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

JENNIFER COHAN
SECRETARY

October 11, 2016

Mr. Ted Williams
Landmark Science and Engineering, Inc.
100 West Commons Boulevard
New Castle, DE 19720

Dear Mr. Williams:

The enclosed Traffic Impact Study (TIS) review letter for the **Branmar Commons** (Tax Parcels 06-067.00-270, 271, 272, 273, 299, 307, 312 & 313, 06-068.00-026, 027 & 244) 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 review 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. Larry Tarabicos, Tarabicos Grosso, L.L.P.
Ms. Constance C. Holland, Office of State Planning Coordination
Mr. George Haggerty, New Castle County Department of Land Use
Mr. Owen Robatino, New Castle County Department of Land Use
Mr. Marco Boyce, New Castle County Department of Land Use
Mr. Andrew Parker, McCormick Taylor, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Annie Cordo, Deputy Attorney General
Robert McCleary, Director, Transportation Solutions (DOTS)
Drew Boyce, Director, Planning
Mark Luszcz, Chief Traffic Engineer, Traffic, DOTS
Mark Tudor, Assistant Director, Project Development North, DOTS
J. Marc Coté, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Peter Haag, Traffic Studies Manager, Traffic, DOTS
Don Weber, North District Engineer, North District
Matthew Lichtenstein, Canal District Public Works Engineer, Canal District
David Dooley, Service Development Planner, Delaware Transit Corporation
Jeffrey Van Horn, New Castle Subdivision Coordinator, Development Coordination
Pao Lin, New Castle Subdivision Manager, Development Coordination
Mark Galipo, Traffic Engineer, Traffic, DOTS
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Claudy Joinville, Project Engineer, Development Coordination

McCORMICK TAYLOR

October 11, 2016

Mr. Troy E. Brestel
Project Engineer
DelDOT Division of Planning
P.P. Box 778
Dover, DE 19903

RE: Agreement No. 1655
Traffic Impact Study Services
Task No. 1 Subtask 18A – Branmar Commons

Dear Mr. Brestel:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Branmar Commons commercial and residential development prepared by Landmark Science & Engineering (Landmark), dated May 2016. Landmark prepared the report in a manner generally consistent with DelDOT's *Development Coordination Manual* [formerly *Standards and Regulations for Subdivision Streets*, incorporated by reference into the New Castle County Unified Development Code 40.11.130].

The TIS evaluates the impacts of the proposed Branmar Commons commercial and residential development. The site is proposed to be located on the south side of Silverside Road (New Castle Road 212), to the east of Foulk Road (New Castle Road 203) and to the west of Marsh Road (New Castle Road 23), in New Castle County, Delaware. The proposed development would include 37 townhomes and 30,812 square feet of commercial space consisting of restaurants and coffee shops totaling 8,787 square feet, a 13,225 square-foot pharmacy with drive-through, a 4,000 square-foot bank with drive-through, and 4,800 square feet of retail space. One full-movement access point is proposed on Silverside Road, directly across from the existing Branmar Plaza entrance. This intersection is currently stop-controlled, and the developer has expressed interest in installing a traffic signal. Construction of the Branmar Commons development is anticipated to be complete by 2018.

The land is currently split-zoned as NCSD (Neighborhood Conservation Single-Detached) and NC15 (Neighborhood Conservation – Fifteen Thousand Square Foot Minimum Lot Size) in New Castle County, and the developer proposes to rezone the property to CN (Commercial Neighborhood).

DelDOT currently has no projects within the study area.

Based on our review, we have the following comments and recommendations:

The proposed development would meet the New Castle County Level of Service (LOS) Standards as stated in Section 40.11.210 of the Unified Development Code (UDC).

However, as shown in the table below, based on the criteria listed in Chapter 2 of DelDOT's *Development Coordination Manual*, the stop-controlled minor street approaches at two intersections exhibit LOS deficiencies without the implementation of physical roadway and/or traffic control improvements. Because these intersections are controlled only by stop signs on the minor street approaches, the deficiencies pertain to those approaches only, and the intersection is not subject to New Castle County's concurrency requirements.

Intersection	***Existing Traffic Control***	***Situations for which deficiencies occur***
Silverside Road & Branmar Plaza / Proposed Site Entrance	Unsignalized	2018 AM, PM and SAT with development (Case 3)
Marsh Road & Branmar Plaza	Unsignalized	2015 Existing PM (Case 1); 2018 PM without development (Case 2); 2018 PM with development (Case 3)

At Silverside Road and Branmar Plaza / Proposed Site Entrance, the intersection would have future LOS deficiencies on the minor street approaches if it remains unsignalized. Potential installation of a signal at this location will depend on the results of a Traffic Signal Justification Study and a Traffic Signal Progression Analysis, which the developer should prepare and submit to DelDOT's Traffic Section as described below in Item No. 3. Furthermore, a separate right-turn lane is warranted for the eastbound approach of Silverside Road at the proposed site entrance, but the feasibility of constructing the right-turn lane is limited due to the proximity of the existing entrance for the commercial complex (Richardson's garden center / Rita's / Silverside Dairy) located immediately to the west. While not recommended at this time (consistent with Item No. 2 below), a separate eastbound right-turn lane might ultimately be required. This will be determined by DelDOT's Development Coordination Section during the site plan review process.

At Marsh Road and Branmar Plaza, we do not recommend that any improvements be implemented by the developer at this intersection. Although the side streets operate at LOS E (eastbound Branmar Plaza approach) and LOS F (westbound office driveway approach) in the existing and future PM peak hour, this intersection is not defined as deficient by New Castle County standards and it is not included in DelDOT's list of intersections to be evaluated by the TIS for this development. Furthermore, the projected 95th percentile queue lengths during the 2018 with development PM peak hour are less than 100 feet on the eastbound approach and less than 25 feet on the westbound approach, and the PM peak hour volume on the westbound approach is less than 10 vehicles.

