5				
P.U. REQUIRED	1820	1470	1330	420	700	210					
	QTY							SPECIES	SIZE	SPACING	TOTAL FCA UNITS
	260	210	190	60	100	30		ACER RUBRUM - RED MAPLE	BARE ROOT SEEDLINGS OR WHIPS	8' O.C.	820
	250	210	190	60	60	30		PLATNUS OCCIDENTALIS - AMERICAN SYCAMORE	BARE ROOT SEEDLINGS OR WHIPS	8' O.C.	770
	250	210	190	60	60	30		QUERCUS PALUSTRIS - PIN OAK	BARE ROOT SEEDLINGS OR WHIPS	8' O.C.	770
	250	210	190	60	60	30		QUERCUS RUBRA - RED OAK	BARE ROOT SEEDLINGS OR WHIPS	8' O.C.	770
	250	210	190	60	60	30		LIRIODENDRON TULIPIFERA - TULIP POPLAR	BARE ROOT SEEDLINGS OR WHIPS	8' O.C.	770
	250	210	190	60	60	30		CERCIS CANADENSIS - EASTERN REDBUD	BARE ROOT SEEDLINGS OR WHIPS	8' O.C.	770
	250	210	190	60	60	30		AMELANCHIER CANADENSIS - SERVICEBERRY	BARE ROOT SEEDLINGS OR WHIPS	8' O.C.	770
P.U. PROVIDED	1820	1470	1330	420	700	210				TOTAL PLANTINGS	5740

RESOURCE NOTES

1. THIS SITE IS NOT LOCATED IN THE CRITICAL AREA.
2. THIS SITE IS LOCATED IN ZONE X (AREAS OF MINIMAL FLOOD HAZARD) PER FIRM MAP 24015C0126C EFFECTIVE 5/4/2015 AND FIRM MAP 24015C0127D EFFECTIVE 7/8/2013.
3. NATURAL RESOURCES SHOWN HAVE BEEN FIELD VERIFIED PER MULTIPLE SITE VISITS BY ECOSCIENCE IN JULY, 2019 AND ARE SHOWN PER A FOREST STAND DELINEATION PLAN PREPARED BY ECOSCIENCE DATED 8/1/19.
4. EXISTING WATER AND SEWER LOCATIONS SHOWN HAVE NOT BEEN FIELD VERIFIED AND ARE APPROXIMATE PER A CAD FILE RECEIVED FROM RK&K, ENTITLED: "19147_mUT_0000.DWG," DATED 7/25/19.

FOREST CONSERVATION NARRATIVE:

THIS FOREST CONSERVATION PLAN PROPOSES THE REMOVAL OF 62.4 ACRES OF FOREST FROM THE PROPOSED LIMIT OF DISTURBANCE. THIS FOREST CLEARING IS UNAVOIDABLE WITH THE SUBDIVISION OF THE PROPERTY. THIS PROJECT IS ZONED INDUSTRIAL AND RESIDENTIAL WHICH ENCOURAGES A DEVELOPMENT OF THIS DENSITY. THE PROPOSED CLEARING WILL NOT IMPACT HIGH PRIORITY FOREST OR FOREST AREAS.

THE PROPOSED RETENTION IS LOCATED WITHIN ENVIRONMENTALLY SENSITIVE AREAS. THIS STAND INCLUDES STEEP SLOPES, STREAM BUFFERS AND MULTIPLE SPECIMEN TREES. FOR THESE REASONS THE FOREST RETENTION AREA IS CONSIDERED THE HIGHEST PRIORITY FOR RETENTION WITHIN THE FOREST STAND DELINEATION.

SPECIMEN TREE TABLE

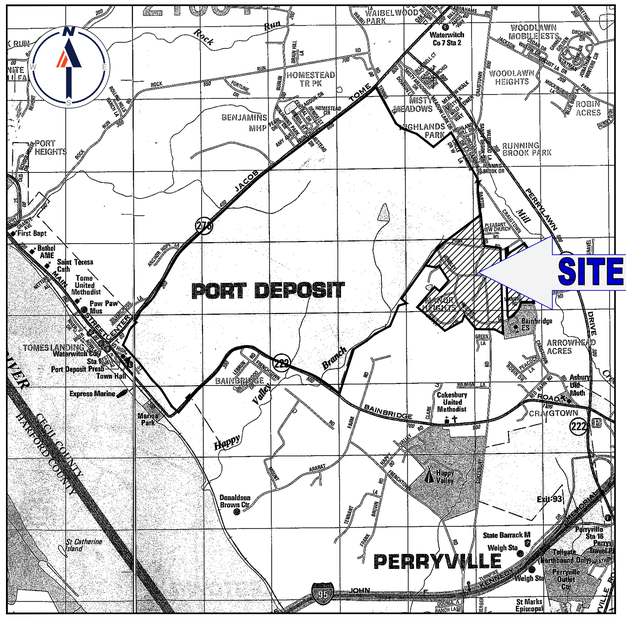
Key	Species Name	Size	Cond.	TO BE REMOVED
366	Norway maple	32"	Poor	
367	Norway maple	38"	Fair	
368	White ash	43"	V.poor	
369	Norway maple	35"	Poor	
370	S. red oak	34"	Fair	YES
371	S. red oak	39.5"	F.good	YES
372	S. red oak	31"	Good	YES
373	Red maple	40"	Poor	YES
374	White oak	70.5"	Good	YES
375	Red oak	36"	Good	YES
376	Black oak	32"	Fair	YES
377	S. red oak	35"	Good	YES
378	Black oak	31"	Good	YES
379	Black oak	33.5"	Fair	YES
380	Chestnut oak	33.5"	Good	YES
381	S. red oak	33.5"	Fair	YES
382	Chestnut oak	35"	Fair	
383	S. red oak	33"	Good	
384	S. red oak	33"	Good	YES
385	Pin oak	30.5"	Good	YES
386	Tulip poplar	36"	Fair	YES
387	Chestnut oak	48.5"	Good	
388	White oak	33.5"	Good	
389	White oak	30.5"	V.poor	
390	S. red oak	37"	F.good	YES

SITE STOCKING

SIZE	REQUIRED PER ACRE	APPROXIMATE SPACING	SURVIVABILITY REQUIREMENT AT THE END OF THE GROWING SEASON	
BARE ROOT SEEDLINGS OR WHIPS	700	8 X 8	55%	385
CONTAINER GROWN SEEDLING TUBES (MINIMUM CAVITY WIDTH 1.5")	450	10 X 10	65%	290
CONTAINER GROWN 1,2,3 GALLON	350	12 X 12	75%	260
CONTAINER GROWN 5,7,GALLON OR 1" CAL. B & B.	200	15 X 15	85%	170
CONTAINER GROWN 15, 25 GALLON OR 1.5 - 2" CAL. B & B	100	20 X 20	100%	100

1. THESE SITE STOCKING AND SURVIVAL REQUIREMENTS ARE THE MINIMUM NUMBERS ESTIMATED TO MEET THE DEFINITION OF FOREST AND BARE LAND.
2. IN CERTAIN CIRCUMSTANCES ANY COMBINATION OF THE ABOVE MENTIONED STOCKING OPTIONS, DRY SEEDING, TREE SHELTERS, TRANSPLANTS, AND OR NATURAL REGENERATION MAY BE APPROPRIATE STRATEGIES TO FULFIL THE REQUIREMENTS OF AN APPROVED FCO, THEY WILL BE EVALUATED ON A CASE BY CASE BASIS BY THE APPROVING AUTHORITY.
3. SPACING DOES NOT IMPLY THAT THE TREES OR SHRUBS MUST BE PLANTED IN A GRID PATTERN.

FIGURE A-18



LOCATION MAP

COPYRIGHT ADC THE MAP PEOPLE
PERMIT USE NO. 20602153-5
SCALE: 1"=2000'

OWNER

BAINBRIDGE DEVELOPMENT CORPORATION
748 JACOB TOME MEMORIAL HWY
PO BOX 2
PORT DEPOSIT MD 21904-0002
CONTACT: TONI SPRENKLE
P: 410-378-9200
F: 410-378-9265

APPLICANT/ DEVELOPER

MRPI BAINBRIDGE I, LLC
509 SOUTH EXETER STREET, SUITE 216
BALTIMORE, MD 21202
CONTACT: REID TOWNSEND
P. 410-322-6443

PREPARED BY

BOHLER

CONTACT: ANDREW G. STINE, P.E.

FOREST CONSERVATION WORKSHEET

Net Tract Area

A. *Total Tract Area*
B. *Deductions* IMPERVIOUS SURFACE IN THE PRIORITY FUNDING AREA
C. *Net Tract Area* Net Tract Area = Total Tract (A) - Deductions (B)

Land Use Category: HIGH DENSITY RESIDENTIAL

D. *Afforestation Threshold* (Net Tract Area |C| x 15 %) D= 5.0
E. *Conservation Threshold* (Net Tract Area |C| x 20 % E= 6.66

Existing Forest Cover

F. *Existing Forest Cover within the Net Tract Area* F= 31.3
G. *Area of Forest Above Conservation Threshold* G= 24.64
If the Existing Forest Cover (F) is greater than the Conservation Threshold (E), then G = F – E; otherwise G = 0.

