



ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS, AND
LANDSCAPE ARCHITECTS

PATRIOTS GLEN

PHASE 2

A Residential Planned Community

Indian River Hundred
Sussex County, Delaware

Developed By:

Schiff Land Development Co., LLC



Prepared By:
Morris & Ritchie Associates, Inc.
18 Boulden Circle, Suite 36
New Castle, DE 19720
Phone: (302) 326-2200
Attn: Christopher J. Flathers, P.E.

March 2021

P A T R I O T S G L E N - P H A S E 2

RESIDENTIAL PLANNED COMMUNITY INFORMATION BOOKLET

TABLE OF CONTENTS

Project Team 4

Land Use Data 5

Site Data 5

Land Use Breakdown 5

Lot Compilation 5

Introduction 6

Executive Summary 7

Project Summary 8

Existing Conditions 8

 Location 8

 Existing Land Use 8

Residential Planned Community Concept 11

 Site Data 14

 Clustering to Create a Sense of Place 15

 Perimeter Buffer 15

 Open Space & Unifying Element 17

 Central Amenity Features 18

Construction Phasing 19

Homeowner’s Association Organization and Management Structure 19

 Governing Documents 19

 Articles of Incorporation 20

 Declaration 20

 Bylaws 20

 Architectural Guidelines 20

Development Infrastructure 21

 Sanitary Sewer Service 21

 Domestic Water Service 21

 Fire Protection 21

 Sediment and Stormwater Control 22

 Other Utilities 22

Traffic & Transportation 22

 Traffic Impact Study 22

 Roadway Improvements 23

 Subdivision Streets 23

 Multimodal Transportation 23

 Emergency Evacuation 23

Social Influences 24

 Fire and Rescue 24

 Police and Security 25

 Schools 25

Economic Impacts 26

 Anticipated Revenue Enhancements to Sussex County 26

Appendices.....	i
<i>Appendix 1 – 99-9C Compliance.....</i>	<i>ii</i>
<i>Appendix 2 – Environmental Assessment and Public Utility Evaluation</i>	<i>iii</i>
115-194.3 Compliance	iii
<i>Appendix 3 – Project Site Exhibits.....</i>	<i>iv</i>
Tax Parcel.....	iv
Zoning	iv
Future Land Use.....	iv
FEMA Floodplain	iv
State Spending Strategies	iv
Source Water Protection Areas	iv
<i>Appendix 4 – Preliminary Plan.....</i>	<i>v</i>
<i>Appendix 5 – PLUS Review Response Letter.....</i>	<i>vi</i>
<i>Appendix 6 – Web Soil Survey Report.....</i>	<i>vii</i>
<i>Appendix 7 – Preliminary Wetlands Evaluation.....</i>	<i>viii</i>
Geo-Technology Associates, Inc. – November 15, 2019.....	viii
<i>Appendix 8 – Traffic Analysis.....</i>	<i>ix</i>
Service Level Evaluation, DelDOT, December 6, 2019.....	ix
TIS Approval, DelDOT, February 26, 2021	ix
Traffic Impact Study, The Traffic Group, August 27, 2020.....	ix
<i>Appendix 9 – Sewer Concept Evaluation Study.....</i>	<i>x</i>
Sussex County Engineering Department	x
<i>Appendix 10 – Water Service.....</i>	<i>xi</i>
Willing & Able Letter, Tidewater Utilities, Inc., March 10, 2021	xi

List of Figures

Figure 1 - Future Land Use Map.....	8
Figure 2- Existing Conditions Plan	9
Figure 3 - Aerial Orthophoto.....	10
Figure 4 - Adjacent Developments.....	10
Figure 5 - Illustrative Site Plan	13
Figure 6 - Design Concept	15
Figure 7 - Perimeter Buffer.....	16
Figure 8 - Landscape Berms	17
Figure 9 - Unifying Elements.....	17
Figure 10 - Community Clubhouse Concept.....	18
Figure 11 - Conceptual Construction Phasing.....	19
Figure 12 - Evacuation Routes.....	24

P R O J E C T T E A M

DEVELOPER

SCHIFF LAND DEVELOPMENT COMPANY, LLC
16054 S. DUPONT HWY.
HARRINGTON, DELAWARE 19952
DR. JAMES W. SCHIFF

LAND PLANNER & CIVIL ENGINEER

MORRIS & RITCHIE ASSOCIATES, INC.
18 BOULDEN CIRCLE, SUITE 36
NEW CASTLE, DELAWARE 19720
MR. PHILLIP L. TOLLIVER, P.E.

ENVIORONMENTAL CONSULTANTS

GEO-TECHNOLOGY ASSOCIATES, INC.
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
MR. ANDY STANSFIELD

GEOTECHNICAL CONSULTANTS

GEO-TECHNOLOGY ASSOCIATES, INC.
21133 STERLING AVENUE, SUITE 7
GEORGETOWN, DELAWARE 19947
MR. GREGORY R. SAUTER, P.E.

TRAFFIC CONSULTANTS

THE TRAFFIC GROUP, INC.
9900 FRANKLIN SQUARE DRIVE, SUITE H
BALTIMORE, MARYLAND 21236
MR. JOE CALOGGERO, P.E.

ATTORNEY

MORRIS JAMES LLP
107 W. MARKET STREET
GEORGETOWN, DELAWARE 19947
MR. DAVID C. HUTT, ESQ.

LAND USE DATA

Site Data:

Location: Southeasterly side of John J. William Hwy (Route 24)
Approx. 1100' south of intersection with Mt. Joy Rd (Route 5)
Millsboro, DE

Owner: Davis Farms II Limited Partnership

Tax Map Parcel Numbers: 234-29.00-67.00

Gross Acreage: 43.46 ± acres

Current Zoning: CR-1 & MR
(Coastal Area Growth Zone)

Proposed Zoning: MR - RPC

Floodplain: Zone X – Outside of the 0.2% Annual Chance Floodplain

Land Use Breakdown

Total Lot Area: 26.70 Acres

Right-of-Way:

- Public R.O.W. (DelDOT Dedication) 0.00 Acres
- Private R.O.W. 7.10 Acres

Open Space

- Active: 0.46 Acres *
- Passive: 9.20 Acres
- Incl. Stormwater Facilities 2.53 Acres

*Note – Phase 2 community will have access to additional active recreation facilities located within the previously approved Patriots Glen (Phase 1) project area.

Lot Compilation

	MR Zoning	Proposed MR-RPC
Area:	10,000 sf	7,500 sf minimum
Lot Width:	75 ft.	60 ft.
Lot Depth:	100 ft.	100 ft.
Front Yard Setback:	30 ft.	25 ft.
Side Yard Setback:	10 ft.	10 ft.
Rear Yard Setback:	10 ft.	20 ft.
Net Density:	4.36 du/ac.	3.52 du/ac
Number of lots:	158	128

I N T R O D U C T I O N

This report has been prepared at the request of Dr. James Schiff of Schiff Land Development Company, LLC, the applicant and equitable owner of the Patriots Glen – Phase 2 property.

The following report, including all exhibits and appendices, shall serve as supporting documentation associated with the proposed Rezoning and Residential Planned Community (RPC) application submitted to the Office of Planning and Zoning for the subject property on December 10, 2019.

This report will address elements of the plan, the existing conditions, the overall design concept, environmental protection provisions, open space reservations, housing types, phasing and the professional management structure for the Home Owner's Association.

An overview has been provided for the key infrastructure elements like sanitary sewer, water service, stormwater management, gas, electric, cable television, and telephone service.

Traffic and transportation impacts, as well as social and economic issues, will be discussed. This report will discuss recreation amenities, as well as, how State and County comments have been incorporated into a balanced comprehensive concept.

E X E C U T I V E S U M M A R Y

Patriots Glen – Phase 2 is proposed as a Residential Planned Community (RPC) located within a land-locked parcel on the southeasterly side of John J. Williams Highway (State Route 24), approximately 1,100 feet south of the intersection with Mt. Joy Road (State Route 5) in an unincorporated portion of Sussex County, Delaware. The 43.46 acre site is located entirely within the Coastal Area, shown on the Sussex County Comprehensive Plan dated March 2019. Design and development concepts for Patriots Glen – Phase 2 focused on creating a pedestrian friendly community of single-family detached homes, as an extension to the previously approved Patriots Glen project, herein referred to as Patriots Glen (Phase 1). The Phase 2 project site proposes a total of 128 lots and approximately 11 acres of community open space area. It is anticipated that the infrastructure for Patriots Glen will be constructed over a 2 year period, with home construction taking approximately 3 years to complete.

As an extension of the previously approved Patriots Glen community, the residents of the Phase 2 area will have access to the community recreation area previously proposed for the Phase 1 area. This facility is anticipated to include a community clubhouse building and outdoor pool and patio area. Sidewalks will be provided throughout the community along both sides of the vehicular thoroughfares to connect the residences to the community clubhouse area.

Much of the Phase 2 site area is currently utilized for agricultural purposes and is completely unencumbered by wetlands. An isolated wooded pocket occupies an area that bisects the project area; this feature will be retained to the maximum extent practicable where located outside of the proposed lot and roadway areas. It is anticipated that infiltration based stormwater management practices will be implemented to the maximum extent practicable to minimize runoff. Utilization of these facilities will provide a reduction in runoff and nutrients (i.e. nitrogen, phosphorus) from the developed site.

Patriots Glen – Phase 2 is currently located within the Oak Orchard Sanitary Sewer District and will utilize extensions to the existing infrastructure to provide public water and sewer to the site. The Phase 2 area will be serviced by a gravity sewer system and connect to the pump station to be constructed as part of the Phase 1 area. The associated force main will discharge to the existing County infrastructure located in John J. Williams Highway.

Vegetative buffer areas will be provided around the perimeter of the community. The internal subdivision street system will be designed and constructed in accordance with Sussex County standards and will be privately owned and maintained upon completion. Consideration for pedestrian safety and convenience through traffic calming design techniques, sidewalks, unified street signage and lighting standards will be incorporated into the final design of the project.

Patriots Glen – Phase 2 is anticipated to provide a vibrant community, with social and recreational benefits to the residents, economic benefits to the County and surrounding areas, while minimizing environmental impacts to the existing on-site resources and the neighboring properties.

PROJECT SUMMARY

Existing Conditions

Location

The Patriots Glen – Phase 2 site is located in eastern Sussex County. The land-locked parcel is located on the southeasterly side of John J. Williams Highway (State Route 24, approximately 1,000 feet south of the intersection with Mt. Joy Road (SR 5). The project site is comprised of one existing parcel, referenced on District 234, Map 29, as Parcel 67.00. As shown on the current Sussex County Comprehensive plan, the entire project is located within the Coastal Area growth zone. A portion of the parcel, approximately 3.7 acres in size and abutting the Nentego parcels to the northwest is currently zoned Commercial Residential (CR-1), while the remaining portion of the parcel is currently zoned Medium-Density Residential (MR).

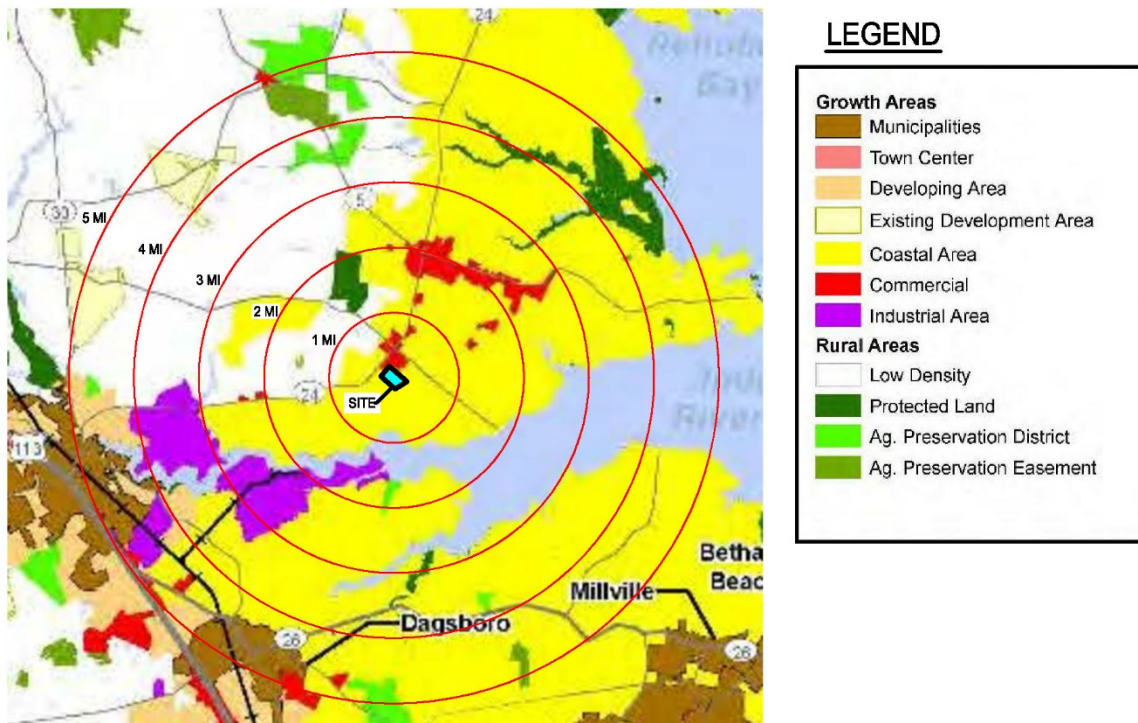


Figure 1 - Future Land Use Map

Existing Land Use

The 43.46-acre parcel is currently owned by Davis Farms II Limited Partnership. Although the site is currently utilized for agricultural purposes, there are no existing residential or farm structures located within the limits of the parcel. The subject parcel is bordered to the southwest and northeast by residential uses; the previously approved Patriots Glen (Phase 1) site and the existing Oak Meadow, respectively. The undeveloped commercial zoned properties to the northwest and the residential zoned property to the southeast are both currently utilized for agricultural purposes.

Within the northwesterly portion of the site, is an isolated pocket of woods. This area is anticipated to be retained to the maximum extent practicable where these areas will remain within designated open spaces of the Patriots Glen – Phase 2 site. A preliminary wetlands evaluation was performed by Geo-Technology Associates, Inc. (GTA) in November 2019. Based upon this review, no jurisdictional “Waters of the U.S”, including wetlands were identified within the limits of the subject parcel in the professional opinion of GTA. Review of the FEMA floodplain maps reveal the subject parcel to be located within Zone X, outside of the 0.2% annual chance floodplain.

The project area is gently sloping from the center of the site outward to the northeast, southeast, and southwest directions. Elevations on the site range from approximately El. 20 to El. 16. Runoff from the developed site is anticipated to be collected within onsite stormwater management (SWM) facilities, with excess runoff discharge through the Patriots Glen (Phase 1) site and conveyed to the Indian River through the off-site unnamed tributary. As shown in Figure 2, below, a portion of the site is located within a water resource / wellhead protection area. The site layout has been configured in order to maintain proposed impervious cover on the site below the maximum 35% threshold allowable under Section 89-6.F.(1) of the Sussex County Code.

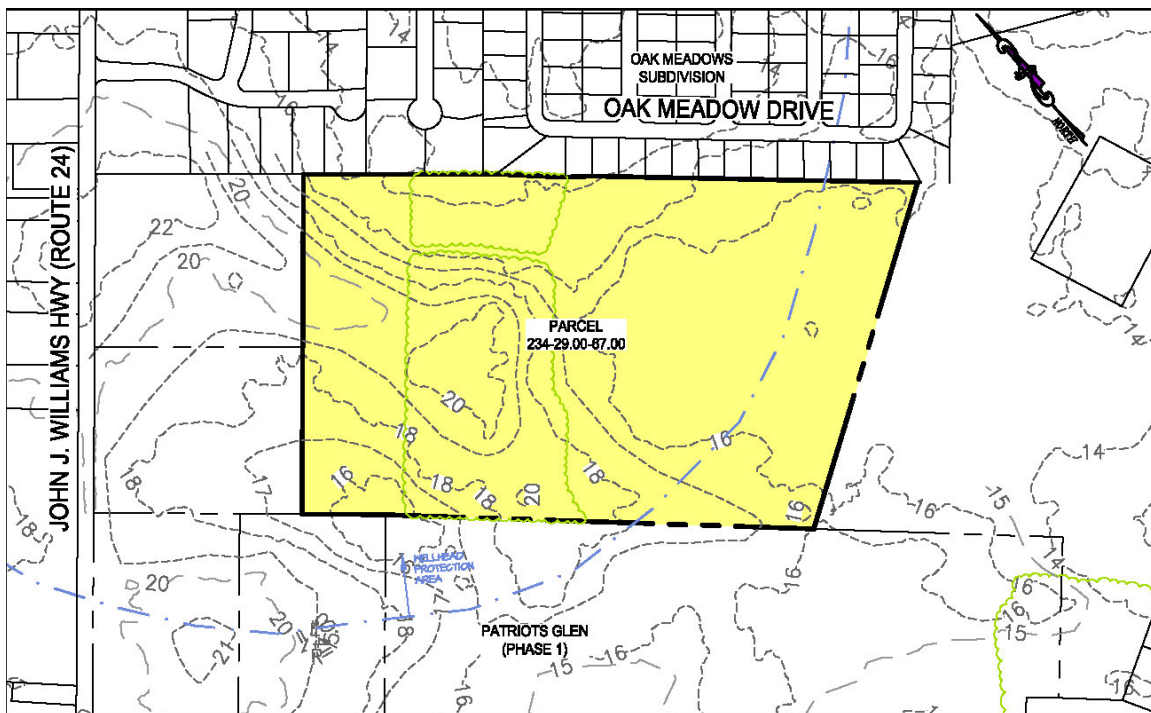


Figure 2- Existing Conditions Plan

According to the United States Department of Agriculture (USDA) Soil Survey for Sussex County, Delaware (September 14, 2018), the site is underlain by the Fort Mott loamy sand complexes. This series consists of generally deep, well-drained soils on uplands with loamy sand and sandy substrata.

Exhibits 3 and 4, below, show the site location and its proximity to the adjacent properties and uses. As noted above, the site is located between the previously approved Patriots Glen (Phase 1) and Oak Meadows residential subdivision. Additionally, there are

several nearby residential developments including Warwick Park to the southwest, Indian Summer Village to the northwest, and the River Village subdivision to the northwest.

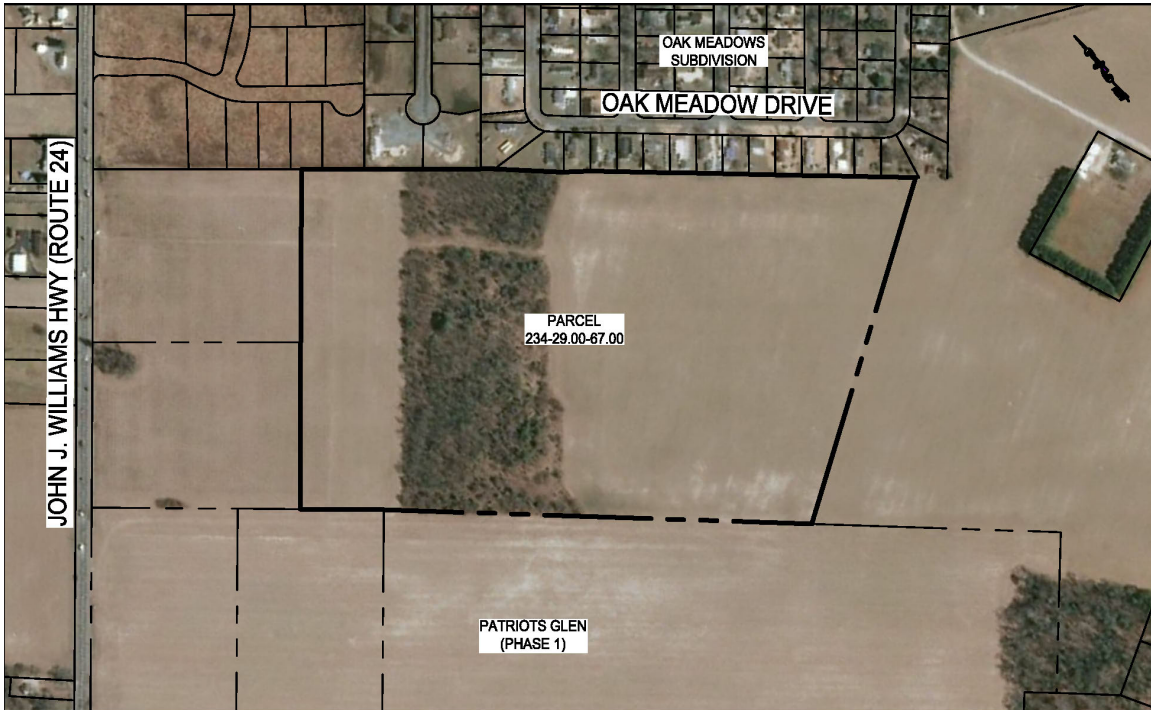


Figure 3 - Aerial Orthophoto

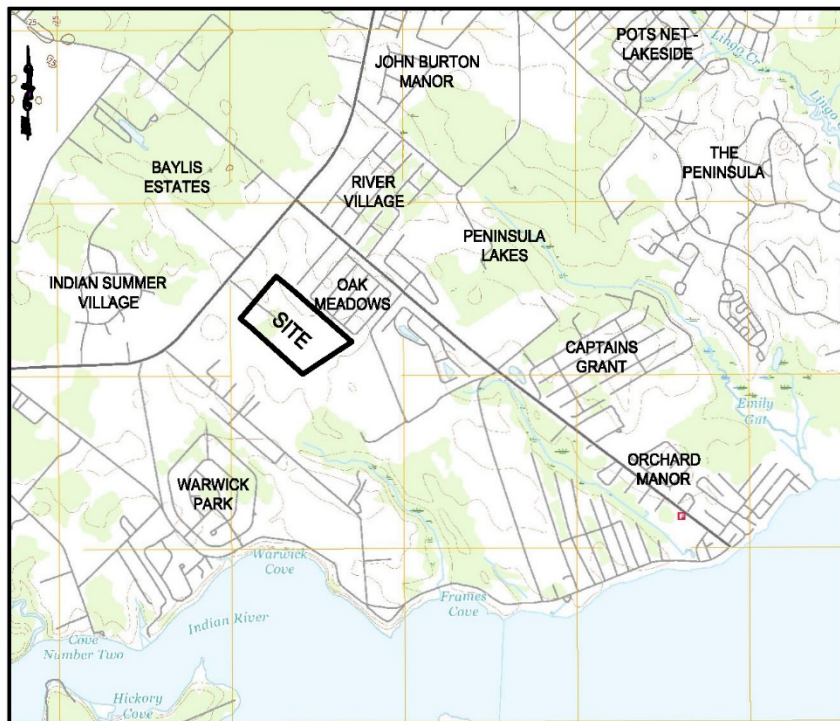


Figure 4 - Adjacent Developments

In general, Patriots Glen – Phase 2 is comparable to the surrounding uses as single-family detached homes and has a gross density commensurate with a site within the Coastal Areas growth zone containing no environmental constraints. The proposed configuration of Phase 2 area will yield a gross density of 2.95 dwelling units per acre (du/ac) as compared to 3.22 du/ac proposed in the Phase 1 area, 3.3 du/a. for Oak Meadows, 2.73 du/ac for Warwick Park. For this reason, this land should be utilized to the fullest extent, while not exceeding the planned 4.36 units per acre allocated for sewer connections.

Residential Planned Community Concept

The primary purpose of the Residential Planned Community (RPC) development concept is to “encourage large-scale development as a means of creating a superior living environment through unified developments, and to provide for the application of design ingenuity while protecting existing and future developments and achieving the goals of the Comprehensive Plan.

The design vision and development concept for Patriots Glen – Phase 2 was intended to create a sense of community through the expansion of the concepts utilized within the previous Patriots Glen (Phase 1) community. This resulted in creating vehicular and pedestrian interconnections with the previously approved area, to gain access to the centrally located amenities, while continuing to maintain a connection to the open space provided throughout the community. The design process used to achieve this vision is listed below and was the basis for the layout and various elements used in the plan.

- **Create** a “sense of place” around an open space concept on a site with limited natural features.
- **Define** a perimeter buffer.
- **Connect** lots to open space area and community amenities.
- **Centralize** development around open space areas and community amenity features.

The Patriots Glen – Phase 2 site is being developed by Schiff Land Development Company, LLC as a proposed Residential Planned Community. The application proposes to eliminate the split zoning of the parcel, converting the CR-1 portion of the site to MR, and utilizing the RPC over the resulting homogeneous MR site area. This plan expands on the previously approved Patriots Glen (Phase 1) project and maintains similar standards for development. Located entirely within the Coastal Area growth zone, and with public water and sewer readily available at the site, the implementation of the RPC development option will allow for smaller lot sizes and clustering of the development area for an efficient land plan to maximize open space and increased perimeter buffering.

By implementing the smaller lot size alternative of the RPC, a development like Patriots Glen – Phase 2 is able to provide an enhanced sense of community within the subdivision by reducing distance between neighbors and providing meaningful active open space and gathering areas. Roads and utilities can be designed in a more efficient manner that lower infrastructure construction requirements for both initial installation and long term maintenance.

The illustrative site plan, figure 5 below, depicts the overall design concept and the major features of the RPC. It should be noted, that utilization of the smaller lot sizes, and clustering effect, has resulted in an ability to provide enhanced perimeter buffer areas, allow many of the 128 market rate single-family homes to have direct access to the open space areas and minimize the instances of two rear yard areas from directly abutting one another. A Site Data summary is also provided to illustrate the main features of the proposed RPC configuration.



**PATRIOTS GLEN PHASE 2
SUSSEX COUNTY DELAWARE**

MRA 302.326.2200
18 BOULDEN CIRCLE, SUITE 36
WILMINGTON, DELAWARE
WWW.MRAGTA.COM

Figure 5 - Illustrative Site Plan

Site Data:

Total Lot Area:	43.46 Acres
Current Zoning District	MR & CR-1
Proposed Zoning District	MR-RPC
MR District Minimum Lot Area	10,000 SF
RPC District Minimum Lot Area	7,500 SF
Allowable Density (MR-RPC)	158 Dwelling Units
$(43.46 - 7.10) \times (43,560/10,000) = 158$ or 4.36 D.U./ Acre	
Proposed Number of Units	128 Dwelling Units
Area of Proposed Streets	7.10 Acres
Public R.O.W. (DeIDOT Dedication)	0.00 Acres
Private R.O.W.	7.10 Acres
Proposed Density	3.52 D.U. / Acre
Open Space Required (10%)	4.35 Acres
Open Space Proposed (22%)	9.66 Acres
Active Open Space *	0.46 Acres
*Note: Community will have access to additional active recreation facilities provided within Patriots Glen (Phase 1)	
Passive Open Space	9.20 Acres
Stormwater Facilities	2.53 Acres
Off Street Parking	
Single-Family Detached (Required 2 Spaces / Unit)	256
Infrastructure	
Sewer	Sussex County
Water	Tidewater Utilities

Clustering to Create a Sense of Place

The design concept for Patriots Glen – Phase 2 was to continue the practices initiated within the Patriots Glen (Phase 1) area to utilize the RPC ordinance and clustering concept to provide a meaningful use of open space, provide enhanced buffering, and create a network of roads and pedestrian pathways to link the lots and community amenities together. The focus was on creating a sense of community where residents and visitors could interact as they drive, walk, sit and relax. This goal will be achieved by creating a community amenity areas where the residents can gather.

The primary structuring element of this design is the road network and associated pedestrian sidewalks. The layout has been created to create a natural extension of the Patriots Glen (Phase 1) community, and provide ease of access to the amenity areas within this previous phase, as well as the additional amenities to be provided within the Phase 2 area.

The site, in its current condition, has no identifiable environmental constraints. Utilizing the anchor of the centralized amenity in Phase 1 provides a welcoming element to the community while also providing a point of destination for the residents for both the Phase 1 and Phase 2 areas. The amenity area combines with the axial open space element of the community to provide a visual and physical connection along the longitudinal axis of the site as shown by the Design Concept sketch below.

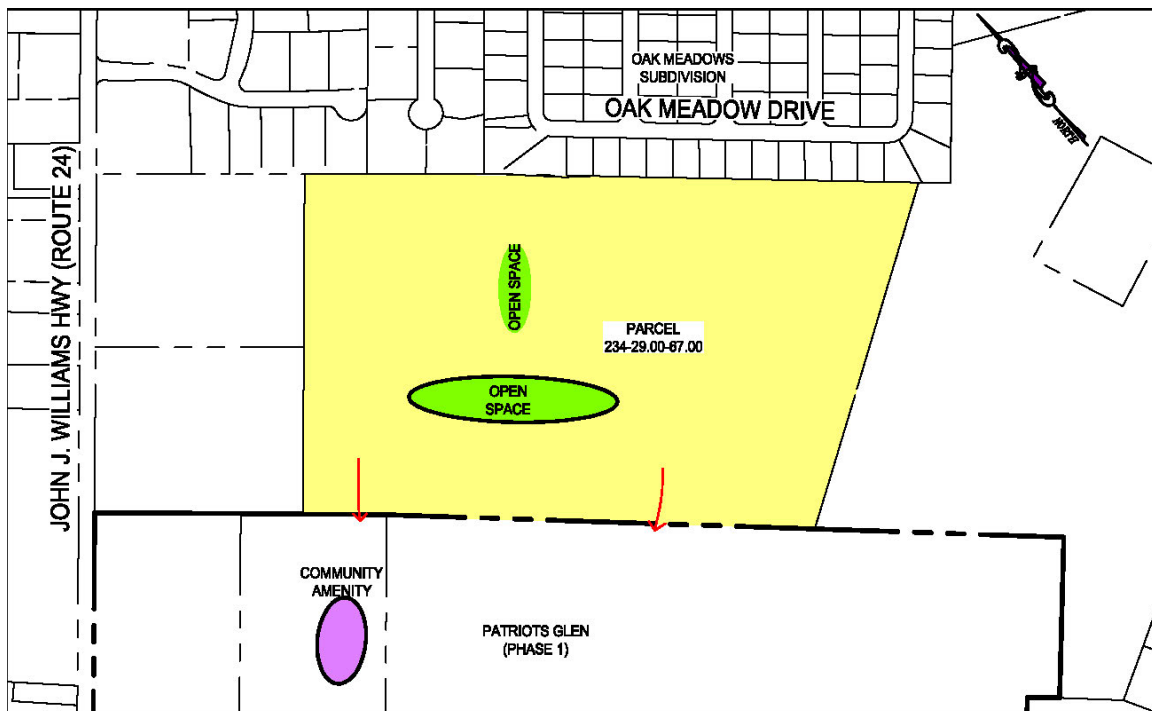


Figure 6 - Design Concept

Perimeter Buffer

The design concept for Patriots Glen – Phase 2 begins to take form by defining a superior perimeter buffer around the project area, with two interconnections to the

previously approved Patriots Glen (Phase 1) area. The overall project will utilize a single access onto John J. Williams Highway.

All lots and interior roads will have access from a loop road that sets the structure for the open space and lot layout. No lots will have direct access to the state roads. The perimeter buffer is designed to vary in width from 30' to 278' around the site. These buffer areas will be comprised of a mixture of deciduous and evergreen planting materials, in accordance with the County Code, and will include undulating landscape berms where feasible. Combined together, these elements will provide privacy and separation between the surrounding roads and adjacent parcels. Planting materials will include native and improved plant varieties to provide for visual interest and minimize landscaping maintenance requirements.

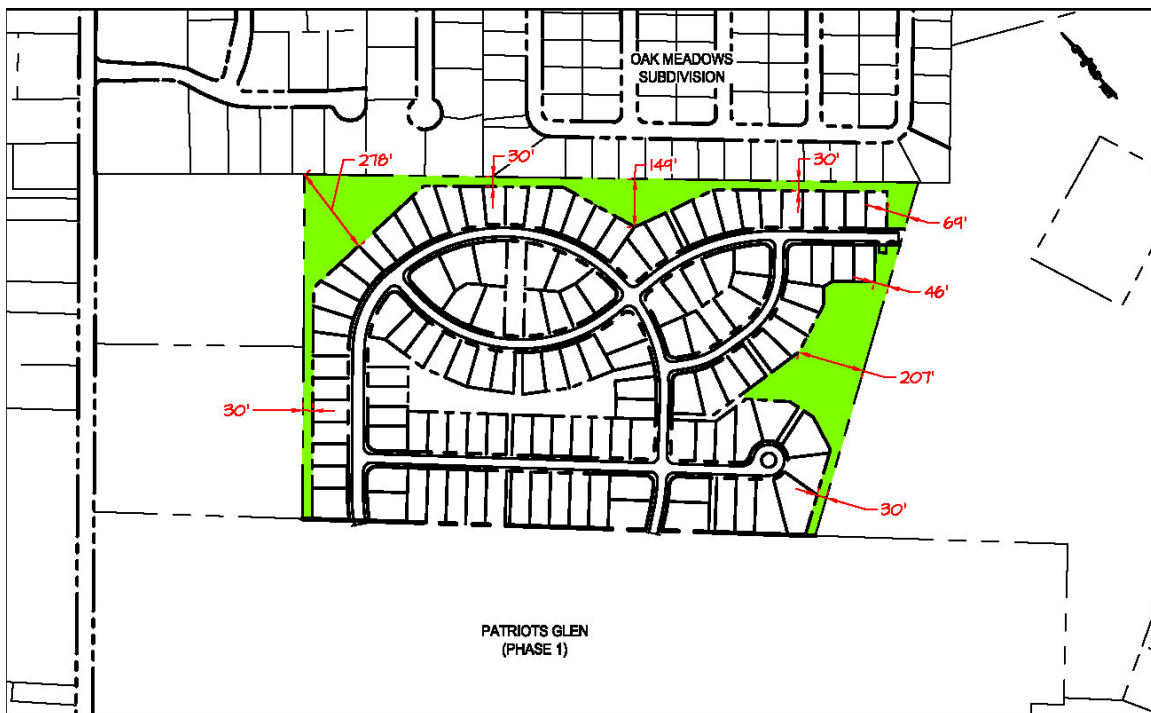


Figure 7 - Perimeter Buffer

In addition to providing enhanced screening, the landscaping will help to direct residential interaction toward the internal portions of the sites and the centrally located amenities. The landscape buffers and berms, as shown in the figure below, will reduce the visual impact of the change in use from agricultural to residential use, promoting the concept of open space preservation.



Figure 8 - Landscape Berms

Open Space & Unifying Element

The key elements for the site design are the direct connections of the lots to the surrounding open space areas and the direct pedestrian linkage to the planned amenities within both the Phase 1 and Phase 2 areas. The axial formation of the site reinforces these connections. The primary central amenity and anchor for the development is open space area, flanked by the connecting loop to the Patriots Glen (Phase 1) area.

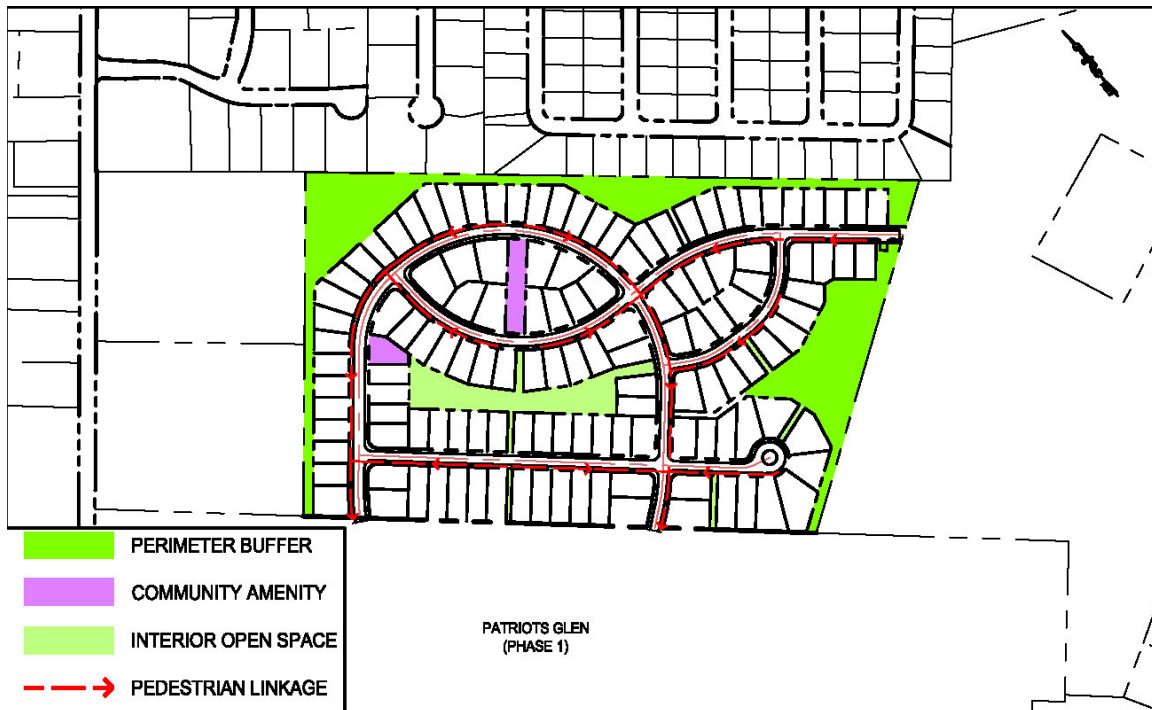


Figure 9 - Unifying Elements

Central Amenity Features

The core open space area and amenities plan for the overall Patriots Glen project is designed as an integral part of the overall community. Within Phase 1, attention was given to balance the active open space areas with the passive areas provided for perimeter buffering and lot separation. This same approach was extended to Phase 2, while providing integrated access from the Phase 2 area to Phase 1.



Figure 10 - Community Clubhouse Concept

The central amenity feature for Patriots Glen project to be constructed as part of the Phase 1 area is the 1.1 acre community center complex. The community center is anticipated to include a multipurpose building, outdoor pool, and patio area. The building will likely include gathering spaces, game or fitness rooms, restroom / locker facilities, and a kitchen. This will allow the facility to accommodate a wide range of activities, from fitness and aerobics, card games, art classes, and gathering with neighbors. Administrative rooms and a large meeting space may be provided to accommodate meetings of the homeowner's association and other community events.

Twenty-four off street parking spaces are to be provided in parking bays adjacent to the community center facilities. It is anticipated that most residents will walk to this central location reducing vehicular trips and the need for additional off street parking. Bicycle racks will also be provided for residents utilizing an alternative method of transportation.

The community center will be linked to all other portions of the community through the interior subdivision streets. Sidewalks will be provided on both sides of all streets to accommodate and encourage pedestrian activity throughout the community.

The Phase 2 area will center on a linear open space that will contain a walking path and small pergola feature to serve as a community gathering point. The Phase 2

area will also include a small playground / tot lot area for additional active recreation opportunities for the residents of the community.

Construction Phasing

The 128 new market rate single-family homes are anticipated to be constructed over a three year period.



Figure 11 - Conceptual Construction Phasing

For purposes of construction, the development will be broken down into three phases. The initial phase will include the easterly interconnection with the Patriots Glen (Phase 1) area, and portions of Constitution Way, Freedom Way, Patton Way, and Wexford Lane. This configuration will allow for the site access to be constructed, and the essential public utilities to be installed to service the remaining portions of the site. Each phase will be approximately 40 to 50 dwelling units. Final phasing limits and limits of construction are subject to final engineering and cost-effective construction sequencing. Amenities will be constructed as each related phase is completed.

Homeowner's Association Organization and Management Structure

Governing Documents

Patriots Glen – Phase 2 will be formally created and governed by a series of governing documents. There will be Articles of Incorporation to establish the master community as a corporate entity. There will be a Declaration of Covenants, Conditions and Restrictions which outline the restrictive covenants governing the community, and Bylaws which address the community operation, and the Architectural Guidelines which

address architectural control. The Patriots Glen Homeowner's Association (PGHOA) will operate and maintain the common facilities in the subdivision, including open spaces, stormwater management facilities, private roadways, and recreation facilities for both the Phase 1 and Phase 2 portions of the community.

Articles of Incorporation

The Articles of Incorporation will establish the master community as a corporate entity. The association that will oversee the management, operation and maintenance of the community which will be a non-stock membership corporation.

Declaration

The Declaration will outline the restrictive covenants governing the community and shall be recorded among the Land Records as permanent covenants which run with the land. The Declaration creates the Residential Planned Community. It will outline in detail the role and responsibility of the Declarant. It will establish the obligation of the owners of the various lots and units to pay assessments for the maintenance, repair and replacement of the common area, amenities, and facilities and will provide the authority of record liens, after providing reasonable notice, for the non-payment of such assessments. The Declaration will also establish use restrictions for the residential units, establish use restrictions regarding the common areas and amenities, and generally outline the architectural control requirements and the enforcement authorities of the Community regarding the covenants.

Bylaws

The Bylaws will outline the governance of the Community and shall be recorded among the Land Records. The Community will be governed by an Executive Board, which will be controlled by the Declarant during construction, until turnover to the Community. At such time, the Executive Board will be elected by the residents and owners within the community. The Bylaws will address the powers and duties of the Executive Board and will further address the day-to-day management, operation, and maintenance of the Community and the mechanisms by which the same are accomplished. The Bylaws will require the Community to retain a professional property management company to ensure that the Community and its common areas, amenities and facilities are properly managed and maintained.

Architectural Guidelines

Architectural Guidelines will also be part of the governing documents of the Community. These guidelines will set specific architectural styles, colors, and materials for the construction of the residential units as well as the common elements of construction. The guidelines will specifically address house placement requirement as well as the placement of any accessory structures including, but not limited to garages, sheds, and outdoor shower areas. These guidelines will establish setback requirements for construction. The Architectural Guidelines will create a review committee to review and determine compliance, or lack thereof of new construction, as well as modification of existing construction. It is the intent that construction, including new construction and construction of modifications, will not be authorized unless and until the review committee

has issued a permit for construction within the overall Patriots Glen community. This permit procedure is intended to ensure compliance with the governing documents, and in particular the Architectural Guidelines. The Declarant intends to maintain control of the review committee until new construction is completed within the Community. Upon completion of new construction, control shall be relinquished to the Executive Board's appointees or elected representatives for review of proposed modifications.

Development Infrastructure

Sanitary Sewer Service

The Patriots Glen - Phase 2 site is located within the existing boundary of the Sussex County Oak Orchard Sanitary Sewer District (OOSD). Sanitary sewer service will be provided by the Sussex County Department of Public Works.

A public sewer system will be proposed to service the Patriots Glen- Phase 2 area. This system will be comprised of an internal gravity sewer collection system and connect to the sanitary sewer pump station / force main system to be constructed as part of the Patriots Glen (Phase 1) improvements. The pump station will discharge to the existing Sussex County gravity sewer system located just north of the project site along John J. Williams Highway.

A Sanitary Sewer Concept Evaluation (SSCE) was performed by the Sussex County Engineering Department on April 18, 2019. The conclusions of this report confirmed that the project site is located within a Tier 1 Sewer District Area. As noted by the SSCE, the proposed sewer system will be connected to existing County MH-354; a Use of Existing Infrastructure Agreement will be required for the project and executed prior to recordation of the project.

Domestic Water Service

The Patriots Glen – Phase 2 project will have a potable water system supplied by Tidewater Utilities Water Company, a franchised water purveyor in the State of Delaware. All water service infrastructure design will be in accordance with the water provider's standards and adhere to the requirements of Department of Natural Resources and Environmental Control for public water supply. Easements will be provided for the benefit of Tidewater Utilities throughout the project area for the operation and maintenance of the water system.

The average daily domestic water demand for Patriots Glen is estimated to be 38,400 gallons per day for the 128 residential units and community center. The maximum day demand is estimated to be 57,600 gallons per day. Water supply will be provided from the existing Tidewater supply sources. The on-site water distribution system for Phase 2 will utilize two interconnection points to the facilities to be installed within the Phase 1 project area.

Fire Protection

The water system will be designed in accordance with the Delaware State Fire Prevention Regulations. Fire flow will meet, or exceed, the minimum flow required for fire protection of single-family detached residential homes for one-hour duration at a residual

pressure of 20 psi. Fire hydrants will be provided throughout the community along the road rights-of-way, with hydrant spacing of 800 feet or less on center in accordance with the State Fire Code.

Sediment and Stormwater Control

Patriots Glen – Phase 2 is a proposed residential subdivision encompassing approximately 43 acres, located within the Indian River Bay watershed. The purpose of this stormwater management narrative is to describe how the qualitative and quantitative stormwater management requirements will be met at this site.

The Patriots Glen – Phase 2 site has been designed to utilize “low impact development” techniques, including clustering and use of non-structural SWM practices. The measures will help to increase open space, reduce impervious area, and reduce runoff from the developed site.

Temporary construction stormwater / erosion and sediment controls will be implemented to mitigate discharge of sediment laden waters offsite during the construction phase of the project. Permanent post-construction stormwater management will be utilized to ensure that peak runoff rates of the developed conditions do not exceed the pre-developed levels. Stormwater infiltration and slow-release practices will be designed in accordance with current DNREC regulations to address the increase in runoff volume associated with the Resource Protection Event Volume (RPV). Erosion and sediment control / stormwater management plans will be submitted to Sussex Conservation District (SCD) for review and approval.

A pre-submittal meeting will be held with SCD staff to discuss general drainage issues within the watershed and overall stormwater approach for the developed site. Based upon preliminary geotechnical studies performed on site, it is anticipated that infiltration based stormwater practices will be implemented to the maximum extent practicable.

Other Utilities

Patriots Glen Will be served by the following utility companies:

Natural Gas	Chesapeake Utilities
Electric	Delmarva Power
Cable / Internet / Telephone	Verizon

Traffic & Transportation

Traffic Impact Study

The proposed Patriots Glen – Phase 2 area will generate an estimated additional 1,305 daily vehicle trips on the surrounding roadways as a result of the proposed 128 residential single-family dwelling units. As part of the rezoning application, a Service Level Evaluation was performed by DeIDOT. Per the results of the DeIDOT analysis, the Phase 2 project as a standalone site would qualify for participation in the Area Wide Study Fee Program, however, when considered with the previously approved Phase 1 portion of the project, a Traffic Impact Study (TIS) was determined to be warranted. In response

to this requirement, a TIS report was prepared by The Traffic Group and approved by DeIDOT on February 26, 2021.

Roadway Improvements

Based upon the findings of the TIS, it was recommended that the developer construct one site entrance for access to the project from John J. Williams Highway (Route 24) and make any necessary improvements to this road along the project road frontage in accordance with current DeIDOT standards. Additionally, the developer is anticipated to enter into agreements for offsite intersection improvements at Route 24 with Autumn Road / Bay Farm Road, Oak Orchard Road / Mount Joy Road, and Legion Road under DeIDOT Contract No. T200711201; the developers contribution will be based upon an equitable cost sharing as determined by the traffic generated by the proposed development. The developer is also anticipated to enter into a traffic signal agreement for the intersection of Route 24 and Legion Road or participate in an equitable cost sharing contribution to the Traffic Signal Revolving Fund. Final DeIDOT requirements will be noted as conditions on the Record Plan.

Subdivision Streets

All streets within the Patriots Glen – Phase 2 development will be privately owned and maintained. The private streets will be designed and constructed in accordance with the requirements of the Sussex County Code. Two interconnections will be constructed from Phase 2 to the previously approved Phase 1 area of Patriots Glen. The overall project will utilize a single point of access at John J. Williams Highway into the subdivision.

A closed section roadway will be utilized throughout the development to ensure pedestrian and vehicular safety and provide an enjoyable driving experience. Street lighting and street trees will be provided in accordance with the Sussex County Code to reinforce the streetscape and pedestrian pathways. All internal streets will be owned and maintained by the developer during construction and conveyed to the Patriots Glen Homeowner’s Association upon completion of the project.

Multimodal Transportation

The overall Patriots Glen project has been designed to promote non-vehicular trips within the residential community. By placing the community amenity space in a centralized location, the residents of the community are able to easily access the site. These facilities will only be provided for the benefit of the residents of the community and will not be utilized by the outside public.

Each of the internal subdivision streets will have sidewalks on both sides to encourage pedestrian movement throughout the subdivision. Bicycle parking facilities are to be provided at the community amenities to further promote alternatives to vehicular trips within the community. A shared use path will be incorporated into the project frontage on John J. Williams Highway to provide linkage to the surrounding area.

Emergency Evacuation

In the event of emergency evacuation the residents will have been informed through Community documents of the procedures for preparing for evacuation. Part of

that documentation shall include the Sussex County Storm Readiness Plan and Delaware Emergency Management Association (DEMA) Disaster Preparedness Plan. The anticipated evacuation routes, shown below, are based on the DeIDOT established evacuation routes. Signage will be posted at the site entrance in accordance with DeIDOT requirements for evacuation routes.

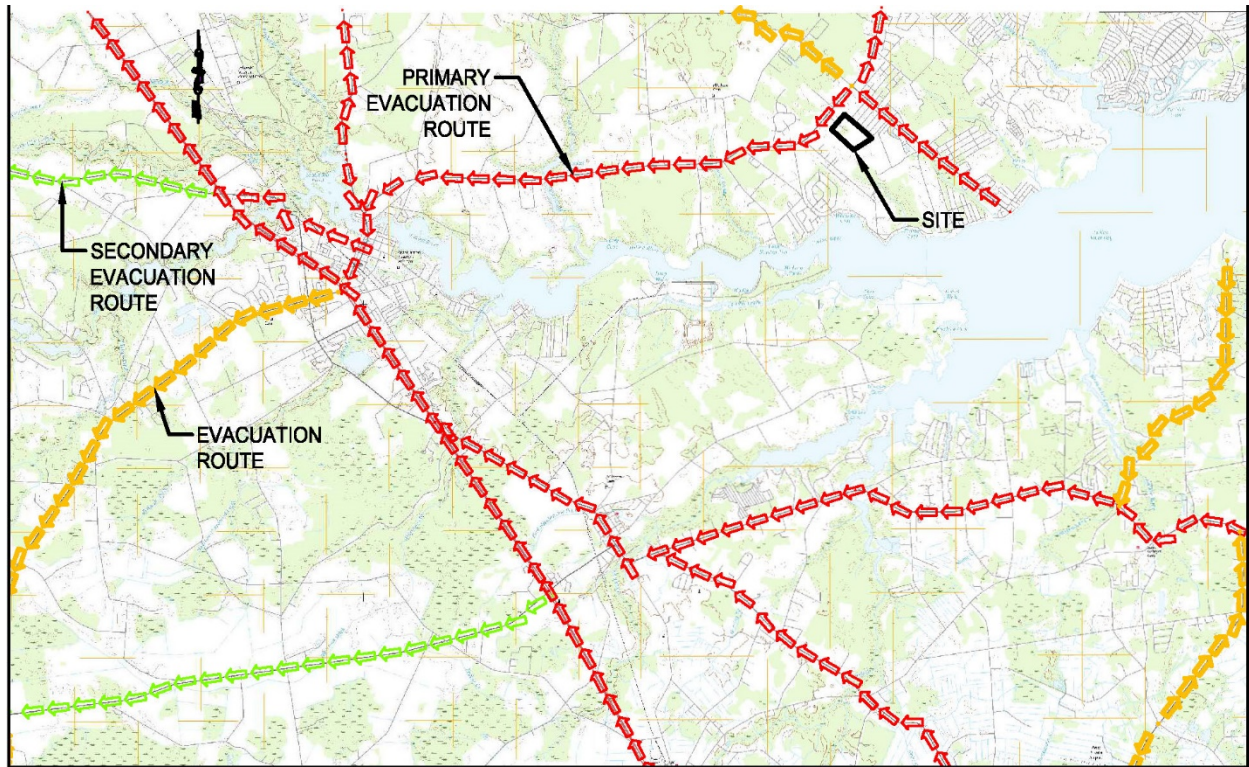


Figure 12 - Evacuation Routes

Social Influences

The Patriots Glen – Phase 2 project will have an effect on local services including Fire Company, Police Department and School system.

Fire and Rescue

The Indian River Volunteer Fire Company (IRVFC), Station 80, has the primary responsibility for providing fire and emergency medical services within the proposed Patriots Glen subdivision. Other nearby fire and rescue companies include the Mid-Sussex Rescue Squad at Station 91, and the Millsboro Volunteer Fire Company at Station 83.

These companies provide:

- Firefighting
- Hazardous Material Response
- ALS Emergency Medical Service
- Vehicle Rescue (Extrication)
- Search & Rescue

The Sussex County Para-Medics provide additional service in this area for advanced life support. The Patriots Glen subdivision would be covered by Station 106 in the Millsboro area. These facilities are open and operating twenty-four hours a day, seven days a week, and are support and back-up to the Fire Company in the event of emergencies.

Police and Security

The Delaware State Police Troop 7 out of Lewes has the primary jurisdiction for servicing the proposed Patriots Glen community. The Troop is responsible for enforcement of traffic laws, parking regulations, and state laws.

Schools

The Patriots Glen site is located within the Indian River School District. The 128 single-family homes proposed within Phase 2 are anticipated to result in approximately 21 new students being added to the school system, assuming a ratio of one (1) new student per each six (6) new dwelling units. The students are expected to attend Long Neck Elementary School, Millsboro Middle School, and Sussex Central High School based on current attendance patterns.

During the approval process the Developer will coordinate with the school district to confirm assigned schools, and determine appropriate bus stop locations.

A majority of the annual property taxes received from each lot, as well as a significant state contribution from income tax receipts will go to support the school system. The annual taxes generated from this development should support and surpass the few resident children who will utilize the educational resources of the area.

Economic Impacts

Anticipated Revenue Enhancements to Sussex County

One time fees:

1. Transfer Taxes (1.5% Sussex County & 2.5% State)	
a. Sale of property to developer (estimated)	\$ 120,000
b. Sale of lots to builders (estimated)	\$ 384,000
c. Sale of finished homes (estimated)	<u>\$ 1,440,000</u>
Total transfer tax revenue	\$ 1,944,000
2. Sewer Impact Fees	
128 units @ \$6,360 per unit	\$ 814,080
3. Building Permit Fee (estimated)	
128 units @ \$750 per unit	<u>\$ 96,000</u>
Total one time fee & taxes	\$ 2,854,080
Annual Property taxes (estimated)	
128 units @ \$1,500 per unit	\$ 192,000

A P P E N D I C E S

Appendix 1 – 99-9C Compliance



ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS, AND LANDSCAPE ARCHITECTS

Sussex County Code Chapter 99-9C Compliance

for

Patriots Glen – Phase 2

Indian River Hundred
Sussex County, Delaware

Prepared By:
Morris & Ritchie Associates, Inc.
18 Boulden Circle, Suite 36
New Castle, DE 19720
Phone: (302) 326-2200
Attn: Christopher J. Flathers, P.E.

March 2021

S U S S E X C O U N T Y C O D E
C H A P T E R 9 9 - 9 C C O M P L I A N C E

It is the intent of this submittal to demonstrate how the proposed Patriots Glen – Phase 2 project meets, or exceeds, the regulatory requirements and follows the County growth objectives with regard to the Sussex County Code and Ordinances.

Located within the CR-1 and MR Zoning Districts, and entirely within the Coastal Area growth zone, the proposed residential community of Patriots Glen – Phase 2 will include 128 single-family lots, with a resulting density of 2.95 dwelling units per acre. The project will include the rezoning of the CR-1 portion of the site to the MR zoning and utilize the Residential Planned Community (RPC) ordinance in an effort to promote a greater amount of preserved open space areas within the site.

- The proposed open space areas comprise more than 22% of the entire project area, which exceed the minimum requirement of 10% required by Section 99-21 of the County Code.

All infrastructure for the development (both on-site and off-site), will be designed and constructed at the developer's expense. The infrastructure will include: roads, sidewalks, lighting within the project, off-site road improvements along road frontage, stormwater management, on-site sewer collection and transmission, off-site sewer transmission, on-site water distribution, and community recreation facilities.

Water and sewer will both be centralized public systems. Water service for the community will be provided by Tidewater Utilities, Inc. (TUI). All water distribution will be designed to requirements of the State Fire Marshal's Office and DNREC and constructed in accordance with TUI standards. Sanitary sewer service for the community will be provided by Sussex County. All sanitary sewer systems will be designed in accordance with State and County requirements and constructed in accordance with Sussex County standards.

The Patriots Glen – Phase 2 residential community is proposed to be developed as market rate single-family dwelling units. The nature of this development type is consistent with the existing development within the project area.

The information below is provided to address the requirements of Chapter 99-9C of the Sussex County Code as if this was a subdivision:

1. Integration of the proposed subdivision into the existing terrain and surrounding landscape.

The proposed development area is planned within the limits of the parcel currently utilized for agricultural crops and will result in minimal clearing of existing wooded areas. Wooded portions of the site, located outside of the proposed lot and road areas, are anticipated to be retained to the maximum extent practicable. Landscape buffers have been proposed around the perimeter of the project that are not adjacent to the Patriots Glen (Phase 1) area to provide buffering to the adjacent residential and agricultural land uses. Proposed site grading is anticipated to maintain overall drainage patterns of the existing condition.

2. Minimal use of wetlands and floodplains.

A Preliminary Wetlands Evaluation was performed by Geo-Technology Associates, Inc. (GTA) on the project site in November 2019. Based upon this investigation, it was determined that no jurisdictional "Waters of the U.S", including wetlands were identified within the limits of the subject parcels in the professional opinion of GTA. Review of the FEMA floodplain maps reveal the subject parcel to be located within Zone X, outside of the 0.2% annual chance floodplain. Therefore, no impacts to wetlands or floodplains are anticipated as a result of the proposed project.

3. Preservation of natural and historical features.

As noted above, there are minimal natural environmental areas located on the project site. Rare and endangered plants, animals, and natural communities will be investigated during the course of design to better assist the preservation process in accordance with regulatory requirements. There are no existing structures located within the existing project boundary; therefore, there are no anticipated impacts to historical structures as a result of the proposed development.

4. Preservation of open space and scenic views.

Approximately 80% of the existing site is currently cleared and utilized for agricultural purposes. This site is bordered by to the north by the existing Oak Meadows residential subdivision, and the south by the Patriots Glen (Phase 1) lands. The lands to the west, fronting on John J. Williams Highway, are zoned for commercial use, and the lands to the east are zoned for general residential. Both of these undeveloped parcels are currently utilized for agricultural purposes.

The cluster type configuration utilized through the implementation of the RPC overlay zone in the creation of the proposed Patriots Glen – Phase 2 layout is anticipated to result in approximately 11 acres of open space. Throughout much of the community, open space areas have been provided adjacent to the perimeter buffers to complement the buffer areas beyond the minimum requirements of the Sussex County Code. The open space areas will be enhanced with new landscape plantings and perimeter landscape berms will be implemented where practical. The Patriots Glen – Phase 2 area will have access to, and share the community amenity areas to be constructed within the previously approved Patriots Glen (Phase 1).

5. Minimization of tree, vegetation and soil removal and grade changes.

The design will follow the natural grade of the existing site to the greatest extent possible while maintaining proper drainage and stormwater flow within the project. Only those areas that are proposed for development are planned to be disturbed. As noted above, much of the existing site has been previously cleared and is

currently utilized for agricultural purposes. It is anticipated that the new plantings proposed for the buffer areas will far outpace the loss of trees due to clearing as a result of the proposed development.

6. Screening of objectionable features from neighboring properties and roadways.

A 30'-wide landscaped buffer strip will be provided around the perimeter of the site adjacent to the neighboring parcels as noted above. Additionally, a 50' minimum building setback for residential use will be provided where the site abuts an existing agricultural use in accordance with Section 99-6G of the County Subdivision Code. A site landscape plan will be incorporated into the design documents with consideration given to the utilization of native Delaware plants and trees where practicable.

Any proposed on-site sewer and water facilities, including the anticipated sanitary sewer pump station, will be screened with landscaping so that they are congruent with the surrounding areas.

7. Provision for water supply.

Tidewater Utilities, Inc. (a certified PUC utility company) will provide central water service for the project. Plans will be submitted concurrently to both Sussex County and the State Department of Health and Human Services in order to obtain an Approval to Construct and an Approval to Operate with regard to all of the proposed water facilities.

As part of the water supply design, Fire Marshal requirements will be adhered to with regard to the water distribution system.

The proposed on-site distribution system will utilize interconnections through the Patriots Glen (Phase 1) area to access the existing public utilities located along John J. Williams Highway / State Route 24.

8. Provision for sewage disposal.

Sussex County will provide central sewer service for the project. Plans will be submitted concurrently to both Sussex County Engineering and the Delaware Department of Natural Resources for ultimate approval of the plans and construction, in addition to the operation of the proposed wastewater collection, transmission, treatment, and disposal facilities.

The proposed on-site collection system will be conveyed to the proposed sanitary sewer pump station to be constructed as part of the Patriots Glen (Phase 1) project. The discharge from the pump station will be conveyed to the existing off-site Sussex County gravity sewer system located along John J. Williams Hwy approximately 450' north east of the Patriots Glen site in accordance with the Sewer Service Concept Evaluation prepared by the Sussex County Utility Planning Division.

9. Prevention of pollution of surface and groundwater.

Stormwater facilities will be designed according to DNREC and Sussex County standards and regulations; as such, they will be designed to minimize any potential impacts to surrounding natural water resources. Designs are anticipated to include the use of natural looking and functioning features like bio-swales, bio-retention and infiltration facilities, and/or slow release detention to allow the stormwater to receive pollutant removal prior to infiltration and/or discharge from the developed site.

10. Minimization of erosion and sedimentation, minimization of changes in groundwater levels, minimization of increased rates of runoff, minimization of potential for flooding and design of drainage so that the groundwater is maximized.

Erosion and sediment control plans will be developed in accordance with regulatory requirements. Careful planning and construction phasing will allow the contractor to minimize the area of disturbance at any given time in order to limit the potential for sediment issues on-site.

On-site stormwater facilities will be designed to filter and infiltrate or slowly release stormwater runoff to mimic existing conditions in order to not exacerbate downstream flooding issues. Infiltration and/or slow release facilities will be employed in accordance with DNREC guidelines will help mimic recharge/discharge from the developed site for the Resource Protection Event Volume (RPV).

11. Provision for safe vehicular and pedestrian movement within the site and to adjacent roadways.

As a land-locked project area, access to Patriots Glen – Phase 2 will be made through interconnections to the Patriots Glen (Phase 1) project. Construction plans for the Patriots Glen project site entrance will be revised to account for additional traffic anticipated to be generated by the Patriots Glen – Phase 2 area. All entrance and off-site road improvements will be designed in accordance with DeIDOT regulatory requirements. Final plans will be submitted to DeIDOT for review and approval prior to construction.

Construction plans for the interior private roads will be developed in accordance with the requirements of the Sussex County Code and Sussex County Engineering. In addition to the sidewalks to be provided on both sides of all internal streets. Street lighting will also be provided along all private roads to promote safety within the development. These pedestrian ways will connect to the facilities to be constructed within Patriots Glen (Phase 1) to allow for residents to easily access the community amenity areas of the overall community.

Additionally, all private roads and community parking lot areas will be designed in accordance with Fire Marshal requirements to ensure adequate lane widths,

emergency access, and any additional safety features for fire / rescue vehicular movement.

12. Effect on area property values.

The architecture, type of housing, and proposed construction practices that are anticipated to be used for the proposed Patriots Glen – Phase 2 community will likely mirror those practices employed at the nearby Peninsula Lakes community currently in construction located northeast of the project site. The extension of public utilities (sanitary sewer) to the neighboring properties is anticipated to have a positive impact on surrounding property values.

13. Preservation and conservation of farmland.

The subject parcel is located entirely within the Coastal Area growth zone as shown in the Sussex County Zoning Map and Comprehensive Development Plan. Utilization of a cluster type development configuration under the RPC requirements at the Patriots Glen – Phase 2 site will allow for the efficient utilization of land within the targeted growth areas, and reduce the development of agricultural areas outside of the growth areas.

14. Effect on schools, public buildings and community facilities.

The Patriots Glen – Phase 2 site is located within the Indian River School District (IRSD). Based on similar projects within the area, an estimate of an one student per 6 homes may be anticipated as a result of this project. The proposed 128 single-family lots would therefore result in an increase of 22 students being introduced to the IRSD. It is anticipated that the children of Patriots Glen would attend Long Neck Elementary, Millsboro Middle School, and Sussex Central High School based on current distribution patterns within the district. Coordination with the school district to determine full impacts to the schools will be initiated during the Preliminary Plan review process.

It is anticipated that additional local property taxes and the state contribution from income tax receipts will continue to support the school system to offset the impacts created by the additional student demand associated with this project.

15. Effect on area roadways and public transportation.

Based on the proposed 128 single-family dwelling units proposed by the Phase 2 portion of the site, an estimated 1,305 average daily trips will be added to the existing road network surrounding the Patriots Glen site. To evaluate the impacts of these additional vehicle trips, a Traffic Impact Study (TIS) was prepared by The Traffic Group and approved by DeIDOT in February 2021. Based upon recommendations of the TIS review, it is anticipated that the developer will construct one site entrance to the overall project from John J. Williams Highway (Route 24) in accordance with current DeIDOT standards. The Phase 2 portion of

the project will gain access through an interconnection to the previously approved Phase 1 area. It is anticipated the developer will enter into agreements for offsite intersection improvements at Route 24 with Autumn Road / Bay Farm Road, Oak Orchard Road / Mount Joy Road, and Legion Road under DeIDOT Contract No. T200711201. The developer is also anticipated to enter into a traffic signal agreement for the intersection of Route 24 and Legion Road or participate in an equitable cost sharing contribution to the Traffic Signal Revolving Fund.

Through the DeIDOT review and approval process related to the Site Entrance Plans and the Record Plats, the details for all contributions for improvements to existing infrastructure as noted above and requirements for any additional public transportation needs (i.e. bus stops) will be finalized and noted on the Record Plan.

16. Compatibility with other area land uses.

The Patriots Glen – Phase 2 residential project has been designed as an RPC project with an underlying MR zoning. The proposed single-family lots should blend in well with the surrounding land uses surrounding the project site as the area is dominated by residential uses, with a majority of the properties in the area zoned General Residential (GR). The cluster development configuration and proposed lot sizes within the Patriots Glen – Phase 2 community is consistent with the Patriots Glen (Phase 1) project, and is similar in nature to the recent Peninsula Lakes project, and the older communities of Oak Meadows, Driftwood Village, Orchard Manor, Sherwood Forest.

17. Effect on area waterways.

Erosion and sediment control measures will be implemented during construction in accordance with DNREC requirements to minimize impact to surrounding waterways during the construction process. It is anticipated that permanent stormwater management facilities utilizing infiltration will be implemented to the maximum extent practicable. These facilities will be supplemented by slow release detention facilities to mimic pre-development hydrology in accordance with the State and Local requirements. Runoff from agricultural uses is often heavily loaded with sediment, nitrogen, and phosphorus. By developing the subject parcel, there is a potential improvement in water quality by converting the existing agricultural land with no stormwater practices into a residential community with stormwater facilities designed in accordance with current DNREC regulatory requirements.

Appendix 2 – Environmental Assessment and Public Utility Evaluation

115-194.3 Compliance



ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS, AND LANDSCAPE ARCHITECTS

Environmental Assessment & Public Facility Evaluation

Sussex County Code Chapter 115-194.3 Compliance

for

Patriots Glen – Phase 2

Indian River Hundred
Sussex County, Delaware

Prepared By:
Morris & Ritchie Associates, Inc.
18 Boulden Circle, Suite 36
New Castle, DE 19720
Phone: (302) 326-2200
Attn: Christopher J. Flathers, P.E.

March 2021

E N V I R O N M E N T A L
A S S E S S M E N T & P U B L I C
F A C I L I T Y E V A L U A T I O N

It is the intent of this submittal to exhibit that the proposed Patriots Glen – Phase 2 project meets, or exceeds, the regulatory requirements and follows the County growth objectives with regard to the Sussex County Zoning Code and Ordinances.

Located within the CR-1 and MR Zoning Districts, and entirely within the Coastal Area growth zone, the proposed residential community of Patriots Glen – Phase 2 will include 128 single-family lots, with a resulting density of 2.950 dwelling units per acre. The project will include the rezoning of the CR-1 portion of the site to the MR zoning and utilize the Residential Planned Community (RPC) ordinance in an effort to promote a greater amount of preserved open space areas within the site.

- The proposed open space areas comprise more than 22% of the entire project area, which exceeds the minimum requirement of 10% required by Section 99-21 of the County Code.

All infrastructure for the development (both on-site and off-site), will be designed and constructed at the developer's expense. The infrastructure will include roads, sidewalks, lighting within the community, off-site road improvements along road frontage, stormwater management, on-site sewer collection and transmission, off-site sewer transmission, on-site water distribution, and community recreation facilities.

Water and sewer will both be centralized public systems. Water service for the community will be provided by Tidewater Utilities, Inc. (TUI). All water distribution will be designed to requirements of the State Fire Marshal's Office and DNREC and constructed in accordance with TUI standards. Sanitary sewer service for the community will be provided by Sussex County. All sanitary sewer systems will be designed in accordance with State and County requirements and constructed in accordance with Sussex County standards.

The Patriots Glen – Phase 2 residential community is proposed to be developed as market rate single-family dwelling units. The nature of this development type is consistent with the existing development within the project area.

The information below is provided to address the requirements of Chapter 115-194.3.B(2) of the Sussex County Code:

- a) *Proposed drainage design and the effect on stormwater quality and quantity leaving the site, including methods for reducing the amount of phosphorous and nitrogen in the stormwater runoff and the control of any other pollutants such as petroleum hydrocarbons or metals.*

The grading of the developed site will attempt to maintain the drainage patterns of the pre-developed condition. Runoff from the developed site will be conveyed to on-site stormwater management (SWM) facilities through a combination of surficial sheet flow, open channel, and closed pipes.

The permanent on-site SWM facilities will be designed in accordance with DNREC and Sussex County standards to minimize potential impacts to the receiving watershed. Designs are anticipated to include the use of infiltration based SWM practices including: bio-swales, bio-retention, and/or infiltration basins. These facilities will achieve pollutant loading through runoff reduction. Where infiltration based practices are not feasible, slow release practices designed in accordance with DNREC standards will be implemented to provide pollutant reduction.

Erosion and sediment control measures will be implemented during the construction phase in accordance with DNREC requirements to minimize impact of sediment laden discharging to the watershed. Runoff from agricultural uses is often heavily loaded with sediment, nitrogen, and phosphorus. By developing the subject parcel, there is a potential improvement in water quality by converting the existing agricultural land with no stormwater practices into a residential community with stormwater facilities designed in accordance with current DNREC regulatory requirements.

- b) *Proposed method of providing potable and, where appropriate, irrigation water and the effect on public or private water systems and groundwater, including an estimate of average and peak demands.*

The Patriots Glen – Phase 2 project is located within the CPCN service area assigned to Tidewater Utilities, Inc. (TUI). The project will utilize public water supply to provide potable water and fire protection throughout the community. The proposed on-site distribution system will connect to the existing TUI water main located along John J. Williams Hwy (State Route 24) through interconnections with the Patriots Glen (Phase 1) project. No large scale irrigation is anticipated as a result of this project.

Plans will be developed in accordance with TUI and Sussex County standards. These plans will be submitted concurrently to both Sussex County and the State Department of Health and Human Services in order to obtain an Approval to Construct and an Approval to Operate with regard to all of the proposed water facilities.

The 128 single-family homes and community center proposed by this project are anticipated to result in an average daily water demand of 38,400 gallons, with a corresponding peak demand of 57,600 gallons per day. With no on-site wells proposed by this project, there is no anticipated direct impact to the groundwater at the site location due to the proposed water use.

- c) *Proposed means of wastewater treatment and disposal with an analysis of the effect on the quality of groundwater and surface waters, including alternative locations for on-site septic systems.*

The Patriots Glen – Phase 2 project is located within the Oak Orchard Sanitary Sewer District and will utilize a centralized public system on-site. The proposed

gravity sewer system will be conveyed to the sanitary sewer pump station proposed within Patriots Glen (Phase 1).

A Sewer Service Concept Evaluation (SSCE) was prepared by the Sussex County Utility Planning Division for the Patriots Glen (Phase 1) in April 2019. The discharge from the pump station will be conveyed through a proposed off-site force main to the existing off-site Sussex County gravity sewer system located along John J. Williams Hwy approximately 450' north east of the project site in accordance with the SSCE.

Plans will be developed in accordance with Sussex County standards and submitted concurrently to both Sussex County Engineering and the Delaware Department of Natural Resources for ultimate approval of the plans and construction.

d) Analysis of the increase in traffic and the effect on the surrounding roadway system.

Based on the proposed 128 single-family dwelling units proposed by the Phase 2 portion of the site, an estimated 1,305 average daily trips will be added to the existing road network surrounding the Patriots Glen site. To evaluate the impacts of these additional vehicle trips, a Traffic Impact Study (TIS) was prepared by The Traffic Group and approved by DeIDOT in February 2021. Based upon recommendations of the TIS review, it is anticipated that the developer will construct one site entrance to the overall project from John J. Williams Highway (Route 24) in accordance with current DeIDOT standards. The Phase 2 portion of the project will gain access through an interconnection to the previously approved Phase 1 area. It is anticipated the developer will enter into agreements for offsite intersection improvements at Route 24 with Autumn Road / Bay Farm Road, Oak Orchard Road / Mount Joy Road, and Legion Road under DeIDOT Contract No. T200711201. The developer is also anticipated to enter into a traffic signal agreement for the intersection of Route 24 and Legion Road or participate in an equitable cost sharing contribution to the Traffic Signal Revolving Fund.

Through the DeIDOT review and approval process related to the Site Entrance Plans and the Record Plats, the details for all contributions for improvements to existing infrastructure as noted above and requirements for any additional public transportation needs (i.e. bus stops) will be finalized and noted on the Record Plan.

e) The presence of any endangered or threatened species listed on federal or state registers and proposed habitat protection areas.

As discussed above, a significant portion of the site has been utilized for agricultural purposes. The small wooded area on the site is currently isolated, with no direct connection to a larger wooded ecosystem, leaving no significant habitat

on the project site. There are no endangered or threatened species known to exist on the project site.

- f) *The preservation and protection from loss of any tidal or non-tidal wetlands on the site.*

A Preliminary Wetlands Evaluation was performed by Geo-Technology Associates, Inc. (GTA) on the project site in November 2019. Based upon this investigation, it was determined that no jurisdictional "Waters of the U.S", including wetlands were identified within the limits of the subject parcels in the professional opinion of GTA. Therefore, no impacts to wetlands are anticipated as a result of the proposed project.

- g) *Provisions for open space as defined in § 115-4.*

The cluster type configuration utilized through the implementation of the RPC overlay zone in the creation of the proposed Patriots Glen layout is anticipated to result in approximately 10 acres of open space. Throughout much of the community, open space areas have been provided adjacent to the perimeter buffers to complement the buffer areas beyond the minimum requirements of the Sussex County Zoning Code. The open space areas will be enhanced with new landscape plantings and perimeter landscape berms will be implemented where practical. The Patriots Glen – Phase 2 area will have access to, and share the community amenity areas to be constructed within the previously approved Patriots Glen (Phase 1).

- h) *A description of provisions for public and private infrastructure.*

Public infrastructure will be utilized to provide sanitary sewer and water service for the proposed community, as noted above. The internal community streets and associated storm drainage will be private infrastructure design in accordance with current Sussex County standards, and will be owned and maintained by the Patriots Glen owners association.

- i) *Economic, recreational or other benefits.*

The architecture, housing styles, and proposed construction practices that are anticipated to be used for the proposed Patriots Glen – Phase 2 community will be consistent with the Patriots Glen (Phase 1) area, and likely mirror those practices employed at the nearby Peninsula Lakes community currently in construction located northeast of the project site. The extension of public utilities (sanitary sewer) to the neighboring properties is anticipated to have a positive impact on surrounding property values.

The overall Patriots Glen community will incorporate a central amenity feature that will provide an active recreation component for use by the community residents of both the Patriots Glen (Phase 1) and Patriots Glen – Phase 2 areas.

The subject parcel is located entirely within the Coastal Area growth zone as shown in the Sussex County Zoning Map and Comprehensive Development Plan. Utilization of a cluster type development configuration under the RPC requirements at the Patriots Glen – Phase 2 site will allow for the efficient utilization of land within the targeted growth areas, and reduce the development of agricultural areas outside of the growth area.

- j) The presence of any historic or cultural resources that are listed on the National Register of Historic Places.*

The Patriots Glen – Phase 2 site contains no known archaeological sites, or any known / eligible resources on the National Register of Historic Places based on review by the State Historic Preservation Office (SHPO).

- k) An affirmation that the proposed application and proposed mitigation measures are in conformance with the current Sussex County Comprehensive Plan.*

The entirety of the Patriots Glen site is located within the Coastal Area growth zone as shown on the current Sussex County Comprehensive Plan. The site has ready access to public utilities as noted above. Utilizing the cluster design approach afforded by the RPC ordinance will allow for efficient use of the project site.

- l) Actions to be taken by the applicant to mitigate the detrimental impacts identified relevant to Subsection B(2)(a) through (k) above and the manner by which they are consistent with the Comprehensive Plan.*

The Patriots Glen – Phase 2 project, from site selection, to site layout, has resulted in a proposed project that will have minimal detrimental impact on the natural resources of the County, and the area surrounding the project site. The Patriots Glen – Phase 2 site design aligns with the goals of the Sussex County Comprehensive Plan:

The Patriots Glen – Phase 2 site is located within the Coastal Area growth zone; this is consistent with the County’s strategy to “prioritize new development in designated Growth Areas to better preserve other areas”.

The Patriots Glen – Phase 2 project is located within the boundary of the Oak Orchard Sanitary Sewer District, with ready access to the existing County sewer infrastructure. Similarly, the area is located within the Tidewater Utilities CPCN area, with direct access to existing Tidewater water main in front to the subject parcels. This is consistent with the County’s objective for “planning that considers the efficient location of public services and infrastructure.”

The project is anticipated to participate in the DeIDOT area wide study fee and contribute to DeIDOT's active improvement projects for the Route 24 corridor. This approach is consistent with the County's strategy for the coordination with "DeIDOT on road improvements and other transportation projects."

The Patriots Glen – Phase 2 site is free from wetlands, floodplains, and other sensitive environmental features. The proposed development of this site is consistent with the County's objective "for preserving environmental areas from development and the protection of wetlands and waterways."

The site area is surrounded by existing residential uses and lands primarily designated for future residential use. The overall project density is generally consistent with other existing residential communities in the surrounding area. The Patriots Glen – Phase 2 project is proposing the implementation of a 30'-wide vegetative buffer surrounding the outer boundary of the project area bordering the neighboring properties; this proposed buffer exceeds the 20' wide minimum buffer area currently required by the County Code to address the County's goal to "minimize the adverse impacts of development on existing development."

The implementation of the cluster style development under the RPC ordinance will allow for the efficient use of the Patriots Glen – Phase 2 site, while also providing for increased open space areas within the community. The project area is currently zoned for residential use and has been identified by the County for development under the Coastal Area designation. The efficient utilization of this site will allow for the concentration of development within one of the growth areas, and allow for the preservation of the rural areas of the County to support the "importance of the agricultural land base of the County".

While the Patriots Glen – Phase 2 site does not front on the inland bay, the close proximity does place the site within the Indian River Bay watershed. The site will utilize erosion control measures throughout the construction phase to minimize the discharge of sediment laden water off-site. The final configuration of the site is anticipated to utilize infiltration based stormwater management practices that will reduce the direct discharge of polluted runoff to the watershed. The practices will support the County's goal to "recognize the importance of the Inland Bays."

Appendix 3 – Project Site Exhibits

Tax Parcel

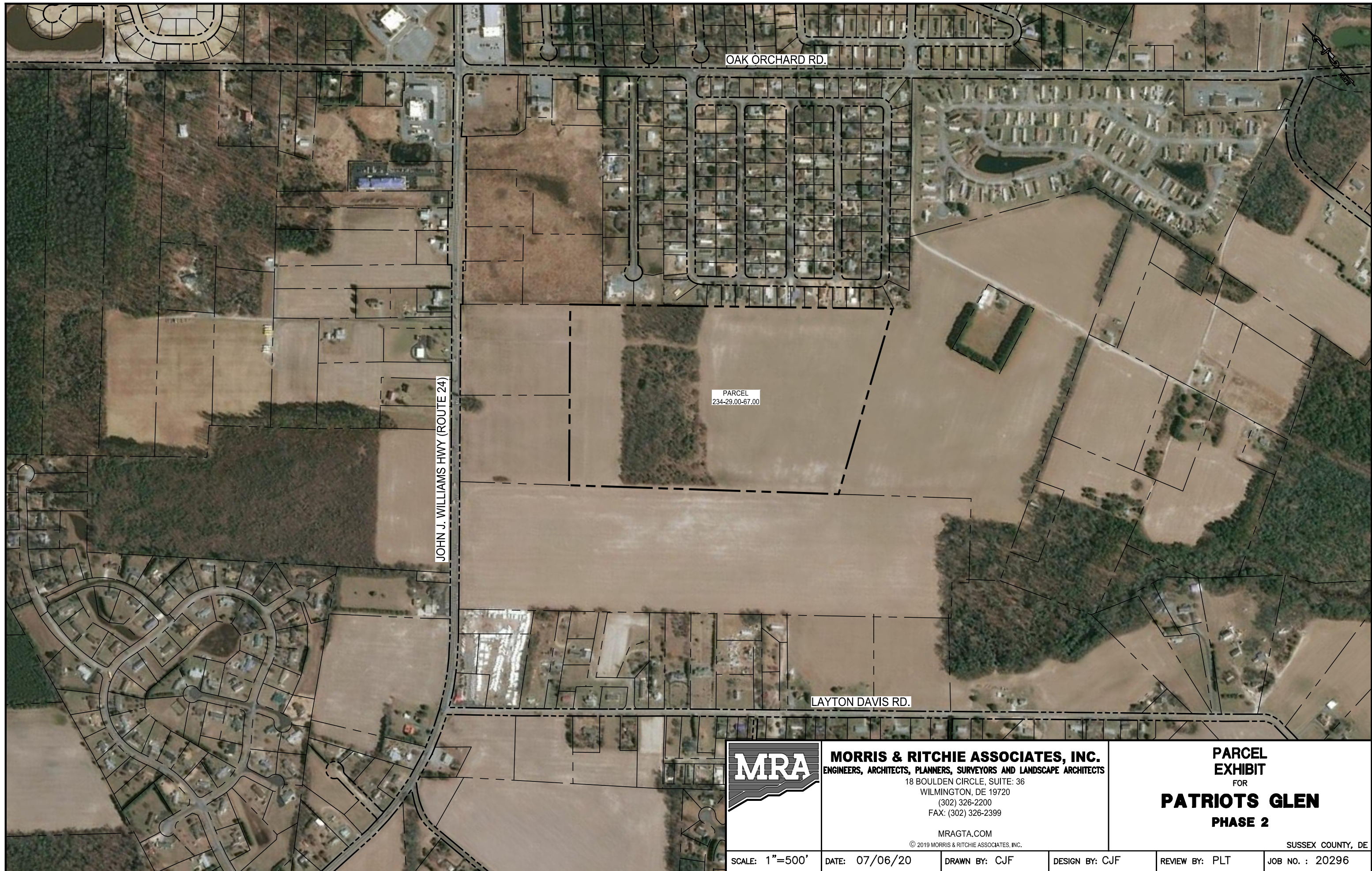
Zoning

Future Land Use

FEMA Floodplain

State Spending Strategies

Source Water Protection Areas



MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
18 BOULDEN CIRCLE, SUITE: 36
WILMINGTON, DE 19720
(302) 326-2200
FAX: (302) 326-2399

MRAGTA.COM
© 2019 MORRIS & RITCHIE ASSOCIATES, INC.

**PARCEL
EXHIBIT
FOR
PATRIOTS GLEN
PHASE 2**

SUSSEX COUNTY, DE

SCALE: 1"=500'

DATE: 07/06/20

DRAWN BY: CJF

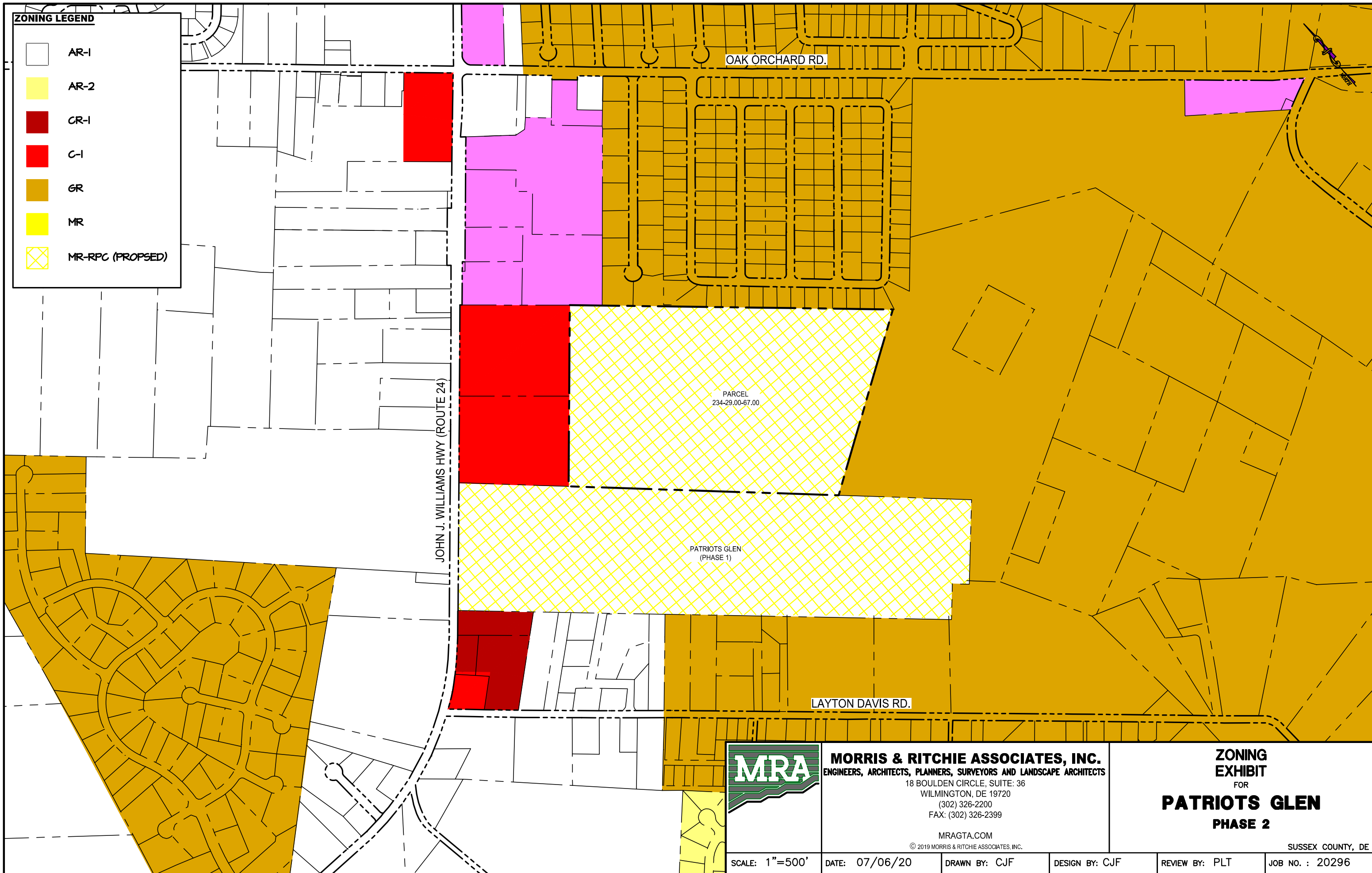
DESIGN BY: CJF

REVIEW BY: PLT

JOB NO. : 20296

ZONING LEGEND

-  AR-1
-  AR-2
-  CR-1
-  C-1
-  GR
-  MR
-  MR-RPC (PROPOSED)



MORRIS & RITCHE ASSOCIATES, INC.
ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
18 BOULDEN CIRCLE, SUITE 36
WILMINGTON, DE 19720
(302) 326-2200
FAX: (302) 326-2399

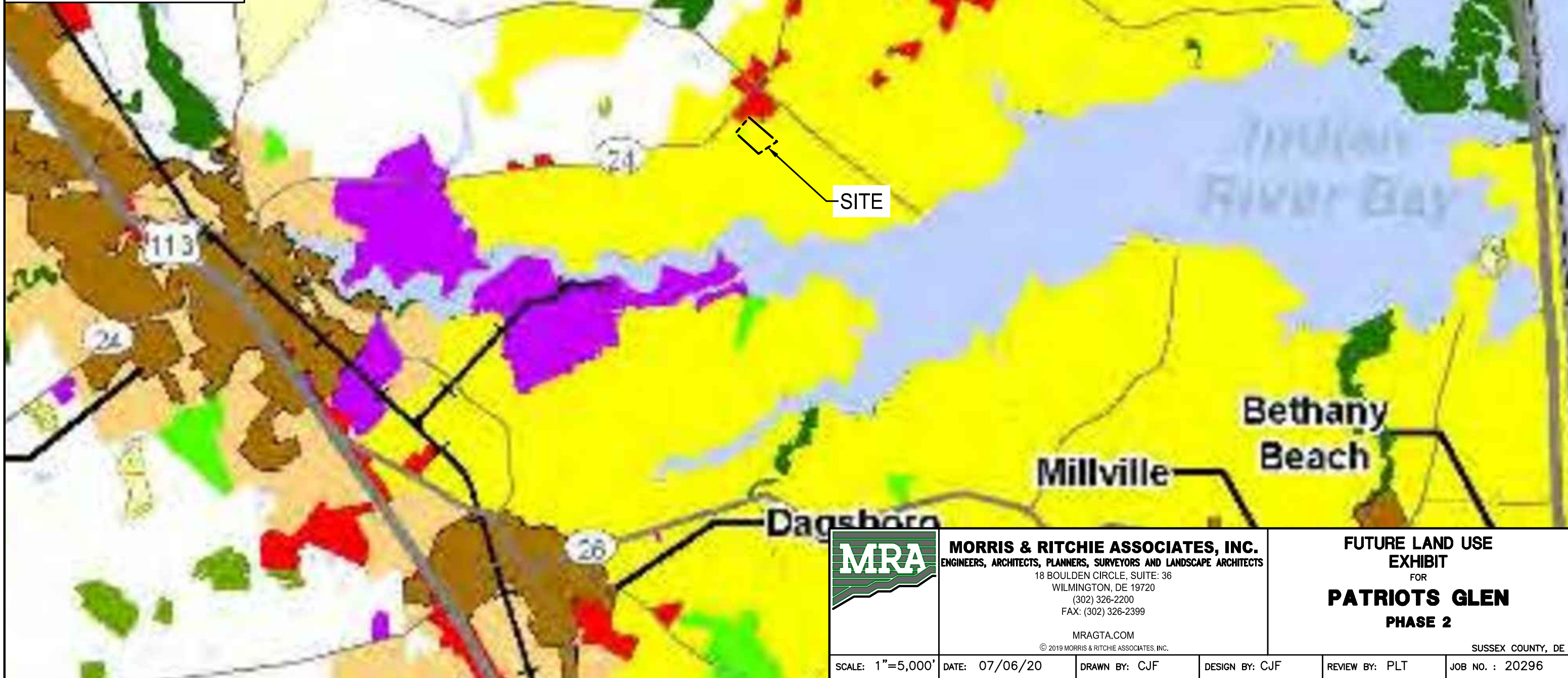
MRAGTA.COM
© 2019 MORRIS & RITCHE ASSOCIATES, INC.

ZONING EXHIBIT
FOR
PATRIOTS GLEN
PHASE 2

SUSSEX COUNTY, DE

SCALE: 1"=500'	DATE: 07/06/20	DRAWN BY: CJF	DESIGN BY: CJF	REVIEW BY: PLT	JOB NO. : 20296
----------------	----------------	---------------	----------------	----------------	-----------------

- Growth Areas**
- Municipalities
 - Town Center
 - Developing Area
 - Existing Development Area
 - Coastal Area
 - Commercial
 - Industrial Area
- Rural Areas**
- Low Density
 - Protected Land
 - Ag. Preservation District
 - Ag. Preservation Easement



MORRIS & RITCHE ASSOCIATES, INC.
 ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 18 BOULDEN CIRCLE, SUITE: 36
 WILMINGTON, DE 19720
 (302) 326-2200
 FAX: (302) 326-2399
 MRAGTA.COM
 © 2019 MORRIS & RITCHE ASSOCIATES, INC.

FUTURE LAND USE EXHIBIT
 FOR
PATRIOTS GLEN
PHASE 2
 SUSSEX COUNTY, DE

SCALE: 1"=5,000'	DATE: 07/06/20	DRAWN BY: CJF	DESIGN BY: CJF	REVIEW BY: PLT	JOB NO. : 20296
------------------	----------------	---------------	----------------	----------------	-----------------

JOINS PANEL 0476



LEGEND


 SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

 FLOODWAY AREAS IN ZONE AE

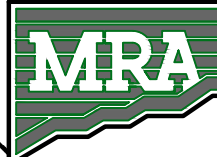
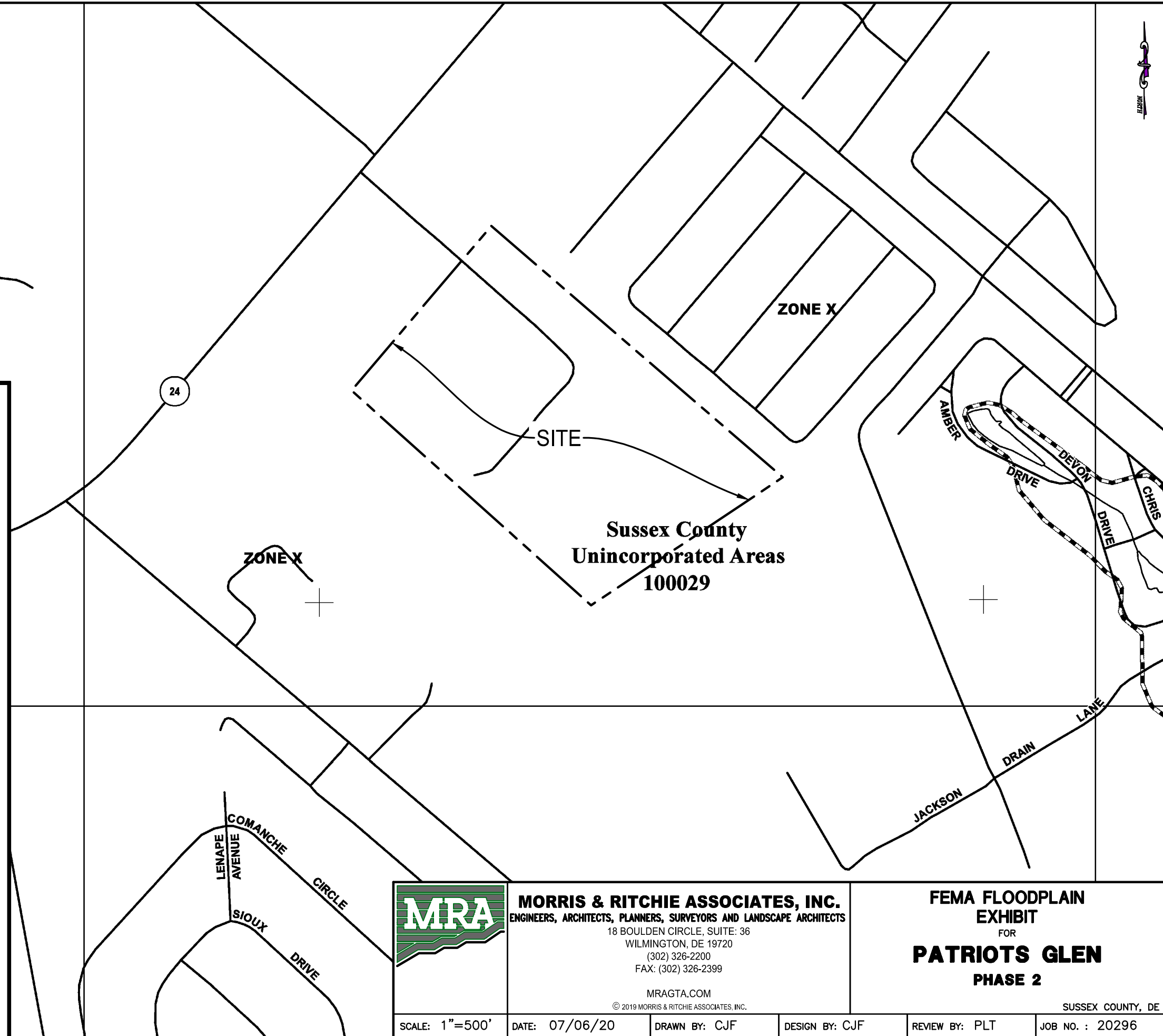
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

 OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

 OTHER AREAS

- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.



MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 18 BOULDEN CIRCLE, SUITE 36
 WILMINGTON, DE 19720
 (302) 326-2200
 FAX: (302) 326-2399

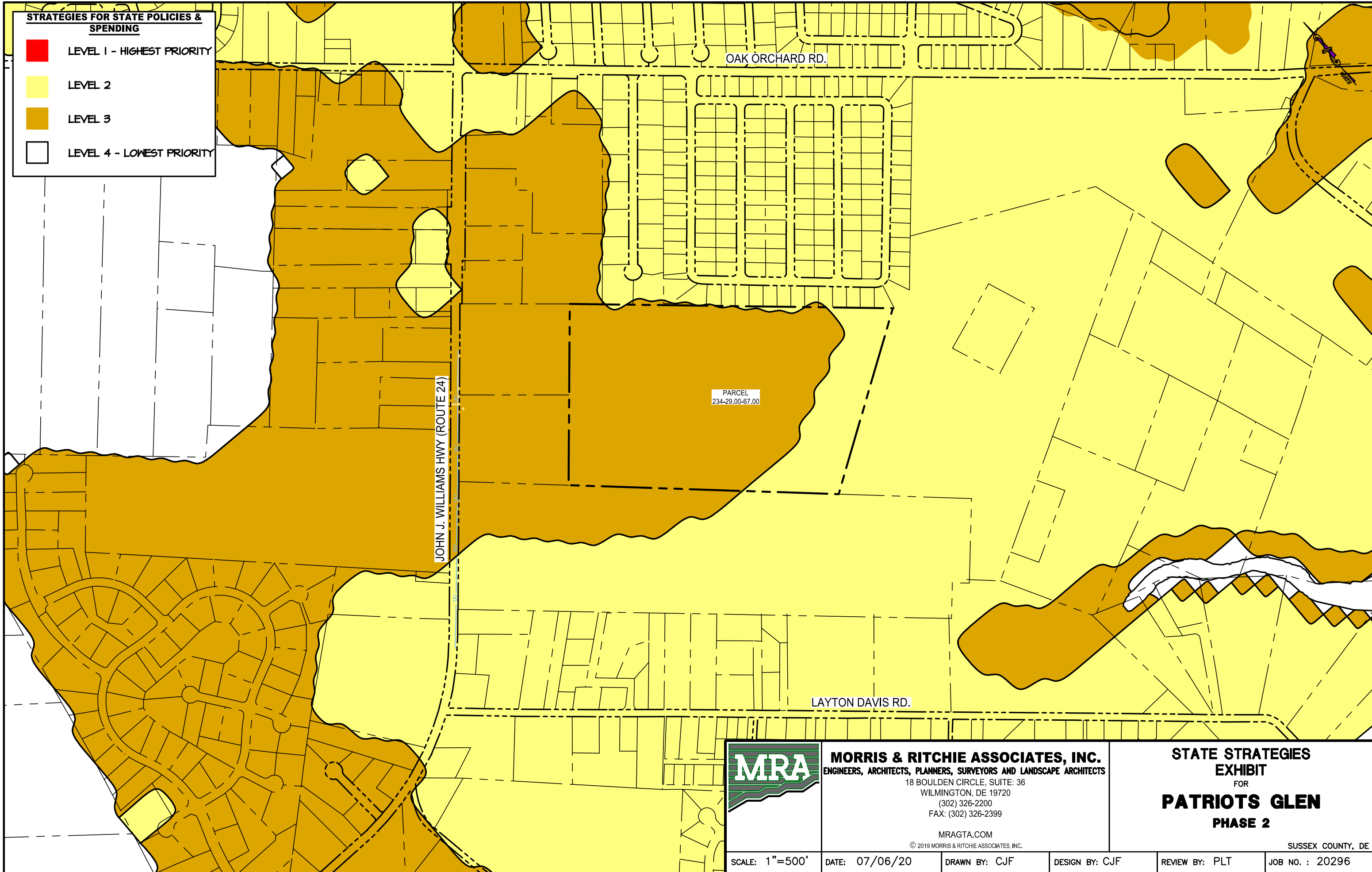
FEMA FLOODPLAIN EXHIBIT
 FOR
PATRIOTS GLEN
PHASE 2

MRAGTA.COM
 © 2019 MORRIS & RITCHIE ASSOCIATES, INC. SUSSEX COUNTY, DE

SCALE: 1"=500'	DATE: 07/06/20	DRAWN BY: CJF	DESIGN BY: CJF	REVIEW BY: PLT	JOB NO. : 20296
----------------	----------------	---------------	----------------	----------------	-----------------

STRATEGIES FOR STATE POLICIES & SPENDING

- LEVEL 1 - HIGHEST PRIORITY
- LEVEL 2
- LEVEL 3
- LEVEL 4 - LOWEST PRIORITY



MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
18 BOULDEN CIRCLE, SUITE 36
WILMINGTON, DE 19720
(302) 326-2200
FAX: (302) 326-2399

MRAGTA.COM
© 2019 MORRIS & RITCHIE ASSOCIATES, INC.

