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

JENNIFER COHAN
SECRETARY

December 7, 2018

Mr. Christopher Duke
Becker Morgan Group, Inc.
250 South Main Street, Suite 109
Newark, DE 19711

Dear Mr. Duke:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Coastal Station – Phase II** (Tax Parcel #334-13.00-325.08) 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:sf
Enclosures
cc with enclosures: Mr. Michael Riemann, Becker Morgan Group, Inc.
Ms. Constance C. Holland, Office of State Planning Coordination
Ms. Janelle Cornwell, Sussex County Planning and Zoning
Ms. Joanne Arellano, Johnson, Mirmiran & Thompson, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Brad Eaby, Deputy Attorney General
Robert McCleary, Director, Transportation Solutions (DOTS)
Drew Boyce, Director, Planning
Mark Luszcz, Chief Traffic Engineer, Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
J. Marc Coté, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Peter Haag, Traffic Studies Manager, Traffic, DOTS
Alastair Probert, South District Engineer, South District
Gemez Norwood, South District Public Works Manager, South District
Steve Sisson, Sussex Subdivision Review Coordinator, Development Coordination
David Dooley, Service Development Planner, Delaware Transit Corporation
Mark Galipo, Traffic Engineer, Traffic, DOTS
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Derek Sapp, Subdivision Manager, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination

Engineering A Brighter Future®

December 7, 2018

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

RE: Agreement No. 1774
Project Number T201769002
Traffic Impact Study Services
Task 26A-Coastal Station Phase 2

Dear Mr. Brestel:

Johnson, Mirmiran and Thompson (JMT) has completed the review of the Traffic Impact Study (TIS) for Coastal Station Phase 2, prepared by Becker Morgan Group, Inc. dated October 2018. This task was assigned Task Number 26A. Becker Morgan Group, Inc. prepared the report in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The development would consist of approximately 37,000 square feet of retail and 96 apartment units. The proposed site is located on the southeast corner of the intersection of Delaware Route 1 and Holland Glade Road (Sussex Road 271) with one full access proposed along Holland Glade Road. The development would also have an interconnection with Coastal Station Phase 1 that would provide access via a full movement entrance along Holland Glade Road opposite the Tanger Outlet entrance and a rights-in/rights-out entrance along northbound Delaware Route 1. The subject property is on an approximately 5.00-acre parcel that is currently split-zoned as C-1 (General Commercial) and CR-1 (Commercial Residential), and no rezoning is proposed. Construction is expected to be complete in 2019.

The TIS includes an evaluation of an additional scenario not contemplated in the May 2017 scope of work. This scenario is from the *Holland Glade Signal Justification Study* prepared by JMT for DelDOT that incorporates the modification of the Delaware Route 1/Holland Glade Road intersection as a four-legged signalized intersection, with access to the Tanger Outlets Bayside/IHOP forming the westerly leg. As part of the intersection improvement, the Holland Glade Road and Tanger Outlets Bayside driveway approaches would be modified to provide full access to and from the side streets but would prevent through access from each other.

Based on our review of the traffic impact study, we have the following comments and recommendations:

The following intersection exhibits level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements.

Intersection	*Situations for which LOS deficiencies occur*
Delaware Route 1/Rights-in/Rights-out (Coastal Station Phase 1 Entrance)	2019 Saturday without Development (Case 2) 2019 Saturday with Development (Case 3)

The Delaware Route 1/Rights-in/Rights-out (Coastal Station Phase 1 Entrance) would exhibit LOS deficiencies during the future Saturday peak hour conditions with or without the proposed development. The LOS deficiencies take place along the westbound Coastal Station Phase 1 Entrance rights-in/rights-out approach to Delaware Route 1. Specifically, the approach would operate at LOS E (39.9 seconds of delay per vehicle) and LOS F (52.6 seconds of delay per vehicle) during Cases 2 and 3, respectively. In addition, the projected 95th percentile queue length under Case 3 conditions would be approximately 105 feet which could be accommodated along the entrance without obstructing the Coastal Station Phase 1 on-site circulation.

