



STATE OF DELAWARE  
**DEPARTMENT OF TRANSPORTATION**  
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DOVER, DELAWARE 19903

JENNIFER COHAN  
SECRETARY

March 7, 2016

Mr. D.J. Hughes  
Davis, Bowen & Friedel, Inc.  
Milford Office  
23 North Walnut Street  
Milford, DE 19963

Dear Mr. Hughes:

We have reviewed the revised traffic operational analysis (TOA) for the proposed Osprey Point residential development on Tax Parcel 334-18.00-83.00 in Sussex County, which you submitted to DelDOT on December 9, 2015. The analysis evaluates the traffic impacts of the residential development, proposed to redevelop and replace the existing Old Landing Golf Course on the west side of Old Landing Road (Sussex Road 274). The proposed development would consist of 217 single-family detached houses. Access to the property would be located at the two existing entrance locations for the development of Sawgrass South. Construction is expected to be complete by 2024.

The TOA was revised to reflect changes on the site plan, including changes in the number and types of dwellings proposed (previously 170 single-family detached houses and 180 townhouses) and the addition of the Arbor-Lyn committed development, and the addition of HCS analysis for a roundabout as an alternative improvement option at the intersection of Old Landing Road / Warrington Road (Sussex Road 275) / Strawberry Way. We recognize that the Arbor-Lyn rezoning application has since been withdrawn but it is reasonable to expect that a new development application will be submitted for that land at some point.

Based on our review, we find that the intersection of Old Landing Road, Warrington Road and Strawberry Way would operate at lower than level of service (LOS) D during the existing Summer Saturday mid-day and future a.m., p.m., and Summer Saturday mid-day peak hours, and would not meet the LOS criteria listed in Chapter 2 of the DelDOT Development Coordination Manual.

Through our review, we have determined that a signal is warranted for consideration at the above intersection and, with the addition of a southbound right turn lane and a northbound left turn lane on Old Landing Road, is one option for improving the intersection to achieve LOS D during the weekday morning and evening peak hours. However, even when a signal is warranted for consideration based on volumes, there are other factors considered by DelDOT



prior to determining whether to install a traffic signal at an intersection. Installation of a traffic signal is not imminent. DelDOT will continue to evaluate the intersection to determine whether signalization is the best improvement option. Regardless of whether the intersection is signalized in the near term, to accommodate the eastbound queue at the intersection, the eastbound left-turn lane on Warrington Road should be extended by approximately 490 feet, for a total storage length of approximately 605 feet.

Recognizing that there is not sufficient right-of-way available to widen the northbound approach and that a final determination on how best to control traffic at the intersection will require further work on DelDOT's part, this letter recommends that Osprey Point be required to participate in interim improvements that can be built now, leaving the final improvement at the intersection of Old Landing Road, Warrington Road and Strawberry Way to be done as a DelDOT capital project at a future date. In planning that capital project, DelDOT will evaluate all reasonable options for that final improvement, including a roundabout and maintaining the existing all-way stop control, based on both technical criteria and public input. Therefore future installation of a signal should not be assumed.

Significantly, the Osprey Point development meets DelDOT warrants for a Traffic Impact Study (TIS). DelDOT accepted this TOA in lieu of a TIS because we are already familiar with the operation of the additional intersections that a TIS would have addressed from our 2011 Old Landing Road Traffic Study. Additionally, DelDOT will require the Osprey Point developer to pay an Area-Wide Study Fee, presently calculated at \$14,990, which can be used by DelDOT for additional evaluation and analysis of the TOA intersections or other intersections in the area. Specifically, the other intersections that a TIS would have addressed are:

- 1) Delaware Route 24 / Plantation Road / Warrington Road;
- 2) Old Landing Road / Airport Road;

The intersection of Delaware Route 24, Plantation Road and Warrington Road has operated at lower than LOS D during the weekday evening and summer Saturday peak hours for some time. It is scheduled for improvement as part of DelDOT's Route 24, Mulberry Knoll Road to Delaware Route 1 project, presently scheduled for construction in Fiscal Years 2018 and 2019.

For the intersection of Old Landing Road and Airport Road, the westbound Airport Road approach operated at LOS D during the weekday evening peak hour as recently as 2011 but operates at lower than LOS D during summer Saturdays. Other developers will need to improve this intersection when they develop the fourth leg of it but DelDOT has no immediate plans to create that fourth leg or to build an improvement there.

Should the developer choose to develop the property per the proposed land use listed above, we offer the following comments:

- 1) The developer should improve Old Landing Road from Fairway Drive to the southern terminus of Old Landing Road as follows. Within the limits of the site frontage, the improvement should be to meet DelDOT's local road standards. These standards include,

but are not limited to, eleven-foot travel lanes and five-foot shoulders. 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. Beyond the site frontage, the overlay should be continued to the southern terminus of Old Landing Road but widening to local road standards is not required.

