



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

CAROLANN WICKS, P.E.
SECRETARY

February 2, 2011

Mr. Lawrence B. Lank, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

RE: Nathaniel's Landing

Dear Mr. Lank,

DelDOT has completed its review of the Traffic Impact Study (TIS) for Nathaniel's Landing, prepared by Davis, Bowen, & Friedel (DBF), dated November 9, 2010. DBF prepared the report in a manner generally consistent with DelDOT's *Standards and Regulations for Subdivision Streets and State Highway Access*.

The TIS evaluates the impacts of Nathaniel's Landing, proposed to be located on the south side of Woodland Ferry Road (Sussex Road 78), east of River Road (Sussex Road 490A), west of the Town of Laurel in Sussex County, Delaware. The proposed development would consist of 99 single-family detached houses. One access point is proposed on Woodland Ferry Road. Construction is anticipated to be complete by 2020.

The land is currently zoned as AR-1 (Agricultural Residential) in Sussex County, and no changes to the zoning are currently proposed.

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

There are no intersections within the study area that exhibit level of service (LOS) deficiencies (LOS E or F).

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. All applicable agreements (i.e. letter agreements for off-site improvements) should be executed prior to entrance plan approval for the proposed development.

1. The developer should construct the site entrance on Woodland Ferry Road as part of the Phase 1 (construction of lots 1 through 50) entrance improvements. The proposed configuration is shown in the table below.

Approach	Current Configuration	Proposed Configuration
Northbound Site Entrance	Approach exists only as a gravel / dirt road	One shared left-turn / right-turn lane
Eastbound Woodland Ferry Road	One through lane	One through lane, one right-turn lane
Westbound Woodland Ferry Road	One through lane	One shared left-turn / through lane

Initial recommended minimum turn-lane lengths (excluding tapers) of the separate turn lanes are listed below. The developer should coordinate with DelDOT's Subdivision Section to determine final turn-lane lengths.

Approach	Left-Turn Lane	Right-Turn Lane
Northbound Site Entrance	N/A	N/A
Eastbound Woodland Ferry Road	N/A	175 feet
Westbound Woodland Ferry Road	N/A	N/A

- As part of the Phase 2 (construction of lots 51 through 99) entrance improvements, the developer should improve Woodland Ferry Road from the eastern entrance to Layton's Riviera (Byard Road) to the entrance to Patty Cannon Estates (Cannon Drive) so that it has eleven-foot travel lanes and six-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.

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, as well as issues relating to transit, bicycle and pedestrian facilities, will be further addressed through DelDOT's subdivision review process.

Mr. Lawrence Lank
February 2, 2011
Page 3 of 11

Additional details on DelDOT's review of this TIS are attached. Please contact Mr. Troy Brestel at (302) 760-2167 or through e-mail at troy.brestel@state.de.us if you have any questions concerning this review.

Sincerely,



T. William Brockenbrough, Jr.
County Coordinator

TWB:tbm

Enclosures

cc with enclosures:

D.J. Hughes, Davis, Bowen & Friedel, Inc.
Frederick H. Schranck, Deputy Attorney General
Terry Gorlich, Acting Director, Public Relations
Natalie Barnhart, Director, Transportation Solutions (DOTS)
Michael Strange, Acting Director, Division of Planning
Michael Simmons, Assistant Director, Project Development South, DOTS
Donald D. Weber, Chief Traffic Engineer, Traffic, DOTS
Theodore G. Bishop, Assistant Director, Development Coordination
Mark Luszczyk, Assistant Chief Traffic Engineer, Traffic, DOTS
Thomas E. Meyer, Traffic Studies Manager, Traffic, DOTS
J. Marc Coté, Subdivision Engineer, Development Coordination
Jennifer Pinkerton, Deputy Principal Assistant, Pavement Management,
M&O
Bradford Saborio, South District Public Works Engineer, DOTS
Marvin Roberts, South District Public Works Manager, DOTS
William J. Dryden, Project Developer, Project Development South, DOTS
Lisa Collins, Service Development Planner, Delaware Transit Corporation
Anthony Aglio, Bicycle Coordinator, Statewide & Regional Planning
Richard Sinegar, Pedestrian Coordinator, Statewide & Regional Planning
Naa-Atswei Tetteh, Traffic Engineer, Traffic, DOTS
Derek Sapp, Subdivision Manager, Development Coordination
Troy Brestel, Project Engineer, Development Coordination

General Information

Report date: November 2010

Prepared by: Davis, Bowen & Friedel, Inc.

Prepared for: Mr. Jesse Frederick-Conaway

Tax parcels: 234-4.00-6.00, 6.01, 6.02, 6.04, 6.05 & 7.01

Generally consistent with DelDOT's *Standards and Regulations for Subdivision Streets and State Highway Access*: Yes

Project Description and Background

Description: The proposed development would consist of 99 single-family detached houses.

Location: Nathaniel's Landing is proposed to be located on the south side of Woodland Ferry Road, east of River Road, west of the Town of Laurel in Sussex County, Delaware.