Although the projected queue lengths could be accommodated without obstructing Coastal Station Phase 1 on-site circulation, the provision of a signal at the Delaware Route 1/Holland Glade Road intersection is expected to alleviate the capacity constraints at the rights-in/rights-out entrance. It is recommended that the developer fund an equitable portion of the improvements planned to install a signal as well as geometric improvements at the Delaware Route 1/Holland Glade Road intersection.

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 should provide a bituminous concrete overlay to the Holland Glade Road existing travel lanes from the Holland Glade Road/Coastal Station Phase 1 Entrance/Tanger Outlet Entrance intersection to the easternmost site frontage limits at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a full access site entrance on the easternmost part of the Holland Glade Road site frontage approximately 400 feet east of the Holland Glade Road/Coastal Station Phase 1 Entrance/Tanger Outlet Entrance intersection and provide the lane configurations as shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Holland Glade Road	One through lane	One through lane and one right turn lane
Westbound Holland Glade Road	One through lane	One through lane and one bypass lane
Northbound Site Access	Approach does not exist	One shared left turn/right turn lane

Based on DelDOT's *Development Coordination Manual* and the updated Auxiliary and Bypass Lane Warrants from October 23, 2017, the recommended minimum storage lengths (excluding taper) are 240 feet for the eastbound Holland Glade Road right turn lane and 50 feet for the westbound Holland Glade Road bypass lane. The calculated queue lengths from the Synchro analysis can be accommodated within the recommended storage length.

3. The developer should enter into an agreement with DelDOT for the conversion of the Delaware Route 1/Holland Glade Road intersection to a four-way signalized intersection. The agreement should include the design and construction of the intersection geometry as well as the installation of any signal equipment necessary. The developer should coordinate with DelDOT on the implementation and cost of these improvements.

4. The following bicycle, pedestrian, and transit improvements should be included:

   a. A minimum fifteen-foot wide permanent easement from the edge of the existing right-of-way should be dedicated to DelDOT along the Holland Glade Road site frontage. Within this easement, the developer should construct a minimum ten-foot wide shared-use path that meets current AASHTO and ADA standards. A minimum five-foot setback should be maintained from the edge of the pavement to the shared-use path. If feasible, the shared-use path should be placed behind utility poles, and street trees should be provided within the buffer area. The developer should coordinate with DelDOT's Development Coordination section during the plan review process to identify the exact location of the shared-use path.

   b. The Junction and Breakwater Trail has a segment east of the proposed site. The developer should coordinate with DelDOT's Development Coordination section during the plan review process to determine if a connection should be provided to the trail.

   c. ADA compliant curb ramps and a marked crosswalk should be provided along the Site Entrance approach to Holland Glade Road. The use of diagonal curb ramps is discouraged.

d. Where internal sidewalks are located alongside of perpendicular or angular parking spaces, a buffer, physical barrier, or signage should be added to eliminate vehicular overhang onto the sidewalk.

e. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the Holland Glade Road approaches to the Site Entrance.

f. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks or should be flush with the pavement.

g. Bike parking racks should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

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 Plan Review process.

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 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. Mark Buckalew of DelDOT's Traffic Section. Mr. Buckalew can be reached at (302) 894-6353 or by email at Mark.Buckalew@state.de.us.

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.