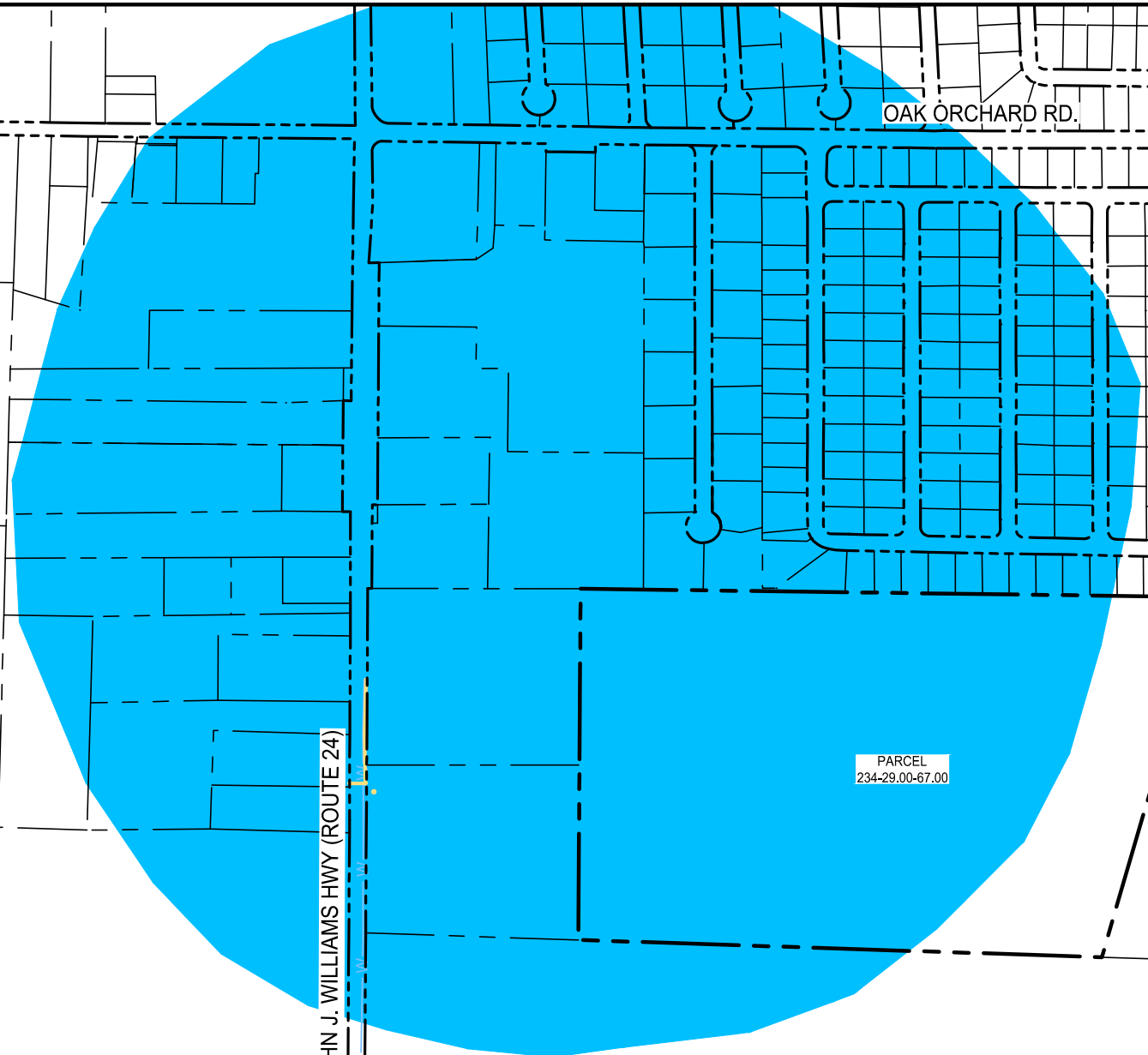
STATE STRATEGIES EXHIBIT FOR PATRIOTS GLEN PHASE 2

SUSSEX COUNTY, DE

SCALE: 1"=500'	DATE: 07/06/20	DRAWN BY: CJF	DESIGN BY: CJF	REVIEW BY: PLT	JOB NO. : 20296
----------------	----------------	---------------	----------------	----------------	-----------------

DNREC SOURCE WATER PROTECTION AREAS

-  WELLHEAD PROTECTION AREA
-  EXCELLENT RECHARGE AREA

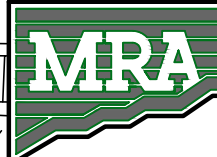


JOHN J. WILLIAMS HWY (ROUTE 24)

OAK ORCHARD RD.

PARCEL
234-29.00-67.00

LAYTON DAVIS RD.



MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
18 BOULDEN CIRCLE, SUITE 36
WILMINGTON, DE 19720
(302) 326-2200
FAX: (302) 326-2399

MRAGTA.COM
© 2019 MORRIS & RITCHIE ASSOCIATES, INC.

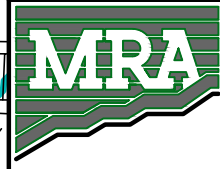
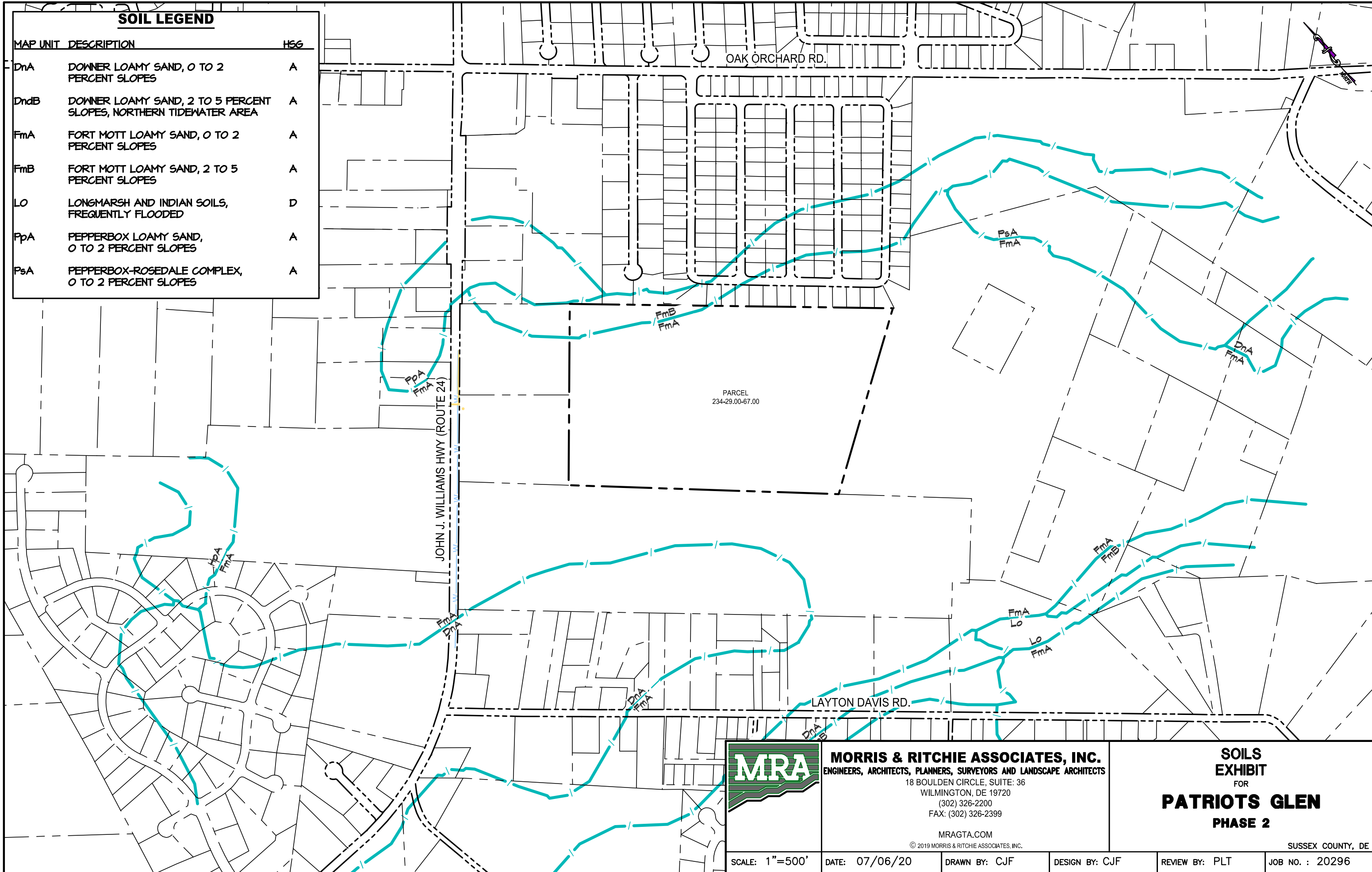
**SOURCE WATER PROTECTION AREA
EXHIBIT
FOR
PATRIOTS GLEN
PHASE 2**

SUSSEX COUNTY, DE

SCALE: 1"=500'	DATE: 07/06/20	DRAWN BY: CJF	DESIGN BY: CJF	REVIEW BY: PLT	JOB NO. : 20296
----------------	----------------	---------------	----------------	----------------	-----------------

SOIL LEGEND

MAP UNIT	DESCRIPTION	HSG
DnA	DOWNER LOAMY SAND, 0 TO 2 PERCENT SLOPES	A
DndB	DOWNER LOAMY SAND, 2 TO 5 PERCENT SLOPES, NORTHERN TIDEWATER AREA	A
FmA	FORT MOTT LOAMY SAND, 0 TO 2 PERCENT SLOPES	A
FmB	FORT MOTT LOAMY SAND, 2 TO 5 PERCENT SLOPES	A
LO	LONGMARSH AND INDIAN SOILS, FREQUENTLY FLOODED	D
PpA	PEPPERBOX LOAMY SAND, 0 TO 2 PERCENT SLOPES	A
PsA	PEPPERBOX-ROSEDALE COMPLEX, 0 TO 2 PERCENT SLOPES	A



MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 18 BOULDEN CIRCLE, SUITE 36
 WILMINGTON, DE 19720
 (302) 326-2200
 FAX: (302) 326-2399

SOILS EXHIBIT
 FOR
PATRIOTS GLEN
PHASE 2

SUSSEX COUNTY, DE

SCALE: 1"=500'

DATE: 07/06/20

DRAWN BY: CJF

DESIGN BY: CJF

REVIEW BY: PLT

JOB NO. : 20296

MRAGTA.COM
 © 2019 MORRIS & RITCHIE ASSOCIATES, INC.

Appendix 4 – Preliminary Plan

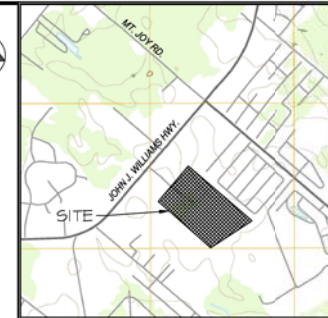
PATRIOTS GLEN PHASE 2

SUSSEX COUNTY, DELAWARE

PRELIMINARY PLANS

CR-1 / MR - RPC

SUSSEX COUNTY PLANNING # C/Z 1911



LEGEND

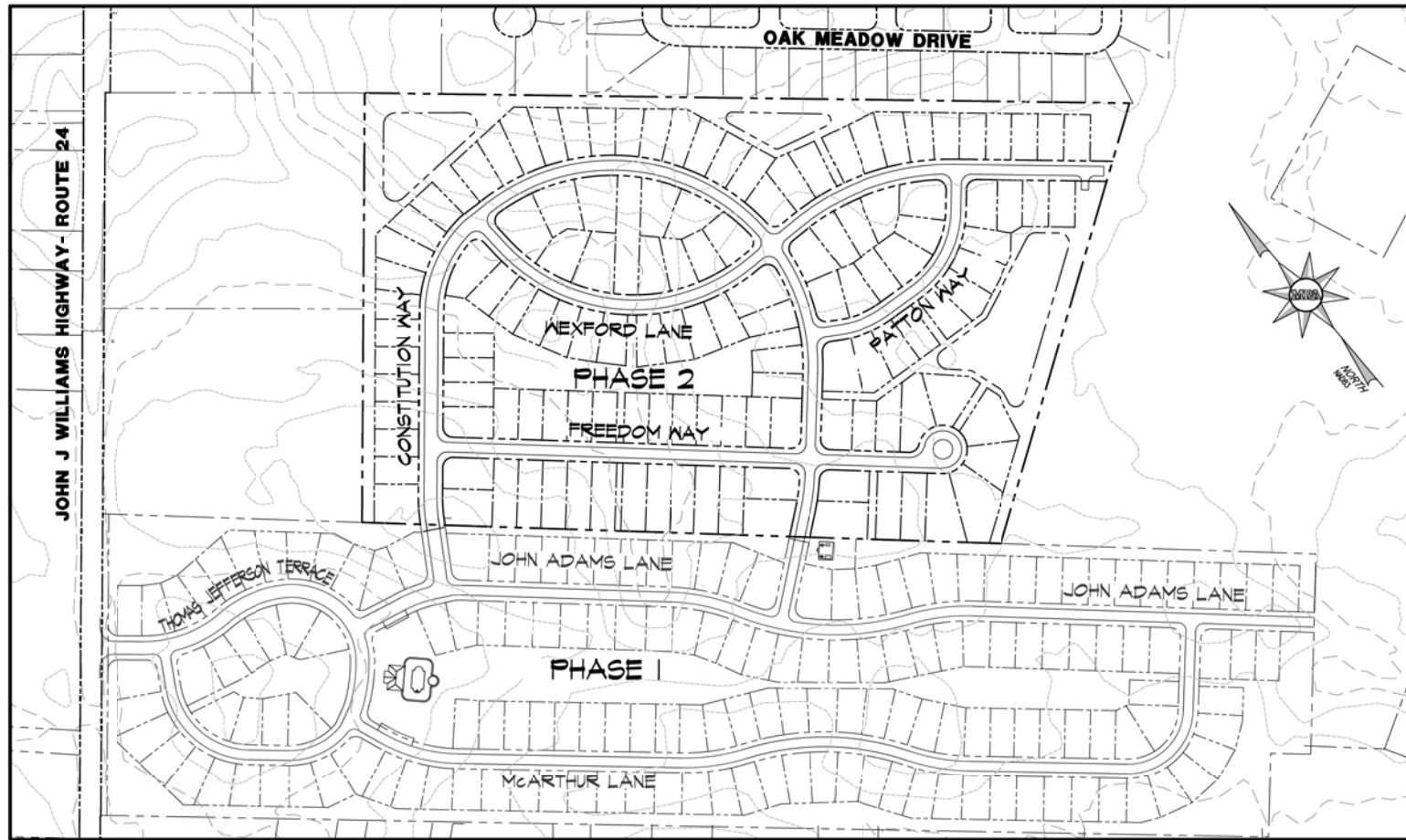
- EXISTING PROPERTY LINE
- - - - PROPOSED R/W LINE
- - - - PROPOSED LOT LINE
- - - - PROPOSED BUILDING SETBACK LINE
- 44 --- EXISTING CONTOURS
- - - - 44 - - - PROPOSED CONTOURS
- (T) --- PROPOSED LOT NUMBER
- EXISTING HOODLANDS LINE
- HOODLAND PRESERVATION LINE

PROJECT TEAM

- DEVELOPER:** SCHIFF LAND DEVELOPMENT CO., LLC
16054 S. DUPONT HWY.
HARRINGTON, DE 19852
ATTN: MR. T.J. SCHIFF
- LAND PLANNERS, CIVIL ENGINEER:** MORRIS & RITCHE ASSOCIATES, INC.
18 BOULDEN CIRCLE, SUITE 36
NEW CASTLE, DE 19720
ATTN: MR. PHILLIP L. TOLLIVER, P.E.
- SURVEYOR:** MORRIS & RITCHE ASSOCIATES, INC.
6 GEORGETOWN DE 19441
ATTN: MR. GARY POWERS
- ENVIRONMENTAL CONSULTANT:** GEO-TECHNOLOGY ASSOCIATES, INC.
3445 BOX HILL CORPORATE CENTER DRIVE, SUITE A
ABINGDON, MD 21004
ATTN: MR. ANDY STANSFIELD
- GEOTECHNICAL ENGINEER:** GEO-TECHNOLOGY ASSOCIATES, INC.
2183 STERLING AVENUE, SUITE 7
GEORGETOWN DE 19441
ATTN: MR. GREG SAUTER
- TRAFFIC CONSULTANT:** THE TRAFFIC GROUP
9400 FRANKLIN SQUARE DR. - SUITE H
BALTIMORE, MD 21236
ATTN: MR. JOE CALOGERO, P.E.
- ATTORNEY:** MORRIS JAMES WILSON HALBROOK & BAYARD LLP
107 W. MARKET STREET
P.O. BOX 640
GEORGETOWN DE 19441
ATTN: MR. DAVID C. HUTT

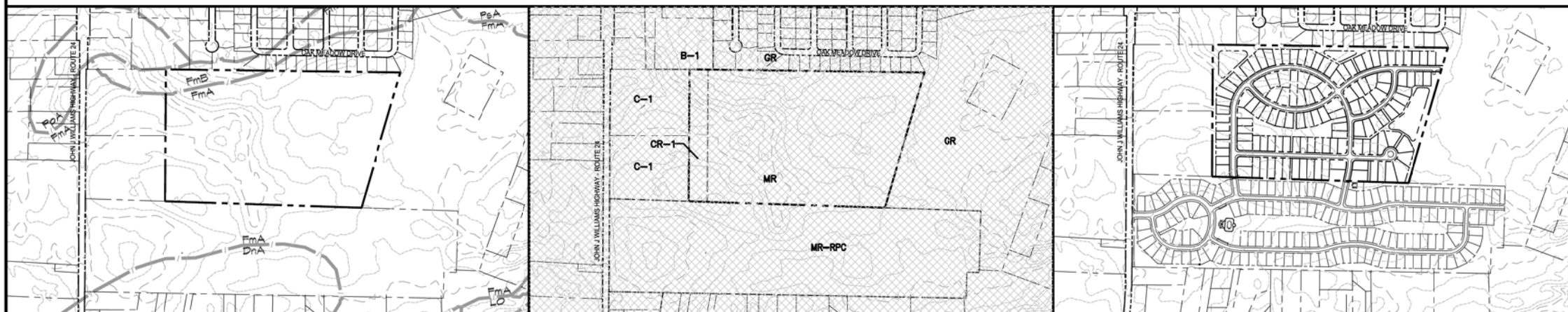
INDEX OF DRAWINGS

- 1 - PRELIMINARY PLAN - TITLE SHEET
- 2 - PRELIMINARY PLAN - GENERAL NOTES & DETAILS
- 3 - PRELIMINARY PLAN - MASTER / MR-RPC PLAN
- 4 - PRELIMINARY PLAN - OVERALL
- 5 - PRELIMINARY PLAN
- 6 - PRELIMINARY PLAN



SITE OVERVIEW

SCALE: 1" = 200'



SOILS MAP

SCALE: 1" = 500'

ZONING MAP

SCALE: 1" = 500'

PHASING MAP

SCALE: 1" = 500'

THE PROJECT WILL BE APPROVED AS A SINGLE PHASE PROJECT WITH THREE (3) OPERATIONAL BREAKS FOR PURPOSES OF BONDING, BENEFICIAL OCCUPANCY INSPECTION, RELEASE OF USE AND OCCUPANCY PERMITS.

DEVELOPER'S CERTIFICATION

I, UNDERSIGNED, AS DEVELOPER OF THE PROPERTY SHOWN, HEREBY APPROVE THESE PLANS FOR DEVELOPMENT AS SHOWN OR OTHERWISE NOTED.

SCHIFF LAND DEVELOPMENT CO., LLC DATE
16054 S. DUPONT HWY.
HARRINGTON, DE 19852

OWNER'S CERTIFICATION

I, UNDERSIGNED, AS OWNER OF THE PROPERTY SHOWN, HEREBY APPROVE THESE PLANS FOR DEVELOPMENT AS SHOWN OR OTHERWISE NOTED.

DAVIS FARMS II LIMITED PARTNERSHIP DATE
26361 TIMBERCREEK LANE
MILLSBORO, DE 19966

WETLANDS STATEMENT

GEO-TECHNOLOGY ASSOCIATES, INC. (GTA) HAS CONDUCTED A FIELD REVIEW WITHIN THE BOUNDARIES OF THIS PLAT TO EVALUATE THE PRESENCE OR ABSENCE OF POTENTIAL STATE AND FEDERAL JURISDICTIONAL WETLANDS FOR THE PURPOSES OF DELAWARE WETLAND AND SUBAQUEOUS LAND REGULATIONS AND SECTION 404 OF THE CLEAN WATER ACT. GTA'S REVIEW WAS CONDUCTED IN GENERAL ACCORDANCE WITH THE TECHNIQUES AND CRITERIA PROVIDED IN THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, ATLANTIC AND GULF COASTAL PLAN REGION (VERSION 2.0), DATED NOVEMBER 2010. THE LIMITS OF THE WETLANDS WERE EVALUATED IN THE FIELD BY GTA PERSONNEL USING BEST PROFESSIONAL JUDGEMENT. NO WETLANDS OR WETLANDS WERE OBSERVED WITHIN THE BOUNDARIES OF THIS PLAT. NO STATE OR FEDERAL JURISDICTIONAL APPROVAL HAS OBTAINED FOR THIS PROPERTY.

ANDY STANSFIELD DATE
GEO-TECHNOLOGY ASSOCIATES, INC.

ENGINEER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF DELAWARE AND THAT THE PLAN SHOWN AND DESCRIBED HEREON, IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY ACCEPTED STANDARDS AND PRACTICES AND BY THE SUSSEX COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS TO THE EXTENT THAT IT DESCRIBES THE PROPOSED MANNER AND LAYOUT OF THE SUBDIVISION.

PHILLIP L. TOLLIVER, P.E. DATE
DE LICENSE NO. #12484

PLAN APPROVALS

APPROVED BY: CHAIRMAN OR SECRETARY DATE
SUSSEX COUNTY PLANNING AND ZONING COMMISSION

APPROVED BY: PRESIDENT DATE
SUSSEX COUNTY PLANNING

		MORRIS & RITCHE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 18 BOULDEN CIRCLE, SUITE 36 NEW CASTLE, DELAWARE 19720 (302) 326-2200 FAX: (302) 326-2399 WWW.MRAGTA.COM	
		PRELIMINARY PLAN TITLE SHEET FOR PATRIOTS GLEN PHASE 2	
ENGINEER'S SEAL		INDIAN RIVER HUNDRED SUSSEX COUNTY, DELAWARE	
DATE	REVISIONS	JOB NO.: 20266	
6/15/20	UPDATED PERIMETER BUFFER AREA	SCALE: AS NOTED	
		DATE: 12/06/19	
		DRAWN BY: RDG	
		DESIGN BY: CJT	
		REVIEW BY: PLT	
		SHEET: 1 OF 6	

C:\20266-Projects\20266_Patriots\PRELIMINARY\Phase 2\PLAT\20266_PRELIM_TITL_SHEE1_PAC.dwg, 7/30/2020 4:17:07 PM, C:\Users\...

CONSTRUCTION NOTES

- CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT (1-800-282-8555) AT LEAST (3) WORKING DAYS PRIOR TO EXCAVATION, TO HAVE EXISTING UNDERGROUND UTILITIES LOCATED AND MARKED.
- ALL MATERIALS & WORKMANSHIP SHALL MEET THE STATE OF DELAWARE STANDARDS & SPECIFICATIONS.
- ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AND PROJECT SPECIFICATIONS.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO WEEKS PRIOR TO THE START OF CONSTRUCTION AND SHALL APPRISE AND COORDINATE DURING ALL PHASES OF CONSTRUCTION:
 - A. SCHIFF LAND DEVELOPMENT CO, LLC 302-348-8014
 - B. SUSSEX COUNTY ENGINEERING DEPARTMENT 302-855-7118
 - C. TIDEWATER UTILITIES 302-445-8800
 - D. SUSSEX CONSERVATION DISTRICT 302-856-2109
 - E. SHARP ENERGY 302-794-6788
 - F. VERIZON 302-422-4464
 - G. DELAWARE COOPERATIVE 302-344-5901
 - H. DPREC 302-856-5488

- CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL RIGHT-OF-WAY LINES AND PROPERTY LINES TO HIS OWN SATISFACTION. ALL PROPOSED UTILITIES ARE TO BE CONSTRUCTED WITHIN THE ROADWAY OR EASEMENT RIGHT-OF-WAY. DISTURBED AREAS BEYOND THE EASEMENT LINES SHALL BE RESTORED IMMEDIATELY TO THEIR ORIGINAL CONDITION.
- INFORMATION SHOWN HEREON IS BASED UPON GIS DATA OBTAINED THROUGH THE STATE OF DELAWARE GIS WEBSITE (FIRSTMAP.DELAWARE.GOV/DATA/PARGIS.GOV) AND DOES NOT REPRESENT FIELD RUN TOPOGRAPHIC OR BOUNDARY SURVEY. SITE LAYOUT IS SUBJECT TO REVISION PENDING FIELD SURVEY.

- EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE BASED UPON THE BEST AVAILABLE INFORMATION AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. NO GUARANTEE IS MADE OR IMPLIED REGARDING THE ACCURACY OR COMPLETENESS THEREOF. CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF DEPTH, SIZE AND MATERIAL OF ALL UNDERGROUND UTILITIES TO HIS OWN SATISFACTION BEFORE BEGINNING ANY EXCAVATION OR UTILITY INSTALLATION. THE OWNER AND ENGINEER DISCLAIM ANY RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF SAID INFORMATION. IF THE CONTRACTOR RELIES ON SAID INFORMATION, HE DOES SO AT HIS OWN RISK. THE GIVING OF THE INFORMATION ON THE PLANS WILL NOT RELIEVE THE CONTRACTOR OF HIS OBLIGATIONS TO SUPPORT AND PROTECT ALL SHOWN OR NOT SHOWN EXISTING UTILITIES AND APPURTENANCES. SHOULD ANY EXISTING UTILITIES BE DAMAGED BY THE CONTRACTOR, THE CONTRACTOR SHALL REPAIR THE DAMAGE CAUSED TO THE UTILITY OWNER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.

- DRAWINGS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE PERFORMED IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, AS AMENDED AND ALL RULES AND REGULATIONS THERETO APPURTENANT.

- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF TRAFFIC IN ALL WORK AREAS.

- ROUGH GRADING SHALL BE COMPLETE PRIOR TO THE CONSTRUCTION OF WATER & SEWER SYSTEMS.

- USE ONLY SUITABLE AND APPROVED GRANULAR MATERIAL IN ACCORDANCE WITH SECTION 204 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS AND REFERENCED BY SUSSEX COUNTY ORDINANCE 30 SECTION 5-05 EXCAVATION AND BACKFILL FOR PIPE TRENCHES SUBSECTION B MATERIALS.

- CONTRACTOR SHALL ADJUST TO FINISH GRADE AS NECESSARY ANY VALVE BOXES, MANHOLES, CATCH BASINS ETC., PRIOR TO PLACING PAVING.

- CONTRACTOR SHALL PROVIDE STAKEOUT NECESSARY FOR THE INSTALLATION OF UTILITIES, STORM-DRAINS, PAVING AND ALL OTHER SITE WORK INCLUDED IN THESE PLANS. ALL STAKEOUT WORK TO BE PERFORMED UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL LAND SURVEYOR, REGISTERED IN THE STATE OF DELAWARE.

- CONTRACTOR TO MAINTAIN MINIMUM OF 3.0 FEET OF COVER OVER ALL NEW WATER LINES AS MEASURED FROM TOP OF PIPE TO FINISHED GRADE, UNLESS OTHERWISE VOTED.

- SEWER LINES SHALL HAVE MINIMUM VERTICAL CLEARANCE OF 18 INCHES FROM WATER MAINS AT CROSSINGS. MAINTAIN A 10 FOOT MINIMUM PLAN SEPARATION BETWEEN SEWER AND WATER MAINS. SEWER LINES SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 12 INCHES FROM OTHER UTILITIES. IF THESE CLEARANCES CANNOT BE MAINTAINED, THEN PROVISIONS FOR PROPERLY ENGAGING THE PIPE IN CONCRETE MUST BE PROVIDED.

- LATERALS SHALL BE 6 INCHES IN DIAMETER, WITH VERTICAL CLEANOUTS OF 6 INCHES IN DIAMETER, AND TO HAVE A MINIMUM OF 3" OF COVER FROM SUSSEX COUNTY CLEANOUT TO MAIN LINE.

- ALL GRAVITY SEWER PIPES SHALL BE PVC SDR 35, FOR PIPE SLOPES SEE FINAL CONSTRUCTION DRAWINGS FOR SANITARY SEWER PROFILES.

- MATERIAL OF CONSTRUCTION FOR SEWER FORCE MAINS SHALL BE AS NOTED ON THE FINAL CONSTRUCTION DRAWINGS. FORCE MAIN SHALL BE INSTALLED AS PROFFED TO PREVENT FORMATION OF UNANTICIPATED HIGH POINTS IN THE INSTALLATION.

- ALL SEWER LINES MUST BE SUCCESSFULLY TESTED ACCORDING TO SUSSEX COUNTY ORDINANCE 30, SECTION 5.04, E. 1-4, ON PHASE 5/3 THROUGH 5/8, ACCEPTANCE TESTING, PRIOR TO FINAL ACCEPTANCE.

- ALL SANITARY SEWER SYSTEM CONSTRUCTION PERFORMED SHALL BE IN ACCORDANCE WITH SUSSEX COUNTY ORDINANCE 30, THESE PLANS AND ALL APPLICABLE CONSTRUCTION PERMITS.

- ALL DROP MANHOLES TO BE 5'-0" IN DIAMETER.

- FITTINGS SHOWN ON THE PLANS ILLUSTRATE ANTICIPATED ANGLE OF DEFLECTION. THIS INFORMATION IS SHOWN FOR GENERAL INFORMATION AND IS NOT GUARANTEED. ACTUAL ANGLE MAY VARY DUE TO FIELD CONDITIONS. USE OF ADDITIONAL FITTINGS SHALL BE AUTHORIZED BY THE ENGINEER.

- THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY DEVIATION FROM THESE PLANS UNLESS WRITTEN APPROVAL HAS BEEN PROVIDED BY THE ENGINEER.

- ALL DISTURBED AREAS IN THE STATED RIGHT OF WAY, BUT NOT IN THE PAVEMENT SECTION MUST BE TOPSOILED (6" MINIMUM), FERTILIZED, MULCHED, AND SEEDED.

- ALL PAVEMENT MARKINGS AND SIGNAGE SHALL BE PLACED IN ACCORDANCE WITH THE M.U.T.C.D. MANUAL, MOST CURRENT EDITION.

- ALL PROPOSED STORM DRAIN DESIGNATED AS "RCCP" IS TO BE REINFORCED CONCRETE CIRCULAR PIPE, MEETING AASHTO M-10 SPECIFICATIONS, SEE FINAL CONSTRUCTION PLAN & PROFILES FOR SPECIFIC PIPE CLASS.

- ALL LENGTHS OF SANITARY SEWER PIPE ARE MEASURED HORIZONTALLY FROM CENTER LINES OF INLETS, MANHOLES OR FITTINGS. ALL LENGTHS OF STORM DRAIN PIPE ARE MEASURED HORIZONTALLY FROM EDGE OF STRUCTURE TO EDGE OF STRUCTURE. ACTUAL TRUE LENGTHS OF PIPES ARE TO BE DETERMINED IN THE FIELD.

- WHERE SPECIFIED, HOPE STORM DRAIN PIPE SHALL BE ADS N-12 (SMOOTH INTERIOR) PIPE WITH ADS PRO-LINK W/ (BELL/BELL COUPLERS) FOR WATER TIGHT CONNECTIONS. REFER TO PLAN AND PROFILES FOR MATERIALS USED.

- ALL EMBEDEDMENT MATERIALS USED FOR BEDDING, HAUNCHING, AND INITIAL BACKFILL FOR HOPE PIPE SHALL CONFORM TO AASHTO SECTION 30 AND ASTM D-2821 AS PER MANUFACTURER INSTALLATION REQUIREMENTS. CONTRACTOR SHALL ENSURE THAT PROPER LINE AND GRADE IS ESTABLISHED WITHIN TRENCH BEDDING PRIOR TO PLACEMENT OF PIPE AND THAT PROPER MATERIALS ARE USED AND COMPACTION IS ACHIEVED DURING HAUNCHING AND INITIAL BACKFILL. A GEOTECHNICAL ENGINEER SHALL BE RETAINED TO VERIFY SUITABILITY OF MATERIALS USED AND PROPER COMPACTION. ANY DEVIATION IN LINE AND GRADE OR OBVIOUS JOINT SEPARATION SHALL BE CORRECTED PRIOR TO ESTABLISHMENT OF FINAL SUBGRADE AND PAVEMENT SURFACE. THE CONTRACTOR SHALL TAKE EVERY CARE TO ENSURE CORRECT PIPE INSTALLATION.

- UNLESS OTHERWISE SPECIFIED ALL ROADWAY INLETS SHALL HAVE A TYPE I INLET GRATE AND TYPE 5 TOP UNIT PER DELDOT STANDARDS, CURRENT REVISION.

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT PAVING IS INSTALLED TO THE ELEVATIONS SHOWN AND THAT NO PONDING OF WATER EXISTS AFTER PAVING IS COMPLETE.

SUSSEX COUNTY CONSTRUCTION NOTES:

- ROADWAY STAKEOUTS:
 - A. RIGHT-OF-WAY STAKES SHALL BE OFFSET A MINIMUM OF FIVE (5) FEET OUTSIDE THE RIGHT-OF-WAY.
 - B. STATION NUMBERS TO BE INDICATED ON EACH SIDE OF THE STAKE.
 - C. THE CENTERLINE ROADWAY CUT AND CUT-LINE SHALL BE LOCATED ON THE SIDE OF THE STAKE WHICH FACES THE CENTERLINE, ALSO A 'CL' DESIGNATION SHALL BE INCLUDED.
 - D. THE SWALE CUT AND CUT-LINE SHALL BE INDICATED ON THE OUTSIDE OF THE STAKE, WHILE ALSO CONTAINING A 'SW' DESIGNATION.

- THE CONTRACTOR SHALL PROVIDE TWO (2) WORKING DAYS NOTICE TO THE COUNTY INSPECTOR PRIOR TO PAVING. AT THIS TIME, THE INSPECTOR MAY REQUIRE THE CONTRACTOR COMPLETE RELATED OR UNRELATED WORK ITEMS BEFORE PAVING MAY BEGIN.

- SURFACE TREATMENT SHALL NOT BE APPLIED, (SURFACE TREATMENT NOT USED)
 - A. AFTER NOVEMBER 1 OR PRIOR TO APRIL 1, OR
 - B. WHEN THE TEMPERATURE IS BELOW 50° F, OR
 - C. ON ANY WET OR FROZEN SURFACE.

- HOT MIX SHALL NOT BE APPLIED.
 - A. WHEN THE TEMPERATURE IS BELOW 40° F, OR
 - B. ON ANY WET OR FROZEN SURFACE.

- FOR ALL WOODED AREAS, A SUFFICIENT AREA BEYOND THE RIGHT-OF-WAY SHALL BE CLEARED AND GRUBBED TO ALLOW PROPER GRADINGS OF THE ROADWAY SWALE BACKSLOPES.

- ALL DISTURBED AREAS MUST BE STABILIZED WITH 4 INCHES OF TOPSOIL, SEED, AND MULCH.

DELDOT RECORD PLAN NOTES:

- NO LANDSCAPING SHALL BE ALLOWED WITHIN DELDOT MAINTAINED R/W UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.1 OF THE DEVELOPMENT COORDINATION MANUAL (DCM).
- ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT DEVELOPMENT COORDINATION MANUAL (DCM) AND SHALL BE SUBJECT TO ITS APPROVAL.
- SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
- UPON COMPLETION OF THE CONSTRUCTION OF THE SIDEWALK OR SHARED-USE PATH ACROSS THIS PROJECT'S FRONTAGE AND PHYSICAL CONNECTION TO ADJACENT EXISTING FACILITIES, THE DEVELOPER, THE PROPERTY OWNERS OR BOTH ASSOCIATED WITH THIS PROJECT, SHALL BE RESPONSIBLE TO REMOVE ANY EXISTING ROAD TIE-IN CONNECTIONS LOCATED ALONG ADJACENT PROPERTIES, AND RESTORE THE AREA TO GRASS. SUCH ACTIONS SHALL BE COMPLETED AT DELDOT'S DISCRETION, AND IN CONFORMANCE WITH DELDOT'S SHARED-USE PATH AND/OR SIDEWALK TERMINATION POLICY.
- SUBDIVISION STREETS CONSTRUCTED WITHIN THE LIMITS OF THE RIGHT-OF-WAY ARE PRIVATE AS SHOWN ON THIS PLAN AND ARE TO BE MAINTAINED BY THE DEVELOPER, HOMEOWNERS ASSOCIATION OR BOTH. THE STATE OF DELAWARE ASSUMES NO MAINTENANCE RESPONSIBILITIES FOR THE FUTURE MAINTENANCE OF THESE STREETS.
- THE SIDEWALK AND SHARED-USE PATH SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SUBDIVISION. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THE SIDEWALK AND/OR SHARED-USE PATH.
- ALL LOTS SHALL HAVE ACCESS ONLY FROM THE INTERNAL SUBDIVISION STREETS.
- DRIVEWAYS WILL NOT BE PERMITTED TO BE PLACED AT CATCH BASIN LOCATIONS.
- THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MONUMENTS IN ACCORDANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
- THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MARKERS TO PROVIDE A PERMANENT REFERENCE FOR RE-ESTABLISHING THE RIGHT-OF-WAY AND PROPERTY CORNERS ON LOCAL AND HIGHER ORDER FRONTAGE ROADS. RIGHT-OF-WAY MARKERS SHALL BE SET AND/OR PLACED ALONG THE FRONTAGE ROAD RIGHT-OF-WAY AT PROPERTY CORNERS AND AT EACH CHANGE IN RIGHT-OF-WAY ALIGNMENT IN ACCORDANCE WITH SECTION 3.2.4.2 OF THE DEVELOPMENT COORDINATION MANUAL.

GENERAL NOTES:

- SUBDIVISION STREETS ARE TO REMAIN PRIVATE AND ARE TO BE CONSTRUCTED IN ACCORDANCE WITH SUSSEX COUNTY REGULATIONS.
- MAINTENANCE OF THE STREET WITHIN THIS SUBDIVISION WILL BE THE RESPONSIBILITY OF THE OWNER/DEVELOPER AND OR HOME OWNER'S ASSOCIATION. THE STATE AND SUSSEX COUNTY ASSUMES NO RESPONSIBILITY FOR FUTURE MAINTENANCE OF THE STREETS.
- ACCESS TO ALL LOTS IS TO BE FROM SUBDIVISION STREETS OR DRIVE ACCESS LOOPS.
- MAINTENANCE OF THE STORM WATER MANAGEMENT AREAS WILL BE THE RESPONSIBILITY OF THE OWNER/DEVELOPER AND OR HOMEOWNER'S ASSOCIATION.
- THE PROPOSED ENTRANCES/EXITS ARE CONCEPTUAL ONLY AND ARE SUBJECT TO REVIEW AND APPROVAL BY THE DELAWARE DEPARTMENT OF TRANSPORTATION BEFORE A CONSTRUCTION PERMIT IS ISSUED.

SITE DATA

- PROJECT TITLE/NAME: PATRIOTS GLEN - PHASE 2
- TAX PARCEL: 254-2400-67.00
- OWNER INFORMATION: DAVIS FARMS II LIMITED PARTNERSHIP 26367 TIMBERCREEK LANE MILLSBORO, DE 19966
- DEVELOPER: SCHIFF LAND DEVELOPMENT CO, LLC 16254 S. DUPONT HWY. HARRINGTON, DE 19952
- ZONING: EXISTING: CR-1 AND MR *SITE IS LOCATED WITHIN COASTAL AREA (FORMERLY ESDD02) PROPOSED: CR-1 & MR NRPC OVERLAY
- DEVELOPMENT TYPE: RESIDENTIAL PLANNED COMMUNITY (RPC) SINGLE FAMILY DETACHED
- BULK AREA STANDARDS

	CR-1	MR	RPC
MIN. FRONT YARD	40'	30'	25'
MIN. SIDE YARD	10'	10'	10'
MIN. REAR YARD	10'	10'	10'
MIN. LOT WIDTH	75'	75'	60'
MIN. LOT AREA	10,000 SF	10,000 SF	7,500 SF
DENSITY	4.356 DU/AC	4.356 DU/AC	4.356 DU/AC

- LAND USE: EXISTING USE: AGRICULTURAL PROPOSED USE: RESIDENTIAL
- DEVELOPMENT DENSITY COMPUTATIONS:
 - NET SITE AREA: 43.46 AC ±
 - TOTAL SITE AREA: 71.0 AC ±
 - PROPOSED ROAD ROW: 1.0 AC ±
 - NET SITE AREA: 36.36 AC ±

ALLOWABLE DWELLING UNITS:
 NET SITE AREA * ALLOWABLE DENSITY = ALLOWABLE DU.
 36.36 AC x 4.356 DU / AC = 158 DU.

PROPOSED DENSITY:
 128 DU / 36.36 AC ± = 9.52 DU/AC (NET)
 128 DU / 43.46 AC ± = 2.95 DU/AC (6.805%)

- SITE AREA BREAKDOWN:
 - LOT AREA = 26.70 AC ±
 - OPEN SPACE AREA = 9.66 AC ±
 - DELDOT R.O.W. = 0.00 AC ±
 - PRIVATE R.O.W. = 7.10 AC ±
 - TOTAL SITE AREA = 43.46 AC ±

- OPEN SPACE AREAS:
 - REQUIRED [SECTION 912(D)] 10% x 43.46 AC ± = 4.35 AC ±

- PROPOSED PASSIVE (INCL. NATURAL FOREST & BUFFER AREAS, STORMWATER MANAGEMENT AREAS, ETC.) 9.20 AC ±

- ACTIVE (INCL. POCKET PARK, TRAILS, ETC.) 0.46 AC ±

TOTAL PROPOSED (9.66 AC / 43.46 AC) = 22.2 %

- WATER SERVICE: PUBLIC (TIDEWATER UTILITIES, INC.)

- SANITARY SEWER: PUBLIC (SUSSEX COUNTY)

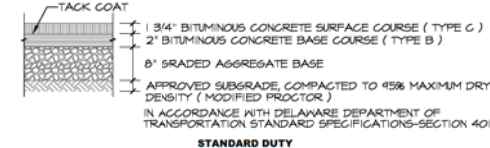
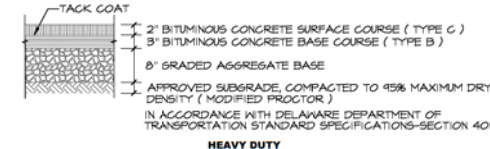
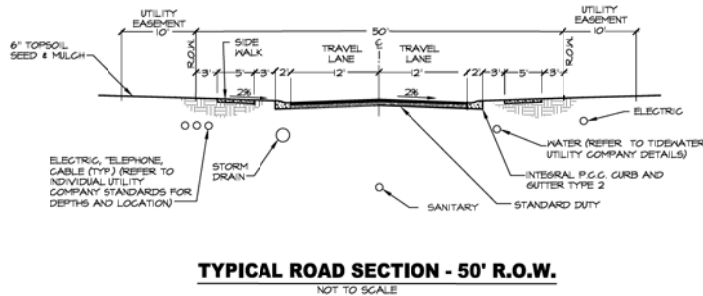
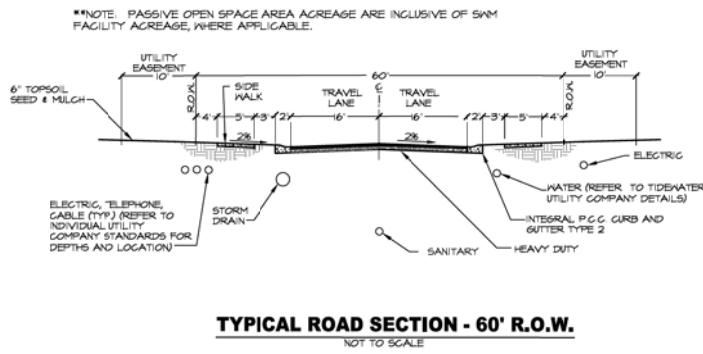
- PROPOSED LOTS: 128 SINGLE FAMILY LOTS

- PARKING ANALYSIS:
 - PARKING REQUIRED: 128 SPD X 2 SPD/LOT = 256 SP
 - PARKING PROVIDED: 128 SPD X 2 SPD/LOT = 256 SP

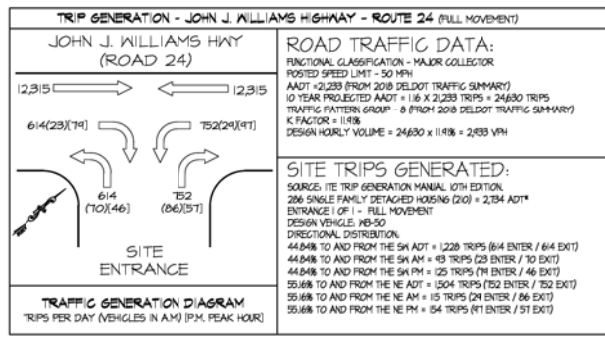
- A PRELIMINARY WETLANDS EVALUATION WAS PERFORMED IN OCTOBER, 2019 BY GEO-TECHNOLOGY ASSOCIATES, INC. (GTA). NO JURISDICTIONAL WATERS OF THE U.S. OR WETLANDS WERE DETERMINED TO BE PRESENT ON SITE.

- THIS SITE LIES WITHIN FLOOD ZONE X (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FEMA MAPS 100050411C EFFECTIVE MARCH 16, 2015).

- NO CHURCHES, SCHOOLS, OR COMMERCIAL USE AREAS PROPOSED ON THIS SITE



PAVING SECTIONS
NOT TO SCALE



* NOTE : PHASE 2 WILL OBTAIN ACCESS THROUGH THE PREVIOUSLY REVIEWED PHASE 1 AREA AND UTILIZE THE SAME SITE ENTRANCE. TRIP GENERATION INFORMATION SHOWN HEREON IS BASED UPON THE TOTAL PROJECT BUILDOUT OF 206 SINGLE FAMILY DETACHED DWELLING UNITS (PHASE 1 = 150 DU, PHASE 2 = 128 DU).

PROJECT PHASING

PHASE 2 - 3 YEARS

TOTAL PROJECT BUILDOUT - 3 YEARS
 ESTIMATED PROJECT COMPLETION DATE - DECEMBER 2023

THE PORTION OF THE PROJECT IS BE APPROVED AS A SINGLE PHASE, WITH THREE (3) OPERATIONAL BREAKS FOR PURPOSES OF BONDING, BENEFICIAL OCCUPANCY INSPECTION, RELEASE OF USE AND OCCUPANCY PERMITS.

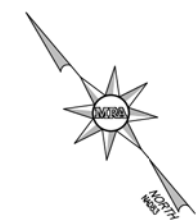
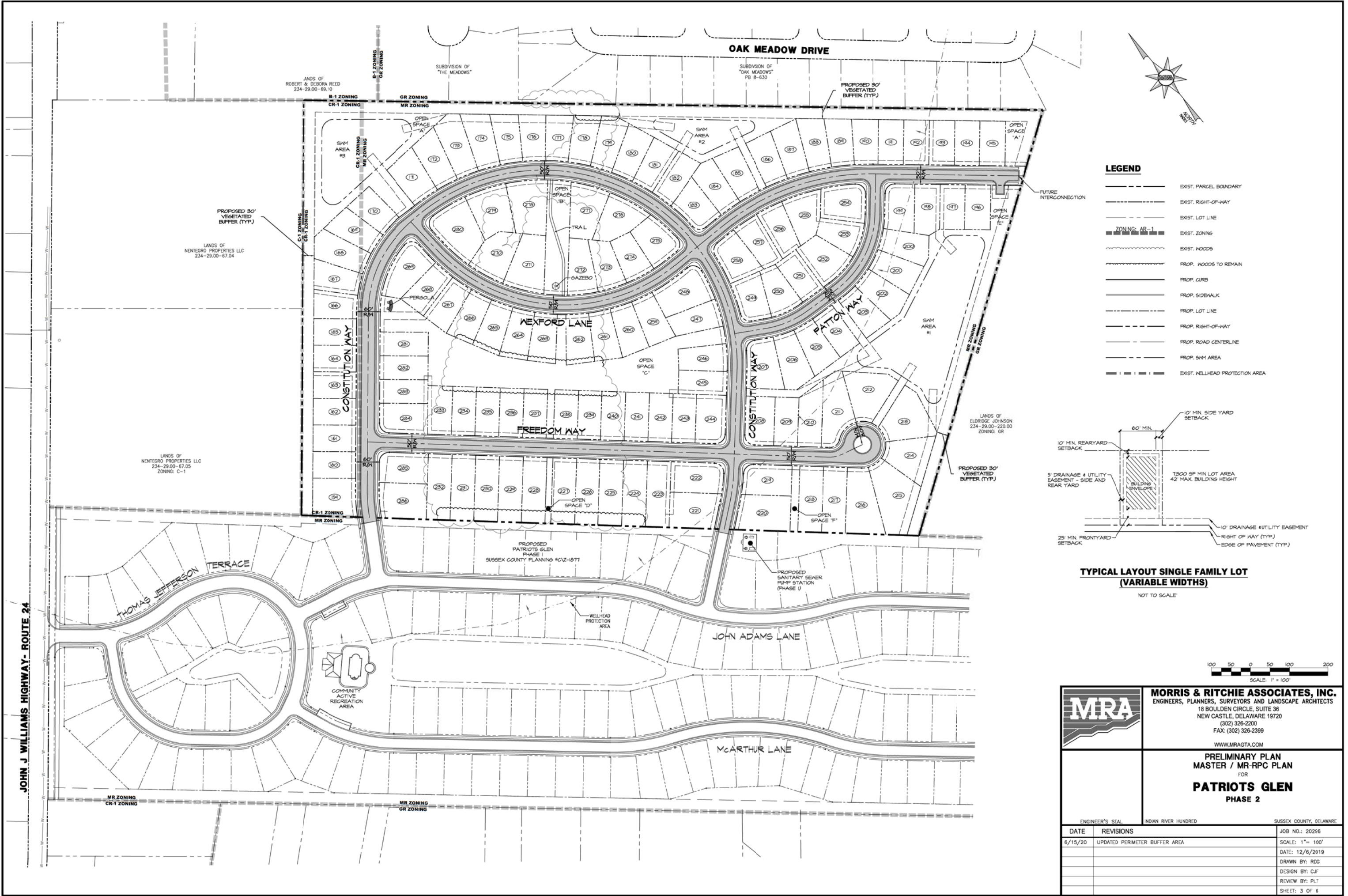
MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 18 BOULDEN CIRCLE, SUITE 36
 NEW CASTLE, DELAWARE 19720
 (302) 326-2200
 FAX: (302) 326-2399
 WWW.MRAGTA.COM

PRELIMINARY PLAN
GENERAL NOTES & DETAILS
 FOR
PATRIOTS GLEN
PHASE 2

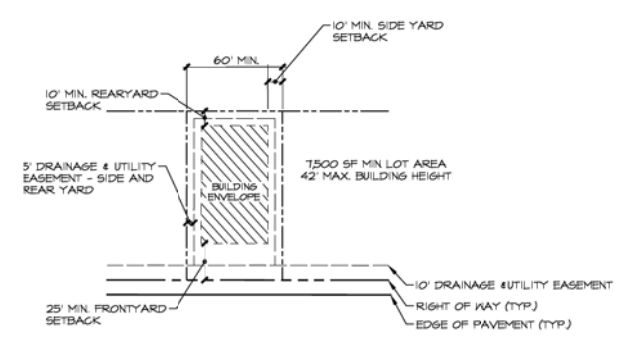
DATE	REVISIONS	JOB NO.:
6/15/20	UPDATER PERIMETER BUFFER AREA	20266
		SCALE: AS NOTED
		DATE: 12/6/2019
		DRAWN BY: RDG
		DESIGN BY: CJF
		REVIEW BY: PLT
		SHEET: 2 OF 6

C:\2025-Projects\25-00-0000\PRELIM\RPC_PLAN_RPC.dwg 7/30/2025 4:17:25 PM CJT/mrs
 11/1 Copyright 2025 Morris & Ritchie Associates, Inc.

JOHN J WILLIAMS HIGHWAY - ROUTE 24

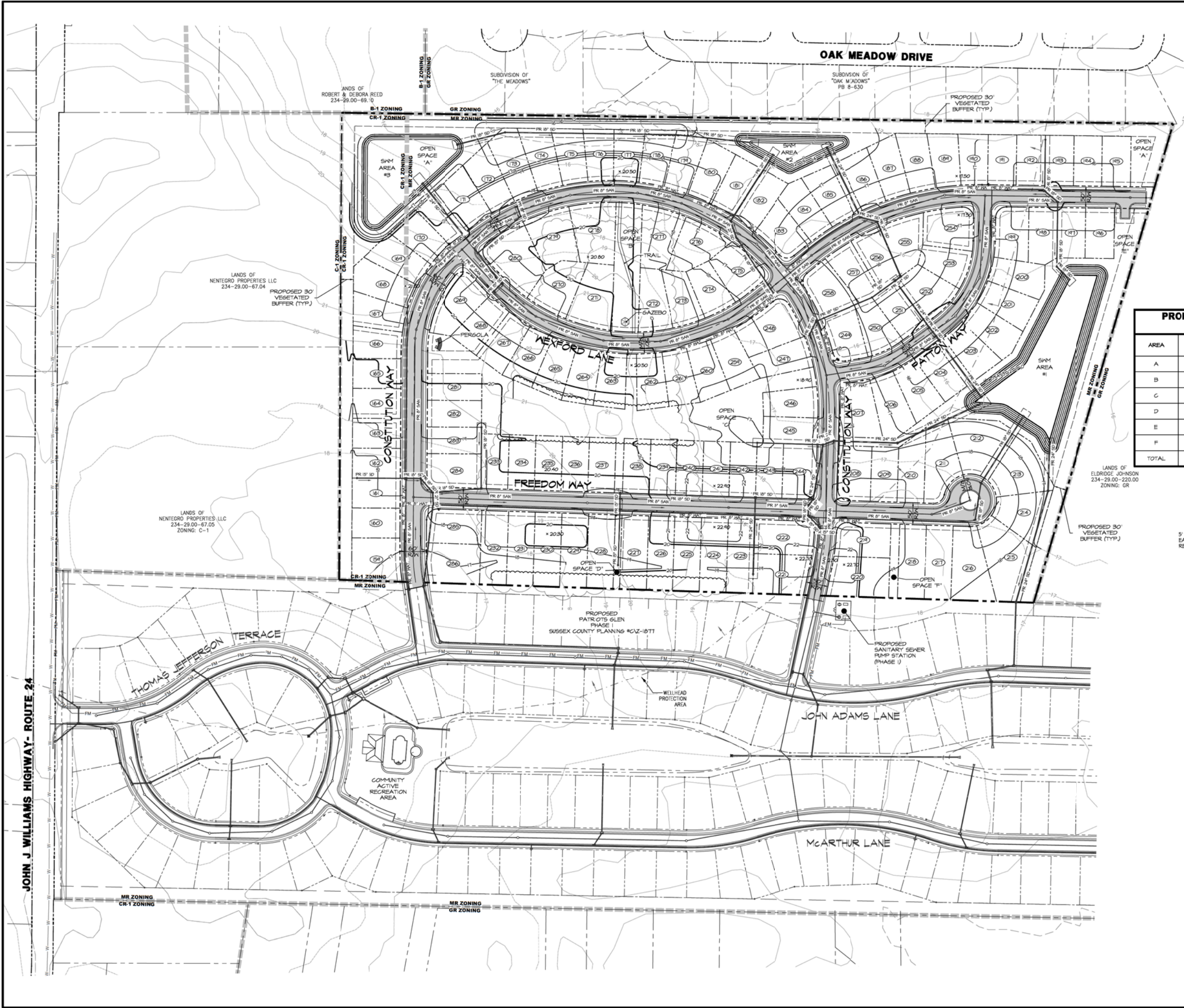


- LEGEND**
- EXIST. PARCEL BOUNDARY
 - EXIST. RIGHT-OF-WAY
 - EXIST. LOT LINE
 - ZONING: AR-1 EXIST. ZONING
 - EXIST. HOODS
 - PROP. HOODS TO REMAIN
 - PROP. CURB
 - PROP. SIDEWALK
 - PROP. LOT LINE
 - PROP. RIGHT-OF-WAY
 - PROP. ROAD CENTERLINE
 - PROP. SHM AREA
 - EXIST. WELLHEAD PROTECTION AREA



	MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 18 BOULDEN CIRCLE, SUITE 36 NEW CASTLE, DELAWARE 19720 (302) 326-2200 FAX: (302) 326-2399 WWW.MRAGTA.COM	
	PRELIMINARY PLAN MASTER / MR-RPC PLAN FOR PATRIOTS GLEN PHASE 2	
ENGINEER'S SEAL: INDIAN RIVER HUNDRED		SUSSEX COUNTY, DELAWARE
DATE: 6/15/20	REVISIONS: UPDATED PERIMETER BUFFER AREA	JOB NO.: 20256
		SCALE: 1" = 100'
		DATE: 12/6/2019
		DRAWN BY: RDG
		DESIGN BY: CJT
		REVIEW BY: PLT
		SHEET: 3 OF 6

JOHN J WILLIAMS HIGHWAY - ROUTE 24

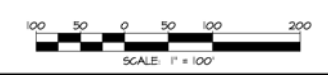
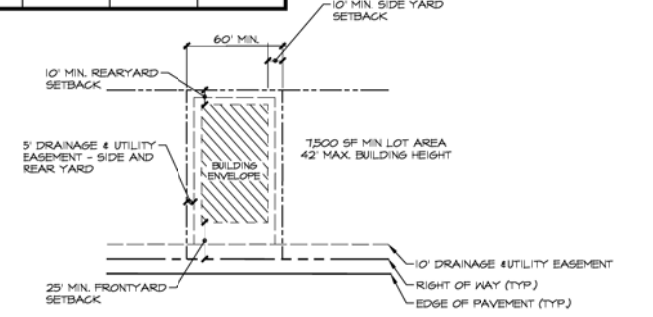


LEGEND

- EXIST. PARCEL BOUNDARY
- EXIST. RIGHT-OF-WAY
- EXIST. LOT LINE
- EXIST. ZONING
- EXIST. HOODS
- PROP. HOODS TO REMAIN
- PROP. CURB
- PROP. SIDEWALK
- PROP. LOT LINE
- PROP. RIGHT-OF-WAY
- PROP. ROAD CENTERLINE
- PROP. SWM AREA
- EXIST. CONTOUR
- PROP. CONTOUR
- SPOT ELEVATION
- EXIST. VEGETATION
- VEGETATION TO REMAIN
- EXIST. STORM DRAIN
- PROP. STORM DRAIN
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- EXIST. WATER LINE
- PROP. WATER LINE
- EXIST. WELLHEAD PROTECTION AREA

PROPOSED OPEN SPACE SUMMARY

AREA	SWM FACILITY	ACTIVE OPEN SPACE	PASSIVE OPEN SPACE*
A	1.11 AC. ±	-	4.31 AC. ±
B	-	0.40 AC. ±	-
C	-	0.06 AC. ±	1.82 AC. ±
D	-	-	0.06 AC. ±
E	1.42 AC. ±	-	2.93 AC. ±
F	-	-	0.08 AC. ±
TOTAL	2.53 AC. ±	0.46 AC. ±	9.20 AC. ±



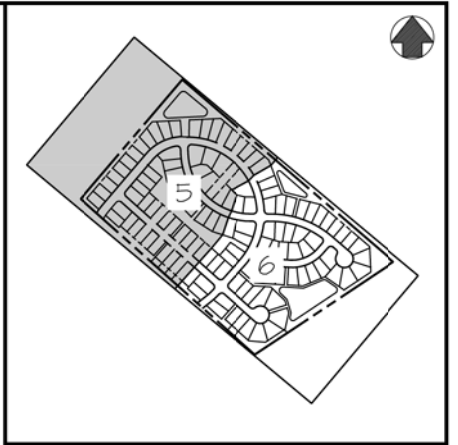
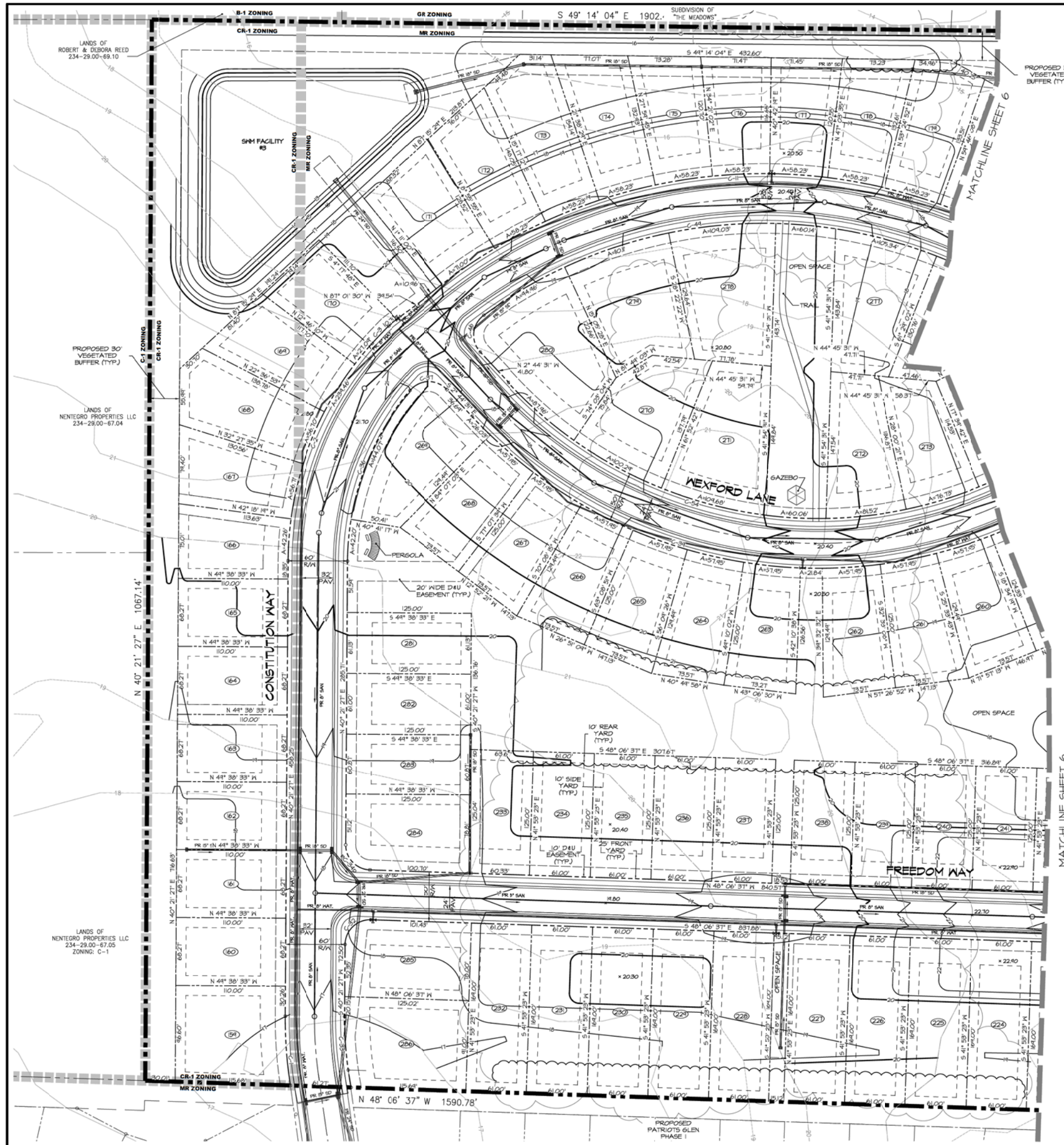
MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
18 BOULDEN CIRCLE, SUITE 36
NEW CASTLE, DELAWARE 19720
(302) 326-2200
FAX: (302) 326-2399
WWW.MRAGTA.COM

PRELIMINARY PLAN OVERALL FOR PATRIOTS GLEN PHASE 2

ENGINEER'S SEAL: INDIAN RIVER HUNDRED SUSSEX COUNTY, DELAWARE

DATE	REVISIONS	JOB NO.: 20266
6/15/20	UPDATED PERIMETER BUFFER AREA	SCALE: 1" = 100'
		DATE: 12/6/2019
		DRAWN BY: RDG
		DESIGN BY: CJF
		REVIEW BY: PLT
		SHEET: 4 OF 6

C:\2020-Projects\19-000-0000\19-000-0000\PRELIM\PLAN_PATRIOTS_GLEN_PHASE_2\19-000-0000_OVERALL_PRELIM_PLAN_PATRIOTS_GLEN_PHASE_2.dwg, 7/30/2020 4:17:43 PM, C:\Users\jwilliams\Documents\19-000-0000\19-000-0000\PRELIM\PLAN_PATRIOTS_GLEN_PHASE_2.dwg, 7/30/2020 4:17:43 PM, C:\Users\jwilliams\Documents\19-000-0000\19-000-0000\PRELIM\PLAN_PATRIOTS_GLEN_PHASE_2.dwg, 7/30/2020 4:17:43 PM, Copyright 2020 Morris & Ritchie Associates, Inc.



KEY MAP
SCALE: 1"=600'

LEGEND

- EXIST. PARCEL BOUNDARY
- - - EXIST. RIGHT-OF-WAY
- - - EXIST. LOT LINE
- ZONING: AR-1
- - - EXIST. HOODS
- - - PROP. HOODS TO REMAIN
- - - PROP. CURB
- - - PROP. SIDEWALK
- - - PROP. LOT LINE
- - - PROP. RIGHT-OF-WAY
- - - PROP. ROAD CENTERLINE
- - - PROP. SHM AREA
- 50 --- EXIST. CONTOUR
- 50 --- PROP. CONTOUR
- x50.00 SPOT ELEVATION
- EXIST. VEGETATION
- VEGETATION TO REMAIN
- EXIST. STORM DRAIN
- PROP. STORM DRAIN
- SAN --- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- W --- EXIST. WATER LINE
- PROP. WATER LINE
- EXIST. WELLHEAD PROTECTION AREA

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C-1	430.00'	64.74'	N 35° 42' 41" E	64.66'
C-2	330.00'	23° 46'	N 61° 06' 45" E	234.24'
C-3	530.00'	24.24'	N 83° 14' 31" E	24.24'
C-11	525.00'	800.57'	S 46° 18' 38" E	125.23'
C-32	25.00'	39.44'	N 86° 07' 25" E	35.82'
C-33	370.00'	7.52'	S 34° 49' 13" N	71.40'
C-34	25.00'	38.60'	N 03° 52' 35" N	34.88'
C-36	270.00'	186.27'	N 60° 07' 16" E	82.54'
C-37	25.00'	42.44'	S 51° 25' 43" E	37.56'
C-39	475.00'	78.98'	S 46° 06' 16" E	652.28'
C-46	25.00'	42.05'	N 49° 26' 52" E	37.27'
C-44	475.00'	666.21'	S 44° 31' 20" E	624.56'
C-54	425.00'	555.33'	N 52° 02' 02" N	516.66'



MRA
MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 18 BOULDER CIRCLE, SUITE 36
 NEW CASTLE, DELAWARE 19720
 (302) 326-2200
 FAX: (302) 326-2399
 WWW.MRAGTA.COM

PRELIMINARY PLAN
 FOR
PATRIOTS GLEN
 PHASE 2

ENGINEER'S SEAL	INDIAN RIVER HUNDRED	SUSSEX COUNTY, DELAWARE
DATE	REVISIONS	JOB NO.: 20266
06/15/20	UPDATE PERMETER BUFFER AREA	SCALE: 1"= 50'
		DATE: 12/6/2019
		DRAWN BY: RDG
		DESIGN BY: CJF
		REVIEW BY: PLT
		SHEET: 5 OF 6

C:\20266-Phase2\Drawings\PRELIMINARY\Phase 2\PLT\20266_PRELIM_PLAN_PIC.DWG, 7/26/2020 4:18:04 PM, C:\Users\...
 11/1 Copyright 2020 Morris & Ritchie Associates, Inc.



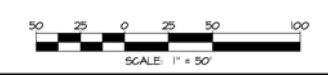
KEY MAP
SCALE: 1"=600'

LEGEND

- EXIST. PARCEL BOUNDARY
- EXIST. RIGHT-OF-WAY
- EXIST. LOT LINE
- ZONING: AR-1
- EXIST. ZONING
- EXIST. HOODS
- PROP. HOODS TO REMAIN
- PROP. CURB
- PROP. SIDEWALK
- PROP. LOT LINE
- PROP. RIGHT-OF-WAY
- PROP. ROAD CENTERLINE
- PROP. SHM AREA
- 50--- EXIST. CONTOUR
- 50--- PROP. CONTOUR
- 50.00 SPOT ELEVATION
- EXIST. VEGETATION
- VEGETATION TO REMAIN
- EXIST. STORM DRAIN
- PROP. STORM DRAIN
- SAN --- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- W --- EXIST. WATER LINE
- PROP. WATER LINE
- EXIST. WELLHEAD PROTECTION AREA

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C-5	525.00'	800.57'	S 46° 11' 38" E	125.23'
C-6	25.00'	37.88'	S 46° 03' 16" E	34.36'
C-8	625.00'	438.87'	S 64° 21' 03" E	424.41'
C-11	525.00'	800.57'	S 46° 11' 38" E	125.23'
C-13	25.00'	34.10'	N 85° 57' 27" E	35.24'
C-15	275.00'	253.15'	N 67° 31' 18" E	244.31'
C-17	275.00'	124.33'	S 72° 38' 00" E	128.14'
C-19	25.00'	36.44'	N 78° 26' 52" E	33.71'
C-20	525.00'	52.87'	S 38° 56' 26" W	52.84'
C-22	25.00'	34.24'	S 03° 08' 33" E	35.34'
C-27	25.00'	38.81'	S 87° 25' 13" W	35.03'
C-28	525.00'	82.10'	S 47° 25' 52" W	82.02'
C-30	475.00'	72.33'	S 47° 32' 57" W	72.26'
C-31	25.00'	34.84'	S 02° 27' 42" E	35.75'
C-41	25.00'	43.15'	S 40° 01' 20" E	37.44'
C-42	475.00'	268.63'	S 25° 37' 26" W	265.06'
C-44	25.00'	34.30'	S 66° 51' 21" W	35.30'
C-47	475.00'	718.48'	S 46° 06' 16" E	652.28'
C-50	475.00'	688.21'	S 44° 51' 20" E	624.58'
C-51	25.00'	40.46'	S 43° 35' 32" W	36.53'
C-53	425.00'	555.33'	N 52° 02' 02" W	516.66'
C-56	575.00'	334.56'	N 70° 34' 11" W	334.65'
C-57	25.00'	41.40'	N 06° 17' 34" W	36.83'
C-59	225.00'	207.13'	N 67° 31' 18" E	184.84'
C-61	225.00'	105.82'	S 72° 38' 00" E	104.84'
C-63	25.00'	36.44'	S 16° 46' 05" E	33.71'
C-65	25.00'	36.10'	S 44° 04' 53" W	33.04'



MRA
MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 18 BOULDER CIRCLE, SUITE 36
 NEW CASTLE, DELAWARE 19720
 (302) 326-2200
 FAX: (302) 326-2399
 WWW.MRAGTA.COM

PRELIMINARY PLAN
 FOR
PATRIOTS GLEN
 PHASE 2

ENGINEER'S SEAL	INDIAN RIVER HUNDRED	SUSSEX COUNTY, DELAWARE
DATE	REVISIONS	JOB NO.: 20266
06/15/20	UPDATE PERMETER BUFFER AREA	SCALE: 1"= 50'
		DATE: 12/6/2019
		DRAWN BY: RDG
		DESIGN BY: CJF
		REVIEW BY: PLT
		SHEET: 6 OF 6

C:\2020\Projects\Delaware\2020\PRELIM\PLANS\PHASE 2\1017\1017_0226_PRELIM_PLANS_P12.DWG, 7/20/2020 4:18:10 PM, C:\Users\...
 11/1 Copyright 2020 Morris & Ritchie Associates, Inc.

Appendix 5 – PLUS Review Response Letter

MORRIS & RITCHIE ASSOCIATES, INC.

ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS,
AND LANDSCAPE ARCHITECTS



March 10, 2021

Office of State Planning Coordination
122 Martin Luther King Jr. Blvd. South
Dover, DE 19901

Attention: Ms. Constance C. Holland, Director

Subject: Patriots Glen – Phase 2
PLUS Review 2019-11-07

Dear Ms. Holland:

We are in receipt of your comment letter dated December 19, 2019 with regard to Concept Plan associated with the proposed Patriots Glen – Phase 2 residential subdivision proposed in Sussex County and respond as follows:

Strategies for State Policies and Spending

Comment 1: This project is located in Investment Level 3 according to the Strategies for State Policies and Spending. Investment Level 3 reflects areas where growth is anticipated by local, county, and state plans in the longer term future, or areas that may have environmental or other constraints to development. State investments may support future growth in these areas, but please be advised that the State has other priorities for the near future. We encourage you to design the site with respect for the environmental features which are present.

Response: Comment acknowledged. The project is located within the Sussex County Coastal Area growth zone and has access to public water and sewer. Based on preliminary investigations of the site there are minimal environmental features located within the project area.

Code Requirements/Agency Permitting Requirements

Department of Transportation - contact Bill Brockenbrough 760-2109

Comment 2: The site access on Delaware Route 24 thus far proposed to serve the 161-lot Patriots Glen (Phase 1) development would now need to be designed to accommodate a 288-lot development. Regardless, the access must be designed in accordance with DelDOT's [Development Coordination Manual](http://www.deldot.gov/Business/subdivisions/index.shtml?dc=changes), which is available at <http://www.deldot.gov/Business/subdivisions/index.shtml?dc=changes>.

Response: Comment acknowledged; the site access will be designed, according to the full community buildout, in accordance with the Development Coordination Manual.

Comment 3: Pursuant to Section P.3 of the Manual, a Pre-Submittal Meeting is required before plans are submitted for review.

Response: Comment acknowledged; a Pre-Submittal Meeting with the DelDOT Subdivision Section will be scheduled prior to submittal of plans for review.

18 Boulden Circle, Suite 36, New Castle, DE 19720 (302) 326-2200 Fax: (302) 326-2399 www.mragta.com

PLUS

Re: Patriots Glen – 2019-11-07

March 10, 2021

Page 2 of 8

Comment 4: Section P.5 of the Manual addresses fees that are assessed for the review of development proposals. DelDOT anticipates collecting the Initial Stage Fee when the record plan is submitted for review and the Construction Stage Fee when construction plans are submitted for review.

Response: Comment acknowledged; review fees are anticipated to be provided in accordance with current DelDOT policy.

Comment 5: Per Section 2.2.2.1 of the Development Coordination Manual, Traffic Impact Studies (TIS) are warranted for developments generating more than 500 vehicle trip ends per day or 50 vehicle trip ends per hour in any hour of the day.

Per Section 2.2.2.2 of the Manual, developments generating fewer than 2,000 vehicle trip ends per day and fewer than 200 vehicle trip ends per hour in any hour of the day may be eligible to pay a fee, the Area wide Study Fee, in lieu of doing a TIS. The fee is calculated as \$10 times the Average Daily Traffic volume shown on the site plan and is payable with the Initial Stage submission. Payment of the fee does not exempt the developer from responsibility to make off-site improvements or from preparing a Traffic Operational Analysis (TOA) if DelDOT identifies a need for a TOA in the plan review process.

In considering whether to require a TIS for Patriots Glen (Phase 1) DelDOT found that a development of 161 single-family detached houses would qualify to pay an Area Wide Study Fee in lieu of doing a TIS. In that same process, DelDOT tentatively identified a need for the developer to contribute toward a DelDOT project to improve the Delaware Route 24 intersections with Mount Joy Road/ Oak Orchard Road (both Sussex Road 297) and Bay Farm Road /Autumn Road (both Sussex Road 299).

In considering whether to require a TIS for Patriots Glen – Phase II, DelDOT now finds that:

- While a development of 127 single-family detached houses would qualify to pay an Area Wide Study Fee in lieu of doing a TIS, the two combined developments would not and development of Patriots Glen Phase II presupposes and depends on the development of Patriots Glen Phase I.
- While the developer could pay the Area Wide Study Fee for Patriots Glen Phase I, and likely would do so if Patriots Glen Phase II is denied the contemplated rezoning or otherwise cannot be developed, it does not make economic sense for them to both pay the fee and do a TIS.

Accordingly, DelDOT has determined, for now, to require a TIS based on the traffic from both developments. If Sussex County has not rezoned the land for Patriots Glen Phase II, by the time that plans for Patriots Glen Phase I are ready for approval, and the TIS is complete, DelDOT will identify a set of off-site improvements such that Patriots Glen Phase I can proceed as an independent development.

Response: Comments acknowledged; a TIS report was completed by the traffic engineer for the project, The Traffic Group and subsequently approved by DelDOT on February 26, 2021. DelDOT issued approval letter on February 26, 2021.

Comment 6: In accordance with Section 3.4 of the Manual, a record plan shall be prepared prior to issuing "Letter of No Objection". The record plan submittal shall include the items listed on the Critical Items for Acceptance: Record Plan document available on the DelDOT

website at <https://www.deldot.gov/Business/subdivisions/pdfs/Critical-Items-Record-Subdivision.pdf?09222017>.

Response: Comment acknowledged. Record Plans will be prepared and submitted for DelDOT review in accordance with current DelDOT requirements.

Comment 7: Section 3.5 of the Manual provides DelDOT's requirements with regard to connectivity. The requirements in Sections 3.5.1 through 3.5.3 shall be followed for all development projects having access to state roads or proposing DelDOT-maintained public streets for subdivisions. Private or municipal streets should follow the County's requirements for connectivity. In that regard, DelDOT recommends that Sussex County require, in addition to the two proposed connections to Patriots Glen Phase 1, an extension of Freedom Way, Wexford Lane, or both to connect to Tax Parcel 234-29.00-20.00, Lands of Eldridge Johnson.

Further in that regard, the lands at the end of Nelsa Lane, (Tax Parcel Nos. 234-29.00-69.03, 69.04 827 and 828.00 are owned by a water utility company apparently for a well field. If possible, the developer should obtain easements from the company and the Oak Meadows homeowners association build a bicycle and pedestrian connection from Constitution Way to Nelsa Lane. Section 3.5.4.4 of the Manual provides guidance on how to design such a connection.

Response: Comment acknowledged. Extension of the private streets to create interconnections will the adjacent parcel will be provided if it is determined to a requirement by Sussex County. With regard the pedestrian / bicycle interconnection, the parcels in question are the location of a Tidewater Utilities facility. In accordance with the TIS recommendations, the developer will make a good faith effort to obtain easement for extension of pedestrian interconnection at Nelsa Lane.

Comment 8: In accordance with Section 5.14 of the Manual, all existing utilities must be shown on the plan and a utility relocation plan will be required for any utilities that need to be relocated.

Response: Comment acknowledged; plans will be developed and submitted for DelDOT review in accordance with current DelDOT requirements.

Comment 9: Section 5.7.2.6 of the Manual addresses the need to provide drainage easements for all storm drainage systems, open or closed, that fall outside the existing right-of-way or the drainage/utility easement. In accordance with Section 3.2.5.1.4 of the Manual, metes and bounds and total areas need to be shown for any drainage easements. The easements should be shown and noted on the record plan.

Response: Comment acknowledged; easements associated with any DelDOT drainage features will be provided and noted in accordance with current DelDOT requirements.

Department of Natural Resources and Environmental Control - Contact Michael Tholstrup 735-3352

Sediment and Erosion Control/Stormwater Management

Comment 10: A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. Contact the reviewing agency to schedule a pre-application meeting to discuss the sediment and erosion control and stormwater management components of the plan. The site topography, soils mapping, pre- and post-development runoff, and proposed method(s) and location(s) of stormwater management should be brought to the meeting for discussion. The plan review and approval as well as

PLUS

Re: Patriots Glen – 2019-11-07

March 10, 2021

Page 4 of 8

construction inspection will be coordinated through the Sussex Conservation District. Contact the Sussex Conservation District at (302) 856-7219 for details regarding submittal requirements and fees.

Response: Comment acknowledged; the preliminary SAS report will be prepared and submitted to Sussex Conservation District (SCD) and a pre-application meeting held in accordance with current SCD/DNREC policies.

Total Maximum Daily Load (TMDL) and excess nutrients

Comment 11: Total Maximum Daily Loads (TMDLs) exist for most of the State's water bodies. A TMDL is the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards. To support the State's water quality efforts, DNREC reviewers encourage applicants to reduce the amount of pollutants that enter local waterways by limiting the disturbance of natural habitat and increasing the use of green infrastructure.

Response: Comment acknowledged; stormwater management facilities will be provided for the developed site to address TMDL reduction requirements in accordance with current DNREC policies and State SWM regulations.

Comment 12: A nutrient management plan is required under the Delaware Nutrient Management law (3 Del. Chapter 22) for all persons or entities who apply nutrients to lands or areas of open space in excess of 10 acres. This project's open space may exceed this 10-acre threshold. Please contact the Delaware Nutrient Management Program at (302) 739-4811 for further information concerning compliance requirements, or view additional information here: <http://dda.delaware.gov/nutrients/index.shtml>

State Historic Preservation Office - Contact Carlton Hall 736-7404

Comment 13: There are no known archaeological sites, or known National-listed or eligible properties on the parcel. However, there are properties that are part of the Nanticoke Indian Community Thematic Resources Nomination around this parcel, including the Harmon School (S00165; now the Nanticoke Indian Museum) on Rt. 24 to the northeast; the Isaac Harmon Farmhouse (S00751) on Layton Davis Rd. to the south; and Indian Mission School (S00757) and Harmony Church (S00753) on Rt. 24 to the southwest. The parcel has only low potential for archaeological resources.

The Delaware SHPO recommends consulting with the Nanticoke Tribe.

Response: Comment acknowledged; we anticipate working with the County to determine best path of outreach to the community, including the Nanticoke Tribe, during the plan review and approval process.

Comment 14: The Delaware SHPO office also recommends providing sufficient landscaping between the development and properties listed in the National Register of Historic Places that are part of the Nanticoke Indian Community Thematic Resources Nomination to avoid any adverse visual effects to these surrounding historic properties.

Response: Comment acknowledged; perimeter buffer areas have been established in accordance with Sussex County regulations.

Comment 15: If any project or development proceeds, the developer should be aware of the Unmarked Human Burials and Human Skeletal Remains Law (Del. C. Title 7, Ch. 54).

Response: Comment acknowledged.

PLUS

Re: Patriots Glen – 2019-11-07

March 10, 2021

Page 5 of 8

Comment 16: Prior to any a demolition or ground-disturbing activities, the developer should hire an archaeological consultant to examine the parcel for archaeological resources, including unmarked human burials or human skeletal remains, to avoid those sites or areas.

Response: Comment acknowledged; as noted above, no known archaeological sites or known National Register-listed properties are on the parcel. Your recommendation for the benefit of additional archaeological survey will be noted for developer's consideration.

Comment 17: If there is federal involvement, in the form of licenses, permits, or funds, the federal agency, often through its client, is responsible for complying with Section 106 of the National Historic Preservation Act (36 CFR 800) and must consider their project's effects on any known or potential cultural or historic resources. For further information on the Section 106 process please review the Advisory Council on Historic Preservation's website at: www.achp.gov

Response: Comment acknowledged; no Federal involvement is anticipated for this project.

Delaware State Fire Marshall's Office - Contact Foxx 856-5298

Comment 18: At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation:

Fire Protection Water Requirements:

- Where a water distribution system is proposed for single-family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required.
- The infrastructure for fire protection water shall be provided, including the size of water mains.

Accessibility:

- All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. Additionally, where trees are to be situated adjacent to travel roads in the subdivision, some forethought should be exercised regarding how future growth of the trees may affect fire department travel throughout the subdivision.
- Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
- Any dead end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or tum-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.
- The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.
- The local Fire Chief prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property

Gas Piping and System Information:

- Provide type of fuel proposed, and show locations of bulk containers on plan.

PLUS

Re: Patriots Glen – 2019-11-07

March 10, 2021

Page 6 of 8

Required Notes:

- Provide a note on the final plans submitted for review to read " All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations"
- Name of Water Supplier
- Proposed Use
- National Fire Protection Association (NFPA) Construction Type o Maximum Height of Buildings (including number of stories) o Provide Road Names, even for County Roads
- Townhouse 2-hr separation wall details shall be shown on site plans
- Maximum Height of Buildings (including number of stories)
- Provide Road Names, even for County Roads

Response: Comment acknowledged; plans will be prepared and submitted to the SFMO in accordance with the current Delaware Fire Regulations.

Recommendations/Additional Information

This section includes a list of site specific suggestions that are intended to enhance the project. These suggestions have been generated by the State Agencies based on their expertise and subject area knowledge. These suggestions do not represent State code requirements. They are offered here in order to provide proactive ideas to help the applicant enhance the site design, and it is hoped (but in no way required) that the applicant will open a dialogue with the relevant agencies to discuss how the suggestions can benefit the project.

Department of Transportation - contact Bill Brockenbrough 760-2109

Comment 19: Section 3.2.4.1 of the Manual addresses the placement of right-of-way monuments (markers) along subdivision streets. DelDOT recommends that monuments be furnished and placed along the proposed streets in accordance with this section.

Response: Comment acknowledged; it is anticipated that monuments will be provided along internal streets in accordance with DelDOT guidelines.

Comment 20: The applicant should expect a requirement that any substation and/or wastewater facilities will be required to have access from an internal street or driveway with no direct access to Delaware Route 24.

Response: Comment addressed; plan currently shows proposed sanitary sewer pump station to be constructed as part of the Phase 1 project area, with access only from the internal street.

Comment 21: The applicant should expect a requirement that all PLUS and Technical Advisor Committee (TAC) comments be addressed prior to submitting plans for review.

Response: Comment acknowledged; plans will be submitted to DelDOT with revisions to address TAC and PLUS comments as noted above.

Comment 22: Please be advised that the Standard General Notes have been updated and posted to the DelDOT website. Please begin using the new versions and look for threvisoin dates of March 21, 2019 and March 25, 2019. The notes can be found at <https://www.deldot.gov/Business/subdivisions/>

Response: Comment acknowledged; plans to be submitted to DelDOT will referenced latest General Notes for Record Plans, Entrance Plans, and Maintenance of Traffic Plans.

PLUS

Re: Patriots Glen – 2019-11-07

March 10, 2021

Page 7 of 8

Department of Natural Resources and Environmental Control - Contact Michael Tholstrup 735-3352

Sustainable Development Recommendations

Comment 23: The applicant should consider the use of recycled, energy efficient materials, and renewable energy infrastructure.

Response: Comment acknowledged; opportunities to include recycled, energy efficient, and renewable infrastructure will be explored during the development of the site improvement plans.

Comment 24: The Division of Climate, Coastal, & Energy offers incentives for clean transportation (Workplace EV Charging) and energy efficiency. These programs address climate change goals of reducing greenhouse gas emissions and improving overall air quality (www.de.gov/greenenergy, www.de.gov/cleantransportation, www.de.gov/eeif).

Response: Comment acknowledged; incentive opportunities have been noted and will be shared with the developer for consideration during the project development process.

Delaware State Fire Marshall's - Contact Duane 856-5298

Comment 25: Although not a requirement of the State Fire Prevention Regulations, the Office of the State Fire Marshal encourages home builders to consider the benefits of home sprinkler protection in dwellings. The Office of the State Fire Marshal also reminds home builders that they are obligated to comply with requirements of Subchapter III of Chapter 36 of Title 6 of the Delaware Code which can be found at the following website: http://delcode.delaware.gov/title6/c03_6/sc03/index.shtml

Response: Comment acknowledged; recommendations will be noted to developer for reference by the proposed home builders within the subdivision.

Comment 26: Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: www.statefiremarshal.delaware.gov, technical services link, plan review, applications or brochures.

Response: Comment acknowledged; a pre-submittal meeting will be scheduled with the SFMO prior to plan submittal.

Sussex County - Contact Rob Davis 854-7719

Comment 27: The development is within Tier I - Sussex County Unified Sanitary Sewer District and sewer service is available. The parcel is landlocked and did not receive sewer service during original construction. Connection to Patriot's Glen, Phase I is required in order to receive sewer service. A sewer system concept evaluation must be requested to define a connection point for new projects that were not previously approved.

Response: Comment acknowledged; when establishing the configuration for Patriots Glen (Phase 1), consideration was given to extending sewer to the undeveloped parcel on which the Phase 2 area is situated. The pump station to be designed and constructed the Patriots Glen (Phase 1) project will account for the additional sewer demand created by the additional single-family dwelling units proposed by Patriots-Glen – Phase 2. .

Comment 28: A "Use of Existing Infrastructure Agreement" is required for new projects and must be approved prior to approval of construction plans. Sussex County Code, Chapter 110, requires that the Engineer and/or Developer request a Sewer System Concept Evaluation

PLUS

Re: Patriots Glen – 2019-11-07

March 10, 2021

Page 8 of 8

(SSCE) from the Utility Planning Department for the project by providing the parcel(s) estimated equivalent dwelling units (EDU) for the project, along with payment of a \$1,000.00 fee for the evaluation. The fee is to be payable to Sussex County Council. The Utility Planning Department will review the parcel(s) and EDU, confirm capacity, provide the connection point and define any additional parcels that must be served as part of the project. Should it be determined that a pump station is required for the project, additional information may be requested. This information will be conveyed to the engineer and/or developer as well as the Sussex County Public Works department. The Public Works Division will use this information when reviewing construction drawings to verify that the correct connection point is used, and all required parcels are served.

Response: Comment acknowledged; a request for SSCE will be submitted to the Sussex County Utility Planning Department. As noted above, the site is anticipated to utilize the pump station to be constructed as part of the Patriots Glen (Phase 1) project.

Comment 29: The proposed development will require a developer installed collection system in accordance with Sussex County standards and procedures.

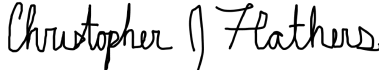
Response: Comment acknowledged; sanitary sewer plans will be developed in accordance with Sussex County requirements standards and note construction in accordance with County standards.

Comment 30: One-time system connection charges will apply. Please contact the Utility Permits Division at 302 854-7719 for additional information on charges.

Response: Comment acknowledged; connection fees are noted to be required in accordance with current County standards.

A Preliminary Plan application has been submitted to Sussex County Department of Planning and Zoning review and approval. If you should require additional information regarding this PLUS application, please contact me to discuss at 302-326-2200.

Very Truly Yours,
MORRIS & RITCHIE ASSOCIATES, INC.


Christopher J. Flathers, P.E.
Senior Project Manager

cc: J. Whitehouse, Sussex County
TJ Schiff, Schiff Land Development
File

Appendix 6 – Web Soil Survey Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Sussex County, Delaware**

Patriots Glen - Phase 2



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
Soil Map	5
Soil Map.....	6
Legend.....	7
Map Unit Legend.....	8
Map Unit Descriptions.....	8
Sussex County, Delaware.....	10
FmA—Fort Mott loamy sand, 0 to 2 percent slopes.....	10
FmB—Fort Mott loamy sand, 2 to 5 percent slopes.....	11
Soil Information for All Uses	14
Soil Properties and Qualities.....	14
Soil Qualities and Features.....	14
Hydrologic Soil Group.....	14
Drainage Class.....	18
Water Features.....	21
Depth to Water Table.....	21
Soil Reports.....	26
Building Site Development.....	26
Dwellings and Small Commercial Buildings.....	26
References	29

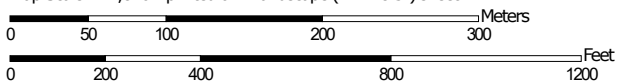
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:4,840 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sussex County, Delaware
 Survey Area Data: Version 21, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 21, 2018—Mar 12, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FmA	Fort Mott loamy sand, 0 to 2 percent slopes	41.3	95.1%
FmB	Fort Mott loamy sand, 2 to 5 percent slopes	2.1	4.9%
Totals for Area of Interest		43.5	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Sussex County, Delaware

FmA—Fort Mott loamy sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1qtgk
Elevation: 10 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Fort mott and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fort Mott

Setting

Landform: Fluvio-marine terraces, flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits over fluvio-marine sediments fluvio-marine deposits

Typical profile

Ap - 0 to 10 inches: loamy sand
E - 10 to 24 inches: loamy sand
Bt - 24 to 36 inches: sandy loam
C - 36 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.28 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Runclint

Percent of map unit: 5 percent
Landform: Flats, fluvio-marine terraces

Custom Soil Resource Report

Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent
Landform: Depressions, fluviomarine terraces, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Rosedale

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Downer

Percent of map unit: 5 percent
Landform: Flats, fluviomarine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

FmB—Fort Mott loamy sand, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1qtgl
Elevation: 10 to 120 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Fort mott and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fort Mott

Setting

Landform: Flats, knolls, fluviomarine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex

Custom Soil Resource Report

Parent material: Sandy eolian deposits over fluviomarine sediments fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: loamy sand
E - 10 to 24 inches: loamy sand
Bt - 24 to 36 inches: sandy loam
C - 36 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.28 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Downer

Percent of map unit: 5 percent
Landform: Flats, knolls, fluviomarine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Rosedale

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent
Landform: Depressions, fluviomarine terraces, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Runclint

Percent of map unit: 5 percent
Landform: Fluviomarine terraces, knolls, dunes, flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear, convex

Custom Soil Resource Report

Across-slope shape: Linear, convex
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

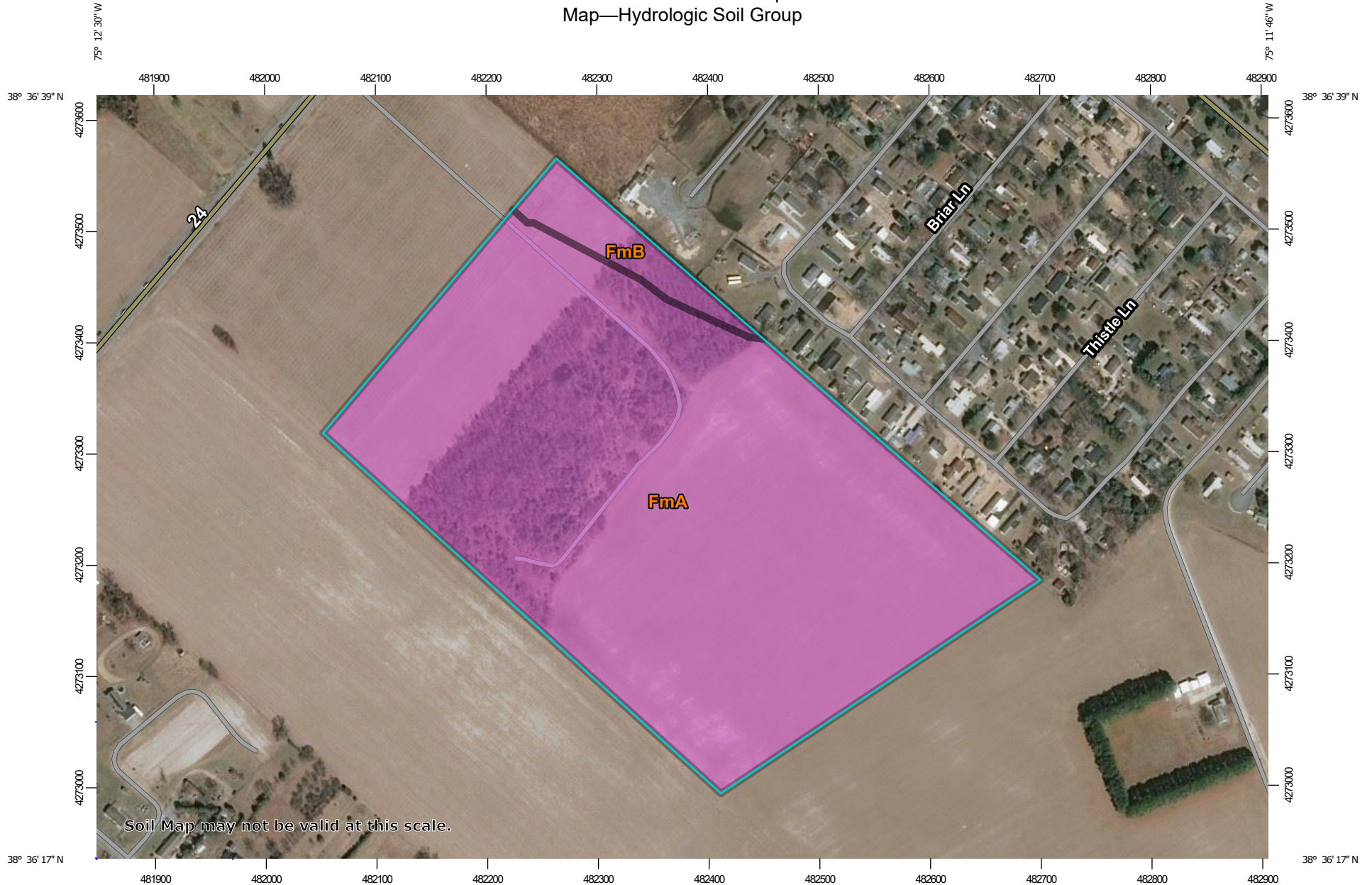
Custom Soil Resource Report

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report Map—Hydrologic Soil Group




Map Scale: 1:4,840 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines


-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sussex County, Delaware
 Survey Area Data: Version 21, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 21, 2018—Mar 12, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
FmA	Fort Mott loamy sand, 0 to 2 percent slopes	A	41.3	95.1%
FmB	Fort Mott loamy sand, 2 to 5 percent slopes	A	2.1	4.9%
Totals for Area of Interest			43.5	100.0%

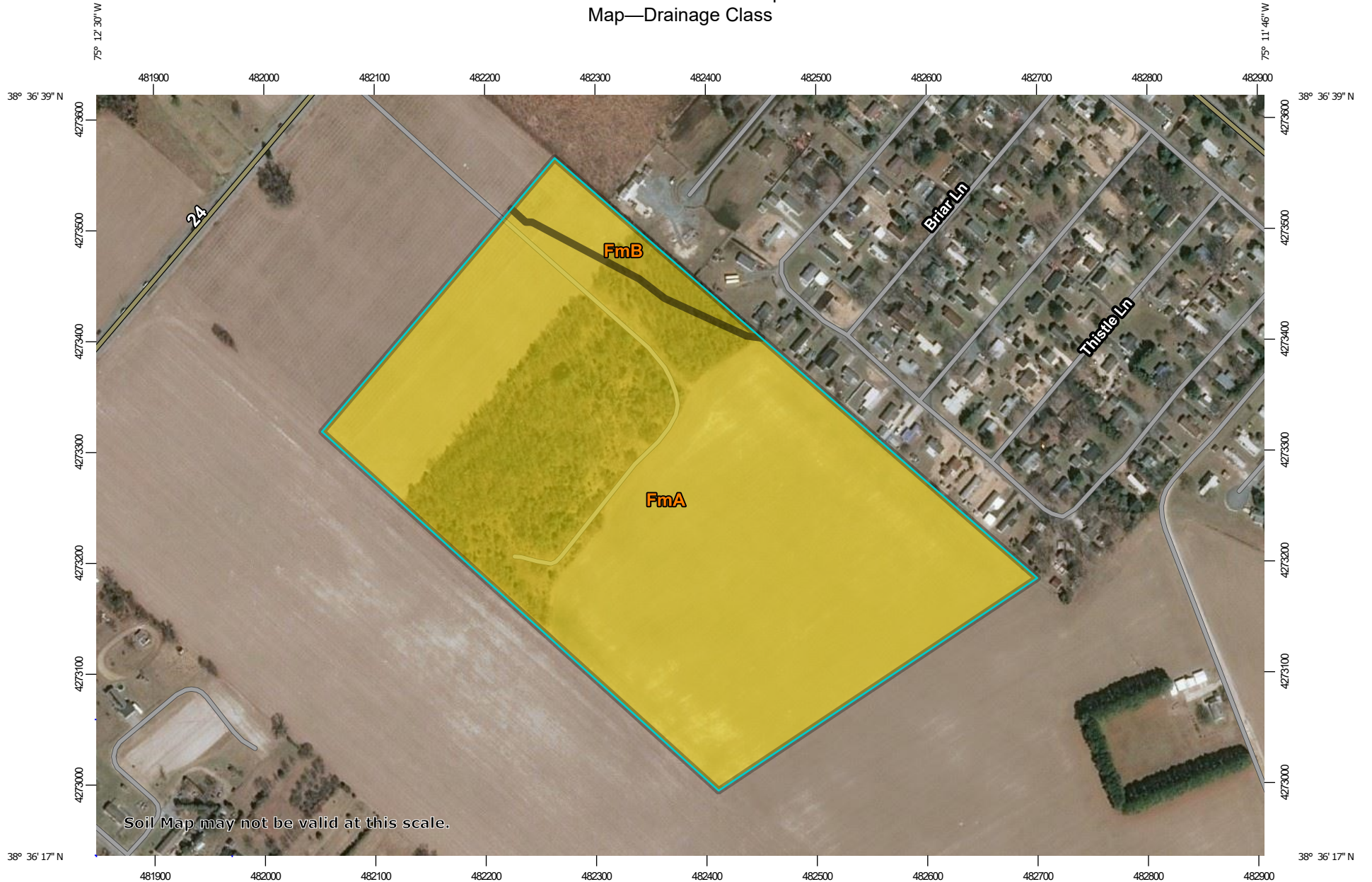
Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition
Component Percent Cutoff: None Specified
Tie-break Rule: Higher

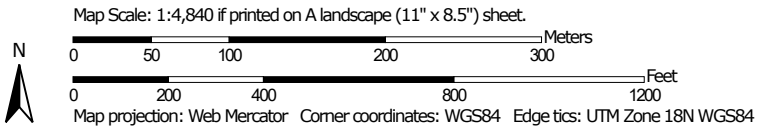
Drainage Class

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Custom Soil Resource Report Map—Drainage Class




Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Excessively drained
-  Somewhat excessively drained
-  Well drained
-  Moderately well drained
-  Somewhat poorly drained
-  Poorly drained
-  Very poorly drained
-  Subaqueous
-  Not rated or not available


Soil Rating Lines

-  Excessively drained
-  Somewhat excessively drained
-  Well drained
-  Moderately well drained
-  Somewhat poorly drained
-  Poorly drained
-  Very poorly drained
-  Subaqueous
-  Not rated or not available






Soil Rating Points

-  Excessively drained
-  Somewhat excessively drained
-  Well drained
-  Moderately well drained
-  Somewhat poorly drained
-  Poorly drained
-  Very poorly drained
-  Subaqueous
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sussex County, Delaware
 Survey Area Data: Version 21, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 21, 2018—Mar 12, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Drainage Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
FmA	Fort Mott loamy sand, 0 to 2 percent slopes	Well drained	41.3	95.1%
FmB	Fort Mott loamy sand, 2 to 5 percent slopes	Well drained	2.1	4.9%
Totals for Area of Interest			43.5	100.0%

Rating Options—Drainage Class

Aggregation Method: Dominant Condition
Component Percent Cutoff: None Specified
Tie-break Rule: Higher

Water Features

Water Features include ponding frequency, flooding frequency, and depth to water table.

