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

NICOLE MAJESKI
SECRETARY

June 3, 2022

Mr. James Taylor, Jr., PE
Verdantas
5400 Limestone Road
Wilmington, DE 19808

Dear Mr. Taylor:

The enclosed Traffic Impact Study (TIS) review letter for the **Royal Farms #428 Milton TIS Addendum** (Tax Parcel: 235-14.15-67.00) 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 (302) 760-2124.

Sincerely,

Claudy Joinville
Project Engineer

CJ:svf
Enclosures
cc with enclosures: Mr. Jeff Bainbridge, Two Farm, LLC
Mr. Michael Kaszyski, Verdantas
Mr. Brian Clarke, Verdantas
Ms. Kristy L. Rogers, Town of Milton
Mr. Thomas Quass, Town of Milton
Mr. Mir Wahed, Johnson, Mirmiran & Thompson, Inc.
Ms. Joanne Arellano, Johnson, Mirmiran & Thompson, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary / Director of Transportation Solutions (DOTS)
Pamela Steinebach, Director, Planning
Mark Luszcz, Deputy Director, Traffic, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, DelDOT Traffic
Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Alistair Probert, South District Engineer, South District
Matthew Schlitter, South District Public Works Engineer, South District
Mark Galipo, Traffic Engineer, Traffic, DOTS
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Steve McCabe, Sussex Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Mark Galipo, Traffic Engineer, Traffic, DOTS
Annamaria Furmato, Project Engineer, Development Coordination

June 2, 2022

Mr. Claudy Joinville
Project Engineer
Delaware Department of Transportation
Development Coordination, Division of Planning
800 Bay Road
Dover, DE 19901

RE: Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 3-5A – Royal Farms Milton TIS

Dear Mr. Joinville:

Johnson, Mirmiran, and Thompson (JMT) has completed a review of the Traffic Impact Study (TIS) for the Royal Farms Store #428, which was prepared by Duffield Associates, LLC, dated May 2021 and the TIS Addendum prepared by Duffield Associates, LLC dated December 29, 2021. This review was assigned as Task Number 3-5A. The TIS and the TIS Addendum have been prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed 5,154 square-foot super convenience store with gas pumps in the Town of Milton in Sussex County, Delaware. The site is located on the northwest corner of the intersection of Delaware Route 16 and Delaware Route 5, southwest of Cedar Creek Road (Sussex Road 212A), and east of Mulberry Street. The subject property is on an approximately 7.68-acre parcel that is zoned as C-1 (General Commercial) and the developer does not plan to rezone the land.

After the preparation of the TIS, the previously proposed site usage (5,154 square-foot super convenience store with gas pumps) was modified to also include 64,308 square feet of mini-warehousing and office space. The mini-warehousing and office space would be located on the northern section of the site, which was previously not proposed for development. Construction for the development is anticipated to be completed in 2023. The TIS Addendum analyzes this modified scope.

Two access points are proposed: one full access along Delaware Route 16 and one full access along Cedar Creek Road (Sussex Road 212A). Per the February 26, 2021 Scoping Meeting Memorandum by DelDOT, three future build scenarios were requested to be evaluated. The first scenario (Case 3a) incorporates a rights-in/rights-out access along Delaware Route 16. The second scenario (Case 3b) incorporates a rights-in/rights-out/lefts-in access along Delaware Route 16. The third scenario (Case 3c) incorporates a full access along Delaware Route 16. However, as part of the TIS Addendum, it was determined that the Case 3c scenario would not be considered due to the projected queues along the eastbound Delaware Route 16 approach to Delaware Route 5 expected to block the Site Entrance A intersection.

The Addendum was prepared using updated trip distributions provided by DelDOT on November 2, 2021. Additionally, the Town of Milton requested two additional study intersections: Delaware Route 16/Mulberry Street/Mulberry Street Extension and Cedar Creek Road/Mulberry Street Extension. The Summer Saturday peak hour was evaluated as part of the TIS, but was not evaluated as part of the TIS Addendum because the mini-warehousing/office space is not expected to generate additional trips on a Saturday.