Mir Ale Wahed,
Mir Wahed, P.E., PTOE

cc: Joanne Arellano, P.E., PTOE
Enclosure

General Information

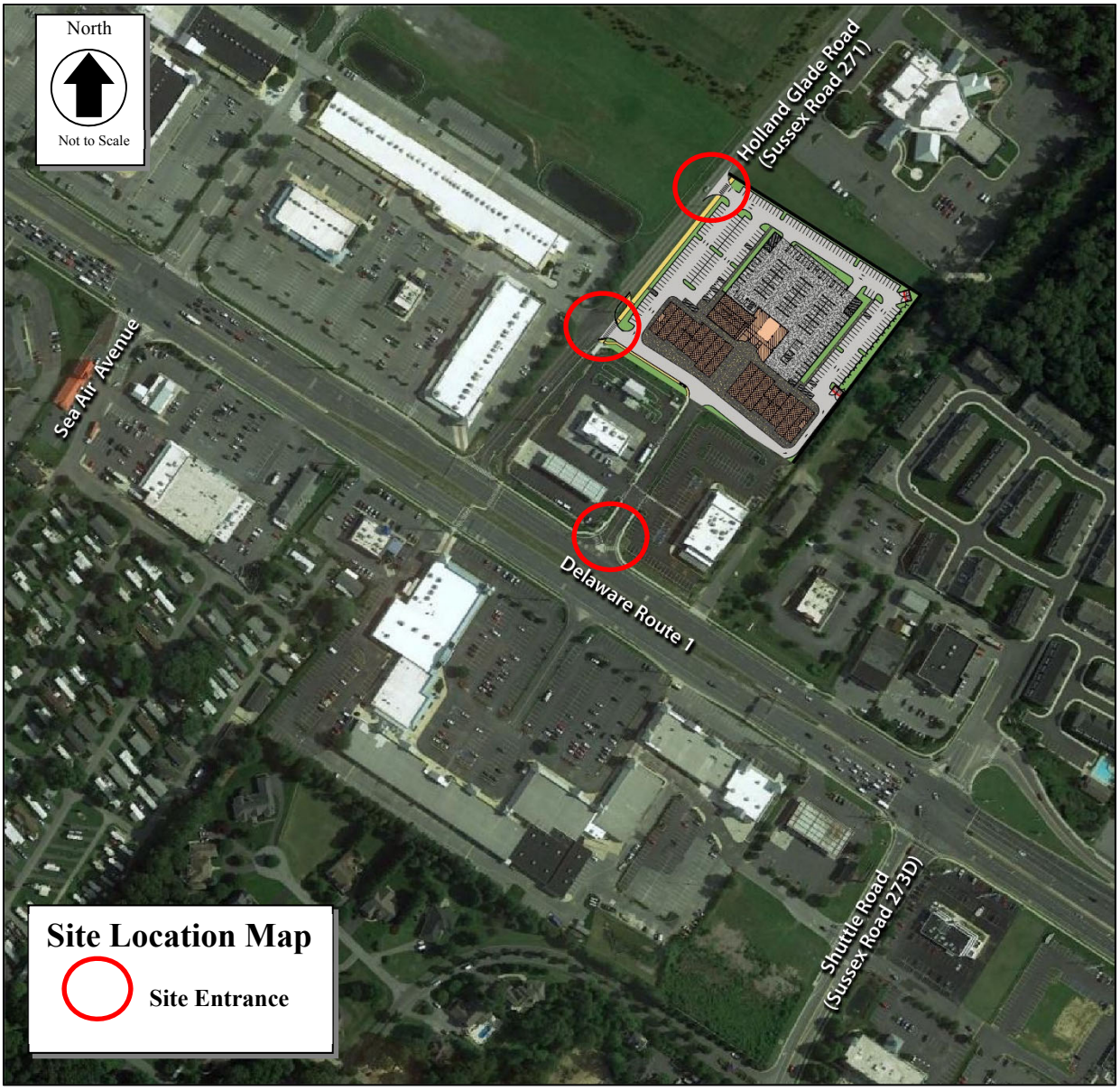
Report date: October 2018
Prepared by: Becker Morgan Group, Inc
Prepared for: Coastal Station, LLC
Tax Parcel: 334-13.00-325.08
Generally consistent with DelDOT's *Development Coordination Manual*: Yes.