Amount of land to be developed: The proposed development would occur on approximately 153 acres of land.

Land use approval(s) needed: Subdivision approval. The land is currently zoned as AR-1 (Agricultural Residential) in Sussex County, and no changes to the zoning are currently proposed.

Proposed completion date: 2020

Proposed access locations: One access point is proposed on Woodland Ferry Road.

Daily Traffic Volumes:

- 2009 Average Annual Daily Traffic on Woodland Ferry Road: 1,007 vpd

Livable Delaware

(Source: Delaware Strategies for State Policies and Spending, July 2004)

Location with respect to the Strategies for State Policies and Spending Map of Delaware: The proposed Nathaniel's Landing development is located within Investment Level 4.

Investment Level 4

These areas are predominantly agricultural. These areas contain agribusiness activities, farm complexes and small settlements. They are typically found at historic crossroads or points of trade, often with rich cultural ties. Investment Level 4 areas depend on a transportation system of primarily secondary roads linked to roadways used as regional thoroughfares for commuting and trucking.

In Investment Level 4 areas, the state's investments and policies should retain the rural landscape and preserve open spaces and farmlands, and establish defined edges to more concentrated development. In these areas, the state will preserve existing transportation facilities and services, and manage the transportation system to support the preservation of the natural environment.

Proposed Development's Compatibility with Livable Delaware:

The proposed Nathaniel's Landing development falls within Investment Level 4 and is to be developed as a residential subdivision. Livable Delaware generally discourages development of this type in Investment Level 4 areas, and the proposed development conflicts with the character of those areas. It is therefore concluded that the proposed development does not generally comply with the policies stated in the 2004 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans

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 Nathaniel's Landing development is in a Low Density Area. The specific permitted uses envisioned in Low Density Areas are agricultural activities and single family detached homes. Business development should be largely confined to businesses addressing the needs of these two uses. Industrial uses that support or depend on agriculture should be permitted. The focus of retail and office uses in Low Density Areas should be providing convenience goods and services to nearby residents. Commercial uses may require conditional use approval from County Council. The types of commercial uses in these residential areas should be limited in their location, size and hours of operation. More intense commercial uses, such as auto repair and gasoline sales, should be avoided in these areas.

All lands designated in this Plan as Low Density Areas are currently zoned AR-1. Under that zoning designation, single family detached homes are permitted at 2 homes per acre on lots containing a minimum of ½ acre if the tract connects to central sewers.

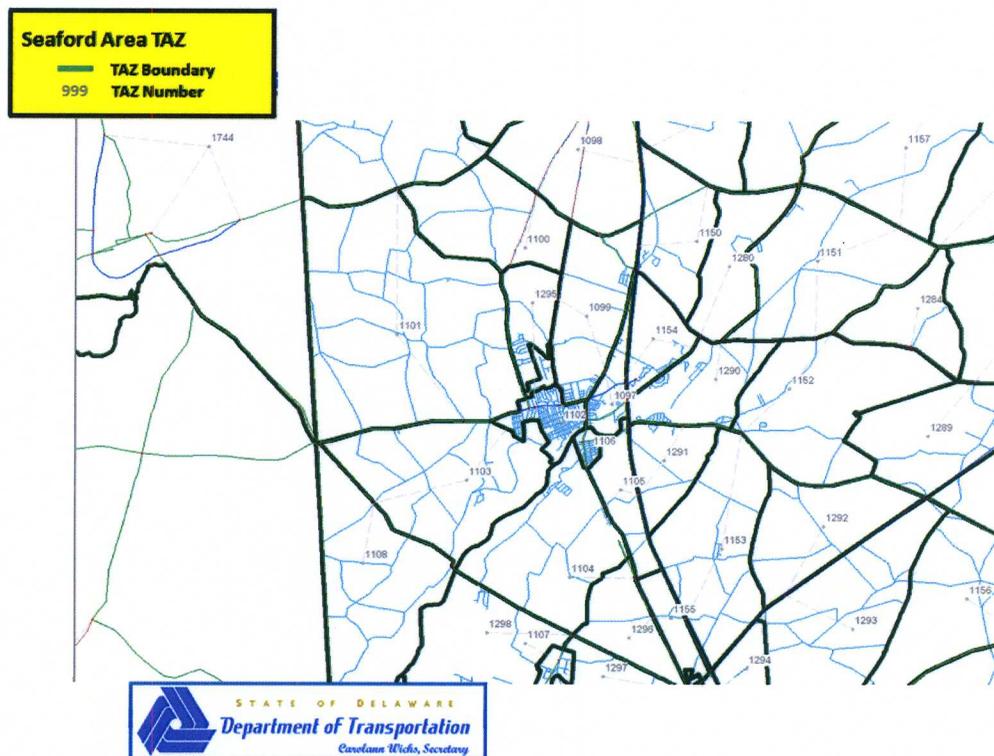
Proposed Development's Compatibility with Comprehensive Plan:

The proposed residential development is currently zoned as AR-1 (Agricultural Residential) in Sussex County. Detached single-family houses are permitted in this zoning. The development has a unit-to-acre density of 0.65. As such, the proposed development appears to be compatible with the Sussex County Comprehensive Plan.