Should the County choose to approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan by note or illustration. 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. Along the Silverside Road site frontage, the developer should provide a bituminous concrete overlay to the existing travel lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer if necessary. This overlay may extend beyond the site frontage as necessary to address changes in striping associated with site entrance.

2. The developer should improve the intersection of Silverside Road and Branmar Plaza / Proposed Site Entrance. The proposed configuration is shown in the table below.

Approach	Current Configuration	Proposed Configuration
Northbound Proposed Branmar Commons Site Entrance	Does Not Exist	One shared through/left-turn lane and one right-turn lane
Southbound Branmar Plaza Access	One left-turn lane and one right-turn lane	One shared through/left-turn lane and one right-turn lane
Eastbound Silverside Road	One shared through/left-turn lane	One left-turn lane and one shared through/right-turn lane
Westbound Silverside Road	One through lane and one right-turn lane	One left-turn lane, one through lane and one right-turn lane

Initial recommended minimum turn-lane lengths (excluding tapers) of the separate turn lanes are listed below. The developer should coordinate with DelDOT's Development Coordination Section to determine final turn-lane lengths during the site plan review process.

Approach	Left-Turn Lane	Right-Turn Lane
Northbound Proposed Branmar Commons Site Entrance	N/A	225 feet *
Southbound Branmar Plaza Access	N/A	125 feet *
Eastbound Silverside Road	220 feet **	N/A
Westbound Silverside Road	170 feet **	240 feet ***

* initial turn-lane length based on storage length per queuing analysis.
** initial turn-lane length based on DelDOT's *Auxiliary Lane Worksheet.*
*** initial turn-lane length based on DelDOT's *Auxiliary Lane Worksheet,* although feasible length may be limited by proximity to upstream driveway. As such, existing turn lane length of approximately 170 feet may be adequate.

3. Regarding the potential signalization of the intersection of Silverside Road and Branmar Plaza / Proposed Site Entrance, the developer should prepare and submit a Traffic Signal Justification Study (TSJS) and a Traffic Signal Progression Analysis (TSPA) to DelDOT's Traffic Section. These should be prepared in accordance with DelDOT's *Development Coordination Manual* and DelDOT's *Traffic Design Manual*. Before undertaking such studies, the developer should coordinate with DelDOT's Traffic Section regarding the scope and location-specific details for these studies. The completed TSJS and TSPA must be submitted to DelDOT prior to submission of the entrance plan.

4. Upon review of the additional information to be provided by the developer as described in Item No. 3, if DelDOT is agreeable to the installation of a traffic signal at the intersection of Silverside Road and Branmar Plaza / Proposed Site Entrance, the developer should enter into a traffic signal agreement with DelDOT for this intersection. The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. The developer should coordinate with DelDOT on the design details and implementation of the traffic signal. If the intersection is signalized, the required turn lane lengths may be different than those shown above in Item No. 2.

5. The developer should provide a cross-access easement to facilitate a possible future roadway interconnection with the Shoppes of Graylyn shopping center located immediately to the east. This cross-access easement would allow for a connecting driveway to be built if and when the adjacent shopping center is redeveloped. The developer should coordinate with DelDOT's Development Coordination Section to determine details for this cross-access easement.

6. The developer should provide a cross-access easement to facilitate a possible future roadway interconnection with the small commercial complex (Richardson's garden center / Rita's / Silverside Dairy) located immediately to the west. This cross-access easement would allow for the possibility of a connecting driveway to be built between the two properties at a future time. The developer should coordinate with DelDOT's Development Coordination Section to determine details for this cross-access easement.

7. The following bicycle and pedestrian improvements should be included:

    a. Bike parking should be provided near the building entrances within this development. If the building architecture provides for an awning or other overhang, the bike parking should be covered.
    b. A minimum 15-foot wide easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontage along Silverside Road. Within the easement along Silverside Road, a minimum of a five-foot wide sidewalk that meets current AASHTO and ADA standards should be constructed along the site frontage. The sidewalk path should have a minimum of a five-foot buffer from the roadway. At the property boundaries, the sidewalk should connect to pedestrian facilities on the

adjacent properties or to the shoulder of Silverside Road in accordance with DelDOT's *Shared Use Path and/or Sidewalk Termination Policy* dated June 19, 2014. The developer should coordinate with DelDOT's Development Coordination Section to determine exact locations and details of the sidewalk connections at the property boundaries.

c. In addition to the site frontage sidewalk on Silverside Road, a second pedestrian connection should be constructed to provide internal access to the adjacent Shoppes of Graylyn shopping center. This pedestrian path should lead from the Branmar Commons site to the adjacent shopping center in line with the northern edge of the shopping center's building that fronts on Silverside Road. The developer should coordinate with DelDOT's Development Coordination Section to determine alignment and other design details for this pedestrian connection.
d. A pedestrian path should be provided to connect the site to the Glenside Avenue cul-de-sac located immediately to the south. The developer should coordinate with DelDOT's Development Coordination Section to determine alignment and other design details for this pedestrian connection.
e. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including all site entrances. Type 3 curb ramps are discouraged.
f. In addition to the site frontage sidewalks described above, internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These sidewalks should meet current UDC, DelDOT, AASHTO and ADA standards. These internal sidewalks should connect the building entrances to the proposed frontage sidewalk and pedestrian connections to adjacent properties.
g. Where internal sidewalks are located alongside of parking spaces, a buffer should be added to eliminate vehicular overhang onto the sidewalk.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at http://www.deldot.gov/information/pubs_forms/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Adam Weiser of DelDOT's Traffic Section. Mr. Weiser can be reached at (302) 659-4073 or by email at Adam.Weiser@state.de.us.