Project Description and Background

Description: The developer seeks to develop a 37,000 square-foot specialty retail center and 96 apartment units.
Location: The subject property is located on the southeast corner of the intersection of Delaware Route 1 and Holland Glade Road (Sussex Road 271), in Sussex County.
Amount of Land to be developed: The subject property is on an approximately 5.00-acre parcel.
Land Use approval(s) needed: Entrance Plan approval.
Proposed completion date: 2019
Proposed access locations: One full access is proposed along Holland Glade Road. The development would also have an interconnection with Coastal Station Phase 1 that would provide access via a full movement entrance along Holland Glade Road opposite the Tanger Outlet entrance and a rights-in/rights-out entrance along northbound Delaware Route 1.

- 2017 Average Annual Daily Traffic on Delaware Route 1: 59,999 vehicles per day.
- 2017 Average Annual Daily Traffic on Holland Glade Road: 3,255 vehicles per day.

Site Map



**Graphic is an approximation based on the Concept Plan prepared by Becker Morgan Group, Inc, dated May 5, 2017.*

Livable Delaware

(Source: Delaware Strategies for State Policies and Spending, 2015)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed development is located within the Investment Level 2 area.

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. 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. 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.

Proposed Development's Compatibility with Livable Delaware:

The proposed development is located in the Investment Level 2 area. According to Livable Delaware, Level 2 focuses on new and expansion of facilities located in these areas. In addition, Level 2 encourages the development of mixed-use compact housing types and commercial sites. Therefore, the proposed development is generally consistent with the 2015 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans

(Source: Sussex County 2008 Comprehensive Plan Update)

Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan*, the existing land use of the subject property is mixed use. The future land use plan characterizes the subject property as highway commercial.

Proposed Development's Compatibility with the Sussex County Comprehensive Plan:
The proposed development will consist of a retail use. As such, the proposed use appears to be generally compatible with the *Sussex County 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, 9th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 220 (Apartment Units) and ITE Land Use Code 826 (Specially Retail Center).

The peak period trip generation utilized in the TIS for the proposed development is included in Table 1.

Table 1
Coastal Station Phase 2 Trip Generation

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
37,000 Square Feet Specialty Retail Center (ITE Code 826)	1,640	143	154	297	48	62	110	48	62	110
Internal Capture		3	14	17	6	11	17	9	10	19
96 Apartment Units (ITE Code 220)	705	10	41	51	46	24	70	30	29	59
Internal Capture		1	8	9	27	14	41	19	17	36
Net New Trips		**149**	**173**	**322**	**61**	**61**	**122**	**50**	**64**	**114**

Intersections examined:

1. Site Access/Holland Glade Road (Sussex Road 271) (east access)
2. Holland Glade Road/Coastal Station Phase 1 Entrance/Tanger Outlet Entrance
3. Delaware Route 1/Rights-in/Rights-out (Coastal Station Phase 1 Entrance)
4. Delaware Route 1/Holland Glade Road
5. Delaware Route 1/Shuttle Road (Sussex Road 273)/Ames Drive
6. Delaware Route 1/Sea Air Avenue/Tanger Outlet Entrance

Conditions examined:

1. Case 1 – Existing (2017)
2. Case 2 – 2019 without development
3. Case 3 – 2019 with development

Peak hours evaluated: Weekday morning, weekday evening, and summer Saturday midday.

Committed Developments considered:

1. Coastal Station Phase 1 (5,371 square-foot convenience store with gas pumps, 8,500 square-foot quality restaurant, 2,795 square feet of retail space)
2. Canal Corkran (127 single-family detached houses, 97 townhouses)
3. Rehoboth Gateway (74,965 square-foot shopping center, 5,000 square-foot convenience store with gas pumps, 6,000 square-foot high-turnover sit-down restaurant, and another 6,000 square-foot high-turnover sit-down restaurant)

4. Canal Point (283 single-family detached houses, 334 townhouses, 40,000 square feet of commercial space)
5. Truitt Farm (120-bed assisted living facility, 90 age-restricted single-family homes)

Note: Based on a recent site visit, the Canal Corkran and Canal Point developments appear to be fully built and occupied. As such, only the Coastal Station Phase 1, Rehoboth Gateway, and Truitt Farm developments were incorporated in the analysis.