Depth to Water Table

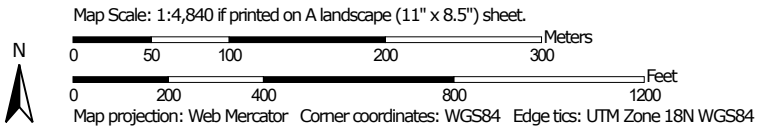
"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.






























Custom Soil Resource Report Map—Depth to Water Table



Soil Map may not be valid at this scale.



MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Soils**
 - Soil Rating Polygons**
 -  0 - 25
 -  25 - 50
 -  50 - 100
 -  100 - 150
 -  150 - 200
 -  > 200
 -  Not rated or not available
 - Soil Rating Lines**
 -  0 - 25
 -  25 - 50
 -  50 - 100
 -  100 - 150
 -  150 - 200
 -  > 200
 -  Not rated or not available
 - Soil Rating Points**
 -  0 - 25
 -  25 - 50
 -  50 - 100
 -  100 - 150
 -  150 - 200
 -  > 200
- Water Features**
 -  Streams and Canals
- Transportation**
 -  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads
 -  Local Roads
- Background**
 -  Aerial Photography
-  Not rated or not available

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sussex County, Delaware
 Survey Area Data: Version 21, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 21, 2018—Mar 12, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
FmA	Fort Mott loamy sand, 0 to 2 percent slopes	>200	41.3	95.1%
FmB	Fort Mott loamy sand, 2 to 5 percent slopes	>200	2.1	4.9%
Totals for Area of Interest			43.5	100.0%

Rating Options—Depth to Water Table

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Building Site Development

This folder contains a collection of tabular reports that present soil interpretations related to building site development. The reports (tables) include all selected map units and components for each map unit, limiting features and interpretive ratings. Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced

Custom Soil Resource Report

concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Dwellings and Small Commercial Buildings

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Custom Soil Resource Report

Dwellings and Small Commercial Buildings—Sussex County, Delaware							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FmA—Fort Mott loamy sand, 0 to 2 percent slopes							
Fort mott	80	Not limited		Not limited		Not limited	
FmB—Fort Mott loamy sand, 2 to 5 percent slopes							
Fort mott	80	Not limited		Not limited		Not limited	

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix 7 – Preliminary Wetlands Evaluation
Geo-Technology Associates, Inc. – November 15, 2019

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing Geoprofessional Business Association Member Firm



November 15, 2019

Schiff Land Development
16054 South Dupont Highway
Harrington, Delaware 19952

Attn: Dr. James W. Schiff

Re: Preliminary Wetland Evaluation Summary Letter
Patriots Glen Phase II
Sussex County, Delaware

Pursuant to your request, Geo-Technology Associates, Inc. (GTA) has performed a Preliminary Wetland Evaluation of the above referenced subject property, which is located east of John J. Williams Highway (DE Route 24) in the Millsboro area of Sussex County, Delaware. The subject property is identified as Sussex County Parcel 234-29.00-67.00 and encompasses approximately 43.46 acres.

In November 2019, a Wetland Scientist from GTA performed a Preliminary Wetland Evaluation at the subject property. GTA evaluated the subject property for potential jurisdictional wetlands and/or waters, in general accordance with Title 33 of the Code of Federal Regulations (CFR) Parts 328 and 329, definitions of waters of the United States, and the three-parameter criteria as set forth in the *1987 Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*, dated November 2010. Wetland indicators include the presence/absence of hydric soils, hydrophytic vegetation, and hydrology. This letter and the accompanying *Preliminary Wetland Evaluation Plan* summarize the findings of GTA's review.

At the time of GTA's field evaluation, the subject property consisted primarily of agricultural fields with well-drained soils. GTA also observed an upland wooded area in the central portion of the site consisting primarily of black walnut (*Juglans nigra*, FACU), honeysuckle bush (*Diervilla lonicera*, FACU), and multiflora rose (*Rosa multiflora*, FACU). Soils within this wooded area was also well-drained and lacked hydric soil indicators.

As a result of GTA's review of the subject property, it is GTA's professional opinion that no jurisdictional "waters of the U.S.", including wetlands, are on the subject property. Our conclusions regarding this site have been based on observations of existing conditions, professional experience in the area with similar projects, and generally accepted professional

3445-A Box Hill Corporate Center Drive, Abingdon, MD 21009 (410) 515-9446 Fax: (410) 515-4895

◆ Abingdon, MD ◆ Baltimore, MD ◆ Laurel, MD ◆ Frederick, MD ◆ Waldorf, MD ◆ Sterling, VA ◆ Malvern, OH
◆ Somerset, NJ ◆ NYC Metro ◆ New Castle, DE ◆ Georgetown, DE ◆ York, PA ◆ Quakertown, PA ◆ Charlotte, NC ◆ Raleigh, NC

Visit us on the web at www.gtaeng.com

Schiff Land Development

Re: Preliminary Wetland Evaluation Summary Letter – Patriots Glen Phase II

November 15, 2019

Page 2

environmental practice under similar circumstances. Seasonal fluctuations in precipitation or weather conditions can result in differences in the perception of hydrologic conditions, which can alter GTA's evaluation of wetlands/waterways. It is important to note that this delineation is GTA's professional opinion, only. Decisions regarding the official jurisdictional status of wetlands/waterways are made by federal, state and / or local regulatory agencies.

Should you have questions or require additional information, please contact this office at (410) 515-9446.

Sincerely,
GEO-TECHNOLOGY ASSOCIATES, INC.



Ryan McGehee
Environmental Scientist



Andy Stansfield
Vice President

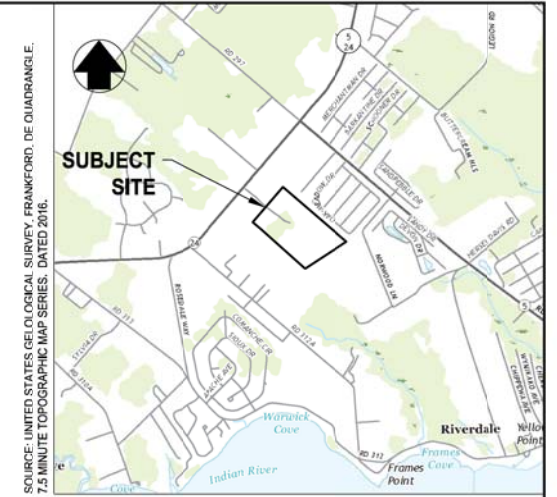
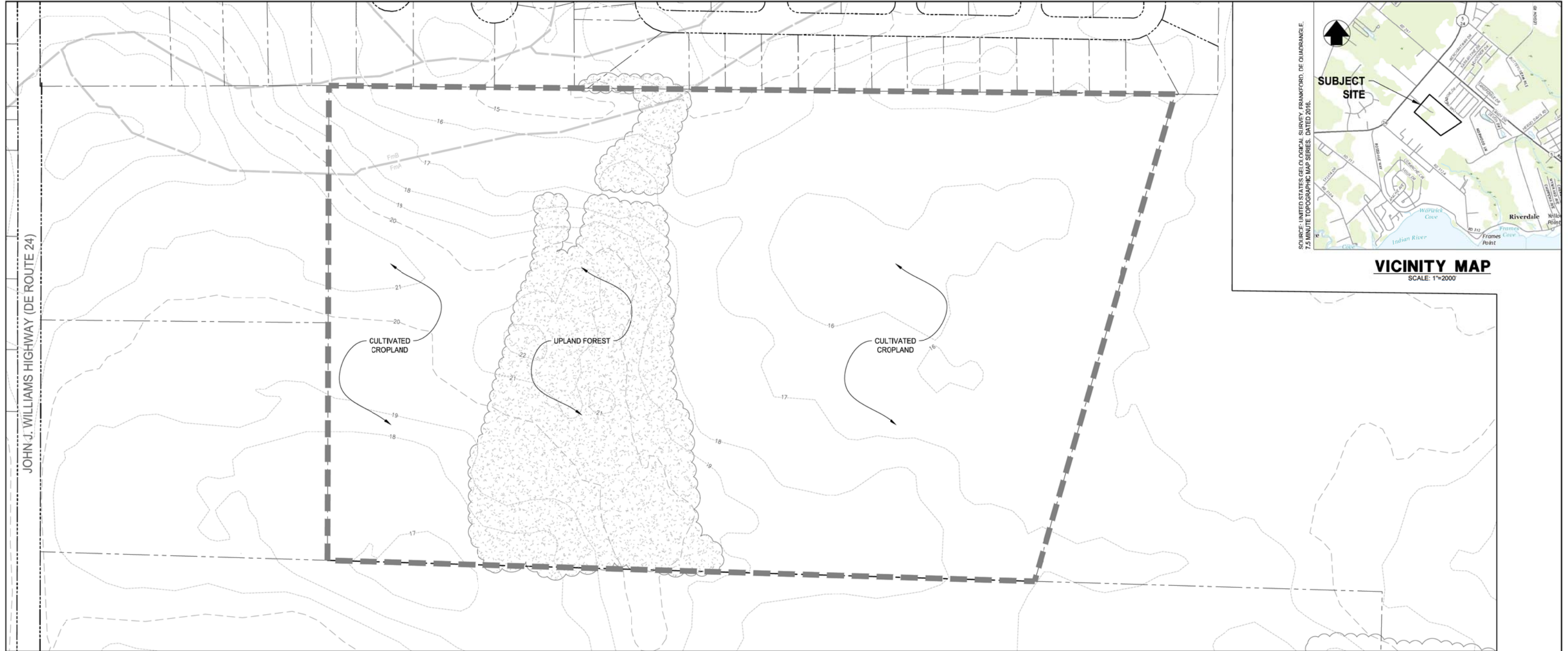
RJM/MAJ/TAS
31191636

L:\Shared\Project Files\2019\31191636 - Patriots Glen Phase II\WET\Reports - Permitting\Wetland Delineation Report\31191636 - PWE Summary.doc

cc: Phil Tolliver / MRA

Attachments:

Preliminary Wetland Evaluation for Patriots Glen Phase II, dated November 13, 2019



VICINITY MAP
SCALE: 1"=2000'

GENERAL INFORMATION

- LOCATION: EAST OF JOHN J WILLIAMS HIGHWAY (DE ROUTE 24) IN MILLSBORO AREA IN THE AREA OF SUSSEX COUNTY, DELAWARE.
- PLAN PREPARED FOR: SCHIFF LAND DEVELOPMENT
16054 SOUTH DUPONT HIGHWAY
HARRINGTON, DELAWARE 19952
ATTN: DR. JAMES W. SCHIFF
- PLAN PREPARED BY: GEO-TECHNOLOGY ASSOCIATES, INC. (GTA)
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
ATTN: MR. RYAN MCGEEHEE
- AREA OF REVIEW: APPROXIMATELY 43.46 ACRES
- THE SUBJECT SITE IS IDENTIFIED AS SUSSEX COUNTY TAX PARCEL 234-29.00-67.00.
- INFORMATION SHOWN ON THIS PLAN IS PRELIMINARY AND NOT MEANT FOR ENGINEERING OR CONSTRUCTION PURPOSES.
- THIS PRELIMINARY WETLAND EVALUATION (PWE) PLAN WAS PRODUCED ON AN EXISTING CONDITIONS AND TOPOGRAPHIC BASE PLAN PROVIDED BY MORRIS & RITCHE ASSOCIATES, INC (MRA).
- ACCORDING TO FEMA FIRM MAP NUMBER 10005C0477K, EFFECTIVE MARCH 16, 2015, THE REVIEW AREA IS NOT LOCATED WITHIN A 100-YEAR FLOODPLAIN.
- SOILS SHOWN ON THIS PLAN WERE ADAPTED FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY, ACCESSED ON NOVEMBER 12, 2019. AVAILABLE ONLINE AT <HTTP://WWW.MD.NRCS.USDA.GOV/TECHNICAL/SOILS.HTML>.
- THE PRELIMINARY WETLAND EVALUATION WAS PERFORMED BY GTA IN NOVEMBER 2019.
- AS A RESULT OF THE REVIEW OF THE SITE, IT IS GTA'S PROFESSIONAL OPINION THAT THERE ARE NO JURISDICTIONAL "WATERS OF THE U.S.", INCLUDING WETLANDS, PRESENT WITHIN THE REVIEW AREA.
- GTA'S CONCLUSIONS REGARDING THIS SITE HAVE BEEN BASED ON OBSERVATIONS OF EXISTING CONDITIONS, PROFESSIONAL EXPERIENCE, AND GENERALLY ACCEPTED PROFESSIONAL ENVIRONMENTAL PRACTICE UNDER SIMILAR CIRCUMSTANCES. SEASONAL VEGETATION CYCLES AND FLUCTUATIONS IN PRECIPITATION OR WEATHER CONDITIONS CAN RESULT IN DIFFERENCES IN THE PERCEPTION OF HYDROLOGIC CONDITIONS AND THE PRESENCE OF PREDOMINANTLY HYDROPHYTIC VEGETATION, WHICH CAN ALTER GTA'S EVALUATION OF WETLANDS/WATERWAYS.
- IT IS IMPORTANT TO NOTE THAT THIS EVALUATION IS GTA'S PROFESSIONAL OPINION, ONLY. DECISIONS REGARDING THE OFFICIAL JURISDICTIONAL STATUS OF WETLANDS/WATERWAYS ARE MADE BY FEDERAL, STATE, AND/OR LOCAL REGULATORY AGENCIES.
- THIS PLAN WAS PREPARED BY GTA FOR THE SOLE AND EXCLUSIVE USE OF SCHIFF LAND DEVELOPMENT. ANY REPRODUCTION OF THIS PLAN BY ANY OTHER PERSON WITHOUT THE EXPRESSED WRITTEN PERMISSION OF GTA AND SCHIFF LAND DEVELOPMENT IS UNAUTHORIZED, AND SUCH USE IS AT SOLE RISK OF THE USER.

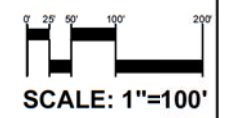
SOILS CHART

SYMBOL ¹	NAME/DESCRIPTION ¹	HYDRIC SOIL ²	HYDRIC COMPONENT ²	PERCENTAGE OF MAPPING UNIT ²	POSITION IN LANDSCAPE ²
FmA	FORT MOTT LOAMY SAND, 0-2% SLOPES	NO	-	-	-
FmB	FORT MOTT LOAMY SAND, 2-5% SLOPES	NO	-	-	-

1. U. S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY, ON NOVEMBER 12, 2019, AT <HTTP://WWW.MD.NRCS.USDA.GOV/TECHNICAL/SOILS.HTML>
2. HYDRIC SOILS INFORMATION AVAILABLE FROM THE STATE SOIL DATA ACCESS HYDRIC SOILS LIST, AT <HTTPS://WWW.NRCS.USDA.GOV/INTERNET/FSE_DOCUMENTS/NRCSEPR01316619.HTML#REPORTREF>. ACCESSED NOVEMBER 12, 2019.

LEGEND

- SUBJECT SITE
- EXISTING PROPERTY BOUNDARY
- APPROXIMATE TREELINE
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- APPROXIMATE SOIL BOUNDARY



		GEO-TECHNOLOGY ASSOCIATES, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3445-A BOX HILL CORPORATE CENTER DRIVE ABINGDON, MARYLAND 21009 410-515-9446 FAX: 410-515-4895 WWW.GTAENG.COM © GEO-TECHNOLOGY ASSOCIATES, INC.	
		PRELIMINARY WETLAND EVALUATION PATRIOTS GLEN PHASE II SUSSEX COUNTY, DELAWARE	
DATE	REVISIONS	JOB NO:	31191636
		SCALE:	1"=100'
		DATE:	NOVEMBER 15, 2019
		DRAWN BY:	RJM
		DESIGN BY:	
		REVIEW BY:	MAJ/TAS
		SHEET:	1 OF 1

Appendix 8 – Traffic Analysis

Service Level Evaluation, DeIDOT, December 6, 2019

TIS Approval, DeIDOT, February 26, 2021

Traffic Impact Study, The Traffic Group, August 27, 2020



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

December 6, 2019

Ms. Janelle Cornwell, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Ms. Cornwell:

The Department has completed its review of a Service Level Evaluation Request for the **Schiff Land Development Company, LLC (c/o Mr. T.J. Schiff)** rezoning application, which we received on December 2, 2019. This application is for an approximately 43.46-acre parcel (Tax Parcel: 234-29.00-67.00). The subject land is located on the south side of Delaware Route 24, approximately 1,400 feet east of the intersection of Delaware Route 24 and Layton Drive (Sussex Road 312A), in Sussex County. The subject land is currently split-zoned as CR-1 (Commercial Residential) and MR (Medium-Density Residential), and the applicant is seeking a residential planned community (RPC) overlay approval to develop 127 single-family detached houses.

Because the subject land is landlocked, the applicant proposes to access Delaware Route 24 through the proposed Patriots Glen Phase I which would occupy Tax Parcels 234-29.00-66.00, 66.01 & 66.02. Patriots Glen Phase I also belongs to the applicant and is proposed to consist of 161 single-family detached houses. A rezoning of the parcels for Patriots Glen Phase I from CR-1 to MR and a residential planned community (RPC) overlay zone to establish the entire assemblage as an MR-RPC district was adopted by Sussex County in July 2019. In considering whether a TIS should be required for Patriots Glen Phase I, DeIDOT found that a development of 161 single-family detached houses would qualify to pay an Area Wide Study Fee in lieu of doing a TIS. Payment of the fee would not excuse the developer from having to make off-site improvements.

In considering whether a TIS should be required for the subject land, DeIDOT now finds that:

- 1) While a development of 127 single-family detached houses would qualify to pay an Area Wide Study Fee in lieu of doing a TIS, the two combined developments would not and development of the subject land presupposes and depends on the development of Patriots Glen Phase I.



Ms. Janelle M. Cornwell

Page 2 of 3

December 6, 2019

- 2) While the developer could pay the Area Wide Study Fee for Patriots Glen Phase I, and likely would do so if the subject land is denied the contemplated rezoning or otherwise cannot be developed, it does not make economic sense for them to both pay the fee and do a TIS.

On November 12, 2019, the applicant's consultant met with DelDOT to conduct a TIS scoping meeting for the subject development. In our TIS scope of work memorandum, issued December 6, 2019, DelDOT accounted for the impact of both developments in case they are both built. A copy of the scope of work memorandum is enclosed with this letter.

Per the 2018 Delaware Vehicle Volume Summary, the annual average and summer average daily traffic volumes along the segment of Delaware Route 24 where the subject land is located, which is from Delaware Route 30 to Mount Joy Road (Sussex Road 297), are 21,233 and 621,233 vehicles per day, respectively.

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Mr. Claudy Joinville, at (302) 760-2124, if you have questions concerning this correspondence.

Sincerely,



T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:cjf

Enclosure

cc: Constance C. Holland, Coordinator, Cabinet Committee on State Planning Issues
Schiff Land Development Company, LLC (c/o Mr. T.J. Schiff), Applicant
J. Marc Coté, Assistant Director, Development Coordination
Gemez Norwood, South District Public Works Manager, Maintenance and Operations
Susanne Laws, Sussex County Subdivision Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
Troy Brestel, Project Engineer, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

MEMORANDUM

TO: File

FROM: Claudy Joinville, Project Engineer *C.J.*

DATE: December 6, 2019

**SUBJECT: Patriots Glen – Phase I & II
Traffic Impact Study (TIS) – Scoping Meeting (11/12/19)
Scope of Work**

ATTENDANCE: Joe Caloggero, The Traffic Group, Inc.
Marc Coté, DelDOT Planning
Susanne Laws, DelDOT Planning
Brian Yates, DelDOT Planning
T. William Brockenbrough, DelDOT Planning
Claudy Joinville, DelDOT Planning

Background and Discussion

Schiff Land Development Company, LLC has two related developments in the John J. Williams Highway (Delaware Route 24) corridor between Layton Davis Road (Sussex Road 312A) and Oak Orchard Road (Delaware Route 5). The first one, referred to herein as Patriots Glen Phase I and known elsewhere simply as Patriots Glen, is proposed on a 49.94-acre assemblage of three tax parcels (Tax Parcels 234-29.00-66.00, 66.01 & 66.02). A rezoning of part of the land from CR-1 to MR and a residential planned community (RPC) overlay zone to establish the entire assemblage as an MR-RPC district with 161 single-family detached house lots was adopted by Sussex County in July 2019. The development would have access on the south side of Route 24 through Parcel 66.01. Construction is anticipated to be complete in 2024.

In considering whether a TIS should be required for Patriots Glen Phase I, DelDOT found that a development of 161 single-family detached houses would qualify to pay an Area Wide Study Fee in lieu of doing a TIS. Payment of the fee would not excuse the developer from having to make off-site improvements. The fee is not due until plans are submitted for approval, so the developer has not paid it and DelDOT has not identified the specific off-site improvements they would need to make or fund.

The second development, referred to herein as Patriots Glen Phase II, is proposed on a 43.46-acre tax parcel (Tax Parcel 234-29.00-67.00). Its situation with regard to zoning is similar to Patriots Glen Phase I except that the developer has not yet applied for the rezonings they seek and they propose a smaller development, 127 single-family detached houses. Because Parcel 67.00 is land locked, the developer proposes to access it through Patriots Glen Phase I.



In considering whether a TIS should be required for Patriots Glen Phase II, DelDOT now finds that:

- 1) While a development of 127 single-family detached houses would qualify to pay an Area Wide Study Fee in lieu of doing a TIS, the two combined developments would not and development of Patriots Glen Phase II presupposes and depends on the development of Patriots Glen Phase I.
- 2) While the developer could pay the Area Wide Study Fee for Patriots Glen Phase I, and likely would do so if Patriots Glen Phase II is denied the contemplated rezoning or otherwise cannot be developed, it does not make economic sense for them to both pay the fee and do a TIS.

Accordingly, this scope of work is based on the traffic from both developments. If Sussex County has not rezoned the land for Patriots Glen Phase II by the time that plans for Patriots Glen Phase I are ready for approval, DelDOT will identify a set of off-site improvements such that Patriots Glen Phase I can proceed as an independent development. In doing so, if development of Patriots Glen Phase II remains a reasonable possibility, DelDOT will require that the entrance on Route 24 be designed to accommodate both developments.

Cases to be Evaluated

The study shall evaluate the weekday morning, weekday evening, summer Saturday midday peak hours for the following situations:

- 1) Existing (2019);
- 2) 2027 without development; and
- 3) 2027 with development.

Facilities to be Evaluated

The TIS should evaluate conditions at the following intersections for capacity and level of service using the Highway Capacity Software (HCS). It should also evaluate the extent to which they meet the relevant DelDOT, AASHTO and MUTCD standards for geometry and traffic control devices.

- 1) Site Entrance / Delaware Route 24
- 2) Delaware Route 24 / Gull Point Way (Sussex Road 313)
- 3) Delaware Route 24 / Streets Road (Sussex Road 310)
- 4) Delaware Route 24 / Arrowhead Trail (*Backfill*)
- 5) Delaware Route 24 / William Street (Sussex Road 309)
- 6) Delaware Route 24 / Oak Orchard Road / Mount Joy (Sussex Road 297)
- 7) Delaware Route 24 / Legion Road (Sussex Road 298)
- 8) Delaware Route 24 / Bay Farm Road / Autumn Road (Sussex Road 299)
- 9) Mount Joy Road / Cordrey Road (Sussex Road 308)
- 10) Mount Joy Road / Cannon Road (Sussex Road 307)

Traffic Counts

The Consultant should conduct traffic counts for the intersections listed above from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m., on a Tuesday, Wednesday or Thursday, and from 10:00 a.m. to 2:00 p.m. on a Saturday to determine when the peaks occur. The weekday counts should be performed during a time when schools are open and operating at a normal capacity. The Saturday counts should be conducted at a time

when local area schools, as well as schools in the nearby metropolitan areas of Philadelphia, Baltimore, and Washington, D.C., are closed in June, July, or August.

Additionally, Automatic Traffic Recorders (ATRs) should be used to collect traffic data on Delaware Route 24 near the area of the proposed site entrance. The ATR should be placed for a one-week time period that includes the date(s) of the manual traffic counts. The ATR data will be used to verify the manual counts and determine whether adjustments are required.

For intersections Nos. 3, 4, 5, and 10, the Consultant is allowed to proceed with the submission of the weekday morning and evening traffic counts and preliminary TIS for our review. However, the Consultant must perform summer Saturday counts for them and include those counts in the submission of the final TIS.

Section 2.2.8.5, item 19, under Existing Traffic and Transportation Conditions in the Development Coordination Manual addresses how oversaturated intersections are to be counted.

The traffic counts should be submitted to DelDOT both electronically as Portable Document Format (PDF)/Excel files and as draft report figures showing peak hour volumes (labeled with date and peak hour interval) posted on diagrams of the road network.

The Consultant should include counts of pedestrians, a separate count of right-turn on red (in addition to right-turn movement counts), and a separate count of heavy vehicles.

The Consultant should be alert for events affecting the traffic counts, such as accidents or nearby construction and shall make note of any such events when submitting the counts. As necessary, DelDOT reserves the right to reject the counts or require adjustments to them.

Trip Generation

The Consultant shall use the 10th edition of the ITE Trip Generation Manual in generating trips for this development.

Trip Distribution

A trip distribution to be used for the site is attached. Trip distributions for the committed developments will be provided by the Consultant for review.

Growth Factors

The Consultant shall apply growth factors to the traffic counts. DelDOT will develop those factors after we receive the Consultant's traffic counts.

The Consultant should also determine what portions of the following developments were complete at the time of any traffic counts to be used in the study and shall add in projected traffic from any unbuilt portions. The following information on the amount and types of development associated with these projects is tentative and should be verified with Sussex County.

- 1) Acadia a.k.a. Insight at Lewes Point (238 single-family detached houses)
- 2) Middle Creek Preserve (313 single-family detached houses)
- 3) Hailey's Glen (f.k.a. Kielbasa Property) (68 single-family detached houses)
- 4) Beachtree Preserve (155 single-family detached houses)

- 5) Tanager Woods (173 single-family detached houses)
- 6) Pelican Point (400 single-family detached houses)
- 7) Independence (a.k.a. Indigo Run) (450 single-family detached houses)
- 8) Deerbrook (120 single-family detached houses)
- 9) Peninsula Lakes (588 single-family detached houses, 72 multi-family low-rise houses, and 15,000 square-feet of retail space)
- 10) Baylis Estates (136 single-family detached houses)

Highway Capacity Software

The Consultant shall use the most recent version of the Highway Capacity Software (HCS) that implements the 6th Edition of the Highway Capacity Manual (HCM). Presently, that is HCS7.

Roads	November	December	January
Delaware Route 24 – TPG 8	1.22	1.28	1.25
Autumn Road (Sussex Road 299) – TPG 7	0.98	1.11	1.23
Bay Farm (Sussex Road 299) – TPG 7	0.98	1.11	1.23
Legion Road (Sussex Road 298) – TPG 7	0.98	1.11	1.23
Mount Joy Road (Sussex Road 297) – TPG 6	1.09	1.08	1.25
Oak Orchard Road (Sussex Road 297) – TPG 3	1.05	1.11	1.14
Gull Point Road (Sussex Road 313) – TPG 7	0.98	1.11	1.23
William Street (Sussex Road 309) – TPG 7	0.98	1.11	1.23
Streets Road (Sussex Road 310) – TPG 7	0.98	1.11	1.23
Cordrey Road (Sussex Road 308) – TPG 7	0.98	1.11	1.23
Cannon Road (Sussex Road 307) – TPG 7	0.98	1.11	1.23
All Other Roads	1.00	1.00	1.00

DeIDOT Projects

DeIDOT currently has one active project within the study area.

DeIDOT’s Hazard Elimination Program has two sites that include the intersections of Delaware Route 24 and Mount Joy Road, and Delaware Route 24 and Bay Farm Road / Autumn Road. At the intersection of Delaware Route 24 and Mount Joy Road, the proposed improvements include:

- Widen the northbound Oak Orchard Road and southbound Mount Joy Road approaches, respectively, to provide separate left-turn, through, and right-turn lanes.
- Extend the left-turn and right-turn lanes on all approaches to meet storage requirements.
- Construct sidewalks and bicycle lanes.

At the intersection of Delaware Route 24 and Bay Farm Road / Autumn Road, the proposed improvements include:

- Widen the northbound Bay Farm Road and southbound Autumn Road approaches, respectively, to provide separate left-turn, through, and right-turn lanes.
- Widen the westbound Delaware Route 24 approach to provide separate left-turn, through, and right-turn lanes.
- Extend the left-turn and right-turn lanes on all approaches to meet storage requirements.
- Construct sidewalks and bicycle lanes.

More details, including concept plans for this project, are available at the following link: https://www.delDOT.gov/information/projects/SR24_MountJoy_BayFarmRd/index.shtml. For more information on how this project affects the proposed development, the Consultant shall contact Mr. Mark Whiteside, Project Manager in the Project Development – South section. Mr. Whiteside may be reached at (302) 760-2127.

Transit, Bicycle, and Pedestrian Facilities

The study should describe the existing and proposed transit service in the project area and should also describe the existing and needed transit, bicycle, and pedestrian facilities on or near the project site. In determining these items, the Consultant shall contact Mr. Jared Kauffman, a Service Development Planner at the Delaware Transit Corporation (DTC), and Mr. Anthony Aglio, of DelDOT's Statewide and Regional Planning Section. Mr. Kauffman may be reached at (302) 576-6062. Mr. Aglio may be reached at (302) 760-2509.

General Notes

- 1) All submissions relating to this study should be made electronically via the Planning and Development Coordination Application (PDCA), preferably in Portable Document Format (PDF).
- 2) The Consultant should e-mail DelDOT's Transportation Management Center (TMC) at tmc1@delaware.gov to obtain advance approval for the use of any signal timings.
- 3) The Consultant should refer to the attached memorandum from Scott Neidert of DelDOT's Traffic Section for guidance regarding requests for crash data within the study area. The Consultant shall report on this data and make recommendations for improvements if safety problems exist in the study area. Mr. Neidert may be reached at (302) 659-4075.
- 4) Before deploying temporary unmanned devices, e.g. cameras or radar detectors, in the State-maintained right-of-way, the individual or company proposing to do so shall execute and file a Right-of-Way Use Agreement. Before each specific deployment of devices, the individual or company shall email a completed Temporary Data Collection Device Notification Form to TMC1@delaware.gov. Deployment of Automatic Traffic Recorders, a.k.a. tube counters, and devices on portable trailers does not require a Right-of-Way Use Agreement but does require submission of the Temporary Data Collection Device Notification Form. Copies of the standard agreement and the form are available from Ms. Lara Brown at (302) 659-4062 or Lara.Brown@delaware.gov.
- 5) Both DelDOT and Sussex County reserve the right to change this scope of work if the study is not performed within a reasonable time.

Memorandum to File
December 6, 2019
Page 6 of 6

- 6) The developer may choose to have DelDOT's Consultant perform the TIS rather than use their own Consultant. If this option is of interest, the developer should contact Mr. Troy Brestel at (302) 760-2167 to request a cost estimate.
- 7) By copy of this memorandum I ask those copied to contact me at (302) 760-2124 regarding any significant errors or omissions.

CJ:cjm

Enclosure

cc: Janelle Cornwell, Sussex County Planning and Zoning
Drew Boyce, Director, Planning
Michael Simmons, Assistant Director for Project Development South, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Alastair Probert, South District Engineer, DOTS
Gemez Norwood, South District Public Works Supervisor, DOTS
Bryan Behrens, Project Development – South Section, DOTS
Mark Whiteside, Project Development – South Section, DOTS
James Satterfield, Regional Group Engineer, Project Development South, DOTS
William Kirsch, South District Permit Supervisor, DOTS
Troy Brestel, Project Manager, Development Coordination
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Mark Galipo, Traffic Engineer, DelDOT Traffic, DOTS
Anthony Aglio, Statewide & Regional Planning
Scott Neidert, Design Resource Engineer, Traffic Section
Lara Brown, Administrative Specialist, DelDOT Traffic DOTS
Kari Glanden, Statistical Information Supervisor, DelDOT Traffic, DOTS
Andrew Parker, McCormick & Taylor, Inc.
Mir Wahed, Johnson, Mirmiran, & Thompson, Inc.



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

February 26, 2021

Mr. Joe Caloggero
The Traffic Group, Inc.
9900 Franklin Square Drive
Suite H
Baltimore, Maryland 21236

Dear Mr. Caloggero:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Patriots Glen** (Tax Parcel 234-29.00-67.00) development has been completed under the responsible charge of a registered professional engineer whose firm is authorized to work in the State of Delaware. They have found the TIS to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2167.

Sincerely,

Troy Brestel
Project Engineer

TEB:km
Enclosures

cc with enclosures: Mr. Rob Grenon, Morris & Ritchie Associates, Inc.
Ms. Constance C. Holland, Office of State Planning Coordination
Mr. Jamie Whitehouse, Sussex County Planning and Zoning
Mr. Mir Wahed, Johnson, Mirmiran & Thompson, Inc.
Ms. Joanne Arellano, Johnson, Mirmiran & Thompson, Inc.
Mr. Kevin Hickman, Johnson, Mirmiran & Thompson, Inc.
DelDOT Distribution

DelDOT Distribution

Brad Eaby, Deputy Attorney General

J. Marc Coté, Director, Planning

Shanté Hastings, Director, Transportation Solutions (DOTS)

Mark Luszcz, Deputy Director, Traffic, DOTS

Michael Simmons, Assistant Director, Project Development South, DOTS

Todd Sammons, Assistant Director, Development Coordination

T. William Brockenbrough, Jr., County Coordinator, Development Coordination

Peter Haag, Chief Traffic Engineer, Traffic, DOTS

Kerry Yost, Traffic Calming and Subdivision Relations Manager, Traffic, DOTS

Alistair Probert, South District Engineer, South District

Gemez Norwood, South District Public Works Manager, South District

Jared Kauffman, Service Development Planner, Delaware Transit Corporation

Tremica Cherry, Service Development Planner, Delaware Transit Corporation

Anthony Aglio, Planning Supervisor, Statewide & Regional Planning

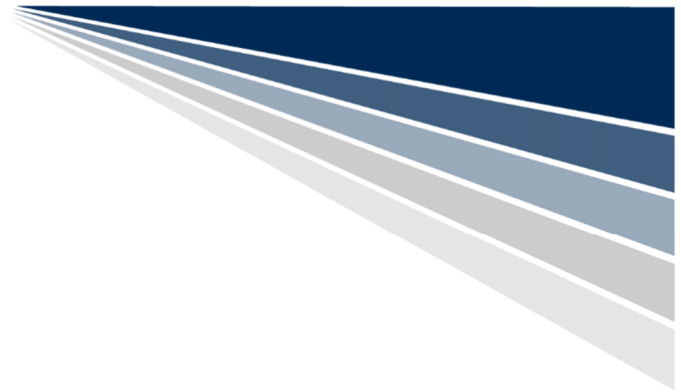
Wendy Polasko, Subdivision Engineer, Development Coordination

Richard McCabe, Sussex Review Coordinator, Development Coordination

Mark Galipo, Traffic Engineer, Traffic, DOTS

Claudy Joinville, Project Engineer, Development Coordination

Annamaria Furmato, Project Engineer, Development Coordination



February 26, 2021

Mr. Troy Brestel
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE: Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 16A-Patriots Glen Phases I & II TIS

Dear Mr. Brestel:

Johnson, Mirmiran and Thompson (JMT) has completed the review of the Traffic Impact Study (TIS) for Patriots Glen Phases I & II, prepared by The Traffic Group, Inc. dated August 27, 2020. This task was assigned as Task Number 16A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed residential development in Sussex County, Delaware. The development will be constructed in two phases. Phase I will consist of 161 single-family detached houses and Phase II will consist of 127 single-family detached houses. Construction for Phase I is anticipated to be complete in 2024 and for Phase II in 2027. The TIS reviews one build condition which is based on the development of both phases.

The site is located on the south side of Delaware Route 24 (John J. Williams Highway), between Layton Davis Road (Sussex Road 312A) and Oak Orchard Road/Mount Joy Road (Sussex Road 297) One full access point is proposed along Delaware Route 24.

The subject property for Phase I is on an approximately 49.94-acre assemblage of tax parcels. In July 2019, Sussex County adopted rezoning of part of the land from CR-1 (Commercial Residential) to MR (Medium Residential) and a residential planned community (RPC) overlay zone to establish the entire assemblage as an MR-RPC district. The subject property for Phase II is on an approximately 43.46-acre parcel of land which is currently zoned as MR and CR-1. Per the TIS, the developer has not yet applied for the rezoning that they seek.

DelDOT has one relevant and ongoing improvement project within the study area, the *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements* project (DelDOT Contract No. T200711201). The project will widen to provide turn lanes along each approach to the Delaware Route 24 intersections with Mount Joy Road/Oak Orchard Road and Bay Farm Road/Autumn Lane. The project location was identified as a high crash location as part of the



DelDOT Highway Safety Improvement Program (HSIP). Recommendations were made from the *SR 24, SR 30 to Love Creek Traffic Study* performed in November 2010.

The project is under design with construction anticipated to begin in Spring 2021 and be completed in 2023. More information regarding the *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements* project can be found at:

<https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T200711201>

The Delaware Route 24 and Oak Orchard Road/Mount Joy Road (Sussex Road 297) study intersection was included in DelDOT’s 2015 *Hazard Elimination Program* (HEP) as Site I. Site I is a 0.50-mile corridor along Mount Joy Road/Oak Orchard Road from 0.01 mile south of Oak Meadow Drive to 0.22 mile north of Delaware Route 24. The Site I Task I Report included a crash evaluation and a sight distance review of the Delaware Route 24 and Oak Orchard Road/Mount Joy Road intersection. The remedial improvements included additional signage as well as increasing the yellow time at the intersection per DelDOT guidelines. Based on the latest signal timing plans from DelDOT, the yellow time has been adjusted per DelDOT guidelines. The Site I report mentioned that the improvements proposed as part of the *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements* project (DelDOT Contract No. T200711201) would address the identified crash clusters and no additional studies were recommended.

Based on our review of the TIS, we have the following comments and recommendations: The following intersections exhibit level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements. The table below incorporates the traffic analysis for the Cases 2 and 3 (with and without Phases I and II of the development) conditions with the improvements from the *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements* (DelDOT Contract No. T200711201) project.

Intersection	LOS Deficiencies Occur			Case
	AM	PM	Saturday	
Site Entrance/Delaware Route 24		X	X	Case 3- 2027 with development
Delaware Route 24/Legion Road	X	X	X	Case 2- 2027 without development
	X	X	X	Case 3- 2027 with development

The unsignalized Site Entrance intersection with Delaware Route 24 is proposed approximately 850 feet east of Layton Davis Road and exhibits LOS deficiencies during the weekday PM and Summer Saturday peak hours under future conditions with the proposed development (Case 3). The failures occur along the northbound Site Entrance left turn with delays of up to 48.3 seconds per vehicle with a calculated 95th percentile queue length of approximately 65 feet. These deficiencies could be mitigated by the provision of either a roundabout or a traffic signal. The installation of a roundabout is not recommended due to the unbalanced traffic volume flows projected at the intersection. Furthermore, the westbound Delaware Route 24 left turn operates at



LOS B (10.6 seconds of delay per vehicle) under Case 3 conditions. Therefore, we recommend the developer construct the Site Entrance as an unsignalized full access along Delaware Route 24.

The unsignalized Legion Road intersection with Delaware Route 24 exhibits LOS deficiencies during all peak hours under future conditions, with or without the proposed development. The deficiencies occur along the northbound Legion Road approach with delays of up to 366.6 seconds per vehicle under future conditions with the development and a 95th percentile queue of approximately 215 feet. These deficiencies could be mitigated by the provision of either a roundabout or a traffic signal. Additionally, the installation of a traffic signal at this location is proposed as part of the River Farm and Peninsula Lakes developments. Therefore, we recommend that the developer enter into a traffic signal agreement for the intersection of Legion Road and Delaware Route 24 and coordinate with DelDOT on the implementation and equitable cost sharing of a traffic signal installation.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

1. The developer shall improve Delaware Route 24 within the limits of their frontage to meet DelDOT’s standards for their Functional Classification as found in Section 1.1 of the *Development Coordination Manual* and elsewhere therein. The improvements shall include both directions of travel, regardless of whether the developer’s lands are on one or both sides of the road. Frontage is defined in Section 1 of the *Development Coordination Manual*, which states “This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway.” Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

2. The developer should construct a full access site entrance for the proposed Patriots Glen Phases I and II development on Delaware Route 24, approximately 850 feet east of Layton Davis Road to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Delaware Route 24	One through lane	One through lane and one right turn lane
Westbound Delaware Route 24	One through lane	One left turn lane and one through lane
Northbound Site Entrance	Approach does not exist	One left turn lane and one right turn lane



Based on DelDOT’s *Development Coordination Manual*, the recommended minimum storage length is 350 feet (excluding taper) for the eastbound Delaware Route 24 right turn lane and 235 feet (excluding taper) for the westbound Delaware Route 24 left turn lane. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths.

3. The developer should enter into an agreement with DelDOT to fund an equitable portion of the improvements to the intersections of Delaware Route 24 with Autumn Road/Bay Farm Road, Oak Orchard Road/Mount Joy Road, and Legion Road as part of the *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection* project (DelDOT Contract No. T200711201). The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements.
4. The developer should enter into a traffic signal agreement with DelDOT for the intersection of Delaware Route 24 and Legion Road for the installation of a traffic signal. The intersection should be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Delaware Route 24	One through lane and one right turn lane	No change
Westbound Delaware Route 24	One shared left turn/through lane	One left turn lane and one through lane
Northbound Legion Road	One shared left turn/right turn lane	No change

The recommended minimum storage length is 50 feet (excluding taper) for the westbound Delaware Route 24 left turn lane. The calculated queue lengths from the HCS analysis can be accommodated within the existing storage length for the eastbound Delaware Route 24 right turn lane. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. The River Farm and Peninsula Lakes (a.k.a. Bay Farm) developments are also expected to contribute to this improvement. At DelDOT’s discretion, the developer may contribute to the Traffic Signal Revolving Fund in lieu of a traffic signal agreement.

5. The following bicycle, pedestrian, and transit improvements should be included:
 - a. DelDOT will require a sidewalk or shared-use path to the specific facility to be decided during the plan review process.



- b. The lots at the end of Nelsa Lane (Tax Parcel Nos. 234-29.00-69.03, 69.04 827.00 and 828.00) are owned by a water utility company. As requested by the County, the developer should make a good faith effort to obtain easements from the company and the Oak Meadows homeowners association to build a bicycle and pedestrian connection from Constitution Way to Nelsa Lane. Section 3.5.4.4 of the Manual provides guidance on how to design such a connection. Should the developer be unable to obtain the easements after a good faith effort has been made, this requirement may be removed during the plan review process.
- c. ADA compliant curb ramps and marked crosswalks should be provided along the Site Entrance approach to Delaware Route 24. The use of diagonal curb ramps is discouraged.
- d. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lanes and shoulder along the Delaware Route 24 approaches to the Site Entrance.
- e. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DeIDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DeIDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DeIDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Don Weber, Assistant Director for Traffic Operations and Management. Mr. Weber can be reached at (302) 659-4651 or by email at Don.Weber@delaware.gov.



Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

A handwritten signature in black ink, appearing to read 'Joanne M. Arellano', is written in a cursive style.

Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Enclosure

General Information

Report date: August 27, 2020

Prepared by: The Traffic Group, Inc.

Prepared for: Schiff Land Development Company, LLC

Tax Parcels: 234-29.00-66.00, 66.01, 66.02, 67.00

Generally consistent with DelDOT's *Development Coordination Manual (DCM)*: Yes

Project Description and Background

Description: The developer seeks to develop 161 single-family detached houses (Phase I) and 127 single-family detached houses (Phase II).

Location: The subject site is located on the south side of Delaware Route 24 between the intersections of Delaware Route 24 and Oak Orchard Road/Mount Joy Road (Sussex Road 297) and Layton Davis Road (Sussex Road 312A).

Amount of Land to be developed: An approximately 50-acre parcel (Phase I) and an approximately 43-acre parcel (Phase II).

Land Use approval(s) needed: Entrance Plan and Rezoning.

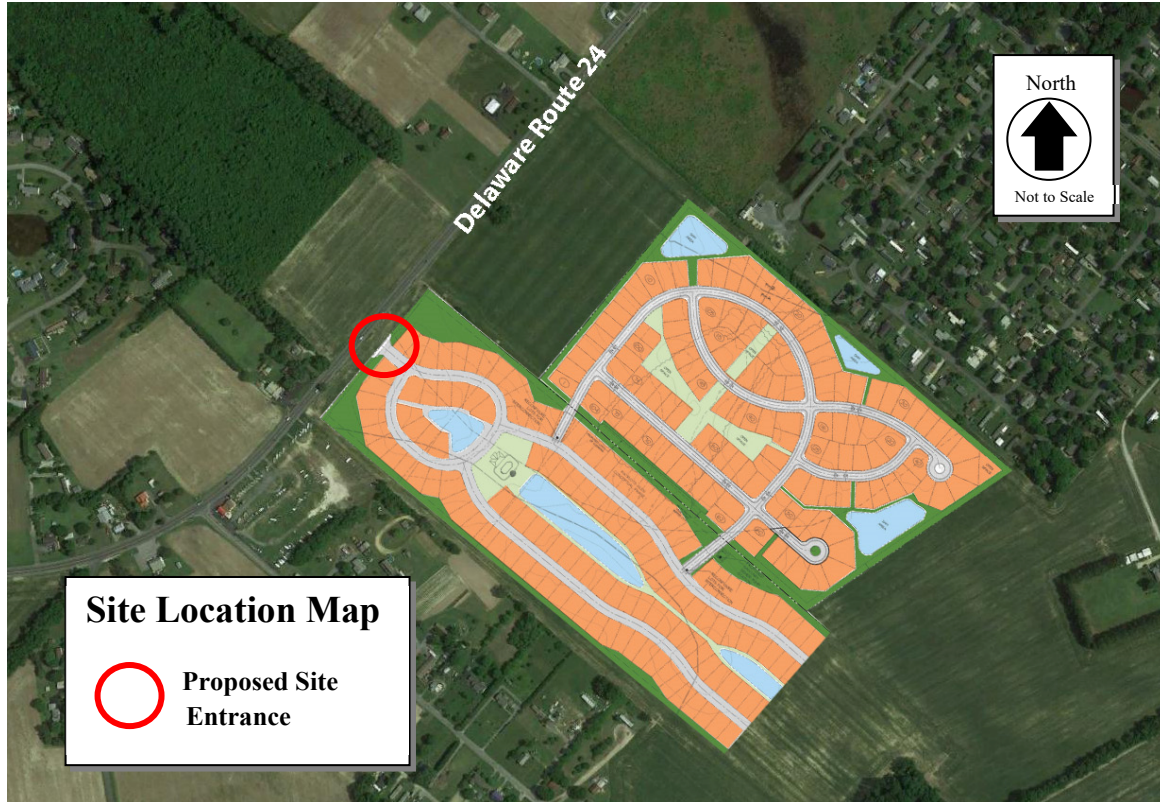
Proposed completion date: Phase I is anticipated to be complete in 2024 and Phase II in 2027.

Proposed access location: One full access along Delaware Route 24.

Daily Traffic Volumes:

- 2019 Average Annual Daily Traffic on Delaware Route 24: 21,960 vehicles per day (non-Summer)

Site Map



**Graphic is an approximation based on the Concept Sketch prepared by Morris & Ritchie Associates, Inc. dated May 15, 2019.*

Relevant and On-going Projects

DelDOT has one relevant and ongoing improvement project within the study area, the *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements* project (DelDOT Contract No. T200711201). The project will widen to provide turn lanes along each approach to the Delaware Route 24 intersections with Mount Joy Road/Oak Orchard Road and Bay Farm Road/Autumn Lane. The project location was identified as a high crash location as part of the DelDOT Highway Safety Improvement Program (HSIP). Recommendations were made from the *SR 24, SR 30 to Love Creek Traffic Study* performed in November 2010.

The project is under design with construction anticipated to begin in Spring 2021 and be completed in 2023. More information regarding the *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements* project can be found at:

<https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T200711201>

The Delaware Route 24 and Oak Orchard Road/Mount Joy Road (Sussex Road 297) study intersection was included in DelDOT's 2015 *Hazard Elimination Program* (HEP) as Site I. Site I is a 0.50-mile corridor along Mount Joy Road/Oak Orchard Road from 0.01 mile south of Oak Meadow Drive to 0.22 mile north of Delaware Route 24. The Site I Task I Report included a crash evaluation and a sight distance review of the Delaware Route 24 and Oak Orchard Road/Mount

Joy Road intersection. The remedial improvements included additional signage as well as increasing the yellow time at the intersection per DelDOT guidelines. Based on the latest signal timing plans from DelDOT, the yellow time has been adjusted per DelDOT guidelines. The Site I report mentioned that the improvements proposed as part of the *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements* project (DelDOT Contract No. T200711201) would address the identified crash clusters and no additional studies were recommended.

Livable Delaware

(Source: Delaware Strategies for State Policies and Spending, 2020)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:

The proposed development is located within Investment Level 2 and 3 areas.

Investment Level 2

These areas can be composed of less developed areas within municipalities, rapidly growing areas in the counties that have or will have public water and wastewater services and utilities, areas that are generally adjacent to or near Investment Level 1 Areas, smaller towns and rural villages that should grow consistently with their historic character, and suburban areas with public water, wastewater, and utility services. They serve as transition areas between Level 1 and the state's more open, less populated areas. They generally contain a limited variety of housing types, predominantly detached single-family dwellings.

In Investment Level 2 Areas, like Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Investments should encourage departure from the typical single-family-dwelling developments and promote a broader mix of housing types and commercial sites encouraging compact, mixed-use development where applicable. Overall, the State's intent is to use its spending and management tools to promote well-designed development in these areas. Such development provides for a variety of housing types, user-friendly transportation systems, essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community.

Level 2 Areas share similar priorities as with the Level 1 Areas where the aim remains to: make context sensitive transportation system capacity enhancements, preserve existing facilities, make safety enhancements, make transportation system capacity improvements, create transit system enhancements, ensure ADA accessibility, and close gaps in the pedestrian system, including the Safe Routes to School projects. Investment Level 2 Areas are ideal locations for Transportation Improvement Districts and Complete Community Enterprise Districts. Other priorities for Level 2 Areas include: Corridor Capacity Preservation, off-alignment multi-use paths, interconnectivity of neighborhoods and public facilities, and signal-system enhancements.

Investment Level 3

Investment Level 3 Areas generally fall into two categories. The first category covers lands that are in the long-term growth plans of counties or municipalities where development is not necessary to accommodate expected population growth during a five-year planning period (or longer). In these instances, development in Investment Level 3 may be least appropriate for new growth and development in the near term. The second category includes lands that are adjacent to or intermingled with fast-growing areas within counties or municipalities that are otherwise categorized as Investment Levels 1 or 2. Environmentally sensitive features, agricultural-preservation issues, or other infrastructure issues most often impact these lands. In these instances, development and growth may be appropriate in the near term, but the resources on the site and in the surrounding area should be carefully considered and accommodated by state agencies and local government with land-use authority. Investment Level 3 is further characterized by areas with new development separated from existing development by a substantial amount of vacant land that is not contiguous with existing infrastructure, areas that are experiencing some development pressure, areas with existing but disconnected development, and possible lack of adequate infrastructure.

The state will consider investing in infrastructure within Investment Level 3 Areas once the Investment Level 1 and 2 Areas are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems and deemed appropriate to serve a particular area. The priorities in the Level 3 Areas are for DelDOT to focus on regional movements between towns and other population centers. DelDOT also supports the development and implementation of Transportation Improvement Districts in Investment Level 3 areas. Local roadway improvements will be made by developers and property owners as development occurs. Lower priority is given to transportation system–capacity improvements and transit-system enhancements.

Proposed Development’s Compatibility with Livable Delaware:

According to Livable Delaware, Investment Level 3 Areas generally include lands that are adjacent to or intermingled with fast-growing areas within counties or municipalities that are categorized as Investment Levels 1 or 2. In these instances, development and growth may be appropriate in the near term but the resources in the surrounding area such as infrastructure issues should be considered. The subject site falls within an Investment Level 2 area as well, and the area is experiencing significant development (including infrastructure upgrades).

In addition, Level 3 areas in the longer term may be desirable for a variety of housing types, styles, and densities in conjunction with local government comprehensive plans, and Level 2 areas support residential growth supplemented with infrastructure and essential neighborhood services. Therefore, the proposed development is generally consistent with the 2020 update of the Livable Delaware “Strategies for State Policies and Spending.”

Comprehensive Plans

(Source: Sussex County March 2019 Comprehensive Plan)

Sussex County Comprehensive Plan:

Per the *Sussex County Comprehensive Plan Future Land Use Map*, the proposed development is in an area designated as Coastal Area and Commercial.

Proposed Development’s Compatibility with the Sussex County Comprehensive Plan:

Per the *Sussex County Comprehensive Plan Future Land Use Map*, most of the site is in an area designated as Coastal Area with a smaller portion designated as Commercial. The Coastal Area is a region among the most desirable locations in Sussex County for new housing. The plan states that a range of housing types should be permitted in Coastal Areas. Therefore, the proposed development is generally consistent with the *Sussex County March 2019 Comprehensive Plan*.

Trip Generation

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (single-family detached housing), The trip generation was approved by DelDOT during the Preliminary Traffic Impact Study (PTIS) review.

Table 1

Patriots Glen Phases I & II Trip Generation

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
288 Single-family Housing (ITE Code 210) (Phases I & II)	2752	52	157	209	176	104	280	140	120	260

Overview of TIS

Intersections examined:

1. Site Entrance / Delaware Route 24
2. Delaware Route 24 / Gull Point Way (Sussex Road 313)
3. Delaware Route 24 / Arrowhead Trail
4. Delaware Route 24 / Oak Orchard Road / Mount Joy Road (Sussex Road 297)
5. Delaware Route 24 / Legion Road (Sussex Road 298)
6. Delaware Route 24 / Bay Farm Road / Autumn Road (Sussex Road 299)
7. Mount Joy Road / Cordrey Road (Sussex Road 308)

Note: Per the December 6, 2019 DelDOT Scoping Meeting Memorandum, ten study intersections were requested to be evaluated. However, per an April 14, 2020 correspondence from DelDOT contained within the TIS, three intersections were accepted to be omitted (Delaware Route

24/Streets Road, Delaware Route 24/William Street, and Mount Joy Road/Cannon Road) due to the lack of available count data as a result of the Covid-19 pandemic.

Conditions examined:

1. Case 1 – 2018 Existing Condition
2. Case 2 – 2027 without development
3. Case 3 – 2027 with development

Note: Per the December 6, 2019 DelDOT Scoping Meeting Memorandum, Case 1 was 2019 Existing Conditions. However, per an April 14, 2020 correspondence from DelDOT contained within the TIS, utilizing 2018 traffic count data from the Peninsula Square TIS report prepared by Duffield Associates, Inc. was permitted.

Committed Developments considered:

1. Acadia a.k.a. Insight at Lewes Point (238 single-family detached houses)
2. Middle Creek Preserve (313 single-family detached houses)
3. Hailey’s Glen (f.k.a. Kielbasa Property) (68 single-family detached houses)
4. Beachtree Preserve (155 single-family detached houses)
5. Tanager Woods (173 single-family detached houses)
6. Pelican Point (400 single-family detached houses, 109 units built, remaining 291 units)
7. Independence (a.k.a. Indigo Run) (450 single-family detached houses, 387 units built, remaining 63 units)
8. Deerbrook (120 single-family detached houses)
9. Peninsula Lakes (588 single-family detached houses (143 built, remaining 445 units), 72 multi-family low-rise houses, and 15,000 square-feet of retail space)
10. Baylis Estates (136 single-family detached houses)

Note: Committed development information listed above is from the TIS report and supersedes the information from the December 6, 2019 DelDOT Scoping Meeting Memorandum.

Peak hours evaluated: Weekday morning, Weekday evening, and Summer Saturday midday peak hours.

Intersection Descriptions

1. Site Entrance/Delaware Route 24

Type of Control: Proposed stop-controlled intersection (T-intersection)

Eastbound Approach: (Delaware Route 24) Existing one through lane; proposed one through lane and one right turn lane

Westbound Approach: (Delaware Route 24) Existing one through lane; proposed one left turn lane and one through lane

Northbound Approach: (Site Entrance) Proposed one left turn lane and one right turn lane, stop controlled

2. Delaware Route 24/Gull Point Way (Sussex Road 313)

Type of Control: Existing stop-controlled intersection (T-intersection)

Eastbound Approach: (Delaware Route 24) Existing one through lane and one right turn lane

Westbound Approach: (Delaware Route 24) Existing one shared left turn/through lane

Northbound Approach: (Gull Point Way) Existing one shared left turn/right turn lane, stop controlled

3. Delaware Route 24/Arrowhead Trail

Type of Control: Existing stop-controlled intersection (T-intersection)

Eastbound Approach: (Delaware Route 24) Existing one shared left turn/through lane and one bypass lane

Westbound Approach: (Delaware Route 24) Existing one shared through/right turn lane

Southbound Approach: (Arrowhead Trail) Existing one shared left turn/right turn lane, stop controlled

4. Delaware Route 24/Oak Orchard Road/Mount Joy Road (Sussex Road 297)

Type of Control: Existing signalized intersection (four-legged)

Eastbound Approach: (Delaware Route 24) Existing one left turn lane, one through lane, and one right turn lane

Westbound Approach: (Delaware Route 24) Existing one left turn lane, one through lane, and one right turn lane

Northbound Approach: (Oak Orchard Road) Existing one shared left turn/through lane and one right turn lane; proposed one left turn lane, one through lane, and one right turn lane

Southbound Approach: (Mount Joy Road) Existing one shared left turn/through lane and one right turn lane; proposed one left turn lane, one through lane, and one right turn lane

Note: The proposed lane configurations for this intersection are the improvements associated with the HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements project (DelDOT Contract No. T200711201).

5. Delaware Route 24/Legion Road (Sussex Road 298)

Type of Control: Stop controlled intersection (T-intersection)

Eastbound Approach: (Delaware Route 24) Existing one through lane and one right turn lane

Westbound Approach: (Delaware Route 24) Existing one shared left turn/through lane

Northbound Approach: (Legion Road) Existing one shared left turn/right turn lane, stop controlled

6. Delaware Route 24/Bay Farm Road/Autumn Road (Sussex Road 299)

Type of Control: Existing signalized intersection (four-legged)

Eastbound Approach: (Delaware Route 24) Existing one left turn lane, one through lane, and one right turn lane

Westbound Approach: (Delaware Route 24) Existing one left turn lane and one shared through/right turn lane; proposed one left turn lane, one through lane, and one right turn lane

Northbound Approach: (Bay Farm Road) Existing one left turn lane and one shared through/right turn lane; proposed one left turn lane, one through lane, and one right turn lane

Southbound Approach: (Autumn Road) Existing one left turn lane and one shared through/right turn lane; proposed one left turn lane, one through lane, and one right turn lane

Note: The proposed lane configurations for this intersection are the improvements associated with the HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements project (DelDOT Contract No. T200711201).

7. Mount Joy Road/Cordrey Road (Sussex Road 308)

Type of Control: Existing stop-controlled intersection (T-intersection)

Eastbound Approach: (Mount Joy Road) Existing one shared through/right-turn lane

Westbound Approach: (Mount Joy Road) Existing one shared through/left-turn lane

Northbound Approach: (Cordrey Road) Existing one shared left-turn/right-turn lane, stop controlled

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, Delaware Transit Corporation (DTC) currently provides existing services within the study area via DART Route 215. DART Route 215 runs along Delaware Route 24 with existing bus stops at the intersection with Indian Mission Road/Long Neck Road, just north of the study area. DART Route 215 provides 11 round trips on weekdays and Saturdays from 5:25 AM to 12:43 AM.

Planned transit service: Per email correspondence on September 22, 2020 with Ms. Tremica Cherry-Wall, Fixed-Route Planner at the DTC, bus stops are recommended to be added on both

sides of Delaware Route 24 at the Oak Orchard Road/Mount Joy Road (Sussex Road 297) intersection. Pedestrian connections to the bus stops should be provided.

Existing bicycle and pedestrian facilities: According to DelDOT's *Sussex County Bicycle Map*, Regional and Connection Bicycle Routes exist within the study area. One Regional Bicycle Route travels along Delaware Route 24, traversing through 6 study intersections (Site Entrance, Gull Point Way, Arrowhead Trail, Oak Orchard Road/Mount Joy Road, Legion Road, and Bay Farm Road/Autumn Road). The Connector Bicycle Route exists along Oak Orchard Road and traverses through one study intersection (Delaware Route 24).

Planned bicycle and pedestrian facilities: Per email correspondence on September 24, 2020 from Mr. John Fiori, DelDOT's Bicycle Coordinator, the following improvements were recommended:

- Construct a 10-foot wide shared-use path (SUP) along the Delaware Route 24 site frontage.
- Internal bicycle racks are required.
- Per the Development Coordination Manual (DCM) the site shall dedicate right-of-way per the roadway classification and establish a 15-foot wide permanent easement along the property frontage.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then a bike lane shall be incorporated along the right turn lane; if a left turn lane is required any roadway improvements shall include a shoulder matching the roadway functional classification or existing conditions.

Bicycle Level of Traffic Stress in Delaware: Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontages are summarized below. The Bicycle LTS was determined utilizing the map on the DelDOT Gateway.

- Delaware Route 24 – LTS: 3

Crash Evaluation

Per the crash data included in the TIS from April 17, 2017 to April 17, 2020 and provided by the Delaware Crash Analysis Reporting System, a total of 99 crashes were reported within the study area. Of the 99 crashes reported:

- 6 crashes occurred at the unsignalized intersection of Delaware Route 24 and Gull Point Way (Sussex Road 313)

- Of those 6 crashes, 2 were rear end incidents and 2 were fixed object incidents. One of these crashes resulted in injuries.
- 49 crashes occurred at the signalized intersection of Delaware Route 24 and Oak Orchard Road/Mount Joy Road.
 - Of those 49 crashes, 24 were rear end incidents and 12 were angle incidents. 13 of these accidents resulted in injuries.
- 8 crashes occurred at the unsignalized intersection of Delaware Route 24 and Legion Road.
 - Of those 8 crashes, 4 were rear-end incidents and 2 were animal involved incidents. Two of these accidents resulted in injuries.
- 30 crashes occurred at the signalized intersection of Delaware Route 24 and Autumn Road/Bay Farm Road.
 - Of those 30 crashes, 15 were rear end incidents and 9 were angle incidents. Seven of these accidents resulted in injuries.
- 6 crashes occurred at the unsignalized intersection of Mount Joy Road and Cordrey Road.
 - Of those 6 crashes, 2 were rear end incidents and 2 were fixed object incidents. None of these accidents resulted in injuries.
- No fatalities were reported within the study area during the 3-year study period.

Previous Comments

Comments provided by DelDOT during the Preliminary TIS review have been addressed in the Final TIS.

General HCS Analysis Comments

(See table footnotes on the following pages for specific comments)

1. For the intersection analyses, the TIS used HCS7 version 7.8.5, whereas JMT used HCS7 version 7.9.
2. Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in the Case 2 and Case 3 future scenario analyses, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for the analysis of future scenarios. The TIS maintained existing heavy vehicle percentages for all cases.
3. Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways for Case 1 conditions, whereas the TIS did not.
4. Per DelDOT's *Development Coordination Manual*, JMT utilized the existing PHF for the Case 1 scenario and a future PHF for Cases 2 and 3 scenarios of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph or the existing PHF, whichever was higher. The TIS utilized a minimum PHF of 0.92 for all cases.
5. JMT incorporated bicycles and pedestrians in the analysis, whereas the TIS did not.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Site Entrance/Delaware Route 24						
2027 with Development (Case 3)						
Westbound Delaware Route 24 Left Turn	A (8.8)	B (10.6)	B (10.1)	A (8.9)	B (10.6)	B (10.1)
Northbound Site Entrance Approach	D (28.6)	E (47.3)	E (39.7)	D (29.0)	E (48.3)	E (40.6)

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Roundabout ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Site Entrance/Delaware Route 24 ²						
2027 with Development (Case 3)	-	-	-	A (9.0)	B (12.6)	B (10.8)

¹ For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

² JMT analyzed the intersection as a single-lane roundabout.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Signalized Intersection ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Site Entrance/Delaware Route 24 ³						
2027 with Development (Case 3)	-	-	-	B (13.2)	B (13.8)	B (13.3)

³ JMT analyzed the intersection as an uncoordinated signalized intersection. A 120 second cycle length was utilized for all peak hours with protected and permissive left turns along westbound Delaware Route 24.

Table 3
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Delaware Route 24/Gull Point Way (Sussex Road 313)						
2018 Existing (Case 1)						
Westbound Delaware Route 24 Left Turn	A (8.3)	A (8.5)	A (8.5)	A (8.3)	A (8.7)	A (8.6)
Northbound Gull Point Road Approach	C (19.5)	C (16.9)	C (16.8)	C (18.9)	C (18.4)	C (16.7)
2027 without Development (Case 2)						
Westbound Delaware Route 24 Left Turn	A (8.5)	A (9.2)	A (9.1)	A (8.5)	A (9.3)	A (9.2)
Northbound Gull Point Road Approach	D (26.6)	D (25.1)	C (23.9)	D (25.4)	D (25.7)	C (23.8)
2027 with Development (Case 3)						
Westbound Delaware Route 24 Left Turn	A (8.6)	A (9.5)	A (9.3)	A (8.6)	A (9.6)	A (9.4)
Northbound Gull Point Road Approach	D (30.1)	D (29.5)	D (27.4)	D (28.5)	D (30.2)	D (27.2)

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Delaware Route 24/Arrowhead Trail ⁴						
2018 Existing (Case 1)						
Eastbound Delaware Route 24 Left Turn	A (8.6)	A (8.3)	A (8.2)	A (8.6)	A (8.5)	A (8.3)
Southbound Arrowhead Trail Approach	C (18.5)	C (17.6)	B (14.5)	C (16.4)	C (18.0)	B (10.9)
2027 without Development (Case 2)						
Eastbound Delaware Route 24 Left Turn	A (9.2)	A (8.8)	A (8.7)	A (9.2)	A (8.9)	A (8.8)
Southbound Arrowhead Trail Approach	C (24.8)	C (25.8)	C (19.4)	C (21.6)	C (24.9)	B (14.9)
2027 with Development (Case 3)						
Eastbound Delaware Route 24 Left Turn	A (9.5)	A (8.9)	A (8.8)	A (9.4)	A (9.0)	A (8.9)
Southbound Arrowhead Trail Approach	D (27.9)	D (30.2)	C (21.8)	C (24.1)	D (29.4)	C (16.8)

⁴ JMT accounted for a flared minor-street storage of two vehicles, whereas the TIS did not.

Table 5
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Signalized Intersection ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Delaware Route 24/Oak Orchard Road/Mount Joy Road (Sussex Road 297) ^{5,6}						
2018 Existing (Case 1)	C (29.5)	C (31.9)	C (27.7)	D (44.3)	D (49.3)	D (37.0)
2027 without Development (Case 2)	-	-	-	D (49.1)	F (93.0)	E (73.7)
2027 without Development (Case 2) with DelDOT Improvements ^{7,8}	D (40.3)	E (66.7)	D (48.5)	C (26.8)	C (30.2)	C (28.2)
2027 with Development (Case 3)	-	-	-	D (53.0)	F (100.3)	F (86.2)
2027 with Development (Case 3) with DelDOT Improvements ^{7,8}	D (46.9)	D (54.4)	D (40.1)	C (26.7)	C (31.2)	C (30.2)

⁵ JMT analyzed the intersection as a coordinated signalized intersection along the Delaware Route 24 corridor, whereas the TIS analyzed the intersection as an uncoordinated intersection.

⁶ JMT modeled the intersection using signal cycle lengths and phase split lengths per the DelDOT Signal Timing Plan, whereas the TIS did not.

⁷ DelDOT improvements scenario includes the improvements proposed as part of *HSIP SR 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements* project (DelDOT Contract No. T200711201). This includes widening to provide left turn and right turn lanes along each approach to the Delaware Route 24 intersections with Mount Joy Road/Oak Orchard Road and Bay Farm Road/Autumn Lane. Additionally, phase split lengths were optimized while maintaining the existing signal cycle length.

⁸ The TIS modeled the northbound Oak Orchard Road as a shared left turn/through lane and a right turn lane.

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Delaware Route 24/Legion Road (Sussex Road 298)						
2018 Existing (Case 1)						
Westbound Delaware Route 24 Left Turn	A (8.9)	A (9.4)	A (9.7)	A (8.9)	A (9.5)	A (9.8)
Northbound Legion Road Approach	C (18.4)	C (19.6)	C (22.6)	C (17.7)	C (20.3)	C (23.1)
2027 without Development (Case 2)						
Westbound Delaware Route 24 Left Turn	A (9.4)	B (10.7)	B (10.9)	A (9.4)	B (10.8)	B (11.0)
Northbound Legion Road Approach	F (60.7)	F (162.9)	F (254.7)	E (49.8)	F (174.7)	F (273.1)
2027 with Development (Case 3)						
Westbound Delaware Route 24 Left Turn	A (9.6)	B (10.9)	B (11.1)	A (9.6)	B (11.1)	B (11.3)
Northbound Legion Road Approach	F (77.1)	F (230.1)	F (343.0)	F (61.0)	F (246.6)	F (366.6)
2027 with Development (Case 3) with southbound lefts and westbound left improvements ⁹						
Westbound Delaware Route 24 Left Turn	A (9.6)	B (10.9)	B (11.1)	A (9.6)	B (11.1)	B (11.3)
Northbound Legion Road Approach	F (68.3)	F (172.4)	F (222.6)	F (55.1)	F (183.8)	F (237.1)

⁹ The improvement scenario includes a separate left turn lane along westbound Delaware Route 24 and separate left turn and right turn lanes along northbound Legion Road.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Roundabout ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Delaware Route 24/Legion Road (Sussex Road 298) ¹⁰						
2027 without Development (Case 2)	-	-	-	A (8.9)	C (15.8)	C (17.2)
2027 with Development (Case 3)	-	-	-	A (9.6)	C (18.2)	C (19.8)

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Signalized Intersection ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Delaware Route 24/Legion Road (Sussex Road 298) ¹¹						
2027 without Development (Case 2)	-	-	-	B (14.6)	B (12.8)	B (13.5)
2027 with Development (Case 3)	-	-	-	B (14.7)	B (12.8)	B (13.7)

¹⁰ JMT analyzed the intersection as a single-lane roundabout.

¹¹ JMT analyzed the intersection as a signalized intersection along the coordinated signalized Delaware Route 24 corridor. A 120 second cycle length was utilized for the AM and PM peaks hours, and a 90 second cycle length was utilized for the Summer Saturday peak hour.

Table 7
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Signalized Intersection ¹	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Delaware Route 24/Bay Farm Road/Autumn Road (Sussex Road 299) ^{5,6}						
2018 Existing (Case 1)	B (19.9)	C (25.8)	C (22.7)	C (23.2)	D (39.7)	C (32.0)
2027 without Development (Case 2)	-	-	-	C (27.4)	D (53.8)	E (73.1)
2027 without Development (Case 2) <i>with DelDOT Improvements ⁷</i>	C (32.7)	D (41.3)	D (52.8)	C (21.2)	D (38.5)	D (41.5)
2027 with Development (Case 3)	-	-	-	C (28.6)	E (65.1)	F (85.2)
2027 with Development (Case 3) <i>with DelDOT Improvements ⁷</i>	C (29.4)	D (45.5)	D (50.3)	C (21.2)	D (41.9)	D (47.2)

Table 8
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Glen Phases I & II
Report Dated: August 27, 2020
Prepared By: The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)	LOS per TIS			LOS per JMT		
	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
Mount Joy Road (Sussex Road 297)/Cordrey Road (Sussex Road 308)						
2018 Existing (Case 1)						
Westbound Mount Joy Road Left Turn	A (7.5)	A (8.1)	A (7.6)	A (7.6)	A (8.0)	A (7.6)
Northbound Cordrey Road Approach	A (10.0)	B (11.2)	A (9.7)	A (9.9)	B (11.8)	A (9.8)
2027 without Development (Case 2)						
Westbound Mount Joy Road Left Turn	A (7.6)	A (8.5)	A (7.8)	A (7.6)	A (8.3)	A (7.8)
Northbound Cordrey Road Approach	B (10.6)	B (12.7)	B (10.7)	B (10.5)	B (13.8)	B (10.8)
2027 with Development (Case 3)						
Westbound Mount Joy Road Left Turn	A (7.6)	A (8.6)	A (7.8)	A (7.7)	A (8.4)	A (7.9)
Northbound Cordrey Road Approach	B (10.8)	B (13.3)	B (11.0)	B (10.7)	B (14.6)	B (11.1)

Patriots Glen Phases I and II

Sussex County, Delaware

August 27, 2020

Traffic Impact Study

Prepared for:

Schiff Land Development Company, LLC

Mr. T.J. Schiff

16054 S. Dupont Highway

Harrington, Delaware 19952



TABLE OF CONTENTS

- **INTRODUCTION AND SUMMARY OF FINDINGS1**

- **EXISTING TRAFFIC CONDITIONS3**
 - 1 Site Location Map and Study Intersections4
 - 2 Site Concept Plan5
 - 3 Existing Lane Use.....6
 - 4 2018 Existing Peak Hour Traffic Volumes8
 - 5 Existing Peak Hour Heavy Vehicle Traffic Volumes.....9
 - 6 Existing Peak Hour Right Turn on Red Traffic Volumes10
 - 7 Existing Peak Hour Pedestrian Traffic Volumes11
 - 8 Seasonal Adjusted Peak Hour Traffic Volumes12

- **BACKGROUND TRAFFIC CONDITIONS.....13**
 - 9 2027 Base Peak Hour Traffic Volumes.....14
 - 10 Location Map for Committed Developments15
 - 11 Trip Generation Formula/Rate for Committed Developments.....16
 - 12 Trip Generation for Committed Developments.....17
 - 13 Combined Trips Generated by Committed Developments.....18
 - 14 2027 Background Peak Hour Traffic Volumes19

- **TOTAL TRAFFIC CONDITIONS21**
 - 15 Trip Generation for Patriots Glen22
 - 16 Trip Distribution Percentage for Patriots Glen23
 - 17 Trip Assignment for Patriots Glen24
 - 18 2027 Total Peak Hour Traffic Volumes25
 - 19 Result of Intersection Capacity Analysis.....26
 - 20 Recommended Future Lane Use27

- **RESULTS, RECOMMENDATIONS, AND CONCLUSIONS.....29**

APPENDICES

APPENDIX A – Turning Movement Counts and Aerial Photos

APPENDIX B – Crash Data and Transit Facility Information

APPENDIX C – Committed Development Worksheets

APPENDIX D – HCM Worksheet for Intersection Capacity Analysis

APPENDIX E – Correspondence and Scope of Work

APPENDIX F – DeIDOT Auxiliary Lane Worksheet

APPENDIX G – Signal Timing Data

APPENDIX H – DeIDOT Projects Supporting Documentation

Prepared by: Joseph J. Caloggero, P.E., PTOE, PTP
Richard Huang, P.E., PTOE

JJC:amr
(F:\2019\2019-1210_Patriots Glen\DOCS\REPORTS\TIS.docx)

INTRODUCTION AND SUMMARY OF FINDINGS

Study Purpose

The Traffic Group, Inc. has prepared this Traffic Impact Study (TIS) to determine the impact of the proposed Patriots Glen – Phase I & II development in Sussex County, Delaware. Schiff Land Development Company, LLC has two related developments in the John J. Williams Highway (SR 24) corridor between Layton Davis Road (Sussex Road 312A) and Oak Orchard Road (SR 5). Patriots Glen Phase I is proposed on a 49.94-acre assemblage of three tax parcels (Tax Parcels 234-29.00-66.00, 66.01 & 66.02). A rezoning of part of land from CR-1 to MR and a residential planned community (RPC) overlay zone to establish the entire assemblages as an MR-RPC district with 161 single-family detached house lots was adopted by Sussex County in July 2019. The development would have access on the south side of Route 24 through Parcel 66.01. Construction is anticipated to be complete in 2024. Patriots Glen Phase I qualified to pay an Area Wide Study Fee in lieu of doing TIS.

Patriots Glen Phase II is proposed on a 43.46-acre tax parcel (Tax Parcel 234-29.00-67.00). Its situation with regard to zoning is similar to Patriots Glen I except that Schiff Land Development Company, LLC has not yet applied for the rezoning they seek and they propose a smaller development, 127 single-family detached houses. Because Parcel 67.00 is land locked, the developer proposes to access SR 24 through Patriots Glen Phase I.

Based on the following, DelDOT finds that a TIS should be required:

1. While a development of 127 single-family detached house would qualify to pay an Area Wide Study Fee in lieu of doing TIS, the two combined developments would not and development of Patriots Glen Phase II presupposes and depends on the development of Patriots Glen Phase I.
2. While Schiff Land Development Company, LLC could pay the Area Wide Study Fee for Patriots Glen Phase I, and likely would do so if Patriots Glen Phase II is denied the contemplated rezoning or otherwise cannot be developed, it does not make economic sense for them to both pay the fee and do a TIS.

Accordingly, this TIS will be based on the traffic from both developments. If Sussex County has not rezoned the land for Patriots Glen Phase II by the time that plans for Patriots Glen Phase I are ready for approval. This TIS will identify a set of off-site improvements that Patriots Glen Phase I can proceed as an independent development. In doing so, Patriots Glen Phase II remains a reasonable possibility.

Study Criteria/Methodology

The Scope of Work for this TIS was determined by DelDOT based on the TIS Scoping Meeting (11/12/2019) in the Scoping Meeting Memorandum dated December 6, 2019. This memorandum along with approvals of the Traffic Counts and Preliminary Traffic Impact Study (PTIS) can be found in Appendix E. This TIS was prepared in accordance with DelDOT Guidelines.

Summary of Findings and Recommendations

This TIS has shown that all the study intersections are currently operating at acceptable levels of service and most of them will continue to operate at acceptable levels of service in the future with or without the subject development. The intersections of SR 24 at Oak Orchard Road/Mount Joy Road, SR 24 at Legion Road, and SR 24 at Bay Farm Road/Autumn Road are projected to operate with delays under total traffic conditions. Mitigation is described as follows:

SR 24 at Oak Orchard Road/Mount Joy Road – This signal-controlled intersection operates at acceptable levels of service under existing traffic conditions and level of service “E” under background and total traffic conditions. With minor adjustments to the traffic signal timing, this intersection will operate at acceptable levels of service.

SR 24 at Legion Road – This stop-controlled intersection has side street movements that operate with an unacceptable level of service. The only way to mitigate this intersection is with a traffic signal. Therefore, it is our suggestion that this developer contribute to the Traffic Signal Revolving Fund.

SR 24 at Bay Farm Road/Autumn Road – This signal-controlled intersection operates at acceptable levels of service under existing and background traffic conditions and level of service “E” during the midday Saturday Peak Hour under total traffic conditions only. With minor adjustments to the traffic signal timing, this intersection will operate at acceptable levels of service.

Therefore, based on the data and analysis found in this report including the mitigation plan, the Patriots Glen Phase I & II development meets the requirements for approvals.

The data and the methodology used to undertake this study is detailed in the sections that follow.

EXISTING TRAFFIC CONDITIONS

Site Information

The proposed Patriots Glen Phase I & II is located along the east side of SR 24 corridor between Layton Davis Road (Sussex Road 312A) and Oak Orchard Road (SR 5). A full movement access is proposed along SR 24. A map showing the general area can be found on Exhibit 1, and a Concept Plan can be found on Exhibit 2.

Study Area

As required by DelDOT, the following intersections were incorporated into this TIS:

1. SR 24 @ Gull Point Way (Sussex Road 313);
2. SR 24 @ Arrowhead Trail;
3. SR 24 @ Site Access;
4. SR 24 @ Oak Orchard Road/Mount Joy Road;
5. SR 24 @ Legion Road (Sussex Road 298);
6. SR 24 @ Bay Farm Road/Autumn Road (Sussex Road 299); and
7. Mount Joy Road @ Cordrey Road (Sussex Road 308).

Based on our field and aerial photograph reviews, all these intersections appear to meet the relevant DelDOT, AASHTO, and MUTCD standards for geometry and traffic control devices.

Exhibit 3 has been prepared to detail the existing lane use and traffic control devices at each of the study intersections. Aerial photography can be found in Appendix A.

Crash Data

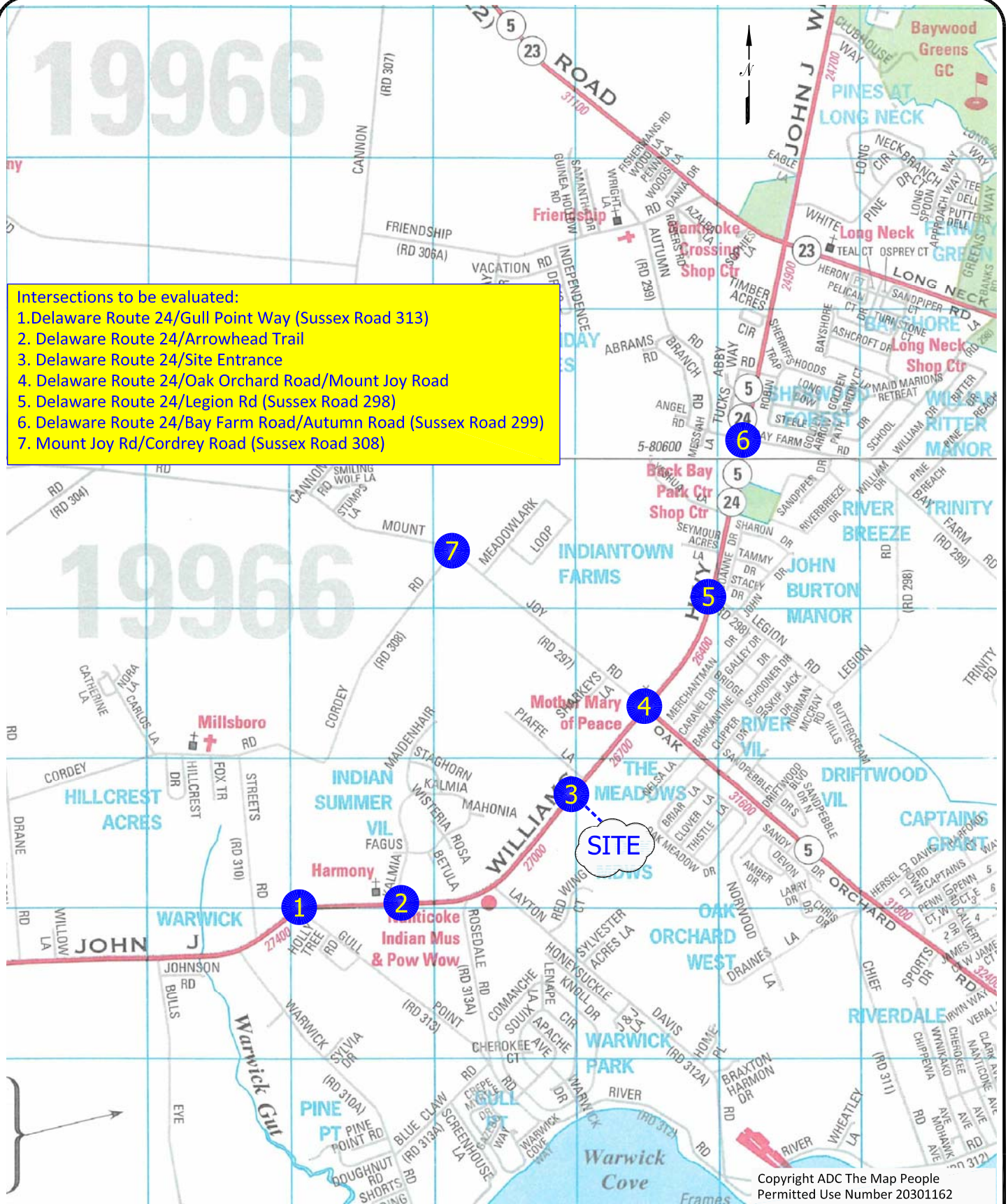
The Traffic Group, Inc. requested Crash Data from DelDOT for a period of 3 years (04/17/2017 to 04/17/2020) for the SR 24 road segment from Bay Farm Road/Autumn Road to Gull Point Road and at the intersection of Mount Joy Road at Cordrey Road. There was a total number of 93 crashes that occurred along SR 24 within the study area and 6 crashes at the intersection of Mount Joy Road and Cordrey Road. The detailed reports can be found in Appendix B.

19966

Intersections to be evaluated:

1. Delaware Route 24/Gull Point Way (Sussex Road 313)
2. Delaware Route 24/Arrowhead Trail
3. Delaware Route 24/Site Entrance
4. Delaware Route 24/Oak Orchard Road/Mount Joy Road
5. Delaware Route 24/Legion Rd (Sussex Road 298)
6. Delaware Route 24/Bay Farm Road/Autumn Road (Sussex Road 299)
7. Mount Joy Rd/Cordrey Road (Sussex Road 308)

19966

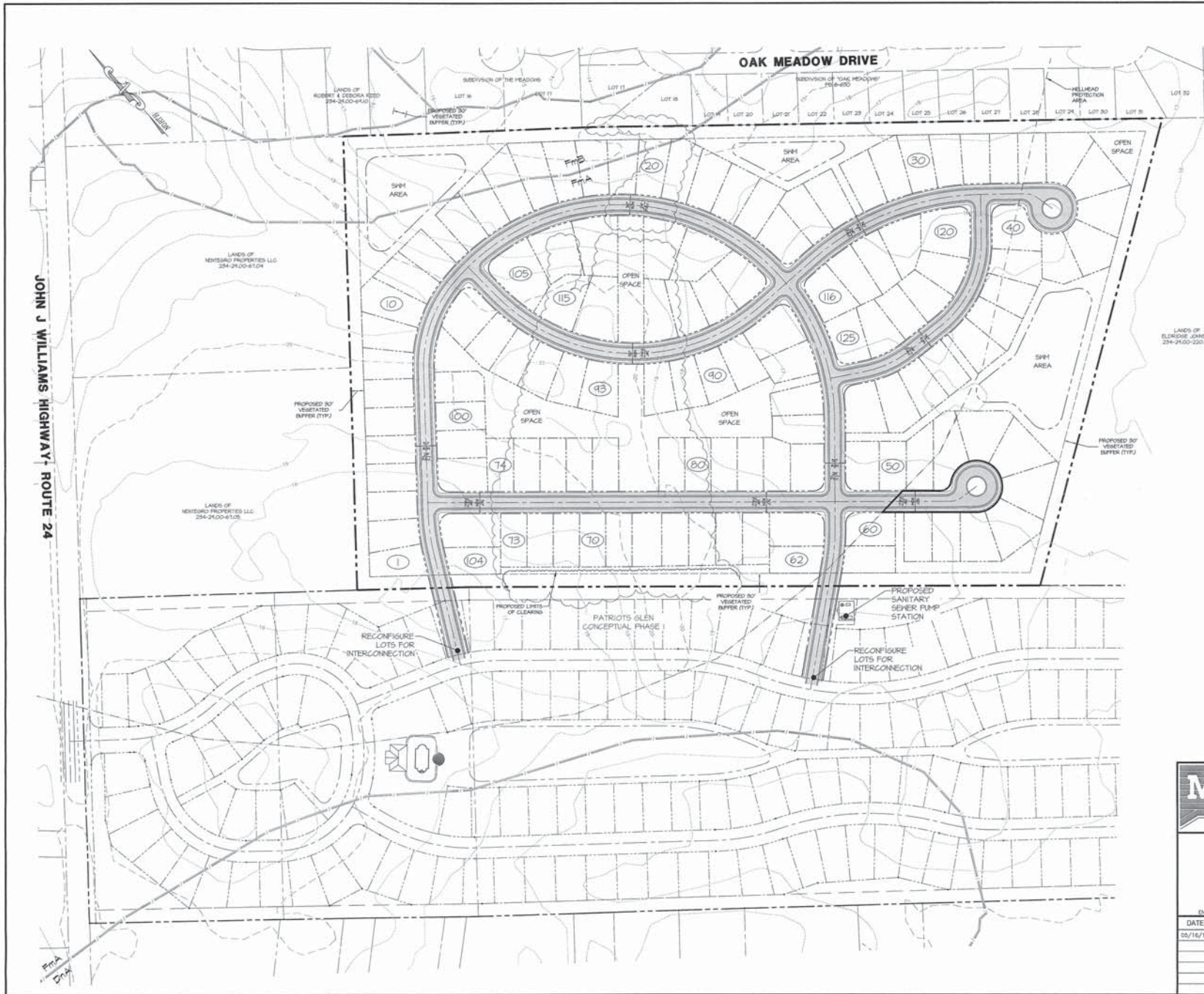


Copyright ADC The Map People
Permitted Use Number 20301162



EACH GRID = 2000 FT

EXHIBIT 1
SITE LOCATION MAP
AND STUDY INTERSECTIONS



LOCATION MAP
SCALE: 1"=200'

SITE DATA

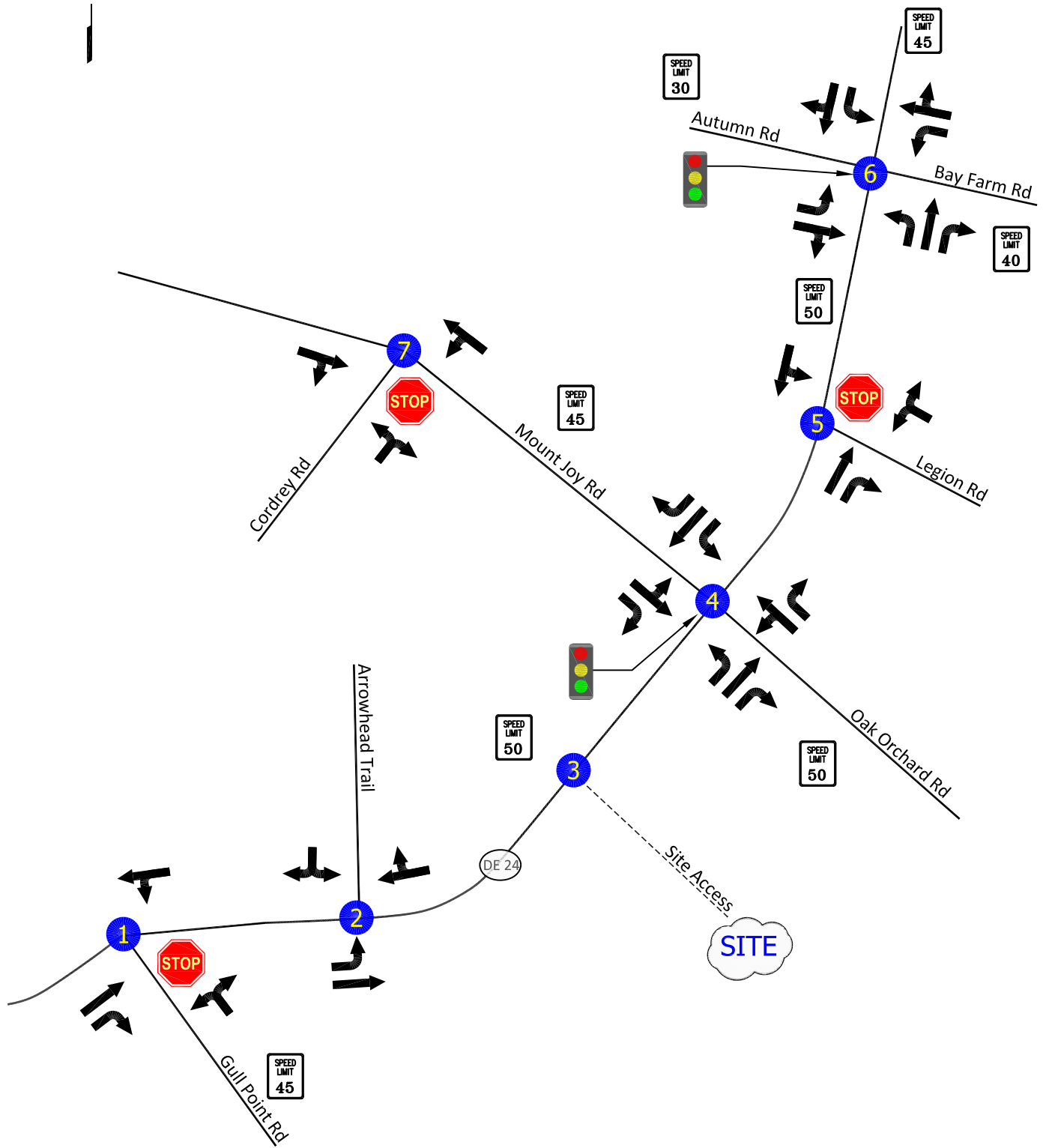
TAX PARCEL: 204-2400-6100
 TOTAL SITE ACREAGE: 43.46 AC. ±
 EXISTING ZONING: CR-1 HR
 PROPOSED ZONING: HR-4PC
 PROPOSED SF LOTS: 125
 PROPOSED DENSITY: 2.88 DWG/AC
 AREA WITHIN LOTS: 25.07 AC. ±
 AREA WITHIN ROW: 8.82 AC. ±
 AREA WITHIN OPEN SPACE: 8.54 AC. ± (26.8%)
 AREA RESERVED FOR SHR: 2.03 AC.

NOTE: INFORMATION SHOWN HEREON IS BASED UPON GIS DATA OBTAINED THROUGH THE STATE OF DELAWARE GIS WEBSITE (PDRMAP-DELAWARE.ORG/DATA.ARCGIS.COM) AND DOES NOT REPRESENT FIELD RUN TOPOGRAPHIC OR BOUNDARY SURVEY. SITE LAYOUT IS SUBJECT TO REVISION PENDING FIELD SURVEY AND MET-LAND DELINEATION.

COPYRIGHT: THE LAYOUT SHOWN ON THIS PLAN, THE DRAWING, THE DESIGN CONCEPT, AND THE INTELLECTUAL PROPERTY USED TO DEVELOP THE SAME, ARE PROPRIETARY TO MORRIS & RITCHIE ASSOCIATES, INC. (MRA) AND SHALL NOT BE USED, ALTERED, OR COPIED IN ANY WAY WITHOUT THE EXPRESSED WRITTEN PERMISSION FROM MRA.

	MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 18 BOULDER CIRCLE, SUITE 30 NEW CASTLE, DELAWARE 19720 (302) 328-2300 FAX: (302) 328-2399 WWW.MRAGTA.COM	
	DAVIS FARMS PROPERTY CONCEPT SKETCH FOR PATRIOTS GLEN PHASE II	
ENGINEER'S SEAL DATE: 05/16/19 REVISIONS: REVISED LOT CONFIGURATION	DESIGNER'S SEAL DATE: 05/15/19 DRAWN BY: CJF DESIGN BY: CJF REVIEW BY: PLT	JOB NO.: 9999 SCALE: 1"= 100' DATE: 05/15/19 DRAWN BY: CJF DESIGN BY: CJF REVIEW BY: PLT SHEET: 1 of 1

EXHIBIT 2
SITE CONCEPT PLAN



Study Intersection

EXHIBIT 3
EXISTING LANE USE



Transit and Pedestrian Amenities

Per our correspondence with DelDOT found in Appendix B, Delaware Transit Corporation (DTC) requested bus stops on both sides of SR 24 at its intersection with Mount Joy Road and each will have pedestrian access. Bike lane and pedestrian sidewalks will be construct as needed along SR 24.