Breakeven Point

H. *Breakeven Point* (Amount of forest that must be retained so that no mitigation is required) H= 11.59
(1) If the Area of Forest Above Conservation Threshold (G) is greater than 0, then H = (0.2 x the Area of Forest Above Conservation Threshold (G)) + the Conservation Threshold (E).
(2) If the Area of Forest Above Conservation Threshold (G) is equal to 0, then H= Existing Forest Cover (F)

I. *Forest Clearing Permitted Without Mitigation* I= 19.71
I = Existing Forest Cover (F) – Breakeven point (H)

Proposed Forest Clearing

J. *Total Area of Forest to be Cleared* J= 23.0

K. *Total Area of Forest to be Retained* K= 8.3
K= Existing Forest Cover (F) – Forest to be Cleared (J)

Planting Requirements

If the Total Area of Forest to be Retained (K) is at or above the Breakeven Point (H), no planting is required, and no further calculations are necessary (L=0, M=0, N=0, P=0, Q=0, R=0).
Otherwise, calculate the planting requirement(s) as follows:

L. *Reforestation for Clearing Above the Conservation Threshold* L= 5.75
(1) If the Total Area of Forest to be Retained (K) is greater than the Conservation Threshold (E), then L = the Area of Forest to be Cleared (J) x 0.25;
(2) If the Forest to be Retained (K) is less than or equal to the Conservation Threshold (E), then L = Area of Forest Above Conservation Threshold (G) x 0.25

M. *Reforestation for Clearing Below the Conservation Threshold* M= 0.00
(1) If Existing Forest Cover (F) is greater than the Conservation Threshold (E) and the Forest to be Retained (K) is less than or equal to the Conservation Threshold (E), then M = 2.0 x (Conservation Threshold (E) – Forest to be Retained (K))
(2) If Existing Forest Cover (F) is less than or equal to the Conservation Threshold (E), then M = 2.0 x Forest to be Cleared (J)

N. *Credit for Retention Above the Conservation Threshold* N= 1.64
If the area of Forest to be Retained (K) is greater than the Conservation Threshold (E), then N = K – E; Otherwise N=0

P. *Total Reforestation Required* P = L + M – N P= 4.11

Q. *Total Afforestation Required* Q= 0.00
If Existing Forest Cover (F) is less than the Afforestation Threshold (D), then Q = Afforestation Threshold (D) – Existing Forest Cover (F)

R. *Total Planting Requirement* R = P + Q R= 4.11

Note: Use 0 for all negative numbers that result from the calculations.
A= 54.3
B= 1.2
C= 33.3

FOREST CONSERVATION WORKSHEET

Net Tract Area

A. *Total Tract Area*
B. *Deductions* IMPERVIOUS SURFACE IN THE PRIORITY FUNDING AREA
C. *Net Tract Area* Net Tract Area = Total Tract (A) - Deductions (B)

Land Use Category: INDUSTRIAL

D. *Afforestation Threshold* (Net Tract Area |C| x 15 %) D = 15.9
E. *Conservation Threshold* (Net Tract Area |C| x 15 %) E= 15.9

Existing Forest Cover

F. *Existing Forest Cover within the Net Tract Area* F= 82.5
G. *Area of Forest Above Conservation Threshold* G= 46.6
If the Existing Forest Cover (F) is greater than the Conservation Threshold (E), then G = F – E; otherwise G = 0.

Breakeven Point

H. *Breakeven Point* (Amount of forest that must be retained so that no mitigation is required) H=25.2
(1) If the Area of Forest Above Conservation Threshold (G) is greater than 0, then H = (0.2 x the Area of Forest Above Conservation Threshold (G)) + the Conservation Threshold (E).
(2) If the Area of Forest Above Conservation Threshold (G) is equal to 0, then H= Existing Forest Cover (F)

I. *Forest Clearing Permitted Without Mitigation* I= 37.3
I = Existing Forest Cover (F) – Breakeven point (H)

Proposed Forest Clearing

J. *Total Area of Forest to be Cleared* J= 40.8

K. *Total Area of Forest to be Retained* K= 21.7
K= Existing Forest Cover (F) – Forest to be Cleared (J)

Planting Requirements

If the Total Area of Forest to be Retained (K) is at or above the Breakeven Point (H), no planting is required, and no further calculations are necessary (L=0, M=0, N=0, P=0, Q=0, R=0).
Otherwise, calculate the planting requirement(s) as follows:

L. *Reforestation for Clearing Above the Conservation Threshold* L= 10.2
(1) If the Total Area of Forest to be Retained (K) is greater than the Conservation Threshold (E), then L = the Area of Forest to be Cleared (J) x 0.25;
(2) If the Forest to be Retained (K) is less than or equal to the Conservation Threshold (E), then L = Area of Forest Above Conservation Threshold (G) x 0.25

M. *Reforestation for Clearing Below the Conservation Threshold* M= 0.00
(1) If Existing Forest Cover (F) is greater than the Conservation Threshold (E) and the Forest to be Retained (K) is less than or equal to the Conservation Threshold (E), then M = 2.0 x (Conservation Threshold (E) – Forest to be Retained (K))
(2) If Existing Forest Cover (F) is less than or equal to the Conservation Threshold (E), then M = 2.0 x Forest to be Cleared (J)

N. *Credit for Retention Above the Conservation Threshold* N= 5.8
If the area of Forest to be Retained (K) is greater than the Conservation Threshold (E), then N = K – E; Otherwise N=0

P. *Total Reforestation Required* P = L + M – N P= 4.4

Q. *Total Afforestation Required* Q= 0.00
If Existing Forest Cover (F) is less than the Afforestation Threshold (D), then Q = Afforestation Threshold (D) – Existing Forest Cover (F)

R. *Total Planting Requirement* R = P + Q R= 4.4

Note: Use 0 for all negative numbers that result from the calculations.
A= 116.4
B= 10.4
C= 106.0

PHASE 1A INDUSTRIAL FOREST RETENTION SUMMARY	
FOREST RETENTION AREA	AC.±
1	7.9
2	2.0
3	6.7
4	2.1
6	1.6
8	1.4
TOTAL	21.7

PHASE 1A RESIDENTIAL FOREST RETENTION SUMMARY	
FOREST RETENTION AREA	AC.±
5	0.9
7	5.6
9	1.8
TOTAL	8.3

REFERENCES

BOUNDARY SURVEY:
BOHLER ENGINGEERING VA LLC. ENTITLED: BOUNDARY SURVEY; BAINBRIDGE NAVAL TRAINING CENTER; TOWN OF PORT DEPOSIT; CECIL COUNTY, MARYLAND, ELECTION DISTRICT NO. 7
JOB NO.: MD192273
DATED: JUNE 11,2021

TOPOGRAPHIC PHOTOGRAMMETRY:
WINGS AERIAL MAPPING CO., INC.
ENTITLED: GEORGE WILLIAM STEPHENS, JR. & ASSOCIATES, INC.; BAINBRIDGE NAVAL TRAINING CENTER
PHOTOGRAPHY DATED: FEBRUARY 21, 2001 AND MARCH 26, 2004

FOREST STAND DELINEATION PLAN:
ECOSCIENCE PROFESSIONAL, INC.
ENTITLED: FOREST STAND DELINEATION PLAN; BAINBRIDGE NAVAL BASE; PORT DEPOSIT, MD 21904
JOB NO.: MD182044
DATED: OCTOBER 2021

EROSION AND SEDIMENT CONTROL PLANS:
BOHLER
ENTITLED: EROSION AND SEDIMENT CONTROL PLAN; BAINBRIDGE NAVAL BASE REMEDIATION; BAINBRIDGE NAVAL BASE; PORT DEPOSIT, MD 21904; TAX MAP 29, GRID 1, PARCEL 648; TOWN OF PORT DEPOSIT
JOB NO.: MD182044
DATED: 05/12/20, LAST REVISED 11/30/20

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
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PROJECT No.: MDA220144.00
DRAWN BY: PAK
CHECKED BY: MCO
DATE: 3/2/2023
CAD I.D.: FCP- 0

PROJECT:
POWERS ROAD EXTENSION PRELIMINARY FOREST CONSERVATION PLAN
FOR
MRP INDUSTRIAL NE LLC
LOCATION OF SITE
BAINBRIDGE NAVAL BASE
PORT DEPOSIT, MD 21904
TAX MAP 29B, GRID 2, PARCEL 648
TOWN OF PORT DEPOSIT