Intersection Descriptions

1. **Site Access/Holland Glade Road (Sussex Road 271) (east access)**
   Type of Control: Proposed two-way stop controlled intersection (T- Intersection)
   Eastbound Approach: (Holland Glade Road) Proposed one shared through/right turn lane
   Westbound Approach: (Holland Glade Road) Proposed one shared left turn/through lane
   Northbound Approach: (Site Access) Proposed one shared left turn/right turn lane, stop controlled

2. **Holland Glade Road/Coastal Station Phase 1 Entrance/Tanger Outlet Entrance**
   Type of Control: Existing two-way stop controlled intersection (four-leg intersection)
   Eastbound Approach: (Holland Glade Road) Existing one shared left turn/through lane and one right turn lane
   Westbound Approach: (Holland Glade Road) Existing one shared left turn/through/right tun lane
   Northbound Approach: (Coastal Station Phase 1 Entrance) Existing one shared left turn/through/ right turn lane, stop controlled
   Southbound Approach: (Tanger Outlet Entrance) Existing one shared left turn/through/right turn lane, stop controlled

3. **Delaware Route 1/Rights-in/Rights-out (Coastal Station Phase 1 Entrance)**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Westbound Approach: (Coastal Station Phase 1 Entrance) Existing one channelized right turn lane, stop controlled
   Northbound Approach: (Delaware Route 1) Existing three through lanes and one right turn lane
   Southbound Approach: (Delaware Route 1) Existing three through lanes

4. **Delaware Route 1/Holland Glade Road**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Westbound Approach: (Holland Glade Road) Existing one right turn lane, stop controlled

Northbound Approach: (Delaware Route 1) Existing three through lanes and one right turn lane
Southbound Approach: (Delaware Route 1) Existing three through lanes

5. **Delaware Route 1/Shuttle Road (Sussex Road 273)/Ames Drive**
Type of Control: Existing signalized intersection (four-leg intersection)
Eastbound Approach: (Shuttle Road) Existing two left turn lanes, one shared left turn/ through lane, and one right turn lane
Westbound Approach: (Ames Drive) Existing two left turn lanes, one through lane, and one channelized right turn lane
Northbound Approach: (Delaware Route 1) Existing two left turn lanes, two through lanes, and one shared through/right turn lane
Southbound Approach: (Delaware Route 1) Existing two left turn lanes, three through lanes, and one right turn lane

6. **Delaware Route 1/Sea Air Avenue/Tanger Outlet Entrance**
Type of Control: Existing signalized intersection (four-leg intersection)
Eastbound Approach: (Sea Air Avenue) Existing one left turn lane, one shared left turn/through lane, and one channelized right turn lane
Westbound Approach: (Tanger Outlet Entrance) Existing one left turn lane, one shared left turn/through lane, and one right turn lane
Northbound Approach: (Delaware Route 1) Existing two left turn lanes, three through lanes, and one channelized right turn lane
Southbound Approach: (Delaware Route 1) Existing two left turn lanes, three through lanes, and one right turn lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Delaware Transit Corporation (DTC) currently provides existing services via DART Routes 201 and 215 within the study area. Designated bus stops for DART Routes 201 and 215 exist along northbound Delaware Route 1 approximately 210 feet north of the intersection with Holland Glade Road and along southbound Delaware Route 1 across from Holland Glade Road. DART Route 201 provides 30 round trips on weekdays and Saturdays from 7:00 a.m. to 11:00 p.m. DART Route 215 provides 10 round trips on weekdays and Saturdays from 5:25 a.m. to 11:09 p.m.

