



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

JENNIFER COHAN  
SECRETARY

April 2, 2019

Mr. D.J. Hughes  
Davis, Bowen & Friedel, Inc.  
1 Park Avenue  
Milford, DE 19963

Dear Mr. Hughes:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Ocean Park** (Tax Parcels 334-12.00-50.00 & 51.00) 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 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. Ring Lardner, Davis, Bowen & Friedel, Inc.  
Ms. Constance C. Holland, Office of State Planning Coordination  
Ms. Janelle Cornwell, Sussex County Planning and Zoning  
Mr. Andrew Parker, McCormick Taylor, Inc.  
DelDOT Distribution

## DelDOT Distribution

Brad Eaby, Deputy Attorney General  
Drew Boyce, Director, Planning  
Mark Luszc, 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  
Susanne Laws, Sussex Subdivision Review Coordinator, Development Coordination  
David Dooley, Service Development Planner, Delaware Transit Corporation  
Mark Galipo, Traffic Engineer, Traffic, DOTS  
Sarah Coakley, Principal Planner, Statewide & Regional Planning  
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning  
Derek Sapp, Sussex County Subdivision Reviewer, Development Coordination  
Claudy Joinville, Project Engineer, Development Coordination



April 1, 2019

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

RE: Agreement No. 1773  
Traffic Impact Study Services  
**Task No. 1A Subtask 13A – Ocean Park**

Dear Mr. Brestel:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Ocean Park commercial development prepared by Davis, Bowen & Friedel, Inc. (DBF) dated August 2018. DBF prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the Ocean Park commercial development, proposed to be located on the southeast corner of the intersection of Plantation Road (Sussex Road 275) and Cedar Grove Road / Postal Lane (Sussex Road 283) in Sussex County, Delaware. The proposed development would consist of a 69,000 square-foot building. For the purpose of the TIS analysis, it is assumed to be 14,000 square feet of shopping center space and 55,000 square feet of medical/dental office space. Two access points are proposed: one full-movement access on Cedar Grove Road and one right-in/right-out/left-in access via interconnection with the parcel to the south on Plantation Road. Construction is anticipated to be complete by 2020.

The subject land consists of two parcels (Tax Parcel Nos. 334-12.00-50.00 and 51.00) totaling 5.7 acres and having two different zoning designations. One parcel was recently rezoned to B-1 (Neighborhood Business) and the other parcel is zoned AR-1 (Agricultural Residential), both in Sussex County. No rezoning is needed or sought to permit the proposed development.

Currently, there is one DelDOT capital project within the area of study. The Plantation Road Improvements, SR 24 to US 9 Project (State Contract No. T201111201) will provide operational improvements along Plantation Road from Delaware Route 24 to US Route 9. The project will include adding and modifying turn lanes, bypass lanes, and various intersection improvements and safety improvements such as additional bicycle lanes and sidewalks. In conjunction with recommendations from the Five Points Transportation Study, the project might also evaluate the feasibility of widening Plantation Road to provide additional through lanes from Delaware Route 24 to Cedar Grove Road / Postal Lane. The anticipated Project Development start date is sometime in early 2019 at the earliest.

It is also noted that the proposed development is located within the boundary of the Henlopen Transportation Improvement District (TID) as presently contemplated by Sussex County and

DelDOT. A TID is a planning concept that seeks to proactively align transportation infrastructure spending and improvements with land use projections and future development within the designated district.

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

All existing intersections within the study area exhibit adequate level of service (LOS), so physical roadway and/or traffic control improvements to address any such deficiencies are not necessary. However, a number of items are recommended to accommodate site entrances, to satisfy requirements of DelDOT's Development Coordination Manual, and to address bicycle and pedestrian needs.

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. The developer should construct the full site access on Cedar Grove Road. This proposed driveway should be located as far from Plantation Road as possible, which is approximately 880 feet west of the eastbound Cedar Grove Road stop bar. The proposed configuration is shown in the table below.

Approach	Current Configuration	Proposed Configuration
Northbound Site Access	Does not exist	One shared left/right-turn lane
Eastbound Cedar Grove Road	One through lane	One through lane and one right-turn lane
Westbound Cedar Grove Road	One through lane	One left-turn lane and one through lane

Initial recommended minimum turn-lane lengths (excluding tapers) of the separate turn lanes are listed below.