Traffic Volumes

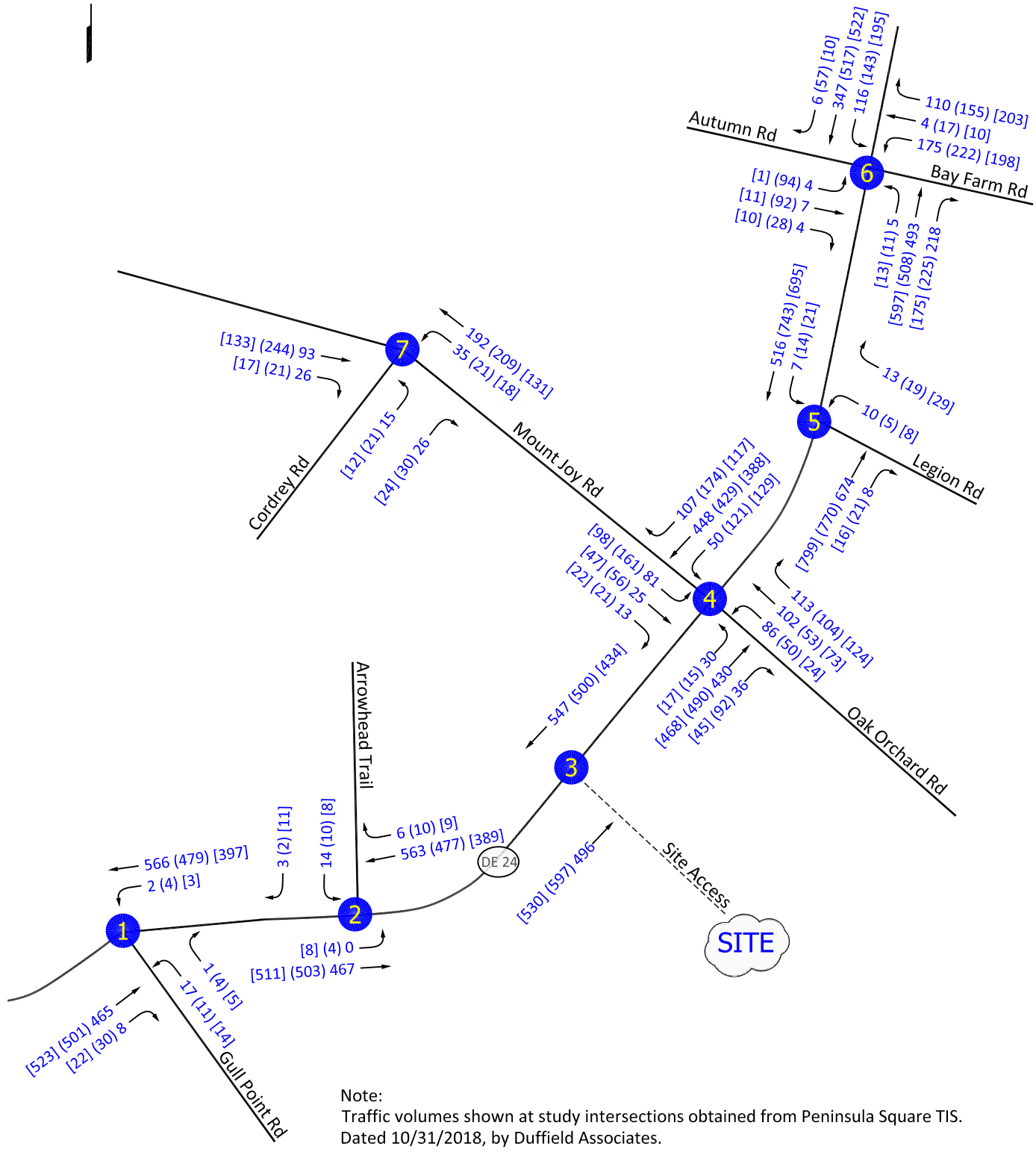
DelDOT has proposed to use previously approved counts from September 2018 from the Peninsula Square TIS. A summary of existing peak hour traffic volumes can be found on Exhibits 4 (all vehicles), 5 (Heavy Vehicles), 6 (Right Turn on Red), and 7 (Pedestrians). Traffic data sheets are contained in Appendix A.

The morning, evening, and midday Saturday peak hour turning movement counts were adjusted using the Seasonal Adjustment Factors provided by DelDOT. These factors were applied to the Existing Peak Hour Traffic Volumes to obtain the Seasonally Adjusted Peak Hour Traffic Volumes as shown in Exhibit 8.

Analysis of Existing Traffic Conditions

Intersection Capacity Analysis were undertaken at each of the study intersections based on the Seasonally Adjusted Traffic Volumes using the HCM Methodology. The results are summarized in Exhibit 19 and the detailed HCM Worksheets can be found in Appendix D. Appendix G contains the existing Traffic Signal Timing Charts obtained from DelDOT for use with the HCM Signalized Intersection Methodology.

A Review of Exhibit 19 indicates that all study intersections are projected to operate at acceptable level of service during the morning, evening, and midday Saturday peak hours.

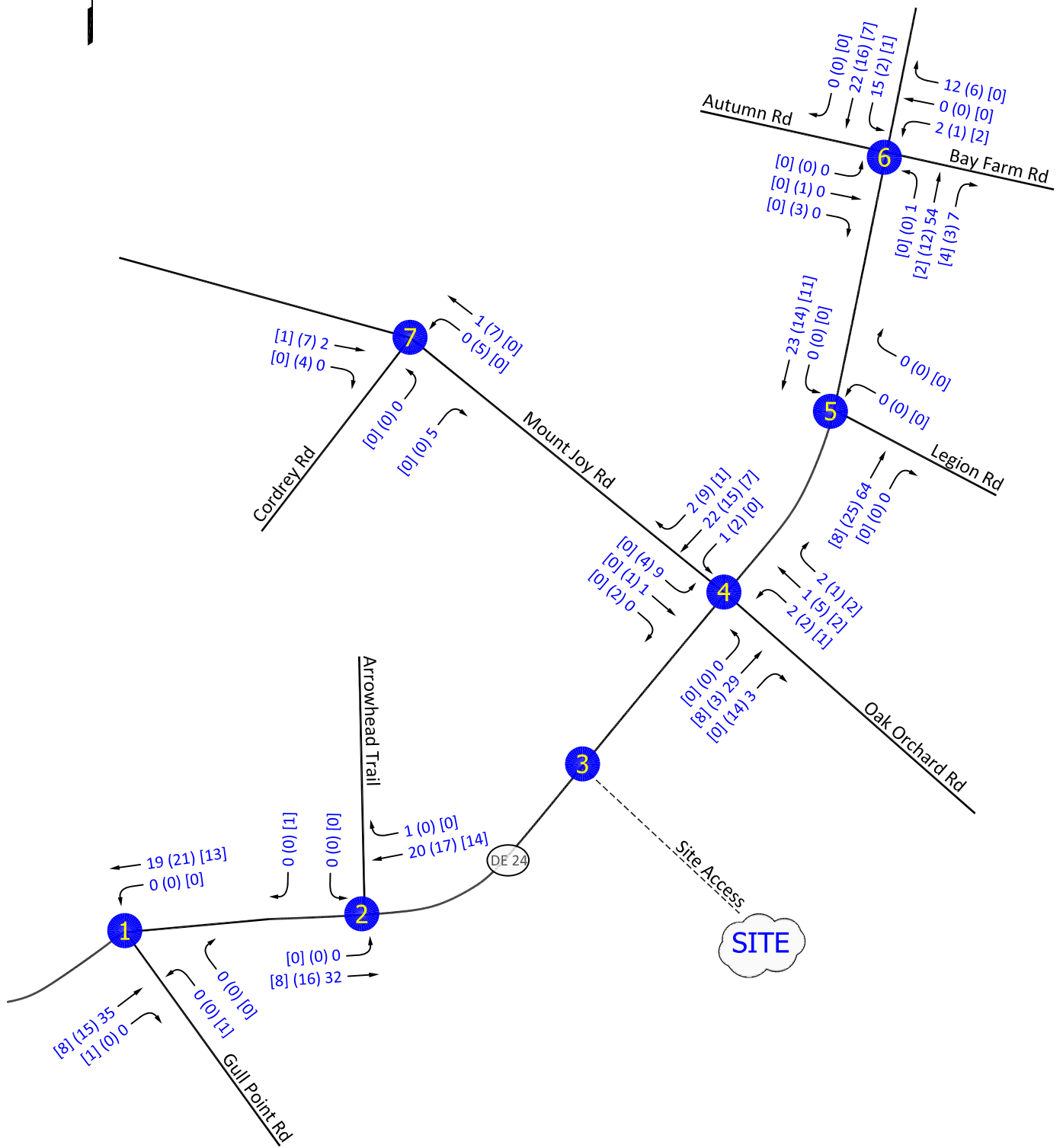
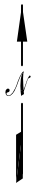


Note:
 Traffic volumes shown at study intersections obtained from Peninsula Square TIS.
 Dated 10/31/2018, by Duffield Associates.



Study Intersection
 00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - MID SATURDAY PEAK HOUR

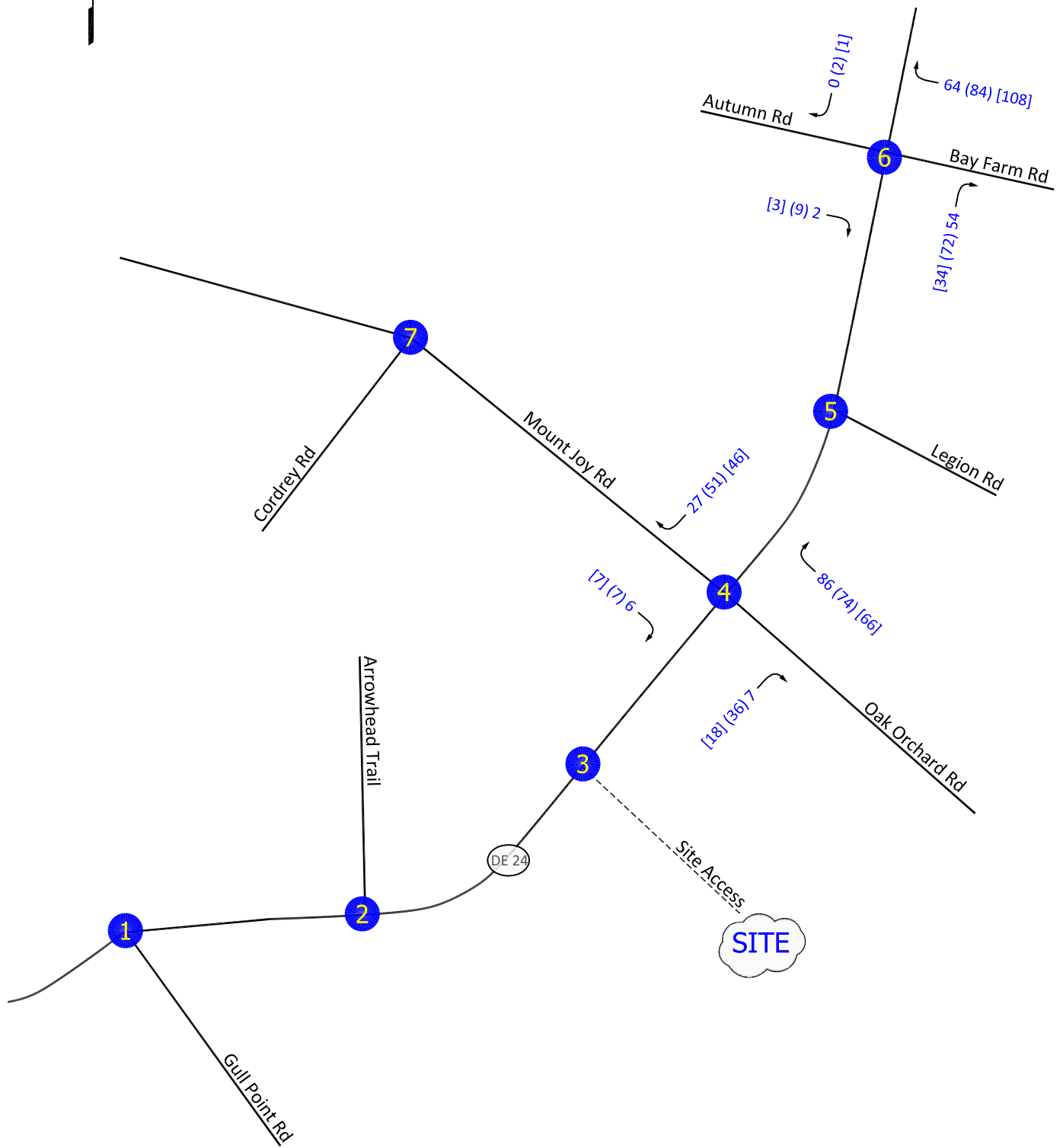
EXHIBIT 4
 2018 EXISTING PEAK HOUR
 TRAFFIC VOLUMES



Study Intersection

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

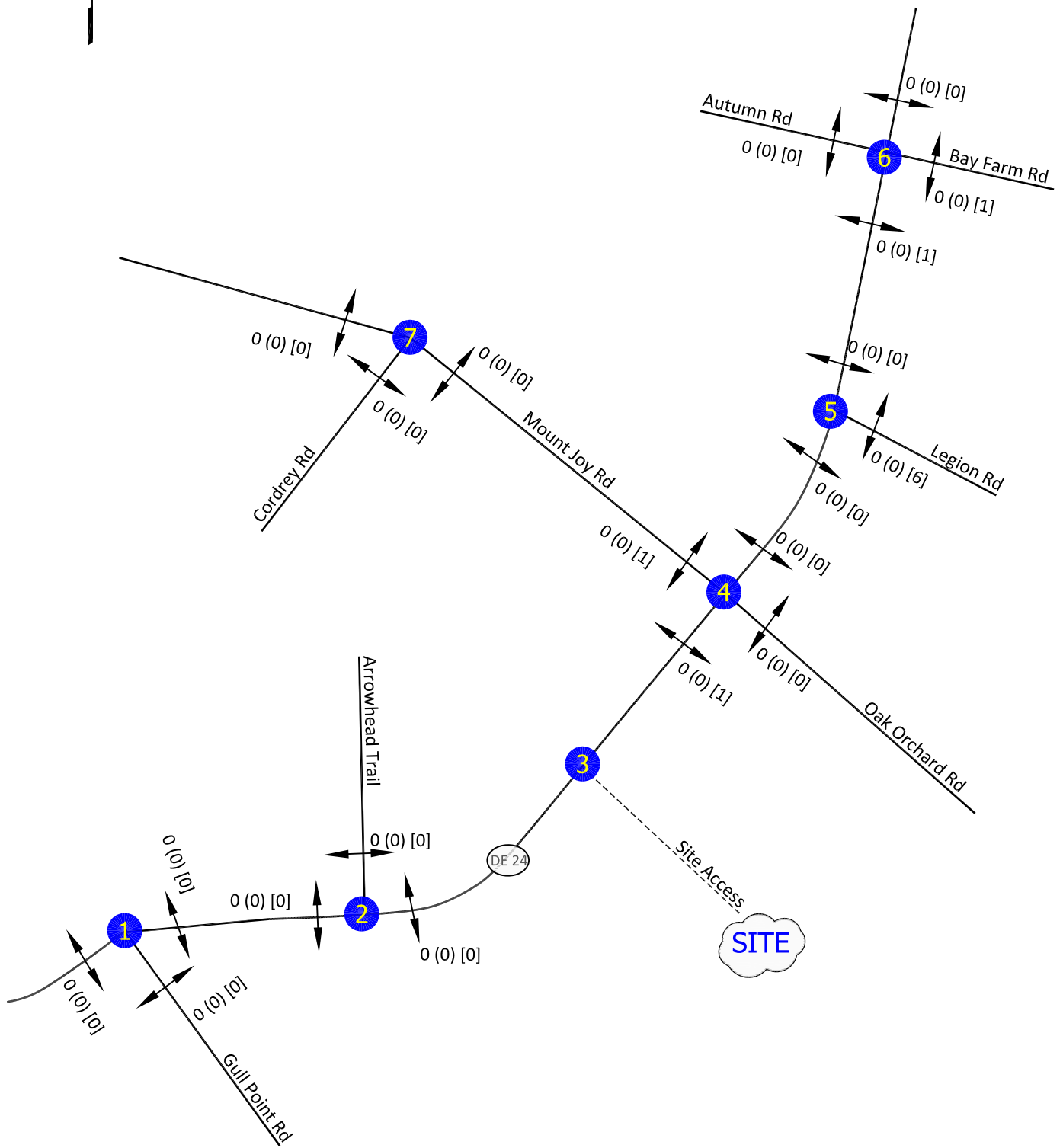
**EXHIBIT 5
 EXISTING PEAK HOUR
 HEAVY VEHICLE TRAFFIC VOLUMES**



Study Intersection

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

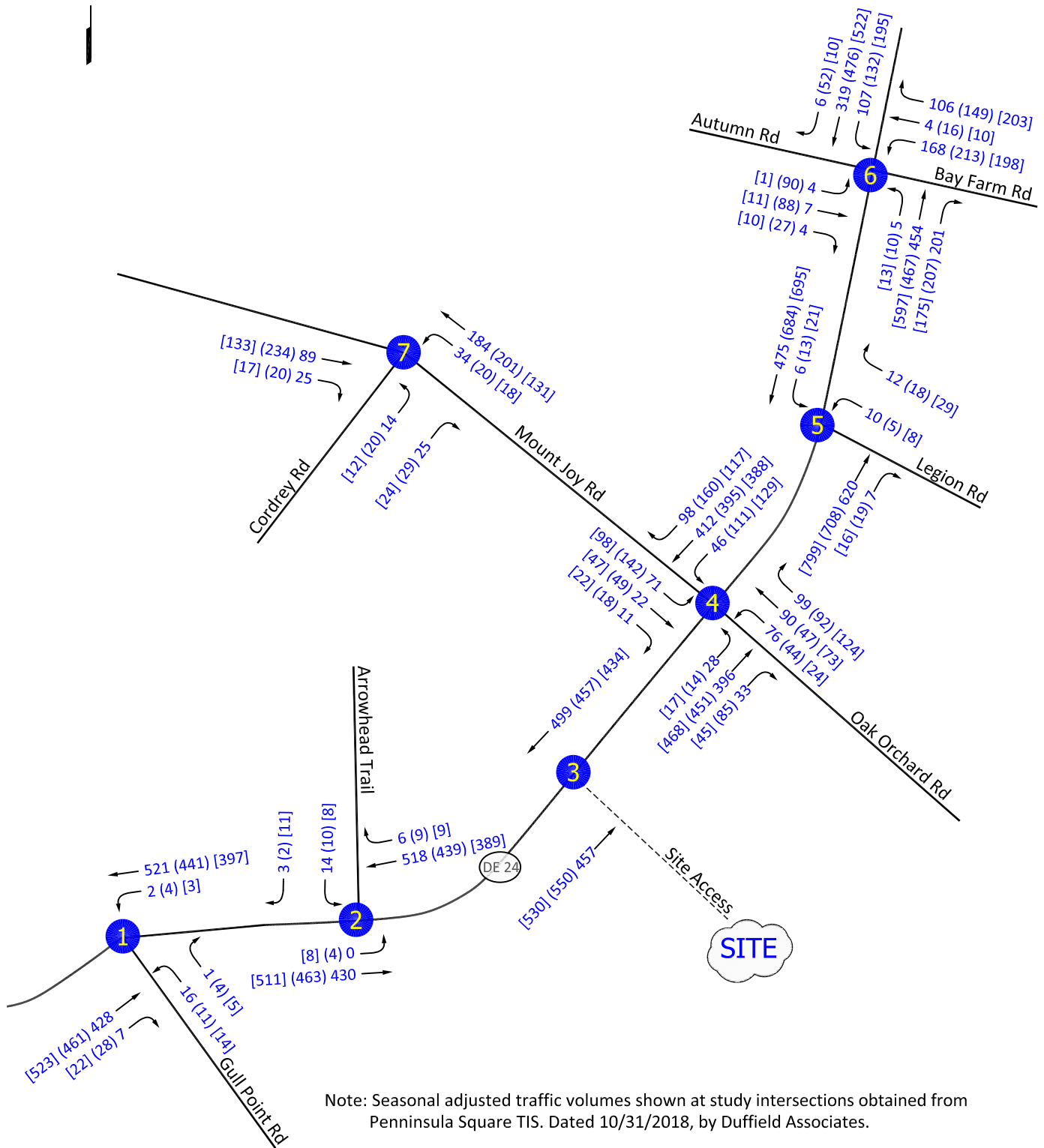
EXHIBIT 6
EXISTING PEAK HOUR
RIGHT TURN ON RED TRAFFIC VOLUMES



Study Intersection

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

**EXHIBIT 7
 EXISTING PEAK HOUR
 PEDESTRIAN TRAFFIC VOLUMES**



Note: Seasonal adjusted traffic volumes shown at study intersections obtained from Peninsula Square TIS. Dated 10/31/2018, by Duffield Associates.



Study Intersection

- XX - MORNING PEAK HOUR
- (XX) - EVENING PEAK HOUR
- [##] - MID SATURDAY PEAK HOUR
- XX - Need Traffic Count Worksheets From Peninsula Square Traffic Count Submittal

**EXHIBIT 8
SEASONAL ADJUSTED
PEAK HOUR TRAFFIC VOLUMES**

BACKGROUND TRAFFIC CONDITIONS

Design Year/Background Traffic

Full buildout of this Development is expected by 2027 (7 Years). In order to account for regional growth, DelDOT provided Growth Factors that were incorporated within the study area for 7 years. Based on this growth, the 2027 Base Peak Hour Traffic Volumes can be found on Exhibit 9.

Background Traffic

In addition to regional traffic growth, traffic projected to generated by other committed developments in the vicinity of the subject site must also be taken into consideration. DelDOT provided 10 developments to be included in the analysis and the location of each development can be found on Exhibit 10.

The Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) was utilized to quantify the number of trips projected to be generated by these committed developments. Exhibit 11 details the trip generation rates, and Exhibit 12 details the trip generation totals. Exhibit 13 details the Combined Trips Generated by Committed Developments. The individual trip assignment for each development can be found in Appendix C.

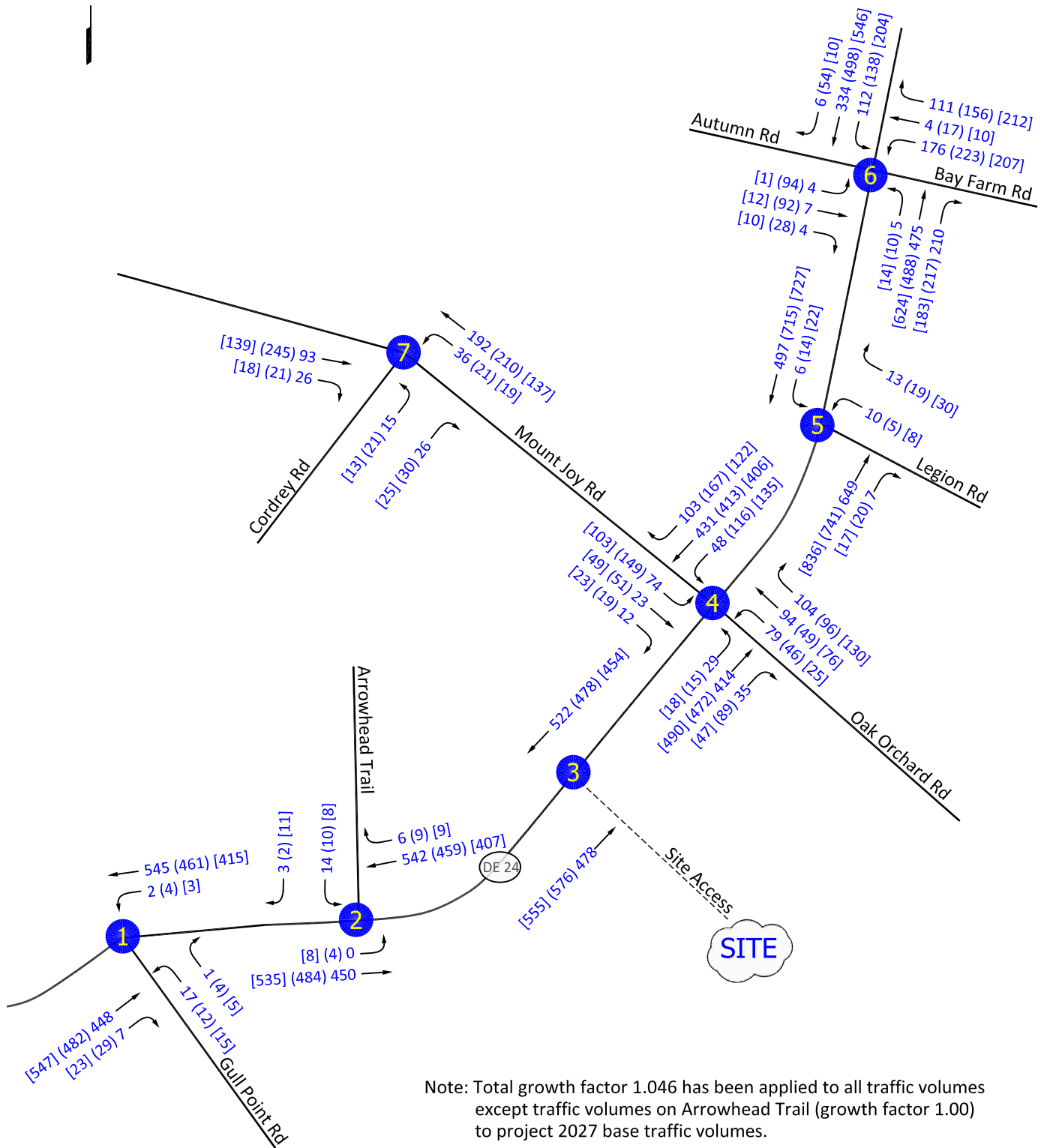
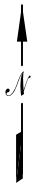
The peak hour trips for the committed developments were added to the 2027 Base Peak Hour Traffic Volumes to obtain the 2027 Background Peak Hour Traffic Volumes provided in Exhibit 14.

DelDOT Projects

Currently, DelDOT has one active project within the study area.

DelDOT's Hazard Elimination Program has two sites that include the intersections of SR 24 and Mount Joy Road, and SR 24 and Bay Farm Road/Autumn Road. At the intersection of SR 24 and Mount Joy Road, the proposed improvements include:

1. Widen the northbound Oak Orchard Road and southbound Mount Joy Road approaches to provide separate left, thru, and right turn lanes;
2. Extend the left and right turn lanes on all approaches to meet storage requirements; and
3. Construct sidewalks and bicycle lanes.



Note: Total growth factor 1.046 has been applied to all traffic volumes except traffic volumes on Arrowhead Trail (growth factor 1.00) to project 2027 base traffic volumes.



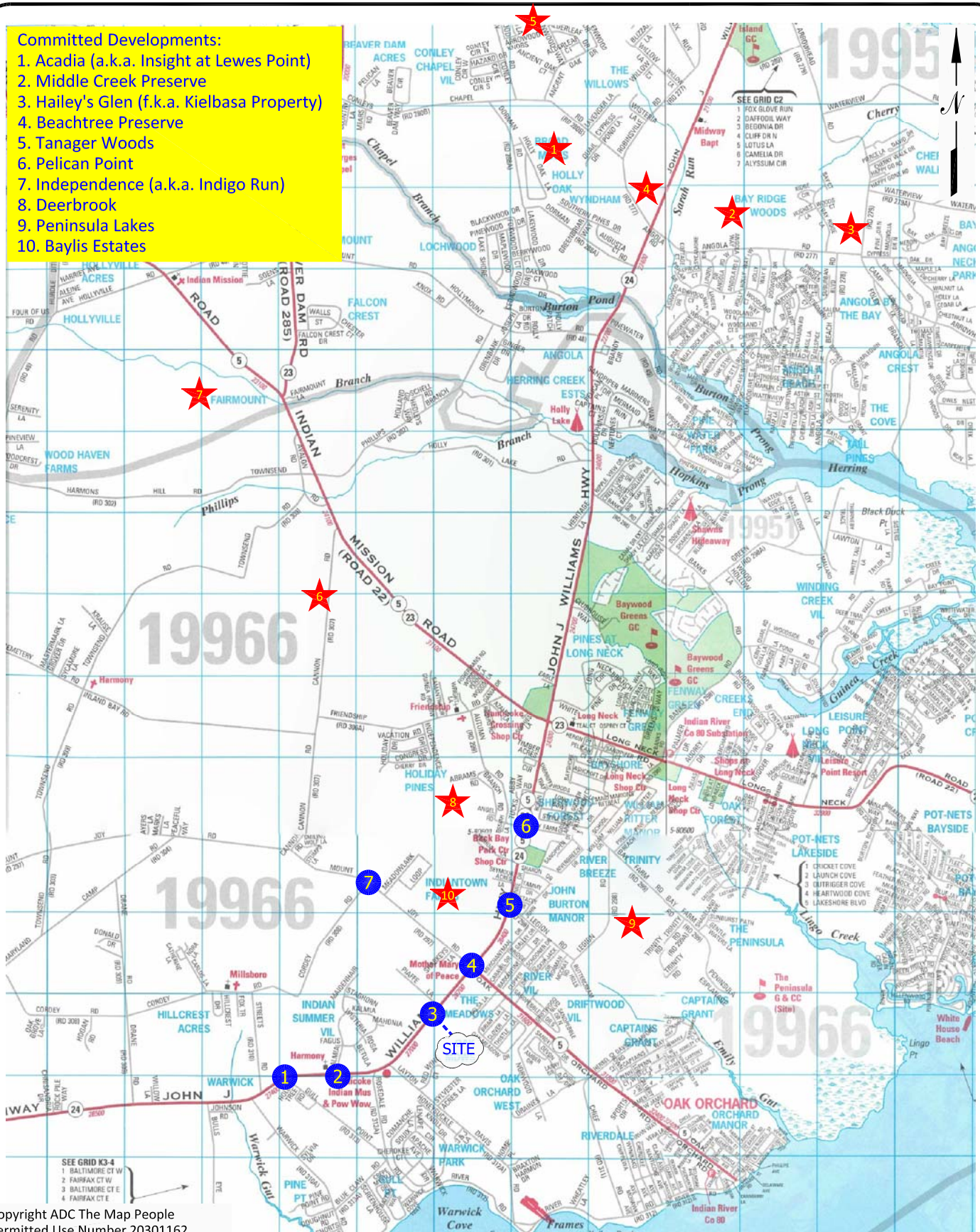
Study Intersection

00 - MORNING PEAK HOUR
00 - EVENING PEAK HOUR
00 - MID SATURDAY PEAK HOUR

EXHIBIT 9
2027 BASE PEAK HOUR
TRAFFIC VOLUMES

Committed Developments:

1. Acadia (a.k.a. Insight at Lewes Point)
2. Middle Creek Preserve
3. Hailey's Glen (f.k.a. Kielbasa Property)
4. Beachtree Preserve
5. Tanager Woods
6. Pelican Point
7. Independence (a.k.a. Indigo Run)
8. Deerbrook
9. Peninsula Lakes
10. Baylis Estates



Copyright ADC The Map People
Permitted Use Number 20301162



- # Study Intersection
- ★ Approved Development

EXHIBIT 10
LOCATION MAP FOR
COMMITTED DEVELOPMENTS

Trip Generation Rates

Formula/Rate	Directional Distribution	
	IN	OUT
Single-Family Detached (ITE-210, Units)		
AM Peak Hour Trips = $0.71 \times (\text{Units}) + 4.80$	25%	75%
Ln(PM Peak Hour Trips) = $0.96 \times \text{Ln}(\text{Units}) + 0.20$	63%	37%
Sat. Midday Peak Hour Trips = $0.84 \times \text{Units} + 17.99$	54%	46%
Ln(Daily Trips) = $0.92 \times \text{Ln}(\text{Units}) + 2.71$	50%	50%
Multifamily Housing, Low-Rise (ITE-220, Units)		
Ln(AM Peak Hour Trips) = $0.95 \times \text{Ln}(\text{Units}) - 0.51$	23%	77%
Ln(PM Peak Hour Trips) = $0.89 \times \text{Ln}(\text{Units}) - 0.02$	63%	37%
Sat. Midday Peak Hour Trips = $1.08 \times \text{Units} - 33.24$	54%	46%
Daily Trips = $7.56 \times \text{Units} - 40.86$	50%	50%
Shopping Center (ksf, ITE-820)		
AM Peak Hour Trips = $0.94 \times \text{ksf}$	62%	38%
Ln(PM Peak Hour Trips) = $0.74 \times \text{Ln}(\text{ksf}) + 2.89$	48%	52%
Ln(Sat. Midday Peak Hour Trips) = $0.79 \times \text{Ln}(\text{ksf}) + 2.79$	52%	48%
Ln(Daily Trips) = $0.68 \times \text{Ln}(\text{ksf}) + 5.57$	50%	50%

** ITE Trip Generation Manual 10th Edition, 2017.

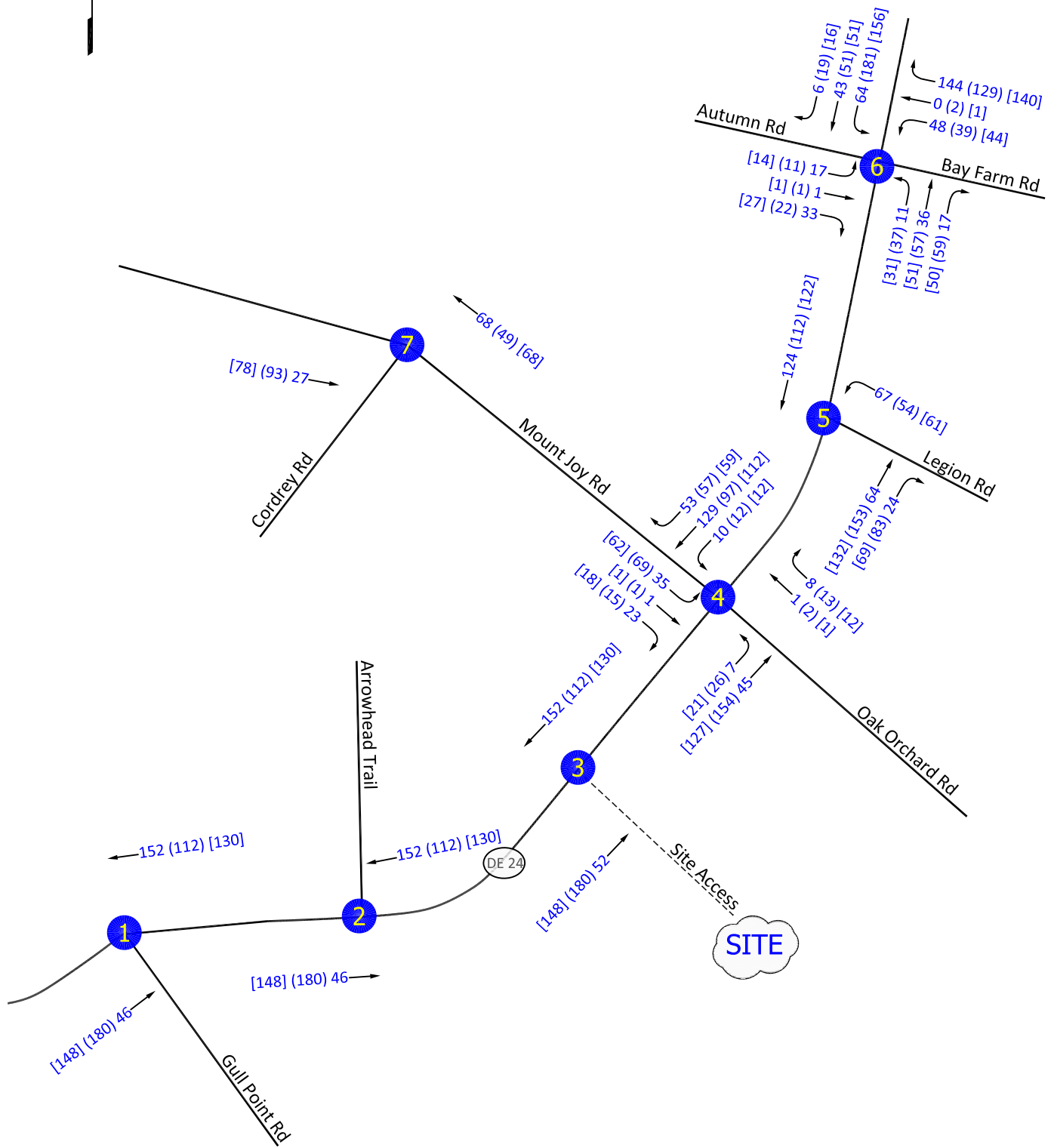


Trip Generation for Estates at Patriots Glen

Land Use	Size		AM Peak Hour			PM Peak Hour			Mid. Sat. Peak Hour			ADT
			In	Out	Total	In	Out	Total	In	Out	Total	
1. Acadia (a.k.a. Insight at Lewes Point)												
Single Family Detached	238	units	43	131	174	147	87	234	118	100	218	2309
2. Middle Creek Preserve												
Single Family Detached	313	units	57	170	227	192	112	304	152	129	281	2971
3. Hailey's Glen (f.k.a. Kielbasa Property)												
Single Family Detached	68	units	13	40	53	44	26	70	40	35	75	729
4. Beachtree Preserve												
Single Family Detached	155	units	29	86	115	98	57	155	80	68	148	1556
5. Tanager Woods												
Single Family Detached	173	units	32	96	128	108	64	172	88	75	163	1722
6. Pelican Point (400 units proposed, 109 units built, remaining 291 units)												
Single Family Detached	291	units	53	158	211	178	105	283	141	121	262	2778
7. Independence (a.k.a. Indigo Run, 450 units proposed, 387 units built, remaining 63 units)												
Single Family Detached	63	units	12	38	50	41	24	65	38	33	71	680
8. Deerbrook												
Single Family Detached	120	units	22	68	90	76	45	121	64	55	119	1230
9. Peninsula Lakes												
Single Family Detached	588	units	105	317	422	350	206	556	276	236	512	5306
Single Family Detached (Built)	<u>-143</u>	<u>units</u>	<u>-26</u>	<u>-80</u>	<u>-106</u>	<u>-90</u>	<u>-53</u>	<u>-143</u>	<u>-75</u>	<u>-63</u>	<u>-138</u>	<u>-1445</u>
Unbuilt Single Family Detached	445		79	237	316	260	153	413	201	173	374	3861
Multi-Family low-rise	72	units	8	27	35	28	16	44	24	21	45	503
Retail	15,000	sq.ft.	9	5	14	64	69	133	72	66	138	1655
Pass-by Trips (PM -34%, Sat -26%)						-22	-23	-45	-19	-17	-36	
New Retail Trips			9	5	14	42	46	88	53	49	102	
Total Trips for Peninsula Lakes			96	269	365	330	215	545	278	243	521	6019
10. Baylis Estates												
Single Family Detached	136	units	25	76	101	86	50	136	71	61	132	1380



EXHIBIT 12
TRIP GENERATION FOR
COMMITTED DEVELOPMENTS

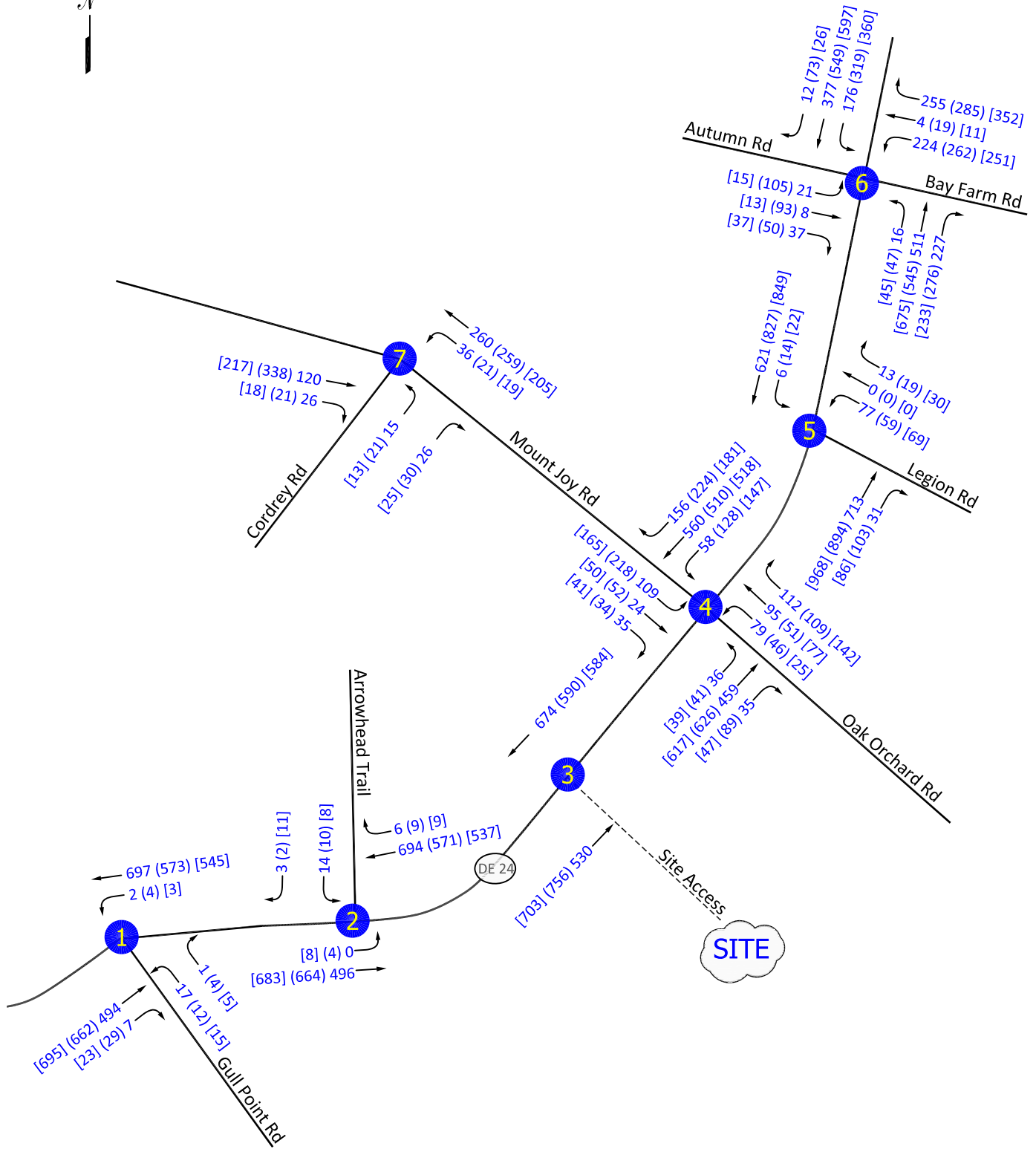
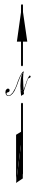


Note: Trip assignment details for each committed development can be found in Appendix C.



Study Intersection
 00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - MID SATURDAY PEAK HOUR

EXHIBIT 13
 COMBINED TRIPS GENERATED
 BY COMMITTED DEVELOPMENTS



Study Intersection

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

**EXHIBIT 14
2027 BACKGROUND PEAK
HOUR TRAFFIC VOLUMES**

At the intersection of SR 24 and Bay Farm Road/Autumn Road, the proposed improvements include:

1. Widen the northbound Bay Farm Road and southbound Autumn Road approaches to provide separate left, thru, and right turn lanes;
2. Widen the westbound SR 24 approach to provide separate left, thru, and right turn lanes;
3. Extend the left and right turn lanes on all approaches to meet storage requirements; and
4. Construct sidewalks and bicycle lanes.

The construction of this project is anticipated to be completed by late Summer of 2021. More details, including concept plans, for this project are provided in Appendix H. These improvements are outlined in Exhibit 20 (Future Lane Use).

Analysis of Background Traffic Conditions

Intersection Capacity Analysis were undertaken at each of the study intersections based on Background Traffic Conditions using the HCM Methodology. The above-mentioned road improvements from the DeIDOT project were assumed in the analysis as shown in Exhibit 20. The results are summarized in Exhibit 19, and detailed HCM worksheets can be found in Appendix D.

A review of Exhibit 19 indicates that most of the study area intersections are projected to continue to operate at acceptable levels of service during the morning, evening, and midday Saturday peak hours with the exceptions of SR 24 at Oak Orchard Road/Mount Joy Road and SR 24 at Legion Road.

The signalized intersection of SR 24 at Oak Orchard Road/Mount Joy Road is projected to operate at level of service "E" during the evening peak hour while the stop-controlled intersection of SR 24 at Legion Road is projected to operate with delays on Legion Road during all three peak periods.

TOTAL TRAFFIC CONDITIONS

Site Information

The proposed Patriots Glen Phase I consists of 161 single-family detached houses, and Phase II consists of 127 single-family detached houses. One full movement access is proposed along SR 24.

Trip Generation/Distribution

The ITE Trip Generation Manual (10th Edition) was utilized to quantify the number of trips projected to be generated by this development. Exhibit 15 contains a summary of this information.

Exhibit 16 details the Trip Distribution (percentage) while Exhibit 17 details the Trip Assignment. Adding the trips projected to be generated by the subject site to the 2027 Background Peak Hour Traffic Volumes results in the 2027 Total Peak Hour Traffic Volumes as shown on Exhibit 18.

Analysis of Total Traffic Conditions

Intersection Capacity Analysis were undertaken at each of the study intersections based on Total Traffic Conditions using the HCM Methodology. The previously mentioned road improvements by the DeIDOT project were assumed in the analysis as shown in Exhibit 20. The results are summarized in Exhibit 19, and detailed HCM worksheets can be found in Appendix D.

A review of Exhibit 19 indicates that most of the study area intersections are projected to continue to operate at acceptable levels of service during the morning, evening, and midday Saturday peak hours with the exceptions of SR 24 at Oak Orchard Road/Mount Joy Road, SR 24 at Legion Road, and SR 24 at Bay Farm Road/Autumn Road.

The signalized intersections of SR 24 at Oak Orchard Road/Mount Joy Road and SR 24 at Bay Farm Road/Autumn Road is projected to operate at level of service "E" during the evening peak hour and level of service "E" during the midday Saturday peak hour, respectively. The stop-controlled intersection of SR 24 at Legion Road is projected to operate with delays on Legion Road during all three peak periods.

The intersection of SR 24 at the site access is projected to operate with minimal delays for the traffic exiting the site access.

Trip Generation Rates

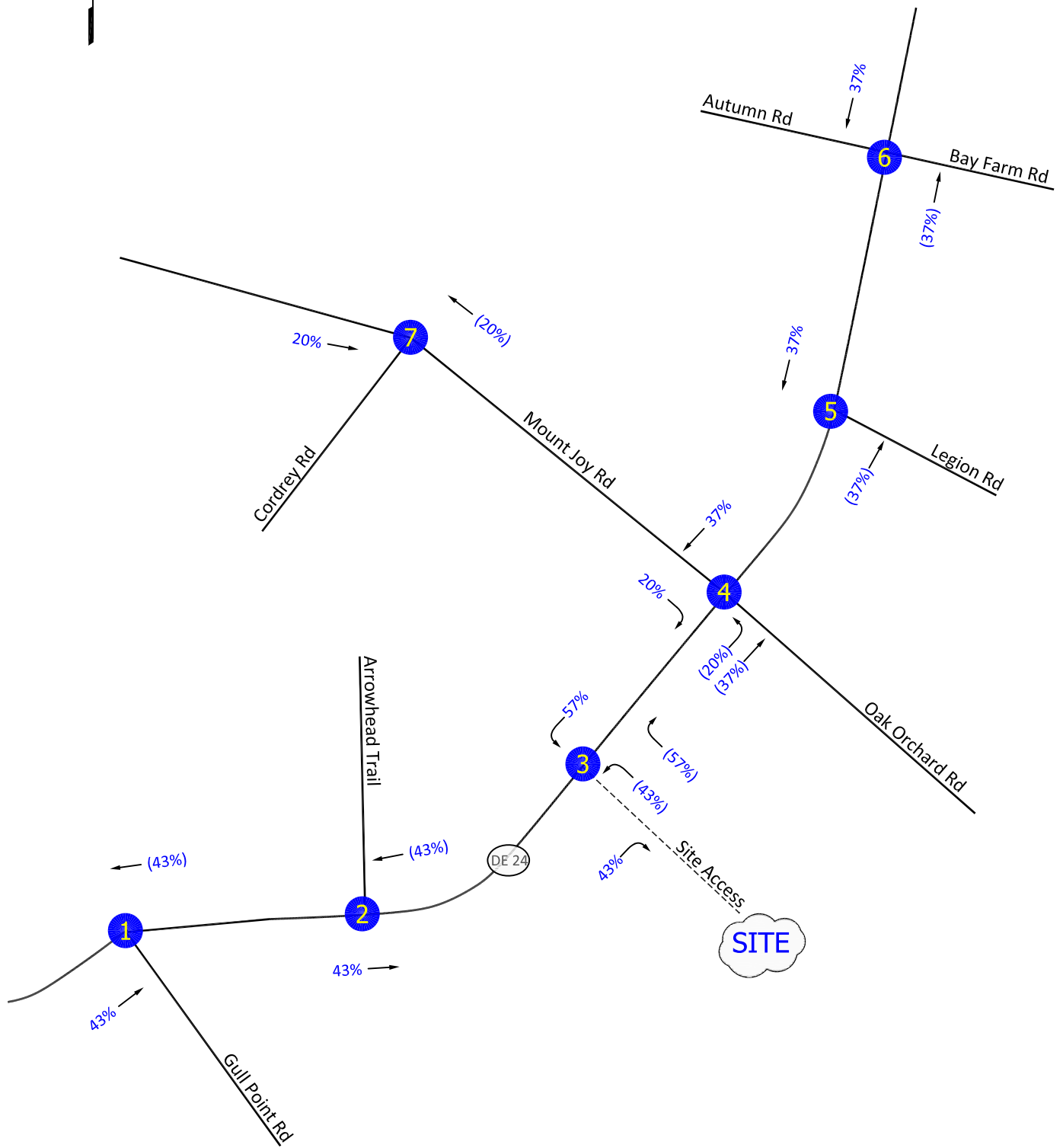
Formula/Rate	Directional Distribution	
	IN	OUT
Single-Family Detached (ITE-210, Units)		
AM Peak Hour Trips = 0.71 x (Units) + 4.80	25%	75%
Ln(PM Peak Hour Trips) = 0.96 x Ln(Units) + 0.20	63%	37%
Sat. Midday Peak Hour Trips = 0.84 x Units + 17.99	54%	46%
Ln(Daily Trips) = 0.92 x Ln(Units) + 2.71	50%	50%

** ITE Trip Generation Manual 10th Edition, 2017.

Trip Generation for Estates at Patriots Glen

	Land Use	Size	Directional Distribution			ADT
			In	Out	Total	
Time Period	Phase 1 - Single Family Detached	161 Units				2752
	Phase 2 - Single Family Detached	127 Units				
	Total - Single Family Detached	288 Units				
	AM Peak Hour		52	157	209	
	PM Peak Hour		176	104	280	
	Mid Saturday Peak Hour		140	120	260	



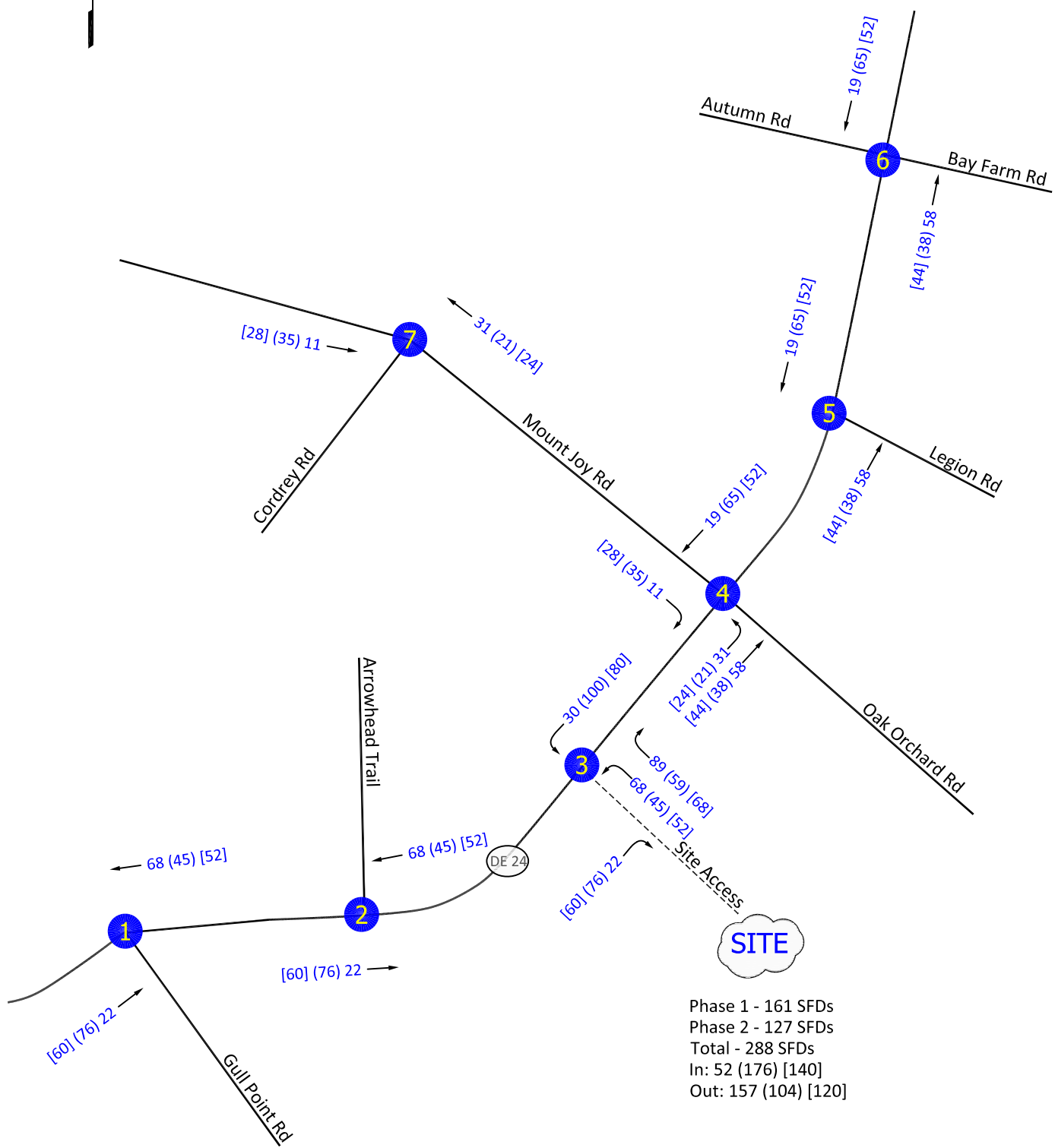


Note: Trip distribution percentage obtained from DelDOT in Scoping letter.



Study Intersection
###% - Outbound Trip Percentage
##% - Inbound Trip Percentage

EXHIBIT 16
TRIP DISTRIBUTION PERCENTAGE
FOR PATRIOTS GLEN

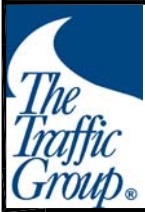
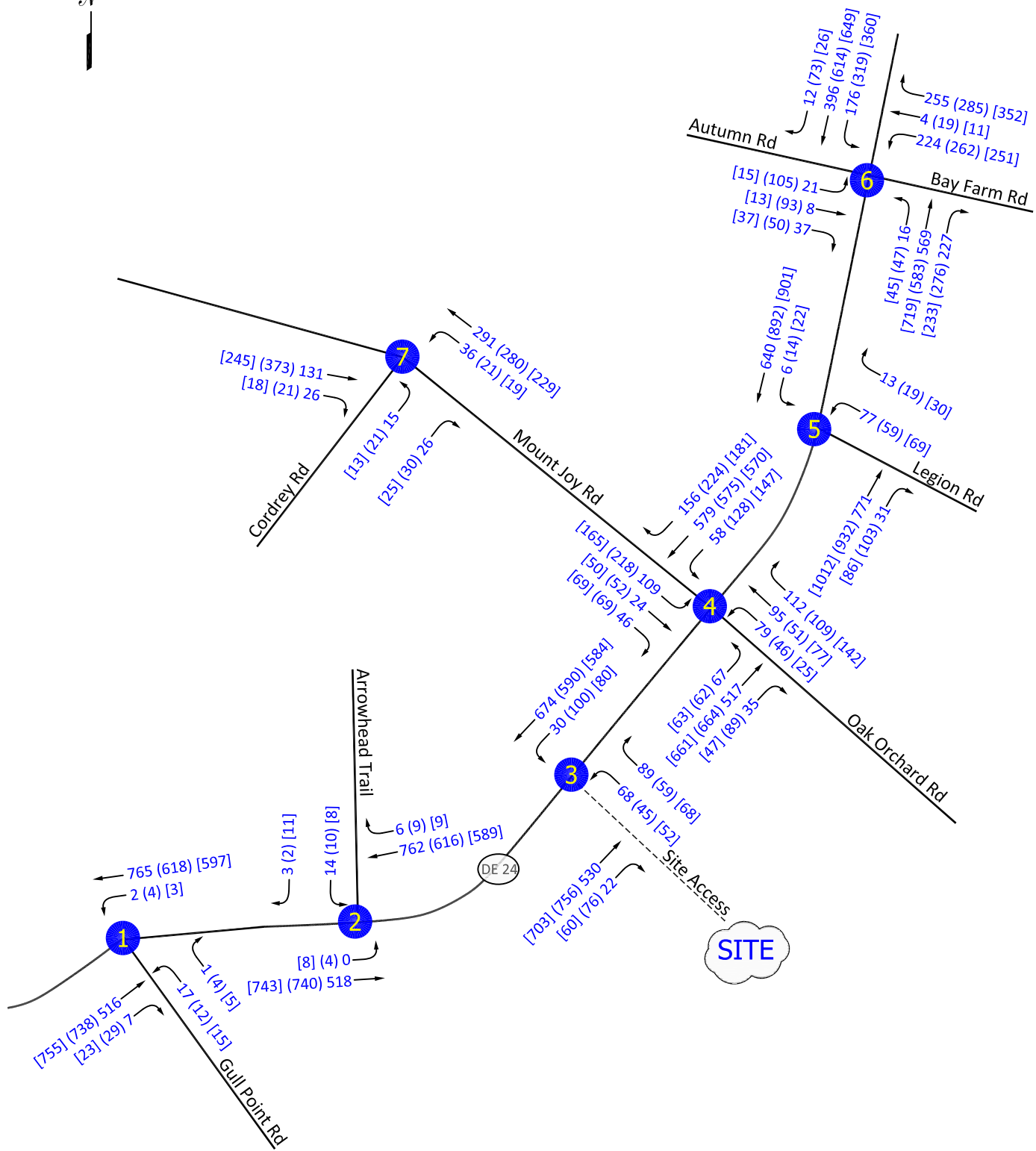


Phase 1 - 161 SFDs
 Phase 2 - 127 SFDs
 Total - 288 SFDs
 In: 52 (176) [140]
 Out: 157 (104) [120]



Study Intersection
 00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - MID SATURDAY PEAK HOUR

EXHIBIT 17
 TRIP ASSIGNMENT FOR
 PATRIOTS GLEN



Study Intersection
 00 - MORNING PEAK HOUR
 (00) - EVENING PEAK HOUR
 [00] - MID SATURDAY PEAK HOUR

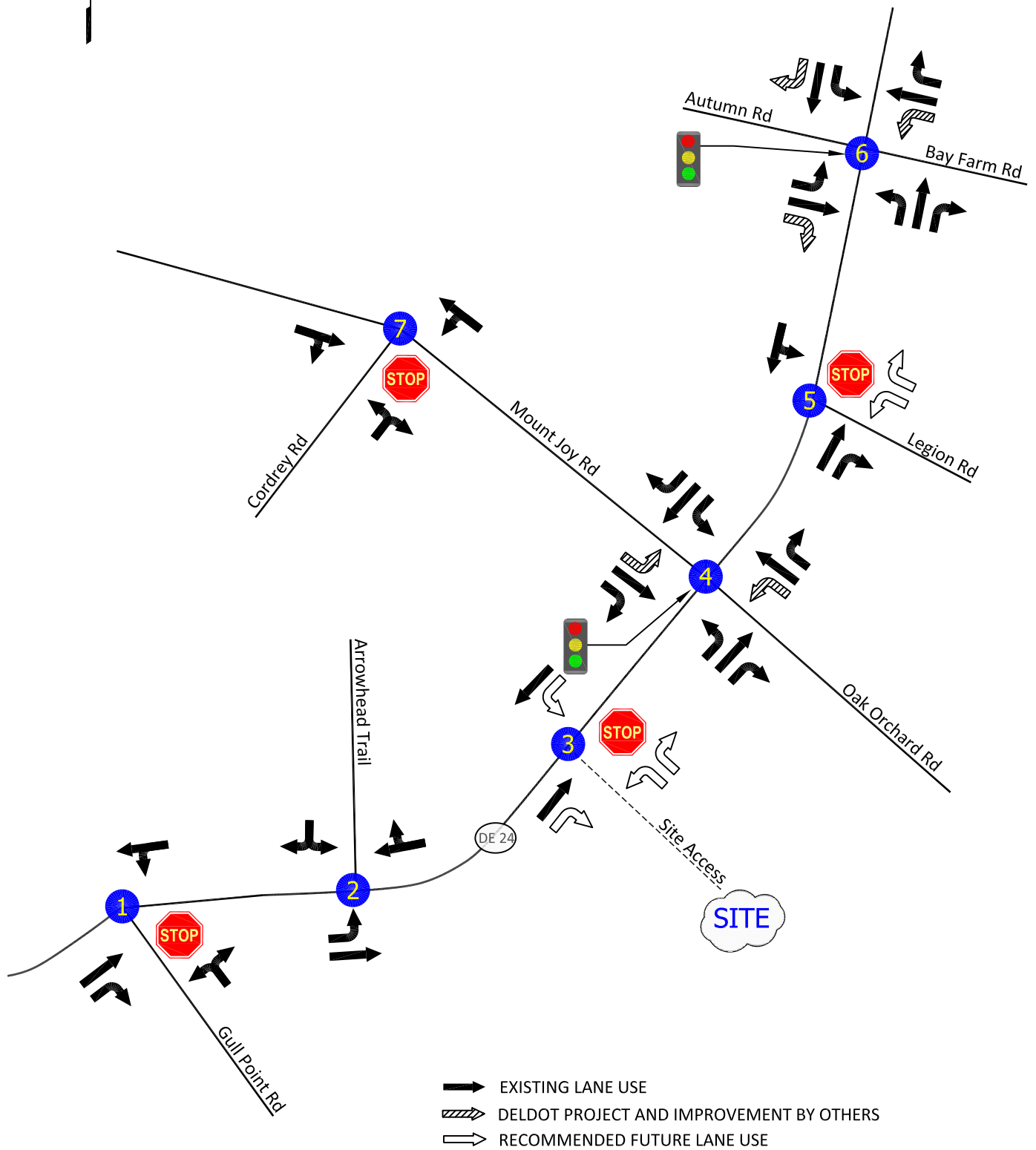
EXHIBIT 18
 2027 TOTAL PEAK HOUR
 TRAFFIC VOLUMES

HCM

Intersection/Approach	Control Type	Seasonal Adjusted Existing			Future w/o Developments			Future w/Development		
		LOS/Delay			LOS/Delay			LOS/Delay		
		AM	PM	Sat	AM	PM	SAT	AM	PM	SAT
1. Delaware Route 24/Gull Point Way WB/LT NB/LR	Stop Sign	A/0.1 C/19.5	A/0.1 C/16.9	A/0.1 C/16.8	A/0.1 D/26.6	A/0.1 D/25.1	A/0.1 C/23.9	A/0.1 D/30.1	A/0.1 D/29.5	A/0.1 D/27.4
2. Delaware Route 24/Arrowhead Trail EB/L SB/LR	Stop Sign	--- C/18.5	A/0.1 C/17.6	A/0.1 B/14.5	--- C/24.8	A/0.1 D/25.8	A/0.1 C/19.4	--- D/27.9	--- D/30.2	A/0.1 C/21.8
3. Delaware Route 24/Site Access SB/L WB/L, R	Stop Sign	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	A/8.8 D/28.6	B/10.6 E/47.3	B/10.1 E/39.7
4. Delaware Route 24/Oak Orchard Rd/Mount Joy Rd w/DELDOT Project w/DELDOT Project + Signal Timing Adjustment	Signal Signal Signal	C/29.5 --- ---	C/31.9 --- ---	C/27.7 --- ---	--- D/40.3 ---	--- E/66.7 ---	--- D/48.5 ---	--- D/47.0 D/46.9	--- E/79.7 D/54.4	--- E/59.3 D/40.1
5. Delaware Route 24/Legion Rd SB/LT WB/LR w/SB Left + WB Left Improvements SB/L WB/L, R	Stop Sign	A/0.2 C/18.4 --- ---	A/0.4 C/19.6 --- ---	A/0.7 C/22.6 --- ---	A/0.2 F/60.7 --- ---	A/0.7 F/163 --- ---	A/1.0 F/255 --- ---	A/0.2 F/77.1 A/9.6 F/68.3	A/0.7 F/230 B/10.9 F/172	A/1.1 F/343 B/11.1 F/223
6. Delaware Route 24/ Bay Farm Rd/Autumn Rd w/DELDOT Project w/DELDOT Project + Signal Timing Adjustment	Signal Signal Signal	B/19.9 --- ---	C/25.8 --- ---	C/22.8 --- ---	--- C/32.7 ---	--- D/41.3 ---	--- D/52.8 ---	--- D/45.2 C/29.4	--- D/49.0 D/45.5	--- E/59.5 D/50.3
7. Mount Joy Rd/Cordrey Rd NB/LT EB/LR	Stop Sign	A/1.3 A/10.0	A/0.9 B/11.2	A/1.0 A/9.7	A/1.1 B/10.6	A/0.8 B/12.7	A/0.8 B/10.7	A/1.1 B/10.8	A/0.8 B/13.3	A/0.7 B/11.0



EXHIBIT 19
RESULT OF INTERSECTION CAPACITY ANALYSIS



Study Intersection

EXHIBIT 20
RECOMMENDED FUTURE LANE USE



Appendix F contains the Auxiliary Lane Worksheet that was prepared for the site access. At this time, it is suggested to provide a southbound left turn lane of 335 feet and a northbound right turn lane of 400 feet.

Mitigation

SR 24 at Oak Orchard Road/Mount Joy Road – This signal-controlled intersection operates at acceptable levels of service under existing traffic conditions and level of service “E” under background and total traffic conditions. With minor adjustments to the traffic signal timing, this intersection will operate at acceptable levels of service.

SR 24 at Legion Road – This stop-controlled intersection has side street movements that operate with an unacceptable level of service. The only way to mitigate this intersection is with a traffic signal. Therefore, it is our suggestion that this developer contribute to the Traffic Signal Revolving Fund.

SR 24 at Bay Farm Road/Autumn Road – This signal-controlled intersection operates at acceptable levels of service under existing and background traffic conditions and level of service “E” during the midday Saturday Peak Hour under total traffic conditions only. With minor adjustments to the traffic signal timing, this intersection will operate at acceptable levels of service.

RESULTS, RECOMMENDATIONS, AND CONCLUSIONS

Study Purpose

The Traffic Group, Inc. has prepared this TIS to determine the impact of the proposed Patriots Glen – Phase I & II development in Sussex County, Delaware. Schiff Land Development Company, LLC has two related developments in the John J. Williams Highway (SR 24) corridor between Layton Davis Road (Sussex Road 312A) and Oak Orchard Road (SR 5). Patriots Glen Phase I is proposed on a 49.94-acre assemblage of three tax parcels (Tax Parcels 234-29.00-66.00, 66.01 & 66.02). A rezoning of part of land from CR-1 to MR and a RPC overlay zone to establish the entire assemblages as an MR-RPC district with 161 single-family detached house lots was adopted by Sussex County in July 2019. The development would have access on the south side of Route 24 through Parcel 66.01. Construction is anticipated to be complete in 2024. Patriots Glen Phase I qualified to pay an Area Wide Study Fee in lieu of doing TIS.

Patriots Glen Phase II is proposed on a 43.46-acre tax parcel (Tax Parcel 234-29.00-67.00). Its situation with regard to zoning is similar to Patriots Glen I except that Schiff Land Development Company, LLC has not yet applied for the rezoning they seek and they propose a smaller development, 127 single-family detached houses. Because Parcel 67.00 is land locked, the developer proposes to access SR 24 through Patriots Glen Phase I.

Based on the following, DelDOT finds that a TIS should be required:

1. While a development of 127 single-family detached house would qualify to pay an Area Wide Study Fee in lieu of doing TIS, the two combined developments would not and development of Patriots Glen Phase II presupposes and depends on the development of Patriots Glen Phase I.
2. While Schiff Land Development Company, LLC could pay the Area Wide Study Fee for Patriots Glen Phase I, and likely would do so if Patriots Glen Phase II is denied the contemplated rezoning or otherwise cannot be developed, it does not make economic sense for them to both pay the fee and do a TIS.

Accordingly, this TIS will be based on the traffic from both developments. If Sussex County has not rezoned the land for Patriots Glen Phase II by the time that plans for Patriots Glen Phase I are ready for approval. This TIS will identify a set of off-site improvements that Patriots Glen Phase I can proceed as an independent development. In doing so, Patriots Glen Phase II remains a reasonable possibility.

Study Criteria/Methodology

The Scope of Work for this TIS was determined by DelDOT based on the TIS Scoping Meeting (11/12/2019) in the Scoping Meeting Memorandum dated December 6, 2019. This memorandum along with approvals of the Traffic Counts and PTI) can be found in Appendix E. This TIS was prepared in accordance with DelDOT Guidelines.

Summary of Findings and Recommendations

This TIS has shown that all the study intersections are currently operating at acceptable levels of service and most of them will continue to operate at acceptable levels of service in the future with or without the subject development. The intersections of SR 24 at Oak Orchard Road/Mount Joy Road, SR 24 at Legion Road, and SR 24 at Bay Farm Road/Autumn Road are projected to operate with delays under total traffic conditions. Mitigation is described as follows:

SR 24 at Oak Orchard Road/Mount Joy Road – This signal-controlled intersection operates at acceptable levels of service under existing traffic conditions and level of service “E” under background and total traffic conditions. With minor adjustments to the traffic signal timing, this intersection will operate at acceptable levels of service.

SR 24 at Legion Road – This stop-controlled intersection has side street movements that operate with an unacceptable level of service. The only way to mitigate this intersection is with a traffic signal. Therefore, it is our suggestion that this developer contribute to the Traffic Signal Revolving Fund.

SR 24 at Bay Farm Road/Autumn Road – This signal-controlled intersection operates at acceptable levels of service under existing and background traffic conditions and level of service “E” during the midday Saturday Peak Hour under total traffic conditions only. With minor adjustments to the traffic signal timing, this intersection will operate at acceptable levels of service.

Therefore, based on the data and analysis found in this report including the mitigation plan, the Patriots Glen Phase I & II development meets the requirements for approvals.

APPENDIX A

Turning Movement Counts and Aerial Photos



	Rt 24/Lon Neck	All Others	Oak Orchard	Local		Other							Site	2021	
Seasonal Adjust	0.92	0.96	0.88	1	0.97	1.00							Volumes	Build	
Annual Growth Rate	1.005	1.005	1.005			1.005									
Years Growth	3	3	3			3									
Growth Factor	1.015	1.015	1.015			1.015									
AM PEAK	2018	2018	2021	Committed	2021	New Trips		Pass By		Site		2021			
	Existing	Seasonal Adj	Projected	Develop	No Build	In	Out	In	Out	Volumes	Build				
Intersection No. 1						146	117	0	0						
Route 24 @ Autumn Road/Bay Farm Road (\$299)															
SB RT	6	6	6	6	12	0.00	21	0.0%	0	0.0%	0	0.0%	0	21	33
SB Thru	347	319	324	77	401	0.0%	22	0.0%	0	0.0%	0	0.0%	0	22	423
SB LT	116	107	109	129	238	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	238
WB RT	110	106	108	250	358	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	358
WB Thru	4	4	4	3	7	0.0%	2	0.0%	0	0.0%	0	0.0%	0	2	9
WB LT	175	168	171	98	269	0.0%	5	0.0%	0	0.0%	0	0.0%	0	5	274
NB RT	218	201	204	43	247	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	247
NB Thru	493	454	461	45	506	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	506
NB LT	5	5	5	11	16	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	16
EB RT	4	4	4	0	4	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	4
EB Thru	7	7	7	3	10	0.0%	0	0.0%	4	0.0%	0	0.0%	0	4	14
EB LT	4	4	4	0	4	0.0%	0	0.0%	32	0.0%	0	0.0%	0	32	36
INT TOTAL	1489	1385	1407	665	2072	0.0%	50	0.0%	36	0.0%	0	0.0%	0	86	2158
Intersection No. 2						146	117	0	0						
Route 24 @ Sherwood Forest															
SB RT	1	1	1	0	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	1
SB Thru	396	483	490	211	701	0.0%	43	0.0%	0	0.0%	0	0.0%	0	43	744
SB LT	7	9	9	0	9	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	9
WB RT	21	21	21	0	21	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	21
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB LT	9	9	9	0	9	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	9
NB RT	7	9	9	0	9	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	9
NB Thru	603	736	747	279	1026	0.0%	0	0.0%	34	0.0%	0	0.0%	0	34	1060
NB LT	1	1	1	0	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	1
EB RT	1	1	1	0	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	1
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	1046	1270	1288	490	1778	0.0%	43	0.0%	34	0.0%	0	0.0%	0	77	1855
Intersection No. 3						146	117	0	0						
Route 24 @ Plaza Drive - 3/2019															
SB RT	0	0	0	0	0	0.0%	28	0.0%	0	0.0%	0	0.0%	0	28	28
SB Thru	377	479	486	208	694	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	694
SB LT	72	91	92	19	111	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	111
WB RT	82	82	82	8	90	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	90
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB LT	74	74	74	3	77	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	77
NB RT	112	142	144	10	154	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	154
NB Thru	527	669	679	269	948	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	948
NB LT	0	0	0	0	0	0.0%	66	0.0%	0	0.0%	0	0.0%	0	66	66
EB RT	0	0	0	0	0	0.0%	0	0.0%	54	0.0%	0	0.0%	0	54	54
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	1244	1537	1557	516	2073	0.0%	94	0.0%	54	0.0%	0	0.0%	0	148	2221
Intersection No. 4						146	117	0	0						
Route 24 @ Legion Road															
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB Thru	516	475	482	191	673	0.0%	0	0.0%	54	0.0%	0	0.0%	0	54	727
SB LT	7	6	6	0	6	0.0%	0	0.0%	1	0.0%	0	0.0%	0	1	7
WB RT	13	12	12	0	12	0.0%	1	0.0%	0	0.0%	0	0.0%	0	1	13
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB LT	10	10	10	100	110	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	110
NB RT	8	7	7	0	7	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	7
NB Thru	674	620	629	99	728	0.0%	65	0.0%	0	0.0%	0	0.0%	0	65	793
NB LT	0	0	0	51	51	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	51
EB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	1228	1130	1146	441	1587	0.0%	66	0.0%	55	0.0%	0	0.0%	0	121	1708

DATE: 31 OCTOBER 2018

SCALE: NONE

PROJECT NO. 11675.CA

SHEET: EXHIBIT 8A

**TRAFFIC TABULATION
PEAK AM HIGHWAY HOUR
PENINSULA SQUARE
TRAFFIC IMPACT STUDY**

INDIAN RIVER HUNDRED, SUSSEX COUNTY, DELAWARE

DESIGNED BY: MJK

DRAWN BY: ADC

CHECKED BY: MJK

FILE: TIS_FIGURES



5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
TEL. 302.239.6634
FAX 302.239.8485

OFFICES IN DELAWARE, MARYLAND
PENNSYLVANIA AND NEW JERSEY

E-MAIL: DUFFIELD@DUFFIELD.COM

TOTALS TURNING MOVEMENT COUNT - SUMMARY

Counted by: VCU

Date: August 18, 2018

Saturday



Intersection of: DE 24

and: Bay Farm Road - Autumn Road

Weather: Sunny/Warm

Location: Sussex County, Delaware

Entered by: SN

Star Rating: 5

TIME	TRAFFIC FROM NORTH					TRAFFIC FROM SOUTH					TRAFFIC FROM EAST					TRAFFIC FROM WEST					TOTAL N + S + E + W
	on: DE 24					on: DE 24					on: Bay Farm Road					on: Autumn Road					
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	1	123	36	0	160	40	134	3	0	177	51	0	63	0	114	0	2	1	0	3	454
10:15 - 10:30	0	120	37	0	157	44	159	0	0	203	54	3	67	0	124	1	3	5	0	9	493
10:30 - 10:45	3	129	55	0	187	37	115	1	0	153	45	1	41	0	87	3	0	1	0	4	431
10:45 - 11:00	5	116	39	0	160	48	131	2	0	181	53	1	50	0	104	1	6	4	0	11	456
11:00 - 11:15	2	126	37	0	165	40	148	1	0	189	51	2	53	0	106	4	2	0	0	6	466
11:15 - 11:30	0	120	40	0	160	44	135	3	0	182	66	1	49	0	116	1	4	1	0	6	464
11:30 - 11:45	1	144	48	0	193	43	159	2	0	204	45	2	47	0	94	0	1	0	0	1	492
11:45 - 12:00	2	128	41	0	171	45	127	3	0	175	51	4	56	0	111	0	5	1	0	6	463
12:00 - 12:15	2	121	42	0	165	39	171	3	0	213	59	3	53	0	115	3	1	0	0	4	497
12:15 - 12:30	2	129	62	0	193	43	133	4	0	180	40	2	50	0	92	3	8	1	0	12	477
12:30 - 12:45	2	119	46	0	167	46	151	0	0	197	53	3	44	0	100	1	1	0	0	2	466
12:45 - 1:00	4	153	45	0	202	47	142	6	0	195	51	2	51	0	104	3	1	0	0	4	505
1:00 - 1:15	2	140	42	0	184	49	129	5	0	183	42	3	38	0	83	2	3	0	0	5	455
1:15 - 1:30	5	118	32	0	155	49	119	3	0	171	49	1	39	0	89	3	2	7	0	12	427
1:30 - 1:45	6	139	51	0	196	45	128	3	0	176	45	2	47	0	94	2	3	4	0	9	475
1:45 - 2:00	1	124	38	0	163	53	126	4	0	183	40	1	33	0	74	3	2	2	0	7	427
4 Hr Totals	38	2049	691	0	2778	712	2207	43	0	2962	795	31	781	0	1607	30	44	27	0	101	7448
1 Hr Totals																					
10:00 - 11:00	9	488	167	0	664	169	539	6	0	714	203	5	221	0	429	5	11	11	0	27	1834
10:15 - 11:15	10	491	168	0	669	169	553	4	0	726	203	7	211	0	421	9	11	10	0	30	1846
10:30 - 11:30	10	491	171	0	672	169	529	7	0	705	215	5	193	0	413	9	12	6	0	27	1817
10:45 - 11:45	8	506	164	0	678	175	573	8	0	756	215	6	199	0	420	6	13	5	0	24	1878
11:00 - 12:00	5	518	166	0	689	172	569	9	0	750	213	9	205	0	427	5	12	2	0	19	1885
11:15 - 12:15	5	513	171	0	689	171	592	11	0	774	221	10	205	0	436	4	11	2	0	17	1916
11:30 - 12:30	7	522	193	0	722	170	590	12	0	772	195	11	206	0	412	6	15	2	0	23	1929
11:45 - 12:45	8	497	191	0	696	173	582	10	0	765	203	12	203	0	418	7	15	2	0	24	1903
12:00 - 1:00	10	522	195	0	727	175	597	13	0	785	203	10	198	0	411	10	11	1	0	22	1945
12:15 - 1:15	10	541	195	0	746	185	555	15	0	755	186	10	183	0	379	9	13	1	0	23	1903
12:30 - 1:30	13	530	165	0	708	191	541	14	0	746	195	9	172	0	376	9	7	7	0	23	1853
12:45 - 1:45	17	550	170	0	737	190	518	17	0	725	187	8	175	0	370	10	9	11	0	30	1862
1:00 - 2:00	14	521	163	0	698	196	502	15	0	713	176	7	157	0	340	10	10	13	0	33	1784
PEAK HOUR																					
12:00 - 1:00	10	522	195	0	727	175	597	13	0	785	203	10	198	0	411	10	11	1	0	22	1945

HEAVY TRUCKS TURNING MOVEMENT COUNT - SUMMARY



Intersection of: DE 24

and: Bay Farm Road - Autumn Road

Location: Sussex County, Delaware

Counted by: VCU

Date: August 18, 2018

Weather: Sunny/Warm

Entered by: SN

Saturday

Star Rating: 5

TIME	TRAFFIC FROM NORTH					TRAFFIC FROM SOUTH					TRAFFIC FROM EAST					TRAFFIC FROM WEST					TOTAL N + S + E + W
	on: DE 24					on: DE 24					on: Bay Farm Road					on: Autumn Road					
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	0	1	0	0	1	2	3	0	0	5	0	0	1	0	1	0	0	0	0	0	7
10:15 - 10:30	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
10:30 - 10:45	0	4	0	0	4	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	6
10:45 - 11:00	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
11:00 - 11:15	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 - 11:30	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
11:30 - 11:45	0	3	0	0	3	0	3	0	0	3	2	0	1	0	3	0	0	0	0	0	9
11:45 - 12:00	0	3	0	0	3	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	5
12:00 - 12:15	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
12:15 - 12:30	0	2	1	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
12:30 - 12:45	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	3
12:45 - 1:00	0	1	0	0	1	3	1	0	0	4	0	0	1	0	1	0	0	0	0	0	6
1:00 - 1:15	0	2	1	0	3	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	6
1:15 - 1:30	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:30 - 1:45	0	1	0	0	1	1	4	0	0	5	0	0	1	0	1	0	0	0	0	0	7
1:45 - 2:00	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
4 Hr Totals	0	31	3	0	34	10	21	0	0	31	2	0	6	0	8	0	0	0	0	0	73
1 Hr Totals																					
10:00 - 11:00	0	8	0	0	8	4	6	0	0	10	0	0	1	0	1	0	0	0	0	0	19
10:15 - 11:15	0	8	1	0	9	2	3	0	0	5	0	0	0	0	0	0	0	0	0	0	14
10:30 - 11:30	0	8	1	0	9	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0	13
10:45 - 11:45	0	7	1	0	8	1	4	0	0	5	2	0	1	0	3	0	0	0	0	0	16
11:00 - 12:00	0	8	1	0	9	0	5	0	0	5	2	0	2	0	4	0	0	0	0	0	18
11:15 - 12:15	0	10	0	0	10	0	5	0	0	5	2	0	2	0	4	0	0	0	0	0	19
11:30 - 12:30	0	11	1	0	12	1	4	0	0	5	2	0	2	0	4	0	0	0	0	0	21
11:45 - 12:45	0	9	1	0	10	1	2	0	0	3	0	0	2	0	2	0	0	0	0	0	15
12:00 - 1:00	0	7	1	0	8	4	2	0	0	6	0	0	2	0	2	0	0	0	0	0	16
12:15 - 1:15	0	6	2	0	8	5	4	0	0	9	0	0	2	0	2	0	0	0	0	0	19
12:30 - 1:30	0	6	1	0	7	4	4	0	0	8	0	0	2	0	2	0	0	0	0	0	17
12:45 - 1:45	0	6	1	0	7	5	7	0	0	12	0	0	2	0	2	0	0	0	0	0	21
1:00 - 2:00	0	8	1	0	9	2	8	0	0	10	0	0	1	0	1	0	0	0	0	0	20
PEAK HOUR																					
12:00 - 1:00	0	7	1	0	8	4	2	0	0	6	0	0	2	0	2	0	0	0	0	0	16

RTOR TURNING MOVEMENT COUNT - SUMMARY

Counted by: VCU

Date: August 18, 2018

Saturday



Intersection of: DE 24

and: Bay Farm Road - Autumn Road

Weather: Sunny/Warm

Location: Sussex County, Delaware

Entered by: SN

Star Rating: 5

TIME	TRAFFIC FROM NORTH					TRAFFIC FROM SOUTH					TRAFFIC FROM EAST					TRAFFIC FROM WEST					TOTAL N + S + E + W
	on: DE 24					on: DE 24					on: Bay Farm Road					on: Autumn Road					
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	0				0	8				8	32				32	0				0	40
10:15 - 10:30	0				0	9				9	22				22	0				0	31
10:30 - 10:45	0				0	5				5	22				22	2				2	29
10:45 - 11:00	1				1	11				11	18				18	0				0	30
11:00 - 11:15	0				0	16				16	20				20	1				1	37
11:15 - 11:30	0				0	19				19	35				35	1				1	55
11:30 - 11:45	0				0	18				18	17				17	0				0	35
11:45 - 12:00	0				0	22				22	17				17	0				0	39
12:00 - 12:15	0				0	11				11	24				24	2				2	37
12:15 - 12:30	0				0	9				9	27				27	0				0	36
12:30 - 12:45	0				0	8				8	27				27	0				0	35
12:45 - 1:00	1				1	6				6	30				30	1				1	38
1:00 - 1:15	0				0	20				20	13				13	1				1	34
1:15 - 1:30	1				1	16				16	22				22	1				1	40
1:30 - 1:45	1				1	20				20	21				21	0				0	42
1:45 - 2:00	0				0	16				16	28				28	1				1	45
4 Hr Totals	4	0	0	0	4	214	0	0	0	214	375	0	0	0	375	10	0	0	0	10	603
1 Hr Totals																					
10:00 - 11:00	1	0	0	0	1	33	0	0	0	33	94	0	0	0	94	2	0	0	0	2	130
10:15 - 11:15	1	0	0	0	1	41	0	0	0	41	82	0	0	0	82	3	0	0	0	3	127
10:30 - 11:30	1	0	0	0	1	51	0	0	0	51	95	0	0	0	95	4	0	0	0	4	151
10:45 - 11:45	1	0	0	0	1	64	0	0	0	64	90	0	0	0	90	2	0	0	0	2	157
11:00 - 12:00	0	0	0	0	0	75	0	0	0	75	89	0	0	0	89	2	0	0	0	2	166
11:15 - 12:15	0	0	0	0	0	70	0	0	0	70	93	0	0	0	93	3	0	0	0	3	166
11:30 - 12:30	0	0	0	0	0	60	0	0	0	60	85	0	0	0	85	2	0	0	0	2	147
11:45 - 12:45	0	0	0	0	0	50	0	0	0	50	95	0	0	0	95	2	0	0	0	2	147
12:00 - 1:00	1	0	0	0	1	34	0	0	0	34	108	0	0	0	108	3	0	0	0	3	146
12:15 - 1:15	1	0	0	0	1	43	0	0	0	43	97	0	0	0	97	2	0	0	0	2	143
12:30 - 1:30	2	0	0	0	2	50	0	0	0	50	92	0	0	0	92	3	0	0	0	3	147
12:45 - 1:45	3	0	0	0	3	62	0	0	0	62	86	0	0	0	86	3	0	0	0	3	154
1:00 - 2:00	2	0	0	0	2	72	0	0	0	72	84	0	0	0	84	3	0	0	0	3	161
PEAK HOUR																					
12:00 - 1:00	1	0	0	0	1	34	0	0	0	34	108	0	0	0	108	3	0	0	0	3	146

PEDESTRIAN OBSERVATIONS - SUMMARY

Intersection of: DE 24
 and: Bay Farm Road - Autumn Road
 Location: Sussex County, Delaware

Counted by: VCU
 Date: August 18, 2018
 Weather: Sunny/Warm
 Entered by: SN

Saturday



Star Rating: 5

TIME	NORTH LEG	SOUTH LEG	EAST LEG	WEST LEG
	DE 24	DE 24	Bay Farm Road	Autumn Road
AM				
10:00 - 10:15	0	1	0	0
10:15 - 10:30	0	0	1	0
10:30 - 10:45	0	0	0	0
10:45 - 11:00	0	0	0	0
11:00 - 11:15	0	0	0	0
11:15 - 11:30	0	0	0	0
11:30 - 11:45	0	0	0	0
11:45 - 12:00	0	0	0	0
12:00 - 12:15	0	0	0	0
12:15 - 12:30	0	0	0	0
12:30 - 12:45	0	0	0	0
12:45 - 1:00	0	0	0	0
1:00 - 1:15	0	0	0	0
1:15 - 1:30	0	0	0	0
1:30 - 1:45	0	0	0	0
1:45 - 2:00	0	0	0	0
TOTALS	0	1	1	0



Delaware Route 24 / Bay Farm Road / Autumn Road (Sussex Road 299)

TOTALS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: DE 24
and: Legion Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 11, 2018
Weather: Rain, Fair
Entered by: BGJ

Saturday
Star Rating: 5



TIME	on: TRAFFIC FROM NORTH DE 24					on: TRAFFIC FROM SOUTH DE 24					on: TRAFFIC FROM EAST Legion Road					on: TRAFFIC FROM WEST					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	0	155	2	0	157	1	160	0	0	161	3	0	0	0	3	0	0	0	0	0	321
10:15 - 10:30	0	149	4	0	153	0	159	0	0	159	3	0	1	0	4	0	0	0	0	0	316
10:30 - 10:45	0	168	7	1	176	1	162	0	0	163	2	0	3	0	5	0	0	0	0	0	344
10:45 - 11:00	0	175	3	0	178	1	189	0	0	190	6	0	4	0	10	0	0	0	0	0	378
11:00 - 11:15	0	182	3	2	187	0	185	0	0	185	2	0	1	0	3	0	0	0	0	0	375
11:15 - 11:30	0	137	5	0	142	5	159	0	0	164	2	0	2	0	4	0	0	0	0	0	310
11:30 - 11:45	0	172	4	0	176	4	212	0	0	216	5	0	2	0	7	0	0	0	0	0	399
11:45 - 12:00	0	163	4	1	168	3	188	0	0	191	5	0	2	0	7	0	0	0	0	0	366
12:00 - 12:15	0	177	5	0	182	3	182	0	0	185	6	0	2	0	8	0	0	0	0	0	375
12:15 - 12:30	0	166	8	0	174	2	176	0	0	178	4	0	0	0	4	0	0	0	0	0	356
12:30 - 12:45	0	191	3	0	194	4	182	0	0	186	6	0	2	0	8	0	0	0	0	0	388
12:45 - 1:00	0	152	7	1	160	4	217	0	0	221	4	0	3	0	7	0	0	0	0	0	388
1:00 - 1:15	0	187	3	0	190	6	201	0	0	207	12	0	3	0	15	0	0	0	0	0	412
1:15 - 1:30	0	165	8	0	173	2	199	0	0	201	7	0	0	0	7	0	0	0	0	0	381
1:30 - 1:45	0	174	7	0	181	2	189	0	0	191	3	0	3	0	6	0	0	0	0	0	378
1:45 - 2:00	0	140	4	0	144	5	163	0	0	168	7	0	4	0	11	0	0	0	0	0	323
4 Hr Totals	0	2653	77	5	2735	43	2923	0	0	2966	77	0	32	0	109	0	0	0	0	0	5810
1 Hr Totals																					
10:00 - 11:00	0	647	16	1	664	3	670	0	0	673	14	0	8	0	22	0	0	0	0	0	1359
10:15 - 11:15	0	674	17	3	694	2	695	0	0	697	13	0	9	0	22	0	0	0	0	0	1413
10:30 - 11:30	0	662	18	3	683	7	695	0	0	702	12	0	10	0	22	0	0	0	0	0	1407
10:45 - 11:45	0	666	15	2	683	10	745	0	0	755	15	0	9	0	24	0	0	0	0	0	1462
11:00 - 12:00	0	654	16	3	673	12	744	0	0	756	14	0	7	0	21	0	0	0	0	0	1450
11:15 - 12:15	0	649	18	1	668	15	741	0	0	756	18	0	8	0	26	0	0	0	0	0	1450
11:30 - 12:30	0	678	21	1	700	12	758	0	0	770	20	0	6	0	26	0	0	0	0	0	1496
11:45 - 12:45	0	697	20	1	718	12	728	0	0	740	21	0	6	0	27	0	0	0	0	0	1485
12:00 - 1:00	0	686	23	1	710	13	757	0	0	770	20	0	7	0	27	0	0	0	0	0	1507
12:15 - 1:15	0	696	21	1	718	16	776	0	0	792	26	0	8	0	34	0	0	0	0	0	1544
12:30 - 1:30	0	695	21	1	717	16	799	0	0	815	29	0	8	0	37	0	0	0	0	0	1569
12:45 - 1:45	0	678	25	1	704	14	806	0	0	820	26	0	9	0	35	0	0	0	0	0	1559
1:00 - 2:00	0	666	22	0	688	15	752	0	0	767	29	0	10	0	39	0	0	0	0	0	1494
PEAK HOUR																					
12:30 - 1:30	0	695	21	1	717	16	799	0	0	815	29	0	8	0	37	0	0	0	0	0	1569

HEAVY TRUCKS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: DE 24
and: Legion Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 11, 2018
Weather: Rain, Fair
Entered by: BGJ

Saturday
Star Rating: 5



TIME	TRAFFIC FROM NORTH on: DE 24					TRAFFIC FROM SOUTH on: DE 24					TRAFFIC FROM EAST on: Legion Road					TRAFFIC FROM WEST on:					TOTAL N + S + E + W	
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL		
AM																						
10:00 - 10:15		3	0	0	3	0	5		0	5	0		0	0	0						0	8
10:15 - 10:30		7	0	0	7	0	4		0	4	0		0	0	0						0	11
10:30 - 10:45		5	0	0	5	0	4		0	4	0		0	0	0						0	9
10:45 - 11:00		2	0	0	2	0	5		0	5	0		0	0	0						0	7
11:00 - 11:15		5	0	0	5	0	2		0	2	0		0	0	0						0	7
11:15 - 11:30		3	0	0	3	0	2		0	2	0		0	0	0						0	5
11:30 - 11:45		1	0	0	1	0	6		0	6	0		0	0	0						0	7
11:45 - 12:00		1	0	0	1	0	1		0	1	0		0	0	0						0	2
12:00 - 12:15		1	0	0	1	0	1		0	1	0		0	0	0						0	2
12:15 - 12:30		2	0	0	2	0	3		0	3	0		0	0	0						0	5
12:30 - 12:45		3	0	0	3	0	1		0	1	0		0	0	0						0	4
12:45 - 1:00		2	0	0	2	0	3		0	3	0		0	0	0						0	5
1:00 - 1:15		4	0	0	4	0	2		0	2	0		0	0	0						0	6
1:15 - 1:30		2	0	0	2	0	2		0	2	0		0	0	0						0	4
1:30 - 1:45		1	0	0	1	0	3		0	3	0		0	0	0						0	4
1:45 - 2:00		5	0	0	5	0	3		0	3	0		0	0	0						0	8
4 Hr Totals	0	47	0	0	47	0	47	0	0	47	0	0	0	0	0	0	0	0	0	0	0	94
1 Hr Totals																						
10:00 - 11:00	0	17	0	0	17	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	0	35
10:15 - 11:15	0	19	0	0	19	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	0	34
10:30 - 11:30	0	15	0	0	15	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	28
10:45 - 11:45	0	11	0	0	11	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	0	26
11:00 - 12:00	0	10	0	0	10	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	21
11:15 - 12:15	0	6	0	0	6	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	16
11:30 - 12:30	0	5	0	0	5	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	16
11:45 - 12:45	0	7	0	0	7	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	13
12:00 - 1:00	0	8	0	0	8	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	16
12:15 - 1:15	0	11	0	0	11	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	20
12:30 - 1:30	0	11	0	0	11	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	19
12:45 - 1:45	0	9	0	0	9	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	19
1:00 - 2:00	0	12	0	0	12	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	22
PEAK HOUR																						0.0121
12:30 - 1:30	0	11	0	0	11	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	19

PEDESTRIAN OBSERVATIONS - SUMMARY

Intersection of: DE 24
and: Legion Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 11, 2018
Weather: Rain, Fair
Entered by: BGJ

Saturday
Star Rating: 5



TIME	NORTH LEG DE 24	SOUTH LEG DE 24	EAST LEG Legion Road	WEST LEG
AM				
10:00 - 10:15	0	0	1	
10:15 - 10:30	0	0	1	
10:30 - 10:45	0	0	0	
10:45 - 11:00	0	0	1	
11:00 - 11:15	0	0	0	
11:15 - 11:30	0	0	0	
11:30 - 11:45	0	0	1	
11:45 - 12:00	0	0	0	
12:00 - 12:15	0	0	0	
12:15 - 12:30	0	0	0	
12:30 - 12:45	0	0	0	
12:45 - 1:00	0	0	2	
1:00 - 1:15	0	0	0	
1:15 - 1:30	0	0	0	
1:30 - 1:45	0	0	0	
1:45 - 2:00	0	0	0	
TOTALS	0	0	6	0



Delaware Route 24 / Legion Road (Sussex Road 298)

	Rt 24/Lon Neck	All Others	Oak Orchard	Local		Other
Seasonal Adjust	0.92	0.96	0.88	1	0.97	1.00
Annual Growth Rate	1.005	1.005	1.005			1.005
Years Growth	3	3	3			3
Growth Factor	1.015	1.015	1.015			1.015

AM PEAK	2018		2021	Committed	2021		New Trips		Pass By		Site Volumes	2021 Build			
	Existing	Seasonal Adj	Projected	Develop	No Build		In	Out	In	Out					
Intersection No. 5							146		117		0		0		
Route 24 @ Oak Orchard Road/Mount Joy Road (S297)															
SB RT	107	98	99	75	174	0.0%	0	0.0%	20	0.0%	0	0.0%	0	20	194
SB Thru	448	412	418	158	576	0.0%	0	0.0%	30	0.0%	0	0.0%	0	30	606
SB LT	50	46	47	11	58	0.0%	0	0.0%	4	0.0%	0	0.0%	0	4	62
WB RT	113	99	100	8	108	0.0%	4	0.0%	0	0.0%	0	0.0%	0	4	112
WB Thru	102	90	91	40	131	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	131
WB LT	86	76	77	7	84	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	84
NB RT	36	33	33	2	35	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	35
NB Thru	430	396	402	73	475	0.0%	36	0.0%	0	0.0%	0	0.0%	0	36	511
NB LT	30	28	28	8	36	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	36
EB RT	13	11	11	23	34	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	34
EB Thru	25	22	22	15	37	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	37
EB LT	81	71	72	54	126	0.0%	25	0.0%	0	0.0%	0	0.0%	0	25	151
INT TOTAL	1521	1382	1400	474	1874	0.0%	65	0.0%	54	0.0%	0	0.0%	0	119	1993
Intersection No. 6							146		117		0		0		
Route 24 @ Arrowhead Trail															
SB RT	3	3	3	0	3	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	3
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB LT	14	14	14	0	14	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	14
WB RT	6	6	6	0	6	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	6
WB Thru	563	518	526	221	747	0.0%	0	0.0%	27	0.0%	0	0.0%	0	27	774
WB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB Thru	467	430	436	94	530	0.0%	30	0.0%	0	0.0%	0	0.0%	0	30	560
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	1053	971	985	315	1300	0.0%	30	0.0%	27	0.0%	0	0.0%	0	57	1357
Intersection No. 7							146		117		0		0		
Route 24 @ Gull Point															
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB Thru	566	521	529	221	750	0.0%	0	0.0%	27	0.0%	0	0.0%	0	27	777
WB LT	2	2	2	0	2	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	2
NB RT	1	1	1	0	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	1
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB LT	17	16	16	0	16	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	16
EB RT	8	7	7	0	7	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	7
EB Thru	465	428	434	94	528	0.0%	30	0.0%	0	0.0%	0	0.0%	0	30	558
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	1059	975	989	315	1304	0.0%	30	0.0%	27	0.0%	0	0.0%	0	57	1361
Intersection No. 8							146		117		0		0		
Mt Joy Road @ Cordrey Road															
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB Thru	192	184	187	79	266	0.0%	0	0.0%	20	0.0%	0	0.0%	0	20	286
WB LT	35	34	35	0	35	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	35
NB RT	26	25	25	0	25	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	25
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB LT	15	14	14	0	14	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	14
EB RT	26	25	25	0	25	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	25
EB Thru	93	89	90	67	157	0.0%	25	0.0%	0	0.0%	0	0.0%	0	25	182
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	387	371	376	147	523	0.0%	25	0.0%	20	0.0%	0	0.0%	0	45	568