The proposed development is located within the Coastal Corridors Study which will study east-west travel patterns in Sussex County. The study area is comprised of Delaware Route 16 to the north, Delaware Route 404/US Route 9 to the south, the Maryland State line to the west, and Delaware Route 1 to the east. The initial steps in the study will identify the east-west routes and corridors within northwestern Sussex County which are currently congested or are at risk for congestion based on anticipated growth. The study will consider factors such as: longer trips from the Chesapeake Bay Bridge to the Delaware beaches, regional traffic between Maryland's Eastern Shore and Sussex County, and local east-west traffic within the northwestern part of Sussex County. The study is currently in the data collection and public outreach phase. Listening sessions were conducted in Fall 2020 and public outreach for the study began in early 2021. More information about the Coastal Corridors Study can be found at:
https://deldot.gov/projects/Studies/404/index.shtml

It is noted that the proposed development is located within the boundary of the proposed Milton Transportation Improvement District (TID). A TID is a planning concept that seeks to proactively align transportation infrastructure spending and improvements with land use projects and future development within the designated district. The Milton TID boundary was approved by the Milton Town Council and the limits generally extend from Gravel Hill Road and Isaacs Road to the west, Diamond Farm Road, Round Pole Bridge Road, and Reynolds Road to the east, approximately 1.20 miles south of Harbeson Road to the south, and Williams Farm Road and Reynolds Pond Road to the north.

DelDOT will be completing a 2045 traffic analysis for the TID to determine needed improvements and create conceptual plans and costs. All of the study intersections from the TIS are study intersections as part of the Milton TID. If and when DelDOT and the Town establish the TID, the developer would have the opportunity to contribute to the TID in lieu of constructing any off-site improvements. As the TID is in the early stages, the developer may proceed on the basis of the TIS and is not required to participate in the TID.

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

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

Intersection	LOS Deficiencies Occur		Case
	AM	PM	
Delaware Route 16 / Mulberry Street / Mulberry Street Extension		X	Case 1 – 2021 Existing
	X	X	Case 2 – 2023 without Development
	X	X	Case 3a – 2023 with Development
	X	X	Case 3b – 2023 with Development

The unsignalized intersection of Delaware Route 16 and the Mulberry Street/Mulberry Street Extension exhibits LOS deficiencies during the PM peak hour under existing conditions, and during the AM and PM peak hours under future conditions, with or without the proposed development. The deficiencies occur along the northbound Mulberry Street approach with delays of approximately 90.0 seconds per vehicle and a calculated 95th percentile queue length of approximately 195 feet.

These deficiencies could be mitigated by the provision of a separate left turn lane along the northbound Mulberry Street approach or converting the intersection to a signalized intersection. However, due to existing sight distance limitations and pedestrian activity at the intersection, we do not recommend the provision of a separate left turn lane along the northbound approach. With the provision of a signal, the intersection would improve to operate at acceptable LOS C with 24.4 seconds of delay per vehicle during the AM peak hour under Case 3b conditions. Additionally, the existing lane configurations could be maintained and the existing sight distance limitation would be eliminated.

The Town of Milton published an Advisory Report in 2021 which summarizes issues identified by community members and presents a variety of possible solutions. The report includes the study intersection of Delaware Route 16 and Mulberry Street/Mulberry Street Extension and provides the following recommendations to alleviate speeding concerns, unsafe pedestrian crossings, and excessive entry points at the intersection: convert Mulberry Street Extension to a one-way street heading north, install a traffic signal and provide signalized pedestrian crossings, and conduct a feasibility study to convert Mulberry Street to a one-way street heading south with a protected bike lane. While DelDOT acknowledges these recommendations, additional studies would have to be done to determine when a signal would be warranted and whether the one-way street conversions would be feasible. These studies should be performed as part of a larger effort outside the scope of this TIS. Additionally, since the proposed development is projected to have fewer than 50 new peak hour trips at the intersection DelDOT would not require the developer to provide mitigation. Therefore, we recommend the developer not implement any improvements at this intersection.

Additionally, DelDOT requested two future build scenarios as part of this TIS: one with the proposed Delaware Route 16 Site Entrance A access to be rights-in/rights-out (Case 3a) and one with the proposed Delaware Route 16 Site Entrance A access to be rights-in/rights-out/lefts-in (Case 3b).

Although the proposed Site Entrance A intersection operates at acceptable LOS under Case 3a and 3b conditions, queues along the eastbound Delaware Route 16 approach to the Delaware Route 5 intersection are projected to block the Site Entrance A intersection. Specifically, Site Entrance A would be located approximately 200 feet west of the Delaware Route 16/Delaware Route 5 intersection and the calculated 95th percentile queues along the eastbound Delaware Route 16 approach to the Delaware Route 5 intersection are approximately 230 feet and 210 feet during the Summer Saturday peak hour under Case 3a and 3b conditions, respectively. Additionally, the Town has expressed concerns to DelDOT regarding the operation at the Delaware Route 16/Delaware Route 5 intersection. Specifically, the Town identified that drivers are utilizing the shoulders to bypass vehicles and requested that turn lanes be added to each approach.