Approach	Left-Turn Lane	Right-Turn Lane
Northbound Site Access	N/A	N/A
Eastbound Cedar Grove Road	N/A	145 feet *
Westbound Cedar Grove Road	120 feet *	N/A

\* turn-lane length based on DelDOT's *Auxiliary Lane Worksheet*

DelDOT recognizes that there may be constraints on the design of the Cedar Grove Road site access due to the presence of existing utility poles. In this regard, if the developer

proposes a non-standard design for the site access, they must submit a Design Deviation Form to DelDOT. In any event, the developer must coordinate with DelDOT's Development Coordination Section to determine final turn lane lengths and overall entrance design details during the site plan review process.

2. The developer should construct the site access on Plantation Road. This proposed driveway should be located a minimum of 550 feet south of the northbound Plantation Road stop bar at the intersection with Cedar Grove Road / Postal Lane, although the final determination of driveway location must be coordinated with DelDOT's Development Coordination Section during the site plan review process. The proposed configuration is shown in the table below.

Approach	Current Configuration	Proposed Configuration
Northbound Plantation Road	One through lane	One left-turn lane and one through lane
Southbound Plantation Road	One through lane	One through lane and one right-turn lane
Eastbound Site Access	Does not exist	One right-turn-only lane

DelDOT recognizes that there may be constraints on the design of the Plantation Road site access due to the presence of existing utility poles. In this regard, if the developer proposes a non-standard design for the site access, they must submit a Design Deviation Form to DelDOT. In any event, the developer must coordinate with DelDOT's Development Coordination Section to determine final turn lane lengths and overall entrance design details during the site plan review process.

3. The developer should execute an easement with the developer of the proposed Plantation Senior Living site located immediately to the south that would allow the proposed roadway interconnection(s) between the two sites to be constructed if and when the adjacent site is developed. It would also allow Plantation Senior Living traffic to pass through the Ocean Park property and to use the site access on Cedar Grove Road. The developer should coordinate with DelDOT's Development Coordination Section to determine easement details.

DelDOT anticipates making a similar requirement of the developer of the Plantation Senior Living property, whereby that developer would execute an easement with the developer of Ocean Park that would allow Ocean Park traffic to pass through the Plantation Senior Living property and to use the site access on Plantation Road.

4. The following bicycle and pedestrian improvements should be included:
- a. Adjacent to the proposed right-turn lanes on eastbound Cedar Grove Road and southbound Plantation Road at the proposed site entrances, a minimum of a five-foot bicycle lane should be dedicated and striped with appropriate markings for bicyclists through the turn lane in order to facilitate safe and unimpeded bicycle travel.
  - b. Appropriate bicycle symbols, directional arrows, pavement markings, and signing should be included along bicycle facilities and turn lanes within the project limits.
  - c. Utility covers should be made flush with the pavement.
  - d. A minimum 15-foot wide easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontage along Plantation Road.
  - e. Within the easement along Plantation Road, a minimum of a five-foot wide sidewalk that meets current AASHTO and ADA standards should be constructed along the site frontage of the Ocean Park property. DelDOT anticipates making a similar requirement of the developer of the Plantation Senior Living property. The sidewalk should have a minimum of a five-foot buffer from the roadway. At the northern end, the sidewalk should connect to the existing section of sidewalk on the southwest corner of the intersection of Plantation Road & Cedar Grove Road / Postal Lane. At the southern end of the Ocean Park property, the sidewalk should continue onto the Plantation Senior Living property. At the southern end of the Plantation Senior Living property, the anticipated future sidewalk should connect to the shoulder of Plantation Road in accordance with DelDOT's *Shared Use Path and/or Sidewalk Termination Reference Guide* dated August 1, 2018. The developer should coordinate with DelDOT's Development Coordination Section to determine exact location and details of the sidewalk connections at the property boundaries.
  - f. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings within the development. Type 3 curb ramps are discouraged.
  - g. Internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These sidewalks should each be a minimum of five feet wide (with a minimum of a five-foot buffer from the roadway) and should meet current AASHTO and ADA standards. These internal sidewalks should connect to the proposed sidewalk along Plantation Road.
  - h. Where internal sidewalks are located alongside of parking spaces, a buffer should be added to prevent 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://deldot.gov/Publications/manuals/de\\_mutcd/index.shtml](http://deldot.gov/Publications/manuals/de_mutcd/index.shtml).