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

Additional details on our review of this TIS are attached. Please contact me at (302) 738-0203 or through e-mail at ajparker@mtmail.biz if you have any questions concerning this review.

Sincerely,

McCormick Taylor, Inc.

Andrew J. Parker, P.E., PTOE
Project Manager

Enclosure

General Information

Report date: May 2016
Prepared by: Landmark Science and Engineering (Landmark)
Prepared for: Setting Properties, Inc.
Tax parcels: 06-067.00-270, 271, 272, 273, 299, 307, 312, 313; 06-068-026, 027, 244
Generally consistent with DelDOT's *Development Coordination Manual*: Yes

Project Description and Background

Description: The proposed development would include 37 townhomes and 30,812 square feet of commercial space consisting of restaurants and coffee shops totaling 8,787 square feet, a 13,225 square-foot pharmacy with drive-through, a 4,000 square-foot bank with drive-through, and 4,800 square feet of retail space.
Location: The Branmar Commons development is proposed to be located on the south side of Silverside Road (New Castle Road 212), to the east of Foulk Road (New Castle Road 203) and to the west of Marsh Road (New Castle Road 23), in New Castle County, Delaware. Site location maps are included on Pages 8 and 9.
Amount of land to be developed: approximately 12 acres
Land use approval(s) needed: Rezoning and Subdivision approval. The land is currently split-zoned as NCSD (Neighborhood Conservation Single-Detached) and NC15 (Neighborhood Conservation – Fifteen Thousand Square Foot Minimum Lot Size) in New Castle County, and the developer proposes to rezone the property to CN (Commercial Neighborhood).
Proposed completion date: 2018
Proposed access locations: One full-movement access point is proposed on Silverside Road, directly across from the existing Branmar Plaza entrance.
Daily Traffic Volumes (per DelDOT Traffic Summary 2015):

- 2015 Average Annual Daily Traffic on Silverside Road: 14,267 vpd


DEVELOPMENT PROGRAM
SITE FEATURES LEGEND
SILVERSIDE ROAD
GLENSIDE AVENUE
GRAYLYN SHOPPING CENTER

Site Location Map– Branmar Commons

2015 Delaware Strategies for State Policies and Spending

Location with respect to the Strategies for State Policies and Spending Map of Delaware: The proposed Branmar Commons development is located within an Investment Level 1 area.

Investment Level 1

Investment Level 1 Areas are often municipalities, towns, or urban/urbanizing places in counties. Density is generally higher than in the surrounding areas. There are a variety of transportation opportunities available. Buildings may have mixed uses, such as a business on the first floor and apartments above. In Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote a variety of transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Overall, it is the State's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in Investment Level 1 Areas. These areas would be a prime location for designating "pre-permitted areas" to help steer development where the local government and citizens are most prepared to accept it.

Proposed Development's Compatibility with Strategies for State Policies and Spending:
The proposed Branmar Commons development site is located within an Investment Level 1 area, and is to be rezoned and developed as 30,812 square feet of specialty retail space and 37 townhomes. This type of development is consistent with the character of Investment Level 1 areas. In these areas, the *Strategies* document generally encourages efficient new growth and infill development, and supports a wide range of uses. The land use in the surrounding area is predominately comprised of commercial uses in the immediately vicinity along Silverside Road, and single family home neighborhoods. The proposed development is consistent with the land uses that Investment Level 1 areas encourage. The proposed development appears to generally comply with the policies stated in the 2015 "Strategies for State Policies and Spending."

Comprehensive Plan

New Castle County Comprehensive Plan:
(Source: New Castle County Comprehensive Plan Update, April 2012)

The New Castle County Comprehensive Plant Future Land Use Map indicates that the proposed Branmar Commons commercial and residential development is located in an area with future land use designated as High Density Residential (9 + Dwelling Units Per Acre).

The land is currently split-zoned as NCSD (Neighborhood Conservation Single-Detached) and NC15 (Neighborhood Conservation – Fifteen Thousand Square Foot Minimum Lot Size) in New Castle County and the developer proposes to rezone the site as CN (Commercial Neighborhood). According to Section 40.02.231 of the New Castle County Unified Development Code (UDC), characteristics of CN zoning are as follows:

- This district has a suburban character.

- The scale and intensity of the development is regulated to ensure that uses primarily serve the surrounding residential neighborhoods. Roof design and landscaping are intended to reinforce the compatibility of these uses with the neighborhoods.
- Size and spacing of this district is regulated to ensure this district does not promote strip commercial development that serves highway traffic or regional uses.

Proposed Development's Compatibility with Comprehensive Plan: The proposed Branmar Commons is planned to be developed as 8,787 square feet of restaurant/coffee shop space, 13,225 square feet of drive-in pharmacy space, 4,000 square feet of drive-in bank space, 4,800 square feet of retail space, and 37 townhomes. Given that the site's existing NCSD/NC15 zoning and the future land use designation are residential while the proposed CN rezoning is commercial, and the proposed land use is both commercial and residential in nature, this development may require additional discussion regarding consistency with the New Castle County Comprehensive Plan.

Relevant Projects in the DelDOT Capital Transportation Program

DelDOT currently has no projects within the study area. There is, however, one project nearby: the I-95 and Carr Road / Marsh Road Interchange Improvements Project, which involves DelDOT's Hazard Elimination Program (HEP). This project is located approximately 1.5 miles south of the proposed site. Improvements are proposed for the two signalized intersections of Marsh Road and the I-95 southbound ramps, and the two unsignalized intersections of Carr Road and the I-95 northbound ramps. DelDOT is currently in the design phase and expects to begin construction in late 2017 with completion in mid-2018. During construction, planned detours due to roadway closures at the I-95 interchange may temporarily affect traffic volumes along the Marsh Road corridor, including near the proposed site.