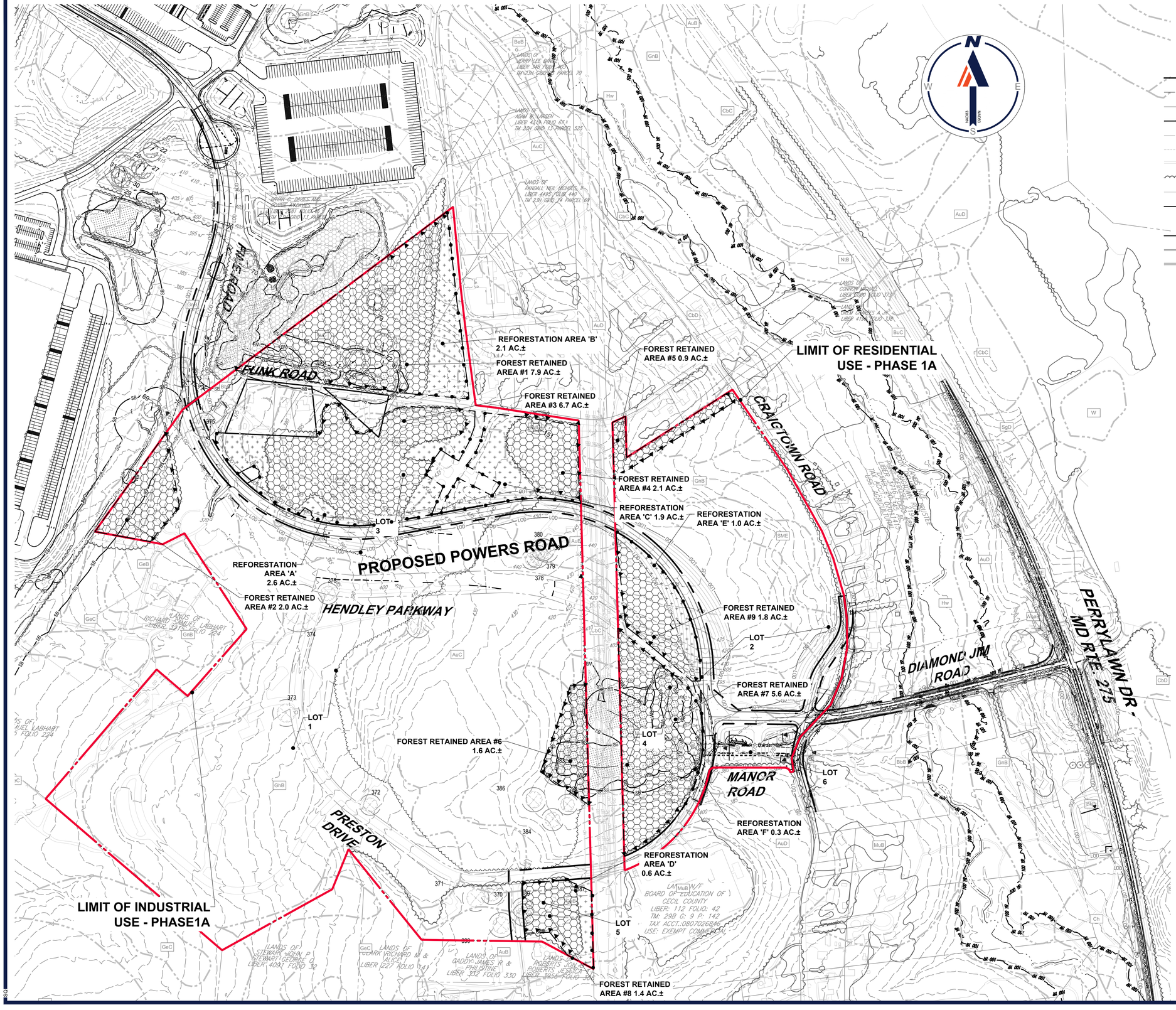
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E.R. McWILLIAMS
04/16/2024
REGISTERED LANDSCAPE ARCHITECT
MARYLAND LICENSE NO. 3657
PROFESSIONAL CERTIFICATION
I, ERIC R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3657, EXPIRATION DATE: 9/20/24

SHEET TITLE:
OVERALL FOREST CONSERVATION PLAN
SHEET NUMBER:
C-FCP-7.00

ORG. DATE - 3/2/2023

Apr 16, 2024
H:\2022\MDA220144.00\CAD\DRAWINGS\PLAN SET\PRELIMINARY FCP\MDA220144.00 - FCP - 2---LAYOUT C-FCP-7.00



STANDARD DRAWING LEGEND:

- PROPERTY BOUNDARY LINE
- EXISTING EASEMENT LINE
- ADJOINER BOUNDARY LINE
- LOD LOD LOD LOD — LIMIT OF DISTURBANCE
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- EXISTING CURB
- EXISTING TREE LINE
- EXISTING RIGHT-OF-WAY
- WB WB WB WB — EXISTING NONTIDAL WETLAND BUFFER
- NONTIDAL WETLAND
- SB SB SB SB — STREAM BUFFER
- STREAM
- SOIL LINE
- XxX — SOIL LABEL
- SPECIMEN TREE (TO REMAIN)
- SPECIMEN TREE (TO BE REMOVED)
- SLOPES 15-25%
- SLOPES 25-30%
- SLOPES 30%+
- FOREST CONSERVATION AREA
- POTENTIAL REFORESTATION AREA
- (PERMANENT) WOODLAND PRESERVATION SIGNAGE
- REFORESTATION SIGNAGE

MAPPED SOIL TYPES

MAP SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
AuB	AURA GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES	B
AuC	AURA GRAVELLY SANDY LOAM, 5 TO 10 PERCENT SLOPES	B
AuD	AURA GRAVELLY SANDY LOAM, 10 TO 15 PERCENT SLOPES	B
BbB	BAILE-GLENVILLE COMPLEX, 3 TO 8 PERCENT SLOPES	B/D
BeB	BELTSVILLE SILT LOAM, 2 TO 5 PERCENT SLOPES	C
BkD	BRINKLOW CHANNERY LOAM, 15 TO 25 PERCENT SLOPES	C
BuC	BUTLERTOWN SILT LOAM, 5 TO 10 PERCENT SLOPES	C
CaC	CHILLUM LOAM, 5 TO 10 PERCENT SLOPES	C
Cbc	CHILLUM SILT LOAM, 5 TO 10 PERCENT SLOPES	C
CbD	CHILLUM SILT LOAM, 10 TO 15 PERCENT SLOPES	C
Ch	CODORUS SILT LOAM, 0 TO 3 PERCENT SLOPES	C
GeB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GeC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B
GhB	GLENELG-WHEATON-URBAN LAND COMPLEX, 0 TO 8 PERCENT	B
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C/D
Hw	HATBORO-CODORUS COMPLEX, 0 TO 3 PERCENT SLOPES, FLOODED	B/D
NtB	NESHAMINY SILT LOAM, 3 TO 8 PERCENT SLOPES	B
McB	MARSHYHOPE LOAM, 2 TO 5 PERCENT SLOPES	B/D
MuB	MATTAPEX-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES	C
SgD	SASSAFRAS GRAVELLY LOAM, 10 TO 15 PERCENT SLOPES	B
SME	SASSAFRAS AND CROOM SOILS, 15 TO 25 PERCENT SLOPES	B
W	WATER	NA
WoaB	WOODSTOWN LOAM, 2 TO 5 PERCENT SLOPES, NORTHERN COASTAL PLAIN	C

200 100 50 0 200
1"= 200'

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PROJECT No.: MDA220144.00
DRAWN BY: PAK
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DATE: 3/2/2023
CAD I.D.: FCP- 0

PROJECT:

POWERS ROAD EXTENSION PRELIMINARY FOREST CONSERVATION PLAN

FOR

MRP INDUSTRIAL NE LLC

LOCATION OF SITE

BAINBRIDGE NAVAL BASE
PORT DEPOSIT, MD 21904
TAX MAP 29B, GRID 2, PARCEL 648
TOWN OF PORT DEPOSIT

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901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
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MD@BohlerEng.com

E.R. McWILLIAMS
04/16/2024
REGISTERED LANDSCAPE ARCHITECT
MARYLAND LICENSE NO. 3901
PROFESSIONAL CERTIFICATION.
I, ERIC R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NUMBER 3901, EXPIRATION DATE: 9/20/24

SHEET TITLE:

FOREST CONSERVATION PLAN

SHEET NUMBER:

C-FCP-7.01

ORG. DATE - 3/2/2023

Apr 16, 2024
11-2022\MDA220144.00\CAD\DRAWINGS\PLAN SET\PRELIMINARY FCP\MDA220144.00 - FCP - 2---LAYOUT C-FCP-7.01

FOREST CONSERVATION PLANTING SPECIFICATIONS

1. SCOPE OF WORK:
THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS

A. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

B. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

C. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
1.1. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
1.2. SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS.
1.3. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.

D. MULCH - THE MULCH AROUND THE PERIMETER OF THE BUILDING SHALL BE A 3" LAYER OF DOUBLE SHREDDED BLACK CEDAR MULCH ONLY. ALL OTHER AREAS SHALL BE MULCHED WITH A 3" LAYER OF DOUBLE SHREDDED DARK BROWN HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

E. FERTILIZER
1.1. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
1.2. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

F. PLANT MATERIAL
1.1. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
1.2. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
1.3. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
1.4. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1½", WHICH HAVE NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED.PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
1.5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
1.6. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
1.7. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
1.8. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES

A. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

B. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS

A. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

B. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. SUSPECT TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

C. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

5. TREE PROTECTION

A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

B. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY 'VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

C. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

D. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS

A. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

B. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

C. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
1.1. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
1.2. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
1.3. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING

A. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

B. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).

C. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

D. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

8. TOPSOILING

A. CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

B. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

C. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

D. ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA):
1.1. 20 POUNDS 'GROW POWER' OR APPROVED EQUAL
1.2. 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP

E. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

9. PLANTING

A. INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

D. ALL PLANTING CONTAINERS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

E. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

F. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
1.1. PLANTS: MARCH 15 TO DECEMBER 15
1.2. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

G. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

H. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:

ACER RUBRUM	PLATANUS X ACERIFOLIA
BETULA VARIETIES	POPULOUS VARIETIES
CARPINUS VARIETIES	PRUNUS VARIETIES
CRATAEGUS VARIETIES	PYRUS VARIETIES
KOELREUTERIA	QUERCUS VARIETIES
LIQUIDAMBER STYRACIFLUA	TILIA TOMENTOSA
LIRIODENDRON TULIPIFERA	ZELKOVA VARIETIES

I. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
• 1 PART PEAT MOSS
• 1 PART COMPOSTED COW MANURE BY VOLUME
• 3 PARTS TOPSOIL BY VOLUME
• 21 GRAMS 'AGRIFORM' PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
A) 2 TABLETS PER 1 GALLON PLANT
B) 3 TABLETS PER 5 GALLON PLANT
C) 4 TABLETS PER 15 GALLON PLANT
D) LARGER PLANTS: 2 TABLETS PER ½" CALIPER OF TRUNK

J. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

K. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

L. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

M. GROUND COVER AREAS SHALL RECEIVE A ½" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

N. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

O. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

P. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED)

A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

F. IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING

A. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE

A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

B. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

C. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

D. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP

A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

FOREST CONSERVATION SEQUENCE OF CONSTRUCTION

1. PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN DEVELOPER, CONTRACTOR, AND COUNTY/TOWN INSPECTOR.
2. SEDIMENT SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE, TEMPORARY PROTECTIVE FENCING AND CONSERVATION SIGNAGE SHALL BE INSTALLED AS PER FOREST CONSERVATION PLAN.
3. SITE SHALL BE GRADED, INFRASTRUCTURE INSTALLED, AND HOUSES CONSTRUCTED. DISTURBED AREAS SHALL BE STABILIZED. PERMANENT SIGNAGE IN POOR CONDITION SHALL BE REPLACED.
4. POST-CONSTRUCTION MEETING SHALL BE HELD WITH COUNTY INSPECTOR TO ENSURE COMPLIANCE WITH DEVELOPMENT PLAN. SEDIMENT CONTROL AND TEMPORARY PROTECTIVE FENCING UPON STABILIZATION OF SITE AND COMPLETION OF CONSTRUCTION ACTIVITIES.
5. CERTIFICATION OF FOREST RETENTION PAPERWORK SHALL BE SUBMITTED TO THE STATE.
6. FIRES PERMITTED IN THE CONSTRUCTION AREA SHALL CONFIRM WITH STATE AND LOCAL REGULATIONS FOR FIRE CONTROL, AND MAY NOT ENTER THE RETENTION AREA OR ITS CANOPY.
7. NO EQUIPMENT, VEHICLES, MACHINERY, DUMPING, STORAGE, OTHER CONSTRUCTION ACTIVITIES,BURIAL, FIRE OR THE OTHER DISPOSAL OF CONSTRUCTION MATERIALS SHALL BE LOCATED INSIDE THE FOREST RETENTION AREAS, SUBJECT TO APPROVAL BY THE DEPARTMENT OF NATURAL RESOURCES FOREST SERVICE , OR AMENDED FOREST CONSERVATION PLAN.
8. REVISE TO NOTIFY STATE REVIEWER (410)836-4568 OF:
i. PRE-CONSTRUCTION MEETING.
ii. 48 HOURS PRIOR TO START OF CONSTRUCTION, AND
iii. AT PROJECT COMPLETEION

FCP NOTES

1. ANY FOREST CONSERVATION EASEMENT (FCE) SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF THE TOWN OF PORT DEPOSIT AND WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, OR DISTURBANCE OF VEGETATION AS OUTLINED IN THE FOREST CONSERVATION DEED OF EASEMENT EXCEPT AS PERMITTED BY THE TOWN OF PORT DEPOSIT.
3. NO STOCKPILE, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED IN THE FOREST CONSERVATION EASEMENT.
4. PERMANENT SIGNAGE SHALL BE PLACED EVERY 50-100 FEET APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.

REFORESTATION PLAN

THE REFORESTATION AREA WILL BE PLACED INTO A FOREST CONSERVATION EASEMENT.

A. PLANTING PLAN AND METHODS

PLANT SPECIES SELECTION WAS BASED ON OUR KNOWLEDGE REGARDING PLANT COMMUNITIES IN MARYLAND'S PIEDMONT PLATEAU AND INFORMATION PROVIDED IN THE SOIL SURVEY ON TYPICAL VEGETATION FOR THE SOIL TYPE ON THE PLANTING SITE. SPECIES SELECTION WAS ALSO BASED ON OUR KNOWLEDGE OF PLANT AVAILABILITY IN THE NURSERY INDUSTRY.

REFORESTATION WILL BE ACCOMPLISHED THROUGH A MIXED PLANTING OF WHIPS AND BRANCHED TRANSPLANTS. CONTAINER GROWN STOCK IS RECOMMENDED BUT BAREROOT STOCK MAY BE USED TO HELP CONTROL AFORESTATION COSTS. IF BAREROOT STOCK IS USED THE ROOT SYSTEMS OF ALL PLANTS WILL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING TO IMPROVE MOISTURE RETENTION IN THE ROOT SYSTEMS.

PRIOR TO PLANTING THE PROPOSED FOREST CONSERVATION EASEMENTS ALL MULTIFLORA ROSE IN THE PLANTING AREA SHALL BE REMOVED. REMOVAL OF THE ROSE MAY BE PERFORMED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWING BY A PERIODIC HERBICIDE TREATMENT OF STUMP SPROUTS IS RECOMMENDED. NATIVE TREE AND SHRUB SPECIES OCCURRING WITHIN THE ROSE THICKETS SHOULD BE RETAINED WHEREVER POSSIBLE. HERBICIDES TREATMENTS SHALL OCCUR ON 2 MONTH INTERVALS DURING THE FIRST GROWING SEASON, ONCE EACH IN THE SPRING AND FALL FOR SUBSEQUENT YEARS. HERBICIDE USED SHALL BE SUBJECT TO APPROVAL SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURERS SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

B. PLANTING AND SOIL SPECIFICATIONS

PLANT MATERIAL WILL BE INSTALLED IN ACCORDANCE WITH THE PLANTING DETAIL AND PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN.

AMENDMENTS TO EXISTING SOIL WILL BE IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN. SOIL DISTURBANCE WILL BE LIMITED TO INDIVIDUAL PLANTING LOCATIONS.

C. MAINTENANCE OF PLANTINGS

SEE POST CONSTRUCTION NOTES

D. GUARANTEE REQUIREMENTS

A 90 PERCENT SURVIVAL RATE OF THE REFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES

1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)

THE SOIL PROTECTION AREA, OR CRITICAL ROOT ZONE, OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF A ITS ROOTS MAY BE FOUND. THE MAJORITY OF ROOTS RESPONSIBLE FOR WATER AND NUTRIENT UPTAKE ARE LOCATED WITHIN THE SOIL SURFACE. TEMPORARY FENCING SHALL BE PLACED AROUND THE CRITICAL ROOT ZONE OF THE FOREST IN AREAS WHERE THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.

2. FENCING AND SIGNAGE

EXISTING FOREST LIMITS OCCURRING WITHIN 25 FEET OF THE LIMITS OF DISTURBANCE SHALL BE PROTECTED USING TEMPORARY PROTECTIVE FENCING. PERMANENT SIGNAGE SHALL BE PLACED AROUND THE AFFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.

B. PRE-CONSTRUCTION MEETING

UPON STAKING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY INSPECTOR. THE PURPOSE OF THE MEETING WILL BE TO VERIFY THAT ALL SEDIMENT CONTROL IS IN ORDER, AND TO NOTIFY THE CONTRACTOR OF POSSIBLE PENALTIES FOR NON-COMPLIANCE WITH THE FCP.

C. STORAGE FACILITIES/EQUIPMENT CLEANING

ALL EQUIPMENT STORAGE, PARKING, SANITARY FACILITIES, MATERIAL STOCKPILING, ETC. ASSOCIATED WITH CONSTRUCTION OF THE PROJECT SHALL BE RESTRICTED TO THOSE AREAS OUTSIDE OF THE PROPOSED FOREST CONSERVATION EASEMENT. CLEANING OF EQUIPMENT WILL BE LIMITED TO AREA WITHIN THE LOD OF THE PROPOSED HOMESITES. WASTEWATER RESULTING FROM EQUIPMENT CLEANING WILL BE CONTROLLED TO PREVENT RUNOFF INTO ENVIRONMENTALLY SENSITIVE AREAS.

D. SEQUENCE OF CONSTRUCTION

THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR DEVELOPMENT. THE ITEMS OUTLINED IN THE FOREST CONSERVATION PLAN WILL BE ENACTED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.

BELOW FIND A PRO

Appendix E

Purpose

This form is designed to help applicants assemble a complete Tier II Review report. This form specifically addresses evaluating alternatives that mitigate or offset unavoidable impacts to Tier II watersheds and streams. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

The Department will use this information to determine whether the applicant evaluated all reasonable alternatives to mitigate water quality degradation. MDE may provide additional comments, conditions, or requirements, during the review.