- 2) The developer should construct the north site entrance on Old Landing Road at Bonaire Drive as per the description in the table below:

Approach	Current Configuration	Proposed Configuration
Northbound Old Landing Road	One through lane, one right-turn lane	One shared left-turn / through lane, one right-turn lane
Southbound Old Landing Road	One left-turn lane, one through lane	One left-turn lane, one through lane, one right-turn lane
Eastbound Site Entrance	Does not exist	One shared left-turn / through / right-turn lane
Westbound Bonaire Drive	One shared left-turn / right-turn lane	One shared left-turn / through / right-turn lane

The developer should work with DelDOT's Subdivision Section on the details of the turn lane(s) to be added.

- 3) The developer should construct the south site entrance on Old Landing Road at Mirabella Drive as per the description in the table below:

Approach	Current Configuration	Proposed Configuration
Northbound Old Landing Road	One shared through / right-turn lane	One shared left-turn / through / right-turn lane
Southbound Old Landing Road	One bypass lane, one through lane	One left-turn lane, one through lane, one right-turn lane
Eastbound Site Entrance	Does not exist	One shared left-turn / through / right-turn lane
Westbound Mirabella Drive	One shared left-turn / right-turn lane	One shared left-turn / through / right-turn lane

The developer should work with DelDOT's Subdivision Section on the details of the turn lane(s) to be added.

- 4) The developer should participate in the design and construction of improvements at the intersection of Old Landing Road, Warrington Road and Strawberry Way. If DelDOT determines that a traffic signal is the appropriate means of control there, the needed configuration there is shown in the table below:

Approach	Current Configuration	Proposed Configuration
Northbound Old Landing Road	One shared left-turn / through / right-turn lane	One left-turn lane, one shared through / right-turn lane
Southbound Old Landing Road	One shared left-turn / through / right-turn lane	One shared left-turn / through lane, one right-turn lane
Eastbound Warrington Road	One left-turn lane, one shared through / right-turn lane	One left-turn lane, one shared through / right-turn lane
Westbound Strawberry Way	One shared left-turn / through / right-turn lane	One shared left-turn / through / right-turn lane

The left-turn lane along the eastbound Warrington Road approach should be extended to 705 feet, with 605 feet of storage length and a 100-foot taper.

The developer's specific participation will need to be established in an off-site improvement agreement, yet to be drafted, but our discussions to date have been that the developer should do three things:

- a. Design and build the southbound right turn lane on Old Landing Road.
  - b. Design and build storm water facilities to handle the additional runoff associated with the eastbound left turn lane extension, the southbound right turn lane and the northbound left turn lane. DelDOT will acquire the necessary rights-of-way based on the approved plans.
  - c. Provide the additional pavement width needed on Warrington Road to accommodate the extension of the left-turn lane along the eastbound Warrington Road approach. The milling overlay and restriping associated with extending the left-turn lane will be done by DelDOT as part of a Paving and Rehabilitation contract to be awarded two to three years from now.
- 5) The following bicycle and pedestrian improvements should be included:
- a. A right-turn yield to bicycles (MUTCD R4-4) should be added at the start of the right-turn lanes on Old Landing Road at Warrington Road (See Item 4 above.) and both site entrances.
  - b. Adjacent to the right-turn lanes to be added on southbound Old Landing Road, a minimum of a five-foot bicycle lane should be dedicated and striped with appropriate markings for bicyclists through the turn lanes in order to facilitate safe and unimpeded bicycle travel.

- c. Appropriate bicycle symbols, directional arrows, striping (including stop bars), and signing should be included along bicycle facilities and right-turn lanes within the project limits.
- d. Utility covers should be made flush with the pavement.
- e. A ten-foot Shared Use Path located in a 15-foot easement should be provided along the entire site frontage.
- f. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including both site entrances. 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 property. These sidewalks should each be a minimum of five feet wide and should meet current AASHTO and ADA standards. These internal sidewalks should connect to the Shared Use Path along the site frontage.

Improvements in this TOA 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](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](mailto:Adam.Weiser@state.de.us).

This analysis generally focuses on capacity and level of service issues. Level of Service tables for the existing and future cases are enclosed with this letter.

If you have any questions concerning this correspondence, please contact me at (302) 760-2109.

Sincerely,



T. William Brockenbrough, Jr.  
County Coordinator

TWB:tdb  
Enclosures

cc: Lawrence Lank, Sussex County Planning and Zoning  
Michael Simmons, Assistant Director, Project Development South, DOTS  
J. Marc Coté, Assistant Director, Development Coordination  
Jeff Reed, South District Engineer, South District, DOTS  
Gemez Norwood, South District Public Works Manager, South District, DOTS  
David Dooley, Service Development Planner, DTC  
Steve Sisson, Sussex County Subdivision Coordinator, Development Coordination  
Anthony Aglio, Planner, Statewide and Regional Planning  
Brian Clarke, Sussex County Traffic Engineer, Traffic, DOTS  
Troy E. Brestel, Project Engineer, Development Coordination  
Claudy Joinville, Project Engineer, Development Coordination