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 (610) 640-3500 or through e-mail at [ajparker@mccormicktaylor.com](mailto:ajparker@mccormicktaylor.com) if you have any questions concerning this review.

Sincerely,

**McCormick Taylor, Inc.**

A handwritten signature in black ink, appearing to read "Andrew J. Parker", with a long, sweeping flourish extending from the end.

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

Enclosure

## **General Information**

**Report date:** August 2018

**Prepared by:** Davis, Bowen & Friedel, Inc. (DBF)

**Prepared for:** HKLS, LLC

**Tax parcel:** 334-12.00-50.00 and 51.00

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

## **Project Description and Background**

**Description:** The proposed commercial development would consist of a 69,000 square-foot building. For the purpose of the TIS analysis, it is assumed to be 14,000 square feet of shopping center space and 55,000 square feet of medical/dental office space.

**Location:** The Ocean Park commercial development is proposed to be located on the southeast corner of the intersection of Plantation Road (Sussex Road 275) and Cedar Grove Road / Postal Lane (Sussex Road 283) in Sussex County, Delaware. A site location map is included on page 7.

**Amount of land to be developed:** approximately 5.7 acres of land

**Land use approval(s) needed:** Subdivision approval. One parcel was recently rezoned to B-1 (Neighborhood Business) and the other parcel is zoned AR-1 (Agricultural Residential), both in Sussex County. No rezoning is needed or sought to permit the proposed development.

