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

SHANTÉ A. HASTINGS
SECRETARY

May 8, 2025

Ms. Nicole Kline-Elsier, PE, PTOE
Bowman Consulting Group, Ltd.
835 Springdale Drive, suite 200
Exton, PA 19341

Dear Ms. Kline-Elsier,

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Royal Farms 66 Lewes** (Tax Parcel: 334-5.00-145.00) commercial 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 letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at Annamaria.Furmato@delaware.gov.

Sincerely,

Annamaria Furmato
TIS Review Engineer

AF:km
Enclosures
cc with enclosures: Chris Bollino, Two Farms, Inc & Royal Farms
Karl Schwartz, Bowman Consulting Group, Ltd.
Braden Garrison, Bowman Consulting Group, Ltd.
David L. Edgell, Office of State Planning Coordination
Jamie Whitehouse, Sussex County Planning & Zoning
Andrew J. Parker, McCormick Taylor, Inc.
Tucker Smith, McCormick Taylor, Inc.
DelDOT Distribution

DelDOT Distribution

Lanie Clymer, Deputy Secretary
Mark Luszcz, Chief Engineer, Transportation Solutions (DOTS)
Brad Eaby, Deputy Attorney General, DOTS
Michael Simmons, Chief Project Development South, DOTS
Peter Haag, Chief Traffic Engineer, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, Traffic, DOTS
Sean Humphrey, Traffic Engineer, Traffic, DOTS
Alistair Probert, South District Engineer, M&O
Matt Schlitter, South District Public Works Engineer, M&O
Jared Kauffman, Service Development Planner, DTC
Tremica Cherry, Service Development Planner, DTC
Anthony Aglio, Planning Supervisor, Active Transportation & Community Connections, Planning
Steve Bayer, Planning Supervisor, Statewide & Regional Planning, Planning
Anson Gock, Planner, Statewide & Regional Planning, Planning
Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
John Pietrobono, Acting Sussex Review Coordinator, Development Coordination
Derek Sapp, Sussex Review Engineer, Development Coordination
Sireen Muhtaseb, TIS Engineer, Development Coordination
Ben Fisher, TIS Review Engineer, Development Coordination
Tijah Jones, TIS Review Engineer, Development Coordination

May 7, 2025

Ms. Sireen Muhtaseb, PE
TIS Group Manager
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1946F
Traffic Impact Study Services
Task No. 5A Subtask 14A – Royal Farms #66 - Lewes

Dear Ms. Muhtaseb:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Royal Farms #66 - Lewes development prepared by Bowman Consulting Group, Ltd., dated August 5, 2024. Bowman prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the proposed Royal Farms #66 - Lewes development to be located along the north side of US Route 9 between Nassau Commons Boulevard and Nicole Lane in Sussex County, Delaware. The proposed development would consist of a 5,380 sf convenience market with 16 fueling stations. Access to the site is proposed to be provided along the existing entrance to US Route 9 via Nicole Lane as well as a new cross-access easement through the adjacent parcel to the north, connecting to Nassau Commons Boulevard, which ultimately provides access to US Route 9 and Janice Road. Construction is anticipated to be completed in 2027.

The subject land is located on an approximately 1.797-acre assemblage of parcels. The subject land is currently zoned as C-1 (General Commercial), and the developer does not plan to rezone the land.

This TIS evaluated two access scenarios. The first scenario includes full access Site Entrance A on US Route 9 via Nicole Lane and full access Site Entrance B on US Route 9 via Nassau Commons Boulevard. The second scenario includes rights-in only Site Entrance A from US Route 9 via Nicole Lane and full access Site Entrance B on US Route 9 via Nassau Commons Boulevard. Both scenarios include the full access Site Entrance C on Janice Road via Nassau Commons Boulevard. DelDOT does not support the first entrance scenario based on operational deficiencies and safety concerns at the intersection of US Route 9 and Nicole Lane.

The developer of the Vineyards at Nassau Valley, which is currently under construction and is located along US Route 9 to the west of the proposed Royal Farms, has already designed and proposes to construct a traffic signal at the intersection of US Route 9 and Nassau Commons Boulevard (Site Entrance B). The proposed signal includes a 450-foot eastbound left-turn lane, a 180-foot westbound right-turn lane, widening of Nassau Commons Boulevard to include dedicated left and right turn lanes, pedestrian crossings on the north and west sides of the intersection, and

other pedestrian and transit improvements. The signal plan was approved by DelDOT's Chief of Traffic Engineering on December 19, 2023, and has been assigned signal permit number S471. The actual construction date for this signal is unknown. However, the capacity analysis in the TIS and this review assumed that the signal and associated improvements, including turn lanes and bicycle and pedestrian improvements, would be operational by 2027 before the Royal Farms #66 – Lewes is constructed and open. These developer-led improvements will be an interim condition pending the completion of further widening along US Route 9 by DelDOT's T202212902 project.

Relevant and On-Going Projects and Studies

Currently, DelDOT has several relevant and ongoing projects within the area of study.