DATE: 31 OCTOBER 2018
SCALE: NONE
PROJECT NO. 11675.CA
SHEET: EXHIBIT 8B

**TRAFFIC TABULATION
PEAK AM HIGHWAY HOUR
PENINSULA SQUARE
TRAFFIC IMPACT STUDY**

INDIAN RIVER HUNDRED, SUSSEX COUNTY, DELAWARE

DESIGNED BY: MJK
DRAWN BY: ADC
CHECKED BY: MJK
FILE: TIS_FIGURES



	Rt 24/Lon Neck	All Others	Oak Orchard	Local											
Seasonal Adjust	0.92	0.96	0.88	1	0.97										1.00
Annual Growth Rate	1.005	1.005	1.005												1.005
Years Growth	3	3	3												3
Growth Factor	1.015	1.015	1.015												1.015

PM PEAK	2018		2021	Committed Develop	2021 No Build	0.0%	New Trips		0.0%	0.0%	Pass By		Site Volumes	2021 Build
	Existing	Seasonal Adj	Projected				In	Out			In	Out		
Intersection No. 1														
Route 24 @ Autumn Road/Bay Farm Road (\$299)														
SB RT	57	52	53	19	72	0.0%	29	0.0%	0	0.0%	0	0.0%	29	101
SB Thru	517	476	483	69	552	0.0%	29	0.0%	0	0.0%	0	0.0%	29	581
SB LT	143	132	134	232	366	0.0%	0	0.0%	0	0.0%	0	0.0%	0	366
WB RT	155	149	151	183	334	0.0%	0	0.0%	0	0.0%	0	0.0%	0	334
WB Thru	17	16	16	2	18	0.0%	3	0.0%	0	0.0%	0	0.0%	3	21
WB LT	222	213	216	65	281	0.0%	6	0.0%	0	0.0%	0	0.0%	6	287
NB RT	225	207	210	84	294	0.0%	0	0.0%	0	0.0%	0	0.0%	0	294
NB Thru	508	467	474	91	565	0.0%	0	0.0%	0	0.0%	0	0.0%	0	565
NB LT	11	10	10	37	47	0.0%	0	0.0%	0	0.0%	0	0.0%	0	47
EB RT	28	27	27	0	27	0.0%	0	0.0%	0	0.0%	0	0.0%	0	27
EB Thru	92	88	89	3	92	0.0%	0	0.0%	9	0.0%	0	0.0%	12	104
EB LT	94	90	91	0	91	0.0%	0	0.0%	59	0.0%	0	0.0%	17	167
INT TOTAL	2069	1927	1954	785	2739	0.0%	67	0.0%	68	0.0%	0	0.0%	155	2894
Intersection No. 2														
Route 24 @ Sherwood Forest														
SB RT	2	2	2	0	2	0.0%	0	0.0%	0	0.0%	0	0.0%	0	2
SB Thru	703	858	871	320	1191	0.0%	59	0.0%	0	0.0%	0	0.0%	59	1250
SB LT	22	27	27	0	27	0.0%	0	0.0%	0	0.0%	0	0.0%	0	27
WB RT	20	20	20	0	20	0.0%	0	0.0%	0	0.0%	0	0.0%	0	20
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
WB LT	9	9	9	0	9	0.0%	0	0.0%	0	0.0%	0	0.0%	0	9
NB RT	20	24	24	0	24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	24
NB Thru	712	869	882	263	1145	0.0%	0	0.0%	61	0.0%	0	0.0%	61	1206
NB LT	1	1	1	0	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	1
EB RT	3	3	3	0	3	0.0%	0	0.0%	0	0.0%	0	0.0%	0	3
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
EB LT	3	3	3	0	3	0.0%	0	0.0%	0	0.0%	0	0.0%	0	3
INT TOTAL	1495	1816	1842	583	2425	0.0%	59	0.0%	61	0.0%	0	0.0%	120	2545
Intersection No. 3														
Route 24 @ Plaza Drive - 3/2019														
SB RT	0	0	0	0	0	0.0%	35	0.0%	0	0.0%	8	0.0%	43	43
SB Thru	579	735	746	309	1055	0.0%	0	0.0%	0	0.0%	-8	0.0%	-8	1047
SB LT	145	184	187	13	200	0.0%	0	0.0%	0	0.0%	0	0.0%	0	200
WB RT	180	180	180	20	200	0.0%	0	0.0%	0	0.0%	0	0.0%	0	200
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
WB LT	138	138	138	11	149	0.0%	0	0.0%	0	0.0%	0	0.0%	0	149
NB RT	164	208	211	6	217	0.0%	0	0.0%	0	0.0%	0	0.0%	0	217
NB Thru	521	662	672	257	929	0.0%	0	0.0%	0	0.0%	-26	0.0%	-26	903
NB LT	0	0	0	0	0	0.0%	93	0.0%	0	0.0%	26	0.0%	119	119
EB RT	0	0	0	0	0	0.0%	0	0.0%	92	0.0%	0	0.0%	120	120
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
INT TOTAL	1727	2107	2134	616	2750	0.0%	128	0.0%	92	0.0%	0	0.0%	248	2998
Intersection No. 4														
Route 24 @ Legion Road														
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
SB Thru	743	684	694	145	839	0.0%	0	0.0%	91	0.0%	0	0.0%	91	930
SB LT	14	13	13	0	13	0.0%	0	0.0%	2	0.0%	0	0.0%	2	15
WB RT	19	18	18	0	18	0.0%	2	0.0%	0	0.0%	0	0.0%	2	20
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
WB LT	5	5	5	66	71	0.0%	0	0.0%	0	0.0%	0	0.0%	0	71
NB RT	21	19	19	0	19	0.0%	0	0.0%	0	0.0%	0	0.0%	0	19
NB Thru	770	708	719	212	931	0.0%	91	0.0%	0	0.0%	0	0.0%	91	1022
NB LT	0	0	0	104	104	0.0%	0	0.0%	0	0.0%	0	0.0%	0	104
EB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
INT TOTAL	1572	1447	1468	527	1995	0.0%	93	0.0%	93	0.0%	0	0.0%	186	2181

DATE: 31 OCTOBER 2018
SCALE: NONE
PROJECT NO. 11675.CA
SHEET: EXHIBIT 8E

**TRAFFIC TABULATION
PEAK PM HIGHWAY HOUR
PENINSULA SQUARE
TRAFFIC IMPACT STUDY**

INDIAN RIVER HUNDRED, SUSSEX COUNTY, DELAWARE

DESIGNED BY: MJK
DRAWN BY: ADC
CHECKED BY: MJK
FILE: TIS_FIGURES



	Rt 24/Lon Neck	All Others	Oak Orchard	Local											
Seasonal Adjust	0.92	0.96	0.88	1	0.97										1.00
Annual Growth Rate	1.005	1.005	1.005												1.005
Years Growth	3	3	3												3
Growth Factor	1.015	1.015	1.015												1.015

PM PEAK	2018	2018	2021	Committed	2021		New Trips				Pass By		Site Volumes	2021 Build		
	Existing	Seasonal Adj	Projected	Develop	No Build		In	Out	In	Out	In	Out				
Intersection No. 5							202		202		55		59			
Route 24 @ Oak Orchard Road/Mount Joy Road (S297)																
SB RT	174	160	162	67	229	0.0%	0	0.0%	35	0.0%	0	0.0%	0	35	264	
SB Thru	429	395	401	105	506	0.0%	0	0.0%	49	0.0%	0	0.0%	0	49	555	
SB LT	121	111	113	8	121	0.0%	0	0.0%	7	0.0%	0	0.0%	0	7	128	
WB RT	104	92	93	11	104	0.0%	6	0.0%	0	0.0%	0	0.0%	0	6	110	
WB Thru	53	47	48	28	76	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	76	
WB LT	50	44	45	5	50	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	50	
NB RT	92	85	86	8	94	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	94	
NB Thru	490	451	458	168	626	0.0%	49	0.0%	0	0.0%	0	0.0%	0	49	675	
NB LT	15	14	14	26	40	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	40	
EB RT	21	18	18	15	33	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	33	
EB Thru	56	49	50	46	96	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	96	
EB LT	161	142	144	85	229	0.0%	36	0.0%	0	0.0%	0	0.0%	0	36	265	
INT TOTAL	1766	1608	1632	571	2203	0.0%	91	0.0%	91	0.0%	0	0.0%	0	182	2385	
Intersection No. 6							202		202		55		59			
Route 24 @ Arrowhead Trail																
SB RT	2	2	2	0	2	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	2	
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
SB LT	10	10	10	0	10	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	10	
WB RT	10	9	9	0	9	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	9	
WB Thru	477	439	446	147	593	0.0%	0	0.0%	40	0.0%	0	0.0%	0	40	633	
WB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
NB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
NB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
EB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
EB Thru	503	463	470	239	709	0.0%	41	0.0%	0	0.0%	0	0.0%	0	41	750	
EB LT	4	4	4	0	4	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	4	
INT TOTAL	1006	927	941	385	1326	0.0%	41	0.0%	40	0.0%	0	0.0%	0	81	1407	
Intersection No. 7							202		202		55		59			
Route 24 @ Gull Point																
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
SB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
WB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
WB Thru	479	441	448	147	595	0.0%	0	0.0%	40	0.0%	0	0.0%	0	40	635	
WB LT	4	4	4	0	4	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	4	
NB RT	4	4	4	0	4	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	4	
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
NB LT	11	11	11	0	11	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	11	
EB RT	30	28	28	0	28	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	28	
EB Thru	501	461	468	239	707	0.0%	41	0.0%	0	0.0%	0	0.0%	0	41	748	
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
INT TOTAL	1029	949	963	385	1348	0.0%	41	0.0%	40	0.0%	0	0.0%	0	81	1429	
Intersection No. 8							202		202		55		59			
Mt Joy Road @ Cordrey Road																
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
SB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
WB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
WB Thru	209	201	204	83	287	0.0%	0	0.0%	35	0.0%	0	0.0%	0	35	322	
WB LT	21	20	20	0	20	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	20	
NB RT	30	29	29	0	29	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	29	
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
NB LT	21	20	20	0	20	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	20	
EB RT	21	20	20	0	20	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	20	
EB Thru	244	234	238	94	332	0.0%	36	0.0%	0	0.0%	0	0.0%	0	36	368	
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	
INT TOTAL	546	524	531	176	707	0.0%	36	0.0%	35	0.0%	0	0.0%	0	71	778	

DATE:
31 OCTOBER 2018

SCALE:
NONE

PROJECT NO.
11675.CA

SHEET:
EXHIBIT 8F

**TRAFFIC TABULATION
PEAK PM HIGHWAY HOUR
PENINSULA SQUARE
TRAFFIC IMPACT STUDY**

INDIAN RIVER HUNDRED, SUSSEX COUNTY, DELAWARE

DESIGNED BY: MJK

DRAWN BY: ADC

CHECKED BY: MJK

FILE: TIS_FIGURES



DUFFIELD ASSOCIATES
Soil, Water & the Environment

5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
TEL. 302.239.6634
FAX 302.239.8485

OFFICES IN DELAWARE, MARYLAND
PENNSYLVANIA AND NEW JERSEY

E-MAIL: DUFFIELD@DUFFIELD.COM

	Rt 24/Lon Neck	All Others	Oak Orchard	Local											
Seasonal Adjust	1.00	1.00	1.00	1	1										1.00
Annual Growth Rate	1.005	1.005	1.005												1.005
Years Growth	3	3	3												3
Growth Factor	1.015	1.015	1.015												1.015

Saturday PEAK	2018		2021	Committed	2021	New Trips				Pass By		Site	2021		
	Existing	Seasonal Adj	Projected	Develop	No Build	In	Out	In	Out	In	Out	Volumes	Build		
Intersection No. 1						244	220	67	60						
Route 24 @ Autumn Road/Bay Farm Road (\$299)															
SB RT	10	10	10	16	26	0.00	36	0.0%	0	0.0%	0	0.0%	0	36	62
SB Thru	522	522	530	73	603	0.0%	36	0.0%	0	0.0%	0	0.0%	0	36	639
SB LT	195	195	198	208	406	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	406
WB RT	203	203	206	213	419	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	419
WB Thru	10	10	10	3	13	0.0%	4	0.0%	0	0.0%	0	0.0%	0	4	17
WB LT	198	198	201	78	279	0.0%	7	0.0%	0	0.0%	0	0.0%	0	7	286
NB RT	175	175	178	74	252	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	252
NB Thru	597	597	606	81	687	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	687
NB LT	13	13	13	31	44	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	44
EB RT	10	10	10	0	10	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	10
EB Thru	11	11	11	3	14	0.0%	0	0.0%	10	0.0%	0	0.0%	3	13	27
EB LT	1	1	1	0	1	0.0%	0	0.0%	64	0.0%	0	0.0%	17	81	82
INT TOTAL	1945	1945	1974	782	2756	0.0%	83	0.0%	74	0.0%	0	0.0%	20	177	2933
Intersection No. 2						244	220	67	60						
Route 24 @ Sherwood Forest															
SB RT	4	4	4	0	4	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	4
SB Thru	722	722	733	297	1030	0.0%	72	0.0%	0	0.0%	0	0.0%	0	72	1102
SB LT	21	21	21	0	21	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	21
WB RT	24	24	24	0	24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	24
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB LT	6	6	6	0	6	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	6
NB RT	7	7	7	0	7	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	7
NB Thru	719	719	730	281	1011	0.0%	0	0.0%	66	0.0%	0	0.0%	0	66	1077
NB LT	5	5	5	0	5	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	5
EB RT	2	2	2	0	2	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	2
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB LT	1	1	1	0	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	1
INT TOTAL	1511	1511	1533	578	2111	0.0%	72	0.0%	66	0.0%	0	0.0%	0	138	2249
Intersection No. 3						244	220	67	60						
Route 24 @ Plaza Drive - 3/2019															
SB RT	0	0	0	0	0	0.0%	43	0.0%	0	0.0%	10	0.0%	0	53	53
SB Thru	569	569	578	288	866	0.0%	0	0.0%	0	0.0%	-10	0.0%	0	-10	856
SB LT	202	202	205	15	220	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	220
WB RT	203	203	203	18	221	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	221
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB LT	203	203	203	9	212	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	212
NB RT	202	202	205	7	212	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	212
NB Thru	652	652	662	274	936	0.0%	0	0.0%	0	0.0%	-31	0.0%	0	-31	905
NB LT	0	0	0	0	0	0.0%	112	0.0%	0	0.0%	31	0.0%	0	143	143
EB RT	0	0	0	0	0	0.0%	0	0.0%	101	0.0%	0	0.0%	28	129	129
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	2031	2031	2056	611	2667	0.0%	155	0.0%	101	0.0%	0	0.0%	28	284	2951
Intersection No. 4						244	220	67	60						
Route 24 @ Legion Road															
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB Thru	695	695	705	164	869	0.0%	0	0.0%	99	0.0%	0	0.0%	0	99	968
SB LT	21	21	21	0	21	0.0%	0	0.0%	2	0.0%	0	0.0%	0	2	23
WB RT	29	29	29	0	29	0.0%	2	0.0%	0	0.0%	0	0.0%	0	2	31
WB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB LT	8	8	8	79	87	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	87
NB RT	16	16	16	0	16	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	16
NB Thru	799	799	811	187	998	0.0%	110	0.0%	0	0.0%	0	0.0%	0	110	1108
NB LT	0	0	0	92	92	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	92
EB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	1568	1568	1590	522	2112	0.0%	112	0.0%	101	0.0%	0	0.0%	0	213	2325

DATE:
31 OCTOBER 2018

SCALE:
NONE

PROJECT NO.
11675.CA

SHEET:
EXHIBIT 8I

**TRAFFIC TABULATION
PEAK SAT HIGHWAY HOUR
PENINSULA SQUARE
TRAFFIC IMPACT STUDY**

INDIAN RIVER HUNDRED, SUSSEX COUNTY, DELAWARE

DESIGNED BY: MJK

DRAWN BY: ADC

CHECKED BY: MJK

FILE: TIS_FIGURES



	Rt 24/Lon Neck	All Others	Oak Orchard	Local		Other
Seasonal Adjust	1.00	1.00	1.00	1	1	1.00
Annual Growth Rate	1.005	1.005	1.005			1.005
Years Growth	3	3	3			3
Growth Factor	1.015	1.015	1.015			1.015

Saturday PEAK	2018	2018	2021	Committed	2021	New Trips		Pass By		Site	2021
	Existing	Seasonal Adj	Projected	Develop	No Build	In	Out	In	Out	Volumes	Build

Intersection No. 5												244	220	67	60
Route 24 @ Oak Orchard Road/Mount Joy Road (S297)															
SB RT	117	117	119	73	192	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	192
SB Thru	388	388	394	125	519	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	519
SB LT	129	129	131	9	140	0.0%	43	0.0%	0	0.0%	0	0.0%	0	43	183
WB RT	124	124	126	11	137	0.0%	0	0.0%	38	0.0%	0	0.0%	0	38	175
WB Thru	73	73	74	32	106	0.0%	0	0.0%	54	0.0%	0	0.0%	0	54	160
WB LT	24	24	24	6	30	0.0%	0	0.0%	7	0.0%	0	0.0%	0	7	37
NB RT	45	45	46	7	53	0.0%	8	0.0%	0	0.0%	0	0.0%	0	8	61
NB Thru	468	468	475	146	621	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	621
NB LT	17	17	17	21	38	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	38
EB RT	22	22	22	18	40	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	40
EB Thru	47	47	48	37	85	0.0%	59	0.0%	0	0.0%	0	0.0%	0	59	144
EB LT	98	98	99	79	178	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	178
INT TOTAL	1552	1552	1575	565	2140	0.0%	110	0.0%	0	0.0%	0	0.0%	0	209	2349

Intersection No. 6												244	220	67	60
Route 24 @ Arrowhead Trail															
SB RT	11	11	11	0	11	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	11
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB LT	8	8	8	0	8	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	8
WB RT	9	9	9	0	9	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	9
WB Thru	389	389	395	174	569	0.0%	0	0.0%	45	0.0%	0	0.0%	0	45	614
WB LT	1	1	1	0	1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	1
NB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
EB Thru	511	511	519	203	722	0.0%	49	0.0%	0	0.0%	0	0.0%	0	49	771
EB LT	8	8	8	0	8	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	8
INT TOTAL	937	937	951	377	1328	0.0%	49	0.0%	45	0.0%	0	0.0%	0	94	1422

Intersection No. 7												244	220	67	60
Route 24 @ Gull Point															
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB Thru	397	397	403	174	577	0.0%	0	0.0%	45	0.0%	0	0.0%	0	45	622
WB LT	3	3	3	0	3	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	3
NB RT	5	5	5	0	5	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	5
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB LT	14	14	14	0	14	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	14
EB RT	22	22	22	0	22	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	22
EB Thru	523	523	531	203	734	0.0%	49	0.0%	0	0.0%	0	0.0%	0	49	783
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	964	964	978	377	1355	0.0%	49	0.0%	45	0.0%	0	0.0%	0	94	1449

Intersection No. 8												244	220	67	60
Mt Joy Road @ Cordrey Road															
SB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
SB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB RT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
WB Thru	131	131	133	86	219	0.0%	0	0.0%	38	0.0%	0	0.0%	0	38	257
WB LT	18	18	18	0	18	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	18
NB RT	24	24	24	0	24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	24
NB Thru	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
NB LT	12	12	12	0	12	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	12
EB RT	17	17	17	0	17	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	17
EB Thru	133	133	135	90	225	0.0%	43	0.0%	0	0.0%	0	0.0%	0	43	268
EB LT	0	0	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0
INT TOTAL	335	335	339	176	515	0.0%	43	0.0%	38	0.0%	0	0.0%	0	81	596

DATE:	31 OCTOBER 2018
SCALE:	NONE
PROJECT NO.	11675.CA
SHEET:	EXHIBIT 8J

**TRAFFIC TABULATION
PEAK SAT HIGHWAY HOUR
PENINSULA SQUARE
TRAFFIC IMPACT STUDY**

INDIAN RIVER HUNDRED, SUSSEX COUNTY, DELAWARE

DESIGNED BY:	MJK
DRAWN BY:	ADC
CHECKED BY:	MJK
FILE:	TIS_FIGURES



DUFFIELD ASSOCIATES
Soil, Water & the Environment

5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
TEL: 302.239.6634
FAX: 302.239.8485

OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY

E-MAIL: DUFFIELD@DUFFIELD.COM

TOTALS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: DE 24
and: Gull Point Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 5



TIME	TRAFFIC FROM NORTH					TRAFFIC FROM SOUTH Gull Point Road					TRAFFIC FROM EAST DE 24					TRAFFIC FROM WEST DE 24					TOTAL N + S + E + W
	on: RIGHT	THRU	LEFT	U-TN	TOTAL	on: RIGHT	THRU	LEFT	U-TN	TOTAL	on: RIGHT	THRU	LEFT	U-TN	TOTAL	on: RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	0	0	0	0	0	1	0	4	0	5	0	94	0	1	95	8	128	0	0	136	236
10:15 - 10:30	0	0	0	0	0	1	0	6	0	7	0	102	1	0	103	4	114	0	0	118	228
10:30 - 10:45	0	0	0	0	0	1	0	4	0	5	0	114	0	0	114	6	121	0	0	127	246
10:45 - 11:00	0	0	0	0	0	2	0	3	0	5	0	91	1	0	92	2	112	0	0	114	211
11:00 - 11:15	0	0	0	0	0	1	0	7	0	8	0	95	0	0	95	4	114	0	0	118	221
11:15 - 11:30	0	0	0	0	0	0	0	4	0	4	0	103	0	0	103	2	99	0	0	101	208
11:30 - 11:45	0	0	0	0	0	1	0	4	0	5	0	93	0	0	93	4	141	0	0	145	243
11:45 - 12:00	0	0	0	0	0	1	0	4	0	5	0	92	0	0	92	6	140	0	0	146	243
12:00 - 12:15	0	0	0	0	0	2	0	2	0	4	0	106	1	0	107	5	115	0	0	120	231
12:15 - 12:30	0	0	0	0	0	1	0	4	0	5	0	106	1	1	108	7	127	0	0	134	247
12:30 - 12:45	0	0	0	0	0	3	0	6	0	9	0	76	1	0	77	4	111	0	0	115	201
12:45 - 1:00	0	0	0	0	0	1	0	3	0	4	0	96	1	0	97	9	136	0	0	145	246
1:00 - 1:15	0	0	0	0	0	1	0	3	0	4	0	103	0	0	103	12	116	0	0	128	235
1:15 - 1:30	0	0	0	0	0	2	0	9	0	11	0	102	2	0	104	2	123	0	0	125	240
1:30 - 1:45	0	0	0	0	0	3	0	1	0	4	0	112	0	0	112	1	124	0	0	125	241
1:45 - 2:00	0	0	0	0	0	3	0	4	0	7	0	94	0	0	94	4	126	0	0	130	231
4 Hr Totals	0	0	0	0	0	24	0	68	0	92	0	1579	8	2	1589	80	1947	0	0	2027	3708
1 Hr Totals																					
10:00 - 11:00	0	0	0	0	0	5	0	17	0	22	0	401	2	1	404	20	475	0	0	495	921
10:15 - 11:15	0	0	0	0	0	5	0	20	0	25	0	402	2	0	404	16	461	0	0	477	906
10:30 - 11:30	0	0	0	0	0	4	0	18	0	22	0	403	1	0	404	14	446	0	0	460	886
10:45 - 11:45	0	0	0	0	0	4	0	18	0	22	0	382	1	0	383	12	466	0	0	478	883
11:00 - 12:00	0	0	0	0	0	3	0	19	0	22	0	383	0	0	383	16	494	0	0	510	915
11:15 - 12:15	0	0	0	0	0	4	0	14	0	18	0	394	1	0	395	17	495	0	0	512	925
11:30 - 12:30	0	0	0	0	0	5	0	14	0	19	0	397	2	1	400	22	523	0	0	545	964
11:45 - 12:45	0	0	0	0	0	7	0	16	0	23	0	380	3	1	384	22	493	0	0	515	922
12:00 - 1:00	0	0	0	0	0	7	0	15	0	22	0	384	4	1	389	25	489	0	0	514	925
12:15 - 1:15	0	0	0	0	0	6	0	16	0	22	0	381	3	1	385	32	490	0	0	522	929
12:30 - 1:30	0	0	0	0	0	7	0	21	0	28	0	377	4	0	381	27	486	0	0	513	922
12:45 - 1:45	0	0	0	0	0	7	0	16	0	23	0	413	3	0	416	24	499	0	0	523	962
1:00 - 2:00	0	0	0	0	0	9	0	17	0	26	0	411	2	0	413	19	489	0	0	508	947
PEAK HOUR																					
11:30 - 12:30	0	0	0	0	0	5	0	14	0	19	0	397	2	1	400	22	523	0	0	545	964

HEAVY TRUCKS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: DE 24
and: Gull Point Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 5



TIME	TRAFFIC FROM NORTH					TRAFFIC FROM SOUTH Gull Point Road					TRAFFIC FROM EAST DE 24					TRAFFIC FROM WEST DE 24					TOTAL N+S + E+W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15					0	0		0	0	0	1	0	0	0	1	0	6		0	6	7
10:15 - 10:30					0	0		0	0	0	2	0	0	0	2	0	3		0	3	5
10:30 - 10:45					0	0		1	0	1	12	0	0	0	12	0	5		0	5	18
10:45 - 11:00					0	0		0	0	0	3	0	0	0	3	0	1		0	1	4
11:00 - 11:15					0	0		0	0	0	3	0	0	0	3	0	2		0	2	5
11:15 - 11:30					0	0		0	0	0	0	0	0	0	0	0	4		0	4	4
11:30 - 11:45					0	0		0	0	0	2	0	0	0	2	0	3		0	3	5
11:45 - 12:00					0	0		0	0	0	2	0	0	0	2	0	3		0	3	5
12:00 - 12:15					0	0		0	0	0	5	0	0	0	5	0	1		0	1	6
12:15 - 12:30					0	0		1	0	1	4	0	0	0	4	1	1		0	2	7
12:30 - 12:45					0	0		0	0	0	2	0	0	0	2	0	4		0	4	6
12:45 - 1:00					0	0		0	0	0	1	0	0	0	1	1	1		0	2	3
1:00 - 1:15					0	0		0	0	0	2	0	0	0	2	0	3		0	3	5
1:15 - 1:30					0	0		0	0	0	2	0	0	0	2	0	2		0	2	4
1:30 - 1:45					0	0		0	0	0	2	0	0	0	2	0	0		0	0	2
1:45 - 2:00					0	0		0	0	0	1	0	0	0	1	0	3		0	3	4
4 Hr Totals	0	0	0	0	0	0	0	2	0	2	0	44	0	0	44	2	42	0	0	44	90
1 Hr Totals																					
10:00 - 11:00	0	0	0	0	0	0	0	1	0	1	0	18	0	0	18	0	15	0	0	15	34
10:15 - 11:15	0	0	0	0	0	0	0	1	0	1	0	20	0	0	20	0	11	0	0	11	32
10:30 - 11:30	0	0	0	0	0	0	0	1	0	1	0	18	0	0	18	0	12	0	0	12	31
10:45 - 11:45	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	10	0	0	10	18
11:00 - 12:00	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	12	0	0	12	19
11:15 - 12:15	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	11	0	0	11	20
11:30 - 12:30	0	0	0	0	0	0	0	1	0	1	0	13	0	0	13	1	8	0	0	9	23
11:45 - 12:45	0	0	0	0	0	0	0	1	0	1	0	13	0	0	13	1	9	0	0	10	24
12:00 - 1:00	0	0	0	0	0	0	0	1	0	1	0	12	0	0	12	2	7	0	0	9	22
12:15 - 1:15	0	0	0	0	0	0	0	1	0	1	0	9	0	0	9	2	9	0	0	11	21
12:30 - 1:30	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	1	10	0	0	11	18
12:45 - 1:45	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	1	6	0	0	7	14
1:00 - 2:00	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	8	0	0	8	15
PEAK HOUR																					
11:30 - 12:30	0	0	0	0	0	0	0	1	0	1	0	13	0	0	13	1	8	0	0	9	23

PEDESTRIAN OBSERVATIONS - SUMMARY

Intersection of: DE 24
and: Gull Point Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 5



TIME	NORTH LEG	SOUTH LEG Gull Point Road	EAST LEG DE 24	WEST LEG DE 24
AM				
10:00 - 10:15		0	0	0
10:15 - 10:30		0	0	0
10:30 - 10:45		0	0	0
10:45 - 11:00		0	0	0
11:00 - 11:15		0	0	0
11:15 - 11:30		0	0	0
11:30 - 11:45		0	0	0
11:45 - 12:00		0	0	0
12:00 - 12:15		0	0	0
12:15 - 12:30		0	0	0
12:30 - 12:45		0	0	0
12:45 - 1:00		0	0	0
1:00 - 1:15		0	0	0
1:15 - 1:30		0	0	0
1:30 - 1:45		0	0	0
1:45 - 2:00		0	0	0
TOTALS	0	0	0	0



Delaware Route 24 / Gull Point Way (Sussex Road 313)

TOTALS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: DE 24
and: Arrow Head Trail
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 5



TIME	TRAFFIC FROM NORTH on: Arrow Head Trail					TRAFFIC FROM SOUTH on:					TRAFFIC FROM EAST on: DE 24					TRAFFIC FROM WEST on: DE 24					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	1	0	5	0	6	0	0	0	0	0	2	97	0	0	99	0	130	1	0	131	236
10:15 - 10:30	0	0	4	0	4	0	0	0	0	0	1	104	0	0	105	0	111	2	0	113	222
10:30 - 10:45	1	0	1	0	2	0	0	0	0	0	1	112	0	0	113	0	122	0	0	122	237
10:45 - 11:00	1	0	1	0	2	0	0	0	0	0	3	90	0	0	93	0	114	0	0	114	209
11:00 - 11:15	3	0	2	0	5	0	0	0	0	0	4	94	0	0	98	0	106	1	0	107	210
11:15 - 11:30	2	0	3	0	5	0	0	0	0	0	4	99	0	1	104	0	94	0	0	94	203
11:30 - 11:45	6	0	2	0	8	0	0	0	0	0	2	87	0	0	89	0	136	1	0	137	234
11:45 - 12:00	2	0	1	0	3	0	0	0	0	0	1	89	0	0	90	0	134	2	0	136	229
12:00 - 12:15	1	0	1	0	2	0	0	0	0	0	0	103	0	0	103	0	112	2	0	114	219
12:15 - 12:30	2	0	4	0	6	0	0	0	0	0	6	110	0	1	117	0	129	3	0	132	255
12:30 - 12:45	3	0	4	0	7	0	0	0	0	0	4	72	0	0	76	0	113	0	0	113	196
12:45 - 1:00	3	0	1	0	4	0	0	0	0	0	3	97	0	1	101	0	134	2	0	136	241
1:00 - 1:15	4	0	0	0	4	0	0	0	0	0	6	93	0	0	99	0	119	1	0	120	223
1:15 - 1:30	1	0	1	0	2	0	0	0	0	0	1	109	0	0	110	0	124	0	0	124	236
1:30 - 1:45	0	0	1	0	1	0	0	0	0	0	3	103	0	0	106	0	127	0	0	127	234
1:45 - 2:00	2	0	1	0	3	0	0	0	0	0	2	95	0	0	97	0	126	0	0	126	226
4 Hr Totals	32	0	32	0	64	0	0	0	0	0	43	1554	0	3	1600	0	1931	15	0	1946	3610
1 Hr Totals																					
10:00 - 11:00	3	0	11	0	14	0	0	0	0	0	7	403	0	0	410	0	477	3	0	480	904
10:15 - 11:15	5	0	8	0	13	0	0	0	0	0	9	400	0	0	409	0	453	3	0	456	878
10:30 - 11:30	7	0	7	0	14	0	0	0	0	0	12	395	0	1	408	0	436	1	0	437	859
10:45 - 11:45	12	0	8	0	20	0	0	0	0	0	13	370	0	1	384	0	450	2	0	452	856
11:00 - 12:00	13	0	8	0	21	0	0	0	0	0	11	369	0	1	381	0	470	4	0	474	876
11:15 - 12:15	11	0	7	0	18	0	0	0	0	0	7	378	0	1	386	0	476	5	0	481	885
11:30 - 12:30	11	0	8	0	19	0	0	0	0	0	9	389	0	1	399	0	511	8	0	519	937
11:45 - 12:45	8	0	10	0	18	0	0	0	0	0	11	374	0	1	386	0	488	7	0	495	899
12:00 - 1:00	9	0	10	0	19	0	0	0	0	0	13	382	0	2	397	0	488	7	0	495	911
12:15 - 1:15	12	0	9	0	21	0	0	0	0	0	19	372	0	2	393	0	495	6	0	501	915
12:30 - 1:30	11	0	6	0	17	0	0	0	0	0	14	371	0	1	386	0	490	3	0	493	896
12:45 - 1:45	8	0	3	0	11	0	0	0	0	0	13	402	0	1	416	0	504	3	0	507	934
1:00 - 2:00	7	0	3	0	10	0	0	0	0	0	12	400	0	0	412	0	496	1	0	497	919
PEAK HOUR																					
11:30 - 12:30	11	0	8	0	19	0	0	0	0	0	9	389	0	1	399	0	511	8	0	519	937

HEAVY TRUCKS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: DE 24
and: Arrow Head Trail
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 5



TIME	TRAFFIC FROM NORTH on: Arrow Head Trail					TRAFFIC FROM SOUTH on:					TRAFFIC FROM EAST on: DE 24					TRAFFIC FROM WEST on: DE 24					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	0		0	0	0					0	0	1		0	1	6	0	0	0	6	7
10:15 - 10:30	0		1	0	1					0	0	5		0	5	2	1	0	0	3	9
10:30 - 10:45	0		0	0	0					0	0	8		0	8	4	0	0	0	4	12
10:45 - 11:00	0		0	0	0					0	0	3		0	3	1	0	0	0	1	4
11:00 - 11:15	0		0	0	0					0	0	4		0	4	2	0	0	0	2	6
11:15 - 11:30	0		0	0	0					0	0	0		0	0	5	0	0	0	5	5
11:30 - 11:45	1		0	0	1					0	0	1		0	1	4	0	0	0	4	6
11:45 - 12:00	0		0	0	0					0	0	3		0	3	4	0	0	0	4	7
12:00 - 12:15	0		0	0	0					0	0	6		0	6	0	0	0	0	0	6
12:15 - 12:30	0		0	0	0					0	0	4		0	4	0	0	0	0	0	4
12:30 - 12:45	0		0	0	0					0	0	2		0	2	0	0	0	0	0	2
12:45 - 1:00	0		0	0	0					0	0	1		0	1	0	0	0	0	0	1
1:00 - 1:15	0		0	0	0					0	0	1		0	1	4	0	0	0	4	5
1:15 - 1:30	0		0	0	0					0	0	1		0	1	3	0	0	0	3	4
1:30 - 1:45	0		0	0	0					0	0	2		0	2	0	0	0	0	0	2
1:45 - 2:00	0		0	0	0					0	0	1		0	1	3	0	0	0	3	4
4 Hr Totals	1	0	1	0	2	0	0	0	0	0	0	43	0	0	43	0	38	1	0	39	84
1 Hr Totals																					
10:00 - 11:00	0	0	1	0	1	0	0	0	0	0	0	17	0	0	17	0	13	1	0	14	32
10:15 - 11:15	0	0	1	0	1	0	0	0	0	0	0	20	0	0	20	0	9	1	0	10	31
10:30 - 11:30	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15	0	12	0	0	12	27
10:45 - 11:45	1	0	0	0	1	0	0	0	0	0	0	8	0	0	8	0	12	0	0	12	21
11:00 - 12:00	1	0	0	0	1	0	0	0	0	0	0	8	0	0	8	0	15	0	0	15	24
11:15 - 12:15	1	0	0	0	1	0	0	0	0	0	0	10	0	0	10	0	13	0	0	13	24
11:30 - 12:30	1	0	0	0	1	0	0	0	0	0	0	14	0	0	14	0	8	0	0	8	23
11:45 - 12:45	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15	0	4	0	0	4	19
12:00 - 1:00	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	13
12:15 - 1:15	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	4	0	0	4	12
12:30 - 1:30	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	7	0	0	7	12
12:45 - 1:45	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	7	0	0	7	12
1:00 - 2:00	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	10	0	0	10	15
PEAK HOUR																					
11:30 - 12:30	1	0	0	0	1	0	0	0	0	0	0	14	0	0	14	0	8	0	0	8	23

PEDESTRIAN OBSERVATIONS - SUMMARY

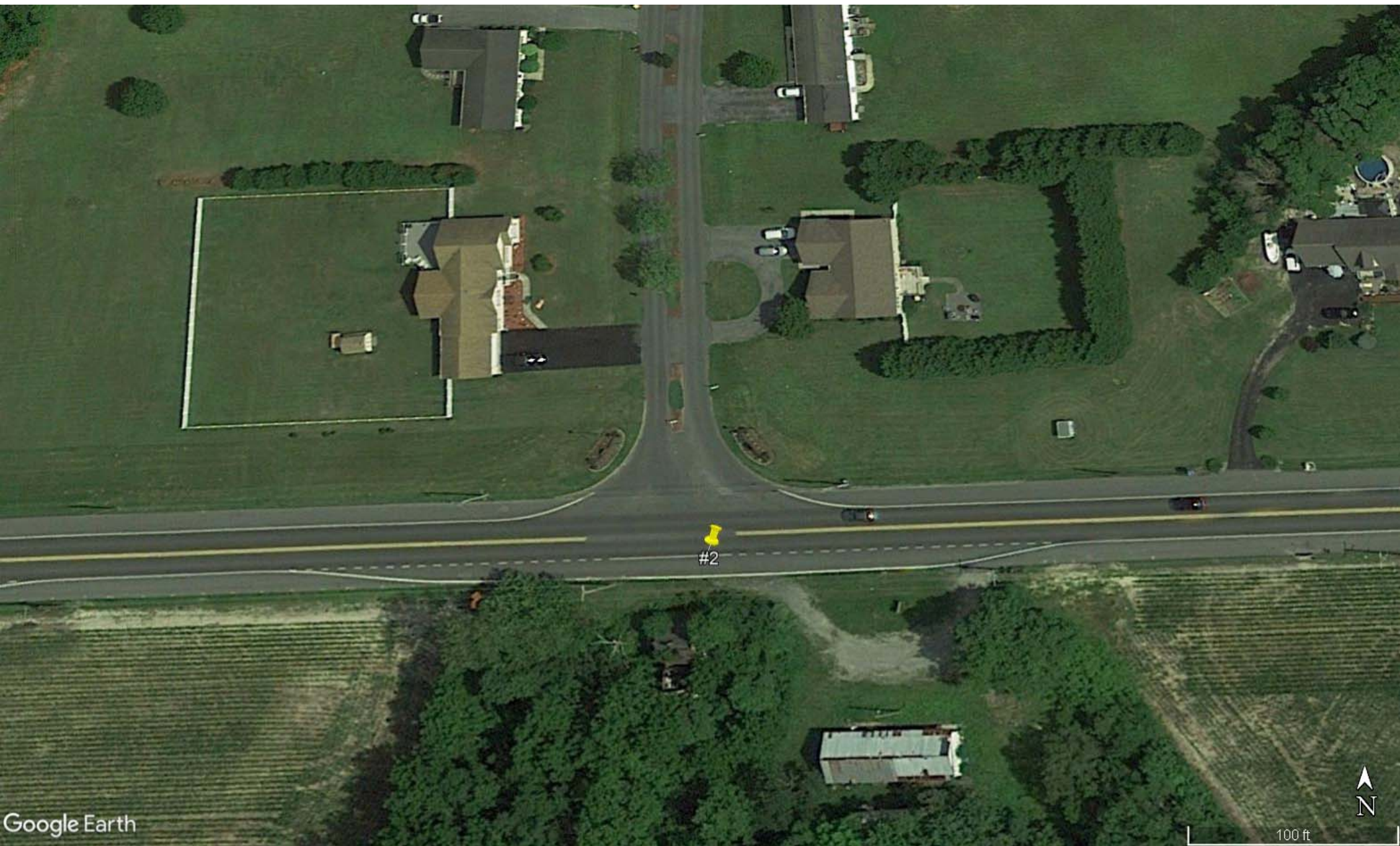
Intersection of: DE 24
and: Arrow Head Trail
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 5



TIME	NORTH LEG Arrow Head Trail	SOUTH LEG	EAST LEG DE 24	WEST LEG DE 24
AM				
10:00 - 10:15	0		0	0
10:15 - 10:30	0		0	0
10:30 - 10:45	0		0	0
10:45 - 11:00	0		0	0
11:00 - 11:15	0		0	0
11:15 - 11:30	0		0	0
11:30 - 11:45	0		0	0
11:45 - 12:00	0		0	0
12:00 - 12:15	0		0	0
12:15 - 12:30	0		0	0
12:30 - 12:45	0		0	0
12:45 - 1:00	0		0	0
1:00 - 1:15	0		0	0
1:15 - 1:30	0		0	0
1:30 - 1:45	0		0	0
1:45 - 2:00	0		0	0
TOTALS	0	0	0	0



Google Earth

Delaware Route 24 / Arrowhead Trail

TOTALS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: DE 24
and: Oak Orchard Road - Mount Joy Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 4



TIME	TRAFFIC FROM NORTH on: DE 24					TRAFFIC FROM SOUTH on: DE 24					TRAFFIC FROM EAST on: Oak Orchard Road					TRAFFIC FROM WEST on: Mount Joy Road					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	24	96	26	0	146	14	132	2	0	148	43	18	13	0	74	0	15	26	0	41	409
10:15 - 10:30	21	95	19	0	135	11	104	13	0	128	40	13	8	0	61	0	11	27	0	38	362
10:30 - 10:45	22	111	31	0	164	10	116	4	0	130	43	17	11	0	71	0	7	21	0	28	393
10:45 - 11:00	20	82	28	0	130	13	106	4	0	123	27	21	14	0	62	0	19	28	0	47	362
11:00 - 11:15	26	104	32	0	162	14	101	4	0	119	45	16	12	0	73	6	12	30	0	48	402
11:15 - 11:30	25	76	33	0	134	16	101	5	0	122	28	20	12	0	60	4	12	30	0	46	362
11:30 - 11:45	22	76	31	0	129	6	126	3	0	135	41	13	10	0	64	3	14	18	0	35	363
11:45 - 12:00	31	84	32	0	147	19	121	5	0	145	39	9	10	0	58	11	15	25	0	51	401
12:00 - 12:15	24	116	16	0	156	9	112	4	0	125	29	19	10	0	58	3	15	26	0	44	383
12:15 - 12:30	27	84	22	0	133	12	115	6	0	133	32	16	11	0	59	5	16	27	0	48	373
12:30 - 12:45	34	87	33	0	154	15	118	3	0	136	37	16	6	0	59	3	16	24	0	43	392
12:45 - 1:00	37	92	28	0	157	8	115	3	0	126	42	13	7	0	62	9	15	20	0	44	389
1:00 - 1:15	30	98	26	0	154	18	114	3	0	135	33	15	6	0	54	9	10	22	0	41	384
1:15 - 1:30	22	100	30	0	152	10	118	7	0	135	23	24	4	0	51	2	10	27	0	39	377
1:30 - 1:45	28	98	45	0	171	9	121	4	0	134	26	21	7	0	54	2	12	29	0	43	402
1:45 - 2:00	20	84	24	0	128	16	110	3	0	129	41	16	7	0	64	4	15	23	0	42	363
4 Hr Totals	413	1483	456	0	2352	200	1830	73	0	2103	569	267	148	0	984	61	214	403	0	678	6117
1 Hr Totals																					
10:00 - 11:00	87	384	104	0	575	48	458	23	0	529	153	69	46	0	268	0	52	102	0	154	1526
10:15 - 11:15	89	392	110	0	591	48	427	25	0	500	155	67	45	0	267	6	49	106	0	161	1519
10:30 - 11:30	93	373	124	0	590	53	424	17	0	494	143	74	49	0	266	10	50	109	0	169	1519
10:45 - 11:45	93	338	124	0	555	49	434	16	0	499	141	70	48	0	259	13	57	106	0	176	1489
11:00 - 12:00	104	340	128	0	572	55	449	17	0	521	153	58	44	0	255	24	53	103	0	180	1528
11:15 - 12:15	102	352	112	0	566	50	460	17	0	527	137	61	42	0	240	21	56	99	0	176	1509
11:30 - 12:30	104	360	101	0	565	46	474	18	0	538	141	57	41	0	239	22	60	96	0	178	1520
11:45 - 12:45	116	371	103	0	590	55	466	18	0	539	137	60	37	0	234	22	62	102	0	186	1549
12:00 - 1:00	122	379	99	0	600	44	460	16	0	520	140	64	34	0	238	20	62	97	0	179	1537
12:15 - 1:15	128	361	109	0	598	53	462	15	0	530	144	60	30	0	234	26	57	93	0	176	1538
12:30 - 1:30	123	377	117	0	617	51	465	16	0	532	135	68	23	0	226	23	51	93	0	167	1542
12:45 - 1:45	117	388	129	0	634	45	468	17	0	530	124	73	24	0	221	22	47	98	0	167	1552
PEAK HOUR																					
12:45 - 1:45	117	388	129	0	634	45	468	17	0	530	124	73	24	0	221	22	47	98	0	167	1552

HEAVY TRUCKS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: DE 24
and: Oak Orchard Road - Mount Joy Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 4



TIME	TRAFFIC FROM NORTH on: DE 24					TRAFFIC FROM SOUTH on: DE 24					TRAFFIC FROM EAST on: Oak Orchard Road					TRAFFIC FROM WEST on: Mount Joy Road					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	0	1	0	0	1	1	5	0	0	6	0	0	0	0	0	0	1	0	0	1	8
10:15 - 10:30	0	6	0	0	6	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	9
10:30 - 10:45	0	8	0	0	8	0	4	0	0	4	0	0	2	0	2	0	0	0	0	0	14
10:45 - 11:00	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
11:00 - 11:15	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
11:15 - 11:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	2
11:30 - 11:45	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	5
11:45 - 12:00	1	2	0	0	3	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	6
12:00 - 12:15	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	6
12:15 - 12:30	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
12:30 - 12:45	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	4
12:45 - 1:00	0	0	0	0	0	0	2	0	0	2	2	0	1	0	3	0	0	0	0	0	5
1:00 - 1:15	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
1:15 - 1:30	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
1:30 - 1:45	1	3	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
1:45 - 2:00	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	4
4 Hr Totals	4	37	0	0	41	1	35	1	0	37	3	2	3	0	8	1	1	1	0	3	89
1 Hr Totals																					
10:00 - 11:00	0	18	0	0	18	1	12	1	0	14	0	0	2	0	2	0	1	0	0	1	35
10:15 - 11:15	0	19	0	0	19	0	8	1	0	9	0	0	2	0	2	0	0	0	0	0	30
10:30 - 11:30	0	13	0	0	13	0	7	0	0	7	0	0	2	0	2	0	0	1	0	1	23
10:45 - 11:45	1	5	0	0	6	0	7	0	0	7	0	0	0	0	0	0	0	1	0	1	14
11:00 - 12:00	2	4	0	0	6	0	8	0	0	8	1	0	0	0	1	0	0	1	0	1	16
11:15 - 12:15	2	7	0	0	9	0	8	0	0	8	1	0	0	0	1	0	0	1	0	1	19
11:30 - 12:30	2	9	0	0	11	0	8	0	0	8	1	0	0	0	1	0	0	0	0	0	20
11:45 - 12:45	1	10	0	0	11	0	7	0	0	7	1	0	0	0	1	0	0	0	0	0	19
12:00 - 1:00	0	8	0	0	8	0	7	0	0	7	2	0	1	0	3	0	0	0	0	0	18
12:15 - 1:15	0	5	0	0	5	0	9	0	0	9	2	0	1	0	3	0	0	0	0	0	17
12:30 - 1:30	0	5	0	0	5	0	11	0	0	11	2	0	1	0	3	0	0	0	0	0	19
12:45 - 1:45	1	7	0	0	8	0	8	0	0	8	2	2	1	0	5	0	0	0	0	0	21
1:00 - 2:00	2	7	0	0	9	0	8	0	0	8	0	2	0	0	2	1	0	0	0	1	20
PEAK HOUR																					
12:45 - 1:45	1	7	0	0	8	0	8	0	0	8	2	2	1	0	5	0	0	0	0	0	21

RTOR TURNING MOVEMENT COUNT

Intersection of: DE 24
and: Oak Orchard Road - Mount Joy Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 4



TIME	TRAFFIC FROM NORTH DE 24					TRAFFIC FROM SOUTH DE 24					TRAFFIC FROM EAST Oak Orchard Road					TRAFFIC FROM WEST Mount Joy Road					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	9				9	4				4	21				21	0				0	34
10:15 - 10:30	7				7	4				4	19				19	0				0	30
10:30 - 10:45	7				7	3				3	22				22	0				0	32
10:45 - 11:00	8				8	5				5	14				14	0				0	27
11:00 - 11:15	10				10	4				4	24				24	2				2	40
11:15 - 11:30	9				9	8				8	12				12	1				1	30
11:30 - 11:45	8				8	3				3	20				20	1				1	32
11:45 - 12:00	12				12	6				6	19				19	4				4	41
12:00 - 12:15	7				7	3				3	15				15	1				1	26
12:15 - 12:30	11				11	5				5	16				16	1				1	33
12:30 - 12:45	13				13	6				6	15				15	0				0	34
12:45 - 1:00	14				14	5				5	24				24	3				3	46
1:00 - 1:15	12				12	7				7	18				18	3				3	40
1:15 - 1:30	9				9	3				3	10				10	1				1	23
1:30 - 1:45	11				11	3				3	14				14	0				0	28
1:45 - 2:00	6				6	5				5	22				22	1				1	34
4 Hr Totals	153	0	0	0	153	74	0	0	0	74	285	0	0	0	285	18	0	0	0	18	530
1 Hr Totals																					
10:00 - 11:00	31	0	0	0	31	16	0	0	0	16	76	0	0	0	76	0	0	0	0	0	123
10:15 - 11:15	32	0	0	0	32	16	0	0	0	16	79	0	0	0	79	2	0	0	0	2	129
10:30 - 11:30	34	0	0	0	34	20	0	0	0	20	72	0	0	0	72	3	0	0	0	3	129
10:45 - 11:45	35	0	0	0	35	20	0	0	0	20	70	0	0	0	70	4	0	0	0	4	129
11:00 - 12:00	39	0	0	0	39	21	0	0	0	21	75	0	0	0	75	8	0	0	0	8	143
11:15 - 12:15	36	0	0	0	36	20	0	0	0	20	66	0	0	0	66	7	0	0	0	7	129
11:30 - 12:30	38	0	0	0	38	17	0	0	0	17	70	0	0	0	70	7	0	0	0	7	132
11:45 - 12:45	43	0	0	0	43	20	0	0	0	20	65	0	0	0	65	6	0	0	0	6	134
12:00 - 1:00	45	0	0	0	45	19	0	0	0	19	70	0	0	0	70	5	0	0	0	5	139
12:15 - 1:15	50	0	0	0	50	23	0	0	0	23	73	0	0	0	73	7	0	0	0	7	153
12:30 - 1:30	48	0	0	0	48	21	0	0	0	21	67	0	0	0	67	7	0	0	0	7	143
12:45 - 1:45	46	0	0	0	46	18	0	0	0	18	66	0	0	0	66	7	0	0	0	7	137
1:00 - 2:00	38	0	0	0	38	18	0	0	0	18	64	0	0	0	64	5	0	0	0	5	125
PEAK HOUR																					
12:45 - 1:45	46	0	0	0	46	18	0	0	0	18	66	0	0	0	66	7	0	0	0	7	137

PEDESTRIAN OBSERVATIONS - SUMMARY

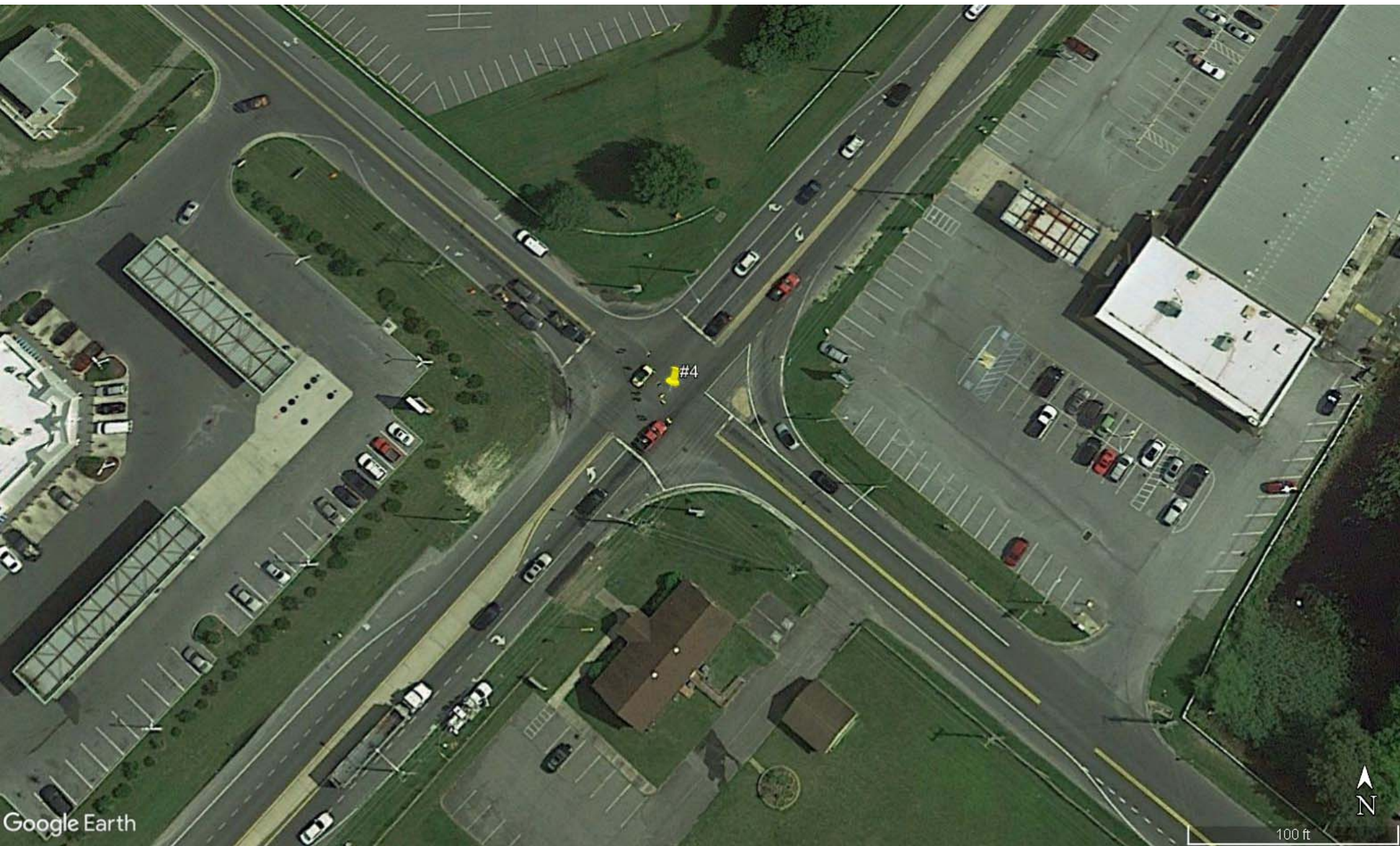
Intersection of: DE 24
and: Oak Orchard Road - Mount Joy Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 4



TIME	NORTH LEG DE 24	SOUTH LEG DE 24	EAST LEG Oak Orchard Road	WEST LEG Mount Joy Road
AM				
10:00 - 10:15	0	0	0	0
10:15 - 10:30	0	0	0	0
10:30 - 10:45	0	0	0	0
10:45 - 11:00	0	0	0	0
11:00 - 11:15	0	0	0	0
11:15 - 11:30	0	0	0	0
11:30 - 11:45	0	0	0	0
11:45 - 12:00	0	0	0	0
12:00 - 12:15	0	0	0	0
12:15 - 12:30	0	0	0	0
12:30 - 12:45	0	0	0	0
12:45 - 1:00	0	0	0	0
1:00 - 1:15	0	0	0	0
1:15 - 1:30	0	0	0	0
1:30 - 1:45	0	0	0	0
1:45 - 2:00	0	1	0	1
TOTALS	0	1	0	1



Delaware Route 24 / Oak Orchard Road / Mount Joy Road (Sussex Road 297)

TOTALS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: Mount Joy Road
and: Cordrey Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 4



TIME	TRAFFIC FROM NORTH					TRAFFIC FROM SOUTH Cordrey Road					TRAFFIC FROM EAST Mount Joy Road					TRAFFIC FROM WEST Mount Joy Road					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15	0	0	0	0	0	4	0	2	0	6	0	30	5	0	35	3	37	0	0	40	81
10:15 - 10:30	0	0	0	0	0	2	0	1	0	3	0	28	3	0	31	1	24	0	0	25	59
10:30 - 10:45	0	0	0	0	0	8	0	2	0	10	0	32	4	0	36	4	28	0	0	32	78
10:45 - 11:00	0	0	0	0	0	3	0	1	0	4	0	39	3	0	42	4	23	0	0	27	73
11:00 - 11:15	0	0	0	0	0	5	0	3	0	8	0	34	4	0	38	7	32	0	0	39	85
11:15 - 11:30	0	0	0	0	0	4	0	5	0	9	0	35	2	0	37	4	29	0	0	33	79
11:30 - 11:45	0	0	0	0	0	3	0	2	0	5	0	33	7	0	40	1	27	0	0	28	73
11:45 - 12:00	0	0	0	0	0	10	0	5	0	15	0	19	7	0	26	5	41	0	0	46	87
12:00 - 12:15	0	0	0	0	0	4	0	3	0	7	0	32	2	0	34	6	27	0	0	33	74
12:15 - 12:30	0	0	0	0	0	6	0	2	0	8	0	38	3	0	41	3	32	0	0	35	84
12:30 - 12:45	0	0	0	0	0	4	0	2	0	6	0	42	6	0	48	3	33	0	0	36	90
12:45 - 1:00	0	0	0	0	0	6	0	1	0	7	0	37	2	0	39	5	33	0	0	38	84
1:00 - 1:15	0	0	0	0	0	2	0	3	0	5	0	29	1	0	30	5	28	0	0	33	68
1:15 - 1:30	0	0	0	0	0	6	0	6	0	12	0	36	3	0	39	2	23	0	0	25	76
1:30 - 1:45	0	0	0	0	0	1	0	2	0	3	0	35	5	0	40	2	32	0	0	34	77
1:45 - 2:00	0	0	0	0	0	6	0	9	0	15	0	27	5	0	32	5	26	0	0	31	78
4 Hr Totals	0	0	0	0	0	74	0	49	0	123	0	526	62	0	588	60	475	0	0	535	1246
1 Hr Totals																					
10:00 - 11:00	0	0	0	0	0	17	0	6	0	23	0	129	15	0	144	12	112	0	0	124	291
10:15 - 11:15	0	0	0	0	0	18	0	7	0	25	0	133	14	0	147	16	107	0	0	123	295
10:30 - 11:30	0	0	0	0	0	20	0	11	0	31	0	140	13	0	153	19	112	0	0	131	315
10:45 - 11:45	0	0	0	0	0	15	0	11	0	26	0	141	16	0	157	16	111	0	0	127	310
11:00 - 12:00	0	0	0	0	0	22	0	15	0	37	0	121	20	0	141	17	129	0	0	146	324
11:15 - 12:15	0	0	0	0	0	21	0	15	0	36	0	119	18	0	137	16	124	0	0	140	313
11:30 - 12:30	0	0	0	0	0	23	0	12	0	35	0	122	19	0	141	15	127	0	0	142	318
11:45 - 12:45	0	0	0	0	0	24	0	12	0	36	0	131	18	0	149	17	133	0	0	150	335
12:00 - 1:00	0	0	0	0	0	20	0	8	0	28	0	149	13	0	162	17	125	0	0	142	332
12:15 - 1:15	0	0	0	0	0	18	0	8	0	26	0	146	12	0	158	16	126	0	0	142	326
12:30 - 1:30	0	0	0	0	0	18	0	12	0	30	0	144	12	0	156	15	117	0	0	132	318
12:45 - 1:45	0	0	0	0	0	15	0	12	0	27	0	137	11	0	148	14	116	0	0	130	305
1:00 - 2:00	0	0	0	0	0	15	0	20	0	35	0	127	14	0	141	14	109	0	0	123	299
PEAK HOUR																					
11:45 - 12:45	0	0	0	0	0	24	0	12	0	36	0	131	18	0	149	17	133	0	0	150	335

HEAVY TRUCKS TURNING MOVEMENT COUNT - SUMMARY

Intersection of: Mount Joy Road
and: Cordrey Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 4



TIME	TRAFFIC FROM NORTH					TRAFFIC FROM SOUTH Cordrey Road					TRAFFIC FROM EAST Mount Joy Road					TRAFFIC FROM WEST Mount Joy Road					TOTAL N + S + E + W
	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	RIGHT	THRU	LEFT	U-TN	TOTAL	
AM																					
10:00 - 10:15					0	0		0	0	0	2	1	0	0	3	0	0		0	0	3
10:15 - 10:30					0	0		0	0	0	0	0	0	0	0	0	1		0	1	1
10:30 - 10:45					0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
10:45 - 11:00					0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
11:00 - 11:15					0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
11:15 - 11:30					0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
11:30 - 11:45					0	0		0	0	0	0	1	0	0	1	0	0		0	0	1
11:45 - 12:00					0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
12:00 - 12:15					0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
12:15 - 12:30					0	0		0	0	0	0	0	0	0	0	0	1		0	1	1
12:30 - 12:45					0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
12:45 - 1:00					0	0		0	0	0	0	0	0	0	0	1	0		0	1	1
1:00 - 1:15					0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
1:15 - 1:30					0	0		1	0	1	0	0	0	0	0	1	0		0	1	2
1:30 - 1:45					0	0		0	0	0	0	0	0	0	0	1	0		0	1	1
1:45 - 2:00					0	1		0	0	1	0	1	0	0	1	0	0		0	0	2
4 Hr Totals	0	0	0	0	0	1	0	1	0	2	0	2	3	0	5	3	2	0	0	5	12
1 Hr Totals																					
10:00 - 11:00	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	1	0	0	1	4
10:15 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
10:30 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
11:00 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
11:15 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
11:30 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
11:45 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
12:00 - 1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
12:15 - 1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
12:30 - 1:30	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	3
12:45 - 1:45	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	4
1:00 - 2:00	0	0	0	0	0	1	0	1	0	2	0	0	1	0	1	2	0	0	0	2	5
PEAK HOUR																					
11:45 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1

PEDESTRIAN OBSERVATIONS - SUMMARY

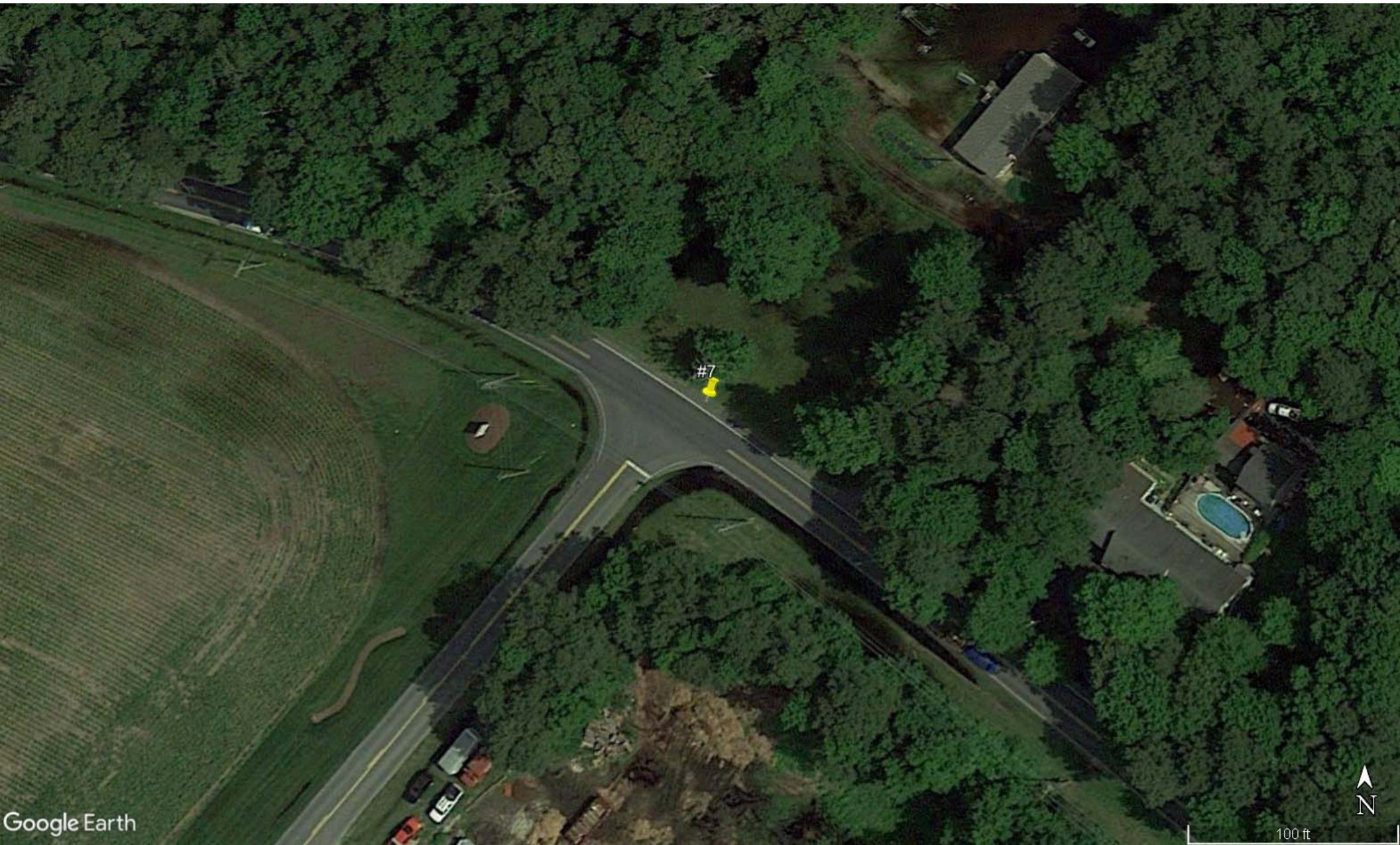
Intersection of: Mount Joy Road
and: Cordrey Road
Location: Sussex County, Delaware

Counted by: VCU
Date: August 25, 2018
Weather: Sunny/Warm
Entered by: SN

Saturday
Star Rating: 4



TIME	NORTH LEG	SOUTH LEG Cordrey Road	EAST LEG Mount Joy Road	WEST LEG Mount Joy Road
AM				
10:00 - 10:15		0	0	0
10:15 - 10:30		0	0	0
10:30 - 10:45		0	0	0
10:45 - 11:00		0	0	0
11:00 - 11:15		0	0	0
11:15 - 11:30		0	0	0
11:30 - 11:45		0	0	0
11:45 - 12:00		0	0	0
12:00 - 12:15		0	0	0
12:15 - 12:30		0	0	0
12:30 - 12:45		0	0	0
12:45 - 1:00		0	0	0
1:00 - 1:15		0	0	0
1:15 - 1:30		0	0	0
1:30 - 1:45		0	0	0
1:45 - 2:00		0	0	0
TOTALS	0	0	0	0



Mount Joy Road / Cordrey Road (Sussex Road 308)

APPENDIX B

Crash Data and Transit Facility Information



Ming-Yu Chien

From: Kauffman, Jared D (DelDOT) <Jared.Kauffman@delaware.gov>
Sent: Thursday, April 16, 2020 9:30 AM
To: Ming-Yu Chien; Cherry-Wall, Tremica (DelDOT)
Subject: RE: Transit Facilities - Patriots Glen

Hi Ming-Yu,

I don't have any additional comments.

Thanks,

Jared Kauffman
DART First State
Fixed-Route Planner
119 Lower Beech St #100
Wilmington, DE 19805
Jared.kauffman@delaware.gov
Office: 302-576-6062

Cell: 717-460-7521 – Please use as I'll be working from home during COVID 19 pandemic.

From: Ming-Yu Chien <mchien@trafficgroup.com>
Sent: Thursday, April 16, 2020 9:18 AM
To: Cherry-Wall, Tremica (DelDOT) <Tremica.Cherry-Wall@delaware.gov>
Cc: Kauffman, Jared D (DelDOT) <Jared.Kauffman@delaware.gov>
Subject: RE: Transit Facilities - Patriots Glen

Good morning Tremica, thank you for your quick response.

Jared, please let us know if you have any additional comments regarding the transit facilities in the study area.

Thank you both and have a nice day!
Ming-Yu

From: Cherry-Wall, Tremica (DelDOT) <Tremica.Cherry-Wall@delaware.gov>
Sent: Thursday, April 16, 2020 8:32 AM
To: Ming-Yu Chien <mchien@trafficgroup.com>
Cc: Kauffman, Jared D (DelDOT) <Jared.Kauffman@delaware.gov>
Subject: RE: Transit Facilities - Patriots Glen

Good morning Ming-Yu,

DTC has requested bus stop in the area of intersection #4 on both sides and would like to have pedestrian access to each of them. My colleague, Jared Kauffman, whom I have copied on this email, can add additional commentary if there is something I may have missed.

"Your true character is revealed by the clarity of your convictions. Hold strongly to your principles and refuse to follow the currents of convenience."

From: Ming-Yu Chien <mchien@trafficgroup.com>
Sent: Wednesday, April 15, 2020 2:48 PM
To: Cherry-Wall, Tremica (DelDOT) <Tremica.Cherry-Wall@delaware.gov>
Subject: Transit Facilities - Patriots Glen

Hi Tremica,

I hope all is well during this challenging time.

We are conducting a Traffic Impact Study for the Patriots Glen development in Sussex County. I am attaching the concept plan and our study area map. Could you please provide information on existing and planned transit facilities in the area?

Thank you very much for your help!



Ming-Yu Chien, P.E., PTOE
Traffic Engineer

The Traffic Group, Inc.
9900 Franklin Square Dr. - Suite H
Baltimore, MD 21236
T 410.931.6600
F 410.931.6601
mchien@trafficgroup.com
www.trafficgroup.com

Merging Innovation and Excellence®





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
Division of Transportation Solutions
CRASH DATA RELEASE



Crash Request Number: 202004161245-7

Name of Requestor: Ming-Yu Chien

Today's Date: 4/16/2020

I, THE UNDERSIGNED, DO HEREBY AFFIRM THAT I AGREE TO ABIDE BY ALL LAWS, TERMS AND STIPULATIONS CONCERNING THE DISCLOSURE OF CRASH DATA RELEASED BY THE DELAWARE DEPARTMENT OF TRANSPORTATION IN ACCORDANCE WITH 21 DEL. C. §313.

FURTHERMORE, I DO SOLEMNLY SWEAR THAT THE DATA RELEASED BY THE DEPARTMENT OF TRANSPORTATION SHALL BE USED SOLELY FOR THE PURPOSES OF THE PROJECT DESCRIBED WITHIN THE REQUEST LISTED ABOVE AND SHALL NOT BE SHARED, TRANSMITTED, REPRODUCED, OR DISTRIBUTED.

SIGNATURE MUST BE NOTARIZED



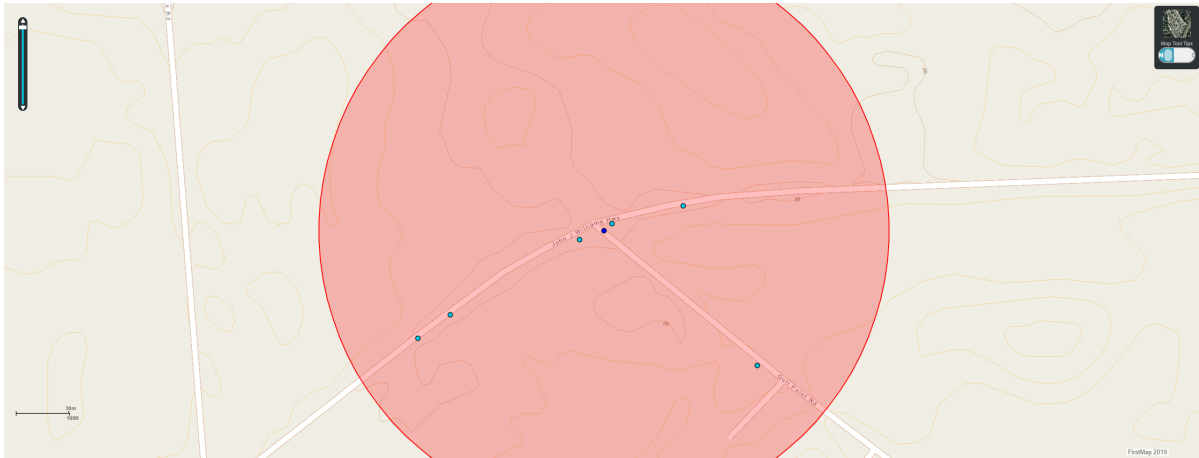
Mingyu Chien
(Signature of Requestor)

Susan Marie Brown
(Signature of Notary)

Return signed and notarized form to DOT_DataRequest@delaware.gov.
Incomplete forms will result in the delay or denial of request.

Delaware Crash Analysis Reporting System

Crash Study Time Period: 04/17/2017 - 04/17/2020
Query Type: CrashBufferTool
Description: Crash Summary Gull Point Road at SR 24
Study Requested By: Ming Yu Chien- The Traffic Group
Study Generated By: TDTSKLG
Number of Crashes: 6
Includes Non-Reportable Crashes: N
Study Code:



Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

State of Delaware Crash Study

Summary		Classification			Manner of Impact		
	# of Crashes		# of Crashes	% of Total Crashes		# of Crashes	% of Total Crashes
Total Crashes	6	Non-Reportable	0	0.00%	Front to rear	2	33.33%
Fatal Crashes	0	Reportable	5	83.33%	Front to front	0	0.00%
Total Alcohol-Related Crashes	0	Personal Injury	1	16.67%	Angle	0	0.00%
Total Non Alcohol-Related Crashes	6	Fatality	0	0.00%	Sideswipe, same direction	0	0.00%
Total Fatalities	0	Total	6		Sideswipe, opposite direction	0	0.00%
Total Pedestrian Fatalities	0				Rear to side	0	0.00%
Total Pedestrian Injuries	0				Rear to rear	0	0.00%
Total Pedestrian Crashes	0				Other	0	0.00%
Total Motorcycle Crashes	1				Unknown	0	0.00%
Total Pedalcyclist Crashes	0				Not a collision between two vehicles	4	66.67%
					Total	6	

Alcohol Related Crashes By Classification

	Non-reportable	Reportable	Personal Injury	Fatality	Total
Alcohol Related	0	0	0	0	0
Non-Alcohol Related	0	5	1	0	6
Total	0	5	1	0	6

Manner of Impact By Classification

	Non-Reportable	Reportable	Personal Injury	Fatality	Total
Front to rear	0	2	0	0	2
Front to front	0	0	0	0	0
Angle	0	0	0	0	0
Sideswipe, same direction	0	0	0	0	0
Sideswipe, opposite direction	0	0	0	0	0
Rear to side	0	0	0	0	0
Rear to rear	0	0	0	0	0
Other	0	0	0	0	0
Unknown	0	0	0	0	0
Not a collision between two vehicles	0	3	1	0	4
Total	0	5	1	0	6

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Day Of Week		
	# of Crashes	% of Total Crashes
Sunday	2	33.33%
Monday	0	0.00%
Tuesday	0	0.00%
Wednesday	1	16.67%
Thursday	1	16.67%
Friday	0	0.00%
Saturday	2	33.33%
Total	6	

Time Of Day (AM)		
	# of Crashes	% of Total Crashes
00:00 - 00:59	0	0.00%
01:00 - 01:59	0	0.00%
02:00 - 02:59	0	0.00%
03:00 - 03:59	0	0.00%
04:00 - 04:59	0	0.00%
05:00 - 05:59	0	0.00%
06:00 - 06:59	0	0.00%
07:00 - 07:59	0	0.00%
08:00 - 08:59	0	0.00%
09:00 - 09:59	0	0.00%
10:00 - 10:59	0	0.00%
11:00 - 11:59	0	0.00%
Total	0	

Time Of Day (PM)		
	# of Crashes	% of Total Crashes
12:00 - 12:59	0	0.00%
13:00 - 13:59	3	50.00%
14:00 - 14:59	0	0.00%
15:00 - 15:59	1	16.67%
16:00 - 16:59	0	0.00%
17:00 - 17:59	0	0.00%
18:00 - 18:59	0	0.00%
19:00 - 19:59	0	0.00%
20:00 - 20:59	1	16.67%
21:00 - 21:59	0	0.00%
22:00 - 22:59	1	16.67%
23:00 - 23:59	0	0.00%
Total	6	
Unknown Time	0	

Surface Conditions		
	# of Crashes	% of Total Crashes
Dry	5	83.33%
Wet	1	16.67%
Snow	0	0.00%
Ice/Frost	0	0.00%
Sand	0	0.00%
Water (standing, moving)	0	0.00%
Slush	0	0.00%
Oil	0	0.00%
Mud, Dirt, Gravel	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	6	

Lighting Conditions		
	# of Crashes	% of Total Crashes
Daylight	5	83.33%
Dawn	0	0.00%
Dusk	0	0.00%
Dark-Lighted	0	0.00%
Dark-Not Lighted	1	16.67%
Dark-Unknown Lighting	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	6	

Weather Conditions		
	# of Crashes	% of Total Crashes
Clear	4	66.67%
Cloudy	1	16.67%
Fog, Smog, Smoke	0	0.00%
Rain	1	16.67%
Sleet, Hail (freezing rain or drizzle)	0	0.00%
Snow	0	0.00%
Blowing Snow	0	0.00%
Severe Crosswinds	0	0.00%
Blowing Sand, Soil, Dirt	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	6	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

First Harmful Event		
	# of Crashes	% of Total Crashes
Overturn/Rollover, Non-Collision	0	0.00%
Fire/Explosion, Non-Collision	0	0.00%
Immersion, Non-Collision	0	0.00%
Jackknife, Non-Collision	0	0.00%
Cargo/Equipment Loss or Shift, Non-Collision	0	0.00%
Fell/Jumped From Motor Vehicle, Non-Collision	0	0.00%
Thrown or Falling Object, Non-Collision	0	0.00%
Other Non-Collision, Non-Collision	0	0.00%
Pedestrian, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Pedalcycle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Railway Vehicle (train, engine), Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Animal, Collision With Person, Motor Vehicle, or Non-Fixed Object	1	16.67%
Motor Vehicle in Transport, Collision With Person, Motor Vehicle, or Non-Fixed Object	3	50.00%
Legally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Struck by Anything Set in Motion by Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Work Zone / Maintenance Equipment, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Other Non-Fixed Object, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Impact Attenuator/Crash Cushion, Collision With Fixed Object	0	0.00%
Bridge Overhead Structure, Collision With Fixed Object	0	0.00%
Bridge Pier or Support, Collision With Fixed Object	0	0.00%
Bridge Rail, Collision With Fixed Object	0	0.00%
Cable Barrier, Collision With Fixed Object	0	0.00%
Culvert, Collision With Fixed Object	0	0.00%
Curb, Collision With Fixed Object	0	0.00%
Ditch, Collision With Fixed Object	0	0.00%
Embankment, Collision With Fixed Object	0	0.00%
	0	0.00%

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Guardrail Face, Collision With Fixed Object		
Guardrail End, Collision With Fixed Object	0	0.00%
Concrete Traffic Barrier, Collision With Fixed Object	0	0.00%
Other Traffic Barrier, Collision With Fixed Object	0	0.00%
Tree (standing), Collision With Fixed Object	1	16.67%
Utility Pole, Collision With Fixed Object	0	0.00%
Light Support, Collision With Fixed Object	0	0.00%
Traffic Sign Support, Collision With Fixed Object	0	0.00%
Overhead Sign Support, Collision With Fixed Object	0	0.00%
Traffic Signal Support, Collision With Fixed Object	0	0.00%
Fence, Collision With Fixed Object	0	0.00%
Mailbox, Collision With Fixed Object	0	0.00%
Other Post, Pole or Support, Collision With Fixed Object	1	16.67%
Other Fixed Object (wall, building, tunnel, etc.), Collision With Fixed Object	0	0.00%
Illegally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Stopped Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Unknown, Collision With Fixed Object	0	0.00%
Total	5	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Primary Contributing Circumstance		
	# of Crashes	% of Total Crashes
Speeding	0	0.00%
Failed to yield right of way	0	0.00%
Passed Stop Sign	0	0.00%
Disregard Traffic Signal	0	0.00%
Wrong side or wrong way	0	0.00%
Improper passing	0	0.00%
Improper lane change	0	0.00%
Following too close	2	33.33%
Made improper turn	0	0.00%
Driving under the influence	0	0.00%
Driver inattention, distraction, or fatigue	1	16.67%
Driving in a careless or reckless manner	1	16.67%
Driving in an aggressive manner	0	0.00%
Improper backing	0	0.00%
Other improper driving	1	16.67%
Mechanical defects	0	0.00%
Animal in Roadway - Deer	0	0.00%
Animal in Roadway - Other Animal	1	16.67%
Other environmental circumstances - weather, glare	0	0.00%
Roadway circumstances - debris, holes, work zone,	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	6	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Driver Action		
	# of Drivers	% of Total Crashes
No Contributing Action	3	37.50%
Failed to yield right of way	0	0.00%
Ran Red Light	0	0.00%
Ran Stop Sign	0	0.00%
Disregard other traffic sign	0	0.00%
Disregard other road markings	0	0.00%
Exceeded authorized speed limit	0	0.00%
Driving too fast for conditions	0	0.00%
Made an improper turn	0	0.00%
Improper backing	0	0.00%
Wrong side or wrong way	0	0.00%
Followed too closely	2	25.00%
Failure to keep in proper lane	0	0.00%
Ran off roadway	0	0.00%
Operating vehicle in erratic, reckless, careless, negligent or aggressive manner	2	25.00%
Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	0	0.00%
Over-correcting/over-steering	0	0.00%
Improper Passing	0	0.00%
Other Contributing Action	1	12.50%
Unknown	0	0.00%
Total	8	

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2017															
10/01/2017	20:00	S	00313	0.68	0.68	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
12/02/2017	22:34	S	00024	29.9	29.90	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Other Animal	Dark-Not Lighted	Clear	Dry	0	0	N

2018															
05/27/2018	13:53	S	00024	29.79	29.79	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Cloudy	Dry	0	0	N

2019															
03/21/2019	13:06	S	00024	29.81	29.81	Property Damage Only	Not a collision between two vehicles	Other Post, Pole or Support	Other improper driving	Daylight	Rain	Wet	0	0	N
06/08/2019	15:35	S	00024	29.87	29.87	Property Damage Only	Not a collision between two vehicles	Tree (standing)	Driving in a careless or reckless manner	Daylight	Clear	Dry	0	0	N
08/21/2019	13:17	S				Personal Injury Crash	Not a collision between two vehicles	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	1	N

Report generated by TDTSKLG at 2020-04-17 12:43:36.909

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Report Legend

CTY – County

RD – Maintenance Road

MP – Milepoint

C-MP – Continuous Milepoint

Fat – Fatality

Inj – Injury

AL - Alcohol Involved

LC – Lighting Condition

WC – Weather Condition

SC – Surface Condition

FHE – First Harmful Event

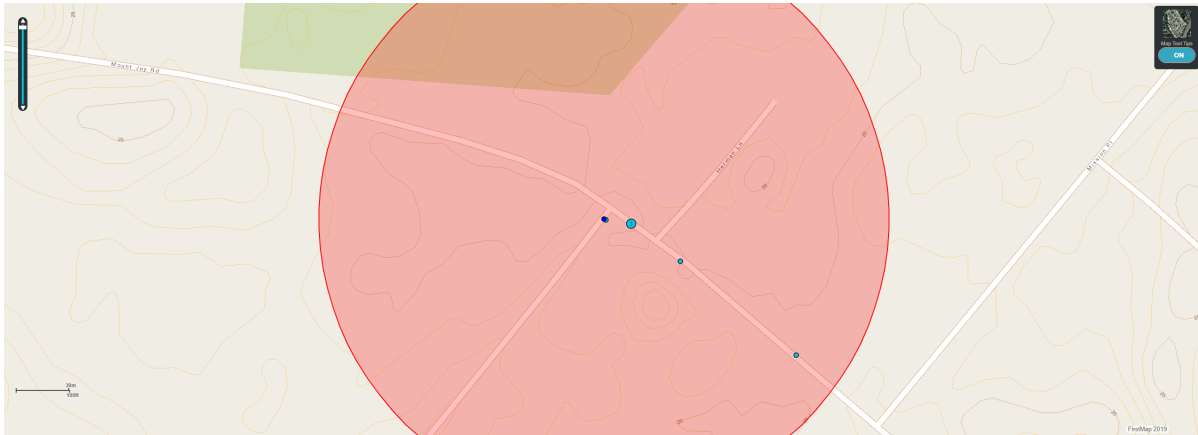
PC – Primary Contributing Circumstance

Class – Report Classification

MOI – Manner of Impact

Delaware Crash Analysis Reporting System

Crash Study Time Period: 04/17/2017 - 04/17/2020
Query Type: CrashBufferTool
Description: Crash Summary Mr Joy at Cordrey Road
Study Requested By: Ming Yu Chien- The Traffic Group
Study Generated By: TDTSKLG
Number of Crashes: 6
Includes Non-Reportable Crashes: N
Study Code:



Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

State of Delaware Crash Study

Summary		Classification			Manner of Impact		
	# of Crashes		# of Crashes	% of Total Crashes		# of Crashes	% of Total Crashes
Total Crashes	6				Front to rear	2	33.33%
Fatal Crashes	0	Non-Reportable	0	0.00%	Front to front	0	0.00%
Total Alcohol-Related Crashes	1	Reportable	6	100.00%	Angle	0	0.00%
Total Non Alcohol-Related Crashes	5	Personal Injury	0	0.00%	Sideswipe, same direction	0	0.00%
Total Fatalities	0	Fatality	0	0.00%	Sideswipe, opposite direction	0	0.00%
Total Pedestrian Fatalities	0	Total	6		Rear to side	0	0.00%
Total Pedestrian Injuries	0				Rear to rear	0	0.00%
Total Pedestrian Crashes	0				Other	0	0.00%
Total Motorcycle Crashes	0				Unknown	0	0.00%
Total Pedalcyclist Crashes	0				Not a collision between two vehicles	4	66.67%
					Total	6	

Alcohol Related Crashes By Classification

	Non-reportable	Reportable	Personal Injury	Fatality	Total
Alcohol Related	0	1	0	0	1
Non-Alcohol Related	0	5	0	0	5
Total	0	6	0	0	6

Manner of Impact By Classification

	Non-Reportable	Reportable	Personal Injury	Fatality	Total
Front to rear	0	2	0	0	2
Front to front	0	0	0	0	0
Angle	0	0	0	0	0
Sideswipe, same direction	0	0	0	0	0
Sideswipe, opposite direction	0	0	0	0	0
Rear to side	0	0	0	0	0
Rear to rear	0	0	0	0	0
Other	0	0	0	0	0
Unknown	0	0	0	0	0
Not a collision between two vehicles	0	4	0	0	4
Total	0	6	0	0	6

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Day Of Week		
	# of Crashes	% of Total Crashes
Sunday	1	16.67%
Monday	1	16.67%
Tuesday	0	0.00%
Wednesday	1	16.67%
Thursday	1	16.67%
Friday	1	16.67%
Saturday	1	16.67%
Total	6	

Time Of Day (AM)		
	# of Crashes	% of Total Crashes
00:00 - 00:59	1	16.67%
01:00 - 01:59	0	0.00%
02:00 - 02:59	0	0.00%
03:00 - 03:59	0	0.00%
04:00 - 04:59	0	0.00%
05:00 - 05:59	0	0.00%
06:00 - 06:59	0	0.00%
07:00 - 07:59	0	0.00%
08:00 - 08:59	1	16.67%
09:00 - 09:59	0	0.00%
10:00 - 10:59	0	0.00%
11:00 - 11:59	2	33.33%
Total	4	

Time Of Day (PM)		
	# of Crashes	% of Total Crashes
12:00 - 12:59	0	0.00%
13:00 - 13:59	0	0.00%
14:00 - 14:59	1	16.67%
15:00 - 15:59	0	0.00%
16:00 - 16:59	0	0.00%
17:00 - 17:59	0	0.00%
18:00 - 18:59	0	0.00%
19:00 - 19:59	1	16.67%
20:00 - 20:59	0	0.00%
21:00 - 21:59	0	0.00%
22:00 - 22:59	0	0.00%
23:00 - 23:59	0	0.00%
Total	2	
Unknown Time	0	

Surface Conditions		
	# of Crashes	% of Total Crashes
Dry	5	83.33%
Wet	1	16.67%
Snow	0	0.00%
Ice/Frost	0	0.00%
Sand	0	0.00%
Water (standing, moving)	0	0.00%
Slush	0	0.00%
Oil	0	0.00%
Mud, Dirt, Gravel	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	6	

Lighting Conditions		
	# of Crashes	% of Total Crashes
Daylight	3	50.00%
Dawn	1	16.67%
Dusk	0	0.00%
Dark-Lighted	0	0.00%
Dark-Not Lighted	2	33.33%
Dark-Unknown Lighting	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	6	

Weather Conditions		
	# of Crashes	% of Total Crashes
Clear	5	83.33%
Cloudy	0	0.00%
Fog, Smog, Smoke	0	0.00%
Rain	1	16.67%
Sleet, Hail (freezing rain or drizzle)	0	0.00%
Snow	0	0.00%
Blowing Snow	0	0.00%
Severe Crosswinds	0	0.00%
Blowing Sand, Soil, Dirt	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	6	

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

First Harmful Event		
	# of Crashes	% of Total Crashes
Overturn/Rollover, Non-Collision	0	0.00%
Fire/Explosion, Non-Collision	0	0.00%
Immersion, Non-Collision	0	0.00%
Jackknife, Non-Collision	0	0.00%
Cargo/Equipment Loss or Shift, Non-Collision	0	0.00%
Fell/Jumped From Motor Vehicle, Non-Collision	0	0.00%
Thrown or Falling Object, Non-Collision	0	0.00%
Other Non-Collision, Non-Collision	0	0.00%
Pedestrian, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Pedalcycle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Railway Vehicle (train, engine), Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Animal, Collision With Person, Motor Vehicle, or Non-Fixed Object	2	33.33%
Motor Vehicle in Transport, Collision With Person, Motor Vehicle, or Non-Fixed Object	1	16.67%
Legally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Struck by Anything Set in Motion by Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Work Zone / Maintenance Equipment, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Other Non-Fixed Object, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Impact Attenuator/Crash Cushion, Collision With Fixed Object	0	0.00%
Bridge Overhead Structure, Collision With Fixed Object	0	0.00%
Bridge Pier or Support, Collision With Fixed Object	0	0.00%
Bridge Rail, Collision With Fixed Object	0	0.00%
Cable Barrier, Collision With Fixed Object	0	0.00%
Culvert, Collision With Fixed Object	0	0.00%
Curb, Collision With Fixed Object	0	0.00%
Ditch, Collision With Fixed Object	2	33.33%
Embankment, Collision With Fixed Object	0	0.00%
	0	0.00%

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Guardrail Face, Collision With Fixed Object		
Guardrail End, Collision With Fixed Object	0	0.00%
Concrete Traffic Barrier, Collision With Fixed Object	0	0.00%
Other Traffic Barrier, Collision With Fixed Object	0	0.00%
Tree (standing), Collision With Fixed Object	0	0.00%
Utility Pole, Collision With Fixed Object	0	0.00%
Light Support, Collision With Fixed Object	0	0.00%
Traffic Sign Support, Collision With Fixed Object	0	0.00%
Overhead Sign Support, Collision With Fixed Object	0	0.00%
Traffic Signal Support, Collision With Fixed Object	0	0.00%
Fence, Collision With Fixed Object	0	0.00%
Mailbox, Collision With Fixed Object	0	0.00%
Other Post, Pole or Support, Collision With Fixed Object	0	0.00%
Other Fixed Object (wall, building, tunnel, etc.), Collision With Fixed Object	0	0.00%
Illegally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Stopped Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	1	16.67%
Unknown, Collision With Fixed Object	0	0.00%
Total	4	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Primary Contributing Circumstance		
	# of Crashes	% of Total Crashes
Speeding	1	16.67%
Failed to yield right of way	0	0.00%
Passed Stop Sign	0	0.00%
Disregard Traffic Signal	0	0.00%
Wrong side or wrong way	0	0.00%
Improper passing	0	0.00%
Improper lane change	0	0.00%
Following too close	2	33.33%
Made improper turn	0	0.00%
Driving under the influence	1	16.67%
Driver inattention, distraction, or fatigue	0	0.00%
Driving in a careless or reckless manner	0	0.00%
Driving in an aggressive manner	0	0.00%
Improper backing	0	0.00%
Other improper driving	0	0.00%
Mechanical defects	0	0.00%
Animal in Roadway - Deer	2	33.33%
Animal in Roadway - Other Animal	0	0.00%
Other environmental circumstances - weather, glare	0	0.00%
Roadway circumstances - debris, holes, work zone,	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	6	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Driver Action		
	# of Drivers	% of Total Crashes
No Contributing Action	4	50.00%
Failed to yield right of way	0	0.00%
Ran Red Light	0	0.00%
Ran Stop Sign	0	0.00%
Disregard other traffic sign	0	0.00%
Disregard other road markings	0	0.00%
Exceeded authorized speed limit	0	0.00%
Driving too fast for conditions	0	0.00%
Made an improper turn	0	0.00%
Improper backing	0	0.00%
Wrong side or wrong way	0	0.00%
Followed too closely	2	25.00%
Failure to keep in proper lane	0	0.00%
Ran off roadway	0	0.00%
Operating vehicle in erratic, reckless, careless, negligent or aggressive manner	2	25.00%
Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	0	0.00%
Over-correcting/over-steering	0	0.00%
Improper Passing	0	0.00%
Other Contributing Action	0	0.00%
Unknown	0	0.00%
Total	8	

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
05/11/2017	14:34	S	00297	5.95	5.95	Property Damage Only	Not a collision between two vehicles	Ditch	Speeding	Daylight	Rain	Wet	0	0	N

2017

05/04/2018	11:31	S	00297	5.95	5.95	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
10/21/2018	08:44	S	00297	6.02	6.02	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dawn	Clear	Dry	0	0	N
12/29/2018	00:00	S	00297	5.94	5.94	Property Damage Only	Not a collision between two vehicles	Ditch	Driving under the influence	Dark-Not Lighted	Clear	Dry	0	0	Y

2018

02/03/2020	19:54	S	00297	5.97	5.97	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
04/15/2020	11:34	S	00308	2.72	2.72	Property Damage Only	Front to rear	Stopped Motor Vehicle	Following too close	Daylight	Clear	Dry			N

Report generated by TDTSKLG at 2020-04-17 13:07:54.226

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Report Legend

CTY – County

RD – Maintenance Road

MP – Milepoint

C-MP – Continuous Milepoint

Fat – Fatality

Inj – Injury

AL - Alcohol Involved

LC – Lighting Condition

WC – Weather Condition

SC – Surface Condition

FHE – First Harmful Event

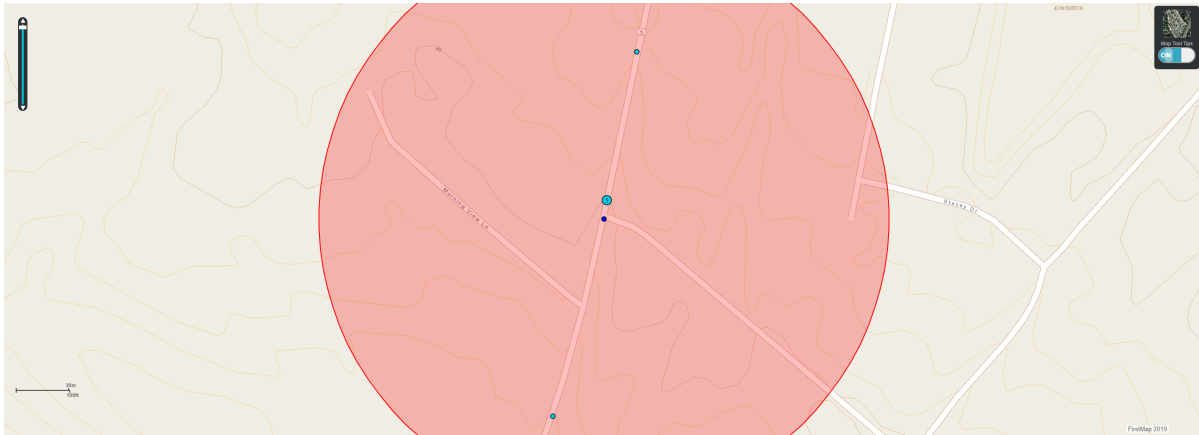
PC – Primary Contributing Circumstance

Class – Report Classification

MOI – Manner of Impact

Delaware Crash Analysis Reporting System

Crash Study Time Period: 04/17/2017 - 04/17/2020
Query Type: CrashBufferTool
Description: Crash Summary RT 24 at Legion Road
Study Requested By: Ming Yu Chien- The Traffic Group
Study Generated By: TDTSKLG
Number of Crashes: 8
Includes Non-Reportable Crashes: N
Study Code:



Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

State of Delaware Crash Study

Summary		Classification			Manner of Impact		
	# of Crashes		# of Crashes	% of Total Crashes		# of Crashes	% of Total Crashes
Total Crashes	8				Front to rear	4	50.00%
Fatal Crashes	0	Non-Reportable	0	0.00%	Front to front	0	0.00%
Total Alcohol-Related Crashes	0	Reportable	6	75.00%	Angle	1	12.50%
Total Non Alcohol-Related Crashes	8	Personal Injury	2	25.00%	Sideswipe, same direction	1	12.50%
Total Fatalities	0	Fatality	0	0.00%	Sideswipe, opposite direction	0	0.00%
Total Pedestrian Fatalities	0	Total	8		Rear to side	0	0.00%
Total Pedestrian Injuries	0				Rear to rear	0	0.00%
Total Pedestrian Crashes	0				Other	0	0.00%
Total Motorcycle Crashes	0				Unknown	0	0.00%
Total Pedalcyclist Crashes	0				Not a collision between two vehicles	2	25.00%
					Total	8	

Alcohol Related Crashes By Classification

	Non-reportable	Reportable	Personal Injury	Fatality	Total
Alcohol Related	0	0	0	0	0
Non-Alcohol Related	0	6	2	0	8
Total	0	6	2	0	8

Manner of Impact By Classification

	Non-Reportable	Reportable	Personal Injury	Fatality	Total
Front to rear	0	3	1	0	4
Front to front	0	0	0	0	0
Angle	0	0	1	0	1
Sideswipe, same direction	0	1	0	0	1
Sideswipe, opposite direction	0	0	0	0	0
Rear to side	0	0	0	0	0
Rear to rear	0	0	0	0	0
Other	0	0	0	0	0
Unknown	0	0	0	0	0
Not a collision between two vehicles	0	2	0	0	2
Total	0	6	2	0	8

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Day Of Week		
	# of Crashes	% of Total Crashes
Sunday	0	0.00%
Monday	2	25.00%
Tuesday	0	0.00%
Wednesday	1	12.50%
Thursday	2	25.00%
Friday	1	12.50%
Saturday	2	25.00%
Total	8	

Time Of Day (AM)		
	# of Crashes	% of Total Crashes
00:00 - 00:59	0	0.00%
01:00 - 01:59	0	0.00%
02:00 - 02:59	0	0.00%
03:00 - 03:59	0	0.00%
04:00 - 04:59	0	0.00%
05:00 - 05:59	0	0.00%
06:00 - 06:59	0	0.00%
07:00 - 07:59	1	12.50%
08:00 - 08:59	0	0.00%
09:00 - 09:59	1	12.50%
10:00 - 10:59	0	0.00%
11:00 - 11:59	0	0.00%
Total	2	