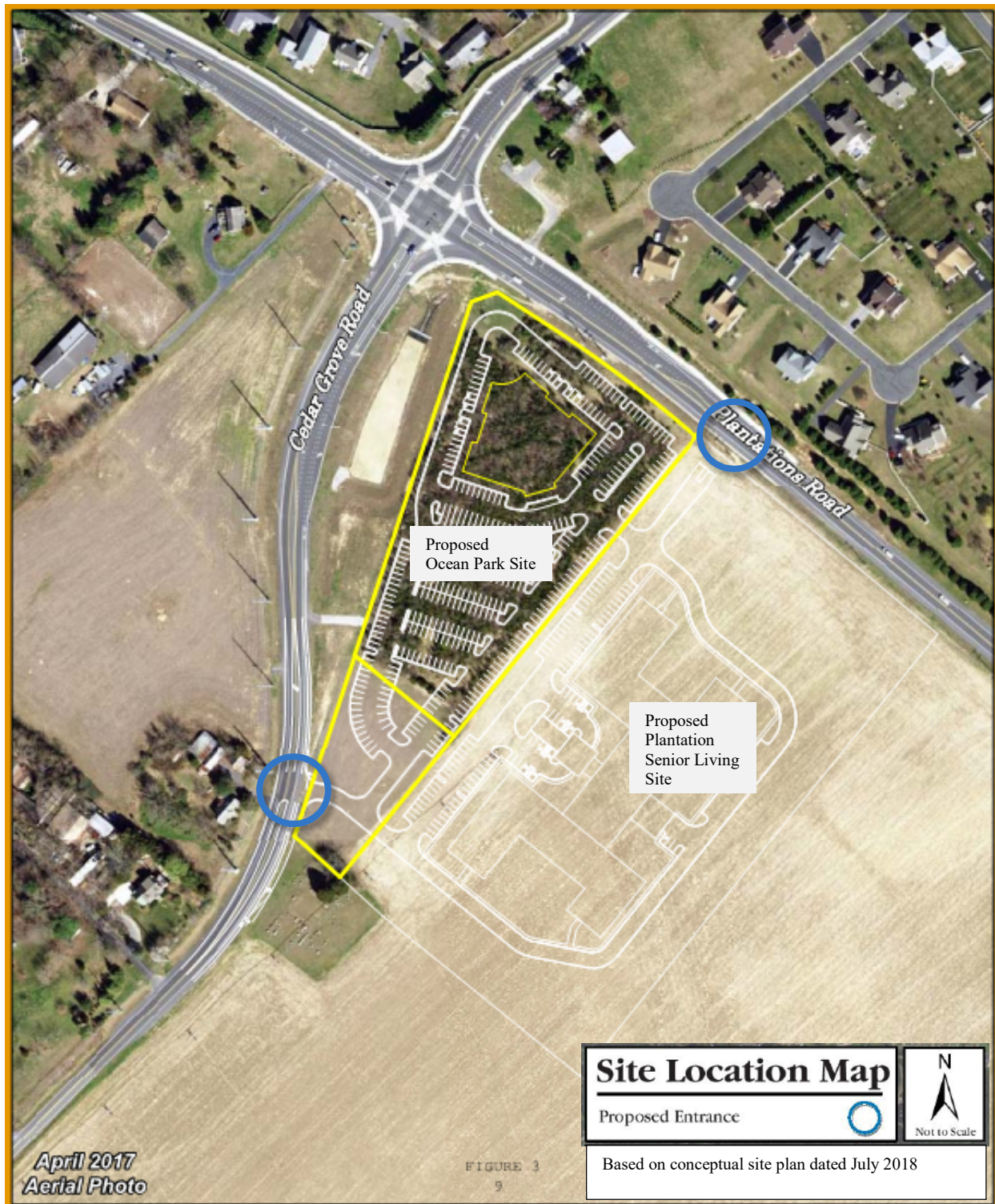
**Proposed completion date:** 2020

**Proposed access locations:** Two access points are proposed: one full-movement access on Cedar Grove Road and one right-in/right-out/left-in access via interconnection with the parcel to the south on Plantation Road (Plantation Senior Living).

**Daily Traffic Volumes (per DelDOT Traffic Summary 2017):**

- 2017 Average Annual Daily Traffic on Plantation Road: 10,909 vpd
- 2017 Average Annual Daily Traffic on Cedar Grove Road: 3,567 vpd





## **2015 Delaware Strategies for State Policies and Spending**

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

### *Investment Level 2*

Investment Level 2 has many diverse characteristics. 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. These areas have been shown to be the most active portion of Delaware's developed landscape. 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, and provides essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community. Level 2 Areas would be a prime location for designating "pre-permitted areas."

### **Proposed Development's Compatibility with Strategies for State Policies and Spending:**

The proposed Ocean Park commercial development is comprised of a 69,000 square foot building with shopping center and medical/dental office space located within an Investment Level 2 area. Investment Level 2 reflects areas where growth is anticipated by local, county, and State plans in the near term future. As such, the proposed development generally appears to comply with the guidelines of Investment Level 2 areas as described in the 2015 "Strategies for State Policies and Spending."

## **Comprehensive Plan**

### **Sussex County Comprehensive Plan:**

*(Source: Sussex County Comprehensive Plan Update, June 2008)*

The Sussex County Comprehensive Plan Future Land Use Map indicates that the proposed development parcels are within the Environmentally Sensitive Developing Area (categorized as a Growth Area).

Growth Areas, including the Environmentally Sensitive Developing Area, are designed to accommodate concentrated levels of development. The Environmentally Sensitive Developing Area has been designated by Sussex County for large areas around Rehoboth Bay, Indian River Bay, and Little Assawoman Bay (the inland bays). This designation recognizes two characteristics of these areas. First, these regions are among the most desirable locations in Sussex County for new housing, as reflected in new construction data and real estate prices. Second, these regions contain ecologically important wetlands and other coastal lands that help absorb floodwaters and provide extensive habitat for native flora and fauna. These areas also have great impacts upon the water quality of the bays and inlets and upon natural habitats.

The challenge in these regions is to safeguard genuine natural areas and mitigate roadway congestion without stifling the tourism and real estate markets that: a) provide many jobs; b) create business for local entrepreneurs; and c) help keep local tax rates reasonable. The County has major initiatives to extend public sewer service to replace failing on-site systems in many of these areas. Very careful control of stormwater runoff is an extremely important concern to keep sediment and other pollutants out of the inland bays.