The *US 9 Widening (Old Vine Boulevard to SR 1)* (State Contract No. T202212902) project will widen US Route 9 to provide two travel lanes in each direction, a center left-turn lane, and additional intersection improvements. At the intersection of US Route 9 and Nassau Commons Boulevard, the interim traffic signal to be constructed by the developer of the Vineyards at Nassau Valley will need to be modified to accommodate the widening. The DelDOT project was identified in the Five Points Study Working Group and in the Henlopen TID technical analysis recommendations. A construction start date for the DelDOT project has not been established. Capital Transportation Program (CTP) funds are allocated for construction in FY 2027 and 2028. More details regarding the project are available at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202212902.

The *Plantation Road Improvements, Robinsonville Road to US 9 (Phase 1)* (State Contract No. T202011201) project proposes to include operational improvements at the Belltown Road and US Route 9 intersection, a multi-lane roundabout at the intersection of Plantation Road, Belltown Road, and Delaware Route 23, and an additional southbound through lane on Plantation Road. Bicycle and pedestrian facilities will be upgraded throughout the corridor. There are 34 parcels estimated to be impacted by this project. This project begins at the Plantation Road and Robinsonville Road intersection and ends near the Plantation Road / Belltown Road / US Route 9 intersection. This project will preserve mobility for local residents and businesses while providing roadway improvements along Plantation Road to reduce congestion, improve safety, and accommodate anticipated growth in local and seasonal traffic. The latest project updates indicate that design and right-of-way acquisition are currently underway. Construction is also underway and is anticipated to end in winter 2025. More details are available at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202011201.

The *SR-1, Minos Conaway Road Grade Separated Intersection* (State Project No. T201612501) project will provide a grade separated intersection to separate through movements along Delaware Route 1 and turning movements to and from Minos Conaway Road, Nassau Road, and Old Mill Road. A shared-use path would also be constructed to accommodate pedestrians and bicyclists. This project will maintain capacity of the Delaware Route 1 corridor and improve safety at the unsignalized intersection of Delaware Route 1 and Minos Conaway while improving mobility and access for local traffic. Latest project updates indicate that construction will start in spring of 2025

and end in spring of 2028. More details, including the latest concept plan for this project, are available at the following link:
https://www.deldot.gov/projects/index.shtml?dc=details&projectNumber=T201612501.

The proposed development is located within the boundary of the operational Henlopen Transportation Improvement District (TID). The 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. The intersections in the study area of the proposed development are within the TID boundary.

Although the proposed development is within the Henlopen TID, the proposed plan for the development is inconsistent with the Land Use and Transportation Plan (LUTP) that was developed for the TID. For developments that are consistent with the LUTP, the developer is required to pay a fee in lieu of performing a TIS. However, as the proposed development is inconsistent with the LUTP, a TIS was required to determine if the TID improvements are still adequate given the additional trips associated with this development. The TID buildout year is 2045 and the minimum acceptable LOS is LOS D. The TID did not analyze the Saturday peak hour and as a result this TIS and review analysis does not include the Saturday peak hour in the 2045 scenarios (Cases 4a and 4b).

Summary of Analysis Results

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

The following intersections exhibit level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements:

Intersection	***Existing Traffic Control***	***Situations for which deficiencies occur***
1. US Route 9 and Site Entrance A (Nicole Lane)	Unsignalized	2027 with development AM, PM, and Saturday, Entrance Scenario 1 (Case 3a) 2045 with development AM and PM, Entrance Scenario 1 (Case 4a)
4. US Route 9 and Belltown Road *	Signal	2045 with development AM and PM, Entrance Scenario 1 (Case 4a) 2045 with development AM and PM, Entrance Scenario 2 (Case 4b)

* Note: US Route 9 and Belltown Road is only evaluated under 2045 with development conditions because the volume scenarios use Henlopen TID 2045 volume projections. No current traffic data was collected for this intersection.

1. US Route 9 & Site Entrance A (Nicole Lane) (See Recommendation 2 & Table 2, Page 19)
This unsignalized intersection experiences LOS deficiencies in 2027 Case 3a during the AM, PM, and Saturday Peaks, and in 2045 Case 4a during the AM and PM peaks (note that the intersection was not evaluated during the Saturday peak in Case 4a or 4b). In 2027 Case 3a during the PM peak, the intersection is expected to operate at LOS F with 75 seconds of delay on the southbound approach. In 2045 Case 4a during the PM peak, the intersection is expected to operate at LOS F with 170 seconds of delay on the southbound approach. This LOS deficiency only occurs with Entrance Scenario 1, which allows full access to and from US Route 9.

At the intersection of US Route 9 and Nicole Lane, in the evaluation of 2045 Case 4a which included eastbound left turns onto Nicole Lane (also serving Royal Farms), there are operational and safety concerns associated with conflicts between the potential left-in movement and westbound US Route 9 queuing at the adjacent signalized intersection at Nassau Commons Boulevard. Eastbound drivers attempting to turn left onto Nicole Lane will have to find a gap in queues from the westbound through movement at the intersection of US Route 9 and Nassau Commons Boulevard. The 95th percentile queues are expected to be over 500 feet long in the PM peak of 2045 Case 4a and there is approximately 375 feet between the westbound stop bar on US Route 9 and the intersection at Nicole Lane. Furthermore, the recommendation for right-in/right-out access is based on corridor access management and safety. A signalized left-turn with protected phasing is a safer alternative compared to a left-turn from a two-way left-turn lane across two lanes of traffic. As such, Entrance Scenario 2 with modifications is recommended, which is westbound rights-in and southbound rights-out.