Maryland Department of the Environment

Antidegradation Review Report Form
Tier II Resource Mitigation

Fill in all that apply:

1. **Project Name:** Bainbridge-Powers Road Extension
2. **County ESC Plan Identifier:** _____
3. **Nontidal Wetlands & Waterways Construction Tracking Number:** _____
4. **General Permit Number:** _____
5. **Other Application Type and Number:** NOI/NPDES (Permit number pending)

Applicant Signature: _____ **Date Complete:** 9/2/25

Background

Code of Maryland Regulations (COMAR) 26.08.02.04-2 (G(3)) states that "If the analysis in §G(1) of this regulation shows that the alternatives are not cost effective and feasible, the applicant shall provide the Department with plans to configure or structure the discharge or other regulated activities that may cause a potential water quality impact so as to minimize the use of the assimilative capacity of the water body. The assimilative capacity of the water body is the difference between the water quality at the time the water body was designated as Tier II, the baseline, and the water quality criterion".

To demonstrate that appropriate minimization practices have been considered and implemented, applicants must identify any minimization practices used when developing the project, calculate major Tier II resource impacts, consider alternatives for impacts, and adequately justify unavoidable impacts. Further water quality impact minimization such as mitigation or out-of-kind offsets may be required.

Additionally, applicants are required to coordinate with the County or appropriate approval authority when developing construction plans, and incorporate additional practices as indicated by the guidance provided in the *Construction Stormwater Antidegradation Checklist*. This checklist, as well as the other portions of the Tier II Review Report are required prior to receiving many permits and authorizations from MDE.

Instructions and Notes

1. Review all the information in this document carefully. Prepare a report to address all the analysis required by this document. Submit all Tier II analysis and documentation together.
2. Do not leave any response blank. Please mark "N/A" for any questions or sections that are not applicable until you reach the end of the document.
3. Provide sufficient supporting documentation for narratives.
4. The level of analysis necessary, and amount of documentation that may be needed to determine if impacts have been adequately addressed, is dependent upon project size, scope, and scale of relative impacts to Tier II resources. Please develop responses accordingly.
5. Reports/responses shall be submitted in electronic format, as well as paper. Full plans are not required unless requested over the course of the review.
6. Direct any questions regarding this form to Angel Valdez at angel.valdez@maryland.gov.

Mitigation Alternative Analysis Final Documentation Checklist

☑ Signature & Date MDE Tier II Alternatives Analysis – Mitigation Alternative form (page 1)

☑ Resource Impact Summary (**Complete the analysis for each Tier II watershed affected**)

- ☑ Tier II Streams & Buffer Mitigation
  - Impact Mitigation
  - Impact Justification
- ☑ Forest Cover Mitigation
  - Impact Minimization
  - Impact Mitigation
  - Impact Justification
- ☑ Impervious Cover Mitigation
  - Impact Mitigation
  - Impact Justification
- ☑ Mitigation
  - Statement of Unavoidable Impacts to Tier II Waters
  - Mitigation Alternatives Evaluation
  - Site Description
  - Protection Mechanism
- ☑ Conservation
  - Conservation Site Search and Evaluation
  - Protection Mechanism
- ☑ Offsets
  - TBD based on offset

Tier II Resource Impact Mitigation

Sufficient riparian buffers, ample watershed forest cover, and lower levels of impervious cover are essential to maintaining high quality waters. This project permanently reduces riparian buffers and forest cover, or increase impervious cover within Tier II watersheds leading to a decrease in water quality

MDE will use the following information to determine mitigation for permanent impacts to Tier II watershed resources.

A. Tier II Stream Buffers Mitigation

1. Instructions:

a. If no stream buffer impacts are proposed mark this section N/A and proceed to Section B, Forest Cover.

b. Complete the analysis for each Tier II watershed affected on a separate sheet

A. Tier II Stream Buffers - Tier II Watershed Name: Mill Creek 1

2. Summary Tier II Stream Buffer Impacts (-Linear Feet, from MDE Tier II Alternatives Analysis – Minimization Alternatives V 1.2, A(2(g))

Left Bank	Right Bank
0	0

A. **Tier II Stream Buffers - Tier II Watershed:** Mill Creek 1

3. Buffer Impact Mitigation:

Mitigation or offsets can occur both on and off-site. Per segment, locate areas where impacts to the 100' buffer are unavoidable.

a) Evaluate on-site alternatives to identify areas where buffers could be expanded beyond the minimum 100' to offset areas of unavoidable buffer width constraints.
b) If there are no on-site areas, evaluate off-site areas, within the Tier II watershed, where buffers could be improved, expanded, or established.

4. Buffer Impact Justification:

If there are any remaining unavoidable impacts, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.

5. Buffer Exhibit

Prepare a Tier II Buffer Exhibit for on-site stream mitigation. Dependent upon the number of segments, multiple sheets (8 ½" by 11") may be used. On an overview, label each segment (a, b, c…) and provide a tabular summary, per bank-segment (e.g., left bank of segment a), of average buffer width.

In addition to on-site streams, the exhibit shall display the following information:

- 100- foot riparian buffer. (symbolize with a line)
- On-site areas where buffers were expanded to maintain an average 100' buffer (symbolize with shading, hatches, or dots, etc.)

A. Tier II Stream Buffers - Tier II Watershed: Mill Creek 1

6. Tier II Stream Buffer Mitigation (average of 100' or greater)

Left Bank	Right Bank
0	0

B. Tier II Forest Cover Mitigation
1. Instructions: **a. If there is no net forest cover loss within the impacted Tier II watershed(s), mark this section N/A.** **b. Insert the Tier II watershed name at the top of each box.** **c. Explain in detail alternatives considered, and any actions taken**

B. Tier II Forest Cover - - Tier II Watershed: Mill Creek 1	
2. **Summary of Potential Forest Cover Impacts** (- Acres, from MDE Tier II Alternatives Analysis – Minimization Alternatives V 1.2, Sum of B(2(f)) and C(2(c))) *Impervious cover and forest cover are summed together to determine total mitigation acres	**Acres** 15.23

B. Tier II Forest Cover - - Tier II Watershed: Mill Creek 1
3. Forest Cover Loss Mitigation
To achieve no net negative impact because of the proposed activity, the applicant shall consider alternatives to mitigate impacts 'in-kind', for forest cover loss, to the maximum extent economically feasible. Once those options are exhausted, applicants shall evaluate out-of-kind alternatives within the Tier II watershed that will help offset water quality impacts. These out-of-kind alternatives include impervious cover disconnection or retrofits, stream restoration, buffer enhancement, etc. If the value in B(2) is positive, note this in the report.
4. Forest Cover Loss Justification
If there are any remaining unavoidable impacts to forest cover, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.
5. Forest Cover Exhibit
Prepare a Tier II Forest Cover Exhibit for forest mitigation sites. ● On an 8 ½" by 11" sheet(s), prepare an on-site Tier II Forest Cover Exhibit. ● On a separate 8 ½" by 11" sheet(s), prepare an off-site Tier II Forest Cover Exhibit. ● Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(d) above. ● Prepare a separate exhibit regarding any off-site out-of-kind mitigation opportunities.

B. Forest Cover Mitigation – Tier II Watershed: Mill Creek 1	
6. Tier II Forest Cover Mitigation Summary	**Acres**
Removal of untreated Impervious	0.9
Reforestation	1.28

C. Impervious Cover Mitigation
1. Instructions: **a. If ESD is used to treat all new, on-site, post-construction stormwater, mark this section N/A.** **b. Insert the Tier II watershed name at the top of each box.** **c. Explain in detail alternatives considered, and any actions taken.**

C. **Tier II Impervious Cover - Tier II Watershed:** Mill Creek 1	
2. Summary of Impervious Cover Retrofits (if applicable) i.e., if the project proposes treatment of previously untreated impervious surfaces, in addition to treating new impervious cover associated with the project. Otherwise mark this value N/A.	**Acres** 1.98

C. Tier II Impervious Cover - Tier II Watershed: Mill Creek 1
3. Impervious Cover Justification
If there is any remaining unavoidable addition of impervious surface acreage (not treated with ESD) which is not offset, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.

D. Total Mitigation – Tier II Watershed: Mill Creek 1	
1. **Forest Cover Mitigation Summary** (Sum B(6) and C(2))	**Acres** 4.16

E. Tier II Mitigation

1. If mitigation is necessary:

a. In-kind mitigation shall occur at a target ratio of 1:1, acre-for-acre.

b. To satisfy the requirements of the Antidegradation Review, an applicant must demonstrate that they have conducted a robust alternatives analysis.

c. Mitigation is required for unavoidable net forest cover loss, and any impervious cover increase that is not treated with ESD.

E. Tier II Mitigation and Other Potential Requirements

2. Mitigation Plan Components

a. Statement of unavoidable impacts to Tier II waters. This is total loss calculated in A(2) and B (2). Identify values specifically associated with stream buffers, forest cover, and impervious cover. Tabular totals shall be broken according to resource type and Tier II watershed impacted. The accompanying narrative shall include a summary of why impacts are considered unavoidable.

b. Preferred mitigation alternatives analysis within the impacted Tier II watershed. The order of mitigation alternatives is as follows:
   i. In-kind, on-site
   ii. In-kind, off-site
   iii. Out-of-kind, on-site
   iv. Out-of-kind, off-site

c. Mitigation site alternative analysis. Establish site search criteria. All locations must be located within the affected Tier II watershed identified for each unavoidable impact. Tabular totals shall include the amount of mitigation/offset selected alternatives achieve. Include maps of each mitigation property.

d. Site Description. Provide site address, name of property if known, map and parcel number, and centroid coordinates in latitude/longitude. Include maps of each mitigation property. Maps shall include natural resources (i.e. existing forest cover, streams, wetlands, etc.), roads, railways, and any other important identifying features.

e. Protection Mechanism. Explain the plan proposed to ensure that all areas identified for mitigation shall be protected in perpetuity. Permittees shall be required to provide documentation in the form of covenants, landowner agreements, deed details, etc. as well as financial assurances. This shall be provided no more than 60 days after completion.

f. Planting plan: Reforestation shall incorporate optimum vegetation selection guidance provided in the *State Forest Conservation Technical Manual, 3rd edition, 1997 by Maryland Department of Natural Resources*.

g. Monitoring Reports. Properties shall be monitored for a minimum of five years to ensure site success. Reports shall provide visuals of establishment progress, as well as narrative descriptions. Include any issues encountered, overcome, and potential changes that may be necessary to meet objectives.