The following major guidelines should apply to future growth in Environmentally Sensitive Developing Areas:

*Permitted Uses* – Environmentally Sensitive Developing Areas are areas that can accommodate development provided special environmental concerns are addressed. A range of housing types should be permitted in Environmentally Sensitive Areas, including single-family homes, townhouses and multi-family units. Retail and office uses are appropriate but larger shopping centers and office parks should be confined to selected locations with access to arterial roads. Careful mixtures of homes with light commercial and institutional uses can be appropriate to provide for convenient services and to allow people to work close to home. Major new industrial uses are not proposed in these areas. Industrial zones are regulated by the Delaware Coastal Zone Act, which restrict heavy industry and bulk transfer.

*Densities* – The Environmentally Sensitive Developing Areas function as an “overlay” area to several underlying zoning districts. It may be advisable for legal reasons to convert this overlay area into regular zoning districts, while maintaining the current standards. Most of the Environmental Sensitive Developing Areas should continue to allow 2 homes per acre. The option should exist to go up to 4 units per acre if the developer uses optional density bonuses. Smaller lots and flexibility in dimensional standards should be allowed if the developer uses a cluster option that results in permanent preservation of a substantial percentage of the tract.

The County may also consider an additional layer of protection in the Environmentally Sensitive Developing Areas. Tidal wetland area could be subtracted from the total tract size so that “net” tract size is used as the basis for calculating how much development is allowed.

All applicants for developments of a minimum size (as specified in zoning) should continue to be required to provide information that analyzes the development’s potential environmental impacts, including effects on stormwater runoff, nitrogen and phosphorous loading, wetlands, woodlands, wastewater treatment, water systems, and other matters that affect the ecological sensitivity of the inland bays.

*Infrastructure* – Central water and sewer facilities are strongly encouraged. If central utilities are not possible, permitted densities should be limited to 2 units per acre.

**Proposed Development’s Compatibility with Comprehensive Plan:** The proposed Ocean Park commercial development is planned to be developed as a 69,000 square-foot building with retail and medical/dental office space on a 5.7-acre assemblage of parcels. The site is currently zoned B-1 (Neighborhood Business) for the larger parcel where the building would be located, and AR-1 (agricultural residential) for the smaller parcel where the access on Cedar Grove Road would be located. The developer does not intend to modify the existing zoning, although further discussion may be needed to determine if the AR-1 parcel needs to be rezoned to permit the proposed use. The purpose of the B-1 zoning district is to provide primarily for retail shopping and personal service uses to serve the needs of a relatively small area. The purpose of the AR-1 zoning district is to protect agricultural lands and activities and other valuable natural resources. The proposed development appears to comply with the characteristics of Growth Areas in general as well as the *Permitted Uses* for the Environmentally Sensitive Developing Area.

While the type of use proposed for this site appears to be permitted in this location by the Comprehensive Plan, there are specific regulations that must be followed. In addition, there is uncertainty regarding suitability of the proposed use in an AR-1 zoning district, which makes up a small portion of the site. As this development raises questions regarding consistency with Sussex County zoning regulations, additional discussion may be required.

### **Relevant Projects in the DelDOT Capital Transportation Program**

Currently, there is one DelDOT capital project within the area of study. The Plantation Road Improvements, SR 24 to US 9 Project (State Contract No. T201111201) will provide operational improvements along Plantation Road from Delaware Route 24 to US Route 9. The project will include adding and modifying turn lanes, bypass lanes, and various intersection improvements and safety improvements such as additional bicycle lanes and sidewalks. In conjunction with recommendations from the Five Points Transportation Study, the project might also evaluate the feasibility of widening Plantation Road to provide additional through lanes from Delaware Route 24 to Cedar Grove Road / Postal Lane. The anticipated Project Development start date is sometime in early 2019 at the earliest.

It is also noted that the proposed development is located within the boundary of the Henlopen Transportation Improvement District (TID) as presently contemplated by Sussex County and

DelDOT. A TID is a planning concept that seeks to proactively align transportation infrastructure spending and improvements with land use projections and future development within the designated district.