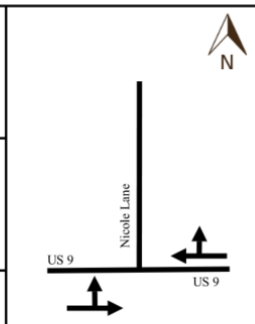
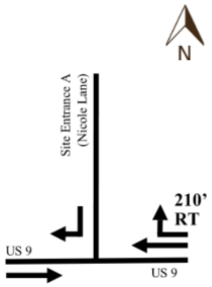
4. US Route 9 & Belltown Road (See Recommendation 6 & Table 5, Page 22)
This signalized intersection experiences LOS deficiencies in 2045 Case 4a and 4b during the AM and PM peaks (the intersection was not evaluated during the Saturday peak in Case 4a or 4b). In both scenarios during the PM peak, the intersection is expected to operate at LOS F with approximately 134 seconds of delay. As there are planned improvements along the US Route 9 corridor including two through lanes in each direction west of this intersection as part of the Henlopen TID, to which this developer is required to make a contribution, it is not recommended that this developer make any improvements at this intersection.

Development Improvements

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan, entrance plans, or construction plans by note or illustration, unless a Design Deviation is requested and approved by the Department. 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. The following items should be implemented at the same time as site construction once all agency approvals and permits are secured and completed in accordance with DelDOT's Standards and Specifications.

1. The developer shall improve the State-maintained Roads on which they front (US Route 9), within the limits of their frontage. The improvements shall include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. "Frontage" means the length along the state right-of-way of a single property tract where an entrance is proposed or required. If a single property tract has frontage along multiple roadways, any segment of roadway including an entrance shall be improved to meet DelDOT's Functional Classification criteria as found in Section 1.1 of the Development Coordination Manual and elsewhere therein, and/or improvements established in the Traffic Operational Analysis and/or Traffic Impact Study. "Secondary Frontage" means the length along the state right-of-way of a single property tract where no entrance is proposed or required. The segment of roadway may be upgraded by improving the pavement condition of the existing roadway width. The Pavement Management Section and Subdivision Section will determine the requirements to improve the pavement condition.

2. The developer should construct the rights-in/rights-out Site Entrance A (Nicole Lane) on US Route 9. The proposed configuration is shown in the table below.

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound US 9	One shared left-turn / through lane.		Eastbound US 9	One through lane.	
Westbound US 9	One shared through / right turn lane.		Westbound US 9	One through lane and one right-turn lane.	
Northbound	Approach does not exist.		Northbound	Approach does not exist.	
Southbound Nicole Lane	One shared left-turn / right-turn lane.		Southbound Site Entrance A Nicole Lane	Right-turn out only	

At the proposed Site Entrance A intersection, a 210-foot right-turn lane is proposed by the developer along westbound US Route 9. The 210-foot length is the maximum length that can be constructed between Site Entrance A (Nicole Lane) and the next driveway to the east. Additionally, the developer should design and construct the site entrance (modifying the existing Nicole Lane intersection with US Route 9) to include a concrete channelization island and install signage to prohibit southbound left-turns from Nicole Lane onto US Route 9 and eastbound left turns from US Route 9 onto Nicole Lane. The developer should coordinate with DelDOT's Development Coordination Section to determine final turn lane lengths and other design details during the site plan review.

3. The developer should make an equitable share contribution towards the construction of the proposed intersection improvements including a new traffic signal, turn lanes, and bicycle and pedestrian improvements at the intersection of US Route 9 and Nassau Commons Boulevard (Site Entrance B), which are anticipated to be constructed by another developer (Vineyards at Nassau Valley). The intersection improvements should be complete, and the signal should be operational before the Royal Farms is constructed and open. If the signal is not expected to be constructed and operational by that time, the Royal Farms developer should complete construction of the proposed intersection improvements including the signal before the Royal Farms opens. The Royal Farms developer should coordinate with DelDOT's Development Coordination Section to determine the amount and terms of the equitable share contribution, and/or the need to construct the signal using the design that was previously prepared by the Vineyards at Nassau Valley and subsequently approved by DelDOT Traffic in 2023.

4. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 9 and Nassau Commons Boulevard (Site Entrance B). As noted above in Item No. 3, the Royal Farms developer will be responsible for constructing this signal if it is not expected to be constructed by others prior to the Royal Farms opening.

5. The developer should design and construct the proposed cross-access easement through the parcel to the north to provide access to Nassau Commons Boulevard. The developer should coordinate with DelDOT's Subdivision Section to determine final location and other design details of the cross-access easement during the site plan review.

6. The developer shall pay the Henlopen TID fee. The developer should coordinate with DelDOT regarding the TID fee amount and payment terms.

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

    a. Per the DelDOT Development Coordination Manual section 5.2.9.2, bicycle lanes are required where right-turn lanes are being installed.