Operations at the Delaware Route 16/Delaware Route 5 intersection could be improved with the provision of separate turn lanes along each approach. However, due to geometric constraints at the intersection, it may not be feasible to add turn lanes to the northbound approach. Specifically, the head-in parking for the retail space along the southwest corner of the intersection, and the H&R Block building along the southeast corner could hinder the ability to construct turn lanes along the northbound approach.

To address the queueing and operational issues at the Delaware Route 16/Delaware Route 5 intersection, we recommend the developer and DelDOT make the following changes:

- Provide separate left turn lanes along the eastbound and westbound Delaware Route 16 approaches;
- Provide a separate right turn lane along the southbound Delaware Route 5 approach;
- Provide protected-permissive signal phasing for the left turn lanes along Delaware Route 16;
- Maintain concurrent signal phasing along the Delaware Route 5 approaches; and
- Provide rights-in/rights-out/lefts-in access at the Site Entrance along Delaware Route 16.

With the recommended improvements listed above at the Delaware Route 16/Delaware Route 5 intersection, the calculated 95th percentile queue length along the eastbound Delaware Route 16 approach to the Delaware Route 5 intersection would be reduced to approximately 170 feet during the Summer Saturday peak hour under Case 3b conditions. Additionally, the projected queue lengths along the westbound and northbound approaches can be accommodated without blocking existing roadways.

At a meeting on June 1, 2021 between DelDOT and the Town, the feasibility of split phasing was discussed. As such, JMT conducted an additional analysis of the Delaware Route 16 and Delaware Route 5 intersection to evaluate queueing effects of modifying the northbound and southbound

Delaware Route 5 approaches to split phase. The analysis incorporated the provision of a separate left turn lane along eastbound and westbound Delaware Route 16 and a separate right turn lane along southbound Delaware Route 5. With split phases along the northbound and southbound approaches, the intersection would operate at acceptable LOS during all peak hours under Case 3a and 3b conditions.

Although the intersection would operate at acceptable LOS with split phase operation, the calculated 95th percentile queues are projected to increase along all approaches to the intersection. Specifically, during the PM peak hour under Case 3b conditions, the 95th percentile queues along the eastbound, westbound, northbound, and southbound approaches are projected to increase from approximately 98, 195, 190, and 200 feet, respectively, to approximately 200, 415, 340, and 305 feet. The projected increase in the calculated 95th percentile queues would block the existing entrance to the Milton Park Center along the westbound approach and the intersection with Cedar Creek Road along the southbound approach. As such, we do not recommend that the intersection be converted to split phase along the northbound and southbound approaches.

Should the Town of Milton approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

1. The developer shall improve Delaware Route 5, Delaware Route 16, and Cedar Creek Road within the limits of their frontage to meet DelDOT's standards for their Functional Classification as found in Section 1.1 of the *Development Coordination Manual* and elsewhere therein. 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 is defined in Section 1 of the *Development Coordination Manual*, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

2. The developer should construct an unsignalized rights-in/rights-out/lefts-in access for the proposed Royal Farms development along Delaware Route 16, approximately 200 feet west of the northwest point of tangency of the intersection with Delaware Route 5. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Delaware Route 16	One through lane	One left turn lane and one through lane
Westbound Delaware Route 16	One through lane	One through lane and one right turn lane
Southbound Site Entrance	Approach does not exist	One right turn lane

The entrance should be designed to accommodate the pedestrian crossing and prohibit left out movements. Additionally, the proposed median along Delaware Route 16 between the site entrance and the eastbound left turn at the Delaware Route 5 intersection should be extended west to prohibit left out movements at the entrance.

Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length (excluding taper) of the eastbound Delaware Route 16 left turn lane is 120 feet and the westbound Delaware Route 16 right turn lane is 145 feet.

3. The developer should construct an unsignalized full access site entrance for the proposed Royal Farms development on Cedar Creek Road, approximately 200 feet west of the southwest point of tangency of the intersection with Delaware Route 5. The intersection should be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cedar Creek Road	One through lane	One through lane and one right turn lane
Westbound Cedar Creek Road	One through lane	One left turn lane and one through lane
Northbound Site Entrance	Approach does not exist	One shared left turn/right turn lane

Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length (excluding taper) of the eastbound Cedar Creek Road right turn lane is 145 feet. Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length (excluding taper) of the westbound Cedar Creek Road left turn lane is 185 feet. However, due to the close proximity of the proposed entrance to the Cedar Creek Road/Delaware Route 5 intersection, we recommend that DelDOT require a minimum storage length of 100 feet (excluding taper) for the westbound Cedar Creek Road left turn lane. The projected queues from the HCS analysis can be accommodated within the recommended storage lengths.