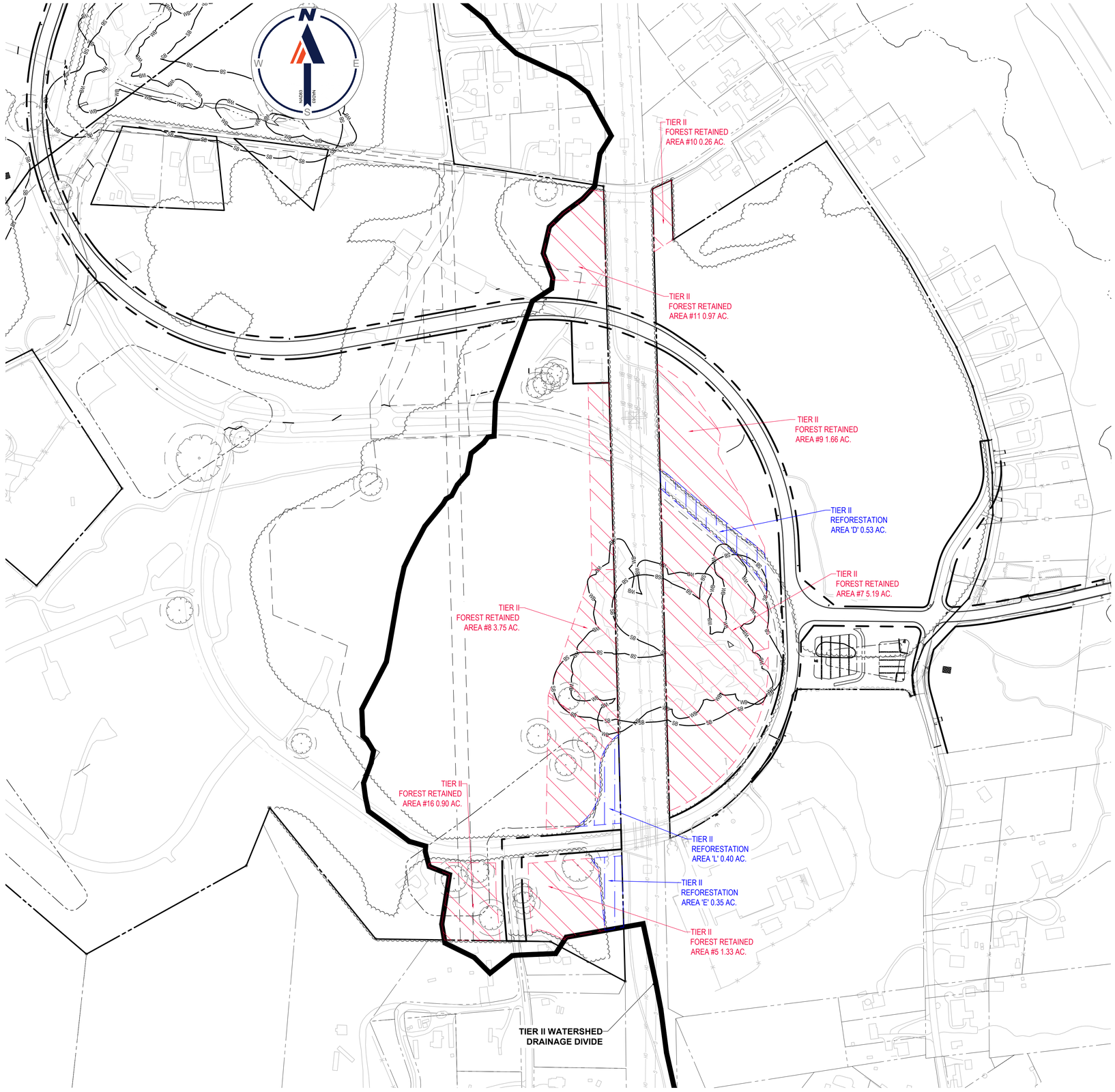
F. Out-of-Kind Offsets
3. Conservation – 2:1 impact ratio
a. Conservation site alternative analysis. Establish site search criteria. All locations must be located within the affected Tier II watershed identified for each unavoidable impact. Tabular totals shall include the amount of mitigation/offset selected alternatives achieve. Include maps of each mitigation property. b. Site Description. Provide site address, name of property if known, map and parcel number, and centroid coordinates in latitude/longitude. Include maps of each conservation property. Maps shall include natural resources (i.e. existing forest cover, streams, wetlands, etc.), roads, railways, and any other important identifying features. c. Protection Mechanism. Explain the plan proposed to ensure that all areas identified for mitigation shall be protected in perpetuity. Permittees shall be required to provide documentation in the form of covenants, landowner agreements, deed details, etc. as well as financial assurances. This shall be provided no more than 60 days after completion.
4. Other Out-of-Kind Offsets – Requirements TBD based on offset offered, and may include stream restoration, buffer improvements, etc.

Applicant Signature:  **Date:** 9/2/25

Provide a hardcopy response to:

Maryland Department of the Environment
Environmental Assessment and Standards Program
Antidegradation Implementation Coordinator
ATTN: Angel D. Valdez
1800 Washington Blvd, Suite 530
Baltimore, Maryland 21230

Provide an electronic response via email: to Angel Valdez at angel.valdez@maryland.gov.



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DRAWN BY:	PAK
CHECKED BY:	MCO
DATE:	7/7/2025
CAD I.D.:	MDA220144.00-EXHC-0.DWG

PROJECT:

PHASE IA TIER II FOREST CONSERVATION EXHIBIT

FOR

MRP
INDUSTRIAL
NE LLC

LOCATION OF SITE
BAINBRIDGE NAVAL BASE
PORT DEPOSIT, MD 21904
TAX MAP 29B, GRID 2, PARCEL 648
TOWN OF PORT DEPOSIT

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

SHEET TITLE:

PHASE IA TIER II FOREST CONVERSATION EXHIBIT

SHEET NUMBER:

1

ORG. DATE - 7/7/2025

Jul 16, 2025
11:20 I:\2022\MDA220144.00\CAD\DRAWINGS\EXHIBITS\FOREST CON EXHIBITS\MDA220144.00-EXHC-0----LAYOUT: 01 -PHASE IA TIER II FOREST CON EXHIBIT
BY: PK

Tier II Mitigation Analyis Report for Bainbridge-Powers Road Extension

WSSI # 36070.01

August 27, 2025

Prepared for:

Bohler Engineering
901 Dulaney Valley Road,
Suite 801
Towson, MD 21204

Prepared by:

1131 Benfield Boulevard, Suite L
Millersville, Maryland 21108
Tel: 410-672-5990 Email: contactus@wetlands.com
www.wetlands.com

Tier II Mitigation Analysis Report
for
Bainbridge-Powers Road Extension

A. Analysis Purpose

The Bainbridge Development Corporation (BDC) is proposing to extend Powers Road through a currently vacant portion of land owned by BDC, redevelop the existing Diamond Jim Road from its intersection with Perrylawn Drive (MD Route 275) west to its intersection with Craigtown Road, and extend Diamond Jim Road to the proposed Powers Road extension (Exhibit 1) in Cecil County, Maryland. The total limit of disturbance is 33.5 acres for road improvements, stormwater management, and storm drain installation; however, only 19.26 acres of the project is within the Mill Creek 1 Tier II Watershed. The project is in a commercial corridor that includes a variety of uses, including retail, industrial, and institutional uses. This report will outline the Applicant's efforts to address mitigation requirements as part of the Tier II Antidegradation Review approval.

B. Impacts

This project will impact 190 linear feet of stream (permanent), 1.97 acres of Tier II buffer and 14.93 acres of forest. The project will also result in the construction of 0.30 acres of new, untreated impervious surface within the Tier II Watershed.

C. Buffer Mitigation

This project is a linear roadway extension through several properties, and the limit of disturbance has been minimized to reduce impacts to Tier II Streams and their buffers, as well as neighboring properties. As the limit of disturbance is limited, particularly at stream crossings, the applicant has no options for buffer mitigation on-site.