    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 permanent easement from the edge of the final determined right-of-way should be dedicated to DelDOT within the site frontage along US Route 9. Along the frontage, a minimum of a 10-foot wide shared-use path should be constructed. The shared-use path should meet AASHTO and ADA standards and should have a minimum of a five-foot buffer from the roadway. At the property boundaries, the shared-use path should connect to the adjacent property or to the shoulder in accordance with DelDOT's Development Coordination Manual. The developer shall coordinate with DelDOT's Development Coordination Section through the plan review process to determine the details of the shared-use path design and connections/terminations at or before the boundaries of the property.

    e. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including all site entrances. Type 3 curb ramps are discouraged.

    f. 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. Internal sidewalks in the development should connect to the proposed shared-use path along the site frontages.

g. Provide bicycle parking with racks near building entrances.

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.

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 site plan 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 if you have any questions concerning this review.

Sincerely,

McCormick Taylor, Inc.

Andrew J. Parker, PE, PTOE
Project Manager

Enclosure

Scope of Improvements Figure

Royal Farms #66 - Lewes TIS

99 — Intersection Number
X — Improvement Code

Color Code

- Proposed Site Entrance - Frontage improvements and access modifications as described in the review letter.
- Contribution to Planned Project (TID or DelDOT)
- Contribution to Signal by Other Developer
- No Improvements

Improvement Code

S - Traffic Signal, R - Roundabout, E - Elimination
G - Geometric (turn lanes,widening)