4. The developer should enter into an agreement with DelDOT for the intersection of Delaware Route 16 and Delaware Route 5 to construct a separate left turn lane along the eastbound and westbound Delaware Route 16 approaches and a separate right turn lane along the southbound Delaware Route 5 approach. The westbound approach should be adjusted to provide proper alignment with the receiving lane on the westerly leg. The eastbound and westbound left turn lanes should operate with protected-permissive signal phasing and the northbound and southbound approaches should maintain concurrent signal phasing. Additionally, a five-foot bicycle lane should be provided along the westbound approach. The intersection should be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Delaware Route 16	One shared left turn/through/right turn lane	One left turn lane and one shared through/right turn lane
Westbound Delaware Route 16	One shared left turn/through/right turn lane	One left turn lane and one shared through/right turn lane
Northbound Delaware Route 5	One shared left turn/through/right turn lane	No change
Southbound Delaware Route 5	One shared left turn/through/right turn lane	One shared left turn/through lane and one right turn lane

Based on DelDOT's *Development Coordination Manual* and the queue results from the HCS analysis, the recommended minimum storage length (excluding tapers) of the eastbound left turn lane is 150 feet, westbound left turn lane is 100 feet, and the southbound right turn lane is 210 feet. Prior to Entrance Plan approval, the developer should submit a plan to DelDOT Development Coordination Section to confirm the design of the intersection.

5. The developer should enter into a traffic signal agreement with DelDOT for the intersection of Delaware Route 16 and Delaware Route 5 to include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Additionally, signalized pedestrian crosswalks should be provided along all approaches to the intersection. Prior to Entrance Plan approval, the developer should submit a plan to DelDOT Development Coordination Section to confirm the design of the intersection.

6. A cross access easement should be provided to the section of the tax parcel to the northwest not presently proposed for development to allow access to Mulberry Street Extension, Cedar Creek Road, and Delaware Route 16 without additional access points on Cedar

Creek Road or Delaware Route 16. The developer should coordinate with DelDOT Development Coordination Section on the exact location of the cross-access easement.

7. A cross access easement should be provided to allow for a potential future interconnection with the neighboring westerly parcels (Tax Parcels: 235-14.15-65.00, 65.01, and 66.00) if and when they are redeveloped. The developer should coordinate with DelDOT Development Coordination Section on the exact location of the cross-access easement.

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

    a. A minimum of fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Delaware Route 5, Delaware Route 16, and Cedar Creek Road site frontages. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP). The SUP should be designed to meet current AASHTO and ADA standards. A minimum five-foot setback should be maintained from the edge of the pavement to the SUP. If feasible, the SUP should be placed behind utility poles and street trees should be provided within the buffer area. The developer should coordinate with DelDOT's Development Coordination Section during the plan review process to identify the exact location of the SUP.

    b. The SUP should connect to the pedestrian signal at the northwest corner of the Delaware Route 5 and Delaware Route 16 intersection.

    c. At least one internal connection of a sidewalk or SUP from the SUP along Delaware Route 16 is required.

    d. A pedestrian crossing of Cedar Creek Road should be provided at the Delaware Route 5 intersection which would include improved curb ramps on both sides of the road and a marked crosswalk.

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

    f. Internal bicycle racks should be provided.

    g. ADA compliant curb ramps and marked crosswalks should be provided along the site entrances.

    h. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the westbound Delaware Route 16 approach to the site entrance and the westbound Cedar Creek Road approach to the site entrance.