D. Reforestation Mitigation (On-Site Opportunities)

a. Availability of On-Site Opportunities

The proposed project was placed to utilize existing unforested areas on site to reduce forest clearing. Even with this minimization effort, the applicant will clear 14.93 acres of forest for the full build-out of the project. This project is a linear roadway extension through several properties, and the limit of disturbance has been minimized to reduce impacts to forests as well as impacts to neighboring properties. The applicant has identified 1.28 acres of Tier II reforestation on-site,

b. Site Map of Available On-Site Opportunities

Due to the linear nature of the project, the site is defined as the limit of disturbance. Since the limit of disturbance has been minimized to the smallest area required for safe construction of the required roadway, there are minimal on-site opportunities for reforestation. The applicant has identified 1.28 acres of on-site reforestation opportunities, as shown on the Tier II mitigation exhibit (Exhibit 2).

c. Total Reforestation

Due to the linear nature of the project, the site is defined as the limit of disturbance. Since the limit of disturbance has been minimized to the smallest area required for safe construction of the required roadway, on-site options are limited. The applicant proposes 1.28 acres of reforestation on-site.

d. Protection Mechanism

The on-site reforestation areas will be protected in perpetuity by a conservation easement.

E. Reforestation Mitigation (Off-Site, in Tier II Watershed)

a. Property Search

The applicant compiled a list of properties within the Tier II Watershed that would allow them to meet their Tier II mitigation needs. This search yielded 34 properties (Exhibit 3). Of these properties, only one was available for sale. This property was under contract to another entity prior to the applicant being able to make an offer on the property.

F. Out-of-Kind Offsets (On-site, in Tier II Watershed)

There are no out-of-kind offsets proposed.

The Bainbridge-Power's Road Extension offers the opportunity for large-scale revitalization to an underserved community. The applicant has minimized impacts to Tier II waters by reducing development within the watershed and limiting clearing, providing removal and treatment of existing impervious surfaces, and on-site reforestation. We hope that this report is sufficient for your review.

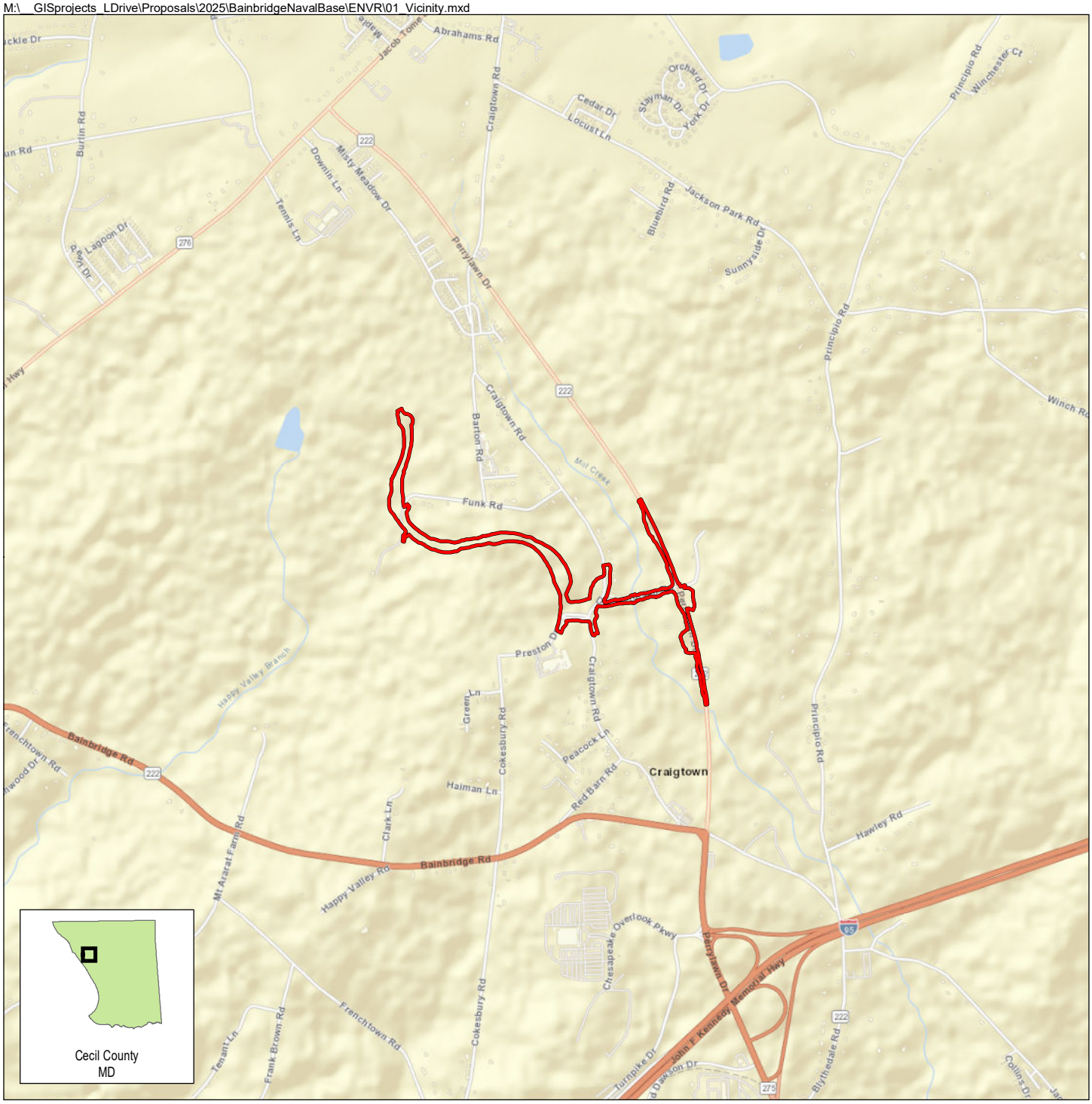
Michael J. Klebasko, PWS
Maryland Environmental Science Manager

Haley Kelly, PWS
Senior Environmental Scientist

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EXHIBIT 1

M:__GISprojects_LDrive\Proposals\2025\BainbridgeNavalBase\ENVR\01_Vicinity.mxd



Project Area (±28.0 acres)

Vicinity Map
Bainbridge Naval Base Road Improvements

NORTH

0 2,000

Feet

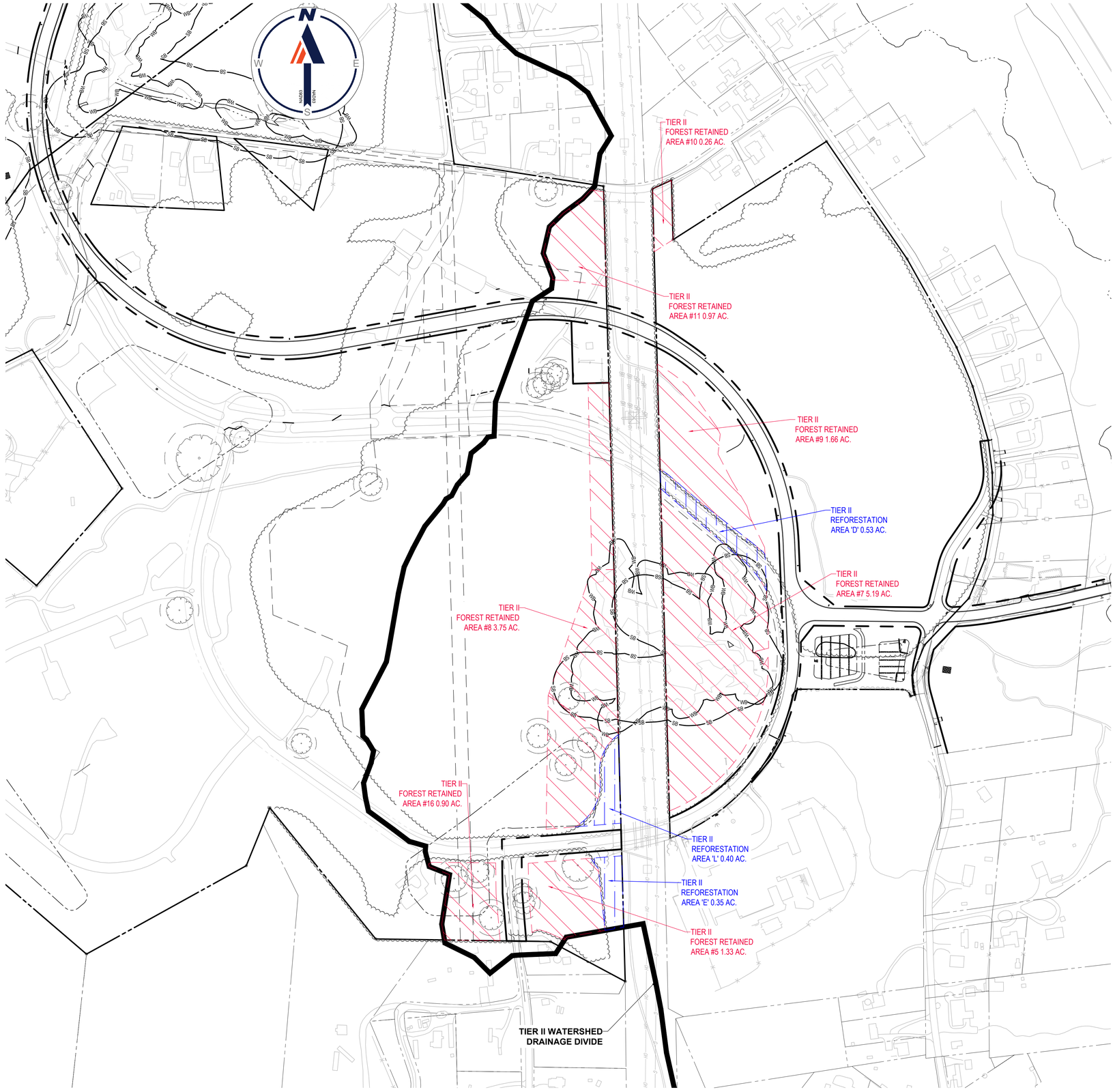
Original Scale:
1 " = 2,000 '