Transportation Analysis Zones (TAZ)

Transportation Analysis Zones (TAZ) where development would be located: 1298

TAZ Boundaries:



Current employment estimates for TAZ 1298: 0 jobs in 2005

Future employment estimates for TAZ 1298: 0 jobs in 2030

Current population estimates for TAZ 1298: 586 people in 2005

Future population estimates for TAZ 1298: 824 people in 2030

Current household estimates for TAZ 1298: 229 houses in 2005

Future household estimates for TAZ 1298: 326 houses in 2030

Relevant committed developments in the TAZ: Kew Garden, Layton's Riviera

Would the addition of committed developments to current estimates exceed future projections: No

Would the addition of committed developments and the proposed development to current estimates exceed future projections: Yes

Relevant Projects in the DelDOT Capital Transportation Program (FY 2010 – FY 2015)

There are currently no DelDOT projects within the area of study.

Trip Generation

Trip generation for the proposed development was computed using comparable land uses and equations contained in Trip Generation, Eighth 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:

- 99 single-family detached houses (ITE Land Use Code 210)

Table 1
 NATHANIEL'S LANDING PEAK HOUR TRIP GENERATION

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
99 single-family detached houses	20	59	79	66	38	104
TOTAL TRIPS	20	59	79	66	38	104

Table 2
 NATHANIEL'S LANDING DAILY TRIP GENERATION

Land Use	Weekday ADT		
	In	Out	Total
99 single-family detached houses	515	515	1030
TOTAL TRIPS	515	515	1030

Overview of TIS

Intersections examined:

- 1) Site Entrance / Woodland Ferry Road
- 2) River Road / Woodland Ferry Road

Conditions examined:

- 1) 2010 existing conditions (Case 1)
- 2) 2020 without Nathaniel's Landing (Case 2)
- 3) 2020 with Nathaniel's Landing (Case 3)

Peak hours evaluated:

Weekday morning and evening peak hours for both intersections.

Committed developments considered:

- 1) Kew Garden (18 single-family detached houses)
- 2) Layton's Riviera (28-unit mobile home park)

Intersection Descriptions

- 1) **Site Entrance / Woodland Ferry Road**
Type of Control: proposed two-way stop-controlled (T-intersection)
Northbound approach: (Site Entrance) one shared left-turn / right-turn lane, stop-controlled
Eastbound approach: (Woodland Ferry Road) one shared through / right-turn lane
Westbound approach: (Woodland Ferry Road) one shared left-turn / through lane

- 2) **River Road & Woodland Ferry Road**
Type of Control: two-way stop-controlled (T-intersection)
Southbound approach: (River Road) one shared left-turn / right-turn lane, stop-controlled
Eastbound approach: (Woodland Ferry Road) one shared left-turn / through lane
Westbound approach: (Woodland Ferry Road) one shared through / right-turn lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: The Delaware Transit Corporation (DTC) currently does not offer any transit service near the study area.

Existing bicycle and pedestrian facilities: According to the *Sussex County Bicycle Map*, Woodland Ferry Road is designated as a Connector Bicycle Route, without a separate bikeway. No designated bicycle lanes are currently marked on the roadway.

General HCS Analysis Comments

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

There were no major differences between the TIS and DelDOT's review of it.

Table 1
 PEAK HOUR LEVELS OF SERVICE (LOS)
 Nathaniel's Landing TIS
 Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹	LOS per TIS		LOS per DelDOT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Site Entrance / Woodland Ferry Road				
2020 with development				
Woodland Ferry Westbound Left-Turn	A (7.4)	A (7.5)	A (7.4)	A (7.6)
Site Entrance Northbound	A (9.4)	A (9.8)	A (9.4)	B (10.1)

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

Table 2
 PEAK HOUR LEVELS OF SERVICE (LOS)
 Nathaniel's Landing TIS
 Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹	LOS per TIS		LOS per DelDOT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Woodland Ferry Road / River Road				
2010 Existing				
Woodland Ferry Eastbound Left-Turn	A (7.3)	A (7.5)	A (7.4)	A (7.3)
Site Entrance Southbound	A (8.9)	A (9.1)	A (9.0)	A (9.1)
2020 without development				
Woodland Ferry Eastbound Left-Turn	A (7.4)	A (7.5)	A (7.4)	A (7.5)
Site Entrance Southbound	A (9.2)	A (9.4)	A (9.1)	A (9.4)
2020 with development				
Woodland Ferry Eastbound Left-Turn	A (7.5)	A (7.6)	A (7.5)	A (7.5)
Site Entrance Southbound	A (9.5)	A (10.0)	A (9.4)	A (9.9)

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