Trip Generation

Trip generation for the proposed development was computed using comparable land uses and equations contained in Trip Generation, Ninth Edition, published by the Institute of Transportation Engineers (ITE). The following land uses were utilized to estimate the amount of new traffic generated for this development:

- Restaurant/Coffee Shop (ITE Land Use Code 932)
- Pharmacy w/Drive Thru (ITE Land Use Code 881)
- Bank w/Drive Thru (ITE Land Use Code 912)
- Retail (ITE Land Use Code 826)
- Townhouses (ITE Land Use Code 230)

Table 1
BRANMAR COMMONS PEAK HOUR TRIP GENERATION

Land Use	Weekday AM			Weekday PM			Midday Saturday		
	In	Out	Total	In	Out	Total	In	Out	Total
8,787 SF Restaurant/Coffee Shop	52	43	95	52	35	87	66	58	124
Internal Capture	0	0	0	-2	-1	-3	-3	-2	-5
Pass-by Traffic	0	0	0	-22	-15	-37	-28	-25	-53
Net Restaurant Trips	52	43	95	28	19	47	35	31	66
13,225 SF Pharmacy w/Drive Thru	24	22	46	66	65	131	53	55	108
Internal Capture	0	0	0	-3	-2	-5	-2	-2	-4
Pass-by Traffic	0	0	0	-32	-32	-64	-26	-27	-53
Net Pharmacy Trips	24	22	46	31	31	62	25	26	51
4,000 SF Bank w/Drive Thru	27	21	48	49	48	97	54	51	105
Internal Capture	0	0	0	-2	-2	-4	-2	-2	-4
Pass-by Traffic	0	0	0	-23	-23	-46	-25	-24	-49
Net Bank Trips	27	21	48	24	23	47	27	25	52
4,800 SF Retail	0	0	0	6	7	13	10	10	20
Internal Capture	0	0	0	0	-1	-1	0	-1	-1
Pass-by Traffic	0	0	0	0	0	0	0	0	0
Net Retail Trips	0	0	0	6	6	12	10	9	19
37 Townhouses	3	13	16	13	6	19	9	8	17
Internal Capture	0	0	0	-1	0	-1	-1	0	-1
Pass-by Traffic	0	0	0	0	0	0	0	0	0
New Townhouse Trips	3	13	16	12	6	18	8	8	16
Total Trips	106	99	205	186	161	347	192	182	374
Total Internal Capture Trips	0	0	0	-8	-6	-14	-8	-7	-15
Total Pass-by Traffic Trips	0	0	0	-77	-70	-147	-79	-76	-155
Total New Trips	106	99	205	101	85	186	105	99	204

Table 2
BRANMAR COMMONS DAILY TRIP GENERATION

Land Use	Weekday ADT		
	In	Out	Total
8,787 SF Restaurant/Coffee Shop	559	558	1117
13,225 SF Pharmacy w/Drive Thru	641	641	1282
4,000 SF Bank w/Drive Thru	297	296	593
4,800 SF Retail	107	106	213
37 Townhouses	108	107	215
TOTAL TRIPS	1712	1708	3420

Overview of TIS

Intersections examined:

1) Silverside Road & Branmar Plaza / Proposed Site Entrance
2) Silverside Road & Faun Road / Floral Drive
3) Silverside Road & Graylyn Road / Yardley Lane
4) Silverside Road & Larkal Drive
5) Silverside Road & Foulk Road
6) Silverside Road & Shoppes of Graylyn Entrance
7) Silverside Road & Marsh Road
8) Silverside Road & Veale Road (New Castle Road 210)
9) Marsh Road & Shoppes of Graylyn Entrance
10) Marsh Road & Veale Road / Wilson Road
11) Marsh Road & Branmar Plaza

Conditions examined:

1) 2015 existing conditions (Case 1)
2) 2018 without proposed development (Case 2)
3) 2018 with proposed development (Case 3)

Peak hours evaluated: Weekday morning and evening and Saturday mid-day peak hours

Committed developments considered: None

Intersection Descriptions

1) **Silverside Road & Branmar Plaza / Proposed Site Entrance**
Type of Control: existing two-way stop-controlled (three-leg intersection); proposed signalized four-leg intersection
Northbound approach: (Proposed Site Entrance) proposed one shared through/left-turn lane and one right-turn lane
Southbound approach: (Branmar Plaza) existing one left-turn lane and one right-turn lane, stop-controlled; proposed one shared through/left-turn lane and one right-turn lane
Eastbound approach: (Silverside Road) existing one shared through/left-turn lane; proposed one left-turn lane and one shared through/right-turn lane
Westbound approach: (Silverside Road) existing one through lane and one right-turn lane; proposed one left-turn lane and one shared through/right-turn lane

2) **Silverside Road & Faun Road / Floral Drive**
Type of Control: signalized four-leg intersection
Northbound approach: (Faun Road) one shared left/through/right-turn lane
Southbound approach: (Floral Drive) one shared left/through/right-turn lane
Eastbound approach: (Silverside Road) one shared left/through/right-turn lane
Westbound approach: (Silverside Road) one shared left/through/right-turn lane