ADC Map/Column/Row: 4243H3
Source: World Street Map - ESRI

Wetland Studies and Solutions, Inc.
a DAVEY company

Exhibit 1

EXHIBIT 2



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11:20 I:\2022\MDA220144.00\CAD\DRAWINGS\EXHIBITS\FOREST CON EXHIBITS\MDA220144.00-EXHC-0----LAYOUT: 01 -PHASE IA TIER II FOREST CON EXHIBIT
BY: PK

EXHIBIT 3

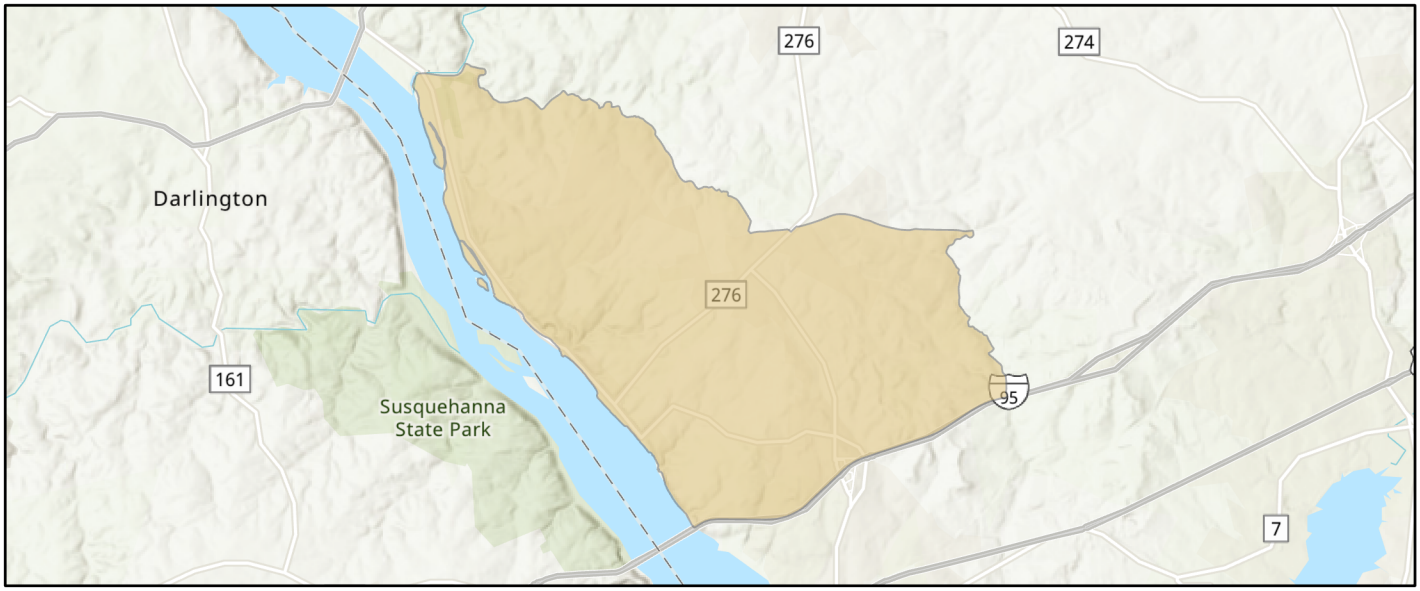
Parcel Number	Parcel Number	Road	Acres	Owner	Market Status	Zillow Availability	Price	Adress	Usage
7013671	439	Belvidere	5	Elmore	On	Yes	$150,000	NA	Woodland/Water
7009429	446	Winch	1	PVA	Off	No	NA	NA	Woodland
7009380	179	Winch	0.5	PVA	Off	Yes	$306,900	1271 Winch Rd, Port Deposit, MD 21904	Residential
7036264	627	Winch	1.8	PVA	Off	No	NA	NA	Woodland/Residential
7009364	111	Winch	23.2	PVA	Off	Yes	$200	1171 Winch Rd, Port Deposit, MD 21904	Woodland
7033605	588	Winch	2.18	PVA	Off	No	NA	NA	Woodland
7009399	106	Winch	11.18	PVA	Off	Yes	$656,600	1171 Winch Rd, Port Deposit, MD 21904	Woodland/Residential
7032145	552	Winch	1.08	PVA	Off	No	NA	NA	Woodland
7029586	508	Winch	1.16	PVA	Off	No	NA	NA	Woodland
7031904	551	Winch	4.4	PVA	Off	No	NA	NA	Woodland
7005652	113	Winch	125.1	YORK BP	Off	No	NA	NA	Woodland
7005660	316	Winch	10.56	YORK BP	Off	No	NA	NA	Woodland
7004761	114	Winch	11.8	YORK BP	Off	Yes	$280,067	950 Winch Rd, Port Deposit, MD 21904	Woodland/Residential
7000057	474	Winch	5.13	YORK BP	Off	Yes	$388,800	1016 Winch Rd, Port Deposit, MD 21904	Residential
7005644	20	Winch	63.19	YORK BP	Off	Yes	$829,300	1136 Winch Rd, Port Deposit, MD 21904	Residential/Woodland/Water
7007167	319	Linton Run	3.37	Rynes Donna	Off	Yes	$348,100	255 Linton Run Rd, Port Deposit, MD 21904	Residential
7011628	108	Linton Run	5.32	Rynes Donna	Off	Yes	$346,600	250 Linton Run Rd, Port Deposit, MD 21904	Residential/Woodland
7034180	599	Linton Run	0.5	Rynes Donna	Off	Yes	$1,700	NA	Woodland
7007795	276	Linton Run	6.08	Rynes Donna	Off	Yes	$526,700	253 Linton Run Rd, Porot Deposit, MD 21904	Woodland/Working
7039913	641	Linton Run	10.12	Rynes Donna	Off	Yes	$1,289,900	255 Linton Run Rd, Port Deposit, MD 21904	Working
7009410	277	Linton Run	1.17	PVA	Off	Yes	$500	NA	Woodland
7009402	113	Linton Run	9.5	PVA	Off	No	NA	NA	Woodland
7039630	8	Belvidere	3	YORK BP	Off	No	NA	NA	Clay/Dirt/Sand?
5114780	241	Belvidere	1239	YORK BP	Off	No	NA	NA	Clay/Dirt/Sand?
5093155	295	Belvidere	7.92	YORK BP	Off	Yes	$674,400	1227 Belvidere Rd, Port Deposit, MD 21904	Residential/Woodland/Water
5044057	162	Belvidere	16.19	YORK BP	Off	Yes	$550,400	1231 Belvidere Rd, Port Deposit, MD 21904	Residential/Woodland/Water
7036191	633	Principio	1.16	YORK BP	Off	No	NA	NA	Woodland
7004281	538	Principio	42.7	YORK BP	Off	No	NA	NA	Woodland/Road
7046170	712	Principio	6.48	YORK BP	Off	Yes	$246,333	NA	Landfill
7004273	7	Principio	51.7	YORK BP	Off	Yes	$11,767	NA	Landfill
7048505	715	Principio	5.15	YORK BP	Off	No	NA	NA	Woodland
7001681	114	Principio	20	YORK BP	Off	No	NA	NA	Woodland
5036240	185	Belvidere	20.91	Lawder	Off	No	NA	NA	Agriculture
5080525	260	Belvidere	12.11	Lawder	Off	No	NA	NA	Agriculture

Appendix F

MDEnviroScreen Report

Census Tract ID: 24015031201

County: Cecil



MDEnviroScreen Summary

EJ Score: 60.5

Overburdened Community: Yes

Underserved Community: No

MDEnviroScreen EJ Score Indicators

Pollution Burden Exposure

Indicator	Percentile
PM 2.5	41.4
Ozone	47.6
Diesel PM	25.1
Cancer Risk	0.2
Respiratory Hazard	2.9
Traffic	12.6
Toxic Release	22.1
Hazardous Landfill	0

Pollution Environmental Effect

Indicator	Percentile
Lead Paint	45.8
RMP Facility	55.5
Superfund	84.2
Hazardous Waste	26.1
Wastewater	53
Brownfield	87.1
Power Plant	0
CAFO	89.8
Mining	99

Sensitive Population

Indicator	Percentile
Low Birth Weight	18
Asthma Discharge	46
Myocardial Infarction	88.8
Lack of Broadband	52.3
Low Income*	62.4

*Low Income is included in Underserved but grouped into Sensitive Population for EJ Score Calculation

*The MDEnviroScreen EJ score represents a combined measure of pollution and the potential vulnerability of a population to the effects of pollution. The EJ score in MDEnviroScreen does not include data from every available map layer. For example, it does not include race/ethnicity or age, however, MDE has made that information available for informational purposes only. Collecting and displaying this data allows users to evaluate the relationships between demographics and pollution burden, and can be used to better understand issues related to environmental justice and racial equity in Maryland. MDE cautions users against using the "Underserved" map layer, or its subcategories, in any manner that would be considered discriminatory under applicable law.

Date Exported: 7/23/2025

Appendix G

References

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