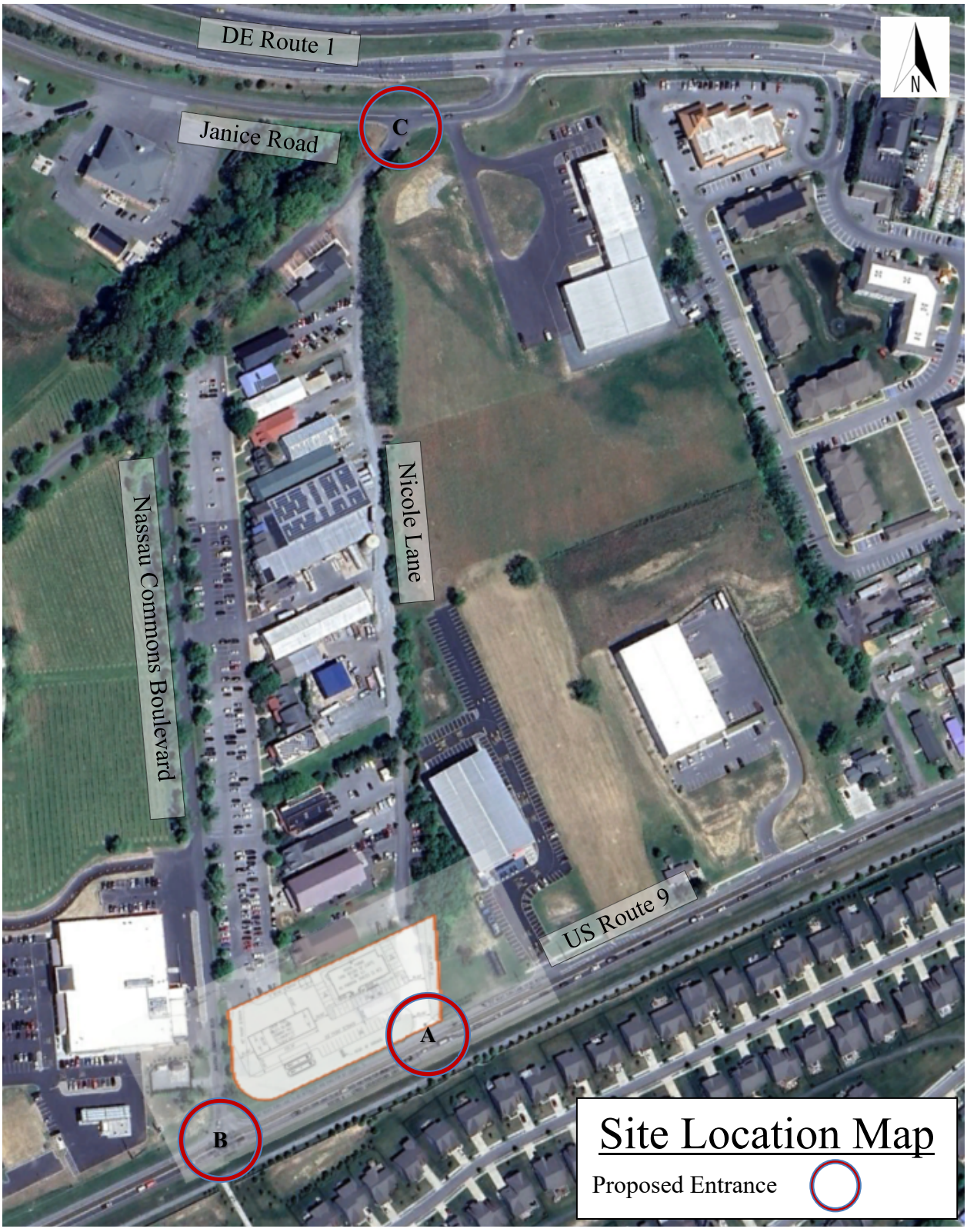
General Information

Report date: August 5, 2024
Prepared by: Bowman Consulting Group, Ltd.
Prepared for: Two Farms, Inc.
Tax parcel: 334-5.00-145.00
Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed Royal Farms #66 - Lewes development consists of a 5,380 square foot convince market with 16 fueling stations.
Location: The site is located along the north side of US Route 9 between Nassau Commons Boulevard and Nicole Lane in Sussex County, Delaware. A site location map is included on page 11.
Amount of land to be developed: an approximately 1.8-acre parcel.
Land use approval(s) needed: The subject land is currently zoned as C-1 (General Commercial), and the developer does not plan to rezone the land.
Proposed completion year: 2027
Proposed access locations: One full access on US Route 9 is proposed via the existing Nicole Lane. A new cross access easement is proposed via the parcel to the north and onto Nassau Commons Boulevard, which would be needed to provide the second proposed full access on US Route 9. A full access is also proposed on Janice Road via Nassau Commons Boulevard
Average Daily Traffic Volumes (per DelDOT Traffic Summary 2023):

- US Route 9: 17,052 vehicles/day
- Janice Road: 1,504 vehicles/day


DE Route 1
Janice Road
C
N
Nassau Commons Boulevard
Nicole Lane
US Route 9
A
B
Site Location Map
Proposed Entrance

2020 Delaware Strategies for State Policies and Spending

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed Royal Farms #66 - Lewes development is located within Investment Level 1.

Investment Level 1
Investment Level 1 areas are often municipalities, towns, or urban/urbanizing places in counties. Density is generally higher than in the surrounding areas. There are a variety of transportation opportunities available. Buildings may have mixed uses, such as a business on the first floor and apartments above.

In Investment Level 1 areas, state investments and policies should support and encourage a wide range of uses and densities, promote a variety of transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Overall, it is the State's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in Investment Level 1 areas. These areas would be a prime location for designating "pre-permitted areas" to help steer development where the local government and citizens are most prepared to accept it.

Proposed Development's Compatibility with Strategies for State Policies and Spending:
The proposed Royal Farms #66 - Lewes development falls within Investment Level 1 and is to be developed as a 5,380 square foot convince market with 16 fueling stations. The proposed development is consistent with the character of Investment Level 1. It is therefore concluded that the proposed development appears to generally comply with the policies stated in the 2020 "Strategies for State Policies and Spending."

Comprehensive Plan

Sussex County Comprehensive Plan:
(Source: Sussex County Comprehensive Plan, March 2019)

The Sussex County Comprehensive Plan Future Land Use Map indicates that the proposed Royal Farms #66 - Lewes site is planned for "Commercial" land use. It would appear that the proposed Royal Farms #66 - Lewes development generally fits within the intended land use for this location.

Proposed Development's Compatibility with Comprehensive Plan:
The proposed development appears to comply with the Sussex County Comprehensive Plan. The Royal Farms #66 - Lewes development is proposed on land that is planned for Commercial use. The subject land is currently zoned as C-1 (General Commercial), and the developer does not plan to rezone the land. The proposed development generally aligns with both the Future Land Use Map and the proposed zoning.

Relevant Projects in the DelDOT Capital Transportation Program

The developer of the Vineyards at Nassau Valley, which is currently under construction and is located along US Route 9 to the west of the proposed Royal Farms, has already designed and proposes to construct a traffic signal at the intersection of US Route 9 and Nassau Commons Boulevard (Site Entrance B). The proposed signal includes a 450-foot eastbound left-turn lane, a 180-foot westbound right-turn lane, widening of Nassau Commons Boulevard to include dedicated left and right turn lanes, pedestrian crossings on the north and west sides of the intersection, and other pedestrian and transit improvements. The signal plan was approved by DelDOT's Chief of Traffic Engineering on December 19, 2023, and has been assigned signal permit number S471. The actual construction date for this signal is unknown. However, the capacity analysis in the TIS and this review assumed that the signal and associated improvements, including turn lanes and bicycle and pedestrian improvements, would be operational by 2027 before the Royal Farms #66 – Lewes is constructed and open. These developer-led improvements will be an interim condition pending the completion of further widening along US Route 9 by DelDOT's T202212902 project.

Currently, DelDOT has several relevant and ongoing projects within the area of study.

The *US 9 Widening (Old Vine Boulevard to SR 1)* (State Contract No. T202212902) project will widen US Route 9 to provide two travel lanes in each direction, a center left-turn lane, and additional intersection improvements. At the intersection of US Route 9 and Nassau Commons Boulevard, the interim traffic signal to be constructed by the developer of the Vineyards at Nassau Valley will need to be modified to accommodate the widening. The DelDOT project was identified in the Five Points Study Working Group and in the Henlopen TID technical analysis recommendations. A construction start date for the DelDOT project has not been established. Capital Transportation Program (CTP) funds are allocated for construction in FY 2027 and 2028. More details regarding the project are available at the following link:
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The *SR-1, Minos Conaway Road Grade Separated Intersection* (State Project No. T201612501) project will provide a grade separated intersection to separate through movements along Delaware Route 1 and turning movements to and from Minos Conaway Road, Nassau Road and Old Mill

Road. A shared-use path would also be constructed to accommodate pedestrians and bicyclists. This project will maintain capacity of the Delaware Route 1 corridor and improve safety at the unsignalized intersection of Delaware Route 1 and Minos Conaway while improving mobility and access for local traffic. Latest project updates indicate that construction will start in spring of 2025 and end in spring of 2028. More details, including the latest concept plan for this project, are available at the following link:
https://www.deldot.gov/projects/index.shtml?dc=details&projectNumber=T201612501.