### **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:

- 55,000 SF Medical/Dental Office Building (ITE Land Use Code 720)
- 14,000 SF Shopping Center (ITE Land Use Code 820)

Table 1  
OCEAN PARK PEAK HOUR TRIP GENERATION

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			SAT Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
55,000 sf medical/dental office	103	28	131	48	122	170	114	86	200
14,000 sf shopping center	8	5	13	25	27	52	35	32	67
<i>Internal Capture</i>	0	0	0	-2	-2	-4	-2	-2	-4
Pass-By Trips	0	0	0	-8	-9	-17	-11	-11	-22
<b>TOTAL EXTERNAL TRIPS</b>	<b>111</b>	<b>33</b>	<b>144</b>	<b>63</b>	<b>138</b>	<b>201</b>	<b>136</b>	<b>105</b>	<b>241</b>

Table 2  
OCEAN PARK DAILY TRIP GENERATION

Land Use	Weekday Daily			Saturday Daily		
	In	Out	Total	In	Out	Total
55,000 sf medical/dental office	1017	1017	2034	247	247	494
14,000 sf shopping center	299	299	598	350	350	700
<b>TOTAL TRIPS</b>	<b>1316</b>	<b>1316</b>	<b>2632</b>	<b>597</b>	<b>597</b>	<b>1194</b>

## **Overview of TIS**

### **Intersections examined:**

- 1) Cedar Grove Road & Proposed Site Access
- 2) Plantation Road & Proposed Site Access
- 3) Plantation Road & Cedar Grove Road / Postal Lane

### **Conditions examined:**

- 1) 2017 existing conditions (case 1)
- 2) 2020 without Ocean Park commercial development (case 2)
- 3) 2020 with Ocean Park commercial development; access on Cedar Grove Road only (case 3a)
- 4) 2020 with Ocean Park commercial development; accesses on both Cedar Grove Road and Plantation Road (case 3b)

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

### **Committed developments considered:**

- 1) Love Creek Elementary School (720 student elementary school)
- 2) Saddle Ridge, fka Windswept (81 single-family detached homes)
- 3) Plantation Senior Living (144-bed assisted living facility)

## **Intersection Descriptions**

### **1) Cedar Grove Road & Proposed Site Access**

**Type of Control:** no existing intersection; proposed one-way stop (T-intersection)

**Northbound approach:** (Proposed Site Access) proposed one shared left/right-turn lane, stop-controlled

**Eastbound approach:** (Cedar Grove Road) existing one through lane; proposed one through lane and one right-turn lane

**Westbound approach:** (Cedar Grove Road) existing one through lane; proposed one left-turn lane and one through lane

### **2) Plantation Road & Proposed Site Access**

**Type of Control:** no existing intersection; proposed one-way stop (T-intersection)

**Northbound approach:** (Plantation Road) existing one through lane; proposed one left-turn lane and one through lane

**Southbound approach:** (Plantation Road) existing one through lane; proposed one through lane and one right-turn lane

**Eastbound approach:** (Proposed Site Access) proposed one right-turn-only lane, stop-controlled

**3) Plantation Road & Cedar Grove Road / Postal Lane**

**Type of Control:** signalized four-leg intersection

**Northbound approach:** (Plantation Road) one left-turn lane, one through lane, and one right-turn lane

**Southbound approach:** (Plantation Road) one left-turn lane, one through lane, and one right-turn lane

**Eastbound approach:** (Cedar Grove Road) one left-turn lane, one through lane, and one right-turn lane

**Westbound approach:** (Postal Lane) one left-turn lane, one through lane, and one right-turn lane

**Safety Evaluation**

**Crash Data:** McCormick Taylor reviewed the Delaware Crash Analysis Reporting System (CARS) data that was provided in Appendix A of the TIS. The data includes reportable crashes that occurred at the intersection of Plantation Road & Cedar Grove Road / Postal Lane and along the site frontages of both roads, from April 1, 2014 through April 1, 2017. During this time period, intersection improvements were constructed to convert this from two offset unsignalized intersections to one four-leg signalized intersection. Construction began in December 2014 and was complete with activation of the traffic signal in May 2015. Thus, the data covers timeframes prior to construction, during construction, and after completion of construction/signalization.

Of particular concern for safety evaluations are fatal crashes and crashes involving pedestrians or pedalcyclists. During the study period, no fatal crashes were reported and no crashes involved pedestrians or pedalcyclists. One crash involved a motorcycle. A breakdown of all crashes by intersection is provided below.