3) **Silverside Road & Graylyn Road / Yardley Lane**
Type of Control: two-way stop-controlled (four-leg intersection)
Northbound approach: (Graylyn Road) one shared left/through/right-turn lane, stop-controlled
Southbound approach: (Yardley Lane) one shared left/through/right-turn lane, stop-controlled
Eastbound approach: (Silverside Road) one shared left/through/right-turn lane
Westbound approach: (Silverside Road) one shared left/through/right-turn lane

4) **Silverside Road & Larkal Drive**
Type of Control: two-way stop-controlled (three-leg intersection)
Northbound approach: (Larkal Drive) one shared left/right-turn lane, stop-controlled
Eastbound approach: (Silverside Road) one shared through/right-turn lane
Westbound approach: (Silverside Road) one left-turn lane and one through lane

5) **Silverside Road & Foulk Road**
Type of Control: signalized four-leg intersection
Northbound approach: (Foulk Road) one left-turn lane, one exclusive through lane and one shared through/right-turn lane
Southbound approach: (Foulk Road) one left-turn lane, one exclusive through lane and one shared through/right-turn lane
Eastbound approach: (Silverside Road) one left-turn lane and one shared through/right-turn lane
Westbound approach: (Silverside Road) one left-turn lane and one shared through/right-turn lane

6) Silverside Road & Shoppes of Graylyn Entrance
Type of Control: two-way stop-controlled (three-leg intersection)
Northbound approach: (Shoppes of Graylyn) one shared left/right-turn lane, stop-controlled
Eastbound approach: (Silverside Road) one shared through/right-turn lane
Westbound approach: (Silverside Road) one shared through/left-turn lane

7) Silverside Road & Marsh Road
Type of Control: signalized four-leg intersection
Northbound approach: (Marsh Road) one left-turn lane and one shared through/right-turn lane
Southbound approach: (Marsh Road) one left-turn lane, one through lane and one right-turn lane
Eastbound approach: (Silverside Road) one left-turn lane and shared through/right-turn lane
Westbound approach: (Silverside Road) one left-turn lane, one through lane and one right-turn lane

8) Silverside Road & Veale Road
Type of Control: signalized four-leg intersection
Northbound approach: (Veale Road) one shared left/through/right-turn lane
Southbound approach: (Veale Road) one shared left/through/right-turn lane
Eastbound approach: (Silverside Road) one left-turn lane and one shared through/right-turn lane
Westbound approach: (Silverside Road) one left-turn lane and one shared through/right-turn lane

9) Marsh Road & Shoppes of Graylyn Entrance
Type of Control: two-way stop-controlled (three-leg intersection)
Northbound approach: (Marsh Road) one left-turn lane and one through lane
Southbound approach: (Marsh Road) one shared through/right-turn lane
Eastbound approach: (Shoppes of Graylyn) one shared left/right-turn lane, stop-controlled

10) Marsh Road & Veale Road / Wilson Road
Type of Control: signalized four-leg intersection
Northbound approach: (Marsh Road) one left-turn lane and one shared through/right-turn lane
Southbound approach: (Marsh Road) one left-turn lane and one shared through/right-turn lane
Eastbound approach: (Wilson Road) one left turn lane and one shared through/right-turn lane
Westbound approach: (Veale Road) one shared left-turn/through/right-turn lane

11) Marsh Road & Branmar Plaza

Type of Control: two-way stop-controlled (four-leg intersection)
Northbound approach: (Marsh Road) one left-turn lane and one shared through/right turn-lane
Southbound approach: (Marsh Road) one shared through/left-turn lane and one right-turn lane
Eastbound approach: (Branmar Plaza) one shared through/left-turn lane and one right-turn lane, stop-controlled
Westbound approach: (private office driveway) one shared left/through/right-turn lane, stop-controlled

Safety Evaluation

Crash Data: Crash data was not provided in the TIS.

Sight Distance: With generally straight and flat roadways, and few potential visual obstructions, sight distance is largely adequate throughout the study area and no major problems were observed during field observations in the area.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: DART, a service of the Delaware Transit Corporation (DTC) operates three bus routes in the project area. DART Routes 11 and 38 travel along the Marsh Road and Veale Road corridors, providing service between Arden and downtown Wilmington. These routes include a stop on Marsh Road just north of Silverside Road, which serves Branmar Plaza. DART Route 21 serves the Foulk Road corridor.

Planned transit service: There are no known planned changes to transit service in the study area.

Existing bicycle and pedestrian facilities: According to DelDOT's New Castle County Bicycle Map (dated 2012), Silverside Road along the site frontage is classified as a Connector Bicycle Route without a bikeway that contains high traffic (over 10,000 vehicles daily). Bikeways begin to the northwest of the project site on Silverside Road at the intersection with Faun Road/Floral Drive, and to the southeast of the site on Silverside Road at the intersection with Veale Road. There are also bikeways on Marsh Road. According to the bicycle level of service (BLOS) calculator developed by the *League of Illinois Bicyclists*, the Silverside Road northbound corridor operates at BLOS D. The Silverside Road southbound corridor operates at BLOS B.

There are currently sidewalks on the north side of Silverside Road, opposite the site frontage. There are no sidewalks on the south side of Silverside Road between Faun Road and the Shoppes of Graylyn Entrance.

Planned bicycle and pedestrian facilities: The TIS did not include any correspondence with DelDOT's Statewide and Regional Planning Section regarding planned or requested bicycle and pedestrian facilities in the area of this proposed development.

Previous Comments

All comments from DelDOT's Scoping Letter, Traffic Count Review, and Trip Generation correspondence were addressed in the Final TIS submission, with the following exceptions:

- There were no indications that the developer contacted DelDOT's Traffic Section regarding a Traffic Signal Justification Study or a Traffic Signal Progression Analysis, or that they prepared either such study.
- There were no indications that the developer contacted DelDOT's Project Development – North Section for information about the I-95 and Carr Road / Marsh Road Interchange Improvements Project.
- There were no indications that the developer contacted the Delaware Transit Corporation (DTC) for transit-related comments.
- There were no indications that the developer contacted DelDOT's Statewide and Regional Planning Section for bicycle and pedestrian-related comments.
- There were no indications that the developer contacted DelDOT's Statewide and Regional Planning Section for crash data.