Time Of Day (PM)		
	# of Crashes	% of Total Crashes
12:00 - 12:59	1	12.50%
13:00 - 13:59	0	0.00%
14:00 - 14:59	0	0.00%
15:00 - 15:59	1	12.50%
16:00 - 16:59	1	12.50%
17:00 - 17:59	0	0.00%
18:00 - 18:59	0	0.00%
19:00 - 19:59	0	0.00%
20:00 - 20:59	2	25.00%
21:00 - 21:59	1	12.50%
22:00 - 22:59	0	0.00%
23:00 - 23:59	0	0.00%
Total	6	
Unknown Time	0	

Surface Conditions		
	# of Crashes	% of Total Crashes
Dry	7	87.50%
Wet	1	12.50%
Snow	0	0.00%
Ice/Frost	0	0.00%
Sand	0	0.00%
Water (standing, moving)	0	0.00%
Slush	0	0.00%
Oil	0	0.00%
Mud, Dirt, Gravel	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	8	

Lighting Conditions		
	# of Crashes	% of Total Crashes
Daylight	5	62.50%
Dawn	0	0.00%
Dusk	0	0.00%
Dark-Lighted	0	0.00%
Dark-Not Lighted	3	37.50%
Dark-Unknown Lighting	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	8	

Weather Conditions		
	# of Crashes	% of Total Crashes
Clear	7	87.50%
Cloudy	0	0.00%
Fog, Smog, Smoke	0	0.00%
Rain	1	12.50%
Sleet, Hail (freezing rain or drizzle)	0	0.00%
Snow	0	0.00%
Blowing Snow	0	0.00%
Severe Crosswinds	0	0.00%
Blowing Sand, Soil, Dirt	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	8	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

First Harmful Event		
	# of Crashes	% of Total Crashes
Overturn/Rollover, Non-Collision	0	0.00%
Fire/Explosion, Non-Collision	0	0.00%
Immersion, Non-Collision	0	0.00%
Jackknife, Non-Collision	0	0.00%
Cargo/Equipment Loss or Shift, Non-Collision	0	0.00%
Fell/Jumped From Motor Vehicle, Non-Collision	0	0.00%
Thrown or Falling Object, Non-Collision	0	0.00%
Other Non-Collision, Non-Collision	0	0.00%
Pedestrian, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Pedalcycle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Railway Vehicle (train, engine), Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Animal, Collision With Person, Motor Vehicle, or Non-Fixed Object	2	25.00%
Motor Vehicle in Transport, Collision With Person, Motor Vehicle, or Non-Fixed Object	6	75.00%
Legally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Struck by Anything Set in Motion by Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Work Zone / Maintenance Equipment, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Other Non-Fixed Object, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Impact Attenuator/Crash Cushion, Collision With Fixed Object	0	0.00%
Bridge Overhead Structure, Collision With Fixed Object	0	0.00%
Bridge Pier or Support, Collision With Fixed Object	0	0.00%
Bridge Rail, Collision With Fixed Object	0	0.00%
Cable Barrier, Collision With Fixed Object	0	0.00%
Culvert, Collision With Fixed Object	0	0.00%
Curb, Collision With Fixed Object	0	0.00%
Ditch, Collision With Fixed Object	0	0.00%
Embankment, Collision With Fixed Object	0	0.00%
	0	0.00%

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Guardrail Face, Collision With Fixed Object		
Guardrail End, Collision With Fixed Object	0	0.00%
Concrete Traffic Barrier, Collision With Fixed Object	0	0.00%
Other Traffic Barrier, Collision With Fixed Object	0	0.00%
Tree (standing), Collision With Fixed Object	0	0.00%
Utility Pole, Collision With Fixed Object	0	0.00%
Light Support, Collision With Fixed Object	0	0.00%
Traffic Sign Support, Collision With Fixed Object	0	0.00%
Overhead Sign Support, Collision With Fixed Object	0	0.00%
Traffic Signal Support, Collision With Fixed Object	0	0.00%
Fence, Collision With Fixed Object	0	0.00%
Mailbox, Collision With Fixed Object	0	0.00%
Other Post, Pole or Support, Collision With Fixed Object	0	0.00%
Other Fixed Object (wall, building, tunnel, etc.), Collision With Fixed Object	0	0.00%
Illegally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Stopped Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Unknown, Collision With Fixed Object	0	0.00%
Total	6	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Primary Contributing Circumstance		
	# of Crashes	% of Total Crashes
Speeding	0	0.00%
Failed to yield right of way	0	0.00%
Passed Stop Sign	1	12.50%
Disregard Traffic Signal	0	0.00%
Wrong side or wrong way	0	0.00%
Improper passing	1	12.50%
Improper lane change	0	0.00%
Following too close	1	12.50%
Made improper turn	0	0.00%
Driving under the influence	0	0.00%
Driver inattention, distraction, or fatigue	2	25.00%
Driving in a careless or reckless manner	1	12.50%
Driving in an aggressive manner	0	0.00%
Improper backing	0	0.00%
Other improper driving	0	0.00%
Mechanical defects	0	0.00%
Animal in Roadway - Deer	2	25.00%
Animal in Roadway - Other Animal	0	0.00%
Other environmental circumstances - weather, glare	0	0.00%
Roadway circumstances - debris, holes, work zone,	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	8	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Driver Action		
	# of Drivers	% of Total Crashes
No Contributing Action	7	46.67%
Failed to yield right of way	0	0.00%
Ran Red Light	0	0.00%
Ran Stop Sign	1	6.67%
Disregard other traffic sign	0	0.00%
Disregard other road markings	0	0.00%
Exceeded authorized speed limit	0	0.00%
Driving too fast for conditions	0	0.00%
Made an improper turn	0	0.00%
Improper backing	0	0.00%
Wrong side or wrong way	0	0.00%
Followed too closely	1	6.67%
Failure to keep in proper lane	0	0.00%
Ran off roadway	0	0.00%
Operating vehicle in erratic, reckless, careless, negligent or aggressive manner	3	20.00%
Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	0	0.00%
Over-correcting/over-steering	0	0.00%
Improper Passing	3	20.00%
Other Contributing Action	0	0.00%
Unknown	0	0.00%
Total	15	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
08/05/2017	09:39	S	00024	31.63	31.63	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	1	N
10/02/2017	15:25	S	00024	31.64	31.64	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driving in a careless or reckless manner	Daylight	Clear	Dry	0	0	N

2019

01/02/2019	20:13	S	00024	31.53	31.53	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
01/10/2019	07:54	S	00024	31.63	31.63	Personal Injury Crash	Angle	Motor Vehicle in Transport	Passed Stop Sign	Daylight	Clear	Dry	0	1	N
02/21/2019	20:14	S	00024	31.55	31.55	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
03/15/2019	12:12	S	00024	31.63	31.63	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Improper passing	Daylight	Clear	Dry	0	0	N
05/13/2019	16:18	S	00024	31.63	31.63	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Rain	Wet	0	0	N
07/20/2019	21:50	S	00024	31.69	31.69	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Dark-Not Lighted	Clear	Dry	0	0	N

Report generated by TDTSKLG at 2020-04-17 12:54:43.921

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Report Legend

CTY – County

RD – Maintenance Road

MP – Milepoint

C-MP – Continuous Milepoint

Fat – Fatality

Inj – Injury

AL - Alcohol Involved

LC – Lighting Condition

WC – Weather Condition

SC – Surface Condition

FHE – First Harmful Event

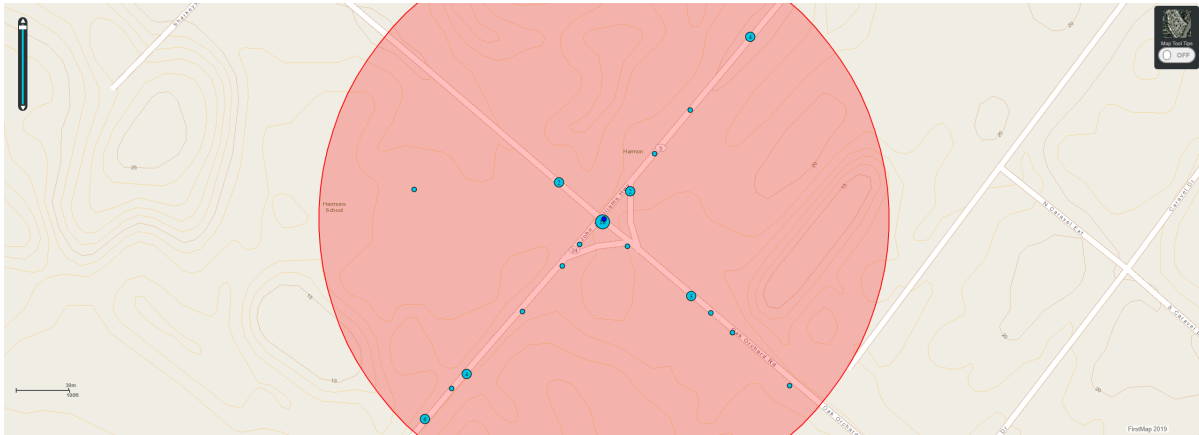
PC – Primary Contributing Circumstance

Class – Report Classification

MOI – Manner of Impact

Delaware Crash Analysis Reporting System

Crash Study Time Period: 04/17/2017 - 04/17/2020
Query Type: CrashBufferTool
Description: Crash Summary Rt 24 at Oak Orchard Road _Mt Joy Road
Study Requested By: Ming Yu Chien- The Traffic Group
Study Generated By: TDTSKLG
Number of Crashes: 49
Includes Non-Reportable Crashes: N
Study Code:



Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

State of Delaware Crash Study

Summary		Classification			Manner of Impact		
	# of Crashes		# of Crashes	% of Total Crashes		# of Crashes	% of Total Crashes
Total Crashes	49	Non-Reportable	0	0.00%	Front to rear	24	48.98%
Fatal Crashes	0	Reportable	36	73.47%	Front to front	1	2.04%
Total Alcohol-Related Crashes	2	Personal Injury	13	26.53%	Angle	12	24.49%
Total Non Alcohol-Related Crashes	47	Fatality	0	0.00%	Sideswipe, same direction	3	6.12%
Total Fatalities	0	Total	49		Sideswipe, opposite direction	1	2.04%
Total Pedestrian Fatalities	0				Rear to side	0	0.00%
Total Pedestrian Injuries	0				Rear to rear	0	0.00%
Total Pedestrian Crashes	0				Other	1	2.04%
Total Motorcycle Crashes	2				Unknown	1	2.04%
Total Pedalcyclist Crashes	0				Not a collision between two vehicles	6	12.24%
					Total	49	

Alcohol Related Crashes By Classification

	Non-reportable	Reportable	Personal Injury	Fatality	Total
Alcohol Related	0	1	1	0	2
Non-Alcohol Related	0	35	12	0	47
Total	0	36	13	0	49

Manner of Impact By Classification

	Non-Reportable	Reportable	Personal Injury	Fatality	Total
Front to rear	0	17	7	0	24
Front to front	0	1	0	0	1
Angle	0	9	3	0	12
Sideswipe, same direction	0	2	1	0	3
Sideswipe, opposite direction	0	0	1	0	1
Rear to side	0	0	0	0	0
Rear to rear	0	0	0	0	0
Other	0	1	0	0	1
Unknown	0	1	0	0	1
Not a collision between two vehicles	0	5	1	0	6
Total	0	36	13	0	49

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Day Of Week		
	# of Crashes	% of Total Crashes
Sunday	6	12.24%
Monday	7	14.29%
Tuesday	3	6.12%
Wednesday	6	12.24%
Thursday	10	20.41%
Friday	8	16.33%
Saturday	9	18.37%
Total	49	

Time Of Day (AM)		
	# of Crashes	% of Total Crashes
00:00 - 00:59	1	2.04%
01:00 - 01:59	0	0.00%
02:00 - 02:59	0	0.00%
03:00 - 03:59	0	0.00%
04:00 - 04:59	0	0.00%
05:00 - 05:59	2	4.08%
06:00 - 06:59	0	0.00%
07:00 - 07:59	4	8.16%
08:00 - 08:59	3	6.12%
09:00 - 09:59	2	4.08%
10:00 - 10:59	3	6.12%
11:00 - 11:59	10	20.41%
Total	25	

Time Of Day (PM)		
	# of Crashes	% of Total Crashes
12:00 - 12:59	0	0.00%
13:00 - 13:59	4	8.16%
14:00 - 14:59	1	2.04%
15:00 - 15:59	2	4.08%
16:00 - 16:59	1	2.04%
17:00 - 17:59	4	8.16%
18:00 - 18:59	3	6.12%
19:00 - 19:59	3	6.12%
20:00 - 20:59	0	0.00%
21:00 - 21:59	3	6.12%
22:00 - 22:59	3	6.12%
23:00 - 23:59	0	0.00%
Total	24	
Unknown Time	0	

Surface Conditions		
	# of Crashes	% of Total Crashes
Dry	41	83.67%
Wet	6	12.24%
Snow	0	0.00%
Ice/Frost	0	0.00%
Sand	0	0.00%
Water (standing, moving)	1	2.04%
Slush	0	0.00%
Oil	0	0.00%
Mud, Dirt, Gravel	0	0.00%
Other	0	0.00%
Unknown	1	2.04%
Total	49	

Lighting Conditions		
	# of Crashes	% of Total Crashes
Daylight	33	67.35%
Dawn	1	2.04%
Dusk	0	0.00%
Dark-Lighted	7	14.29%
Dark-Not Lighted	6	12.24%
Dark-Unknown Lighting	0	0.00%
Other	1	2.04%
Unknown	1	2.04%
Total	49	

Weather Conditions		
	# of Crashes	% of Total Crashes
Clear	36	73.47%
Cloudy	5	10.20%
Fog, Smog, Smoke	0	0.00%
Rain	7	14.29%
Sleet, Hail (freezing rain or drizzle)	0	0.00%
Snow	0	0.00%
Blowing Snow	0	0.00%
Severe Crosswinds	0	0.00%
Blowing Sand, Soil, Dirt	0	0.00%
Other	0	0.00%
Unknown	1	2.04%
Total	49	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

First Harmful Event		
	# of Crashes	% of Total Crashes
Overturn/Rollover, Non-Collision	0	0.00%
Fire/Explosion, Non-Collision	0	0.00%
Immersion, Non-Collision	0	0.00%
Jackknife, Non-Collision	0	0.00%
Cargo/Equipment Loss or Shift, Non-Collision	0	0.00%
Fell/Jumped From Motor Vehicle, Non-Collision	0	0.00%
Thrown or Falling Object, Non-Collision	0	0.00%
Other Non-Collision, Non-Collision	0	0.00%
Pedestrian, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Pedalcycle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Railway Vehicle (train, engine), Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Animal, Collision With Person, Motor Vehicle, or Non-Fixed Object	3	6.12%
Motor Vehicle in Transport, Collision With Person, Motor Vehicle, or Non-Fixed Object	38	77.55%
Legally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	1	2.04%
Struck by Anything Set in Motion by Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Work Zone / Maintenance Equipment, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Other Non-Fixed Object, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Impact Attenuator/Crash Cushion, Collision With Fixed Object	0	0.00%
Bridge Overhead Structure, Collision With Fixed Object	0	0.00%
Bridge Pier or Support, Collision With Fixed Object	0	0.00%
Bridge Rail, Collision With Fixed Object	0	0.00%
Cable Barrier, Collision With Fixed Object	0	0.00%
Culvert, Collision With Fixed Object	0	0.00%
Curb, Collision With Fixed Object	0	0.00%
Ditch, Collision With Fixed Object	0	0.00%
Embankment, Collision With Fixed Object	0	0.00%
	0	0.00%

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Guardrail Face, Collision With Fixed Object		
Guardrail End, Collision With Fixed Object	0	0.00%
Concrete Traffic Barrier, Collision With Fixed Object	0	0.00%
Other Traffic Barrier, Collision With Fixed Object	0	0.00%
Tree (standing), Collision With Fixed Object	0	0.00%
Utility Pole, Collision With Fixed Object	0	0.00%
Light Support, Collision With Fixed Object	0	0.00%
Traffic Sign Support, Collision With Fixed Object	2	4.08%
Overhead Sign Support, Collision With Fixed Object	0	0.00%
Traffic Signal Support, Collision With Fixed Object	0	0.00%
Fence, Collision With Fixed Object	0	0.00%
Mailbox, Collision With Fixed Object	0	0.00%
Other Post, Pole or Support, Collision With Fixed Object	1	2.04%
Other Fixed Object (wall, building, tunnel, etc.), Collision With Fixed Object	0	0.00%
Illegally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Stopped Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	4	8.16%
Unknown, Collision With Fixed Object	0	0.00%
Total	46	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Primary Contributing Circumstance		
	# of Crashes	% of Total Crashes
Speeding	0	0.00%
Failed to yield right of way	8	16.33%
Passed Stop Sign	0	0.00%
Disregard Traffic Signal	1	2.04%
Wrong side or wrong way	0	0.00%
Improper passing	3	6.12%
Improper lane change	0	0.00%
Following too close	11	22.45%
Made improper turn	0	0.00%
Driving under the influence	2	4.08%
Driver inattention, distraction, or fatigue	17	34.69%
Driving in a careless or reckless manner	2	4.08%
Driving in an aggressive manner	0	0.00%
Improper backing	0	0.00%
Other improper driving	0	0.00%
Mechanical defects	0	0.00%
Animal in Roadway - Deer	3	6.12%
Animal in Roadway - Other Animal	0	0.00%
Other environmental circumstances - weather, glare	0	0.00%
Roadway circumstances - debris, holes, work zone,	0	0.00%
Other	0	0.00%
Unknown	2	4.08%
Total	49	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Driver Action		
	# of Drivers	% of Total Crashes
No Contributing Action	50	53.19%
Failed to yield right of way	8	8.51%
Ran Red Light	2	2.13%
Ran Stop Sign	0	0.00%
Disregard other traffic sign	0	0.00%
Disregard other road markings	0	0.00%
Exceeded authorized speed limit	0	0.00%
Driving too fast for conditions	0	0.00%
Made an improper turn	0	0.00%
Improper backing	1	1.06%
Wrong side or wrong way	0	0.00%
Followed too closely	11	11.70%
Failure to keep in proper lane	1	1.06%
Ran off roadway	1	1.06%
Operating vehicle in erratic, reckless, careless, negligent or aggressive manner	15	15.96%
Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	0	0.00%
Over-correcting/over-steering	0	0.00%
Improper Passing	5	5.32%
Other Contributing Action	0	0.00%
Unknown	0	0.00%
Total	94	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2017															
04/20/2017	21:41	S	00024	31.22	31.22	Personal Injury Crash	Not a collision between two vehicles	Traffic Sign Support	Driving under the influence	Dark-Lighted	Clear	Dry	0	1	Y
05/19/2017	09:40	S	00297	6.72	6.72	Property Damage Only	Angle	Motor Vehicle in Transport	Disregard Traffic Signal	Daylight	Clear	Dry	0	0	N
06/05/2017	14:57	S	00024	31.11	31.11	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Rain	Wet	0	0	N
06/26/2017	05:39	S	00024	31.09	31.09	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driving in a careless or reckless manner	Daylight	Clear	Dry	0	0	N
06/28/2017	11:24	S	00297	6.72	6.72	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
07/20/2017	18:53	S	00024	31.19	31.19	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	2	N
11/19/2017	19:46	S	00024	31.1	31.10	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
12/04/2017	09:53	S	00297	6.72	6.72	Property Damage Only	Angle	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N

2018															
03/26/2018	17:20	S	00024	31.09	31.09	Property Damage Only	Front to front	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
04/04/2018	07:14	S	00024	31.2	31.20	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	1	N
04/16/2018	11:53	S	00024	31.14	31.14	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
04/28/2018	11:33	S				Property Damage Only	Unknown	Legally Parked Motor Vehicle	Unknown	Daylight	Clear	Dry	0	0	N
05/20/2018	05:58	S	00297	6.76	6.76	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dawn	Rain	Dry	0	0	N

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2018															
06/09/2018	13:22	S	00024	31.11	31.11	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Rain	Wet	0	0	N
06/16/2018	11:51	S	00297	6.77	6.77	Personal Injury Crash	Sideswipe, same direction	Motor Vehicle in Transport	Improper passing	Daylight	Clear	Dry	0	1	N
07/19/2018	22:23	S	00297	6.72	6.72	Property Damage Only	Other	Motor Vehicle in Transport	Driving under the influence	Dark-Not Lighted	Clear	Dry	0	0	Y
09/14/2018	10:05	S	00297	6.72	6.72	Personal Injury Crash	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Rain	Wet	0	1	N
09/14/2018	11:49	S				Property Damage Only	Angle	Stopped Motor Vehicle	Driver inattention, distraction, or fatigue	Daylight	Cloudy	Dry	0	0	N
09/26/2018	08:12	S	00297	6.7	6.70	Personal Injury Crash	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Cloudy	Dry	0	1	N
11/20/2018	11:53	S	00297	6.73	6.73	Property Damage Only	Front to rear	Stopped Motor Vehicle	Driver inattention, distraction, or fatigue	Daylight	Cloudy	Dry	0	0	N
11/21/2018	07:47	S	00024	31.2	31.20	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	1	N
12/07/2018	13:22	S	00297	6.72	6.72	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N

2019															
01/11/2019	17:35	S	00024	31.09	31.09	Property Damage Only	Angle	Motor Vehicle in Transport	Failed to yield right of way	Dark-Not Lighted	Clear	Dry	0	0	N
01/24/2019	19:09	S	00297	6.76	6.76	Property Damage Only	Angle	Motor Vehicle in Transport	Following too close	Dark-Lighted	Clear	Dry	0	0	N
03/03/2019	15:45	S	00024	31.17	31.17	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Rain	Wet	0	0	N
04/01/2019	13:38	S	00024	31.27	31.27	Property Damage Only	Front to rear	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	0	N
04/18/2019	11:56	S	00024	31.09	31.09	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	2	N

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2019															
05/07/2019	08:27	S	00297	6.78	6.78	Personal Injury Crash	Sideswipe, opposite direction	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	1	N
05/19/2019	17:43	S	00024	31.19	31.19	Property Damage Only	Front to rear	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	0	N
05/22/2019	21:51	S	00024	31.27	31.27	Property Damage Only	Angle	Motor Vehicle in Transport	Improper passing	Dark-Lighted	Clear - Clear	Dry	0	0	N
05/25/2019	11:22	S				Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	1	N
06/15/2019	17:08	S	00024	31.19	31.19	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
06/19/2019	10:59	S	00024	31.11	31.11	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
08/03/2019	22:06	S	00024	31.19	31.19	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Dark-Lighted	Clear	Dry	0	0	N
09/05/2019	07:09	S	00297	6.76	6.76	Property Damage Only	Angle	Motor Vehicle in Transport	Improper passing	Other	Cloudy	Dry	0	0	N
10/25/2019	13:07	S	00297	6.72	6.72	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear - Clear	Dry	0	0	N
10/26/2019	10:15	S	00024	31.18	31.18	Property Damage Only	Front to rear	Stopped Motor Vehicle	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
11/08/2019	15:47	S				Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
11/28/2019	21:44	S	00024	31.11	31.11	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
12/31/2019	22:05	S	00297	6.81	6.81	Property Damage Only	Not a collision between two vehicles	Traffic Sign Support	Driver inattention, distraction, or fatigue	Dark-Lighted	Clear	Dry	0	0	N

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
01/02/2020	11:27	S	00024	31.16	31.16	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
01/04/2020	19:31	S	00024	31.27	31.27	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Dark-Not Lighted	Rain	Wet	0	0	N
01/05/2020	00:00	S	00297	6.73	6.73	Personal Injury Crash	Front to rear	Stopped Motor Vehicle	Following too close	Dark-Lighted	Rain - Rain	Water (standing, moving)	0	1	N
01/11/2020	18:15	S	00024	31.23	31.23	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driving in a careless or reckless manner	Dark-Lighted	Clear	Dry	0	1	N
01/23/2020	11:19	S	00024	31.18	31.18	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
02/13/2020	18:45	S	00024	31.18	31.18	Personal Injury Crash	Angle	Motor Vehicle in Transport	Failed to yield right of way	Dark-Not Lighted	Clear	Wet	0	1	N
02/02/2020	08:00	S	00297	6.7	6.70	Property Damage Only	Not a collision between two vehicles	Other Post, Pole or Support	Unknown	Unknown	Unknown	Unknown	0	0	N
03/09/2020	07:00	S	00297	6.72	6.72	Property Damage Only	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Cloudy	Dry	0	0	N
03/13/2020	16:48	S	00024	31.09	31.09	Property Damage Only	Angle	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry			N

Report generated by TDTSKLG at 2020-04-17 12:50:51.218

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Report Legend

CTY – County

RD – Maintenance Road

MP – Milepoint

C-MP – Continuous Milepoint

Fat – Fatality

Inj – Injury

AL - Alcohol Involved

LC – Lighting Condition

WC – Weather Condition

SC – Surface Condition

FHE – First Harmful Event

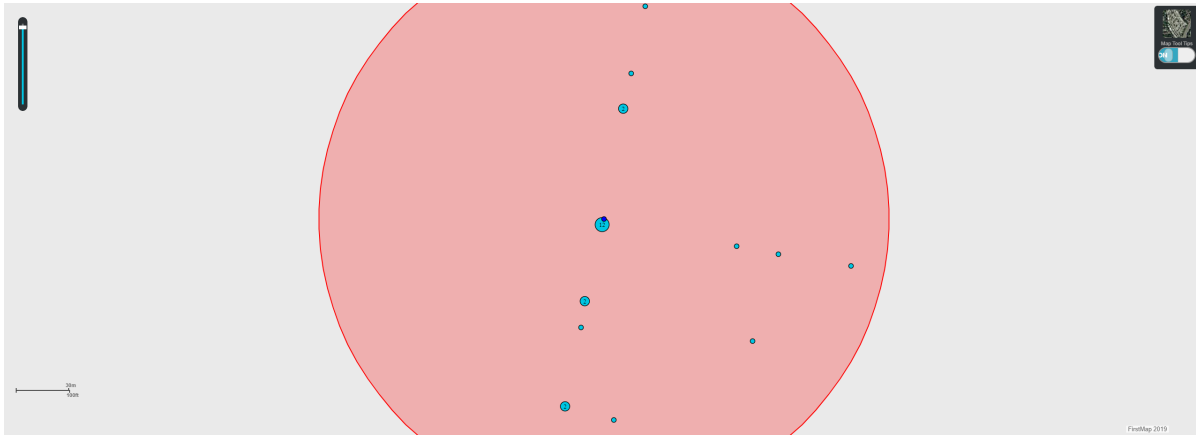
PC – Primary Contributing Circumstance

Class – Report Classification

MOI – Manner of Impact

Delaware Crash Analysis Reporting System

Crash Study Time Period: 04/17/2017 - 04/17/2020
Query Type: CrashBufferTool
Description: Crash Summary SR 24 at Bay Farm Road
Study Requested By: Ming Yu Chien- The Traffic Group
Study Generated By: TDTSKLG
Number of Crashes: 30
Includes Non-Reportable Crashes: N
Study Code:



Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

State of Delaware Crash Study

Summary		Classification			Manner of Impact		
	# of Crashes		# of Crashes	% of Total Crashes		# of Crashes	% of Total Crashes
Total Crashes	30	Non-Reportable	0	0.00%	Front to rear	15	50.00%
Fatal Crashes	0	Reportable	23	76.67%	Front to front	1	3.33%
Total Alcohol-Related Crashes	0	Personal Injury	7	23.33%	Angle	9	30.00%
Total Non Alcohol-Related Crashes	30	Fatality	0	0.00%	Sideswipe, same direction	1	3.33%
Total Fatalities	0	Total	30		Sideswipe, opposite direction	0	0.00%
Total Pedestrian Fatalities	0				Rear to side	0	0.00%
Total Pedestrian Injuries	0				Rear to rear	0	0.00%
Total Pedestrian Crashes	0				Other	0	0.00%
Total Motorcycle Crashes	0				Unknown	2	6.67%
Total Pedalcyclist Crashes	0				Not a collision between two vehicles	2	6.67%
					Total	30	

Alcohol Related Crashes By Classification

	Non-reportable	Reportable	Personal Injury	Fatality	Total
Alcohol Related	0	0	0	0	0
Non-Alcohol Related	0	23	7	0	30
Total	0	23	7	0	30

Manner of Impact By Classification

	Non-Reportable	Reportable	Personal Injury	Fatality	Total
Front to rear	0	12	3	0	15
Front to front	0	0	1	0	1
Angle	0	6	3	0	9
Sideswipe, same direction	0	1	0	0	1
Sideswipe, opposite direction	0	0	0	0	0
Rear to side	0	0	0	0	0
Rear to rear	0	0	0	0	0
Other	0	0	0	0	0
Unknown	0	2	0	0	2
Not a collision between two vehicles	0	2	0	0	2
Total	0	23	7	0	30

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Day Of Week		
	# of Crashes	% of Total Crashes
Sunday	4	13.33%
Monday	5	16.67%
Tuesday	6	20.00%
Wednesday	2	6.67%
Thursday	6	20.00%
Friday	4	13.33%
Saturday	3	10.00%
Total	30	

Time Of Day (AM)		
	# of Crashes	% of Total Crashes
00:00 - 00:59	0	0.00%
01:00 - 01:59	0	0.00%
02:00 - 02:59	0	0.00%
03:00 - 03:59	0	0.00%
04:00 - 04:59	1	3.33%
05:00 - 05:59	0	0.00%
06:00 - 06:59	0	0.00%
07:00 - 07:59	0	0.00%
08:00 - 08:59	1	3.33%
09:00 - 09:59	3	10.00%
10:00 - 10:59	3	10.00%
11:00 - 11:59	2	6.67%
Total	10	

Time Of Day (PM)		
	# of Crashes	% of Total Crashes
12:00 - 12:59	4	13.33%
13:00 - 13:59	4	13.33%
14:00 - 14:59	2	6.67%
15:00 - 15:59	2	6.67%
16:00 - 16:59	2	6.67%
17:00 - 17:59	3	10.00%
18:00 - 18:59	2	6.67%
19:00 - 19:59	1	3.33%
20:00 - 20:59	0	0.00%
21:00 - 21:59	0	0.00%
22:00 - 22:59	0	0.00%
23:00 - 23:59	0	0.00%
Total	20	
Unknown Time	0	

Surface Conditions		
	# of Crashes	% of Total Crashes
Dry	23	76.67%
Wet	6	20.00%
Snow	0	0.00%
Ice/Frost	0	0.00%
Sand	0	0.00%
Water (standing, moving)	1	3.33%
Slush	0	0.00%
Oil	0	0.00%
Mud, Dirt, Gravel	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	30	

Lighting Conditions		
	# of Crashes	% of Total Crashes
Daylight	26	86.67%
Dawn	0	0.00%
Dusk	0	0.00%
Dark-Lighted	1	3.33%
Dark-Not Lighted	2	6.67%
Dark-Unknown Lighting	0	0.00%
Other	1	3.33%
Unknown	0	0.00%
Total	30	

Weather Conditions		
	# of Crashes	% of Total Crashes
Clear	20	66.67%
Cloudy	7	23.33%
Fog, Smog, Smoke	0	0.00%
Rain	4	13.33%
Sleet, Hail (freezing rain or drizzle)	0	0.00%
Snow	0	0.00%
Blowing Snow	0	0.00%
Severe Crosswinds	0	0.00%
Blowing Sand, Soil, Dirt	0	0.00%
Other	0	0.00%
Unknown	0	0.00%
Total	31	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

First Harmful Event		
	# of Crashes	% of Total Crashes
Overturn/Rollover, Non-Collision	0	0.00%
Fire/Explosion, Non-Collision	0	0.00%
Immersion, Non-Collision	0	0.00%
Jackknife, Non-Collision	0	0.00%
Cargo/Equipment Loss or Shift, Non-Collision	0	0.00%
Fell/Jumped From Motor Vehicle, Non-Collision	0	0.00%
Thrown or Falling Object, Non-Collision	0	0.00%
Other Non-Collision, Non-Collision	0	0.00%
Pedestrian, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Pedalcycle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Railway Vehicle (train, engine), Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Animal, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Motor Vehicle in Transport, Collision With Person, Motor Vehicle, or Non-Fixed Object	23	76.67%
Legally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	1	3.33%
Struck by Anything Set in Motion by Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Work Zone / Maintenance Equipment, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Other Non-Fixed Object, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Impact Attenuator/Crash Cushion, Collision With Fixed Object	0	0.00%
Bridge Overhead Structure, Collision With Fixed Object	0	0.00%
Bridge Pier or Support, Collision With Fixed Object	0	0.00%
Bridge Rail, Collision With Fixed Object	0	0.00%
Cable Barrier, Collision With Fixed Object	0	0.00%
Culvert, Collision With Fixed Object	0	0.00%
Curb, Collision With Fixed Object	0	0.00%
Ditch, Collision With Fixed Object	1	3.33%
Embankment, Collision With Fixed Object	0	0.00%
	0	0.00%

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Guardrail Face, Collision With Fixed Object		
Guardrail End, Collision With Fixed Object	0	0.00%
Concrete Traffic Barrier, Collision With Fixed Object	0	0.00%
Other Traffic Barrier, Collision With Fixed Object	0	0.00%
Tree (standing), Collision With Fixed Object	0	0.00%
Utility Pole, Collision With Fixed Object	0	0.00%
Light Support, Collision With Fixed Object	0	0.00%
Traffic Sign Support, Collision With Fixed Object	0	0.00%
Overhead Sign Support, Collision With Fixed Object	0	0.00%
Traffic Signal Support, Collision With Fixed Object	0	0.00%
Fence, Collision With Fixed Object	0	0.00%
Mailbox, Collision With Fixed Object	0	0.00%
Other Post, Pole or Support, Collision With Fixed Object	1	3.33%
Other Fixed Object (wall, building, tunnel, etc.), Collision With Fixed Object	0	0.00%
Illegally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Stopped Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	3	10.00%
Unknown, Collision With Fixed Object	1	3.33%
Total	30	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Primary Contributing Circumstance		
	# of Crashes	% of Total Crashes
Speeding	0	0.00%
Failed to yield right of way	6	20.00%
Passed Stop Sign	1	3.33%
Disregard Traffic Signal	0	0.00%
Wrong side or wrong way	0	0.00%
Improper passing	0	0.00%
Improper lane change	0	0.00%
Following too close	2	6.67%
Made improper turn	0	0.00%
Driving under the influence	0	0.00%
Driver inattention, distraction, or fatigue	13	43.33%
Driving in a careless or reckless manner	2	6.67%
Driving in an aggressive manner	0	0.00%
Improper backing	1	3.33%
Other improper driving	0	0.00%
Mechanical defects	0	0.00%
Animal in Roadway - Deer	0	0.00%
Animal in Roadway - Other Animal	0	0.00%
Other environmental circumstances - weather, glare	0	0.00%
Roadway circumstances - debris, holes, work zone,	0	0.00%
Other	2	6.67%
Unknown	3	10.00%
Total	30	

Disclaimer for CARS: Crash data and associated police reports are intended for DelDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DelDOT unless written approval is received from the DelDOT Legal Section. Police reports are the property of the Delaware State Police.

Driver Action		
	# of Drivers	% of Total Crashes
No Contributing Action	28	47.46%
Failed to yield right of way	6	10.17%
Ran Red Light	0	0.00%
Ran Stop Sign	1	1.69%
Disregard other traffic sign	0	0.00%
Disregard other road markings	0	0.00%
Exceeded authorized speed limit	0	0.00%
Driving too fast for conditions	0	0.00%
Made an improper turn	0	0.00%
Improper backing	2	3.39%
Wrong side or wrong way	0	0.00%
Followed too closely	2	3.39%
Failure to keep in proper lane	0	0.00%
Ran off roadway	1	1.69%
Operating vehicle in erratic, reckless, careless, negligent or aggressive manner	14	23.73%
Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	0	0.00%
Over-correcting/over-steering	0	0.00%
Improper Passing	1	1.69%
Other Contributing Action	1	1.69%
Unknown	3	5.08%
Total	59	

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2017															
11/19/2017	12:37	S	00024	32.04	32.04	Personal Injury Crash	Angle	Motor Vehicle in Transport	Passed Stop Sign	Daylight	Clear	Dry	0	2	N
06/02/2017	12:22	S	00024	32.06	32.06	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	2	N
07/11/2017	10:13	S	00024	32.22	32.22	Property Damage Only	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	0	N
08/07/2017	16:46	S	00024	32.17	32.17	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driving in a careless or reckless manner	Daylight	Rain	Water (standing, moving)	0	0	N
09/09/2017	08:56	S	00024	32.19	32.19	Property Damage Only	Unknown	Motor Vehicle in Transport	Unknown	Daylight	Clear	Dry	0	0	N
09/17/2017	04:54	S	00299	1.08	1.08	Property Damage Only	Not a collision between two vehicles	Ditch	Other	Dark-Not Lighted	Cloudy	Dry	0	0	N
10/12/2017	09:41	S	00299	1.15	1.15	Personal Injury Crash	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Wet	0	1	N

2018															
08/21/2018	13:10	S	00024	32.12	32.12	Property Damage Only	Front to rear	Motor Vehicle in Transport	Unknown	Daylight	Clear	Dry	0	0	N
10/28/2018	12:47	S				Property Damage Only	Angle	Motor Vehicle in Transport	Driving in a careless or reckless manner	Daylight	Cloudy	Dry	0	0	N
11/10/2018	13:13	S	00024	32.11	32.11	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
12/16/2018	13:52	S	00024	32.13	32.13	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Rain	Wet	0	0	N
02/22/2018	13:03	S	00024	32.13	32.13	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Cloudy	Dry	0	1	N
06/22/2018	18:06	S	00299	1.15	1.15	Property Damage Only	Front to rear	Stopped Motor Vehicle	Improper backing	Daylight	Cloudy	Dry	0	0	N

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
09/11/2018	14:01	S	00024	32.13	32.13	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
12/14/2018	09:35	S	00024	32.09	32.09	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Cloudy	Dry	0	0	N

2019

02/11/2019	17:40	S	00024	32.13	32.13	Property Damage Only	Not a collision between two vehicles	Other Post, Pole or Support	Driver inattention, distraction, or fatigue	Dark-Not Lighted	Clear	Wet	0	0	N
02/28/2019	19:06	S	00024	32.03	32.03	Property Damage Only	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	0	N
02/28/2019	17:00	S	00299	1.15	1.15	Property Damage Only	Unknown	Unknown	Unknown	Daylight	Clear	Dry	0	0	N
05/30/2019	16:40	S	00024	32.1	32.10	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
06/22/2019	15:40	S				Property Damage Only	Angle	Legally Parked Motor Vehicle	Other	Daylight	Clear	Dry	0	0	N
07/09/2019	11:28	S	00299	1.06	1.06	Personal Injury Crash	Front to front	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	1	N
07/11/2019	11:28	S	00024	32.03	32.03	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	0	N
08/07/2019	09:46	S	00024	32.18	32.18	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	1	N
11/29/2019	10:58	S	00299	1.1	1.10	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
12/09/2019	10:54	S	00024	32.13	32.13	Property Damage Only	Angle	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Cloudy	Wet	0	0	N
12/16/2019	15:38	S	00024	32.06	32.06	Property Damage Only	Front to rear	Stopped Motor Vehicle	Following too close	Other	Rain - Cloudy	Wet	0	0	N

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2019															
12/17/2019	17:51	S				Personal Injury Crash	Angle	Motor Vehicle in Transport	Failed to yield right of way	Dark-Lighted	Rain	Wet	0	1	N
2020															
03/09/2020	18:30	S	00024	32.04	32.04	Property Damage Only	Angle	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
03/10/2020	14:05	S	00024	32.13	32.13	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
03/18/2020	12:15	S	00024	32.13	32.13	Property Damage Only	Front to rear	Stopped Motor Vehicle	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N

Report generated by TDTSKLG at 2020-04-17 12:59:55.727

Disclaimer for CARS: Crash data and associated police reports are intended for DeIDOT use only and shall not be transmitted, copied, distributed or provided to any entity other than DeIDOT unless written approval is received from the DeIDOT Legal Section. Police reports are the property of the Delaware State Police.

Report Legend

CTY – County

RD – Maintenance Road

MP – Milepoint

C-MP – Continuous Milepoint

Fat – Fatality

Inj – Injury

AL - Alcohol Involved

LC – Lighting Condition

WC – Weather Condition

SC – Surface Condition

FHE – First Harmful Event

PC – Primary Contributing Circumstance

Class – Report Classification

MOI – Manner of Impact

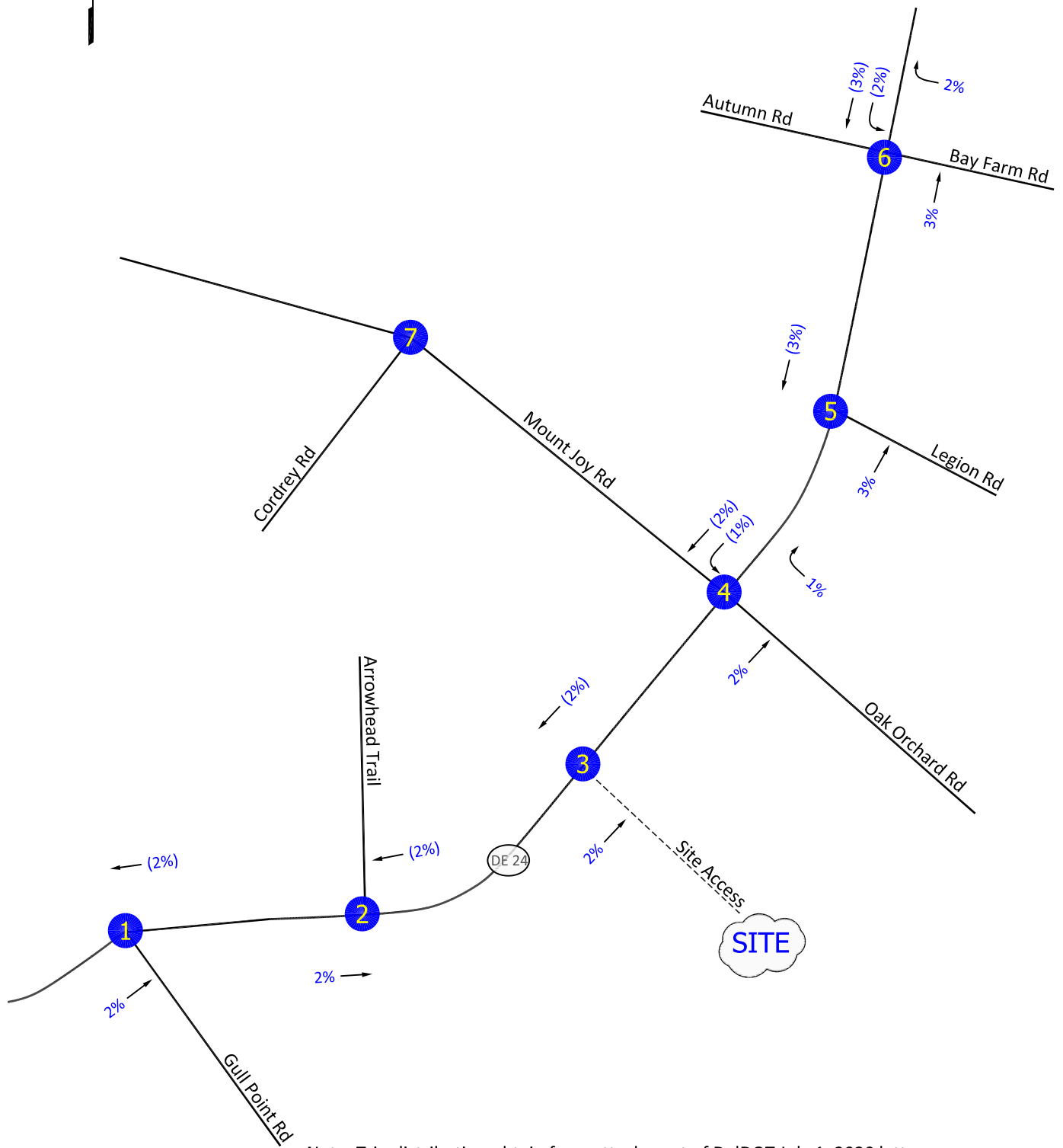
APPENDIX C

Committed Development Worksheets





#1 ~ #5
In: 174 (589) [478]
Out: 523 (346) [407]



Note: Trip distribution obtain from attachment of DeIDOT July 1, 2020 letter.



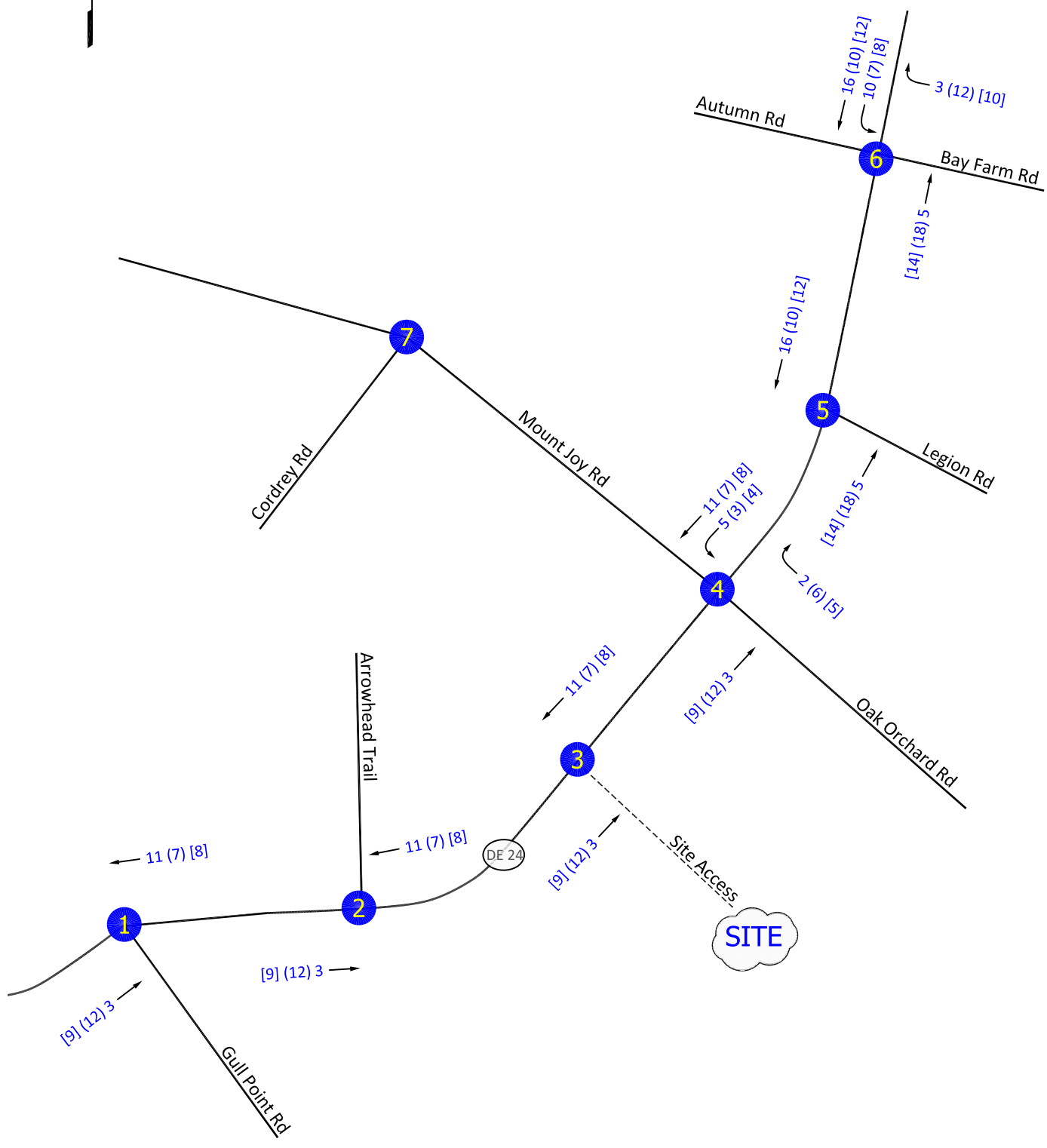
Study Intersection

% - PERCENTAGE OF INBOUND TRIPS
% - PERCENTAGE OF OUTBOUND TRIPS

**EXHIBIT C-1
TRIP DISTRIBUTION FOR
DEVELOPMENTS # 1~#5**

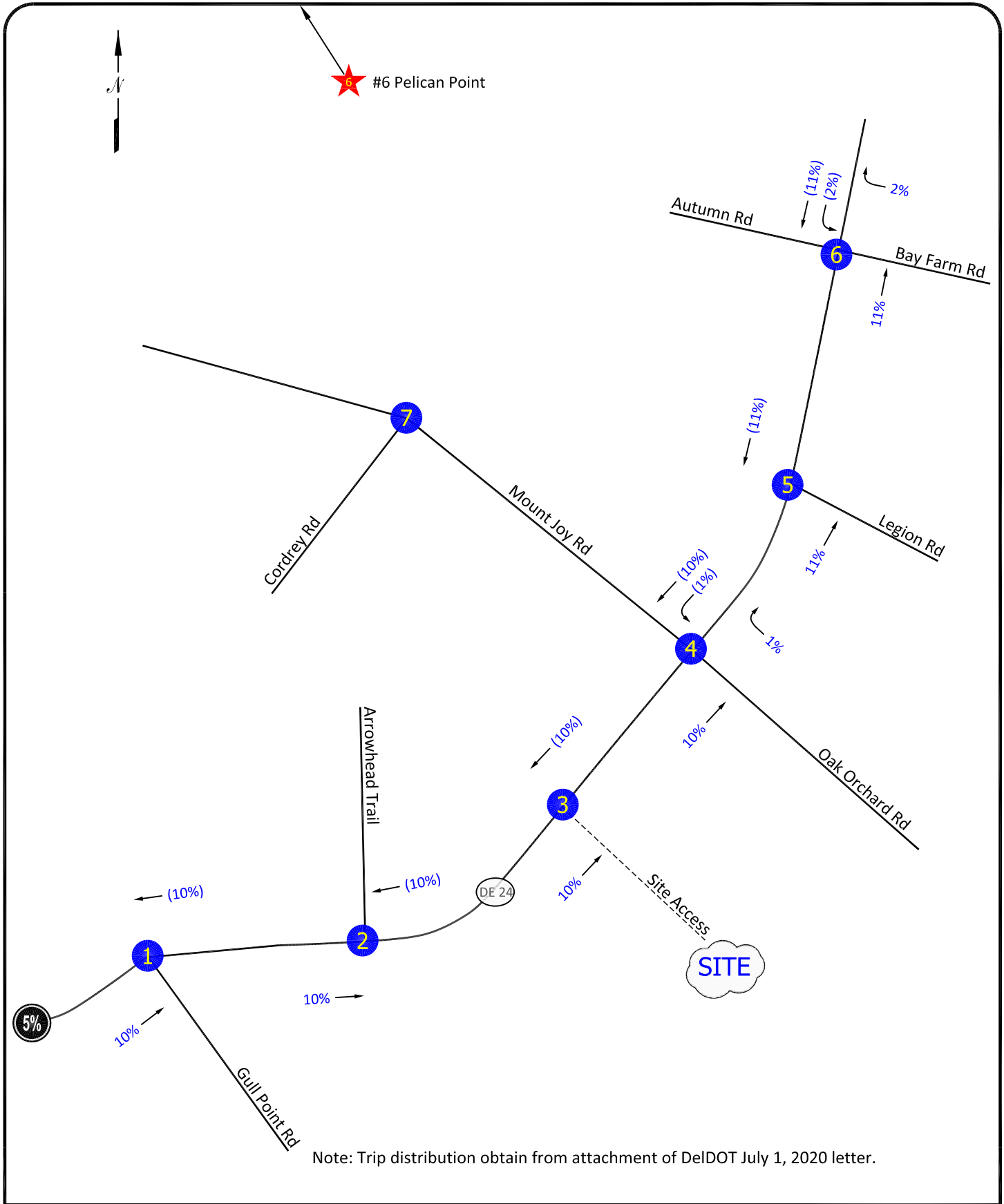


#1 ~ #5
In: 174 (589) [478]
Out: 523 (346) [407]



Study Intersection
00 - MORNING PEAK HOUR
(00) - EVENING PEAK HOUR
[00] - MID SATURDAY PEAK HOUR

EXHIBIT C-2
TRIP ASSIGNMENT FOR
DEVELOPMENTS # 1 ~ #5

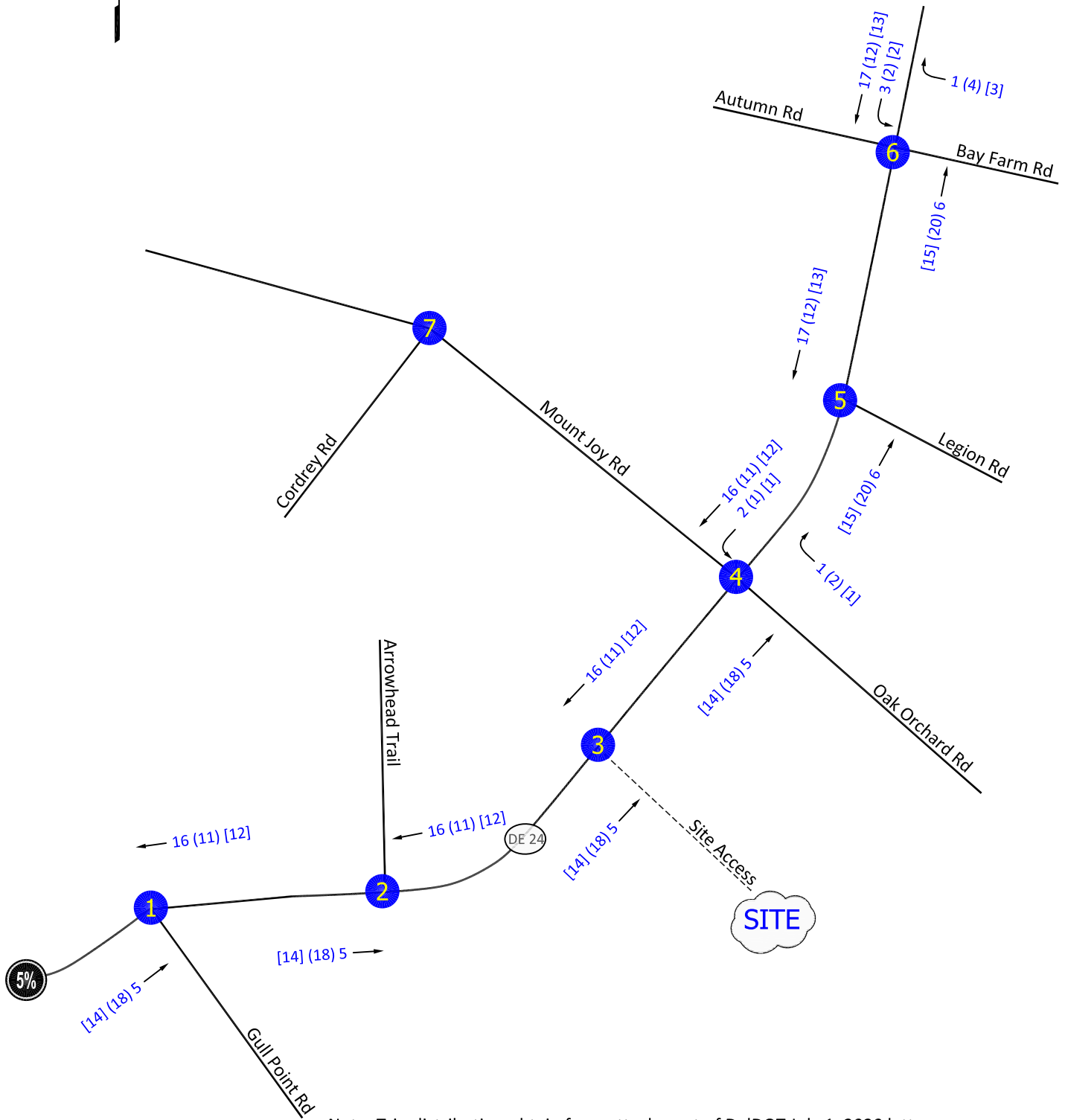


Study Intersection
 ##% - PERCENTAGE OF INBOUND TRIPS
 (##%) - PERCENTAGE OF OUTBOUND TRIPS

**EXHIBIT C-3
 TRIP DISTRIBUTION FOR
 DEVELOPMENT #6**



#6
In: 53 (178) [141]
Out: 158 (105) [121]



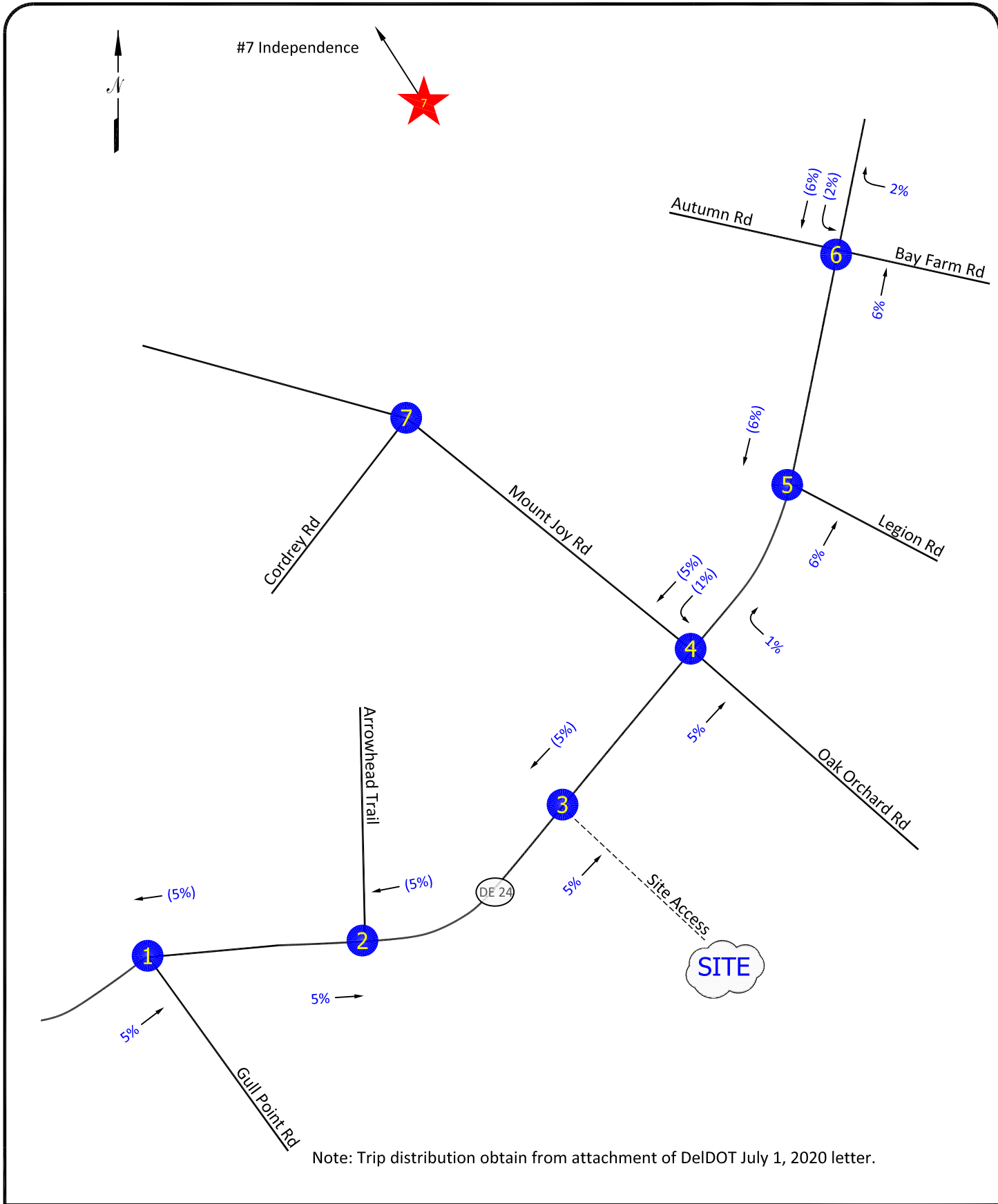
Note: Trip distribution obtain from attachment of DeIDOT July 1, 2020 letter.



Study Intersection

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

EXHIBIT C-4
TRIP ASSIGNMENT FOR
DEVELOPMENT #6

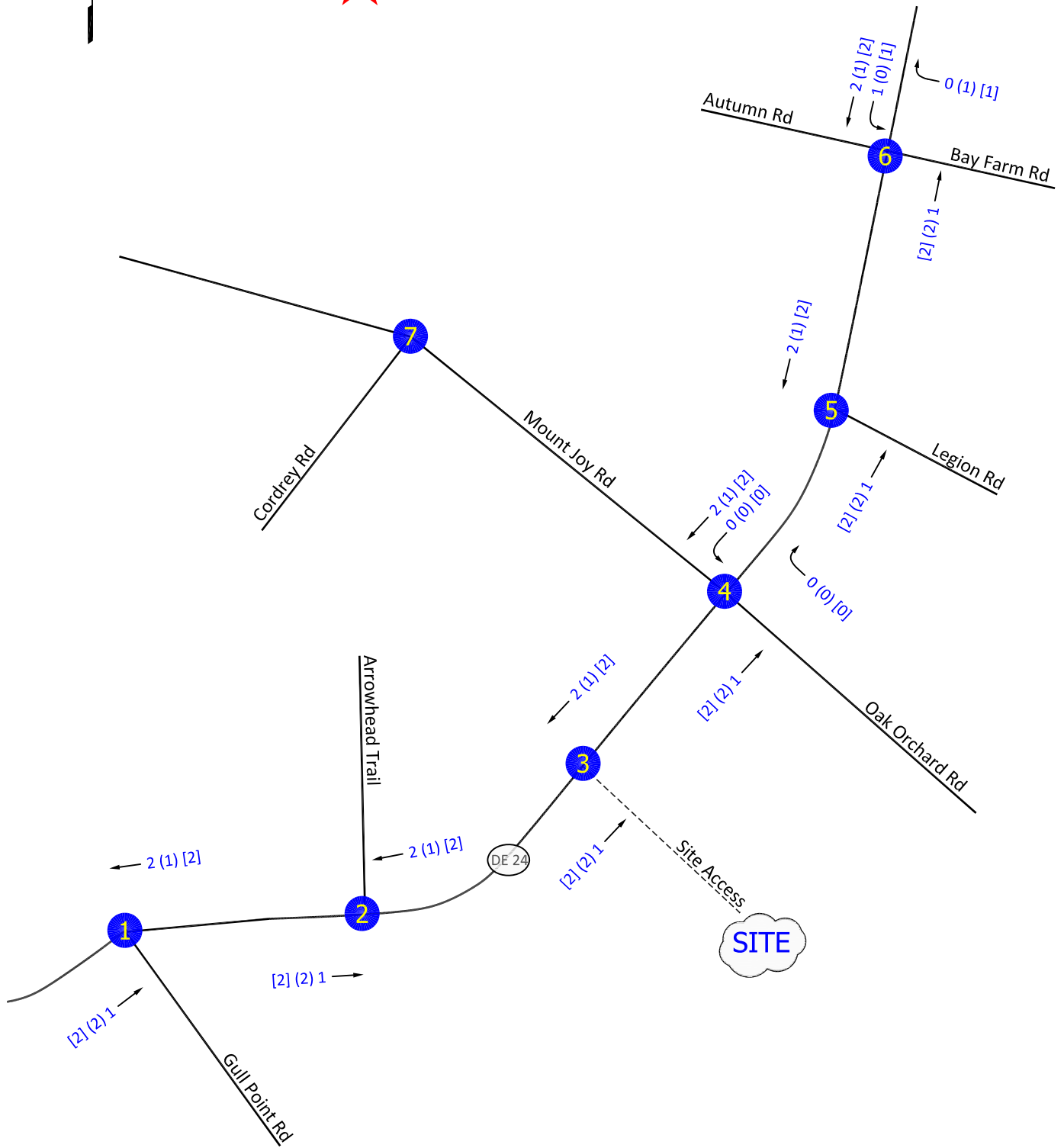


Study Intersection
 ## % - PERCENTAGE OF INBOUND TRIPS
 (## %) - PERCENTAGE OF OUTBOUND TRIPS

EXHIBIT C-5
 TRIP DISTRIBUTION FOR
 DEVELOPMENT #7



#7 Independence
In: 12 (41) [38]
Out: 38 (24) [33]



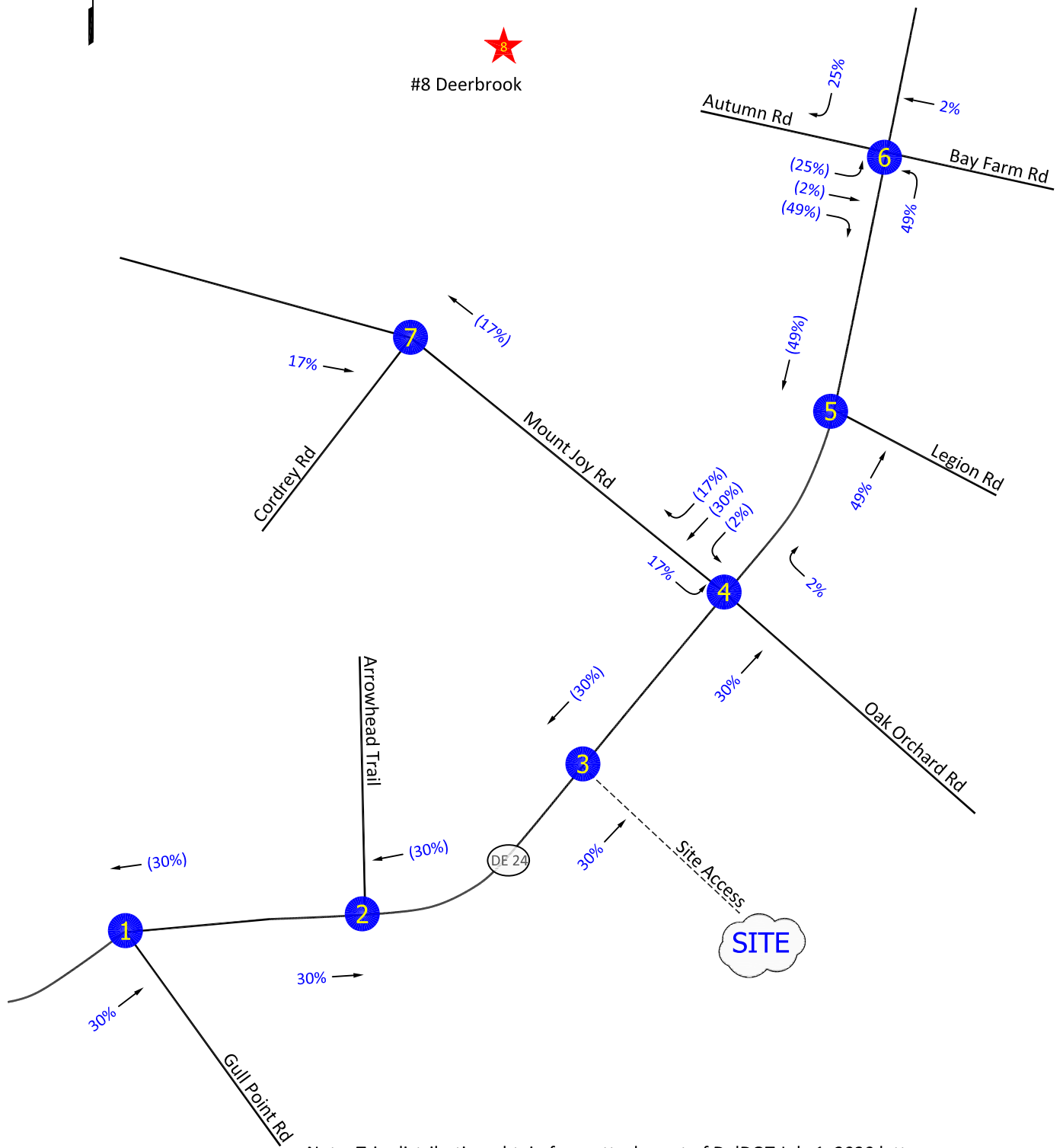
Study Intersection

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

EXHIBIT C-6
TRIP ASSIGNMENT FOR
DEVELOPMENT # 7



#8 Deerbrook



Note: Trip distribution obtain from attachment of DeIDOT July 1, 2020 letter.



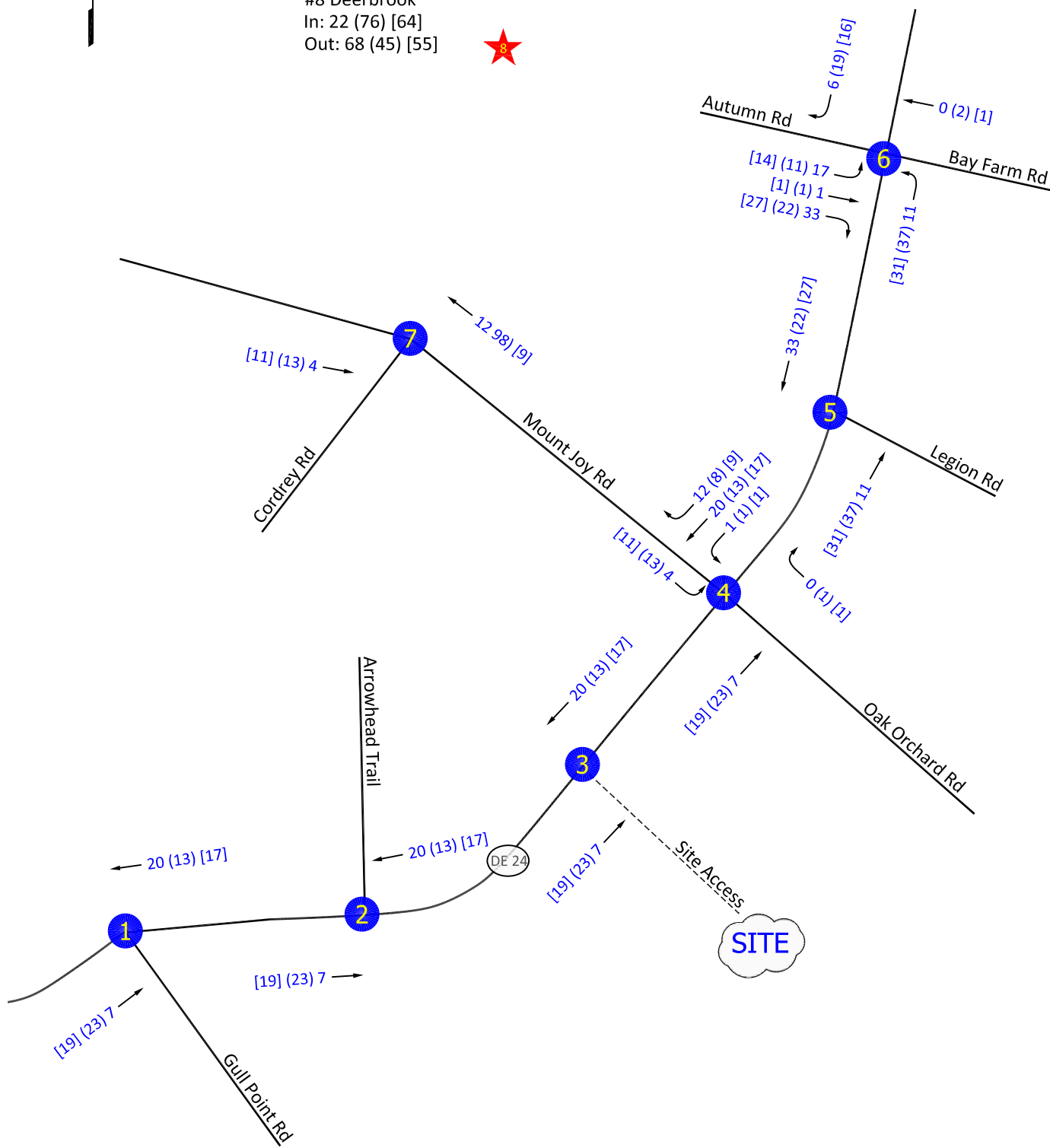
Study Intersection

% - PERCENTAGE OF INBOUND TRIPS
% - PERCENTAGE OF OUTBOUND TRIPS

EXHIBIT C-7
TRIP DISTRIBUTION FOR
DEVELOPMENT #8



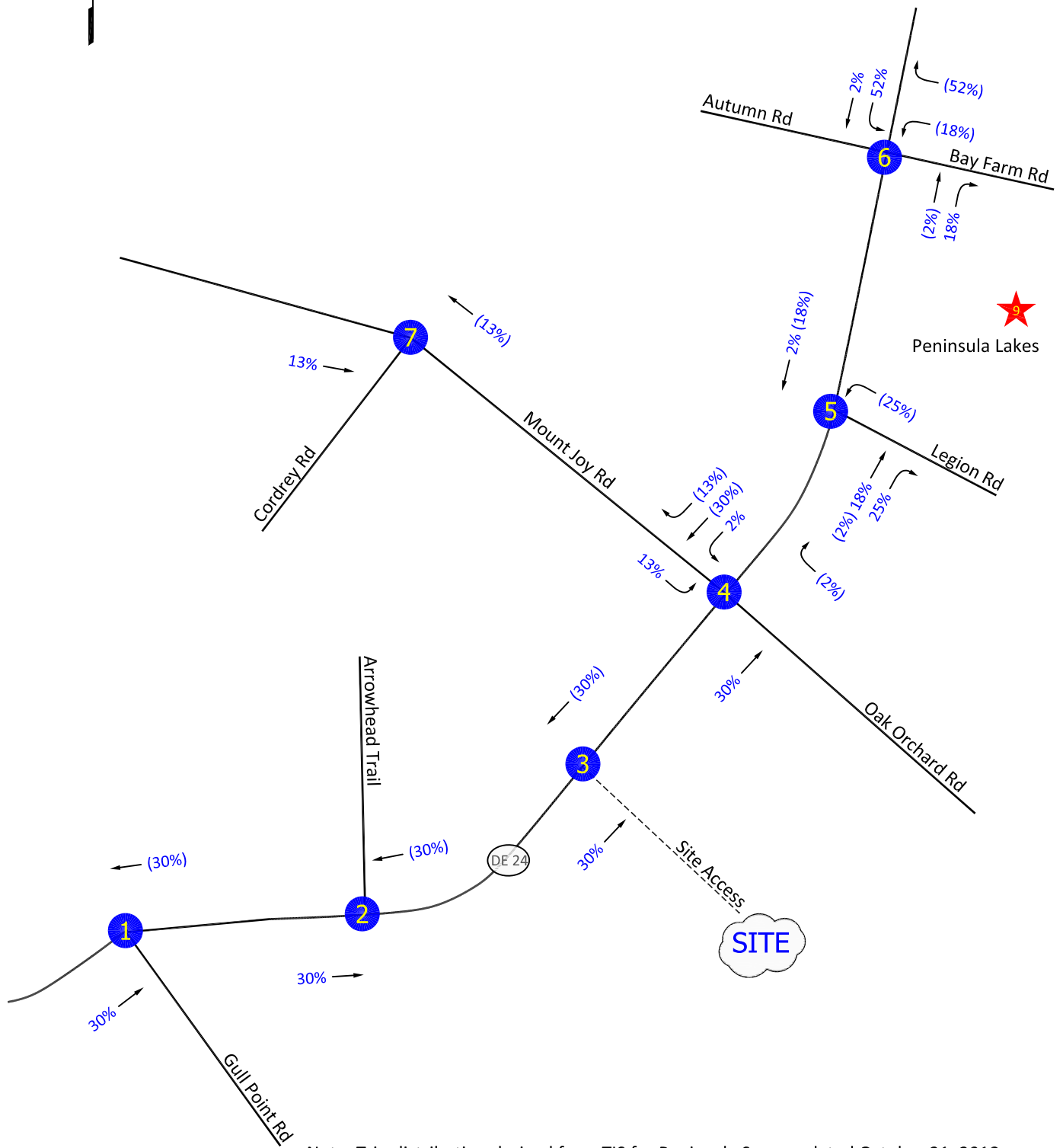
#8 Deerbrook
In: 22 (76) [64]
Out: 68 (45) [55]



Study Intersection

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

EXHIBIT C-8
TRIP ASSIGNMENT FOR
DEVELOPMENT #8

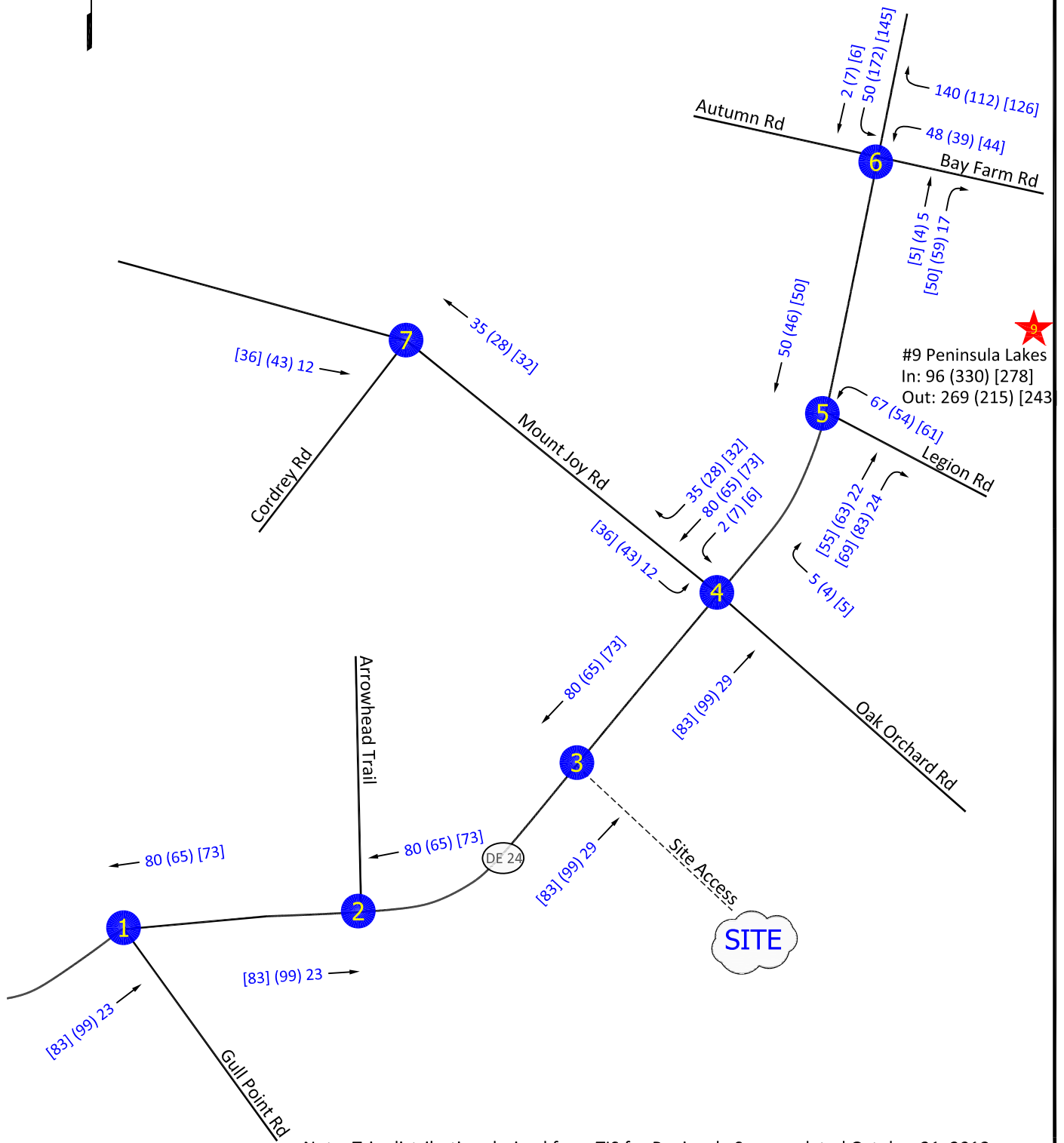


Note: Trip distribution derived from TIS for Peninsula Square, dated October 31, 2018. by Duffield Associates.



Study Intersection
 ##% - PERCENTAGE OF INBOUND TRIPS
 (##%) - PERCENTAGE OF OUTBOUND TRIPS

EXHIBIT C-9
 TRIP DISTRIBUTION FOR
 DEVELOPMENT #9



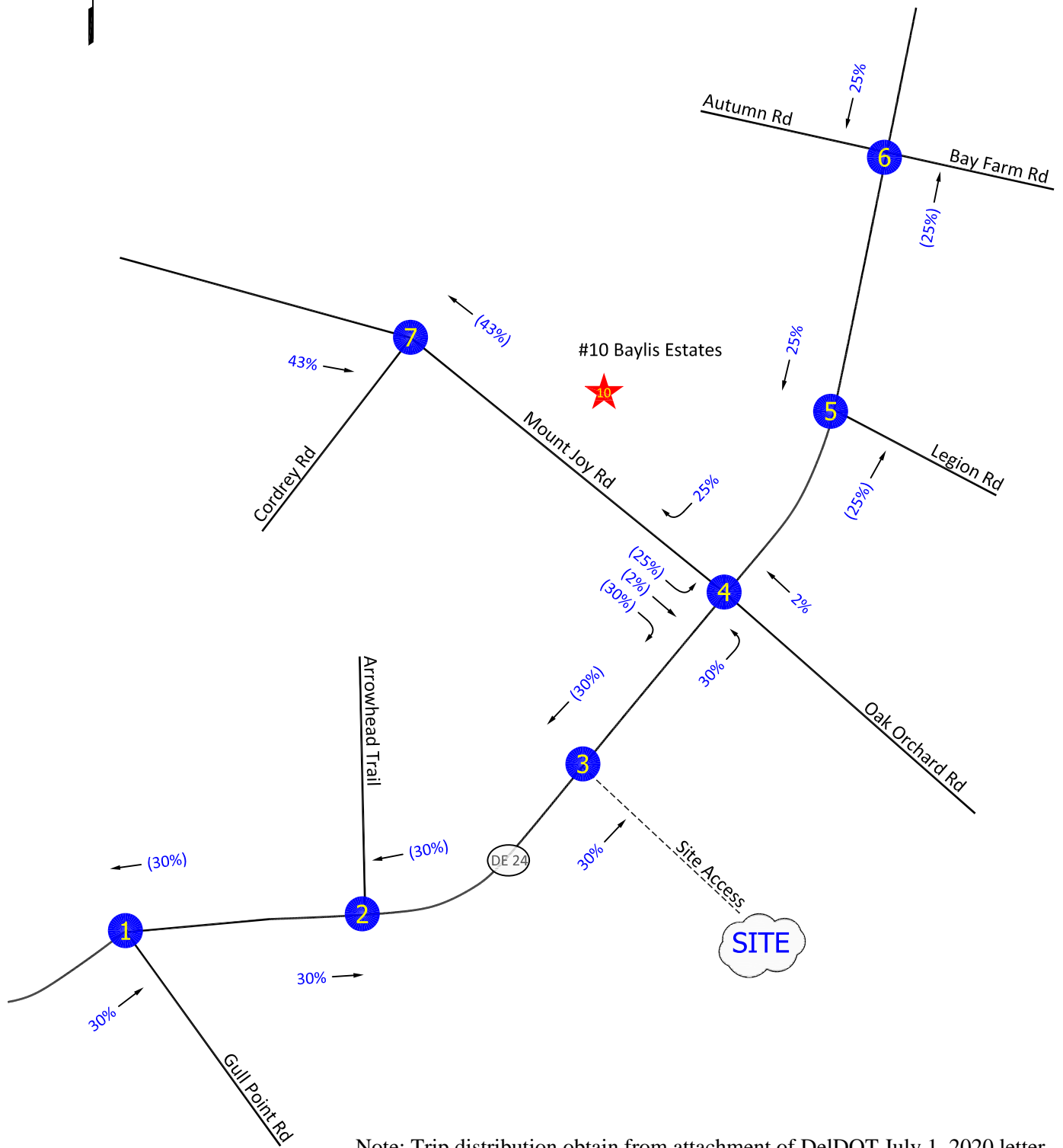
Note: Trip distribution derived from TIS for Peninsula Square, dated October 31, 2018.
by Duffield Associates.



Study Intersection

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

EXHIBIT C-10
TRIP ASSIGNMENT FOR
DEVELOPMENT #9



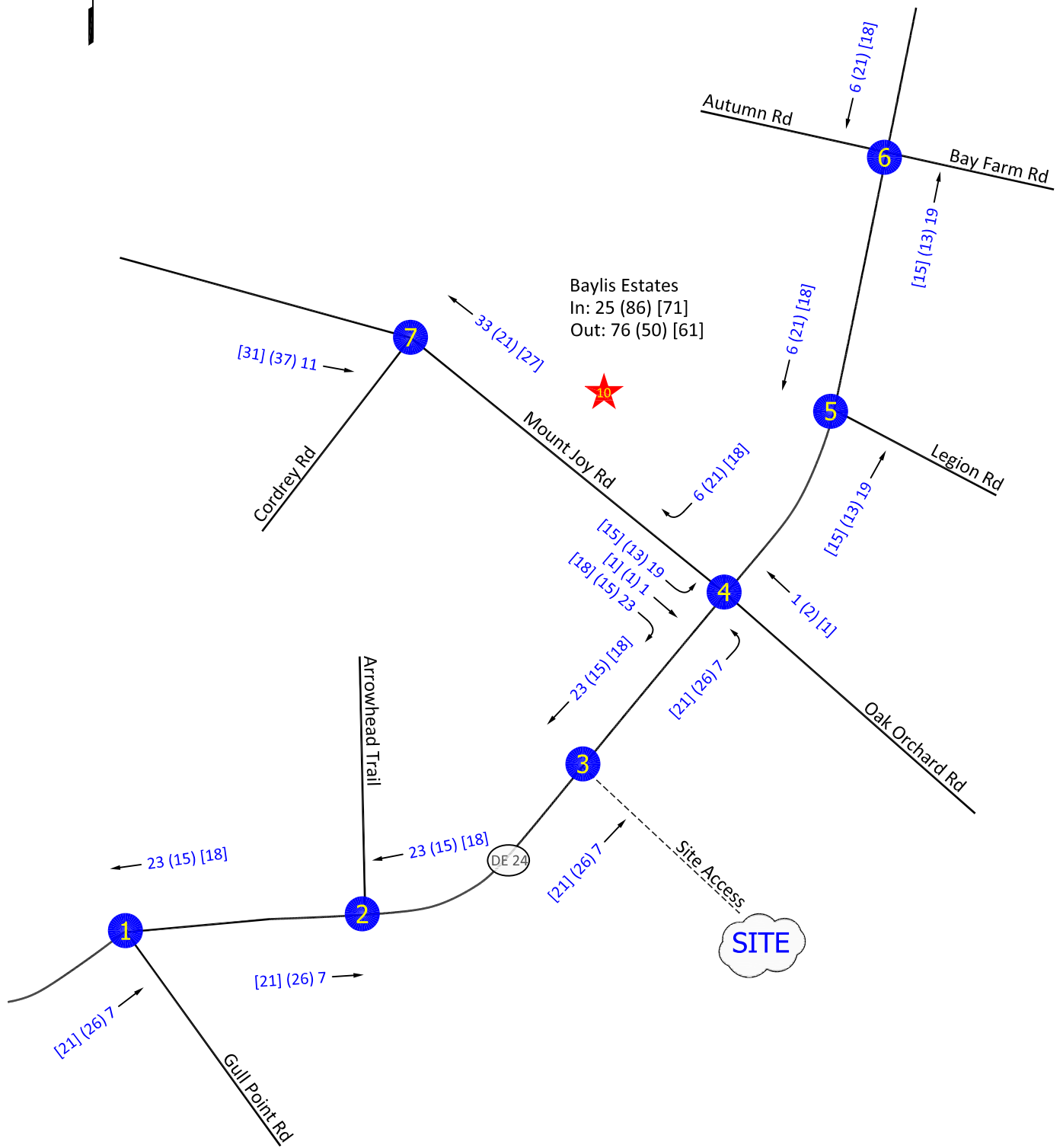
Note: Trip distribution obtain from attachment of DeIDOT July 1, 2020 letter.