**1. Cedar Grove Road & Proposed Site Access**

Since this intersection does not currently exist, it was not included in the crash data analysis.

**2. Plantation Road & Proposed Site Access**

Since this intersection does not currently exist, it was not included in the crash data analysis.

**3. Plantation Road & Cedar Grove Road / Postal Lane**

At this intersection there was a total of 20 crashes over the three-year period. Of the 20 crashes, six occurred during the eight months prior to construction, zero occurred during the six-month construction period, and 14 occurred in the 22 months after construction was complete.

Four crashes (20%) resulted in personal injury. None of the crashes involved a pedestrian or a pedalcyclist. There was one alcohol-related crash. The types of crashes were angle (30%), front to front (30%), front to rear (25%), not a collision between two vehicles (10%), and sideswipe same-direction (5%). 85% of the crashes occurred during daylight hours. The crashes occurred on surface conditions including dry (80%) and wet (20%). The most common primary



contributing circumstances included failure to yield right of way (30%), driver inattention/distraction/fatigue (25%), disregard traffic signal (15%), and driving in a careless manner (10%).

**Sight Distance:** There is a horizontal curve on Cedar Grove Road at the approximate location of the proposed site driveway, however the proposed entrance would be on the outside of that curve. Sight distance is not anticipated to be a problem at this location, but as always adequacy of available sight distance should be confirmed during the site plan review process for all proposed movements at this access as well as the proposed access on Plantation Road.

Otherwise, the study area generally consists of straight and flat roadways and there are few potential visual obstructions. Sight distance appears adequate throughout the study area. No problematic sight distance issues have been reported or indicated by crash data, and no major problems were noted during field observations.

### **Transit, Pedestrian, and Bicycle Facilities**

**Existing transit service:** DBF contacted David Dooley, a Senior Planner with the Delaware Transit Corporation (DTC) to determine existing and planned transit services near the proposed development. DTC does not currently serve this immediate area and has no immediate plans for future transit service at the site. The nearest existing transit service runs along Delaware Route 24 (John J Williams Highway) and includes DART routes 207 and 215.

**Planned transit service:** Based on coordination with DTC representatives, there are currently no immediate plans to provide transit service along either Cedar Grove Road or Plantation Road near the proposed development.

**Existing bicycle and pedestrian facilities:** According to the Sussex County bicycle map, Plantation Road is classified as a Statewide Bicycle Route. It is noted as a high-traffic road with a bikeway. Plantation Road is also marked as Bicycle Route 1. Cedar Grove Road is an undesignated road, in terms of bicycling routes. Marked bicycle lanes are provided along both sides of the Cedar Grove Road and the Postal Lane approaches to Plantation Road. Bicycle lanes are also provided along both sides on both Plantation Road approaches to Cedar Grove Road / Postal Lane, as well as in other locations along Plantation Road.

Existing pedestrian facilities in the study area include sidewalks along the east side of Plantation Road and along both sides of Postal Lane. There are also short sections of sidewalks on the northwest and southwest corners of the signalized intersection (west of Plantation Road on the Cedar Grove Road side). At the signalized intersection itself, there are crosswalks with pedestrian signals and pushbuttons for all four legs of the intersection. Further south, there is a limited shared-use path on the east side of Plantation Road along the Metropolitan Community Church site frontage.

**Planned bicycle and pedestrian facilities:** DBF contacted a representative of DelDOT's Local Systems Planning Section to determine pedestrian and bicycle accommodations for the proposed development. John Fiori requested a 10' shared-use path and a 5' grass buffers along the site



frontages of both Plantation Road and Cedar Grove Road. He requested that entrance improvements incorporate bicycle and pedestrian facilities, and that an internal sidewalk/path connection be provided. He also indicated that easements would be required along the frontages.

### **Previous Comments**

All comments from DelDOT's scoping letter, service level evaluation request review, preliminary TIS (PTIS) review, revised PTIS review, and other correspondence appear to be addressed in the final TIS submission.