General HCS Analysis Comments
(see table footnotes on the following pages for specific comments)

1) For all intersections, the TIS always applied heavy vehicle factors (HV) of 0%. McCormick Taylor applied heavy vehicle factors (HV) using existing data.

2) The TIS applied an overall intersection peak hour factor (PHF) of 1.00 for all unsignalized intersection in all scenarios, and a PHF of 0.92 for all signalized intersections in all scenarios. For existing conditions, the McCormick Taylor determined, for each intersection, overall intersection peak hour factors (PHF) using existing data. McCormick Taylor assumed future PHF equal to existing PHF.

3) For unsignalized intersections, where applicable McCormick Taylor input data for upstream signals. The TIS did not input upstream signal data.

4) For analyses of the signalized intersections, the TIS and McCormick Taylor used a base saturation flow rate of 1,900 pcphpl.

5) The HCS analyses included in the TIS did not always reflect the lane widths observed in the field by McCormick Taylor. McCormick Taylor's HCS analyses incorporated our field-measured lane widths.

6) The TIS and McCormick Taylor used different signal timings when analyzing the signalized intersections in some cases.

7) McCormick Taylor input existing right-turn-on-red (RTOR) volumes for existing and future conditions analyses. The TIS did not note whether RTOR volumes were used in their analysis, either in the letter or the capacity analysis appendix.

Table 3A
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Unsignalized Intersection [1] **Two-Way Stop Control**	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Branmar Plaza / Proposed Site Entrance	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)						
Southbound Branmar Plaza	C (15.9)	C (22.8)	C (24.4)	C (19.8)	D (30.9)	E (36.3)
Eastbound Silverside Road – Left	A (8.4)	A (9.1)	A (9.2)	A (8.8)	A (9.3)	A (9.6)
Westbound Silverside Road – Left	A (8.5)	A (8.5)	A (8.3)	A (8.9)	A (8.6)	A (8.4)
2018 without Development (Case 2)						
Southbound Branmar Plaza	C (16.1)	C (23.6)	D (25.3)	C (20.4)	D (28.9)	D (34.6)
Eastbound Silverside Road – Left	A (8.4)	A (9.2)	A (9.3)	A (8.8)	A (9.3)	A (9.6)
Westbound Silverside Road – Left	A (8.5)	A (8.5)	A (8.3)	A (8.9)	A (8.6)	A (8.4)
2018 with Development (Case 3) [2]						
Northbound Proposed Site Entrance	D (33.9)	F (391.9)	F (530.4)	F (55.6)	F (554.5)	F (801.8)
Southbound Branmar Plaza	C (20.9)	E (42.7)	F (52.5)	E (35.7)	F (100.2)	F (128.7)
Eastbound Silverside Road – Left	A (8.4)	A (9.0)	A (9.1)	A (8.8)	A (9.2)	A (9.4)
Westbound Silverside Road – Left	A (8.7)	A (8.7)	A (8.5)	A (9.5)	A (9.2)	A (9.0)

[1] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] The base configuration for Case 3 includes one shared left/through/right-turn lane on the northbound approach, one shared left/through/right-turn lane on the eastbound approach, and one shared through/left-turn lane and one right-turn lane on the westbound approach.

Table 3B
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Unsignalized Intersection [3] **Two-Way Stop Control**	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Branmar Plaza / Proposed Site Entrance	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2018 with Development (Case 3) *With Improvement Option 1* [4]						
Northbound Proposed Site Entrance	N/A	N/A	N/A	E (38.1)	F (238.0) [5]	F (329.8) [6]
Southbound Branmar Plaza	N/A	N/A	N/A	D (34.5)	F (86.7) [7]	F (116.4) [8]
Eastbound Silverside Road – Left	N/A	N/A	N/A	A (8.8)	A (9.2)	A (9.4)
Westbound Silverside Road – Left	N/A	N/A	N/A	A (9.5)	A (9.2)	A (9.0)
2018 with Development (Case 3) *With Improvement Option 2* [9]						
Northbound Proposed Site Entrance	N/A	N/A	N/A	E (36.5)	F (220.7) [10]	F (305.3) [11]
Southbound Branmar Plaza	N/A	N/A	N/A	D (33.3)	F (82.8) [12]	F (111.0) [13]
Eastbound Silverside Road – Left	N/A	N/A	N/A	A (8.8)	A (9.2)	A (9.4)
Westbound Silverside Road – Left	N/A	N/A	N/A	A (9.5)	A (9.2)	A (9.0)

[3] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[4] Improvement Option 1 consists of adding an exclusive left-turn lane on the eastbound approach and an exclusive right-turn lane on the northbound approach.
[5] The 95th percentile queue length for the northbound approach is approximately 7 vehicles during the Case 3 (with Improvement Option 1) PM peak hour.
[6] The 95th percentile queue length for the northbound approach is approximately 9 vehicles during the Case 3 (with Improvement Option 1) Saturday peak hour.
[7] The 95th percentile queue length for the southbound approach is approximately 4 vehicles during the Case 3 (with Improvement Option 1) PM peak hour.
[8] The 95th percentile queue length for the southbound approach is approximately 5 vehicles during the Case 3 (with Improvement Option 1) Saturday peak hour.
[9] Improvement Option 2 consists of adding an exclusive left-turn lane on the eastbound approach, an exclusive right-turn lane on the northbound approach, and an exclusive left-turn lane on the westbound approach.
[10] The 95th percentile queue length for the northbound approach is approximately 7 vehicles during the Case 3 (with Improvement Option 2) PM peak hour.
[11] The 95th percentile queue length for the northbound approach is approximately 9 vehicles during the Case 3 (with Improvement Option 2) Saturday peak hour.
[12] The 95th percentile queue length for the southbound approach is approximately 4 vehicles during the Case 3 (with Improvement Option 2) PM peak hour.
[13] The 95th percentile queue length for the southbound approach is approximately 5 vehicles during the Case 3 (with Improvement Option 2) Saturday peak hour.