Planned transit service: DelDOT contacted Mr. Jared Kauffman, Planner at the DTC. Per email correspondence on October 10, 2018 from Mr. Kauffman, a 5 feet by 8 feet bus pad with a sidewalk connection to a pedestrian pathway is recommended to be installed at the Plantation Road intersection with Cedar Grove Road.

Existing bicycle and pedestrian facilities: According to DelDOT's *Sussex County Bicycle Map,* the Statewide Bicycle Route (Bicycle Route 1) route exist within the study area. The Statewide

Bicycle Route exists along Delaware Route 1 and traverses through four of the project's study intersections (the Delaware Route 1 intersections with Shuttle Road/Ames Drive, Rights-in/Rights-out (Coastal Station Phase 1 Entrance), Holland Glade Road, and Sea Air Avenue/Tanger Outlet Entrance). The Junction and Breakwater Trail also exists to the east of the site. Pedestrian facilities exist at the Delaware Route 1 intersections with Shuttle Road/Ames Drive, Rights-in/Rights-out (Coastal Station Phase I Entrance), Holland Glade Road, and Sea Air Avenue/Tanger Outlet Entrance as well as at the Holland Glade Road intersection with Coastal Station Phase 1 Entrance/Tanger Outlet Entrance.

Planned bicycle and pedestrian facilities: Per email correspondence on November 8, 2018 from Mr. John Fiori, DelDOT's Bicycle Coordinator, the following improvements were recommended:

- A 10-foot wide shared use path with a minimum 5-foot buffer from edge of pavement should be provided along the Holland Glade Road property frontage.
- A minimum 5-foot wide separate bike lane along the right turn lane and shoulder should be provided along Holland Glade Road.
- Install internal bicycle racks adjacent to the retail uses.
- The site shall dedicate right-of-way per the roadway classification and establish a 15-foot wide permanent easement along the Holland Glade Road site frontage.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities.

Bicycle Level of Service and Bicycle Compatibility Index: According to the League of Illinois Bicyclists (LIB), Bicycle Level of Service (BLOS) is an emerging national standard for quantifying the bike-friendliness of a roadway by measuring on-road bicyclist comfort levels for specific roadway geometries and traffic conditions. Utilizing the 10-year projected AADT along the Holland Glade Road site frontage with a 45 miles per hour speed limit and the provision of a 5-foot wide bike lane, the BLOS with the build out construction of the proposed development is summarized below. The BLOS was determined utilizing the calculators published on the LIB website: http://rideillinois.org/blos/blosform.htm

- Holland Glade Road – BLOS: B (below 1.51-2.50)

Previous Comments
None.

General Synchro Analysis Comments

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

1. For the analysis, the TIS and JMT used Synchro 9 software. Additionally, the signalized intersection results were based on Synchro methodology whereas the unsignalized intersection results were based on HCM 2010 methodology.

2. Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement 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 analysis of future scenarios. The TIS utilized existing heavy vehicle percentages for the future scenario analyses.

3. Per DelDOT's *Development Coordination Manual,* JMT utilized the existing PHF for Case 1 and a future PHF for Cases 2 and 3 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 whereas the TIS did not.

4. JMT utilized updated Cases 1, 2 and 3 volumes. The updated volumes were created to address some volume development inconsistencies identified in the TIS report.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Coastal Station Phase 2
Report Dated: October 2018
Prepared by Becker Morgan Group, Inc