### **General HCS Analysis Comments**

*(see table footnotes on the following pages for specific comments)*

- 1) For signalized intersections, the TIS and McCormick Taylor applied heavy vehicle factors (HV) by lane group using existing data. The TIS and McCormick Taylor generally assumed future HV to be the same as existing HV at all intersections. Both the TIS and McCormick Taylor assumed 3% HV for future movements to and from the proposed site access points (as per DelDOT's Development Coordination Manual).
- 2) For existing conditions, the TIS and McCormick Taylor determined and utilized overall intersection peak hour factors (PHF). For future conditions, the TIS assumed existing PHF or 0.92, whichever was greater, while McCormick Taylor assumed existing PHF. At the site entrances, future PHF were based on DelDOT's Development Coordination Manual.
- 3) For analyses of all intersections, the TIS and McCormick Taylor used a base saturation flow rate of 1,750 pc/hr/ln per DelDOT's Development Coordination Manual for the weekday peak hours. Due to heavy volumes in the study area during the Summer Saturday peak hour, the TIS and McCormick Taylor used a base saturation flow rate of 1,900 pc/hr/ln for all Summer Saturday peak hour analyses.
- 4) The TIS and McCormick Taylor used different signal timings when analyzing the signalized intersections in some cases.
- 5) The TIS generally input Right-Turn-on-Red (RTOR) volumes for signalized intersection analyses, using existing RTOR volumes for existing and future analyses. McCormick Taylor conservatively input no RTOR volumes for existing and future conditions analyses, but did analyze right-turn movements as overlapping protected left-turn phases.

Table 3  
PEAK HOUR LEVELS OF SERVICE (LOS)  
*based on Traffic Impact Study for Ocean Park*  
*Report dated August 2018*  
Prepared by DBF, Inc.

<b>Proposed Unsignalized Intersection <sup>1</sup> One-Way Stop Control (T-Intersection)</b>	<b>LOS per TIS</b>			<b>LOS per McCormick Taylor</b>		
<b>1) Cedar Grove Road &amp; Proposed Site Access</b>	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
2020 with Ocean Park (case 3a)						
Northbound Site Access	B (11.3)	B (11.3)	B (12.9)	B (11.3)	B (11.2)	B (12.9)
Westbound Cedar Grove Road - Left	A (8.3)	A (7.7)	A (8.2)	A (8.3)	A (7.7)	A (8.2)
2020 with Ocean Park (case 3b)						
Northbound Site Access	B (11.1)	B (10.7)	B (11.6)	B (11.1)	B (10.7)	B (11.6)
Westbound Cedar Grove Road - Left	A (8.2)	A (7.6)	A (7.9)	A (8.2)	A (7.6)	A (7.9)

<sup>1</sup> For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 4  
PEAK HOUR LEVELS OF SERVICE (LOS)  
*based on Traffic Impact Study for Ocean Park*  
*Report dated August 2018*  
Prepared by DBF, Inc.

<b>Unsignalized Intersection <sup>2</sup> One-Way Stop Control (T-Intersection)</b>	<b>LOS per TIS</b>			<b>LOS per McCormick Taylor</b>		
<b>2) Plantation Road &amp; Proposed Site Access</b>	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
2020 with Ocean Park (case 3b)						
Northbound Plantation Road - Left	A (8.7)	A (8.4)	A (9.9)	A (8.7)	A (8.4)	A (9.9)
Eastbound Site Access - Right	B (11.5)	B (11.1)	C (15.4)	B (11.5)	B (11.1)	C (15.4)

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<sup>2</sup> For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 5  
PEAK HOUR LEVELS OF SERVICE (LOS)  
based on Traffic Impact Study for Ocean Park  
Report dated August 2018  
Prepared by DBF, Inc.

Signalized Intersection <sup>3</sup>	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Plantation Road & Cedar Grove Road / Postal Lane						
2017 existing (case 1)	C (20.8)	B (19.8)	C (21.0)	B (16.9)	B (16.2)	C (20.1)
2020 without Ocean Park (case 2)	C (21.6)	C (20.8)	C (20.3)	B (17.9)	B (17.1)	C (21.6)
2020 with Ocean Park (case 3a)	C (21.6)	C (21.4)	C (23.5)	B (18.4)	B (18.7)	C (23.0)
2020 with Ocean Park (case 3b)	C (22.0)	C (21.5)	C (24.3)	B (18.8)	B (18.6)	C (24.6)

<sup>3</sup> For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.