Study Intersection

% - PERCENTAGE OF INBOUND TRIPS
% - PERCENTAGE OF OUTBOUND TRIPS

**EXHIBIT C-11
TRIP DISTRIBUTION FOR
DEVELOPMENT #10**



Study Intersection

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

EXHIBIT C-12
TRIP ASSIGNMENT FOR
DEVELOPMENT #10

APPENDIX D

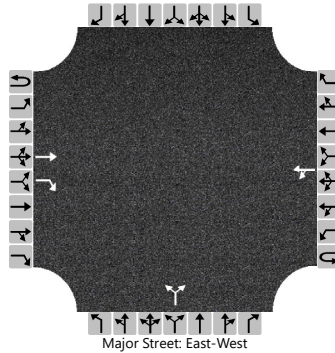
HCM Worksheet for Intersection Capacity Analysis



HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Gull Point Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Gull Point Rd		
Time Analyzed	Sea. Adj EA			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description							

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R		LT					LR					
Volume (veh/h)			428	7		2	521			16		1				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

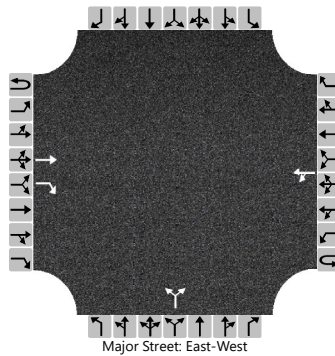
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2						18				
Capacity, c (veh/h)						1100						267				
v/c Ratio						0.00						0.07				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						8.3						19.5				
Level of Service (LOS)						A						C				
Approach Delay (s/veh)					0.1				19.5							
Approach LOS									C							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Gull Point Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Gull Point Rd		
Time Analyzed	Sea. Adj EP			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R		LT					LR					
Volume (veh/h)			461	28		4	441			11		4				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

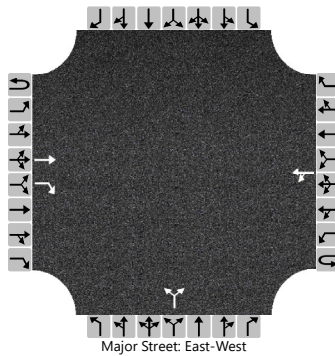
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4					16					
Capacity, c (veh/h)						1046					319					
v/c Ratio						0.00					0.05					
95% Queue Length, Q ₉₅ (veh)						0.0					0.2					
Control Delay (s/veh)						8.5					16.9					
Level of Service (LOS)						A					C					
Approach Delay (s/veh)					0.1				16.9							
Approach LOS									C							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Gull Point Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Gull Point Rd		
Time Analyzed	Seasonal Adj Existing Sat			Peak Hour Factor	0.98		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R		LT					LR					
Volume (veh/h)			523	22		3	397			14		5				
Percent Heavy Vehicles (%)						0				7		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.47		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.56		3.30				

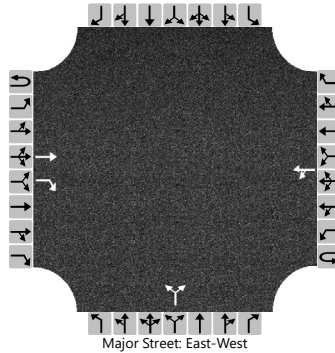
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3						19				
Capacity, c (veh/h)						1025						325				
v/c Ratio						0.00						0.06				
95% Queue Length, Q ₉₅ (veh)						0.0						0.2				
Control Delay (s/veh)						8.5						16.8				
Level of Service (LOS)						A						C				
Approach Delay (s/veh)					0.1				16.8							
Approach LOS									C							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Gull Point Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Gull Point Rd		
Time Analyzed	Back'd AM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description							

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R			LT					LR				
Volume (veh/h)			494	7			2	697			17		1			
Percent Heavy Vehicles (%)							0				0		0			
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

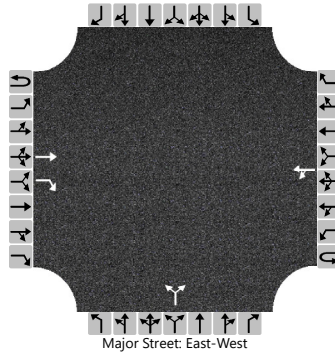
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					2						20					
Capacity, c (veh/h)					1035						186					
v/c Ratio					0.00						0.11					
95% Queue Length, Q ₉₅ (veh)					0.0						0.3					
Control Delay (s/veh)					8.5						26.6					
Level of Service (LOS)					A						D					
Approach Delay (s/veh)					0.1				26.6							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Gull Point Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Gull Point Rd		
Time Analyzed	Back'd PM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R		LT					LR					
Volume (veh/h)			662	29		4	573			12		4				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

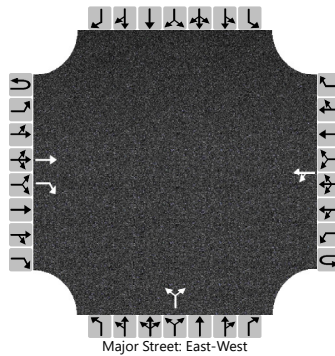
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4						17				
Capacity, c (veh/h)						867						196				
v/c Ratio						0.01						0.09				
95% Queue Length, Q ₉₅ (veh)						0.0						0.3				
Control Delay (s/veh)						9.2						25.1				
Level of Service (LOS)						A						D				
Approach Delay (s/veh)					0.1				25.1							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Gull Point Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Gull Point Rd		
Time Analyzed	Back'd Sat			Peak Hour Factor	0.98		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R		LT					LR					
Volume (veh/h)			695	23		3	545			15		5				
Percent Heavy Vehicles (%)						0				7		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.47		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.56		3.30			

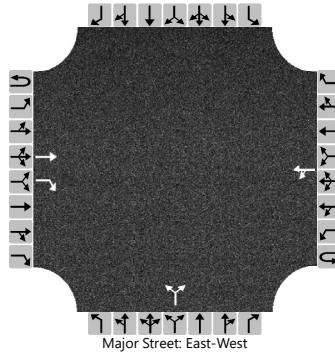
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3						20				
Capacity, c (veh/h)						881						211				
v/c Ratio						0.00						0.10				
95% Queue Length, Q ₉₅ (veh)						0.0						0.3				
Control Delay (s/veh)						9.1						23.9				
Level of Service (LOS)						A						C				
Approach Delay (s/veh)					0.1				23.9							
Approach LOS									C							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH	Intersection	Del Rt 24 @ Gull Point Rd				
Agency/Co.	The Traffic Group, Inc	Jurisdiction	Sussex County, Delaware				
Date Performed	4/24/2020	East/West Street	Del Route 24				
Analysis Year		North/South Street	Gull Point Rd				
Time Analyzed	Total AM	Peak Hour Factor	0.92				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description							

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R		LT					LR					
Volume (veh/h)			516	7		2	765			17		1				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

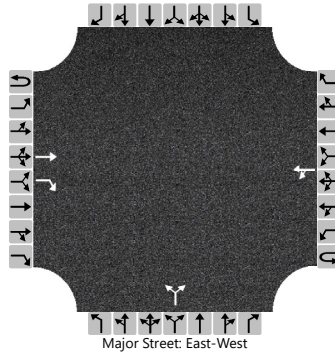
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						2				20						
Capacity, c (veh/h)						1014				163						
v/c Ratio						0.00				0.12						
95% Queue Length, Q ₉₅ (veh)						0.0				0.4						
Control Delay (s/veh)						8.6				30.1						
Level of Service (LOS)						A				D						
Approach Delay (s/veh)					0.1				30.1							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Gull Point Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Gull Point Rd		
Time Analyzed	Total PM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R			LT					LR				
Volume (veh/h)			738	29			4	618			12		4			
Percent Heavy Vehicles (%)							0				0		0			
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.10					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.20					3.50		3.30			

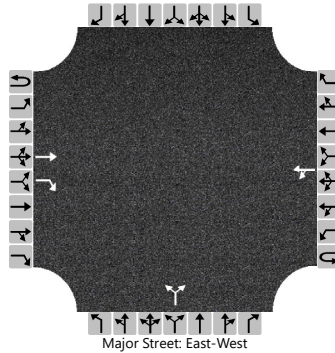
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4						17				
Capacity, c (veh/h)						808						164				
v/c Ratio						0.01						0.11				
95% Queue Length, Q ₉₅ (veh)						0.0						0.3				
Control Delay (s/veh)						9.5						29.5				
Level of Service (LOS)						A						D				
Approach Delay (s/veh)					0.1				29.5							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Gull Point Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Gull Point Rd		
Time Analyzed	Total Sat			Peak Hour Factor	0.98		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	0	1	0		0	1	0		0	0	0
Configuration			T	R		LT					LR					
Volume (veh/h)			755	23		3	597			15		5				
Percent Heavy Vehicles (%)						0				7		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized	No															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.47		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.56		3.30				

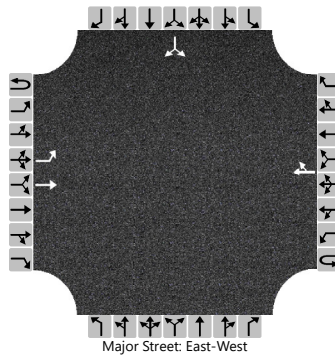
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						3				20						
Capacity, c (veh/h)						836				181						
v/c Ratio						0.00				0.11						
95% Queue Length, Q ₉₅ (veh)						0.0				0.4						
Control Delay (s/veh)						9.3				27.4						
Level of Service (LOS)						A				D						
Approach Delay (s/veh)					0.1				27.4							
Approach LOS									D							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Sea. Adj. EA			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		0	430				518	6						14		3
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

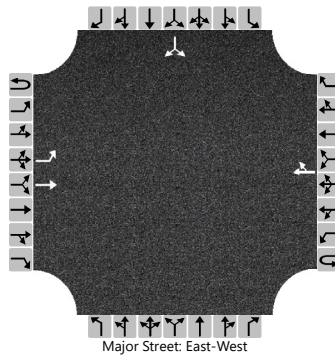
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													18	
Capacity, c (veh/h)		1013													285	
v/c Ratio		0.00													0.06	
95% Queue Length, Q ₉₅ (veh)		0.0													0.2	
Control Delay (s/veh)		8.6													18.5	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.0												18.5			
Approach LOS													C			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Sea. Adj. EP			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		4	463				439	9						10		2
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

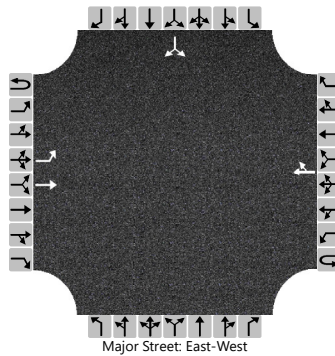
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4													13	
Capacity, c (veh/h)		1087													300	
v/c Ratio		0.00													0.04	
95% Queue Length, Q ₉₅ (veh)		0.0													0.1	
Control Delay (s/veh)		8.3													17.6	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.1												17.6			
Approach LOS													C			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Seasonal Adj Existing Sat			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		8	511				389	9						8		11
Percent Heavy Vehicles (%)		0												0		9
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.29
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.38

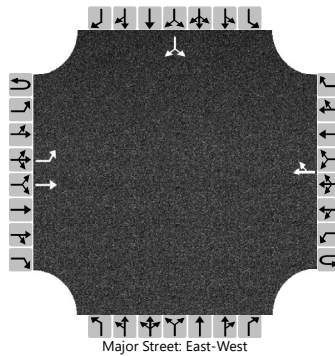
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9													21	
Capacity, c (veh/h)		1138													399	
v/c Ratio		0.01													0.05	
95% Queue Length, Q ₉₅ (veh)		0.0													0.2	
Control Delay (s/veh)		8.2													14.5	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		0.1												14.5		
Approach LOS														B		

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Background AM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		0	496				694	6						14		3
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

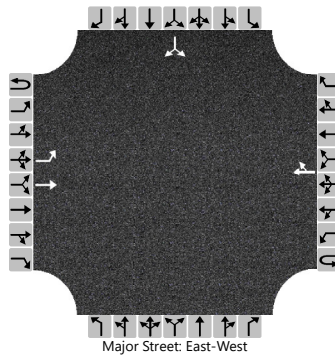
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													18	
Capacity, c (veh/h)		860													200	
v/c Ratio		0.00													0.09	
95% Queue Length, Q ₉₅ (veh)		0.0													0.3	
Control Delay (s/veh)		9.2													24.8	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)		0.0												24.8		
Approach LOS														C		

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Back'd PM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		4	664				571	9						10		2
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

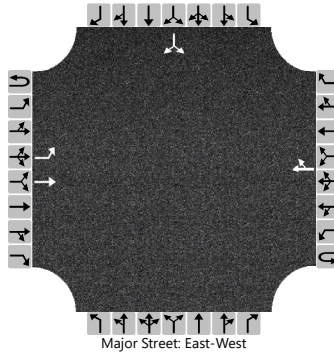
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4													13		
Capacity, c (veh/h)		962													186		
v/c Ratio		0.00													0.07		
95% Queue Length, Q ₉₅ (veh)		0.0													0.2		
Control Delay (s/veh)		8.8													25.8		
Level of Service (LOS)		A													D		
Approach Delay (s/veh)		0.1												25.8			
Approach LOS														D			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Back'd Sat			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		8	683				537	9						8		11
Percent Heavy Vehicles (%)		0												0		9
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.29
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.38

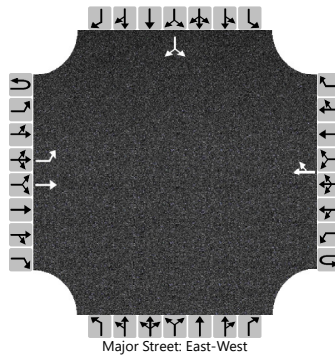
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9													21	
Capacity, c (veh/h)		992													270	
v/c Ratio		0.01													0.08	
95% Queue Length, Q ₉₅ (veh)		0.0													0.2	
Control Delay (s/veh)		8.7													19.4	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)		0.1												19.4		
Approach LOS														C		

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Total AM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		0	518				762	6						14		3
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

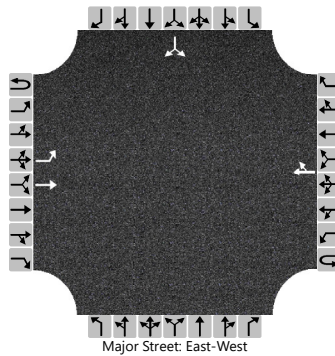
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0														18	
Capacity, c (veh/h)		807														175	
v/c Ratio		0.00														0.11	
95% Queue Length, Q ₉₅ (veh)		0.0														0.3	
Control Delay (s/veh)		9.5														27.9	
Level of Service (LOS)		A														D	
Approach Delay (s/veh)		0.0												27.9			
Approach LOS														D			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Total PM			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		4	740				616	9						10		2
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

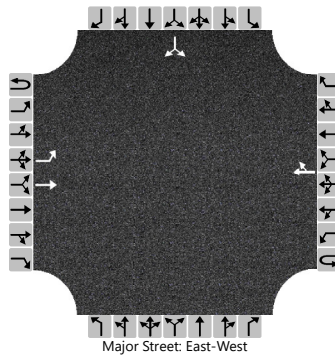
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4													13		
Capacity, c (veh/h)		922													156		
v/c Ratio		0.00													0.08		
95% Queue Length, Q ₉₅ (veh)		0.0													0.3		
Control Delay (s/veh)		8.9													30.2		
Level of Service (LOS)		A													D		
Approach Delay (s/veh)		0.0												30.2			
Approach LOS														D			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Rt 24 @ Arrowhead Tra		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sussex County, Delaware		
Date Performed	4/24/2020			East/West Street	Del Route 24		
Analysis Year				North/South Street	Arrowhead Trail		
Time Analyzed	Total Sat			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		8	743				589	9						8		11
Percent Heavy Vehicles (%)		0												0		9
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.29
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.38

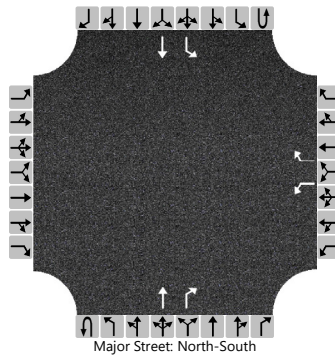
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9													21	
Capacity, c (veh/h)		946													235	
v/c Ratio		0.01													0.09	
95% Queue Length, Q ₉₅ (veh)		0.0													0.3	
Control Delay (s/veh)		8.8													21.8	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.1												21.8			
Approach LOS													C			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	DE 24 at Site Access		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	DELDOT		
Date Performed	8/3/2020			East/West Street	Site Access		
Analysis Year	2020			North/South Street	DE 24		
Time Analyzed	Total AM Peak			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Patriot Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						68		89			530	22		30	674	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.43		6.23							4.13	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.53		3.33							2.23	

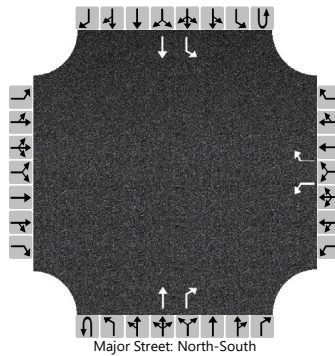
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						74		97							33	
Capacity, c (veh/h)						154		515							972	
v/c Ratio						0.48		0.19							0.03	
95% Queue Length, Q ₉₅ (veh)						2.3		0.7							0.1	
Control Delay (s/veh)						48.1		13.6							8.8	
Level of Service (LOS)						E		B							A	
Approach Delay (s/veh)					28.6								0.4			
Approach LOS					D											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	DE 24 at Site Access		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	DELDOT		
Date Performed	8/3/2020			East/West Street	Site Access		
Analysis Year	2020			North/South Street	DE 24		
Time Analyzed	Total PM Peak			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Patriot Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound					
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6		
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0		
Configuration						L		R			T	R		L	T			
Volume (veh/h)						45		59			756	76		100	590			
Percent Heavy Vehicles (%)						3		3						3				
Proportion Time Blocked																		
Percent Grade (%)						0												
Right Turn Channelized						No					No							
Median Type Storage		Undivided																

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.43		6.23							4.13	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.53		3.33							2.23	

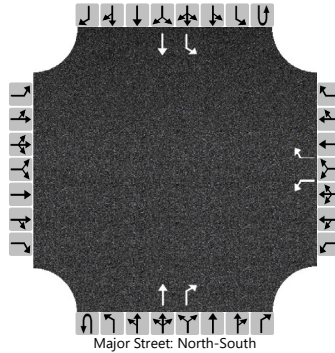
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						49		64							109			
Capacity, c (veh/h)						88		373							748			
v/c Ratio						0.55		0.17							0.15			
95% Queue Length, Q ₉₅ (veh)						2.5		0.6							0.5			
Control Delay (s/veh)						87.4		16.7							10.6			
Level of Service (LOS)						F		C							B			
Approach Delay (s/veh)		47.3									1.5							
Approach LOS		E																

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	DE 24 at Site Access		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	DELDOT		
Date Performed	8/3/2020			East/West Street	Site Access		
Analysis Year	2020			North/South Street	DE 24		
Time Analyzed	Total Sat Peak			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Patriot Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						52		68			703	60		80	584	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

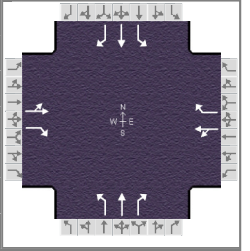
Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.43		6.23							4.13	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.53		3.33							2.23	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					57		74							87		
Capacity, c (veh/h)					107		402							798		
v/c Ratio					0.53		0.18							0.11		
95% Queue Length, Q ₉₅ (veh)					2.4		0.7							0.4		
Control Delay (s/veh)					70.8		16.0							10.1		
Level of Service (LOS)					F		C							B		
Approach Delay (s/veh)					39.7								1.2			
Approach LOS					E											

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Sea Adj EX AM	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4EA.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	71	22	11	76	90	99	28	396	33	46	412	98

Signal Information				Signal Phases									
Cycle, s	76.7	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	2.4	0.9	29.1	9.9	6.4	0.0			
Uncoordinated	Yes	Simult. Gap E/W	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.0	0.0	2.0	2.0	2.0	0.0			

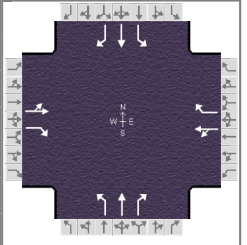
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		11.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		13.4		16.9	9.4	36.1	10.3	37.0
Change Period, ($Y+R_c$), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.1		5.1	4.1	5.0	4.1	5.1
Queue Clearance Time (g_s), s		6.9		10.0	2.8	18.7	3.4	19.0
Green Extension Time (g_e), s		0.2		0.1	0.0	1.7	0.0	2.3
Phase Call Probability		0.90		0.98	0.48	1.00	0.66	1.00
Max Out Probability		0.51		1.00	0.23	0.40	0.01	0.22

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h		101	5		180	14	30	430	28	50	448	77
Adjusted Saturation Flow Rate (s), veh/h/ln		1541	1483		1684	1460	1667	1654	1379	1641	1682	1460
Queue Service Time (g_s), s		4.9	0.3		8.0	0.7	0.8	16.7	1.0	1.4	17.0	2.6
Cycle Queue Clearance Time (g_c), s		4.9	0.3		8.0	0.7	0.8	16.7	1.0	1.4	17.0	2.6
Green Ratio (g/C)		0.08	0.08		0.13	0.13	0.41	0.38	0.38	0.42	0.39	0.39
Capacity (c), veh/h		128	124		218	189	283	628	523	318	658	571
Volume-to-Capacity Ratio (X)		0.787	0.044		0.827	0.075	0.107	0.686	0.054	0.157	0.681	0.135
Back of Queue (Q), ft/ln (95 th percentile)		111.3	4.3		197.3	10.6	13.7	297.3	15.5	22.5	296.9	40.3
Back of Queue (Q), veh/ln (95 th percentile)		4.1	0.2		7.8	0.4	0.5	11.3	0.6	0.9	11.4	1.6
Queue Storage Ratio (RQ) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh		34.5	32.4		32.6	29.3	15.8	20.0	15.1	15.1	19.4	15.0
Incremental Delay (d_2), s/veh		13.9	0.2		20.3	0.2	0.2	6.0	0.2	0.2	5.6	0.5
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh		48.4	32.6		52.8	29.6	15.9	26.0	15.3	15.4	25.0	15.5
Level of Service (LOS)		D	C		D	C	B	C	B	B	C	B
Approach Delay, s/veh / LOS	47.6	D		51.1	D		24.7	C		22.9	C	
Intersection Delay, s/veh / LOS		29.5				C						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS	2.14	B	2.18	B
Bicycle LOS Score / LOS	0.66	A	0.81	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Sea Adj EX PM	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4EP.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	142	49	18	44	47	92	14	451	85	111	395	160

Signal Information														
Cycle, s	78.4	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	1.4	4.0	27.0	6.4	11.7	0.0				
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0				
				Red	2.0	0.0	2.0	2.0	2.0	0.0				

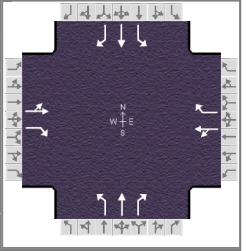
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		11.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		18.7		13.4	8.4	34.0	12.4	38.0
Change Period, (Y+R _c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.1		5.1	4.1	5.1	4.1	5.1
Queue Clearance Time (g _s), s		11.6		6.7	2.5	22.2	5.7	18.1
Green Extension Time (g _e), s		0.1		0.2	0.0	1.4	0.1	2.5
Phase Call Probability		0.99		0.92	0.28	1.00	0.93	1.00
Max Out Probability		1.00		1.00	0.09	1.00	0.34	0.19

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	208 12			99 20			15 490 53			121 429 118		
Adjusted Saturation Flow Rate (s), veh/h/ln	1648 1356			1602 1471			1667 1736 1298			1641 1695 1414		
Queue Service Time (g _s), s	9.6 0.6			4.7 1.0			0.5 20.2 2.2			3.7 16.1 4.3		
Cycle Queue Clearance Time (g _c), s	9.6 0.6			4.7 1.0			0.5 20.2 2.2			3.7 16.1 4.3		
Green Ratio (g/C)	0.15 0.15			0.08 0.08			0.36 0.34 0.34			0.41 0.39 0.39		
Capacity (c), veh/h	245 202			130 120			281 598 447			282 669 558		
Volume-to-Capacity Ratio (X)	0.846 0.059			0.758 0.163			0.054 0.820 0.119			0.427 0.641 0.212		
Back of Queue (Q), ft/ln (95 th percentile)	224.8 9.6			106.2 16.5			7.7 370.8 35			61.1 281.2 67.8		
Back of Queue (Q), veh/ln (95 th percentile)	8.8 0.4			4.0 0.7			0.3 14.7 1.2			2.4 10.9 2.6		
Queue Storage Ratio (RQ) (95 th percentile)	0.00 0.00			0.00 0.00			0.00 0.00 0.00			0.00 0.00 0.00		
Uniform Delay (d ₁), s/veh	32.5 28.7			35.3 33.5			17.4 23.5 17.6			17.6 19.2 15.7		
Incremental Delay (d ₂), s/veh	20.8 0.2			12.0 0.9			0.1 12.0 0.5			1.0 4.7 0.9		
Initial Queue Delay (d ₃), s/veh	0.0 0.0			0.0 0.0			0.0 0.0 0.0			0.0 0.0 0.0		
Control Delay (d), s/veh	53.3 28.8			47.3 34.4			17.5 35.5 18.1			18.6 23.9 16.5		
Level of Service (LOS)	D C			D C			B D B			B C B		
Approach Delay, s/veh / LOS	52.0 D			45.2 D			33.3 C			21.7 C		
Intersection Delay, s/veh / LOS	31.9			C			C			C		

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.17	B	2.22	B	2.02	B	1.91	B
Bicycle LOS Score / LOS	0.85	A	0.68	A	1.41	A	1.59	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Sea Adj EX SAT	PHF	0.97		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4ES.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	98	47	22	24	73	124	17	468	45	129	388	117

Signal Information													
Cycle, s	75.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	1.5	4.0	27.0	6.4	8.5	0.0			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0			
				Red	2.0	0.0	2.0	2.0	2.0	0.0			

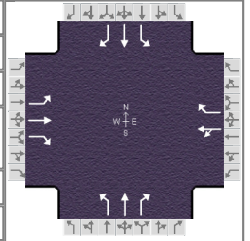
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		11.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		15.5		13.4	8.5	34.0	12.5	38.0
Change Period, ($Y+R_c$), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.1		5.2	4.1	5.0	4.1	5.1
Queue Clearance Time (g_s), s		8.5		6.3	2.5	20.8	5.7	15.4
Green Extension Time (g_e), s		0.3		0.3	0.0	1.6	0.2	2.4
Phase Call Probability		0.97		0.96	0.31	1.00	0.94	1.00
Max Out Probability		1.00		1.00	0.10	0.75	0.38	0.07

Movement Group Results	EB			WB			NB			SB				
	L	T	R	L	T	R	L	T	R	L	T	R		
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16		
Adjusted Flow Rate (v), veh/h		149	15		100	60		18	482	28		133	400	73
Adjusted Saturation Flow Rate (s), veh/h/ln		1693	1483		1688	1460		1667	1723	1483		1667	1723	1471
Queue Service Time (g_s), s		6.5	0.7		4.3	2.9		0.5	18.8	0.9		3.7	13.4	2.3
Cycle Queue Clearance Time (g_c), s		6.5	0.7		4.3	2.9		0.5	18.8	0.9		3.7	13.4	2.3
Green Ratio (g/C)		0.11	0.11		0.08	0.08		0.38	0.36	0.36		0.43	0.41	0.41
Capacity (c), veh/h		191	167		143	124		336	617	531		318	708	605
Volume-to-Capacity Ratio (X)		0.784	0.093		0.698	0.483		0.052	0.782	0.052		0.418	0.565	0.121
Back of Queue (Q), ft/ln (95 th percentile)		138.4	11.6		94.2	52.2		8.1	339.9	14.5		60.5	235.7	35.4
Back of Queue (Q), veh/ln (95 th percentile)		5.5	0.5		3.7	2.1		0.3	13.4	0.6		2.4	9.3	1.4
Queue Storage Ratio (RQ) (95 th percentile)		0.00	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		32.6	30.0		33.6	32.9		15.6	21.6	15.8		16.0	17.0	13.8
Incremental Delay (d_2), s/veh		10.1	0.3		8.4	4.1		0.1	9.5	0.2		0.9	3.3	0.4
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh		42.7	30.3		42.0	37.0		15.7	31.1	16.0		16.9	20.3	14.2
Level of Service (LOS)		D	C		D	D		B	C	B		B	C	B
Approach Delay, s/veh / LOS	41.5		D	40.1		D	29.8		C	18.8		B		
Intersection Delay, s/veh / LOS	27.7						C							

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.21	B	2.00	B	1.91	B
Bicycle LOS Score / LOS	0.76	A	0.75	A	1.36	A	1.49	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Back'd AM w/ DELDOT Project	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4BAimp.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	109	24	35	79	95	112	36	459	35	58	560	156

Signal Information														
Cycle, s	79.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	2.9	0.9	29.1	10.6	7.6	0.0				
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0				
				Red	2.0	0.0	2.0	2.0	2.0	0.0				

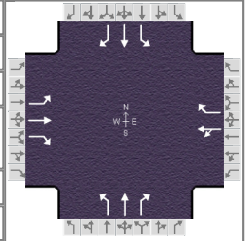
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		14.6		17.6	9.9	36.1	10.7	37.0
Change Period, (Y+R _c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.1		5.1	4.1	5.0	4.1	5.1
Queue Clearance Time (g _s), s		7.5		10.7	3.1	23.5	3.8	29.8
Green Extension Time (g _e), s		0.3		0.0	0.0	1.0	0.1	0.1
Phase Call Probability		0.97		0.99	0.58	1.00	0.75	1.00
Max Out Probability		0.80		1.00	0.38	1.00	0.03	1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	118	26	17		189	16	39	499	30	63	609	123
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1600	1483		1684	1460	1667	1654	1379	1641	1682	1460
Queue Service Time (g _s), s	5.5	1.2	0.8		8.7	0.8	1.1	21.5	1.1	1.8	27.8	4.5
Cycle Queue Clearance Time (g _c), s	5.5	1.2	0.8		8.7	0.8	1.1	21.5	1.1	1.8	27.8	4.5
Green Ratio (g/C)	0.10	0.10	0.10		0.13	0.13	0.41	0.37	0.37	0.42	0.38	0.38
Capacity (c), veh/h	160	153	142		225	195	154	610	508	255	638	554
Volume-to-Capacity Ratio (X)	0.742	0.170	0.122		0.839	0.083	0.254	0.818	0.060	0.247	0.954	0.222
Back of Queue (Q), ft/ln (95 th percentile)	114.6	23.3	14.2		214.4	12.6	19.5	389.1	17.6	30.5	542.9	70.9
Back of Queue (Q), veh/ln (95 th percentile)	4.6	0.9	0.6		8.4	0.5	0.8	14.7	0.7	1.2	20.9	2.8
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	34.8	32.8	32.7		33.4	30.0	19.7	22.6	16.1	17.2	23.8	16.6
Incremental Delay (d ₂), s/veh	9.2	0.7	0.5		23.1	0.3	0.9	11.6	0.2	0.5	25.9	0.9
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	44.0	33.6	33.2		56.5	30.2	20.5	34.2	16.3	17.7	49.7	17.5
Level of Service (LOS)	D	C	C		E	C	C	C	B	B	D	B
Approach Delay, s/veh / LOS	41.2		D	54.4		D	32.3		C	42.2		D
Intersection Delay, s/veh / LOS	40.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.14	B	2.20	B	2.05	B	2.12	B
Bicycle LOS Score / LOS	0.75	A	0.83	A	1.43	A	1.80	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Back'd PM w/ DELDOT Project	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4BPimp.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	218	52	34	46	51	109	41	626	89	128	510	224

Signal Information														
Cycle, s	81.3	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.2	3.1	27.0	7.0	13.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0				
				Red	2.0	0.0	2.0	2.0	2.0	0.0				

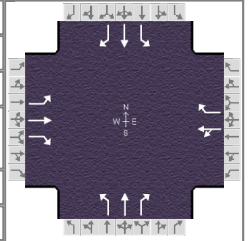
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		20.0		14.0	10.2	34.0	13.3	37.1
Change Period, (Y+R c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.1		5.1	4.1	5.1	4.1	5.1
Queue Clearance Time (g s), s		13.3		7.2	3.4	29.0	6.4	26.9
Green Extension Time (g e), s		0.0		0.2	0.0	0.0	0.2	1.3
Phase Call Probability		1.00		0.94	0.63	1.00	0.96	1.00
Max Out Probability		1.00		1.00	0.55	1.00	0.70	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	237	57	23		105	23	45	680	58	139	554	166
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1709	1356		1603	1471	1667	1736	1298	1641	1695	1414
Queue Service Time (g s), s	11.3	2.3	1.2		5.2	1.2	1.4	27.0	2.5	4.4	24.9	6.8
Cycle Queue Clearance Time (g c), s	11.3	2.3	1.2		5.2	1.2	1.4	27.0	2.5	4.4	24.9	6.8
Green Ratio (g/C)	0.16	0.16	0.16		0.09	0.09	0.37	0.33	0.33	0.41	0.37	0.37
Capacity (c), veh/h	266	273	217		138	127	189	577	431	216	628	524
Volume-to-Capacity Ratio (X)	0.889	0.207	0.105		0.765	0.180	0.236	1.180	0.134	0.644	0.882	0.317
Back of Queue (Q), ft/ln (95 th percentile)	268.1	44.6	18.9		116.4	19.9	24.2	960.2	40.6	79.3	456.3	109.6
Back of Queue (Q), veh/ln (95 th percentile)	10.7	1.7	0.7		4.4	0.8	1.0	38.1	1.4	3.1	17.7	4.2
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d 1), s/veh	33.4	29.7	29.2		36.4	34.5	20.2	27.2	19.0	20.0	23.9	18.2
Incremental Delay (d 2), s/veh	29.0	0.5	0.3		11.8	1.0	0.6	98.0	0.6	3.2	16.4	1.6
Initial Queue Delay (d 3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	62.5	30.2	29.5		48.1	35.5	20.8	125.1	19.6	23.2	40.3	19.8
Level of Service (LOS)	E	C	C		D	D	C	F	B	C	D	B
Approach Delay, s/veh / LOS	54.3		D	45.9		D	111.4		F	33.6		C
Intersection Delay, s/veh / LOS	66.7						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.17	B	2.25	B	2.04	B	2.12	B
Bicycle LOS Score / LOS	1.01	A	0.70	A	1.78	B	1.91	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Back'd SAT w/ DELDOT Project	PHF	0.97		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4BSimp.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	165	50	41	25	77	142	39	617	47	147	518	181

Signal Information														
Cycle, s	78.4	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	2.9	3.5	27.0	6.9	10.1	0.0				
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0				
				Red	2.0	0.0	2.0	2.0	2.0	0.0				

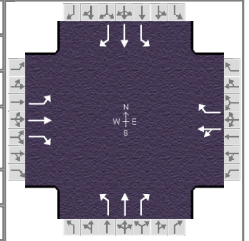
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		17.1		13.9	9.9	34.0	13.4	37.5
Change Period, (Y+R _c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.1		5.2	4.1	5.0	4.1	5.1
Queue Clearance Time (g _s), s		9.8		6.8	3.2	29.0	6.5	23.5
Green Extension Time (g _e), s		0.4		0.3	0.0	0.0	0.2	2.1
Phase Call Probability		1.00		0.98	0.58	1.00	0.96	1.00
Max Out Probability		1.00		1.00	0.41	1.00	0.74	0.76

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	170	52	29		105	68	40	636	30	152	534	113
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483		1688	1460	1667	1723	1483	1667	1723	1471
Queue Service Time (g _s), s	7.8	2.1	1.4		4.8	3.5	1.2	27.0	1.1	4.5	21.5	4.0
Cycle Queue Clearance Time (g _c), s	7.8	2.1	1.4		4.8	3.5	1.2	27.0	1.1	4.5	21.5	4.0
Green Ratio (g/C)	0.13	0.13	0.13		0.09	0.09	0.38	0.34	0.34	0.43	0.39	0.39
Capacity (c), veh/h	215	225	191		148	128	233	593	511	228	670	573
Volume-to-Capacity Ratio (X)	0.792	0.229	0.151		0.710	0.531	0.173	1.072	0.059	0.664	0.797	0.198
Back of Queue (Q), ft/ln (95 th percentile)	170.7	40	22.2		102.9	62.4	20.1	715.6	16.8	79.3	375.5	62.5
Back of Queue (Q), veh/ln (95 th percentile)	6.8	1.6	0.9		4.0	2.5	0.8	28.2	0.7	3.2	14.8	2.5
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	33.1	30.7	30.3		34.8	34.2	18.0	25.7	17.2	18.8	21.2	15.9
Incremental Delay (d ₂), s/veh	13.1	0.7	0.5		8.6	4.8	0.3	57.8	0.2	3.3	9.5	0.8
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	46.3	31.4	30.9		43.4	39.0	18.4	83.5	17.4	22.1	30.7	16.6
Level of Service (LOS)	D	C	C		D	D	B	F	B	C	C	B
Approach Delay, s/veh / LOS	41.4		D	41.7		D	77.0		E	27.1		C
Intersection Delay, s/veh / LOS	48.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.24	B	2.02	B	2.11	B
Bicycle LOS Score / LOS	0.90	A	0.77	A	1.65	B	1.81	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Total AM w/ DELDOT Project	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4TAimp.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	109	24	46	79	95	112	67	517	35	58	579	156

Signal Information														
Cycle, s	80.5	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.8	0.2	30.0	10.7	7.7	0.0				
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0				
				Red	2.0	0.0	2.0	2.0	2.0	0.0				

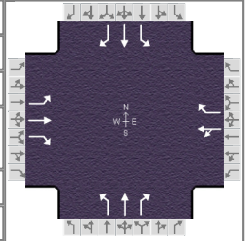
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		14.7		17.7	11.0	37.2	10.8	37.0
Change Period, (Y+R _c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.1		5.1	4.1	5.0	4.1	5.1
Queue Clearance Time (g _s), s		7.6		10.8	4.1	27.8	3.9	32.0
Green Extension Time (g _e), s		0.3		0.0	0.0	0.0	0.1	0.0
Phase Call Probability		0.98		0.99	0.80	1.00	0.76	1.00
Max Out Probability		0.85		1.00	1.00	1.00	0.03	1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	118	26	23		189	16	73	562	30	63	629	123
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1600	1483		1684	1460	1667	1654	1379	1641	1682	1460
Queue Service Time (g _s), s	5.6	1.2	1.1		8.8	0.8	2.1	25.8	1.1	1.9	30.0	4.6
Cycle Queue Clearance Time (g _c), s	5.6	1.2	1.1		8.8	0.8	2.1	25.8	1.1	1.9	30.0	4.6
Green Ratio (g/C)	0.10	0.10	0.10		0.13	0.13	0.42	0.38	0.38	0.42	0.37	0.37
Capacity (c), veh/h	160	153	142		225	195	173	622	518	192	627	544
Volume-to-Capacity Ratio (X)	0.741	0.170	0.160		0.842	0.084	0.422	0.904	0.059	0.329	1.004	0.226
Back of Queue (Q), ft/ln (95 th percentile)	116.6	23.8	19.1		219	12.9	37	483.4	17.8	31.9	629.5	73.6
Back of Queue (Q), veh/ln (95 th percentile)	4.7	0.9	0.8		8.6	0.5	1.5	18.3	0.7	1.3	24.2	2.9
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	35.4	33.4	33.4		34.0	30.6	19.6	23.7	16.0	19.2	25.2	17.3
Incremental Delay (d ₂), s/veh	9.2	0.7	0.7		24.0	0.3	1.6	18.9	0.2	1.0	36.9	1.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	44.6	34.2	34.1		58.1	30.8	21.2	42.7	16.2	20.2	62.1	18.2
Level of Service (LOS)	D	C	C		E	C	C	D	B	C	F	B
Approach Delay, s/veh / LOS	41.6		D	55.9		E	39.1		D	52.2		D
Intersection Delay, s/veh / LOS	47.0						D					

Multimodal Results	EB		WB		NB		SB	
	Pedestrian LOS Score / LOS	2.14	B	2.21	B	2.05	B	2.13
Bicycle LOS Score / LOS	0.76	A	0.83	A	1.59	B	1.83	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Total PM w/ DELDOT Project	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4TP.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	218	52	69	46	51	109	62	664	89	128	575	224

Signal Information																						
Cycle, s	82.0	Reference Phase	2																			
Offset, s	0	Reference Point	End																			
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.9	2.4	27.6	7.0	13.0	0.0												
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0												
				Red	2.0	0.0	2.0	2.0	2.0	0.0												

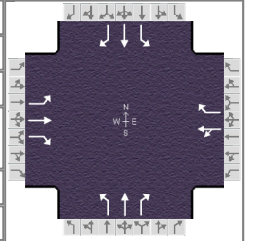
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		20.0		14.0	10.9	34.6	13.3	37.0
Change Period, (Y+R _c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.2		5.1	4.1	5.1	4.1	5.1
Queue Clearance Time (g _s), s		13.4		7.3	4.1	29.6	6.5	32.0
Green Extension Time (g _e), s		0.0		0.2	0.0	0.0	0.2	0.0
Phase Call Probability		1.00		0.95	0.78	1.00	0.96	1.00
Max Out Probability		1.00		1.00	1.00	1.00	0.71	1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	237	57	61		105	23	67	722	58	139	625	166
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1709	1356		1603	1471	1667	1736	1298	1641	1695	1414
Queue Service Time (g _s), s	11.4	2.4	3.2		5.3	1.2	2.1	27.6	2.5	4.5	30.0	6.9
Cycle Queue Clearance Time (g _c), s	11.4	2.4	3.2		5.3	1.2	2.1	27.6	2.5	4.5	30.0	6.9
Green Ratio (g/C)	0.16	0.16	0.16		0.09	0.09	0.38	0.34	0.34	0.41	0.37	0.37
Capacity (c), veh/h	264	271	215		138	126	168	585	437	214	621	517
Volume-to-Capacity Ratio (X)	0.896	0.209	0.283		0.766	0.181	0.402	1.235	0.132	0.649	1.007	0.321
Back of Queue (Q), ft/ln (95 th percentile)	272.6	45.1	53.1		117.3	20.1	37.6	1116.9	40.6	80	635.3	111.8
Back of Queue (Q), veh/ln (95 th percentile)	10.9	1.8	2.0		4.4	0.8	1.5	44.3	1.4	3.1	24.6	4.3
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	33.8	30.0	30.4		36.7	34.8	20.8	27.2	18.9	20.0	26.0	18.7
Incremental Delay (d ₂), s/veh	30.5	0.5	1.0		11.8	1.0	1.6	119.8	0.6	3.3	37.9	1.6
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	64.3	30.5	31.4		48.5	35.7	22.4	147.0	19.5	23.3	63.9	20.3
Level of Service (LOS)	E	C	C		D	D	C	F	B	C	F	C
Approach Delay, s/veh / LOS	53.3		D	46.2		D	128.4		F	50.0		D
Intersection Delay, s/veh / LOS	79.7						E					

Multimodal Results	EB		WB		NB		SB	
	Pedestrian LOS Score / LOS	2.17	B	2.25	B	2.04	B	2.12
Bicycle LOS Score / LOS	1.07	A	0.70	A	1.88	B	2.02	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group, Inc			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Total SAT w/ DELDOT Project	PHF	0.97		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	DE 24 at Oak Orchard R...	File Name	4TS.xus				
Project Description	Patriots Glen						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	165	50	69	25	77	142	63	661	47	147	570	181

Signal Information																
Cycle, s	78.9	Reference Phase	2													
Offset, s	0	Reference Point	End													
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.8	2.6	27.4	6.9	10.2	0.0						
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0						
				Red	2.0	0.0	2.0	2.0	2.0	0.0						

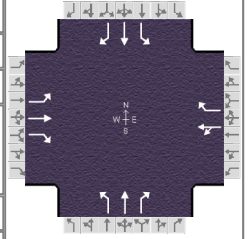
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		17.2		13.9	10.8	34.4	13.4	37.0
Change Period, ($Y+R_c$), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.2		5.2	4.1	5.0	4.1	5.1
Queue Clearance Time (g_s), s		9.8		6.8	3.9	29.4	6.5	27.3
Green Extension Time (g_e), s		0.4		0.3	0.0	0.0	0.2	1.1
Phase Call Probability		1.00		0.98	0.76	1.00	0.96	1.00
Max Out Probability		1.00		1.00	1.00	1.00	0.75	1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	170	52	58		105	68	65	681	30	152	588	113
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483		1688	1460	1667	1723	1483	1667	1723	1471
Queue Service Time (g_s), s	7.8	2.1	2.8		4.8	3.5	1.9	27.4	1.1	4.5	25.3	4.1
Cycle Queue Clearance Time (g_c), s	7.8	2.1	2.8		4.8	3.5	1.9	27.4	1.1	4.5	25.3	4.1
Green Ratio (g/C)	0.13	0.13	0.13		0.09	0.09	0.39	0.35	0.35	0.43	0.38	0.38
Capacity (c), veh/h	216	227	192		148	128	200	597	514	227	655	559
Volume-to-Capacity Ratio (X)	0.788	0.227	0.301		0.711	0.532	0.325	1.142	0.058	0.667	0.898	0.203
Back of Queue (Q), ft/ln (95 th percentile)	171.2	40.2	46		103.7	62.8	33.1	882.8	16.8	79.8	465.7	64.2
Back of Queue (Q), veh/ln (95 th percentile)	6.8	1.6	1.8		4.1	2.5	1.3	34.8	0.7	3.2	18.3	2.5
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	33.3	30.8	31.1		35.0	34.5	19.2	25.8	17.2	18.9	23.0	16.4
Incremental Delay (d_2), s/veh	12.9	0.7	1.2		8.6	4.8	0.9	82.5	0.2	3.3	17.5	0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	46.2	31.5	32.4		43.7	39.3	20.2	108.3	17.4	22.3	40.5	17.3
Level of Service (LOS)	D	C	C		D	D	C	F	B	C	D	B
Approach Delay, s/veh / LOS	40.7		D	41.9		D	97.4		F	34.2		C
Intersection Delay, s/veh / LOS	59.3						E					

Multimodal Results	EB		WB		NB		SB	
	Pedestrian LOS Score / LOS	2.15	B	2.24	B	2.02	B	2.12
Bicycle LOS Score / LOS	0.95	A	0.77	A	1.77	B	1.89	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	The Traffic Group, Inc			Duration, h	0.250
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other
Jurisdiction	DELDOT	Time Period	Total AM w/ DELDOT Project & Imp	PHF	0.92
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00
Intersection	DE 24 at Oak Orchard R...	File Name	4TAimp.xus		
Project Description	Patriots Glen				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	109	24	46	79	95	112	67	517	35	58	579	156

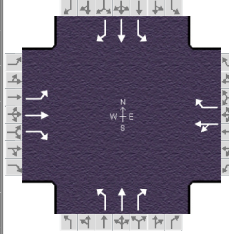
Signal Information													
Cycle, s	80.6	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.8	0.2	30.0	10.8	7.7	0.0			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0			
				Red	2.0	0.0	2.0	2.0	2.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		14.7		17.8	11.0	37.2	10.8	37.0
Change Period, (Y+R _c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.1		5.1	4.1	5.0	4.1	5.1
Queue Clearance Time (g _s), s		7.6		10.8	4.1	27.9	3.9	32.0
Green Extension Time (g _e), s		0.3		0.1	0.0	0.0	0.1	0.0
Phase Call Probability		0.98		0.99	0.80	1.00	0.76	1.00
Max Out Probability		0.86		1.00	1.00	1.00	0.03	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	118	26	23		189	16	73	562	30	63	629	123
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1600	1483		1684	1460	1667	1654	1379	1641	1682	1460
Queue Service Time (g _s), s	5.6	1.2	1.1		8.8	0.8	2.1	25.9	1.1	1.9	30.0	4.6
Cycle Queue Clearance Time (g _c), s	5.6	1.2	1.1		8.8	0.8	2.1	25.9	1.1	1.9	30.0	4.6
Green Ratio (g/C)	0.10	0.10	0.10		0.13	0.13	0.42	0.38	0.38	0.42	0.37	0.37
Capacity (c), veh/h	160	153	142		226	196	173	621	518	191	626	544
Volume-to-Capacity Ratio (X)	0.741	0.170	0.161		0.836	0.083	0.422	0.905	0.059	0.330	1.005	0.226
Back of Queue (Q), ft/ln (95 th percentile)	116.7	23.8	19.2		212.3	12.9	37.1	484.7	17.8	32	631.9	73.7
Back of Queue (Q), veh/ln (95 th percentile)	4.7	0.9	0.8		8.4	0.5	1.5	18.4	0.7	1.3	24.3	2.9
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	35.5	33.5	33.4		34.0	30.5	19.6	23.8	16.1	19.3	25.3	17.3
Incremental Delay (d ₂), s/veh	9.2	0.7	0.7		20.8	0.3	1.6	19.1	0.2	1.0	37.2	1.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	44.7	34.2	34.2		54.8	30.8	21.3	42.9	16.3	20.3	62.5	18.3
Level of Service (LOS)	D	C	C		D	C	C	D	B	C	F	B
Approach Delay, s/veh / LOS	41.6		D	52.9		D	39.3		D	52.6		D
Intersection Delay, s/veh / LOS	46.9						D					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.14		B	2.21		B	2.05		B	2.13		B
Bicycle LOS Score / LOS	0.76		A	0.83		A	1.59		B	1.83		B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Traffic Group, Inc			Duration, h	0.250	
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other	
Jurisdiction	DELDOT	Time Period	Total PM w/ DELDOT Project & Imp	PHF	0.92	
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00	
Intersection	DE 24 at Oak Orchard R...	File Name	4TPimp.xus			
Project Description	Patriots Glen					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	218	52	69	46	51	109	62	664	89	128	575	224

Signal Information													
Cycle, s	95.3	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	4.2	2.5	37.0	8.0	15.6	0.0			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0			
				Red	2.0	0.0	2.0	2.0	2.0	0.0			

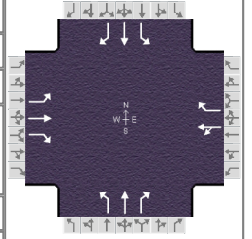
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		22.6		15.0	11.2	44.0	13.7	46.5
Change Period, (Y+R _c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.2		5.1	4.1	5.1	4.1	5.1
Queue Clearance Time (g _s), s		15.2		8.1	4.3	39.0	6.8	34.6
Green Extension Time (g _e), s		0.4		0.2	0.0	0.0	0.0	1.2
Phase Call Probability		1.00		0.97	0.83	1.00	0.97	1.00
Max Out Probability		1.00		1.00	1.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	237	57	61		105	23	67	722	58	139	625	166
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1709	1356		1603	1471	1667	1736	1298	1641	1695	1414
Queue Service Time (g _s), s	13.2	2.7	3.7		6.1	1.4	2.3	37.0	2.7	4.8	32.6	7.4
Cycle Queue Clearance Time (g _c), s	13.2	2.7	3.7		6.1	1.4	2.3	37.0	2.7	4.8	32.6	7.4
Green Ratio (g/C)	0.16	0.16	0.16		0.08	0.08	0.43	0.39	0.39	0.46	0.41	0.41
Capacity (c), veh/h	272	279	221		135	124	190	674	504	190	703	586
Volume-to-Capacity Ratio (X)	0.870	0.202	0.275		0.780	0.184	0.354	1.070	0.114	0.731	0.889	0.284
Back of Queue (Q), ft/ln (95 th percentile)	282.9	53	62.2		139.3	23.7	40.1	868.6	43.2	103.5	560.5	119.3
Back of Queue (Q), veh/ln (95 th percentile)	11.3	2.1	2.3		5.2	0.9	1.6	34.5	1.5	4.1	21.7	4.6
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	38.9	34.5	34.9		42.7	40.6	21.9	29.1	18.6	22.5	25.8	18.5
Incremental Delay (d ₂), s/veh	22.9	0.5	0.9		14.0	1.0	1.1	54.9	0.5	10.8	15.6	1.2
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	61.7	35.0	35.8		56.7	41.6	23.0	84.1	19.1	33.2	41.5	19.7
Level of Service (LOS)	E	C	D		E	D	C	F	B	C	D	B
Approach Delay, s/veh / LOS	53.0		D	54.0		D	74.8		E	36.3		D
Intersection Delay, s/veh / LOS	54.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.18	B	2.25	B	2.04	B	2.12	B
Bicycle LOS Score / LOS	1.07	A	0.70	A	1.88	B	2.02	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	The Traffic Group, Inc			Duration, h	0.250
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other
Jurisdiction	DELDOT	Time Period	Total SAT w/ DELDOT Project & Imp	PHF	0.97
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00
Intersection	DE 24 at Oak Orchard R...	File Name	4TSimp.xus		
Project Description	Patriots Glen				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	165	50	69	25	77	142	63	661	47	147	570	181

Signal Information													
Cycle, s	90.7	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	4.0	2.7	37.0	7.7	11.3	0.0			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	5.0	0.0	5.0	5.0	5.0	0.0			
				Red	2.0	0.0	2.0	2.0	2.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		11.0	1.1	3.0	1.1	3.0
Phase Duration, s		18.3		14.7	11.0	44.0	13.7	46.7
Change Period, (Y+R _c), s		7.0		7.0	7.0	7.0	7.0	7.0
Max Allow Headway (MAH), s		5.2		5.2	4.1	5.0	4.1	5.1
Queue Clearance Time (g _s), s		11.0		7.5	4.0	37.1	6.7	28.4
Green Extension Time (g _e), s		0.3		0.2	0.0	0.0	0.2	0.7
Phase Call Probability		1.00		0.99	0.81	1.00	0.98	1.00
Max Out Probability		1.00		1.00	1.00	1.00	0.87	1.00

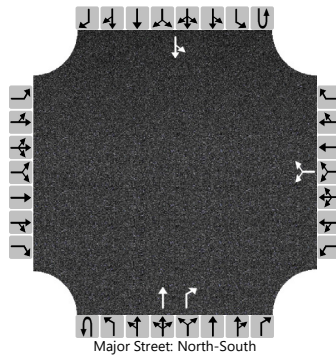
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	170	52	58		105	68	65	681	30	152	588	113
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483		1688	1460	1667	1723	1483	1667	1723	1471
Queue Service Time (g _s), s	9.0	2.4	3.2		5.5	4.1	2.0	35.1	1.1	4.7	26.4	4.3
Cycle Queue Clearance Time (g _c), s	9.0	2.4	3.2		5.5	4.1	2.0	35.1	1.1	4.7	26.4	4.3
Green Ratio (g/C)	0.12	0.12	0.12		0.08	0.08	0.45	0.41	0.41	0.48	0.44	0.44
Capacity (c), veh/h	208	218	185		143	123	258	703	605	219	754	644
Volume-to-Capacity Ratio (X)	0.819	0.236	0.312		0.737	0.552	0.252	0.969	0.049	0.693	0.779	0.176
Back of Queue (Q), ft/ln (95 th percentile)	206	47.4	54.3		122.5	73.5	33.9	652.8	17.4	85.5	433.2	66.4
Back of Queue (Q), veh/ln (95 th percentile)	8.2	1.9	2.2		4.8	2.9	1.4	25.7	0.7	3.4	17.1	2.6
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	38.7	35.8	36.1		40.5	39.9	18.1	26.3	16.2	20.8	21.8	15.5
Incremental Delay (d ₂), s/veh	19.1	0.8	1.4		10.6	5.4	0.5	27.2	0.2	4.2	7.8	0.6
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	57.8	36.6	37.5		51.1	45.2	18.6	53.5	16.4	25.0	29.6	16.1
Level of Service (LOS)	E	D	D		D	D	B	D	B	C	C	B
Approach Delay, s/veh / LOS	49.7		D	48.8		D	49.2		D	27.0		C
Intersection Delay, s/veh / LOS	40.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.16	B	2.25	B	2.02	B	2.11	B
Bicycle LOS Score / LOS	0.95	A	0.77	A	1.77	B	1.89	B

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Sea. Adj. EA			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)						10		12			620	7		6	475	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

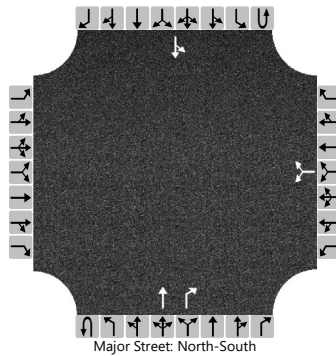
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						24									7	
Capacity, c (veh/h)						292									921	
v/c Ratio						0.08									0.01	
95% Queue Length, Q ₉₅ (veh)						0.3									0.0	
Control Delay (s/veh)						18.4									8.9	
Level of Service (LOS)						C									A	
Approach Delay (s/veh)					18.4								0.2			
Approach LOS					C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Sea. Adj. EP			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)						5		18			708	19		13	684	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized										No						
Median Type Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

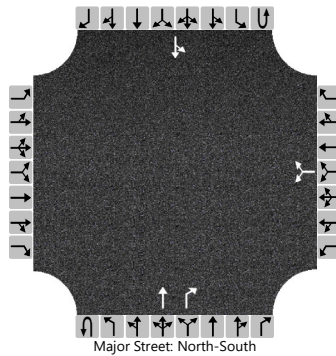
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						25								14			
Capacity, c (veh/h)						271								839			
v/c Ratio						0.09								0.02			
95% Queue Length, Q ₉₅ (veh)						0.3								0.1			
Control Delay (s/veh)						19.6								9.4			
Level of Service (LOS)						C								A			
Approach Delay (s/veh)						19.6								0.4			
Approach LOS						C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Sea. Adj. ES			Peak Hour Factor	0.95		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)						8		29			799	16		21	695	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

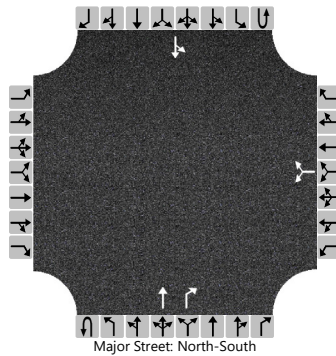
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						39									22	
Capacity, c (veh/h)						244									791	
v/c Ratio						0.16									0.03	
95% Queue Length, Q ₉₅ (veh)						0.6									0.1	
Control Delay (s/veh)						22.6									9.7	
Level of Service (LOS)						C									A	
Approach Delay (s/veh)					22.6								0.7			
Approach LOS					C											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	RH	Intersection	Del Tr. 24 @ Region Rd
Agency/Co.	The Traffic Group, Inc	Jurisdiction	Sessex County, Delaware
Date Performed	4/24/2020	East/West Street	Region Rd
Analysis Year	2020	North/South Street	Del Rt. 24
Time Analyzed	Back'd AM	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	2019-1210 Patriots Glen		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)						77		13			713	31		6	621	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

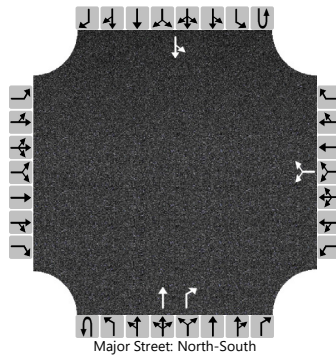
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						98									7	
Capacity, c (veh/h)						156									826	
v/c Ratio						0.63									0.01	
95% Queue Length, Q ₉₅ (veh)						3.4									0.0	
Control Delay (s/veh)						60.7									9.4	
Level of Service (LOS)						F									A	
Approach Delay (s/veh)					60.7								0.2			
Approach LOS					F											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Back'd PM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)							59		19			894	103		14	827
Percent Heavy Vehicles (%)							0		0						0	
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized											No					
Median Type Storage							Undivided									

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

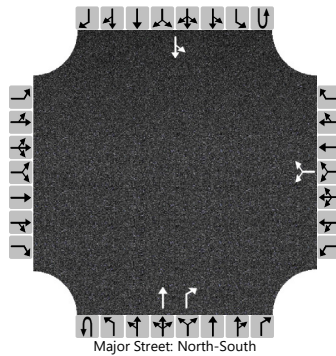
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						85								15		
Capacity, c (veh/h)						90								651		
v/c Ratio						0.94								0.02		
95% Queue Length, Q ₉₅ (veh)						5.3								0.1		
Control Delay (s/veh)						162.9								10.7		
Level of Service (LOS)						F								B		
Approach Delay (s/veh)						162.9								0.7		
Approach LOS						F								B		

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH	Intersection	Del Tr. 24 @ Region Rd				
Agency/Co.	The Traffic Group, Inc	Jurisdiction	Sessex County, Delaware				
Date Performed	4/24/2020	East/West Street	Region Rd				
Analysis Year	2020	North/South Street	Del Rt. 24				
Time Analyzed	Back'd Sat	Peak Hour Factor	0.95				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes	0	0	0		0	1	0		0	0	1	1	0	0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)						69		30			968	86		22	849	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

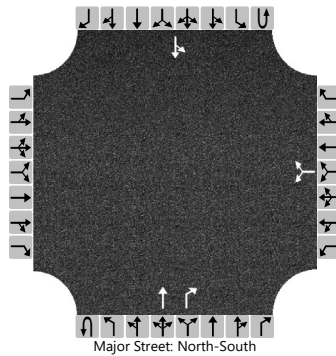
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						104								23		
Capacity, c (veh/h)						86								637		
v/c Ratio						1.22								0.04		
95% Queue Length, Q ₉₅ (veh)						7.5								0.1		
Control Delay (s/veh)						254.7								10.9		
Level of Service (LOS)						F								B		
Approach Delay (s/veh)					254.7								1.0			
Approach LOS					F											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Total AM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)						77		13			771	31		6	640	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized										No						
Median Type Storage					Undivided											

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

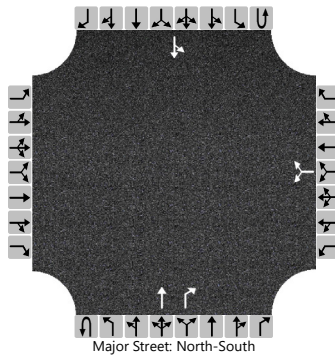
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						98								7		
Capacity, c (veh/h)						139								782		
v/c Ratio						0.71								0.01		
95% Queue Length, Q ₉₅ (veh)						4.0								0.0		
Control Delay (s/veh)						77.1								9.6		
Level of Service (LOS)						F								A		
Approach Delay (s/veh)						77.1								0.2		
Approach LOS						F										

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Total PM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0		0	1	1		0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)						59		19			932	103		14	892	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized									No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

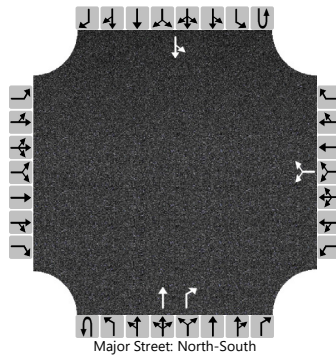
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						85								15		
Capacity, c (veh/h)						77								628		
v/c Ratio						1.11								0.02		
95% Queue Length, Q ₉₅ (veh)						6.2								0.1		
Control Delay (s/veh)						230.1								10.9		
Level of Service (LOS)						F								B		
Approach Delay (s/veh)					230.1								0.7			
Approach LOS					F											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Total Sat			Peak Hour Factor	0.95		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	1	0	0	1	0
Configuration							LR				T	R		LT		
Volume (veh/h)						69		30			1012	86		22	901	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized										No						
Median Type Storage					Undivided											

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

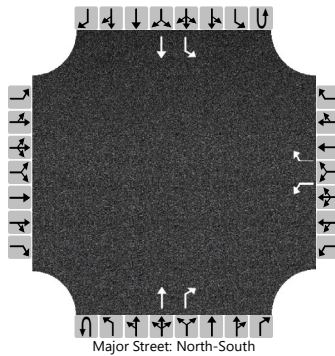
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						104								23		
Capacity, c (veh/h)						74								612		
v/c Ratio						1.41								0.04		
95% Queue Length, Q ₉₅ (veh)						8.4								0.1		
Control Delay (s/veh)						343.0								11.1		
Level of Service (LOS)						F								B		
Approach Delay (s/veh)						343.0								1.1		
Approach LOS						F										

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Total AM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						77		13			771	31		6	640	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

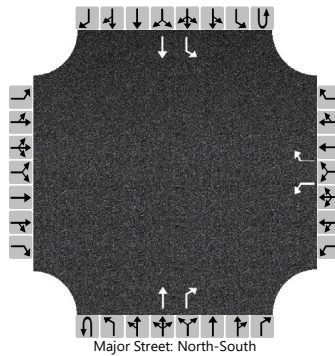
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						84		14							7	
Capacity, c (veh/h)						126		369							782	
v/c Ratio						0.66		0.04							0.01	
95% Queue Length, Q ₉₅ (veh)						3.5		0.1							0.0	
Control Delay (s/veh)						77.3		15.1							9.6	
Level of Service (LOS)						F		C							A	
Approach Delay (s/veh)					68.3								0.1			
Approach LOS					F											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Del Tr. 24 @ Region Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Region Rd		
Analysis Year	2020			North/South Street	Del Rt. 24		
Time Analyzed	Total PM w/imp			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						59		19			932	103		14	892	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

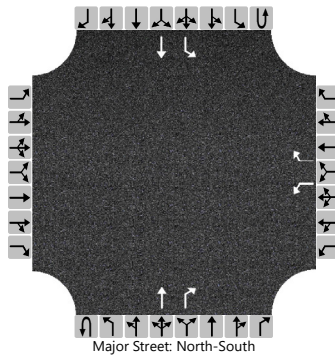
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						64		21						15		
Capacity, c (veh/h)						64		293						628		
v/c Ratio						1.00		0.07						0.02		
95% Queue Length, Q ₉₅ (veh)						4.9		0.2						0.1		
Control Delay (s/veh)						222.1		18.2						10.9		
Level of Service (LOS)						F		C						B		
Approach Delay (s/veh)					172.4								0.2			
Approach LOS					F											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	RH	Intersection	Del Tr. 24 @ Region Rd
Agency/Co.	The Traffic Group, Inc	Jurisdiction	Sessex County, Delaware
Date Performed	4/24/2020	East/West Street	Region Rd
Analysis Year	2020	North/South Street	Del Rt. 24
Time Analyzed	Total Sat w/imp	Peak Hour Factor	0.95
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	2019-1210 Patriots Glen		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1		0	1	1		0	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						69		30			1012	86		22	901	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No				No							
Median Type Storage	Undivided															

Critical and Follow-up Headways

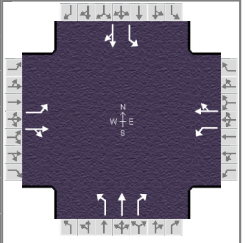
Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						73		32							23	
Capacity, c (veh/h)						59		273							612	
v/c Ratio						1.23		0.12							0.04	
95% Queue Length, Q ₉₅ (veh)						6.2		0.4							0.1	
Control Delay (s/veh)						310.8		19.9							11.1	
Level of Service (LOS)						F		C							B	
Approach Delay (s/veh)					222.6								0.3			
Approach LOS					F											

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Sea. Adj EX AM	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	De 24 at Bay Farm/Autu...	File Name	6EA.xus				
Project Description	DELDOT						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	4	7	4	168	4	106	5	454	201	107	319	6

Signal Information				Signal Phases									
Cycle, s	55.3	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	0.4	3.8	20.1	0.3	2.0	0.7			
Uncoordinated	Yes	Simult. Gap E/W	Off	Yellow	3.0	0.0	5.0	3.0	3.0	4.0			
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.0	0.0	2.0	2.0	2.0	2.0			

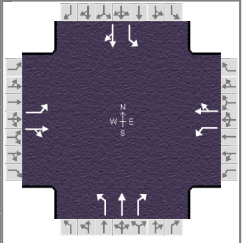
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	5.3	6.7	12.3	13.7	5.4	27.1	9.2	30.9
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.1	4.1	4.4	4.1	6.1	4.1	6.0
Queue Clearance Time (g _s), s	2.1	2.3	7.6	3.8	2.1	17.9	4.6	10.6
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0	0.0	2.3	0.1	2.1
Phase Call Probability	0.06	0.14	0.94	0.54	0.08	1.00	0.83	1.00
Max Out Probability	0.00	0.01	1.00	0.38	0.00	1.00	0.31	0.18

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	4	10		183	50		5	493	160	116	353	
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1683		1654	1374		1407	1586	1448	1485	1649	
Queue Service Time (g _s), s	0.1	0.3		5.6	1.8		0.1	15.9	4.4	2.6	8.6	
Cycle Queue Clearance Time (g _c), s	0.1	0.3		5.6	1.8		0.1	15.9	4.4	2.6	8.6	
Green Ratio (g/C)	0.02	0.01		0.18	0.14		0.37	0.36	0.36	0.45	0.43	
Capacity (c), veh/h	157	21		358	191		353	578	528	305	713	
Volume-to-Capacity Ratio (X)	0.028	0.459		0.510	0.262		0.015	0.854	0.303	0.381	0.495	
Back of Queue (Q), ft/ln (95 th percentile)	2.5	9.2		93.2	27.6		1.9	295.9	59.4	36.5	130.6	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	0.4		3.7	1.0		0.1	10.8	2.3	1.3	4.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	26.7	27.1		20.9	21.3		11.4	16.2	12.6	11.9	11.3	
Incremental Delay (d ₂), s/veh	0.1	14.6		1.1	0.7		0.0	11.3	0.7	0.8	1.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	26.8	41.8		22.0	22.0		11.4	27.5	13.2	12.7	12.5	
Level of Service (LOS)	C	D		C	C		B	C	B	B	B	
Approach Delay, s/veh / LOS	37.1		D	22.0		C	23.9		C	12.5		B
Intersection Delay, s/veh / LOS	19.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.20	B	1.92	B	1.99	B	1.89	B
Bicycle LOS Score / LOS	0.51	A	0.87	A	1.57	B	1.26	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Sea. Adj EX PM	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	De 24 at Bay Farm/Autu...	File Name	6EP.xus				
Project Description	DELDOT						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	90	88	27	213	16	149	10	467	207	132	476	52

Signal Information													
Cycle, s	70.1	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	1.0	4.6	25.0	5.0	0.5	6.1			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	0.0	5.0	3.0	3.0	4.0			
				Red	2.0	0.0	2.0	2.0	2.0	2.0			

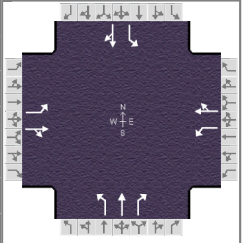
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	10.0	12.1	15.4	17.6	6.0	32.0	10.5	36.6
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.1	4.1	4.3	4.1	6.1	4.1	6.1
Queue Clearance Time (g _s), s	5.7	6.8	10.3	5.7	2.3	21.0	5.6	22.9
Green Extension Time (g _e), s	0.1	0.1	0.2	0.1	0.0	4.0	0.2	3.2
Phase Call Probability	0.85	0.89	0.99	0.82	0.19	1.00	0.94	1.00
Max Out Probability	0.05	1.00	1.00	1.00	0.00	0.51	0.07	0.62

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	98	115		232	88		11	508	147	143	572	
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1658		1667	1481		1667	1709	1471	1641	1680	
Queue Service Time (g _s), s	3.7	4.8		8.3	3.7		0.3	19.0	5.0	3.6	20.9	
Cycle Queue Clearance Time (g _c), s	3.7	4.8		8.3	3.7		0.3	19.0	5.0	3.6	20.9	
Green Ratio (g/C)	0.16	0.09		0.26	0.17		0.37	0.36	0.36	0.46	0.42	
Capacity (c), veh/h	333	145		376	245		207	611	526	308	710	
Volume-to-Capacity Ratio (X)	0.294	0.795		0.616	0.359		0.052	0.831	0.279	0.465	0.806	
Back of Queue (Q), ft/ln (95 th percentile)	63.9	106		144.9	59.9		4.8	329.7	73.6	57.5	338.7	
Back of Queue (Q), veh/ln (95 th percentile)	2.6	4.1		5.8	2.3		0.2	12.9	2.9	2.3	13.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	26.4	31.4		22.4	26.0		16.4	20.6	16.1	14.9	17.7	
Incremental Delay (d ₂), s/veh	0.5	12.0		2.0	0.9		0.1	8.2	0.6	1.1	7.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	26.9	43.4		24.4	26.9		16.5	28.8	16.7	16.0	24.8	
Level of Service (LOS)	C	D		C	C		B	C	B	B	C	
Approach Delay, s/veh / LOS	35.8		D	25.1		C	25.9		C	23.0		C
Intersection Delay, s/veh / LOS	25.8						C					

Multimodal Results	EB		WB		NB		SB	
	Pedestrian LOS Score / LOS	2.23	B	1.93	B	2.02	B	1.91
Bicycle LOS Score / LOS	0.84	A	1.01	A	1.59	B	1.67	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Sea. Adj EX SAT	PHF	0.96		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	De 24 at Bay Farm/Autu...	File Name	6ES.xus				
Project Description	DELDOT						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	1	11	10	198	10	203	13	597	175	195	522	10

Signal Information													
Cycle, s	69.6	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	1.2	0.6	28.3	0.1	4.9	1.5			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	3.0	5.0	3.0	3.0	4.0			
				Red	2.0	2.0	2.0	2.0	2.0	2.0			

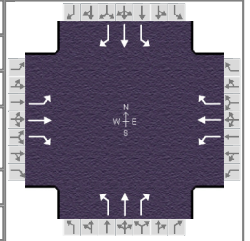
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	4.0
Phase Duration, s	5.1	7.5	15.0	17.4	6.2	35.3	11.8	40.9
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.2	4.1	4.4	4.1	6.1	4.1	6.0
Queue Clearance Time (g _s), s	2.0	2.8	10.0	6.6	2.3	24.8	6.6	18.8
Green Extension Time (g _e), s	0.0	0.0	0.2	0.1	0.0	3.5	0.3	3.8
Phase Call Probability	0.02	0.30	0.98	0.88	0.23	1.00	0.98	1.00
Max Out Probability	0.00	0.04	1.00	1.00	0.00	0.88	0.20	0.30

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	1	19		206	109		14	622	147	203	553	
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1636		1654	1505		1667	1750	1460	1654	1731	
Queue Service Time (g _s), s	0.0	0.8		8.0	4.6		0.3	22.8	4.6	4.6	16.8	
Cycle Queue Clearance Time (g _c), s	0.0	0.8		8.0	4.6		0.3	22.8	4.6	4.6	16.8	
Green Ratio (g/C)	0.02	0.02		0.19	0.16		0.42	0.41	0.41	0.53	0.49	
Capacity (c), veh/h	134	36		356	247		321	712	594	329	844	
Volume-to-Capacity Ratio (X)	0.008	0.524		0.579	0.443		0.042	0.873	0.247	0.618	0.655	
Back of Queue (Q), ft/ln (95 th percentile)	0.8	18.6		139.5	73.2		5.1	388.2	65.6	69.5	256.5	
Back of Queue (Q), veh/ln (95 th percentile)	0.0	0.7		5.5	2.9		0.2	15.5	2.6	2.8	10.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	33.2	33.7		25.9	26.2		12.9	19.0	13.6	14.4	13.4	
Incremental Delay (d ₂), s/veh	0.0	11.3		1.5	1.2		0.1	11.1	0.5	1.9	2.5	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	33.3	45.0		27.4	27.5		13.0	30.1	14.1	16.3	16.0	
Level of Service (LOS)	C	D		C	C		B	C	B	B	B	
Approach Delay, s/veh / LOS	44.4		D	27.4		C	26.8		C	16.0		B
Intersection Delay, s/veh / LOS	22.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.18	B	1.93	B	2.05	B	1.89	B
Bicycle LOS Score / LOS	0.52	A	1.01	A	1.78	B	1.74	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Back'd AM w/ DELDOT Project	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	De 24 at Bay Farm/Autu...	File Name	6BA.xus				
Project Description	DELDOT						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	21	8	37	224	4	255	16	511	227	176	377	12

Signal Information													
Cycle, s	65.8	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	1.4	0.6	23.0	1.7	3.3	2.9			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	3.0	5.0	3.0	3.0	4.0			
				Red	2.0	2.0	2.0	2.0	2.0	2.0			

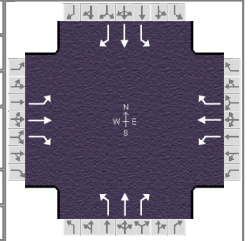
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	6.7	8.9	15.0	17.2	6.4	30.0	12.0	35.6
Change Period, ($Y+R_c$), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.3	4.1	4.4	4.1	6.1	4.1	6.0
Queue Clearance Time (g_s), s	2.9	3.7	10.8	6.4	2.5	25.0	7.0	14.3
Green Extension Time (g_e), s	0.0	0.0	0.0	0.1	0.0	0.0	0.2	2.1
Phase Call Probability	0.34	0.57	0.99	0.88	0.27	1.00	0.97	1.00
Max Out Probability	0.01	0.30	1.00	1.00	0.00	1.00	1.00	0.55

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	23	9	38	243	4	110	17	555	180	191	410	13
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483	1654	1600	1483	1407	1586	1448	1485	1654	1483
Queue Service Time (g_s), s	0.9	0.3	1.7	8.8	0.1	4.4	0.5	23.0	6.1	5.0	12.3	0.3
Cycle Queue Clearance Time (g_c), s	0.9	0.3	1.7	8.8	0.1	4.4	0.5	23.0	6.1	5.0	12.3	0.3
Green Ratio (g/C)	0.07	0.04	0.04	0.23	0.17	0.17	0.37	0.35	0.35	0.49	0.43	0.43
Capacity (c), veh/h	215	76	65	416	271	252	321	554	506	266	719	644
Volume-to-Capacity Ratio (X)	0.106	0.114	0.588	0.586	0.016	0.436	0.054	1.002	0.357	0.718	0.570	0.020
Back of Queue (Q), ft/ln (95 th percentile)	15	6.3	31.8	153.8	2.7	68	8	534.8	89	88.9	203	4.5
Back of Queue (Q), veh/ln (95 th percentile)	0.6	0.3	1.3	6.1	0.1	2.7	0.3	19.5	3.5	3.2	7.7	0.2
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	28.9	30.3	30.9	23.2	22.8	24.5	13.8	21.4	15.9	14.7	14.0	10.6
Incremental Delay (d_2), s/veh	0.2	0.7	8.2	2.1	0.0	1.2	0.1	38.8	0.9	5.4	1.8	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	29.1	30.9	39.1	25.3	22.8	25.7	13.9	60.2	16.8	20.2	15.8	10.7
Level of Service (LOS)	C	C	D	C	C	C	B	F	B	C	B	B
Approach Delay, s/veh / LOS	34.8		C	25.4		C	48.8		D	17.0		B
Intersection Delay, s/veh / LOS	32.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.21	B	2.11	B	2.31	B	2.09	B
Bicycle LOS Score / LOS	0.60	A	1.08	A	1.73	B	1.50	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Back'd PM w/ DELDOT Project	PHF	0.92		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	De 24 at Bay Farm/Autu...	File Name	6BP.xus				
Project Description	DELDOT						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	105	93	50	262	19	285	47	545	276	319	549	73

Signal Information																
Cycle, s	87.8	Reference Phase	2													
Offset, s	0	Reference Point	End													
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.6	4.4	31.9	7.1	0.9	7.0						
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	3.0	5.0	3.0	3.0	4.0						
				Red	2.0	2.0	2.0	2.0	2.0	2.0						

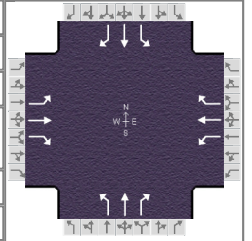
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	12.1	13.0	18.0	18.9	8.6	38.9	18.0	48.3
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.1	4.1	4.3	4.1	6.1	4.1	6.1
Queue Clearance Time (g _s), s	7.4	7.1	15.0	9.5	3.7	31.7	15.0	27.0
Green Extension Time (g _e), s	0.1	0.1	0.0	0.0	0.1	0.2	0.0	2.3
Phase Call Probability	0.94	0.97	1.00	0.98	0.71	1.00	1.00	1.00
Max Out Probability	0.27	1.00	1.00	1.00	0.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	114	101	45	285	21	135	51	592	196	347	597	77
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1709	1483	1667	1695	1483	1667	1709	1471	1641	1709	1483
Queue Service Time (g _s), s	5.4	5.1	2.5	13.0	0.9	7.5	1.7	29.7	8.6	13.0	25.0	2.6
Cycle Queue Clearance Time (g _c), s	5.4	5.1	2.5	13.0	0.9	7.5	1.7	29.7	8.6	13.0	25.0	2.6
Green Ratio (g/C)	0.16	0.08	0.08	0.25	0.15	0.15	0.40	0.36	0.36	0.53	0.47	0.47
Capacity (c), veh/h	328	135	117	357	248	217	286	620	534	345	804	698
Volume-to-Capacity Ratio (X)	0.348	0.747	0.380	0.799	0.083	0.621	0.179	0.955	0.366	1.004	0.742	0.111
Back of Queue (Q), ft/ln (95 th percentile)	98.2	116.5	42.9	263.8	17.6	132.4	28.1	568.3	133.1	364.1	388.9	37.1
Back of Queue (Q), veh/ln (95 th percentile)	3.9	4.6	1.7	10.6	0.7	5.3	1.1	22.2	5.3	14.3	15.2	1.5
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	33.3	39.6	38.4	30.4	32.4	35.2	18.0	27.3	20.6	23.3	18.9	13.0
Incremental Delay (d ₂), s/veh	0.6	12.0	2.0	12.1	0.1	5.3	0.3	25.7	0.9	49.4	4.5	0.1
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	33.9	51.6	40.4	42.5	32.5	40.5	18.3	53.0	21.5	72.6	23.4	13.1
Level of Service (LOS)	C	D	D	D	C	D	B	D	C	F	C	B
Approach Delay, s/veh / LOS	41.9		D	41.4		D	43.5		D	39.4		D
Intersection Delay, s/veh / LOS	41.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.13	B	2.33	B	2.10	B
Bicycle LOS Score / LOS	0.92	A	1.21	A	1.87	B	2.17	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Traffic Group			Duration, h	0.250		
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other		
Jurisdiction	DELDOT	Time Period	Back'd SAT w/ DELDOT Project	PHF	0.96		
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00		
Intersection	De 24 at Bay Farm/Autu...	File Name	6BS.xus				
Project Description	DELDOT						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	15	13	37	251	11	352	45	675	233	360	597	26

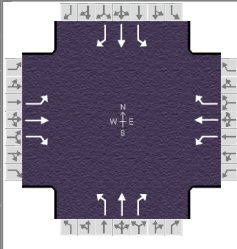
Signal Information													
Cycle, s	84.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.3	4.7	32.0	1.5	6.5	3.4			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	3.0	5.0	3.0	3.0	4.0			
				Red	2.0	2.0	2.0	2.0	2.0	2.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	6.5	9.4	18.0	20.9	8.3	39.0	18.0	48.7
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.3	4.1	4.4	4.1	6.1	4.1	6.0
Queue Clearance Time (g _s), s	2.8	4.0	14.4	11.1	3.4	34.0	15.0	25.9
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0	0.1	0.0	0.0	2.7
Phase Call Probability	0.31	0.68	1.00	0.99	0.67	1.00	1.00	1.00
Max Out Probability	0.00	0.42	1.00	1.00	0.00	1.00	1.00	0.99

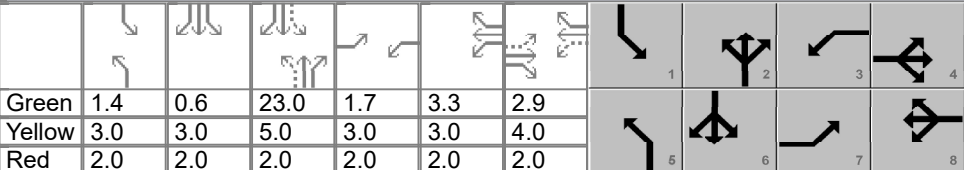
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	16	14	35	261	11	172	47	703	196	375	622	26
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483	1654	1750	1483	1667	1750	1460	1654	1736	1483
Queue Service Time (g _s), s	0.8	0.6	2.0	12.4	0.5	9.1	1.4	32.0	8.1	13.0	23.9	0.8
Cycle Queue Clearance Time (g _c), s	0.8	0.6	2.0	12.4	0.5	9.1	1.4	32.0	8.1	13.0	23.9	0.8
Green Ratio (g/C)	0.06	0.04	0.04	0.22	0.18	0.18	0.42	0.38	0.38	0.56	0.49	0.49
Capacity (c), veh/h	173	71	60	387	308	261	304	663	553	340	857	732
Volume-to-Capacity Ratio (X)	0.090	0.191	0.590	0.676	0.037	0.657	0.154	1.060	0.354	1.103	0.726	0.036
Back of Queue (Q), ft/ln (95 th percentile)	13.9	13.1	38.3	225.7	8.6	160.9	23.6	767.1	123.9	419.8	363.7	10.8
Back of Queue (Q), veh/ln (95 th percentile)	0.6	0.5	1.5	9.0	0.3	6.4	0.9	30.7	4.9	16.7	14.4	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	37.8	39.2	39.8	30.7	28.8	32.4	16.3	26.2	18.8	24.7	16.9	11.0
Incremental Delay (d ₂), s/veh	0.2	1.3	8.9	4.6	0.0	5.9	0.2	51.9	0.8	79.5	3.8	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	38.0	40.5	48.7	35.3	28.9	38.3	16.6	78.1	19.6	104.1	20.7	11.1
Level of Service (LOS)	D	D	D	D	C	D	B	F	B	F	C	B
Approach Delay, s/veh / LOS	44.4	D		36.3	D		62.9	E		51.0	D	
Intersection Delay, s/veh / LOS	52.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.20	B	2.12	B	2.37	B	2.09	B
Bicycle LOS Score / LOS	0.59	A	1.22	A	2.05	B	2.18	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Traffic Group			Duration, h	0.250	
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other	
Jurisdiction	DELDOT	Time Period	Total AM w/ DELDOT Project	PHF	0.92	
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00	
Intersection	De 24 at Bay Farm/Autu...	File Name	6TA.xus			
Project Description	DELDOT					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	21	8	37	224	4	255	16	569	227	176	396	12

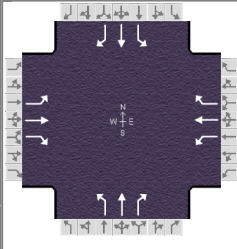
Signal Information																							
Cycle, s	65.8	Reference Phase	2	Green	1.4	0.6	23.0	1.7	3.3	2.9	Yellow	3.0	3.0	5.0	3.0	3.0	4.0	Red	2.0	2.0	2.0	2.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	Yes	Simult. Gap E/W	Off	Force Mode	Fixed	Simult. Gap N/S	Off												

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	6.7	8.9	15.0	17.2	6.4	30.0	12.0	35.6
Change Period, ($Y+R_c$), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.3	4.1	4.4	4.1	6.1	4.1	6.0
Queue Clearance Time (g_s), s	2.9	3.7	10.8	6.4	2.5	25.0	7.0	15.1
Green Extension Time (g_e), s	0.0	0.0	0.0	0.1	0.0	0.0	0.2	2.1
Phase Call Probability	0.34	0.57	0.99	0.88	0.27	1.00	0.97	1.00
Max Out Probability	0.01	0.30	1.00	1.00	0.00	1.00	1.00	0.67

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	23	9	38	243	4	110	17	618	180	191	430	13
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483	1654	1600	1483	1407	1586	1448	1485	1654	1483
Queue Service Time (g_s), s	0.9	0.3	1.7	8.8	0.1	4.4	0.5	23.0	6.1	5.0	13.1	0.3
Cycle Queue Clearance Time (g_c), s	0.9	0.3	1.7	8.8	0.1	4.4	0.5	23.0	6.1	5.0	13.1	0.3
Green Ratio (g/C)	0.07	0.04	0.04	0.23	0.17	0.17	0.37	0.35	0.35	0.49	0.43	0.43
Capacity (c), veh/h	215	76	65	416	271	252	307	554	506	266	719	644
Volume-to-Capacity Ratio (X)	0.106	0.114	0.588	0.586	0.016	0.436	0.057	1.116	0.357	0.718	0.599	0.020
Back of Queue (Q), ft/ln (95 th percentile)	15	6.3	31.8	153.8	2.7	68	8	765.3	89	88.9	215.3	4.5
Back of Queue (Q), veh/ln (95 th percentile)	0.6	0.3	1.3	6.1	0.1	2.7	0.3	27.9	3.5	3.2	8.2	0.2
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	28.9	30.3	30.9	23.2	22.8	24.5	13.9	21.4	15.9	14.7	14.2	10.6
Incremental Delay (d_2), s/veh	0.2	0.7	8.2	2.1	0.0	1.2	0.1	74.2	0.9	5.4	2.1	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	29.1	30.9	39.1	25.3	22.8	25.7	14.0	95.7	16.8	20.2	16.3	10.7
Level of Service (LOS)	C	C	D	C	C	C	B	F	B	C	B	B
Approach Delay, s/veh / LOS	34.8 C			25.4 C			76.5 E			17.4 B		
Intersection Delay, s/veh / LOS	45.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.21	B	2.11	B	2.31	B	2.09	B
Bicycle LOS Score / LOS	0.60	A	1.08	A	1.83	B	1.53	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Traffic Group			Duration, h	0.250	
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other	
Jurisdiction	DELDOT	Time Period	Total PM w/ DELDOT Project	PHF	0.92	
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00	
Intersection	De 24 at Bay Farm/Autu...	File Name	6TP.xus			
Project Description	DELDOT					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	105	93	50	262	19	285	47	583	276	319	614	73

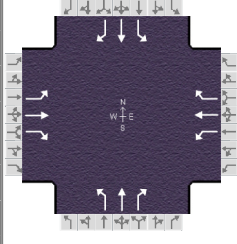
Signal Information													
Cycle, s	88.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.6	4.4	32.0	7.1	0.9	7.0			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	3.0	5.0	3.0	3.0	4.0			
				Red	2.0	2.0	2.0	2.0	2.0	2.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	12.1	13.0	18.0	18.9	8.6	39.0	18.0	48.4
Change Period, ($Y+R_c$), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.1	4.1	4.3	4.1	6.1	4.1	6.1
Queue Clearance Time (g_s), s	7.4	7.1	15.0	9.5	3.7	34.0	15.0	31.8
Green Extension Time (g_e), s	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1
Phase Call Probability	0.94	0.97	1.00	0.98	0.71	1.00	1.00	1.00
Max Out Probability	0.27	1.00	1.00	1.00	0.00	1.00	1.00	1.00

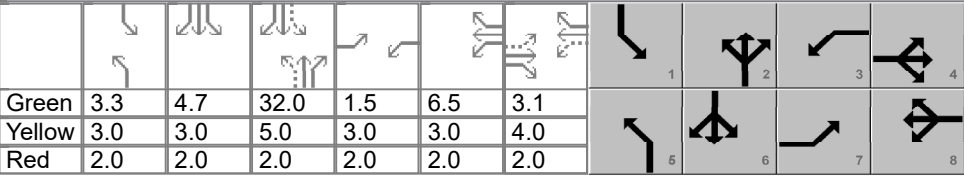
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	114	101	45	285	21	135	51	634	196	347	667	77
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1709	1483	1667	1695	1483	1667	1709	1471	1641	1709	1483
Queue Service Time (g_s), s	5.4	5.1	2.5	13.0	0.9	7.5	1.7	32.0	8.6	13.0	29.8	2.6
Cycle Queue Clearance Time (g_c), s	5.4	5.1	2.5	13.0	0.9	7.5	1.7	32.0	8.6	13.0	29.8	2.6
Green Ratio (g/C)	0.16	0.08	0.08	0.25	0.15	0.15	0.40	0.36	0.36	0.53	0.47	0.47
Capacity (c), veh/h	328	135	117	356	248	217	235	622	535	324	805	699
Volume-to-Capacity Ratio (X)	0.348	0.747	0.380	0.800	0.083	0.622	0.218	1.019	0.365	1.069	0.829	0.110
Back of Queue (Q), ft/ln (95 th percentile)	98.5	116.7	43	264.4	17.7	132.9	28.3	685.8	133.2	383.5	469.8	37.2
Back of Queue (Q), veh/ln (95 th percentile)	3.9	4.6	1.7	10.6	0.7	5.3	1.1	26.8	5.3	15.1	18.4	1.5
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	33.3	39.6	38.4	30.5	32.5	35.3	19.1	28.0	20.5	25.5	20.2	13.0
Incremental Delay (d_2), s/veh	0.6	12.0	2.0	12.2	0.1	5.4	0.5	41.0	0.9	69.5	8.0	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	34.0	51.7	40.5	42.7	32.6	40.6	19.6	69.0	21.4	95.0	28.2	13.1
Level of Service (LOS)	C	D	D	D	C	D	B	F	C	F	C	B
Approach Delay, s/veh / LOS	42.0			D			41.6			D		
Intersection Delay, s/veh / LOS	49.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.13	B	2.33	B	2.10	B
Bicycle LOS Score / LOS	0.92	A	1.21	A	1.94	B	2.29	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Traffic Group			Duration, h	0.250	
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other	
Jurisdiction	DELDOT	Time Period	Total SAT w/ DELDOT Project	PHF	0.96	
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00	
Intersection	De 24 at Bay Farm/Autu...	File Name	6TS.xus			
Project Description	DELDOT					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	15	13	37	251	11	352	45	719	233	360	649	26

Signal Information																							
Cycle, s	84.1	Reference Phase	2	Green	3.3	4.7	32.0	1.5	6.5	3.1	Yellow	3.0	3.0	5.0	3.0	3.0	4.0	Red	2.0	2.0	2.0	2.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	Yes	Simult. Gap E/W	Off	Force Mode	Fixed	Simult. Gap N/S	Off												

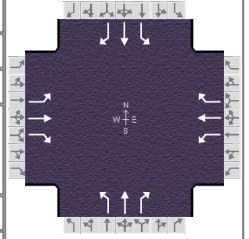
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	6.5	9.1	18.0	20.5	8.3	39.0	18.0	48.7
Change Period, ($Y+R_c$), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.3	4.1	4.4	4.1	6.1	4.1	6.0
Queue Clearance Time (g_s), s	2.8	3.5	14.4	11.1	3.4	34.0	15.0	29.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.6
Phase Call Probability	0.31	0.61	1.00	0.99	0.67	1.00	1.00	1.00
Max Out Probability	0.00	0.21	1.00	1.00	0.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB														
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16												
Adjusted Flow Rate (v), veh/h	16	14	27	261	11	172	47	749	196	375	676	26												
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483	1654	1750	1483	1667	1750	1460	1654	1736	1483												
Queue Service Time (g_s), s	0.8	0.6	1.5	12.4	0.5	9.1	1.4	32.0	8.1	13.0	27.0	0.8												
Cycle Queue Clearance Time (g_c), s	0.8	0.6	1.5	12.4	0.5	9.1	1.4	32.0	8.1	13.0	27.0	0.8												
Green Ratio (g/C)	0.05	0.04	0.04	0.21	0.17	0.17	0.42	0.38	0.38	0.56	0.50	0.50												
Capacity (c), veh/h	168	64	54	382	303	256	268	666	556	341	861	735												
Volume-to-Capacity Ratio (X)	0.093	0.212	0.501	0.684	0.038	0.670	0.175	1.124	0.352	1.098	0.785	0.035												
Back of Queue (Q), ft/ln (95 th percentile)	13.9	13.2	28.8	226.7	8.6	162.9	23.5	928.3	123.1	413.9	411.4	10.7												
Back of Queue (Q), veh/ln (95 th percentile)	0.6	0.5	1.2	9.0	0.3	6.5	0.9	37.1	4.8	16.4	16.3	0.4												
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00												
Uniform Delay (d_1), s/veh	37.9	39.3	39.7	30.8	28.9	32.5	16.9	26.0	18.6	24.6	17.5	10.9												
Incremental Delay (d_2), s/veh	0.2	1.6	7.0	5.0	0.1	6.6	0.3	74.3	0.8	77.8	5.6	0.0												
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0												
Control Delay (d), s/veh	38.2	41.0	46.8	35.8	29.0	39.1	17.2	100.4	19.4	102.4	23.1	10.9												
Level of Service (LOS)	D	D	D	D	C	D	B	F	B	F	C	B												
Approach Delay, s/veh / LOS	43.0			D			36.9			D			80.4			F			50.4			D		
Intersection Delay, s/veh / LOS	59.5												E											

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.20	B	2.12	B	2.37	B	2.10	B
Bicycle LOS Score / LOS	0.58	A	1.22	A	2.12	B	2.26	B

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	The Traffic Group			Duration, h	0.250
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other
Jurisdiction	DELDOT	Time Period	Total AM w/ DELDOT Project & Imp	PHF	0.92
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00
Intersection	De 24 at Bay Farm/Autu...	File Name	6TAimp.xus		
Project Description	DELDOT				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	21	8	37	224	4	255	16	569	227	176	396	12

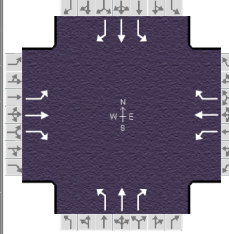
Signal Information													
Cycle, s	73.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	1.5	0.6	29.8	1.9	3.1	3.1			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	3.0	5.0	3.0	3.0	4.0			
				Red	2.0	2.0	2.0	2.0	2.0	2.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	6.9	9.1	15.0	17.2	6.5	36.8	12.1	42.4
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.3	4.1	4.4	4.1	6.1	4.1	6.0
Queue Clearance Time (g _s), s	2.9	3.8	12.0	6.9	2.5	29.6	7.0	15.2
Green Extension Time (g _e), s	0.0	0.0	0.0	0.1	0.0	0.3	0.2	3.1
Phase Call Probability	0.37	0.61	0.99	0.90	0.30	1.00	0.98	1.00
Max Out Probability	0.01	0.37	1.00	1.00	0.00	1.00	1.00	0.15

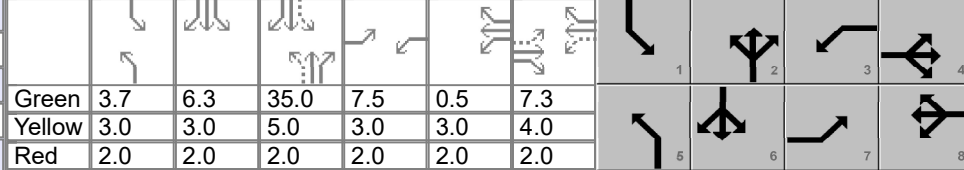
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	23	9	38	243	4	110	17	618	180	191	430	13
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483	1654	1600	1483	1407	1586	1448	1485	1654	1483
Queue Service Time (g _s), s	0.9	0.3	1.8	10.0	0.2	4.9	0.5	27.6	6.1	5.0	13.2	0.3
Cycle Queue Clearance Time (g _c), s	0.9	0.3	1.8	10.0	0.2	4.9	0.5	27.6	6.1	5.0	13.2	0.3
Green Ratio (g/C)	0.07	0.04	0.04	0.21	0.15	0.15	0.43	0.41	0.41	0.53	0.49	0.49
Capacity (c), veh/h	201	73	62	378	246	228	355	649	592	265	803	720
Volume-to-Capacity Ratio (X)	0.113	0.118	0.611	0.644	0.018	0.482	0.049	0.953	0.305	0.722	0.536	0.018
Back of Queue (Q), ft/ln (95 th percentile)	17	7.1	35.9	185.2	3.1	79.3	8	533.1	88.7	91.4	212.3	4.5
Back of Queue (Q), veh/ln (95 th percentile)	0.7	0.3	1.4	7.3	0.1	3.2	0.3	19.5	3.5	3.3	8.0	0.2
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	32.2	33.6	34.4	27.0	26.2	28.2	12.7	20.9	14.6	15.9	13.1	9.7
Incremental Delay (d ₂), s/veh	0.2	0.7	9.3	3.7	0.0	1.6	0.1	24.6	0.6	6.0	1.3	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	32.4	34.4	43.7	30.7	26.2	29.8	12.7	45.5	15.2	21.9	14.4	9.8
Level of Service (LOS)	C	C	D	C	C	C	B	D	B	C	B	A
Approach Delay, s/veh / LOS	38.8 D			30.4 C			38.1 D			16.5 B		
Intersection Delay, s/veh / LOS	29.4						C					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.22	B		2.12	B		2.31	B		2.08	B	
Bicycle LOS Score / LOS	0.60	A		1.08	A		1.83	B		1.53	B	

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Traffic Group			Duration, h	0.250	
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other	
Jurisdiction	DELDOT	Time Period	Total PM w/ DELDOT Project & Imp	PHF	0.92	
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00	
Intersection	De 24 at Bay Farm/Autu...	File Name	6TPimp.xus			
Project Description	DELDOT					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	105	93	50	262	19	285	47	583	276	319	614	73

Signal Information																								
Cycle, s	93.3	Reference Phase	2	Green	3.7	6.3	35.0	7.5	0.5	7.3	Yellow	3.0	3.0	5.0	3.0	3.0	4.0	Red	2.0	2.0	2.0	2.0	2.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	Yes	Simult. Gap E/W	Off	Force Mode	Fixed	Simult. Gap N/S	Off													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	12.5	13.3	18.0	18.8	8.7	42.0	20.0	53.3
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.1	4.1	4.3	4.1	6.1	4.1	6.1
Queue Clearance Time (g _s), s	7.8	7.4	15.0	10.0	3.7	36.4	17.0	32.1
Green Extension Time (g _e), s	0.1	0.1	0.0	0.0	0.1	0.0	0.0	1.6
Phase Call Probability	0.95	0.98	1.00	0.98	0.73	1.00	1.00	1.00
Max Out Probability	0.37	1.00	1.00	1.00	0.00	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16	
Adjusted Flow Rate (v), veh/h	114	101	45	285	21	135	51	634	196	347	667	77	
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1709	1483	1667	1695	1483	1667	1709	1471	1641	1709	1483	
Queue Service Time (g _s), s	5.8	5.4	2.7	13.0	1.0	8.0	1.7	34.4	8.9	15.0	30.1	2.6	
Cycle Queue Clearance Time (g _c), s	5.8	5.4	2.7	13.0	1.0	8.0	1.7	34.4	8.9	15.0	30.1	2.6	
Green Ratio (g/C)	0.16	0.08	0.08	0.24	0.14	0.14	0.41	0.38	0.38	0.56	0.50	0.50	
Capacity (c), veh/h	322	134	117	336	233	204	262	641	552	346	848	736	
Volume-to-Capacity Ratio (X)	0.355	0.753	0.382	0.846	0.089	0.660	0.195	0.989	0.355	1.002	0.787	0.105	
Back of Queue (Q), ft/ln (95 th percentile)	105.5	121.9	45.9	295.2	19.2	147.8	29.7	670.1	139.6	332.7	460.9	37.5	
Back of Queue (Q), veh/ln (95 th percentile)	4.2	4.8	1.8	11.8	0.7	5.9	1.2	26.2	5.5	13.1	18.0	1.5	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	35.4	42.1	40.8	33.7	35.1	38.2	19.0	29.0	21.0	27.5	19.4	12.5	
Incremental Delay (d ₂), s/veh	0.7	11.1	2.1	17.8	0.2	7.6	0.4	32.7	0.8	48.8	5.7	0.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	36.1	53.2	42.9	51.5	35.3	45.8	19.4	61.7	21.9	76.4	25.1	12.6	
Level of Service (LOS)	D	D	D	D	D	D	B	E	C	F	C	B	
Approach Delay, s/veh / LOS	43.9	D		49.0	D		50.4	D			40.5	D	
Intersection Delay, s/veh / LOS	45.5						D						

Multimodal Results	EB			WB			NB			SB			
Pedestrian LOS Score / LOS	2.27	B		2.13	B		2.33	B			2.10	B	
Bicycle LOS Score / LOS	0.92	A		1.21	A		1.94	B			2.29	B	

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Traffic Group			Duration, h	0.250	
Analyst	RH	Analysis Date	7/30/2020	Area Type	Other	
Jurisdiction	DELDOT	Time Period	Total SAT w/ DELDOT Project & Imp	PHF	0.96	
Urban Street	DE Route 24	Analysis Year	2020	Analysis Period	1 > 7:00	
Intersection	De 24 at Bay Farm/Autu...	File Name	6TSimp.xus			
Project Description	DELDOT					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	15	13	37	251	11	352	45	719	233	360	649	26

Signal Information												
Cycle, s	94.3	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	3.5	6.5	40.0	1.7	6.3	3.3		
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	3.0	5.0	3.0	3.0	4.0		
				Red	2.0	2.0	2.0	2.0	2.0	2.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	6.7	9.3	18.0	20.6	8.5	47.0	20.0	58.5
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0	5.0	7.0	5.0	7.0
Max Allow Headway (MAH), s	4.1	4.3	4.1	4.4	4.1	6.1	4.1	6.0
Queue Clearance Time (g _s), s	2.8	3.7	15.0	12.4	3.5	42.0	17.0	29.3
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0	0.1	0.0	0.0	4.4
Phase Call Probability	0.34	0.65	1.00	0.99	0.71	1.00	1.00	1.00
Max Out Probability	0.00	0.27	1.00	1.00	0.00	1.00	1.00	0.57

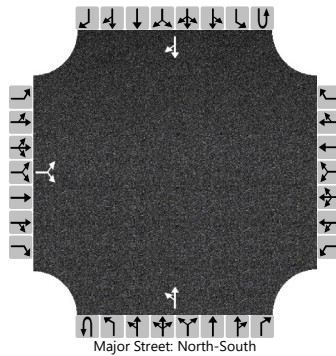
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	16	14	27	261	11	172	47	749	196	375	676	26
Adjusted Saturation Flow Rate (s), veh/h/ln	1667	1750	1483	1654	1750	1483	1667	1750	1460	1654	1736	1483
Queue Service Time (g _s), s	0.8	0.7	1.7	13.0	0.5	10.4	1.5	40.0	8.4	15.0	27.3	0.8
Cycle Queue Clearance Time (g _c), s	0.8	0.7	1.7	13.0	0.5	10.4	1.5	40.0	8.4	15.0	27.3	0.8
Green Ratio (g/C)	0.05	0.03	0.03	0.19	0.15	0.15	0.46	0.42	0.42	0.60	0.55	0.55
Capacity (c), veh/h	156	61	52	343	271	230	321	743	619	339	948	810
Volume-to-Capacity Ratio (X)	0.100	0.223	0.526	0.763	0.042	0.749	0.146	1.009	0.316	1.105	0.713	0.032
Back of Queue (Q), ft/ln (95 th percentile)	15.9	15	32.7	269.2	10.1	199.7	24.6	767.4	128.5	420.6	401.2	10.8
Back of Queue (Q), veh/ln (95 th percentile)	0.6	0.6	1.3	10.7	0.4	8.0	1.0	30.7	5.1	16.7	15.9	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	42.7	44.3	44.7	36.7	33.9	38.1	15.8	27.1	18.0	29.6	15.9	9.9
Incremental Delay (d ₂), s/veh	0.3	1.8	8.1	9.7	0.1	12.7	0.2	35.2	0.6	80.0	3.2	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	43.0	46.1	52.8	46.4	34.0	50.8	16.1	62.3	18.7	109.6	19.1	9.9
Level of Service (LOS)	D	D	D	D	C	D	B	F	B	F	B	A
Approach Delay, s/veh / LOS	48.5	D		47.8	D		51.5	D		50.4	D	
Intersection Delay, s/veh / LOS	50.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.20	B	2.13	B	2.36	B	2.10	B
Bicycle LOS Score / LOS	0.58	A	1.22	A	2.12	B	2.26	B

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Mt. Joy Rd @ Cordrey Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Cordrey Rd		
Analysis Year	2020			North/South Street	Mount Joy Rd		
Time Analyzed	Sea. Adj. EA			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		14		25						34	184				89	25
Percent Heavy Vehicles (%)		0		20						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.40						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.48						2.20						

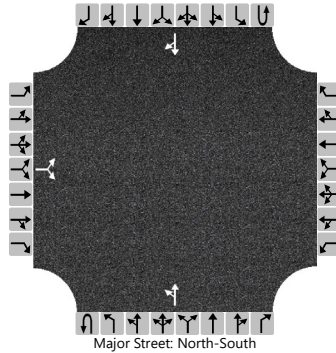
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			42							37						
Capacity, c (veh/h)			764							1475						
v/c Ratio			0.06							0.03						
95% Queue Length, Q ₉₅ (veh)			0.2							0.1						
Control Delay (s/veh)			10.0							7.5						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)	10.0								1.3							
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Mt. Joy Rd @ Cordrey Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Cordrey Rd		
Analysis Year	2020			North/South Street	Mount Joy Rd		
Time Analyzed	Sea. Adj. EP			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		20		29						20	201				234	20
Percent Heavy Vehicles (%)		0		0						25						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.35						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.43						

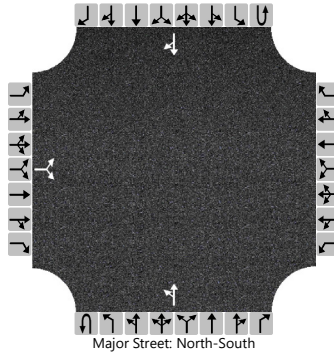
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			53							22						
Capacity, c (veh/h)			637							1165						
v/c Ratio			0.08							0.02						
95% Queue Length, Q ₉₅ (veh)			0.3							0.1						
Control Delay (s/veh)			11.2							8.1						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	11.2								0.9							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	RH	Intersection	Mt. Joy Rd @ Cordrey Rd
Agency/Co.	The Traffic Group, Inc	Jurisdiction	Sessex County, Delaware
Date Performed	4/24/2020	East/West Street	Cordrey Rd
Analysis Year	2020	North/South Street	Mount Joy Rd
Time Analyzed	Existing Sat.	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	2019-1210 Patriots Glen		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		12		24						18	131				133	17
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

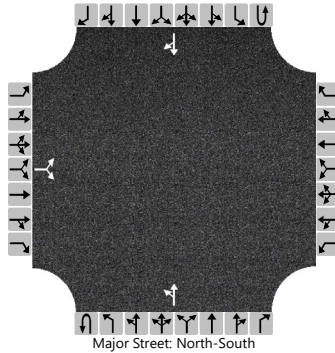
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			39							19						
Capacity, c (veh/h)			801							1430						
v/c Ratio			0.05							0.01						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
Control Delay (s/veh)			9.7							7.6						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)	9.7								1.0							
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Mt. Joy Rd @ Cordrey Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Cordrey Rd		
Analysis Year	2020			North/South Street	Mount Joy Rd		
Time Analyzed	Back'd AM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		15		26						36	260				120	26
Percent Heavy Vehicles (%)		0		20						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.40						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.48						2.20						

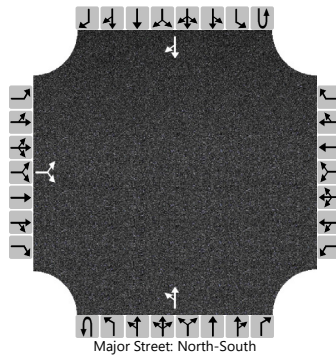
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			45							39						
Capacity, c (veh/h)			688							1433						
v/c Ratio			0.06							0.03						
95% Queue Length, Q ₉₅ (veh)			0.2							0.1						
Control Delay (s/veh)			10.6							7.6						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	10.6								1.1							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Mt. Joy Rd @ Cordrey Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Cordrey Rd		
Analysis Year	2020			North/South Street	Mount Joy Rd		
Time Analyzed	Back'd PM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		21		30						21	259				338	21
Percent Heavy Vehicles (%)		0		0						25						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.35						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.43						

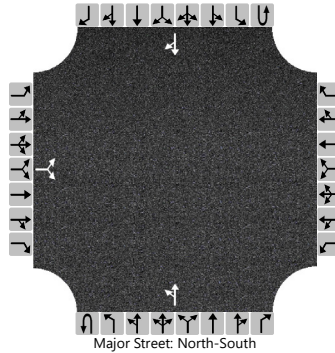
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			55							23						
Capacity, c (veh/h)			521							1054						
v/c Ratio			0.11							0.02						
95% Queue Length, Q ₉₅ (veh)			0.4							0.1						
Control Delay (s/veh)			12.7							8.5						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	12.7								0.8							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Mt. Joy Rd @ Cordrey Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Cordrey Rd		
Analysis Year	2020			North/South Street	Mount Joy Rd		
Time Analyzed	Back'd Sat			Peak Hour Factor	0.93		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		13		25						19	205				217	18
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

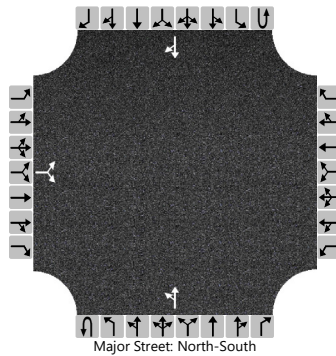
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			41							20						
Capacity, c (veh/h)			677							1324						
v/c Ratio			0.06							0.02						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
Control Delay (s/veh)			10.7							7.8						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	10.7								0.8							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Mt. Joy Rd @ Cordrey Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Cordrey Rd		
Analysis Year	2020			North/South Street	Mount Joy Rd		
Time Analyzed	Total AM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		15		26						36	291				131	26
Percent Heavy Vehicles (%)		0		20						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.40						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.48						2.20						

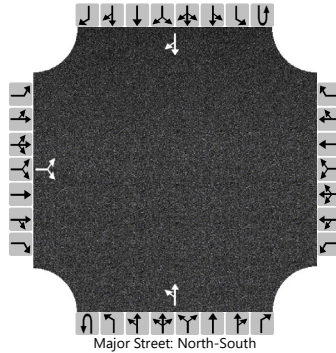
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			45							39						
Capacity, c (veh/h)			662							1419						
v/c Ratio			0.07							0.03						
95% Queue Length, Q ₉₅ (veh)			0.2							0.1						
Control Delay (s/veh)			10.8							7.6						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	10.8								1.1							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Mt. Joy Rd @ Cordrey Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Cordrey Rd		
Analysis Year	2020			North/South Street	Mount Joy Rd		
Time Analyzed	Total PM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		21		30						21	280				373	21
Percent Heavy Vehicles (%)		0		0						25						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.35						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.43						

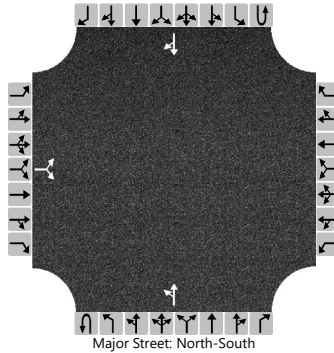
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			55							23						
Capacity, c (veh/h)			487							1019						
v/c Ratio			0.11							0.02						
95% Queue Length, Q ₉₅ (veh)			0.4							0.1						
Control Delay (s/veh)			13.3							8.6						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	13.3								0.8							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	RH			Intersection	Mt. Joy Rd @ Cordrey Rd		
Agency/Co.	The Traffic Group, Inc			Jurisdiction	Sessex County, Delaware		
Date Performed	4/24/2020			East/West Street	Cordrey Rd		
Analysis Year	2020			North/South Street	Mount Joy Rd		
Time Analyzed	Total Sat			Peak Hour Factor	0.93		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	2019-1210 Patriots Glen						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		13		25						19	229				245	18
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			41							20						
Capacity, c (veh/h)			641							1291						
v/c Ratio			0.06							0.02						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
Control Delay (s/veh)			11.0							7.8						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	11.0								0.7							
Approach LOS	B															

APPENDIX E

Correspondence and Scope of Work





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

July 24, 2020

Mr. Joe Caloggero
The Traffic Group, Inc.
9900 Franklin Square Drive
Suite H
Baltimore, MD 21236

Dear Mr. Caloggero:

We have reviewed the revised preliminary traffic impact study (TIS) that we received on July 6, 2020 for the proposed **Patriots Glen – Phase II** (Protocol Tax Parcel: 234-29.00-67.00) development. Upon our review, the revised preliminary TIS is acceptable as submitted.