Table 1  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Osprey Point TOA Review  
 Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection <sup>1</sup>	LOS per TOA			LOS per DelDOT		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Old Landing Road / Bonaire Drive / Site Access						
2024 with development						
Northbound Old Landing Road left turn	A (7.5)	A (7.9)	A (7.9)	A (7.6)	A (8.0)	A (8.0)
Southbound Old Landing Road left turn	A (7.7)	A (7.7)	A (7.8)	A (7.7)	A (7.8)	A (7.8)
Eastbound Site Access	B (13.7)	C (15.8)	C (17.4)	B (13.7)	C (15.9)	C (17.4)
Westbound Bonaire Drive	A (9.8)	A (9.4)	A (9.6)	A (9.9)	A (9.5)	A (9.6)

<sup>1</sup> The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 2  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Osprey Point TOA Review  
 Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection <sup>1</sup>	LOS per TOA			LOS per DelDOT		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Old Landing Road / Mirabella Lane / Site Access						
2024 with development						
Northbound Old Landing Road left turn	A (7.4)	A (7.5)	A (7.6)	A (7.5)	A (7.6)	A (7.7)
Southbound Old Landing Road left turn	A (7.4)	A (7.4)	A (7.6)	A (7.5)	A (7.5)	A (7.6)
Eastbound Site Access	B (10.4)	B (11.2)	B (12.3)	B (10.3)	B (11.4)	B (12.4)
Westbound Mirabella Lane	A (8.9)	A (8.9)	A (9.1)	A (8.8)	A (9.0)	A (9.2)

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<sup>1</sup> The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 3  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Osprey Point TOA Review  
 Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection <sup>1</sup>	LOS per TOA			LOS per DelDOT		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Old Landing Road / Fairway Drive						
2024 with development						
Northbound Old Landing Road left turn	A (7.5)	A (7.9)	A (8.2)	A (7.5)	A (8.0)	A (8.2)
Eastbound Fairway Drive	B (11.8)	B (12.4)	C (15.9)	B (11.9)	B (12.4)	C (15.9)

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<sup>1</sup> The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.



Table 4  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Osprey Point TOA Review  
 Prepared by Davis, Bowen & Friedel, Inc.

All-Way Stop-Controlled Intersection <sup>1</sup>	LOS per TOA			LOS per DelDOT		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Old Landing Road / Warrington Road / Strawberry Way						
2014 Existing	C (17.1)	C (17.2)	F (52.5)	C (16.95)	C (17.48)	F (54.16)
2024 without development	D (25.6)	D (34.6)	F (53.5)	D (25.20)	D (34.55)	F (53.48)
2024 with development	F (53.4)	F (65.6)	F (81.7)	F (52.58)	F (65.64)	F (81.66)

Table 5  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Osprey Point TOA Review  
 Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection <sup>1</sup>	LOS per TOA			LOS per DelDOT		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Old Landing Road / Warrington Road / Strawberry Way						
2024 with development and improvements denoted in footnote 2 <sup>2</sup>	N/A	N/A	N/A	C (24.8)	B (19.4)	C (24.8)
2024 with development and improvements denoted in footnote 3 <sup>3</sup>	C (24.3)	C (22.7)	C (22.0)	B (19.8)	B (19.3)	C (21.7)

<sup>1</sup> The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

<sup>2</sup> Improvements assume the completion of a proposed connector road to the north of the intersection of Old Landing Road / Warrington Road, split-phasing of Warrington Road and Strawberry Way, and the addition of a southbound right-turn lane on Old Landing Road. The proposed connector road is currently on hold.

<sup>3</sup> Improvements assume those mentioned in footnote 2 plus the addition of a northbound left-turn lane on Old Landing Road.

Table 6  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Osprey Point TOA Review  
 Prepared by Davis, Bowen & Friedel, Inc.

Roundabout <sup>1</sup>	LOS per TOA			LOS per DelDOT		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Old Landing Road / Warrington Road / Strawberry Way						
2024 with development <sup>2</sup>	C (19.32)	C (16.66)	C (21.76)	C (20.39)	C (16.62)	D (28.72)

<sup>1</sup> The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

<sup>2</sup> This analysis assumes a single shared left-turn / through / right-turn lane for each approach.

Table 7  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Osprey Point TOA Review  
 Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection <sup>1</sup>	LOS per TOA			LOS per DelDOT		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Delaware Route 24 / Plantation Road / Warrington Road						
2011 base year <sup>2</sup>	N/A	N/A	N/A	N/A	E	F
2014 build year <sup>2</sup>	N/A	N/A	N/A	N/A	D <sup>3</sup>	D <sup>3</sup>

<sup>1</sup> The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

<sup>2</sup> Values were taken from the Old Landing Road Traffic Study, completed in 2011.

<sup>3</sup> LOS results were based on a 50% reduction in traffic volumes at this intersection.

Table 8  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Osprey Point TOA Review  
 Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection <sup>1</sup>	LOS per TOA			LOS per DelDOT		
	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
Old Landing Road / Airport Road						
2011 base year (all-way stop controlled) <sup>2</sup>	N/A	N/A	N/A	N/A	D	F
2014 build year <sup>2</sup>	N/A	N/A	N/A	N/A	C <sup>3</sup>	E <sup>3</sup>

<sup>1</sup> The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

<sup>2</sup> Values were taken from the Old Landing Road Traffic Study, completed in 2011.

<sup>3</sup> LOS results were based on a 50% reduction in traffic volumes at this intersection.