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Site Access/Holland Glade Road (Sussex Road 271) (east access)	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2017 Existing (Case 1)						
Westbound Holland Glade Road Left Turn	-	-	-	-	-	-
Northbound Site Access Approach	-	-	-	-	-	-
2019 Without Development (Case 2)						
Westbound Holland Glade Road Left Turn	-	-	-	-	-	-
Northbound Site Access Approach	-	-	-	-	-	-
2019 With Development (Case 3)						
Westbound Holland Glade Road Left Turn	A (7.6)	A (7.7)	A (7.8)	A (7.7)	A (7.7)	A (7.8)
Northbound Site Access Approach	B (10.6)	B (11.7)	B (11.8)	B (10.9)	B (11.3)	B (11.6)
2019 With Development (Case 3) with *four-leg intersection*[2]						
Westbound Holland Glade Road Left Turn	A (7.5)	A (7.7)	A (7.8)	A (7.7)	A (7.8)	A (7.8)
Northbound Site Access Approach	B (11.7)	B (13.3)	B (13.7)	B (10.9)	B (12.3)	B (12.5)

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

[2] The four-leg intersection scenario incorporates the modification of the Delaware Route 1/Holland Glade Road intersection as a four-legged signalized intersection with an access to the Tanger Outlets Bayside/IHOP forming the westerly leg.

Table 3
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Coastal Station Phase 2
Report Dated: October 2018
Prepared by Becker Morgan Group, Inc

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Holland Glade Road/Coastal Station Phase 1 Entrance/Tanger Outlet Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2017 Existing (Case 1) [3]						
Eastbound Holland Glade Road Left Turn	A (7.7)	A (7.8)	A (7.8)	A (7.5)	A (7.8)	A (7.8)
Westbound Holland Glade Road Left Turn	-	-	-	-	-	-
Northbound Coastal Station Phase 1 Entrance Approach	-	-	-	-	-	-
Southbound Tanger Outlet Entrance Approach	B (11.1)	B (13.3)	B (13.6)	B (10.4)	B (12.3)	B (13.0)
2019 Without Development (Case 2)						
Eastbound Holland Glade Road Left Turn	A (7.5)	A (8.0)	A (7.9)	A (7.5)	A (7.9)	A (7.8)
Westbound Holland Glade Road Left Turn	A (7.4)	A (7.4)	A (7.5)	A (7.4)	A (7.3)	A (7.4)
Northbound Coastal Station Phase 1 Entrance Approach	A (9.6)	B (13.0)	B (12.8)	A (9.7)	B (11.6)	B (11.3)
Southbound Tanger Outlet Entrance Approach	B (10.4)	C (16.3)	C (17.6)	B (10.7)	B (14.2)	B (14.4)
2019 With Development (Case 3)						
Eastbound Holland Glade Road Left Turn	A (7.6)	A (8.0)	A (7.9)	A (7.6)	A (7.9)	A (7.8)
Westbound Holland Glade Road Left Turn	A (7.5)	A (7.5)	A (7.3)	A (7.6)	A (7.4)	A (7.4)
Northbound Coastal Station Phase 1 Entrance Approach	A (11.3)	A (14.3)	A (14.2)	B (11.5)	B (12.1)	B (12.0)
Southbound Tanger Outlet Entrance Approach	B (12.6)	B (17.5)	B (18.9)	B (12.6)	B (14.5)	B (12.8)

[3] JMT utilized heavy vehicle percentages consistent with existing count data whereas the TIS did not.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Coastal Station Phase 2
Report Dated: October 2018
Prepared by Becker Morgan Group, Inc

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Holland Glade Road/Coastal Station Phase 1 Entrance/Tanger Outlet Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2019 With Development (Case 3) with *four- leg intersection*[2]						
Eastbound Holland Glade Road Left Turn	A (7.7)	A (8.2)	A (8.2)	A (7.7)	A (8.1)	A (8.0)
Westbound Holland Glade Road Left Turn	A (7.5)	A (7.5)	A (7.6)	A (7.7)	A (7.6)	A (7.5)
Northbound Coastal Station Phase 1 Entrance Approach	B (12.8)	C (18.6)	C (18.5)	B (13.1)	C (16.2)	C (15.1)
Southbound Tanger Outlet Entrance Approach	B (12.4)	C (20.9)	C (23.4)	B (13.3)	C (19.1)	C (18.6)