You may contact Mr. Troy Brestel at (302) 760-2167 if you have any questions concerning this correspondence.

Sincerely,

Tom Felice for
T. William Brockenbrough, Jr.
County Coordinator

TWB:tbm

cc: Troy Brestel, Project Engineer, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

July 1, 2020

Mr. Joe Caloggero
The Traffic Group, Inc.
9900 Franklin Square Drive
Suite H
Baltimore, MD 21236

Dear Mr. Caloggero:

We have reviewed the revised preliminary traffic impact study (TIS) that we received on June 11, 2020 for the proposed **Patriots Glen – Phase II** (Protocol Tax Parcel: 234-29.00-67.00) development. Upon our review, there are several items that warrant further attention. Please address the following items and resubmit the affected portions of the preliminary TIS.

- 1) The trip distributions for the committed developments of Acadia, Baylis Farms, Deerbrook, Independence, and Pelican Point do not match what has been approved in other nearby studies. Please see the attached exhibits for the correct trip distributions.
- 2) As a result of item 1, the future traffic volumes will need to be updated. Please update those volumes.

You may contact Mr. Troy Brestel at (302) 760-2167 if you have any questions concerning this correspondence.

Sincerely,

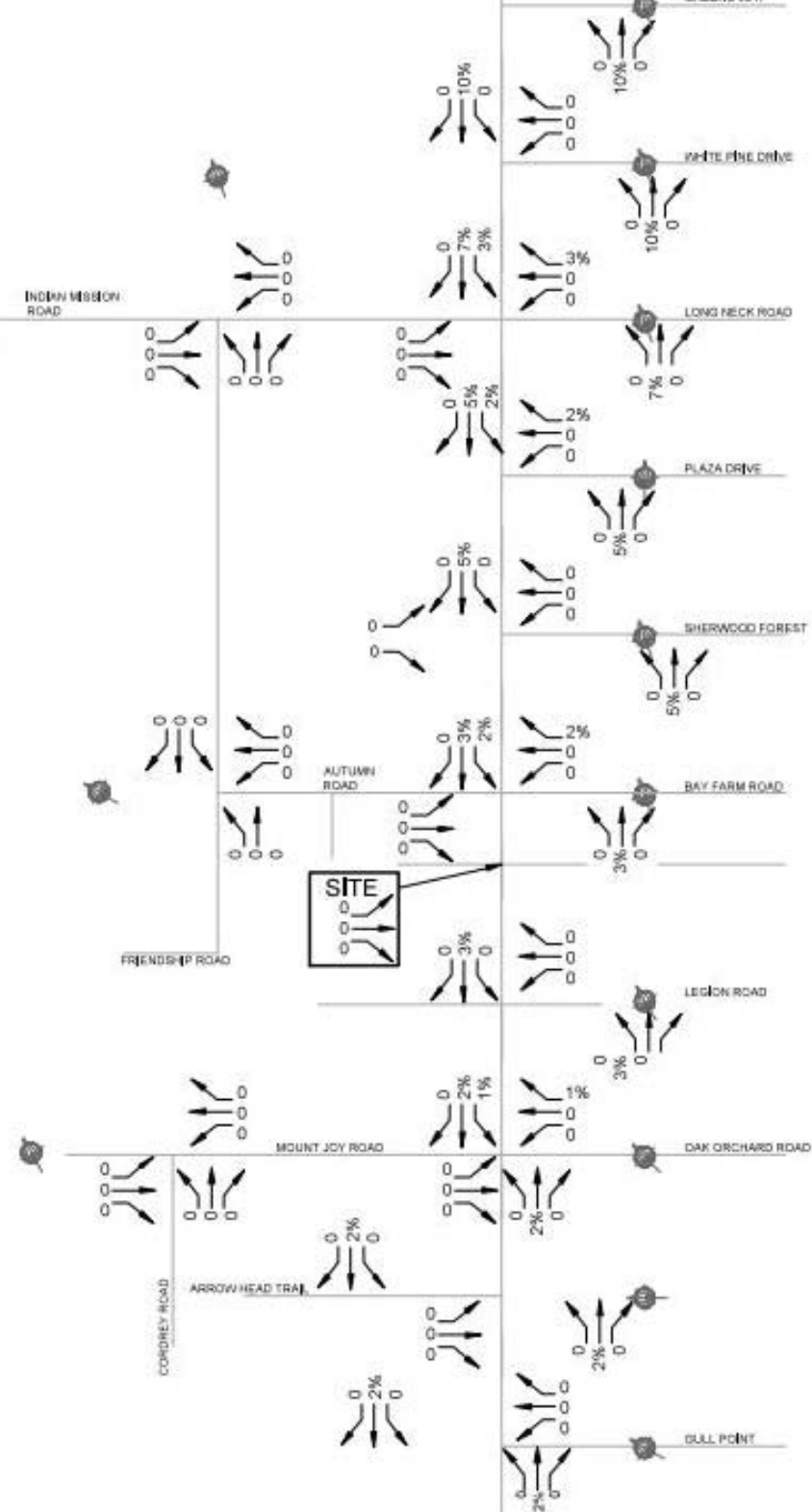
T. William Brockenbrough, Jr.
County Coordinator

TWB:tbf

cc: Troy Brestel, Project Engineer, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination

ACADIA
(238 UNIT SINGLE FAMILY
DETACHED HOUSING LUC 210)

		ENTER	EXIT	TOTAL
PEAK AM AVERAGE RATE = 0.71×238 UNITS + 4.8	TOTAL	44	131	174
	PASS BY	0	0	0
	NEW	44	131	174
PEAK PM LN(T) = $0.96 \text{LN}(X)$ + 0.2	TOTAL	147	87	234
	PASS BY	0	0	0
	NEW	147	87	234
PEAK SAT AVERAGE RATE = 0.84×238 UNITS + 17.99	TOTAL	118	100	218
	PASS-BY	0	0	0
	NEW	118	100	218



DATE:

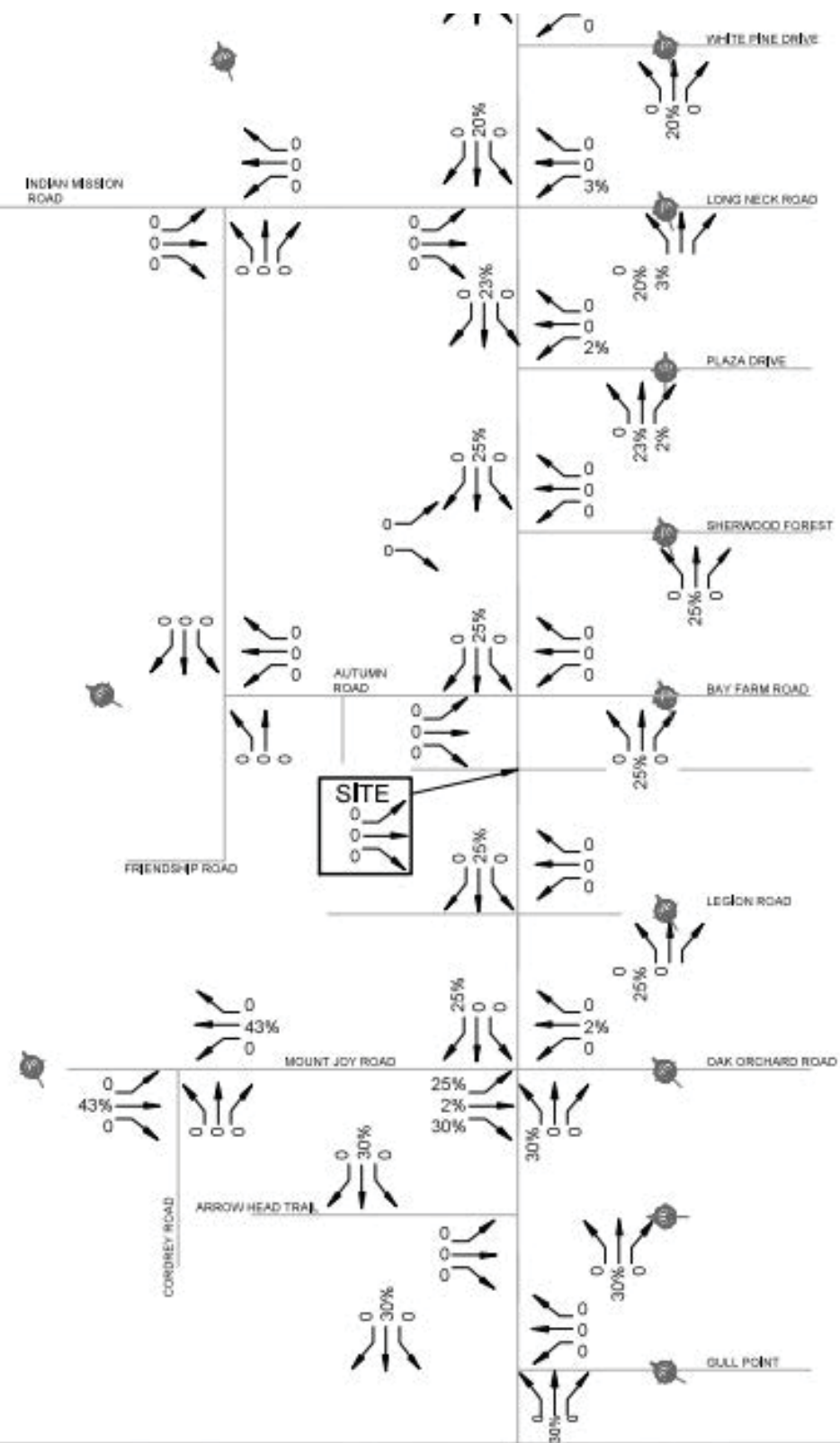
OTHER COMMITTED DEVELOPMENTS

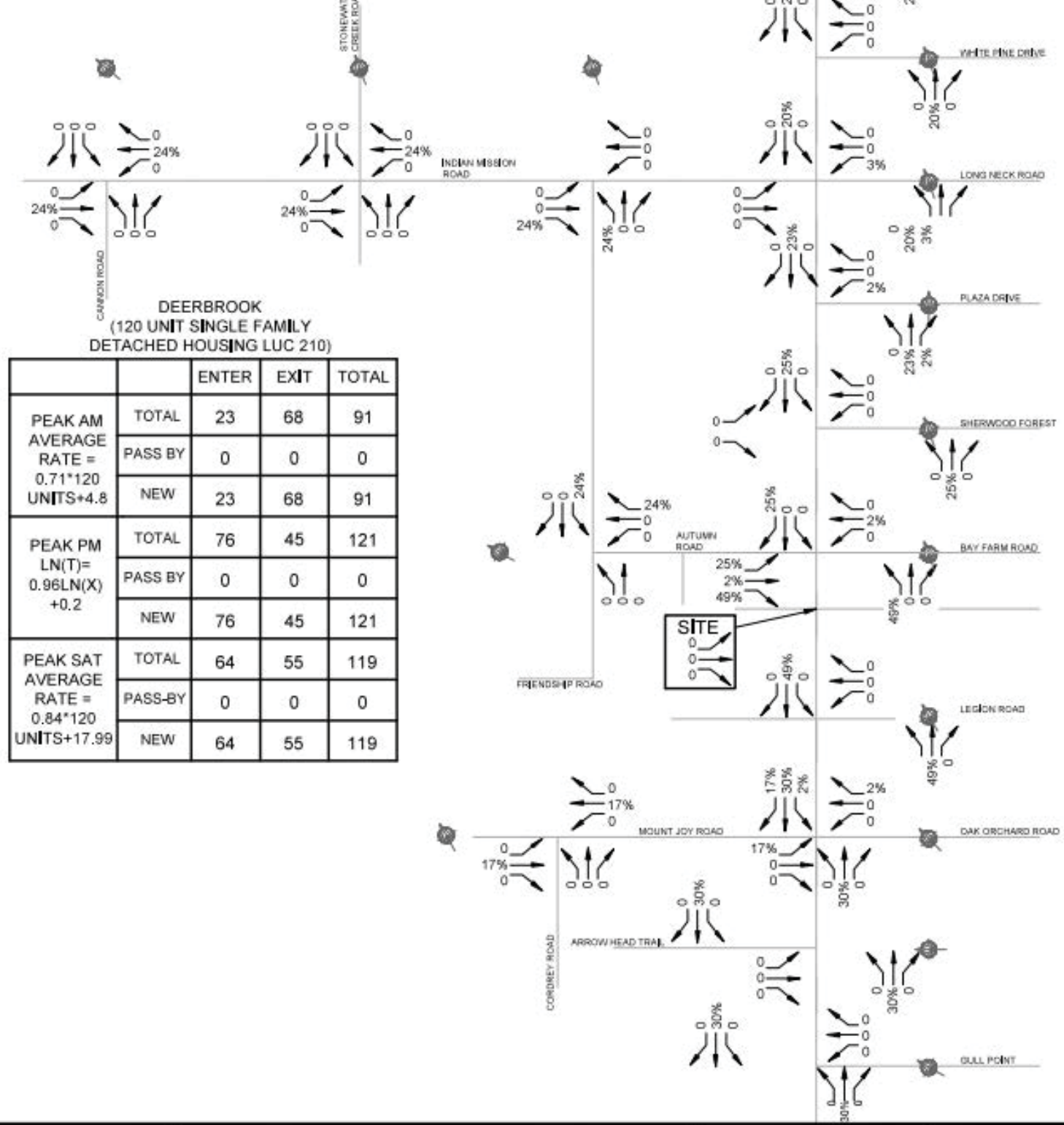
DESIGNED BY: MIK

DUFFIELD

BAYLIS
 (136 UNIT SINGLE FAMILY
 DETACHED HOUSING LUC 210)

		ENTER	EXIT	TOTAL
PEAK AM AVERAGE RATE = $0.71 \cdot 136$ UNITS+4.8	TOTAL	25	76	101
	PASS BY	0	0	0
	NEW	25	76	101
PEAK PM LN(T)= $0.96LN(X)$ +0.2	TOTAL	86	50	136
	PASS BY	0	0	0
	NEW	86	50	136
PEAK SAT AVERAGE RATE = $0.84 \cdot 136$ UNITS+17.99	TOTAL	71	61	132
	PASS-BY	0	0	0
	NEW	71	61	132





DEERBROOK
 (120 UNIT SINGLE FAMILY
 DETACHED HOUSING LUC 210)

		ENTER	EXIT	TOTAL
PEAK AM AVERAGE RATE = 0.71*120 UNITS+4.8	TOTAL	23	68	91
	PASS BY	0	0	0
	NEW	23	68	91
PEAK PM LN(T)= 0.96LN(X) +0.2	TOTAL	76	45	121
	PASS BY	0	0	0
	NEW	76	45	121
PEAK SAT AVERAGE RATE = 0.84*120 UNITS+17.99	TOTAL	64	55	119
	PASS-BY	0	0	0
	NEW	64	55	119

DATE:
31 OCTOBER 2018

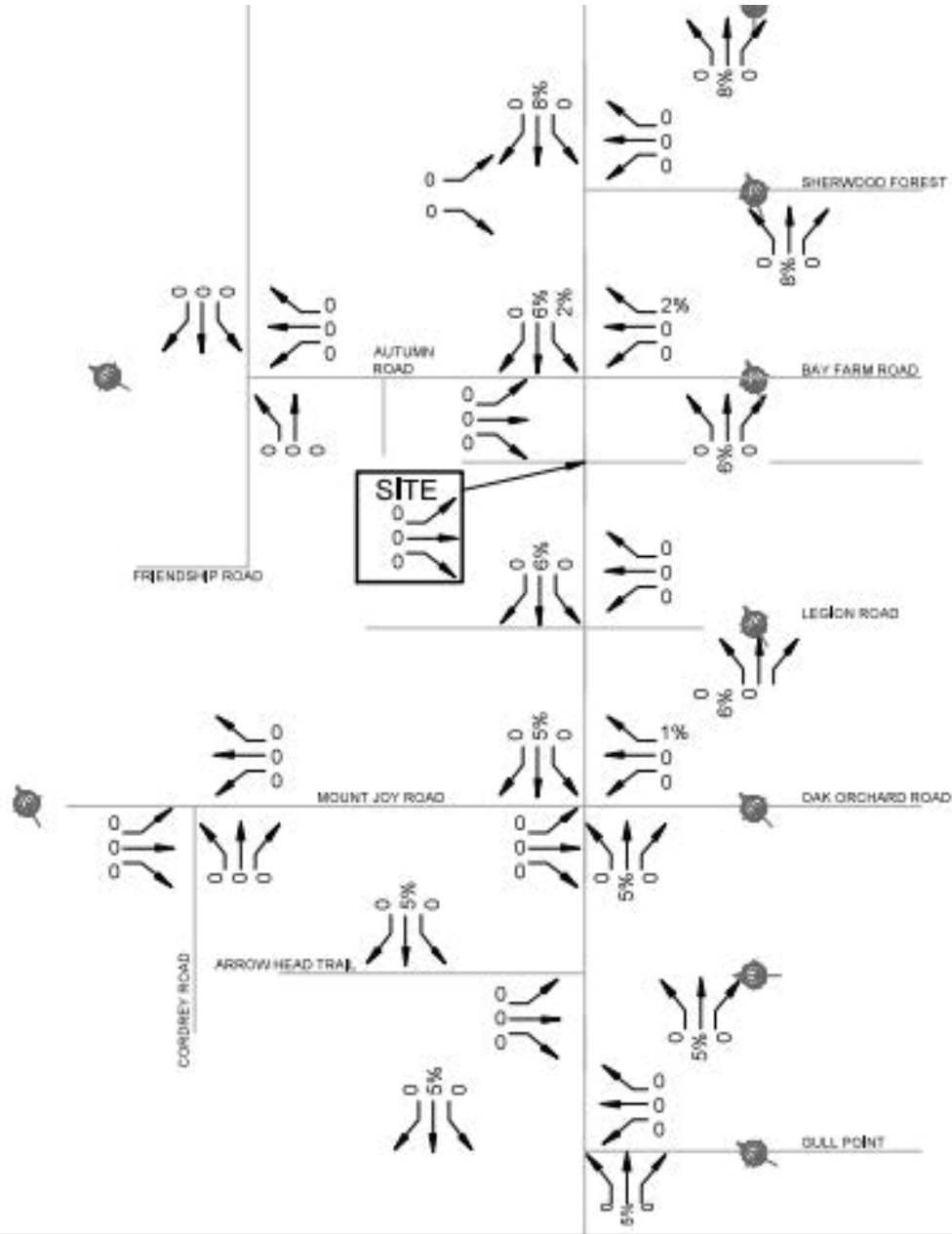
OTHER COMMITTED DEVELOPMENTS

DESIGNED BY: MJK



INDEPENDENCE (INDIGO RUN)
 (63 UNIT SINGLE FAMILY
 DETACHED HOUSING LUC 210)

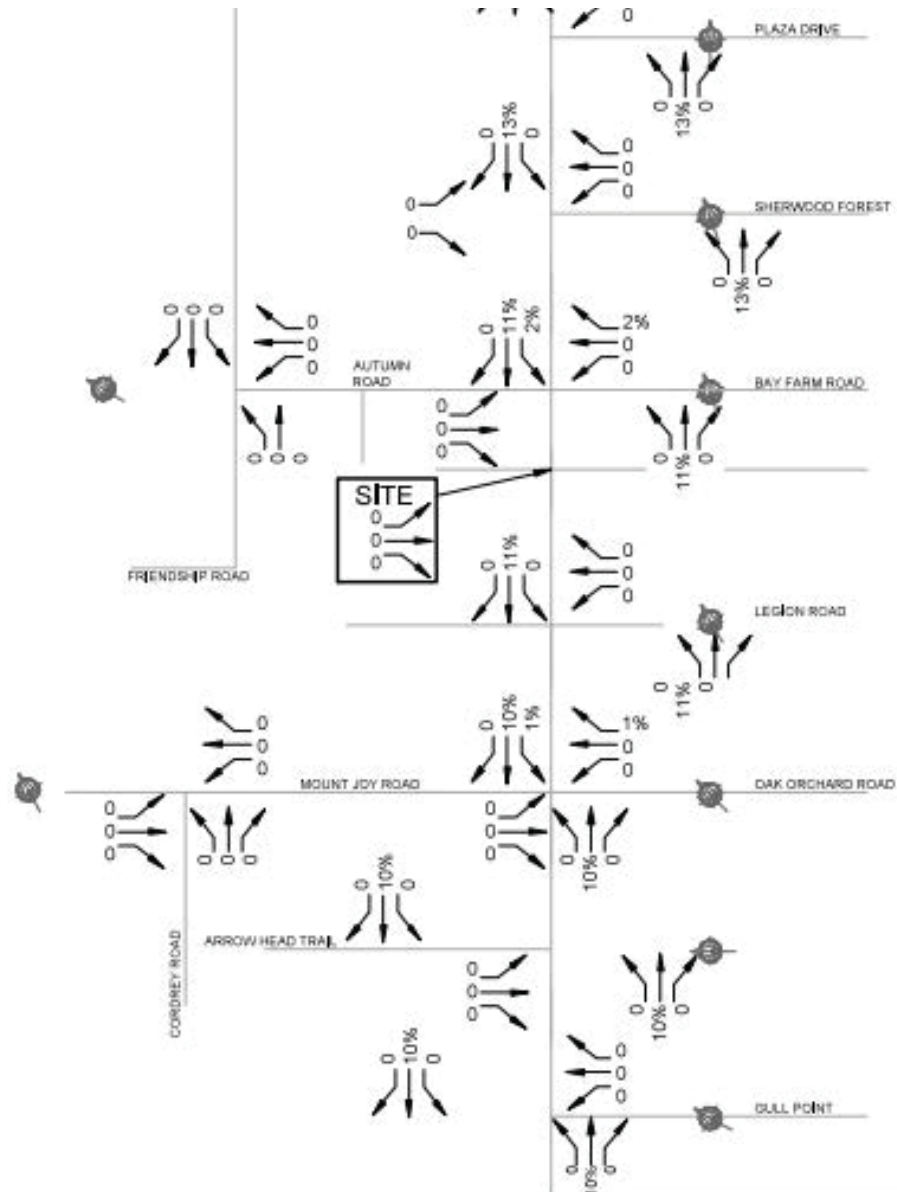
		ENTER	EXIT	TOTAL
PEAK AM AVERAGE RATE = 0.71×63 UNITS+4.8	TOTAL	13	38	50
	PASS BY	0	0	0
	NEW	13	38	50
PEAK PM LN(T)= $0.96 \text{LN}(X)$ +0.2	TOTAL	41	24	65
	PASS BY	0	0	0
	NEW	41	24	65
PEAK SAT LN(T)= 0.84×63 UNITS+17.99	TOTAL	38	33	71
	PASS-BY	0	0	0
	NEW	38	33	71



CARRBORO

PELICAN POINT
 (291 UNIT SINGLE FAMILY
 DETACHED HOUSING LUC 210)

		ENTER	EXIT	TOTAL
PEAK AM AVERAGE RATE = 0.71×291 UNITS + 4.80	TOTAL	53	158	211
	PASS BY	0	0	0
	NEW	53	158	211
PEAK PM LN(T) = $0.96 \text{LN}(X)$ + 0.2	TOTAL	178	105	283
	PASS BY	0	0	0
	NEW	178	105	283
PEAK SAT LN(T) = 0.84×291 UNITS + 17.99	TOTAL	141	121	262
	PASS-BY	0	0	0
	NEW	141	121	262





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

June 10, 2020

Mr. Joe Caloggero
The Traffic Group, Inc.
9900 Franklin Square Drive
Suite H
Baltimore, MD 21236

Dear Mr. Caloggero:

We have reviewed the preliminary traffic impact study (TIS) that we received on May 21, 2020 for the proposed **Patriots Glen – Phase II** development (Protocol Tax Parcel: 234-29.00-67.00). Upon our review, there are several items that need to be further addressed. Please address the following items and resubmit the affected portions of the preliminary TIS.

- 1) For the committed development Pelican Point, 109 of the 400 single-family detached houses have been built. Please reduce the trip generation to reflect only the remaining 291 units left to be built.
- 2) For the committed development Independence, 387 of the 450 single-family detached houses have been built. Please reduce the trip generation to reflect only the remaining 63 units left to be built.
- 3) As a result of items 1 and 2, the future no-build and build volumes will need to be updated. Please update these volumes.

You may contact Mr. Troy Brestel at (302) 760-2167 if you have any questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator

TWB:tbm

cc: Todd Sammons, Assistant Director, Development Coordination
Troy Brestel, Project Engineer, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

May 15, 2020

Mr. Joe Caloggero
Senior Project Manager
The Traffic Group, Inc.
Suite H
9900 Franklin Square Drive
Baltimore, Maryland 21236

Dear Mr. Caloggero,

We have reviewed the traffic counts and site trip data that we received on April 18, 2020, for the **Patriots Glen – Phase I & II** residential development (Tax Parcels: 234-29.00-66.00, 66.01 & 66.02) Traffic Impact Study (TIS). While the traffic counts are acceptable as submitted, we found that there are two items that need to be addressed. Please address these items and proceed with the preliminary TIS.

- 1) On Exhibit 5, please include the heavy vehicle traffic volumes during the morning and evening peak hours throughout the study area. Please find the appropriate corrected exhibit enclosed with this letter.
- 2) On Exhibit 6, please include the right-turn on red traffic volumes during the morning and evening peak hours at the intersections of Delaware Route 24 and Oak Orchard Road / Mount Joy Road, and Delaware Route 24 and Bay Farm Road / Autumn Road. Please find the appropriate corrected exhibit enclosed with this letter.

Mr. Joe Caloggero
May 15, 2020
Page 2 of 2

Concerning background growth factors, please apply the following growth factors to the seasonally adjusted traffic volumes in development of future traffic.

Roads	Growth Factor	Total Growth from 2018 - 2027
Delaware Route 24 – TPG 8	1.005	1.046
Autumn Road (Sussex Road 299) – TPG 7	1.005	1.046
Bay Farm (Sussex Road 299) – TPG 7	1.005	1.046
Legion Road (Sussex Road 298) – TPG 7	1.005	1.046
Mount Joy Road (Sussex Road 297) – TPG 6	1.005	1.046
Oak Orchard Road (Sussex Road 297) – TPG 3	1.005	1.046
Gull Point Road (Sussex Road 313) – TPG 7	1.005	1.046
Cordrey Road (Sussex Road 308) – TPG 7	1.005	1.046
All Other Roads	1.00	1.00

You may contact Mr. Claudy Joinville at (302) 760-2124 if you have any questions concerning this correspondence.

Sincerely,

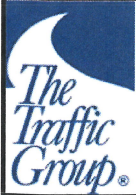
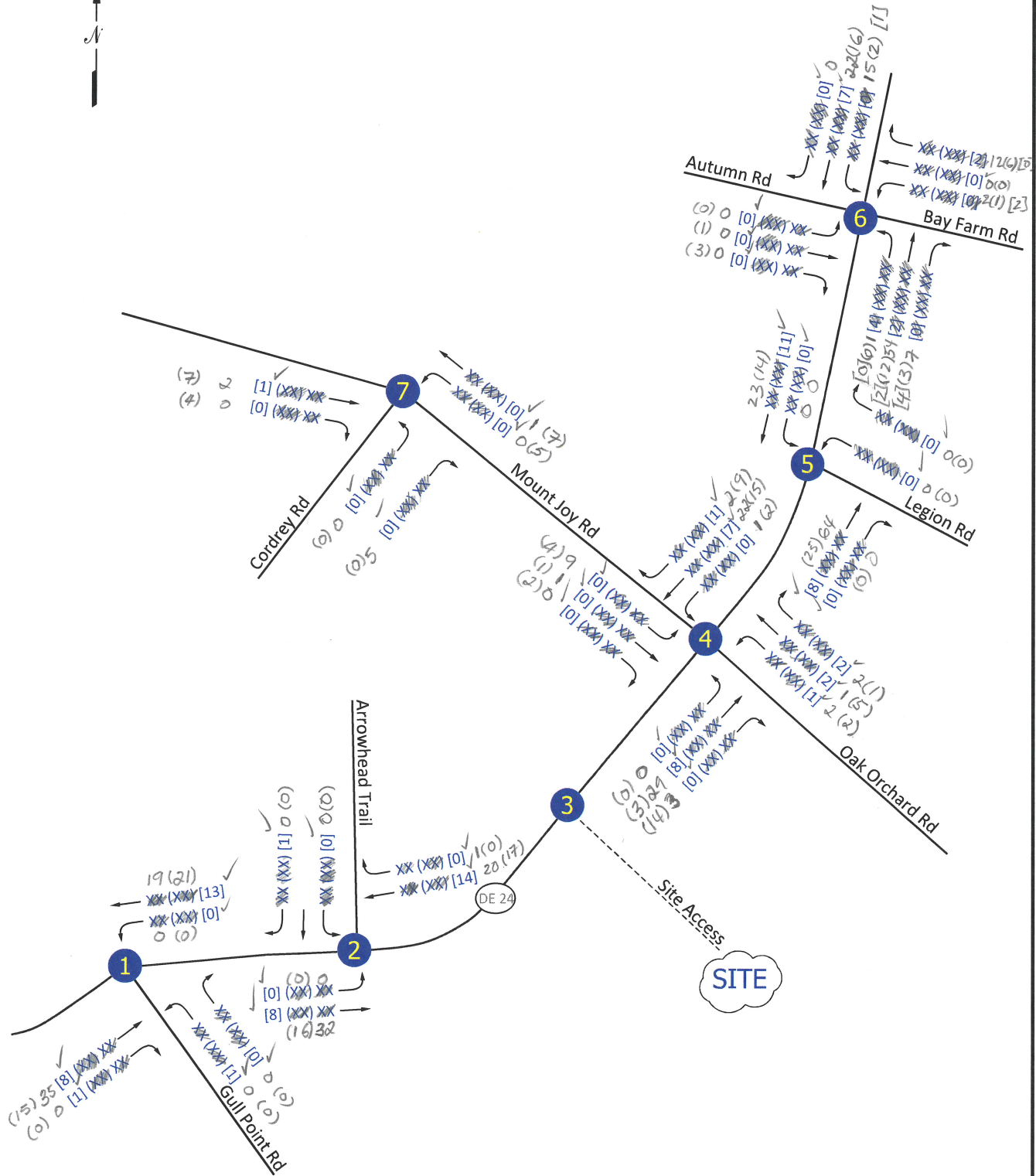
 for

T. William Brockenbrough, Jr.
County Coordinator

TWB:cjm

Enclosure

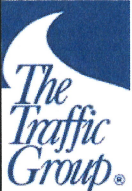
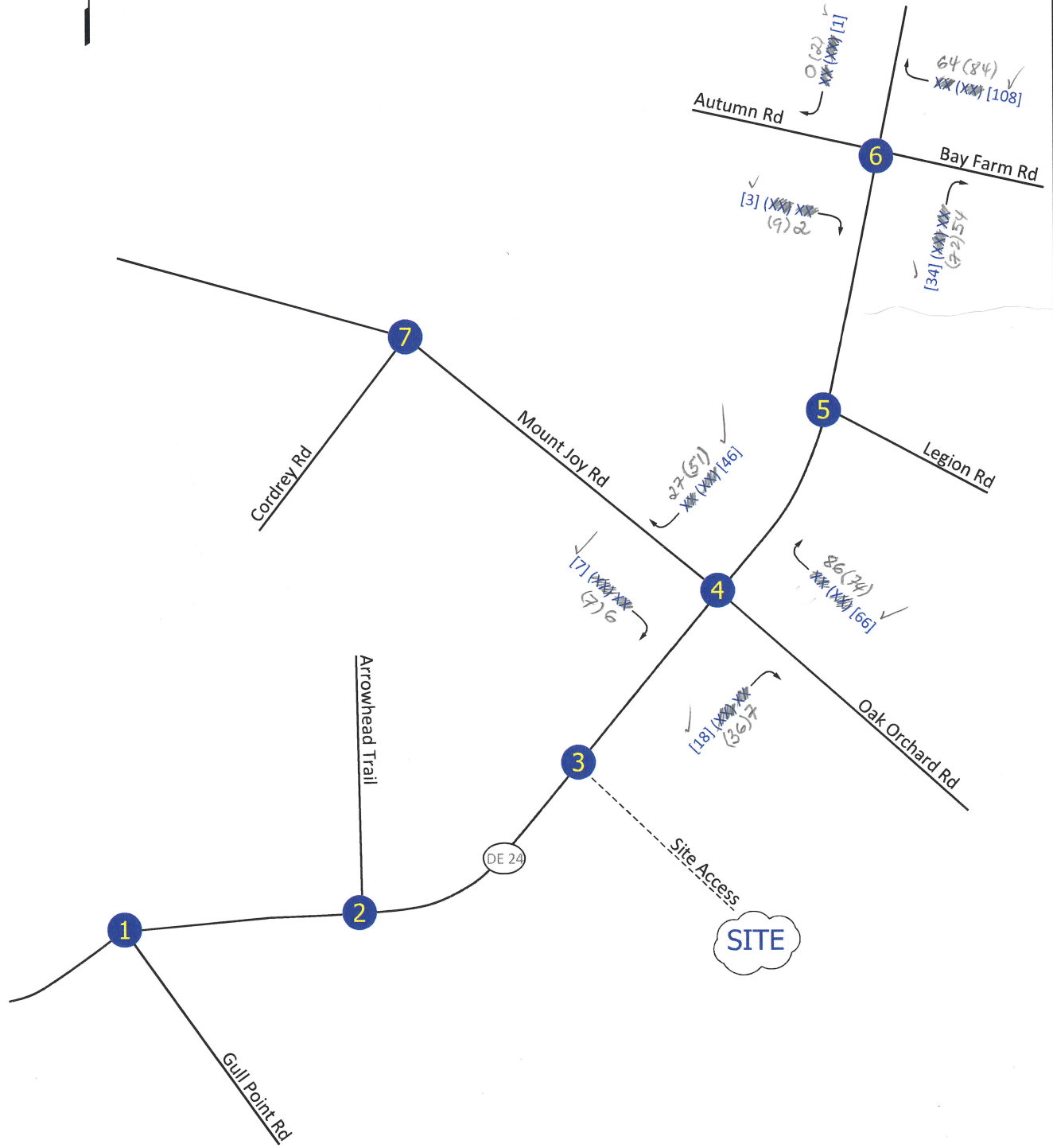
cc: Jamie Whitehouse, Sussex County Planning & Zoning
Todd Sammons, Assistant Director, Development Coordination
Troy Brestel, Project Engineer, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination



Study Intersection

XX - MORNING PEAK HOUR
 (XX) - EVENING PEAK HOUR
 [##] - MID SATURDAY PEAK HOUR
 XX - Need Traffic Count Worksheets From Peninsula Square Traffic Count Submittal

EXHIBIT 5
 EXISTING PEAK HOUR
 HEAVY VEHICLE TRAFFIC VOLUMES



Study Intersection

- XX - MORNING PEAK HOUR
- (XX) - EVENING PEAK HOUR
- [##] - MID SATURDAY PEAK HOUR
- XX - Need Traffic Count Worksheets From Peninsula Square Traffic Count Submittal

EXHIBIT 6
EXISTING PEAK HOUR
RIGHT TURN ON RED TRAFFIC VOLUMES

FU-HSIUNG HUANG

From: Brockenbrough, Thomas (DeIDOT) <Thomas.Brockenbrough@delaware.gov>
Sent: Tuesday, April 14, 2020 1:16 PM
To: Joe Caloggero
Cc: Brestel, Troy (DeIDOT); Joinville, Claudy (DeIDOT); Cote, Marc (DeIDOT)
Subject: RE: Patriots Glen

Joe,

As I said we would below, we have discussed your proposal on how to proceed with the Patriots Glen TIS. You proposed using the September 2018 counts from the Peninsula Square TIS and omitting, for lack of counts, the following intersections: SR 24/Streets Road, SR 24/William Street and Mount Joy/Cannon Road.

Due to the present restrictions associated with the COVID-19 pandemic, it is unknown when new counts will be obtainable. Further, having reviewed the three intersections listed above, DeIDOT would not anticipate your TIS identifying Level of Service deficiencies at them and would not anticipate asking your client to improve those intersections if the TIS did find such deficiencies. Therefore we accept your proposal.

Please proceed with a traffic count and trip distribution submission in accordance with Section 2.2.6 of the Development Coordination Manual.

Bill

T. William Brockenbrough, Jr., P.E., AICP
County Coordinator
Division of Planning
Delaware Department of Transportation
P.O. Box 778
Dover, DE 19903
(302)760-2109
Thomas.Brockenbrough@delaware.gov



From: Brockenbrough, Thomas (DeIDOT)
Sent: Monday, April 06, 2020 11:07 AM
To: Joe Caloggero <jcaloggero@trafficgroup.com>; Cote, Marc (DeIDOT) <Marc.Cote@delaware.gov>
Cc: Brestel, Troy (DeIDOT) <Troy.Brestel@delaware.gov>; Joinville, Claudy (DeIDOT) <Claudy.Joinville@delaware.gov>
Subject: RE: Patriots Glen

Joe,
We'll discuss it internally and get back to you.

Marc,

Please see below and contact me to discuss. The counts that Joe proposes to reuse are from September 2018. The three intersections he proposes omit are SR 24/Streets Road, SR 24/William Street and Mount Joy/Cannon Road. They are T intersections with relatively low side-street volumes. The 2018 Traffic Summary shows they carry, respectively, 400, 821 and 1,460 AADT.

Troy and Claudy,

I've copied you primarily information but if I'm leaving out something important, please let me know.

Bill

From: Joe Caloggero <jcaloggero@trafficgroup.com>
Sent: Monday, April 06, 2020 9:38 AM
To: Brockenbrough, Thomas (DeIDOT) <Thomas.Brockenbrough@delaware.gov>
Subject: Re: Patriots Glen

Spot on Bill! Thanks!

Joe Caloggero
410-446-0618
The Traffic Group, Inc.
Service Disabled Veteran Owned Small Business

On Apr 6, 2020, at 9:07 AM, Brockenbrough, Thomas (DeIDOT) <Thomas.Brockenbrough@delaware.gov> wrote:

Hi Joe,

Looking at your attachments and trying to anticipate what you want to talk about, I see that the Peninsula Lakes counts cover 6 of the 9 intersections (besides the site entrance) in the Patriots Glen scope. I'm guessing that, given the current prohibition on traffic counts for TIS due to the COVID-19 pandemic, you want to discuss whether you can, under some conditions, move ahead with the 6 intersections for which you have counts. Is that right?

Bill

From: Joe Caloggero <jcaloggero@trafficgroup.com>
Sent: Friday, April 03, 2020 7:45 AM
To: Brockenbrough, Thomas (DeIDOT) <Thomas.Brockenbrough@delaware.gov>
Subject: Patriots Glen

Hey Bill,

Do you have time to discuss the Patriots Glen project this morning? Please let me know... Thanks!

Joe

**Joe Caloggero, P.E, PTOE, PTP
Vice President**

<image001.jpg>

The Traffic Group, Inc.
9900 Franklin Square Dr. - Suite H
Baltimore, MD 21236
T 410.931.6600
Cell 410.446.0618
F 410.931.6601
jcaloggero@trafficgroup.com
www.trafficgroup.com

Merging Innovation and Excellence®

<image002.jpg>



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

September 17, 2019

Mr. Michael Kaszyski
Duffield Associates, Inc.
5400 Limestone Road
Wilmington, DE 19808

Dear Mr. Kaszyski:

We have reviewed the revised preliminary traffic impact study (TIS) that we received on August 28, 2019 for the proposed **Peninsula Square** (Tax Parcel #234-23.00-115.00) mixed-use development. Upon our review, we find that several items need to be further addressed. Please address the following items and resubmit the affected portions of the revised preliminary TIS submittal.

- 1) Further modifications are needed for the Peninsula Lakes committed development trip generation and assignment. Please find the modifications enclosed with this letter.
- 2) We have modified the proposed site trip generation. Please find the modified trip generation enclosed with this letter.
- 3) We have modified the proposed site pass-by trip distributions. Please find the modified pass-by trip distributions enclosed with this letter.
- 4) As a result of items 1 through 3, the future traffic volumes will need to be updated. Please update those volumes.

You may contact Mr. Troy Brestel at (302) 760-2167 if you have any questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator

TWB:tbm

Enclosures

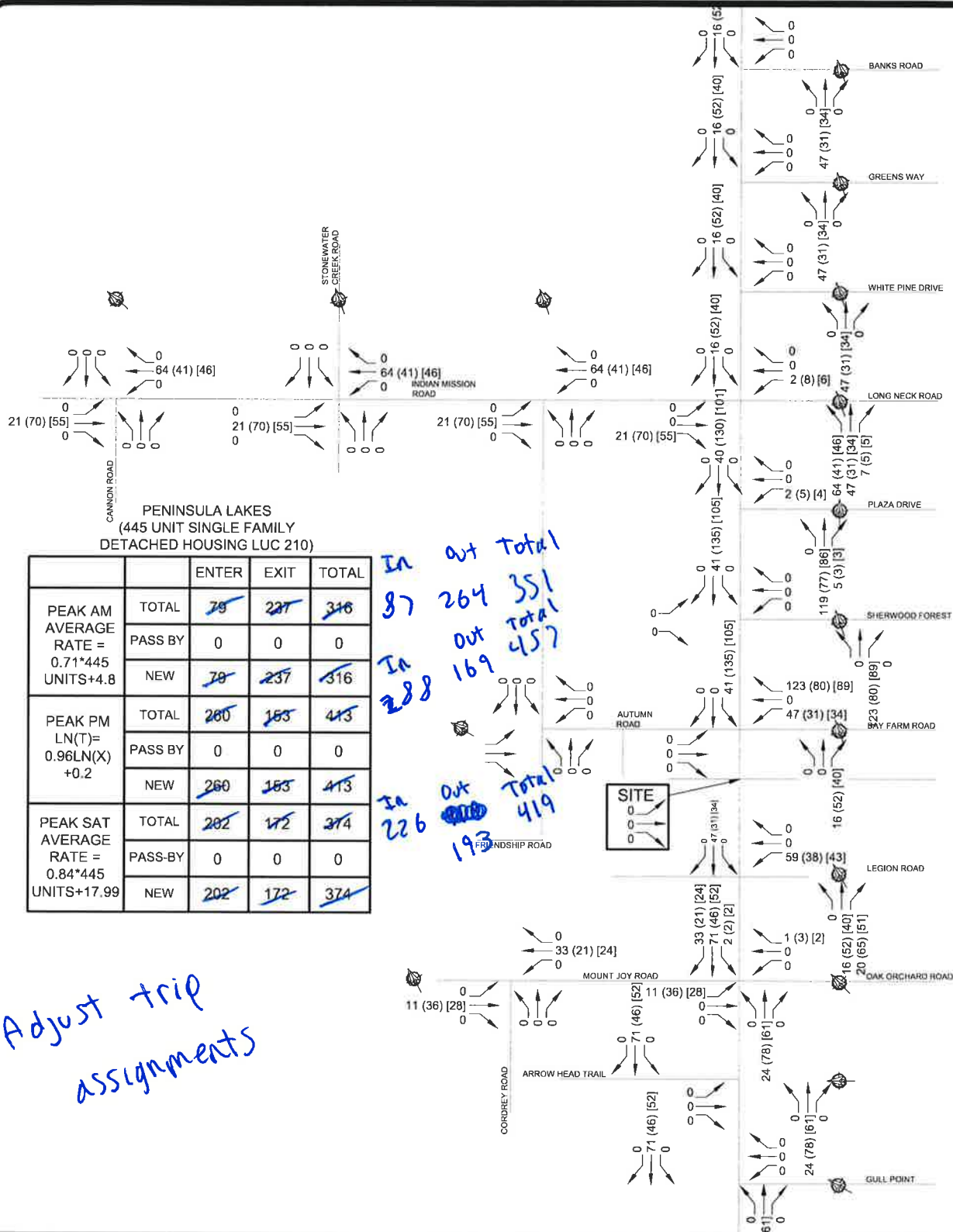
cc: Janelle Cornwell, Sussex County Planning and Zoning
J. Marc Coté, Assistant Director, Development Coordination
Troy Brestel, Project Engineer, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination



- This was provided in the 8/14 correspondence

	MORNING PEAK HOUR			EVENING PEAK HOUR			SAT MIDDAY PEAK HOUR			DAILY
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	TRIPS
8) Peninsula Lakes (143 Single Family Detached Houses built)										
<i>Single-Family Detached (ITE-210, Units)</i>										
588 units	105	317	422	350	206	556	276	236	512	5306
<u>-143 units</u>	<u>-26</u>	<u>-80</u>	<u>-106</u>	<u>-90</u>	<u>-53</u>	<u>-143</u>	<u>-74</u>	<u>-64</u>	<u>-138</u>	<u>-1445</u>
445 units	79	237	316	260	153	413	202	172	374	3861
<i>Multifamily Housing, Low-Rise (ITE-220, Units)</i>										
72 units	8	27	35	28	16	44	24	21	45	503

Did not include this in your resubmission




PENINSULA LAKES
 (445 UNIT SINGLE FAMILY
 DETACHED HOUSING LUC 210)

		ENTER	EXIT	TOTAL
PEAK AM AVERAGE RATE = 0.71*445 UNITS+4.8	TOTAL	79	237	316
	PASS BY	0	0	0
	NEW	79	237	316
PEAK PM LN(T)= 0.96LN(X) +0.2	TOTAL	280	183	463
	PASS BY	0	0	0
	NEW	280	183	463
PEAK SAT AVERAGE RATE = 0.84*445 UNITS+17.99	TOTAL	282	172	454
	PASS-BY	0	0	0
	NEW	282	172	454

In 87 Out 264 Total 351
In 288 Out 169 Total 457
In 226 Out 193 Total 419


Adjust trip assignments

DATE: 31 OCTOBER 2018	OTHER COMMITTED DEVELOPMENTS PENINSULA LAKES PENINSULA SQUARE TRAFFIC IMPACT STUDY	DESIGNED BY: MJK	 DUFFIELD ASSOCIATES <small>Soil, Water & the Environment</small> 5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. 302.239.6634 FAX 302.239.8485 OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY E-MAIL: DUFFIELD@DUFFIELD.COM
SCALE: NONE		DRAWN BY: ADC	
PROJECT NO. 11675.CA		CHECKED BY: MJK	
SHEET: EXHIBIT 3L1.2		FILE: TIS_FIGURES	
INDIAN RIVER HUNDRED, SUSSEX COUNTY, DELAWARE			

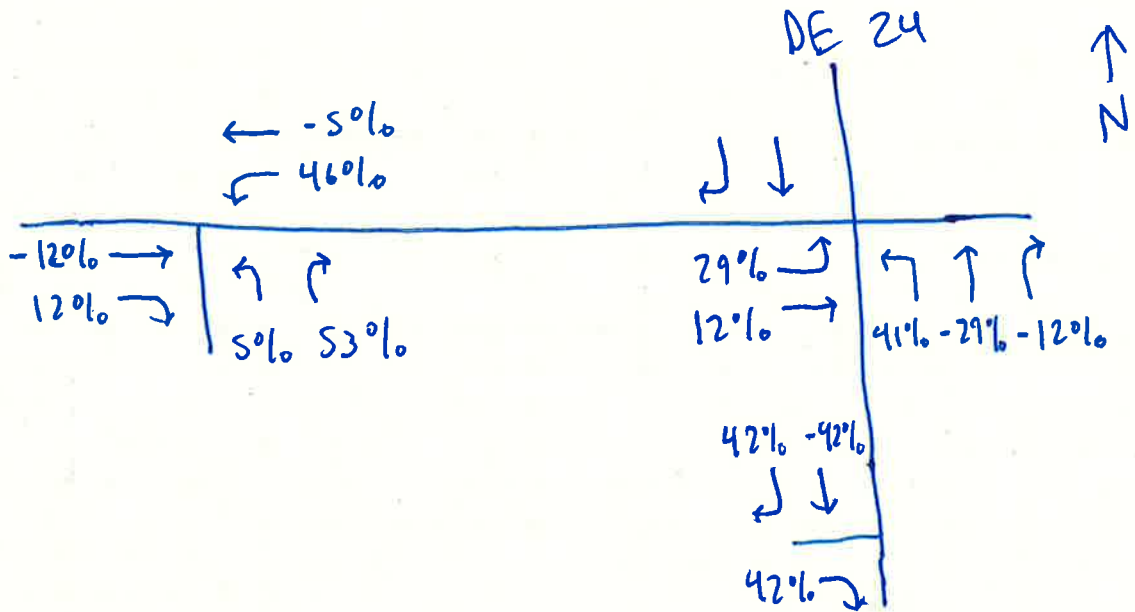
TRIP GENERATION

	PEAK AM HIGHWAY HOUR			PEAK PM HIGHWAY HOUR			PEAK SATURDAY HIGHWAY HOUR		
	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
144 MULTI FAMILY UNITS (LUC 221) AM: $\ln(T) = 0.98 \ln(X) - 0.98$ PM: $\ln(T) = 0.96 \ln(X) - 0.63$ Sat: $T = 0.42 (X) + 6.73$	13	36	49	38	25	63	33	34	67
100 ROOM HOTEL (LUC 310) AM: $T = 0.50 (X) - 5.34$ PM: $T = 0.75 (X) - 26.02$ Sat: $T = 0.69 (X) + 4.32$	27	18	45	25	24	49	41	32	73
61,200 SQ FT SHOPPING CENTER (LUC 820) AM: $T = 0.50 (X) + 151.78$ PM: $\ln(T) = 0.74 \ln(X) + 2.89$ Sat: $\ln(T) = 0.79 \ln(X) + 2.79$	113	69	182	181	197	378	218	202	420
GROSS NEW TRIPS	153	123	276	244	246	490	292	268	560
INTERNAL CAPTURE (LUC 221)	0 0	0 0	0 0	-17	-12	-29	-15	-15	-30
INTERNAL CAPTURE (LUC 310)	0 -1	-3 -3	-3 -4	-5	-4	-9	-8 -8	-4 -5	-12 -14
INTERNAL CAPTURE (LUC820)	-3 -6	0 -2	-3 -8	-15 -20	-21 -28	-36 -48	-18 -24	-22 -28	-40 -52
TOTAL INTERNAL CAPTURE	-3 -7	-3 -6	-6 -13	-37 -42	-37 -44	-74 -86	-41 -48	-41 -48	-82 -96
EXTERNAL NEW TRIPS	146 150	117 120	263 270	202 207	202 209	404 416	244 251	220 227	464 478
PASS-BY TRIPS (FROM LUC 820) <i>34% PM</i> <i>26% SAT</i>	0	0	0	-70 -55	-71 -59	-141 -114	-65 -87	-59 -60	-124 -127
TOTAL PASS-BY TRIPS	0	0	0	-70 -55	-71 -59	-141 -114	-65 -67	-59 -60	-124 -127
NEW TRIPS	150 146	120 117	270 263	137 147	138 143	275 290	186 177	169 160	354 337

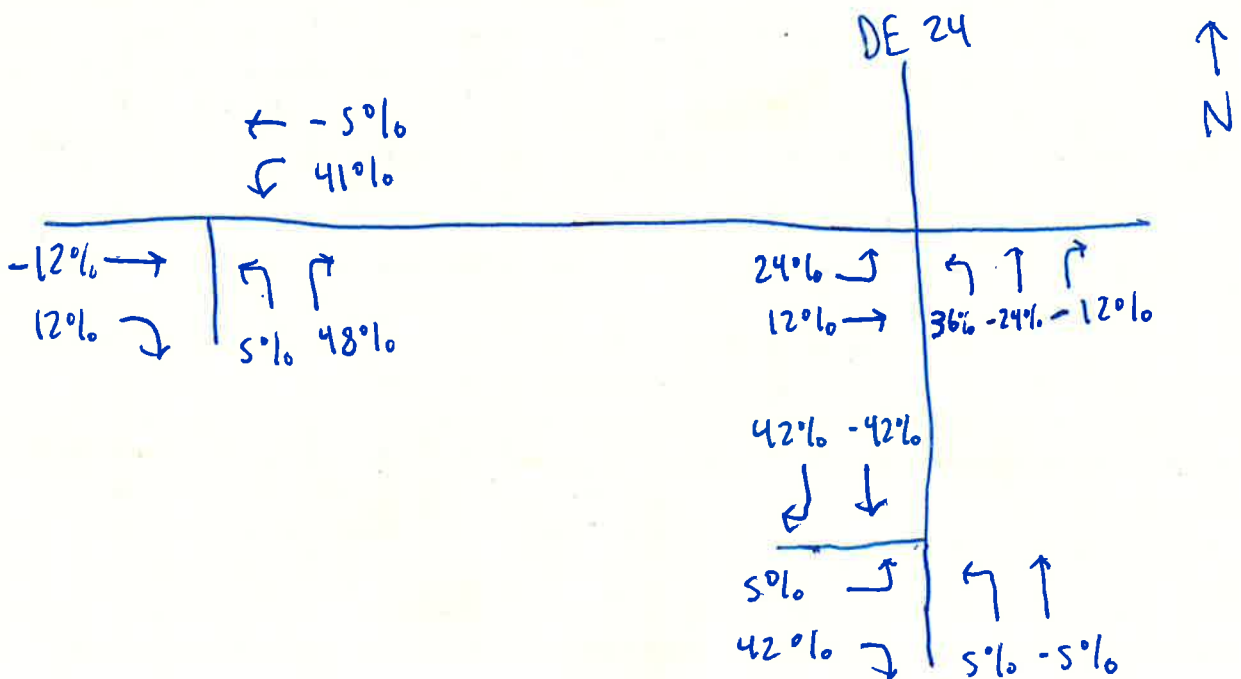
SOURCE: ITE TRIP GENERATION 10TH EDITION

DATE: 31 OCTOBER 2018	TRIP GENERATION NEW DEVELOPMENT PENINSULA SQUARE TRAFFIC IMPACT STUDY	DESIGNED BY: MJK	 DUFFIELD ASSOCIATES Soil, Water & the Environment 5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL 302.239.6634 FAX 302.239.8485 OFFICES IN DELAWARE, MARYLAND PENNSYLVANIA AND NEW JERSEY E-MAIL: DUFFIELD@DUFFNET.COM
SCALE: NONE		DRAWN BY: ADC	
PROJECT. NO. 11675.CA		CHECKED BY: MJK	
SHEET: EXHIBIT 5A		FILE: TIS_FIGURES	
INDIAN RIVER HUNDRED, SUSSEX COUNTY, DELAWARE			

Pass-by % : RI / RD on DE 24



Pass-by % : Full Access on DE 24





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

MEMORANDUM

TO: File

FROM: Claudy Joinville, Project Engineer *C.J.*

DATE: December 6, 2019

**SUBJECT: Patriots Glen – Phase I & II
Traffic Impact Study (TIS) – Scoping Meeting (11/12/19)
Scope of Work**

ATTENDANCE: Joe Caloggero, The Traffic Group, Inc.
Marc Coté, DelDOT Planning
Susanne Laws, DelDOT Planning
Brian Yates, DelDOT Planning
T. William Brockenbrough, DelDOT Planning
Claudy Joinville, DelDOT Planning

Background and Discussion

Schiff Land Development Company, LLC has two related developments in the John J. Williams Highway (Delaware Route 24) corridor between Layton Davis Road (Sussex Road 312A) and Oak Orchard Road (Delaware Route 5). The first one, referred to herein as Patriots Glen Phase I and known elsewhere simply as Patriots Glen, is proposed on a 49.94-acre assemblage of three tax parcels (Tax Parcels 234-29.00-66.00, 66.01 & 66.02). A rezoning of part of the land from CR-1 to MR and a residential planned community (RPC) overlay zone to establish the entire assemblage as an MR-RPC district with 161 single-family detached house lots was adopted by Sussex County in July 2019. The development would have access on the south side of Route 24 through Parcel 66.01. Construction is anticipated to be complete in 2024.

In considering whether a TIS should be required for Patriots Glen Phase I, DelDOT found that a development of 161 single-family detached houses would qualify to pay an Area Wide Study Fee in lieu of doing a TIS. Payment of the fee would not excuse the developer from having to make off-site improvements. The fee is not due until plans are submitted for approval, so the developer has not paid it and DelDOT has not identified the specific off-site improvements they would need to make or fund.

The second development, referred to herein as Patriots Glen Phase II, is proposed on a 43.46-acre tax parcel (Tax Parcel 234-29.00-67.00). Its situation with regard to zoning is similar to Patriots Glen Phase I except that the developer has not yet applied for the rezonings they seek and they propose a smaller development, 127 single-family detached houses. Because Parcel 67.00 is land locked, the developer proposes to access it through Patriots Glen Phase I.



In considering whether a TIS should be required for Patriots Glen Phase II, DelDOT now finds that:

- 1) While a development of 127 single-family detached houses would qualify to pay an Area Wide Study Fee in lieu of doing a TIS, the two combined developments would not and development of Patriots Glen Phase II presupposes and depends on the development of Patriots Glen Phase I.
- 2) While the developer could pay the Area Wide Study Fee for Patriots Glen Phase I, and likely would do so if Patriots Glen Phase II is denied the contemplated rezoning or otherwise cannot be developed, it does not make economic sense for them to both pay the fee and do a TIS.

Accordingly, this scope of work is based on the traffic from both developments. If Sussex County has not rezoned the land for Patriots Glen Phase II by the time that plans for Patriots Glen Phase I are ready for approval, DelDOT will identify a set of off-site improvements such that Patriots Glen Phase I can proceed as an independent development. In doing so, if development of Patriots Glen Phase II remains a reasonable possibility, DelDOT will require that the entrance on Route 24 be designed to accommodate both developments.

Cases to be Evaluated

The study shall evaluate the weekday morning, weekday evening, summer Saturday midday peak hours for the following situations:

- 1) Existing (2019);
- 2) 2027 without development; and
- 3) 2027 with development.

Facilities to be Evaluated

The TIS should evaluate conditions at the following intersections for capacity and level of service using the Highway Capacity Software (HCS). It should also evaluate the extent to which they meet the relevant DelDOT, AASHTO and MUTCD standards for geometry and traffic control devices.

- 1) Site Entrance / Delaware Route 24
- 2) Delaware Route 24 / Gull Point Way (Sussex Road 313)
- 3) Delaware Route 24 / Streets Road (Sussex Road 310)
- 4) Delaware Route 24 / Arrowhead Trail (*Backfill*)
- 5) Delaware Route 24 / William Street (Sussex Road 309)
- 6) Delaware Route 24 / Oak Orchard Road / Mount Joy (Sussex Road 297)
- 7) Delaware Route 24 / Legion Road (Sussex Road 298)
- 8) Delaware Route 24 / Bay Farm Road / Autumn Road (Sussex Road 299)
- 9) Mount Joy Road / Cordrey Road (Sussex Road 308)
- 10) Mount Joy Road / Cannon Road (Sussex Road 307)

Traffic Counts

The Consultant should conduct traffic counts for the intersections listed above from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m., on a Tuesday, Wednesday or Thursday, and from 10:00 a.m. to 2:00 p.m. on a Saturday to determine when the peaks occur. The weekday counts should be performed during a time when schools are open and operating at a normal capacity. The Saturday counts should be conducted at a time

when local area schools, as well as schools in the nearby metropolitan areas of Philadelphia, Baltimore, and Washington, D.C., are closed in June, July, or August.

Additionally, Automatic Traffic Recorders (ATRs) should be used to collect traffic data on Delaware Route 24 near the area of the proposed site entrance. The ATR should be placed for a one-week time period that includes the date(s) of the manual traffic counts. The ATR data will be used to verify the manual counts and determine whether adjustments are required.

For intersections Nos. 3, 4, 5, and 10, the Consultant is allowed to proceed with the submission of the weekday morning and evening traffic counts and preliminary TIS for our review. However, the Consultant must perform summer Saturday counts for them and include those counts in the submission of the final TIS.

Section 2.2.8.5, item 19, under Existing Traffic and Transportation Conditions in the Development Coordination Manual addresses how oversaturated intersections are to be counted.

The traffic counts should be submitted to DelDOT both electronically as Portable Document Format (PDF)/Excel files and as draft report figures showing peak hour volumes (labeled with date and peak hour interval) posted on diagrams of the road network.

The Consultant should include counts of pedestrians, a separate count of right-turn on red (in addition to right-turn movement counts), and a separate count of heavy vehicles.

The Consultant should be alert for events affecting the traffic counts, such as accidents or nearby construction and shall make note of any such events when submitting the counts. As necessary, DelDOT reserves the right to reject the counts or require adjustments to them.

Trip Generation

The Consultant shall use the 10th edition of the ITE Trip Generation Manual in generating trips for this development.

Trip Distribution

A trip distribution to be used for the site is attached. Trip distributions for the committed developments will be provided by the Consultant for review.

Growth Factors

The Consultant shall apply growth factors to the traffic counts. DelDOT will develop those factors after we receive the Consultant's traffic counts.

The Consultant should also determine what portions of the following developments were complete at the time of any traffic counts to be used in the study and shall add in projected traffic from any unbuilt portions. The following information on the amount and types of development associated with these projects is tentative and should be verified with Sussex County.

- 1) Acadia a.k.a. Insight at Lewes Point (238 single-family detached houses)
- 2) Middle Creek Preserve (313 single-family detached houses)
- 3) Hailey's Glen (f.k.a. Kielbasa Property) (68 single-family detached houses)
- 4) Beachtree Preserve (155 single-family detached houses)

- 5) Tanager Woods (173 single-family detached houses)
- 6) Pelican Point (400 single-family detached houses)
- 7) Independence (a.k.a. Indigo Run) (450 single-family detached houses)
- 8) Deerbrook (120 single-family detached houses)
- 9) Peninsula Lakes (588 single-family detached houses, 72 multi-family low-rise houses, and 15,000 square-feet of retail space)
- 10) Baylis Estates (136 single-family detached houses)

Highway Capacity Software

The Consultant shall use the most recent version of the Highway Capacity Software (HCS) that implements the 6th Edition of the Highway Capacity Manual (HCM). Presently, that is HCS7.

Roads	November	December	January
Delaware Route 24 – TPG 8	1.22	1.28	1.25
Autumn Road (Sussex Road 299) – TPG 7	0.98	1.11	1.23
Bay Farm (Sussex Road 299) – TPG 7	0.98	1.11	1.23
Legion Road (Sussex Road 298) – TPG 7	0.98	1.11	1.23
Mount Joy Road (Sussex Road 297) – TPG 6	1.09	1.08	1.25
Oak Orchard Road (Sussex Road 297) – TPG 3	1.05	1.11	1.14
Gull Point Road (Sussex Road 313) – TPG 7	0.98	1.11	1.23
William Street (Sussex Road 309) – TPG 7	0.98	1.11	1.23
Streets Road (Sussex Road 310) – TPG 7	0.98	1.11	1.23
Cordrey Road (Sussex Road 308) – TPG 7	0.98	1.11	1.23
Cannon Road (Sussex Road 307) – TPG 7	0.98	1.11	1.23
All Other Roads	1.00	1.00	1.00

DelDOT Projects

DelDOT currently has one active project within the study area.

DelDOT’s Hazard Elimination Program has two sites that include the intersections of Delaware Route 24 and Mount Joy Road, and Delaware Route 24 and Bay Farm Road / Autumn Road. At the intersection of Delaware Route 24 and Mount Joy Road, the proposed improvements include:

- Widen the northbound Oak Orchard Road and southbound Mount Joy Road approaches, respectively, to provide separate left-turn, through, and right-turn lanes.
- Extend the left-turn and right-turn lanes on all approaches to meet storage requirements.
- Construct sidewalks and bicycle lanes.

At the intersection of Delaware Route 24 and Bay Farm Road / Autumn Road, the proposed improvements include:

- Widen the northbound Bay Farm Road and southbound Autumn Road approaches, respectively, to provide separate left-turn, through, and right-turn lanes.
- Widen the westbound Delaware Route 24 approach to provide separate left-turn, through, and right-turn lanes.
- Extend the left-turn and right-turn lanes on all approaches to meet storage requirements.
- Construct sidewalks and bicycle lanes.

More details, including concept plans for this project, are available at the following link: https://www.deldot.gov/information/projects/SR24_MountJoy_BayFarmRd/index.shtml. For more information on how this project affects the proposed development, the Consultant shall contact Mr. Mark Whiteside, Project Manager in the Project Development – South section. Mr. Whiteside may be reached at (302) 760-2127.

Transit, Bicycle, and Pedestrian Facilities

The study should describe the existing and proposed transit service in the project area and should also describe the existing and needed transit, bicycle, and pedestrian facilities on or near the project site. In determining these items, the Consultant shall contact Mr. Jared Kauffman, a Service Development Planner at the Delaware Transit Corporation (DTC), and Mr. Anthony Aglio, of DelDOT's Statewide and Regional Planning Section. Mr. Kauffman may be reached at (302) 576-6062. Mr. Aglio may be reached at (302) 760-2509.

General Notes

- 1) All submissions relating to this study should be made electronically via the Planning and Development Coordination Application (PDCA), preferably in Portable Document Format (PDF).
- 2) The Consultant should e-mail DelDOT's Transportation Management Center (TMC) at tmc1@delaware.gov to obtain advance approval for the use of any signal timings.
- 3) The Consultant should refer to the attached memorandum from Scott Neidert of DelDOT's Traffic Section for guidance regarding requests for crash data within the study area. The Consultant shall report on this data and make recommendations for improvements if safety problems exist in the study area. Mr. Neidert may be reached at (302) 659-4075.
- 4) Before deploying temporary unmanned devices, e.g. cameras or radar detectors, in the State-maintained right-of-way, the individual or company proposing to do so shall execute and file a Right-of-Way Use Agreement. Before each specific deployment of devices, the individual or company shall email a completed Temporary Data Collection Device Notification Form to TMC1@delaware.gov. Deployment of Automatic Traffic Recorders, a.k.a. tube counters, and devices on portable trailers does not require a Right-of-Way Use Agreement but does require submission of the Temporary Data Collection Device Notification Form. Copies of the standard agreement and the form are available from Ms. Lara Brown at (302) 659-4062 or Lara.Brown@delaware.gov.
- 5) Both DelDOT and Sussex County reserve the right to change this scope of work if the study is not performed within a reasonable time.

Memorandum to File
December 6, 2019
Page 6 of 6

- 6) The developer may choose to have DelDOT's Consultant perform the TIS rather than use their own Consultant. If this option is of interest, the developer should contact Mr. Troy Brestel at (302) 760-2167 to request a cost estimate.
- 7) By copy of this memorandum I ask those copied to contact me at (302) 760-2124 regarding any significant errors or omissions.

CJ:cjm
Enclosure

cc: Janelle Cornwell, Sussex County Planning and Zoning
Drew Boyce, Director, Planning
Michael Simmons, Assistant Director for Project Development South, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Alastair Probert, South District Engineer, DOTS
Gemez Norwood, South District Public Works Supervisor, DOTS
Bryan Behrens, Project Development – South Section, DOTS
Mark Whiteside, Project Development – South Section, DOTS
James Satterfield, Regional Group Engineer, Project Development South, DOTS
William Kirsch, South District Permit Supervisor, DOTS
Troy Brestel, Project Manager, Development Coordination
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Mark Galipo, Traffic Engineer, DelDOT Traffic, DOTS
Anthony Aglio, Statewide & Regional Planning
Scott Neidert, Design Resource Engineer, Traffic Section
Lara Brown, Administrative Specialist, DelDOT Traffic DOTS
Kari Glanden, Statistical Information Supervisor, DelDOT Traffic, DOTS
Andrew Parker, McCormick & Taylor, Inc.
Mir Wahed, Johnson, Mirmiran, & Thompson, Inc.

PM Peak Distribution

December 6, 2019

Patriots Glen Phase I & II
 125 Single-family Houses (ITE 10th Ed. LUC 210)
 161 Single-family Houses (ITE 10th Ed. LUC 210)

Trip Generation

	Total	IN	OUT
ADT Total	2,734	1,367	1,367
Phase II Only	1,277	638	639
PM Total	279	176	103

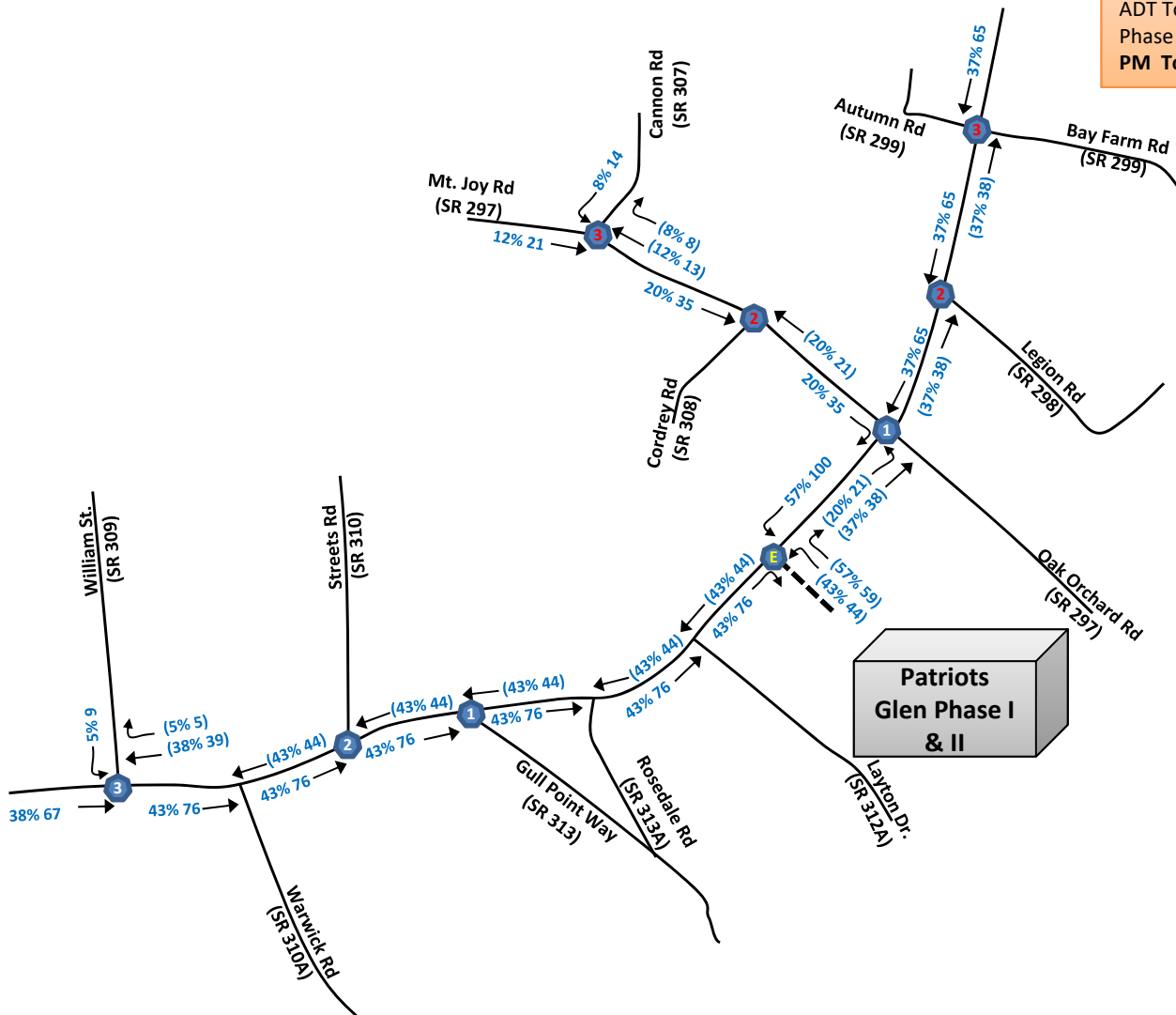


Figure 1 of 1

Note: Figure Not Drawn to Scale

Legend

- State-maintained road
- Site Entrance
- Traffic lost / gained before intersections
- State-maintained Intersections
- Inbound Trips
- Outbound Trips



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

TO: Requestors of Crash Data via DelDOT's Development Coordination Process

FROM: Scott Neidert, Design Resource Engineer, Traffic Section

DATE: September 5, 2019

SUBJECT: Revisions to Crash Data Requests and Releases

As of July 23, 2019, Governor Carney has signed SB 147 into law containing amendments to the release of crash data, namely permitting DelDOT to release certain de-identified data based on the nature of the requestor. Specifically, newly enacted 21 *Del. C.* §313(c)(1) provides that:

“The Department of Transportation may provide the information under this subsection if the person requesting the information provides proof of identity and a sworn representation that the data will be strictly used for any of the following purposes:

- a. To comply with federal, State, or local law or regulations.*
- b. By a municipality or municipal planning organization in carrying out official functions.”*

To conform with the “proof of identity and... sworn representation...” clause, requestors will be required to complete an online crash data request as well as provide a notarized release form to be submitted with each crash request prior to being processed. A link to the release form is provided within the online crash request.

Effective immediately, all requests for crash data, when required, must be made at:
<https://tmc.deldot.gov/tmcx/app/crashdata/public/info.html>

Requests for crash data will not be processed until all required fields are completed, and the release form has been completed and received.

SN

cc: Nicole Majeski, Deputy Secretary
Shanté Hastings, Chief Engineer
Drew Boyce, Director, Planning
Annie Cordo, Deputy Attorney General
Mark Luszcz, Deputy Director, Division of Transportation Solutions
Kari Glanden Thompson, Statistical Information Supervisor, Traffic Section



APPENDIX F

DeIDOT Auxiliary Lane Worksheet



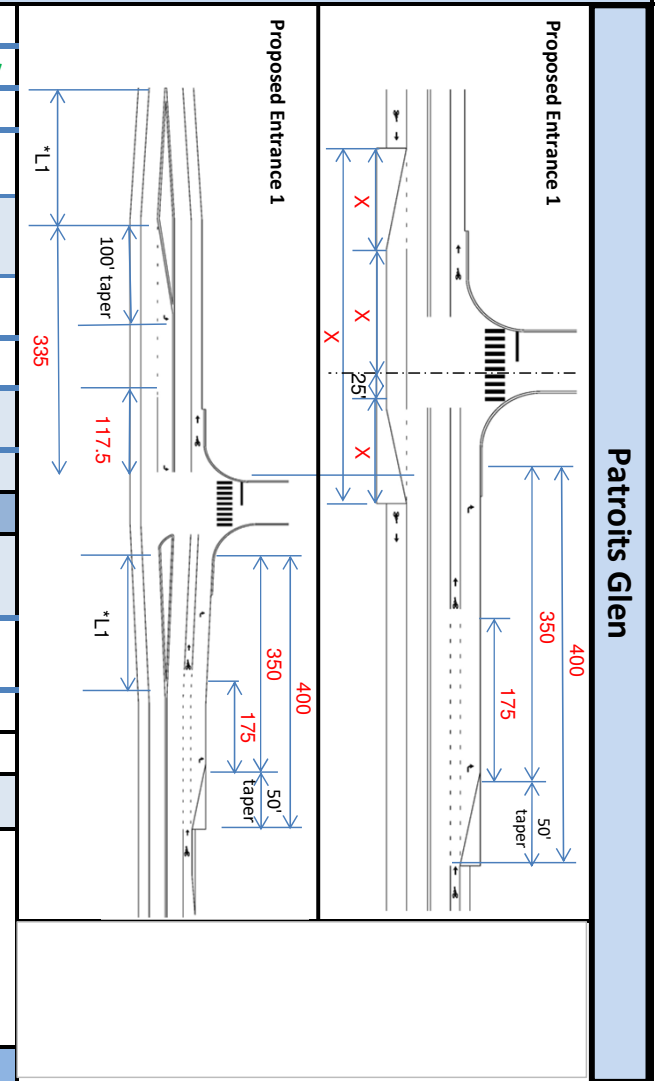


DelDOT Auxiliary Lane Worksheet

Roadway Information and Entrance

Manually Update Cell	XX
Auto-Calculated Cells	XX

Name of Project		Patriots Glen		Date of Submittal		8/21/2020	
Maintenance Road No. (i.e. K234A)		S 24		Road Name		John Williams Hwy	
Signalized / Unsignalized		Unsignalized		Posted Speed Limit		50	
Roadway ADT (From DelDOT Traffic Manual)		21960		Traffic Pattern Group		8	
Left Approach Site ADT	1568	Committed Development ADT	0	Total Left Approach ADT	1568	Right Approach Site ADT	1184
						Committed Development ADT	0
Total Right Approach ADT				Total Right Approach ADT		1184	
Total Number of Through Lanes (Does Not Include Turn Lanes)		2 lanes		Number of intersection legs		3	
Roadway Functional Classification		Major Collector		Calculation for (specify leg)		Proposed Entrance 1	
Left-Approach Projected 10 yr Roadway ADT + Total Site + Committed Development ADT		27041		Right-Approach Projected 10 yr Roadway ADT + Total Site + Committed Development ADT		26657	
K Factor		11.91		D Factor		55.16	
Left Turn Information				Right Turn Information			
Left Turn VPH		76		Right Turn ADT		Over 400	
Left Turn Approach Grade		0.0%		Right Turn Approach Grade		0.0%	
Heavy Vehicle %		5		Effective Radius of Entrance		R≤50'	
10 Yr Opposing Vol. (Manual Input - Veh/hr)		832		Right Turn Length		400 ft	
10 Yr Opposing Volume (Manual Input)		832 Veh/hr					
Left Turn Length		335 ft					



NOTE:
 This worksheet is for Right Turn Auxiliary Lanes, and Unsignalized Left Turn Auxiliary Lanes. If a signal analysis is required, please refer to signalized intersection analysis spreadsheet (Tab 6).
 *L1 - See Typical Entrance Diagram located at: http://www.deldot.gov/information/business/subdivisions/Typical_Entrance_Diagrams.pdf

APPENDIX G

Signal Timing Data



Zone S 015

INTERSECTION TIMESHEET PACKET
NOTICE TO PROCEED

Traffic Responsive

Signal Permit Number: 5140
Date of Timesheet: 5/24/17
Controller Type: EPAC
Coordination Type: TACTICS

Location: DE 24 @ MT JOY (RD 297)
Revision Number: C.1
Monitor Type: NEMAR
Coordination Address: 1
Baud Rate: 9600

Phase Data

PHASE #	1	2	3	4	5	6	7	8
PHASE	WB	EB		NB	EB	WB		
LOCATION	LT	DE 24	SB	NB	LT	DE 24		
MIN GRN	5	15	5	5	5	15		
PASS/10	30	40	40	40	30	40		
MAX I	20	60	20	20	20	60		
MAX II	20	60	20	20	20	60		
YEL/10	50	50	50	50	50	50		
RED/10	20	20	20	20	20	20		
WALK								
PED CLR								
EXT PCL								
WOFF/10								
WMODE								
ARIW								
INITIAL	1	4	1	1	1	4		
NA RESP								
V. RECALL		2				2		
P. RECALL								
NL MEM	1				1			
2 ENTRY		1				1		
SPC SEQ								
OMIT Ø	2				6			
OCAL Ø								

OVERLAP DATA

	A	B	C	D
OVERLAP LOCATION				
OVERLAP PHASES				

Start

04/12/2020

End

04/16/2020



04/12/2020 00:00:00 - 04/16/2020 (

S140 - S015 DE24 MT JOY>DE5

DATE	DAY	TIME	Pattern	MSG
04/13/2020	Mon	11:32		Broadcast Special Functions = On Fn1 Fn2 Fn3 Fn4 Fn5 Fn6 Fn7 Fn8 = Off to Zone S015
04/13/2020	Mon	11:32	121 - 75	Broadcast 121 - 75 BAL to Zone S015
04/13/2020	Mon	11:31	121 - 75	[TrafficResponsive] TR Recommends pattern 121 - 75 BAL for group S015
04/13/2020	Mon	10:48		Alarm Preemption (110) - Off at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:46		Alarm Preemption (110) - On at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:46		Alarm Preemption (110) - Off at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:44		Alarm Preemption (110) - On at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:12		Alarm Preemption (110) - Off at DE 24 @ RD 297-S140 (S140)
04/13/2020	Mon	10:10		Alarm Preemption (110) - On at DE 24 @ RD 297-S140 (S140)
04/13/2020	Mon	10:09		Alarm Preemption (110) - Off at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:08		Alarm Preemption (110) - On at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	08:27	121 - 75	[TrafficResponsive] TR Recommends pattern 121 - 75 BAL for group S015
04/13/2020	Mon	08:27	121 - 75	Broadcast 121 - 75 BAL to Zone S015
04/13/2020	Mon	07:37	211 - 90	[TrafficResponsive] TR Recommends pattern 211 - 90 EB for group S015
04/13/2020	Mon	07:37	211 - 90	Broadcast 211 - 90 EB to Zone S015
04/13/2020	Mon	03:42		Alarm Preemption (110) - Off at DE 24 @ RD 299-S285 (S285)
04/13/2020	Mon	03:41		Alarm Preemption (110) - Off at DE 24 @ RD 297-S140 (S140)
04/13/2020	Mon	03:40		Alarm Preemption (110) - On at DE 24 @ RD 299-S285 (S285)
04/13/2020	Mon	03:40		Alarm Preemption (110) - On at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	19:38		Alarm Preemption (110) - Off at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	19:38		Alarm Preemption (110) - Off at DE 24 @ RD 299-S285 (S285)
04/12/2020	Sun	19:36		Alarm Preemption (110) - On at DE 24 @ RD 299-S285 (S285)
04/12/2020	Sun	19:35		Alarm Preemption (110) - On at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	13:40	121 - 75	[TrafficResponsive] TR Recommends pattern 121 - 75 BAL for group S015
04/12/2020	Sun	13:40	121 - 75	Broadcast 121 - 75 BAL to Zone S015
04/12/2020	Sun	13:25	211 - 90	[TrafficResponsive] TR Recommends pattern 211 - 90 EB for group S015
04/12/2020	Sun	13:25	211 - 90	Broadcast 211 - 90 EB to Zone S015
04/12/2020	Sun	08:35		Alarm Preemption (110) - Off at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	08:33		Alarm Preemption (110) - On at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	08:30		Alarm Preemption (110) - Off at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	08:30		Alarm Preemption (110) - Off at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	08:27		Alarm Preemption (110) - On at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	08:27		Alarm Preemption (110) - On at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	01:51		Alarm Preemption (110) - Off at DE 24 @ DE 5-S127 (S127)

Dial 1/Split 2

Cycle Length 75

Phase	1	2	3	4	5	6	7	8
Time	15	30	15	15	15	30	0	0
Mode	0 - AP	1 - CP	0 - AP	0 - AP	0 - AP	1 - CP	0 - AP	0 - AP
Min Veh Time	13	23	13	13	13	23		
Min Ped Time	0	0	0	0	0	0		

Phase	9	10	11	12	13	14	15	16
Time	0	0	0	0	0	0	0	0
Mode	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP
Min Veh Time								
Min Ped Time								

Dial 2/Split 1

Cycle Length 90

Phase	1	2	3	4	5	6	7	8
Time	18	34	20	18	15	37	0	0
Mode	0 - AP	1 - CP	0 - AP	0 - AP	0 - AP	1 - CP	0 - AP	0 - AP
Min Veh Time	13	23	13	13	13	23		
Min Ped Time	0	0	0	0	0	0		

Phase	9	10	11	12	13	14	15	16
Time	0	0	0	0	0	0	0	0
Mode	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP
Min Veh Time								
Min Ped Time								

Offset	1	2	3
Time	14	0	0
Mode	0 - Normal	0 - Normal	0 - Normal
Alt Sequence	0	0	0
Ring 2 Lag Time	0	0	0
Ring 3 Lag Time	0	0	0
Ring 4 Lag Time	0	0	0

2015

DE 24 @ RD 299

S285

OF CHART: 1/4/12
 INSTALLED: 1/4/12
 COLLER TYPE: EPAC
 INATION TYPE: ACTRA
 ATION ADDRESS: 3

CHART REVISION: B.1
 CABINET TYPE: PCOM
 MONITOR TYPE: NEMA+

NUMBER	1	2	3	4	5	6	7	8
LOCATION	WBLT	EB RT 24	NBLT	SB RD 299	EBLT	NB RT 24	SBLT	NB RD 299
10	5	10	5	5	5	10	5	5
1	30	50	30	30	30	50	30	30
2	20	60	20	40	20	60	20	40
3	20	60	20	40	20	60	20	40
4	30	50	30	40	30	50	30	40
5	20	20	20	20	20	20	20	20
6	0	30	0	0	0	30	0	0
7	0	30	0	0	0	30	0	0
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0
21	1	4	1	1	1	4	1	1
22	0	0	0	0	0	0	0	0
23	0	2	0	0	0	2	0	0
24	0	0	0	0	0	0	0	0
25	1	0	1	0	1	0	1	0
26	0	1	0	1	0	1	0	1
27	A=	B=	C=	D=				

**** INTERSECTION NOTES ****

- 1 ADDED TO SYSTEM CONTROL

- 2 PHASES 1,3,5 & 7 ARE PERMISSIVE LEFT TURNS(5 SECTION HEAD)

- 3 PREEMPT: TRANS(PRIORITY) = NB & SB OR EB & WB

- 4 EMERG(PREEMPT) = EB & ^{WB}EBLT, WB & ^{EB}WBLT, NB & ^{SB}NBLT OR SB & ^{WB}SBLT

- 5

- 6 Yellow Trap Modified 1/4/12

changes By TR 60 - this is UNSIGNED / unsheet

Start
04/12/2020

End
04/16/2020



04/12/2020 00:00:00 - 04/16/2020

S285 - S015 DE24 MT JOY>DE5

DATE	DAY	TIME	Pattern	MSG
04/13/2020	Mon	11:32		Broadcast Special Functions = On Fn1 Fn2 Fn3 Fn4 Fn5 Fn6 Fn7 Fn8 = Off to Zone S015
04/13/2020	Mon	11:32	121 - 75	Broadcast 121 - 75 BAL to Zone S015
04/13/2020	Mon	11:31	121 - 75	[TrafficResponsive] TR Recommends pattern 121 - 75 BAL for group S015
04/13/2020	Mon	10:48		Alarm Preemption (110) - Off at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:46		Alarm Preemption (110) - On at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:46		Alarm Preemption (110) - Off at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:44		Alarm Preemption (110) - On at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:12		Alarm Preemption (110) - Off at DE 24 @ RD 297-S140 (S140)
04/13/2020	Mon	10:10		Alarm Preemption (110) - On at DE 24 @ RD 297-S140 (S140)
04/13/2020	Mon	10:09		Alarm Preemption (110) - Off at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	10:08		Alarm Preemption (110) - On at DE 24 @ BAYSHORE PLAZA-S313 (S313)
04/13/2020	Mon	08:27	121 - 75	[TrafficResponsive] TR Recommends pattern 121 - 75 BAL for group S015
04/13/2020	Mon	08:27	121 - 75	Broadcast 121 - 75 BAL to Zone S015
04/13/2020	Mon	07:37	211 - 90	[TrafficResponsive] TR Recommends pattern 211 - 90 EB for group S015
04/13/2020	Mon	07:37	211 - 90	Broadcast 211 - 90 EB to Zone S015
04/13/2020	Mon	03:42		Alarm Preemption (110) - Off at DE 24 @ RD 299-S285 (S285)
04/13/2020	Mon	03:41		Alarm Preemption (110) - Off at DE 24 @ RD 297-S140 (S140)
04/13/2020	Mon	03:40		Alarm Preemption (110) - On at DE 24 @ RD 299-S285 (S285)
04/13/2020	Mon	03:40		Alarm Preemption (110) - On at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	19:38		Alarm Preemption (110) - Off at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	19:38		Alarm Preemption (110) - Off at DE 24 @ RD 299-S285 (S285)
04/12/2020	Sun	19:36		Alarm Preemption (110) - On at DE 24 @ RD 299-S285 (S285)
04/12/2020	Sun	19:35		Alarm Preemption (110) - On at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	13:40	121 - 75	[TrafficResponsive] TR Recommends pattern 121 - 75 BAL for group S015
04/12/2020	Sun	13:40	121 - 75	Broadcast 121 - 75 BAL to Zone S015
04/12/2020	Sun	13:25	211 - 90	[TrafficResponsive] TR Recommends pattern 211 - 90 EB for group S015
04/12/2020	Sun	13:25	211 - 90	Broadcast 211 - 90 EB to Zone S015
04/12/2020	Sun	08:35		Alarm Preemption (110) - Off at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	08:33		Alarm Preemption (110) - On at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	08:30		Alarm Preemption (110) - Off at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	08:30		Alarm Preemption (110) - Off at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	08:27		Alarm Preemption (110) - On at DE 24 @ RD 297-S140 (S140)
04/12/2020	Sun	08:27		Alarm Preemption (110) - On at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	01:51		Alarm Preemption (110) - Off at DE 24 @ DE 5-S127 (S127)
04/12/2020	Sun	01:48		Alarm Preemption (110) - On at DE 24 @ DE 5-S127 (S127)

Dial 1/Split 2

Cycle Length 75

Phase	1	2	3	4	5	6	7	8
Time	15	30	15	15	15	30	15	15
Mode	0 - AP	1 - CP	0 - AP	0 - AP	0 - AP	1 - CP	0 - AP	0 - AP
Min Veh Time	11	18	11	12	11	18	11	12
Min Ped Time	0	0	0	0	0	0	0	0

Phase	9	10	11	12	13	14	15	16
Time	0	0	0	0	0	0	0	0
Mode	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP
Min Veh Time								
Min Ped Time								

Dial 2/Split 1

Cycle Length 90

Phase	1	2	3	4	5	6	7	8
Time	18	39	18	15	18	39	18	15
Mode	0 - AP	1 - CP	0 - AP	0 - AP	0 - AP	1 - CP	0 - AP	0 - AP
Min Veh Time	11	18	11	12	11	18	11	12
Min Ped Time	0	0	0	0	0	0	0	0

Phase	9	10	11	12	13	14	15	16
Time	0	0	0	0	0	0	0	0
Mode	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP	0 - AP
Min Veh Time								
Min Ped Time								

Offset	1	2	3
Time	87	0	0
Mode	0 - Normal	0 - Normal	0 - Normal
Alt Sequence	0	0	0
Ring 2 Lag Time	0	0	0
Ring 3 Lag Time	0	0	0
Ring 4 Lag Time	0	0	0

APPENDIX H

DeIDOT Projects

Supporting Documentation



Projects

HSIP SC, SR 24 @ Mount Joy Road to Bay Farm Road

Project Overview:

SR24 at Mount Joy Road

- Widen the northbound and southbound Mount Joy Road approaches to provide separate left-turn, pass through, and right turn lanes
- Extend the left-turn lane and right-turn lanes on all approaches to meet storage requirements

SR 24 at Bay Farm Road

- Widen the northbound and southbound Bay Farm Road approaches to provide separate left-turn, pass through, and right-turn lanes
- Widen the westbound SR24 approaches to provide a separate left-turn, pass through, and right-turn lanes
- Extend the left-turn and right-turn lanes on all approaches to meet storage requirements

Sidewalks and bike lanes will also be constructed at both intersections.


Project Limits:


This project encompasses two intersections along SR 24 in Sussex County. It involves adding operational improvements at the intersections of SR 24 at Mount Joy Road / Oak Orchard Road and SR 24 at Bay Farm Road / Autumn Road. In addition, there will be operational improvements along SR 24 between Mount Joy Road and Bay Farm Road

Project Need:

This project is identified as a high crash location as part of the Delaware Department of Transportation (DelDOT) Highway Safety Improvement Program (HSIP). Recommendations were made from the SR 24, SR 30 to Love Creek Traffic Study performed in November 2010. The study determined the need for operational improvements to address safety deficiencies and to accommodate future traffic volumes.

Current Concept:

 [SR 24 @ Mount Joy Road](#)

 [SR 24 @ Bay Farm Road](#)

Project Schedule:

- Final Right of Way Plans Completed - August 2015
- Final Design Scheduled for Summer 2018
- Anticipated Start of Construction – Summer 2019
- Anticipated End of Construction- Late Summer 2021

SCALE
0 110 220 330
FEET

CONTINUE TO
BAY FARM ROAD

MT. JOY ROAD

ST. MICHAEL THE ARCHANGEL
R.C. CHURCH

ROYAL FARMS

LEGION ROAD

OAK ORCHARD
ROAD

TRADING POST PLAZA

NANTICOKE INDIAN MUSEUM

LEGEND

- EXISTING R/W
- PROPOSED R/W
- PROPOSED SIDEWALK
- PROPOSED CURB

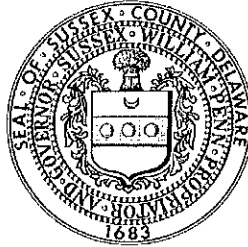


Appendix 9 – Sewer Concept Evaluation Study

Sussex County Engineering Department

ENGINEERING DEPARTMENT

ADMINISTRATION (302) 855-7718
AIRPORT & INDUSTRIAL PARK (302) 855-7774
ENVIRONMENTAL SERVICES (302) 855-7730
PUBLIC WORKS (302) 855-7703
RECORDS MANAGEMENT (302) 854-5033
UTILITY ENGINEERING (302) 855-7717
UTILITY PERMITS (302) 855-7719
UTILITY PLANNING (302) 855-1299
FAX (302) 855-7799



Sussex County

DELAWARE
sussexcountyde.gov

HANS M. MEDLARZ, P.E.
COUNTY ENGINEER

JOHN J. ASHMAN
DIRECTOR OF UTILITY PLANNING

SEWER SERVICE CONCEPT EVALUATION (SSCE) UTILITY PLANNING DIVISION

Applicant: Morris & Ritchie Associates, Inc.

Date: 4/18/2019

Reviewed by: Chris Calio

Agreement #: **1109**

Project Name: **Patriot's Glen**

Tax Map & Parcel(s): **234-29.00-66.00, 66.01 & 66.02**

Sewer Tier: Tier 1 - Sussex County Unified Sanitary Sewer District

Proposed EDUs: **166**

Pump Station(s) Impacted: **PS-326**

List of parcels to be served, created from the base parcel: **N/A.**

List of additional parcels to be served (Parcels required for continuity must be served with infrastructure): **234-29.00-67.00 must be served from on site pump station**

Connection Point(s): **MH-354**

Use of Existing Infrastructure Agreement required? Yes or No

Annexation Required? Yes or No

Easements Required? Yes or No

Fee for annexation (based on acreage): **N/A**

Current Zoning: **MR** Zoning Proposed: **MR**

Acreage: **49.95 ac.**



Additional Information: Install gravity sewer line from connection manhole 354 to entrance with 8" stub continuing to the west at maximum depth and minimum slope. Serve as much of the proposed subdivision by gravity as possible to the gravity manhole at entrance. Serve parcel 234-29.00-67.00 with 8" lateral and TCO from internal pump station. Extend forcemain from proposed pump station to nearest proposed gravity connection point.

* No capacity is guaranteed until System Connection Fees are paid

All gravity sewers with three (3) or more minor branches shall be designed at minimum slope and maximum depth.

Once Construction Drawings are completed with all of the above information satisfied, please submit to:

Sussex County Public Works Department
22215 Dupont Blvd.
P.O. Box 589
Georgetown DE 19947

CC: John Ashman
Jayne Dickerson
Michael Brady
Nichole Bixby

Appendix 10 – Water Service

Willing & Able Letter, Tidewater Utilities, Inc., March 10, 2021



March 10, 2021

Morris & Ritchie Associates, Inc.
Attn: Christopher J. Flathers, PE
18 Boulden Circle, Suite 36
New Castle, DE 19720

RE: Willing & Able Letter – Tax Parcel 234-29.00-67.00 for Patriots Glen – Phase 2
(Meadows Water District)

Dear Mr. Flathers:

Tidewater Utilities, Inc. (Tidewater) is willing and able to serve public water, *including fire protection*, to the following parcel(s) identified as Tax Map & Parcel 234-29.00-67.00. Water service is contingent on the terms and conditions of a Water Service Agreement by and between Tidewater and the Project Owner. This parcel is located within Tidewater's existing water Certificate of Public Convenience and Necessity franchise area.

Please send a site plan and construction schedule to Tidewater if not previously submitted. Please feel free to contact me at 302-747-1325 if you have any questions or concerns regarding this matter. Tidewater looks forward to meeting the water needs of this project.

Sincerely,

A handwritten signature in cursive script that reads "Kirsten E. Higgins".

Kirsten Higgins
Vice President, Development & Contract
Administration

cc: Brian Carbaugh, P.E., Tidewater Utilities, Inc.