The proposed development is located within the boundary of the operational Henlopen Transportation Improvement District (TID). The 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. The intersections in the study area of the proposed development are within the TID boundary.

Although the proposed development is within the Henlopen TID, the proposed plan for the development is inconsistent with the Land Use and Transportation Plan (LUTP) that was developed for the TID. For developments that are consistent with the LUTP, the developer is required to pay a fee in lieu of performing a TIS. However, as the proposed development is inconsistent with the LUTP, a TIS was required to determine if the TID improvements are still adequate given the additional trips associated with this development. The TID buildout year is 2045 and the minimum acceptable LOS is LOS D.

Trip Generation

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

- Convenience Store/Gas Station – VFP (16-24) (ITE Land Use Code 956)

Table 1
Peak Hour Trip Generation

ITE Land Use Code	Trip Type	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
945	Gross	6,905	246	245	491	212	213	425	189	188	377
	Pass-by	-692	-187	-186	-373	-159	-160	-319	-142	-141	-283
Total Trips		**6,213**	**59**	**59**	**118**	**53**	**53**	**106**	**47**	**47**	**94**

Overview of TIS

Intersections examined:

1) US Route 9 & Site Entrance A (Nicole Lane)
2) US Route 9 & Site Entrance B (Nassau Commons Boulevard)
3) Site Entrance C (Nassau Commons Boulevard) & Janice Road (Sussex Road 14B)
4) US Route 9 & Belltown Road (Connection to new roundabout at Beaver Dam Road / Plantation Road / Salt Marsh Road)

Conditions examined:

1) 2024 Existing (Case 1)
2) 2027 without development (Case 2)

3a) 2027 with development and full access onto US Route 9 through Nicole Lane and full access on US Route 9 though Nassau Commons Boulevard (Case 3a)

3b) 2027 with development and Rights-In only access onto US Route 9 through Nicole Lane and full access on US Route 9 though Nassau Commons Boulevard (Case 3b)

4a) 2045 with development, Henlopen TID improvements, and full access onto US Route 9 through Nicole Lane and full access on US Route 9 though Nassau Commons Boulevard (Case 4a)

4b) 2045 with development, Henlopen TID improvements, and Rights-In only access onto US Route 9 through Nicole Lane and full access on US Route 9 though Nassau Commons Boulevard (Case 4b)

Peak hours evaluated: Weekday morning, evening, and summer Saturday peak hours

Committed developments considered:

1) Northstar (758 single-family detached homes, 94 multi-family low-rise apartments, and 96,118 square feet of retail space)
2) Welches Pond fka Fieldstone (247 single-family detached homes)
3) Vineyards at Nassau (121 multi-family mid-rise apartments, 12 single-family detached homes, and 14,198 square feet of retail space)
4) Coastal Tide (33 multi-family mid-rise apartments)
5) Vinters Reserve fka Ritter Farm (316 single-family attached homes)
6) Village Center Commercial (75,000 square feet of retail space)
7) Village Center Cottages (213 single-family detached homes)
8) Southern DE Medical Center (32,960 square foot medical office building)

Intersection Descriptions

1) **US Route 9 & Site Entrance A (Nicole Lane)**
   Type of Control: one-way stop control (T-intersection)
   Eastbound Approach: (US Route 9) one shared left-turn / through lane
   Westbound Approach: (US Route 9) one shared through / right-turn lane
   Southbound Approach: (Site Entrance A) one shared left-turn / right-turn lane. Stop controlled.

2) **US Route 9 & Site Entrance B (Nassau Commons Boulevard)**
   Type of Control: one-way stop control (T-intersection)
   Eastbound Approach: (US Route 9) one existing shared left-turn / through lane; proposed one left-turn lane and one through lane.
   Westbound Approach: (US Route 9) one existing shared through / right-turn lane; proposed one through lane and one right-turn lane.
   Southbound Approach: (Nassau Commons Boulevard / Site Entrance B) one existing shared left-turn / right-turn lane. Stop controlled; proposed one left-turn lane and one right-turn lane.
   Note: A traffic signal is expected to be built at this intersection by another developer that would include the addition of an eastbound left-turn lane, westbound right-turn lane, and southbound right-turn lane. The signal is modeled in the 2027 and 2045 analyses.

3) **Janice Road & Site Entrance C (Nassau Commons Boulevard)**
   Type of Control: one-way stop control (T-intersection)
   Eastbound Approach: (Janice Road) one existing shared through / right-turn lane
   Westbound Approach: (Janice Road) one existing shared left-turn / through lane
   Northbound Approach: (Nassau Commons Boulevard/Site Entrance C) one existing shared left-turn / right-turn lane. Stop controlled.