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Coastal Station Phase 2
Report Dated: October 2018
Prepared by Becker Morgan Group, Inc

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Delaware Route 1/Right-in/Rights-out[4,5] **(Coastal Station Phase 1 Entrance)**	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2017 Existing (Case 1)						
Westbound Coastal Station Phase 1 Entrance Right Turn	-	-	-	-	-	-
2019 Without Development (Case 2)						
Westbound Coastal Station Phase 1 Entrance Right Turn	A (9.3)	B (10.8)	B (12.3)	B (12.4)	C (20.0)	E (39.9)
2019 With Development (Case 3)						
Westbound Coastal Station Phase 1 Entrance Right Turn	A (9.7)	B (10.9)	B (12.6)	B (14.3)	C (21.5)	F (52.6)
2019 With Development (Case 3) with *four- leg intersection*[2]						
Westbound Coastal Station Phase 1 Entrance Right Turn	A (9.3)	B (10.5)	B (12.1)	B (12.5)	C (16.5)	D (28.0)

[4] JMT included the upstream signal in the analysis whereas the TIS did not.

[5] JMT used HCM 2010 results whereas the TIS used Synchro methodology results.

Table 5
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Coastal Station Phase 2
Report Dated: October 2018
Prepared by Becker Morgan Group, Inc

Signalized Intersection [1,6]	**LOS per TIS**			**LOS per JMT**		
Delaware Route 1/Holland Glade Road	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2017 Existing (Case 1)	A (0.4)	A (1.3)	A (0.6)	B (0.4)	A (1.3)	A (0.6)
2019 Without Development (Case 2)	A (0.5)	A (0.7)	A (1.0)	A (0.5)	A (0.7)	A (1.0)
2019 With Development (Case 3)	A (0.5)	A (1.5)	A (1.0)	A (0.5)	A (1.5)	A (1.0)
2019 With Development (Case 3) with *four- leg intersection*[2]	B (14.7)	B (16.7)	C (31.2)	B (12.6)	B (16.7)	C (31.2)

[6] Under existing conditions, this intersection operates as unsignalized. However, the analysis is conducted as signalized to incorporate the operation of the existing HAWK signal.

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Coastal Station Phase 2
Report Dated: October 2018
Prepared by Becker Morgan Group, Inc

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Delaware Route 1/Shuttle Road (Sussex Road 273)/Ames Drive	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2017 Existing (Case 1)	C (21.2)	C (29.7)	C (33.2)	C (21.2)	C (29.7)	C (33.2)
2019 Without Development (Case 2)	C (25.5)	D (35.2)	D (39.5)	C (25.5)	D (35.2)	D (39.5)
2019 With Development (Case 3)	C (26.8)	D (36.2)	D (40.4)	C (26.8)	D (36.2)	D (40.4)
2019 With Development (Case 3) with *four- leg intersection* [2,7]	C (21.8)	C (27.8)	C (33.0)	C (22.9)	C (27.8)	C (33.0)

[7] During the AM peak hour, JMT utilized signal timing splits consistent with the DelDOT signal timing sheet whereas the TIS did not.

Table 7
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Coastal Station Phase 2
Report Dated: October 2018
Prepared by Becker Morgan Group, Inc

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Delaware Route 1/Sea Air Avenue/Tanger Outlet Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2017 Existing (Case 1)	B (14.1)	C (23.3)	D (39.2)	B (14.1)	C (23.3)	D (39.2)
2019 Without Development (Case 2)	B (16.1)	C (25.8)	D (43.6)	B (16.1)	C (25.8)	D (43.6)
2019 With Development (Case 3)	B (17.7)	C (26.2)	D (45.4)	B (17.7)	C (26.2)	D (45.4)
2019 With Development (Case 3) with *four- leg intersection*[2,7]	A (9.2)	C (21.9)	C (30.5)	B (12.6)	C (21.9)	C (30.5)