Table 3C
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Signalized Intersection [14]	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Branmar Plaza / Proposed Site Entrance	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2018 with Development (Case 3) *With Improvement Option 3* [15]	A (9.7)	B (18.4)	C (22.3)	B (10.1)	B (16.1)	B (17.5)

[14] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[15] Improvement Option 3 consists of signalizing the intersection and adding an exclusive left-turn lane on the eastbound approach and an exclusive right-turn lane on the northbound approach.

Table 4
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Signalized Intersection [16]	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Faun Road / Floral Drive	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)	B (13.7)	A (8.2)	A (8.7)	B (10.7)	A (6.3)	A (6.7)
2018 without Development (Case 2)	B (13.7)	A (8.2)	A (8.2)	B (10.7)	A (6.4)	A (6.7)
2018 with Development (Case 3)	B (13.6)	A (8.2)	A (8.8)	B (10.9)	A (6.4)	A (6.8)

[16] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 5
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Unsignalized Intersection [17] **Two-Way Stop Control**	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Graylyn Road / Yardley Lane	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)						
Northbound Graylyn Road	B (12.2)	C (16.0)	C (19.0)	B (13.5)	C (20.7)	D (26.7)
Southbound Yardley Lane	C (19.7)	C (21.1)	C (22.8)	C (20.1)	C (23.7)	C (23.3)
Eastbound Silverside Road – Left	A (8.4)	A (8.9)	A (8.8)	A (8.7)	A (9.3)	A (9.0)
Westbound Silverside Road – Left	A (8.3)	A (9.1)	A (8.7)	A (8.5)	A (9.5)	A (9.0)
2018 without Development (Case 2)						
Northbound Graylyn Road	B(12.2)	C (16.2)	C (19.4)	B (13.6)	C (20.6)	D (27.5)
Southbound Yardley Lane	C (20.0)	C (21.6)	C (23.4)	C (20.5)	C (22.8)	C (23.9)
Eastbound Silverside Road – Left	A (8.4)	A (9.0)	A (8.9)	A (8.7)	A (9.1)	A (9.0)
Westbound Silverside Road – Left	A (8.3)	A (9.1)	A (8.8)	A (8.5)	A (9.6)	A (9.1)
2018 with Development (Case 3)						
Northbound Graylyn Road	B (12.7)	C (16.5)	C (19.9)	B (14.3)	C (20.9)	D (28.5)
Southbound Yardley Lane	C (21.7)	C (21.9)	C (23.8)	C (22.0)	C (23.5)	C (24.7)
Eastbound Silverside Road – Left	A (8.5)	A (9.0)	A (8.9)	A (8.8)	A (9.2)	A (9.0)
Westbound Silverside Road – Left	A (8.4)	A (9.1)	A (8.8)	A (8.7)	A (9.6)	A (9.1)

[17] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 6
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Unsignalized Intersection [18] **Two-Way Stop Control**	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Larkal Drive	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)						
Northbound Larkal Drive	B (14.8)	B (13.4)	C (15.3)	C (18.4)	B (13.4)	C (17.5)
Westbound Silverside Road – Left	A (8.3)	A (9.0)	A (8.7)	A (8.9)	A (9.6)	A (9.1)
2018 without Development (Case 2)						
Northbound Larkal Drive	B (14.9)	B (13.5)	C (15.5)	C (18.7)	B (13.5)	C (18.0)
Westbound Silverside Road – Left	A (8.3)	A (9.0)	A (8.8)	A (8.9)	A (9.6)	A (9.2)
2018 with Development (Case 3)						
Northbound Larkal Drive	C (15.8)	B (13.6)	C (15.7)	C (20.9)	B (13.7)	C (18.5)
Westbound Silverside Road – Left	A (8.4)	A (9.1)	A (8.8)	A (9.1)	A (9.7)	A (9.2)

[18] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 7
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Signalized Intersection [19]	**LOS per TIS** [20]			**LOS per McCormick Taylor**		
Silverside Road & Foulk Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)	C (33.9)	D (51.9)	D (39.5)	C (28.7)	D (54.1)	D (39.4)
2018 without Development (Case 2)	C (34.2)	D (53.1)	D (39.9)	C (29.1)	D (52.5)	D (38.1)
2018 with Development (Case 3)	C (34.8)	D (53.4)	D (40.0)	C (30.4)	D (54.6)	D (39.2)

[19] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[20] The TIS analyzed this intersection with incorrect lane configurations. Their analysis included an additional through lane on the eastbound and westbound approaches, and had exclusive right-turn lanes on the northbound and southbound approaches instead of shared through/right-turn lanes.