4) **US Route 9 & Belltown Road**
   Type of Control: signalized
   Eastbound Approach: (US Route 9) one through lane and one right-turn lane.
   Westbound Approach: (US Route 9) two left-turn lanes and one through lane.
   Northbound Approach: (Belltown Road) two left-turn lanes and one right-turn lane.
   Southbound Approach: (Belltown Road) one shared left-turn / through lane and one right-turn lane.

Safety Evaluation

Crash Data: Delaware Crash Analysis Reporting System (CARS) data was provided in the TIS for the three-year period from July 10, 2021, through July 10, 2024. The intersection with the most reported crashes during this period was US Route 9 and Belltown Road (referred to as US Route 9 and Beaver Dam Road / Plantation Road in the TIS), with 56 crashes. Of these 56 crashes, four were classified as injury crashes. Front to rear crashes were the most common crash type at the intersection of US Route 9 and Belltown Road. Angle crashes were the second most common type of crash (15 crashes), accounting for 27 percent of crashes at this intersection. It should be noted that the intersection of US Route 9 and Belltown Road has been reconstructed with new lane configuration during the span of this safety evaluation.

Sight Distance: The study area generally consists of relatively flat roadways and there are few visual obstructions. As always, the adequacy of available sight distance should be confirmed during the site plan review process for all proposed movements at the site accesses.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Based on the current DART Bus Stop Map, the Delaware Transit Corporation (DTC) currently operates Bus Route 206 (Georgetown – Lewes TC)) along US Route 9 with stops at Vineyard Commons and Stingey Lane.

Planned transit service: Based on coordination with Delaware Transit Corporation (DTC) representatives, there are no additional transit amenities proposed at this time.

Existing bicycle and pedestrian facilities: According to DelDOT's Sussex County Bicycle Map, US Route 9 is designated as a High-Traffic Regional Bicycle Route with a Bikeway.

Planned bicycle and pedestrian facilities: The developer should construct a shared use path along their frontage, provide pedestrian crossings at all unsignalized site entrances, an onsite bicycle rack, and provide connection to pedestrian and bicycle facilities within the proposed development.

Previous Comments

The initial scoping memorandum between the developer and DelDOT was dated May 30, 2024.

A revised scoping memorandum was dated June 4, 2024. In this revision, an additional analysis scenario was added to evaluate a rights-in only scenario for the intersection of US Route 9 and Nicole Lane.

In a review letter dated July 05, 2024, DelDOT commented on the traffic counts and seasonally adjusted traffic volumes. The developer was asked to make a few changes and proceed to the Preliminary TIS.

In a second review letter dated July 26, 2024, DelDOT commented on the Preliminary TIS. DelDOT requested that the developer revise some volume figures and proceed with the Final TIS.

It appears that all substantive comments from DelDOT's TIS Scoping Memorandum, Traffic Count Review, Preliminary TIS Review, and other correspondence were addressed in the Final TIS submission.

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

1) Both the TIS and McCormick Taylor utilized Synchro software with HCM results to complete the traffic analyses.

2) The TIS and McCormick Taylor generally used heavy vehicle percentages (HV%) from turning movement counts for existing and future conditions (as per DelDOT's Development Coordination Manual section 2.2.8.11.6.H). McCormick Taylor and the TIS assumed 3% HV for future movements and at the proposed site entrance.

3) The TIS and McCormick Taylor determined overall intersection peak hour factors (PHF) for each intersection based on the turning movement counts. Future PHFs were determined as per the DelDOT Development Coordination Manual section 2.2.8.11.6.F where applicable.

4) For analyses of all intersections, McCormick Taylor and the TIS assumed 0% grade for all movements.

Table 2
Peak Hour Levels of Service (LOS)
Based on Royal Farms #66 - Lewes Traffic Impact Study – August 2024
Prepared by Bowman Consulting Group, Ltd.

Unsignalized Intersection [1] One-Way Stop-Control	**LOS per TIS**			**LOS per McCormick Taylor**		
1. US Route 9 & Site Entrance A (Nicole Lane)	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2024 Existing (Case 1)						
Eastbound US Route 9 – Left	A (8.7)	A (0.0)	A (9.4)	A (8.7)	A (0.0)	A (9.1)
Southbound Nicole Lane	C (21.1)	D (31.8)	B (13.3)	C (19.2)	C (22.3)	B (14.5)
2027 No Build (Case 2)						
Eastbound US Route 9 – Left	A (9.3)	A (0.0)	B (11.0)	A (9.1)	A (0.0)	A (9.9)
Southbound Nicole Lane	C (24.3)	D (33.6)	C (16.9)	D (25.0)	D (31.5)	C (17.5)
2027 Build (Case 3a)						
Eastbound US Route 9 – Left	A (9.7)	B (14.2)	B (11.4)	A (9.4)	B (11.0)	B (10.1)
Southbound Nicole Lane [2]	D (27.3)	D (30.3)	C (24.6)	F (77.4)	F (75.0)	F (69.8)
2045 Build with Henlopen TID (Case 4a) [3]						
Eastbound US Route 9 – Left	A (9.1)	B (11.4)	--	B (10.6)	B (13.5)	--
Southbound Nicole Lane [2]	C (15.6)	C (18.9)	--	F (80.0)	F (169.8)	--

[1] 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.
[2] The TIS analysis permitted median storage for the southbound left turn which reduced the delay for that approach. Median storage is not feasible with the current roadway geometry. Median storage would be dependent on a developer improvement or potentially part of the US 9 Widening (Old Vine Rd. to SR 1) project.
[3] 2045 Case 4a and 4b were only modeled in the AM and PM peaks since the TID did not include analysis of the Saturday peak.