Table 8
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Unsignalized Intersection [21] **Two-Way Stop Control**	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Shoppes at Graylyn Entrance	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)						
Northbound Shoppes at Graylyn	C (17.1)	C (23.0)	C (22.0)	C (16.0)	C (19.1)	C (19.1)
Westbound Silverside Road – Left	A (8.6)	A (8.8)	A (8.7)	A (9.0)	A (9.1)	A (9.0)
2018 without Development (Case 2)						
Northbound Shoppes at Graylyn	C (17.3)	C (23.5)	C (22.5)	C (16.3)	C (21.8)	C (18.3)
Westbound Silverside Road – Left	A (8.6)	A (8.8)	A (8.7)	A (9.1)	A (9.2)	A (9.0)
2018 with Development (Case 3)						
Northbound Shoppes at Graylyn	C (19.7)	C (24.4)	C (23.6)	C (18.9)	C (21.3)	C (20.7)
Westbound Silverside Road – Left	A (8.9)	A (8.9)	A (8.8)	A (9.4)	A (9.1)	A (9.1)

[21] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 9
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Signalized Intersection [22]	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Marsh Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)	C (33.8)	D (35.7)	C (34.8)	C (26.1)	C (32.0)	C (28.5)
2018 without Development (Case 2)	C (33.9)	D (36.0)	C (34.9)	C (26.6)	C (32.5)	C (27.6)
2018 with Development (Case 3)	C (33.9)	D (36.1)	D (36.0)	C (30.4)	C (32.7)	C (28.2)

[22] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 10
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Signalized Intersection [23]	**LOS per TIS**			**LOS per McCormick Taylor**		
Silverside Road & Veale Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)	C (27.3)	D (35.2)	C (23.9)	B (17.6)	C (23.4)	B (14.9)
2018 without Development (Case 2)	C (27.5)	D (36.0)	C (24.0)	B (17.5)	C (23.1)	B (14.8)
2018 with Development (Case 3)	C (27.6)	D (36.1)	C (24.0)	B (17.7)	C (23.0)	B (14.8)

[23] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 11
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Unsignalized Intersection [24] **Two-Way Stop Control**	**LOS per TIS**			**LOS per McCormick Taylor**		
Marsh Road & Shoppes at Graylyn Entrance	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)						
Northbound Marsh Road – Left	A (8.7)	A (9.1)	A (8.9)	A (9.0)	A (9.3)	A (9.0)
Eastbound Shoppes at Graylyn	B (13.6)	C (17.5)	B (14.4)	B (13.8)	C (17.2)	B (14.8)
2018 without Development (Case 2)						
Northbound Marsh Road – Left	A (8.7)	A (9.2)	A (8.9)	A (9.0)	A (9.4)	A (9.1)
Eastbound Shoppes at Graylyn	B (13.8)	C (17.8)	B (14.6)	B (13.9)	C (17.5)	B (14.3)
2018 with Development (Case 3)						
Northbound Marsh Road – Left	A (8.9)	A (9.2)	A (9.0)	A (9.2)	A (9.6)	A (9.2)
Eastbound Shoppes at Graylyn	B (14.4)	C (18.1)	B (14.7)	B (14.6)	C (17.6)	B (14.5)

[24] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 12
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Signalized Intersection [25]	**LOS per TIS**			**LOS per McCormick Taylor**		
Marsh Road & Veale Road / Wilson Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)	C (27.5)	C (28.4)	C (27.8)	C (31.7)	C (23.8)	B (16.4)
2018 without Development (Case 2)	C (27.6)	C (28.5)	C (27.8)	C (31.5)	B (19.8)	B (15.1)
2018 with Development (Case 3)	C (28.4)	C (28.7)	C (27.6)	D (37.4)	B (19.9)	B (15.2)

[25] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 13
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Branmar Commons Development
Report dated May 2016
Prepared by Landmark Science & Engineering

Unsignalized Intersection [26] Two-Way Stop Control	**LOS per TIS**			**LOS per McCormick Taylor**		
Marsh Road & Branmar Plaza	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2015 Existing (Case 1)						
Northbound Marsh Road – Left	A (8.6)	A (9.3)	A (9.0)	A (8.8)	A (9.1)	A (8.8)
Southbound Marsh Road – Left	A (7.8)	A (8.6)	A (8.2)	A (7.9)	A (8.9)	A (8.3)
Eastbound Branmar Plaza	B (13.9)	D (31.8)	C (20.9)	B (14.1)	E (40.2)	C (22.5)
Westbound Office Park	N/A	F (61.2)	D (25.7)	C (20.8)	F (92.5)	D (32.1)
2018 without Development (Case 2)						
Northbound Marsh Road – Left	A (8.6)	A (9.4)	A (9.0)	A (8.8)	A (9.1)	A (8.9)
Southbound Marsh Road – Left	A (7.8)	A (8.7)	A (8.2)	A (7.9)	A (8.9)	A (8.3)
Eastbound Branmar Plaza	B (14.0)	D (33.1)	C (21.4)	B (14.2)	E (43.2)	C (21.2)
Westbound Office Park	N/A	F (63.0)	D (26.3)	C (20.9)	F (96.9)	D (30.7)
2018 with Development (Case 3)						
Northbound Marsh Road – Left	A (8.7)	A (9.4)	A (9.1)	A (8.9)	A (9.2)	A (8.9)
Southbound Marsh Road – Left	A (7.9)	A (8.7)	A (8.2)	A (8.0)	A (9.0)	A (8.3)
Eastbound Branmar Plaza	B (14.3)	D (33.5)	C (21.7)	B (14.6)	E (44.0) [27]	C (23.3)
Westbound Office Park	N/A	F (63.9)	D (26.4)	C (21.9)	F (99.3) [28]	D (33.1)

[26] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[27] The 95th percentile queue length for the eastbound approach is less than 4 vehicles during the Case 3 PM peak hour.
[28] The 95th percentile queue length for the westbound approach is less than 1 vehicle during the Case 3 PM peak hour. Peak hour volume on this approach is less than 10 vehicles.