Table 3
Peak Hour Levels of Service (LOS)
Based on Royal Farms #66 - Lewes Traffic Impact Study – August 2024
Prepared by Bowman Consulting Group, Ltd.

Unsignalized Intersection [4] One-Way Stop-Control	**LOS per TIS**			**LOS per McCormick Taylor**		
2. US Route 9 & Site Entrance B (Nassau Commons Boulevard) [5]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2024 Existing (Case 1)						
Eastbound US Route 9 – Left	A (9.0)	B (10.4)	A (9.3)	A (9.0)	B (10.4)	A (9.3)
Southbound Nassau Commons Boulevard	C (15.5)	D (26.7)	B (18.5)	C (15.5)	D (27.0)	C (18.5)
2027 No Build (Case 2)						
Overall (signalized)	A (10.0)	B (19.2)	A (9.3)	B (10.8)	C (22.4)	B (10.1)
2027 Build (Case 3a)						
Overall (signalized)	B (18.6)	C (30.1)	B (15.0)	B (14.5)	C (31.4)	B (13.4)
2027 Build (Case 3b)						
Overall (signalized)	C (21.4)	D (36.2)	B (16.4)	B (15.7)	D (41.8)	C (22.1)
2045 Build with Henlopen TID (Case 4a)[6]						
Overall (signalized)	B (17.6)	C (22.5)	--	B (14.6)	C (21.9)	--
2045 Build with Henlopen TID (Case 4b)[6]						
Overall (signalized)	C (20.5)	C (24.3)	--	B (16.2)	C (23.7)	--

[4] 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.
[5] The developer of the Vineyards at Nassau Valley has designed and proposes to construct a traffic signal at this intersection before the Royal Farms is completed and open. The intersection lane configuration would include the addition of an eastbound left-turn lane, westbound right-turn lane, and southbound right-turn lane. The signal is modeled in the 2027 and 2045 analyses.
[6] 2045 Case 4a and 4b were only modeled in the AM and PM peaks.

Table 4
Peak Hour Levels of Service (LOS)
Based on Royal Farms #66 - Lewes Traffic Impact Study – August 2024
Prepared by Bowman Consulting Group, Ltd.

Unsignalized Intersection [7, 8] One-Way Stop-Control	**LOS per TIS**			**LOS per McCormick Taylor**		
3. Janice Road & Site Entrance C (Nassau Commons Boulevard)	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2024 Existing (Case 1)						
Westbound Janice Road 9 – Left	A (7.6)	A (7.6)	A (7.5)	A (7.6)	A (7.5)	A (7.5)
Northbound Nassau Commons Boulevard	B (10.7)	B (10.1)	A (9.7)	B (10.7)	B (10.1)	A (9.7)
2027 No Build (Case 2)						
Westbound Janice Road 9 – Left	A (7.9)	A (7.8)	A (7.8)	A (7.9)	A (7.8)	A (7.6)
Northbound Nassau Commons Boulevard	B (13.1)	B (12.6)	B (11.7)	B (13.1)	B (12.6)	B (11.7)
2027 Build (Case 3a)						
Westbound Janice Road 9 – Left	A (8.0)	A (7.8)	A (7.8)	A (8.0)	A (7.8)	A (7.8)
Northbound Nassau Commons Boulevard	B (13.4)	B (12.7)	B (11.8)	B (13.4)	B (12.7)	B (11.8)
2027 Build (Case 3b)						
Westbound Janice Road 9 – Left	A (8.0)	A (7.8)	A (7.8)	A (8.0)	A (7.8)	A (7.8)
Northbound Nassau Commons Boulevard	B (13.4)	B (12.7)	B (11.8)	B (13.4)	B (12.7)	B (11.8)

[7] 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.
[8] There are no proposed Henlopen TID improvements at this intersection. Therefore, it is not modeled in Case 4a or 4b.

Table 5
Peak Hour Levels of Service (LOS)
Based on Royal Farms #66 - Lewes Traffic Impact Study – August 2024
Prepared by Bowman Consulting Group, Ltd.

Signalized Intersection [9]	**LOS per TIS**			**LOS per McCormick Taylor**		
4. US Route 9 & Belltown Road [10,11]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2045 Build with Henlopen TID (Case 4a)						
Overall	E (58.4)	D (54.8)	--	F (103.1)	F (134.4)	--
2045 Build with Henlopen TID (Case 4b)						
Overall	E (58.4)	D (54.8)	--	F (103.6)	F (132.8)	--

[9] 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.
[10] The TIS modeled this intersection with two through lanes on both eastbound and westbound US Route 9 approaches. The Henlopen TID concept plan includes single through lanes and McCormick Taylor modeled it as such.
[11] This intersection was not included in existing 2024 or build-out year 2027 analysis.