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

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction, please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, EIT

Enclosure

General Information

Report date: May 2021 TIS Report; December 29, 2021 TIS Addendum
Prepared by: Duffield Associates, LLC
Prepared for: Royal Farms
Tax Parcels: 235-14.15-67.00
Generally consistent with DelDOT's *Development Coordination Manual (DCM)*: Yes

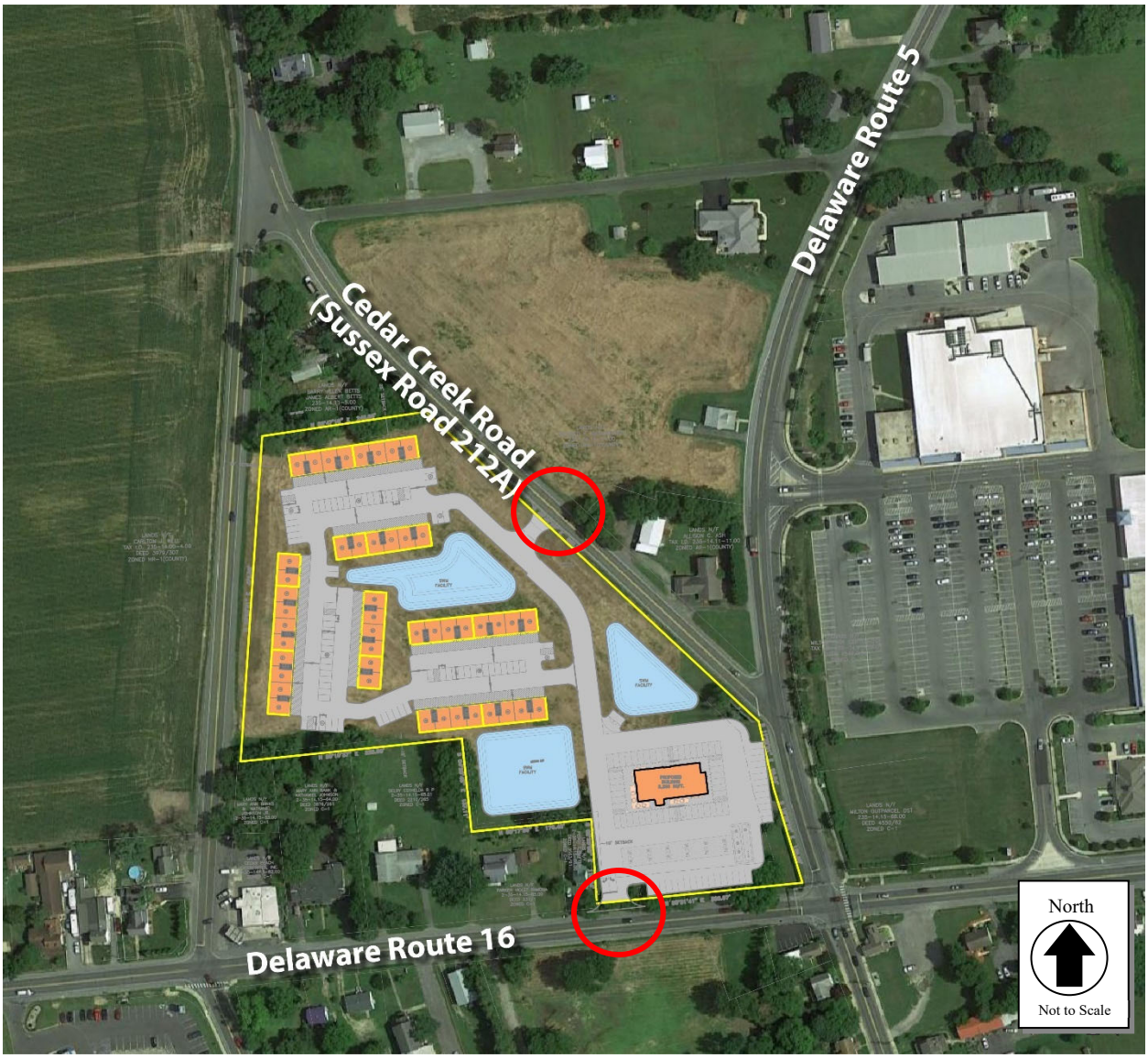
Project Description and Background

Description: As part of the May 2021 TIS Report, the proposed development consists of a 5,154 square-foot convenience store with gas pumps. The TIS Addendum dated December 29, 2021 was performed to evaluate the impacts of the 5,154 square-foot convenience store with gas pumps, as well as 64,308 square feet of mini-warehousing and office space.
Location: The subject site is located on the northwest corner of the intersection of Delaware Route 16 and Delaware Route 5, in the Town of Milton, Sussex County.
Amount of Land to be developed: An approximately 7.68-acre parcel.
Land Use approval(s) needed: Entrance Plan.
Proposed completion date: 2023.
Proposed access locations: One limited access entrance on Delaware Route 16 and one full access entrance on Cedar Creek Road.

Daily Traffic Volumes:

- 2019 Average Annual Daily Traffic on Delaware Route 5: 4,511
- 2019 Average Annual Daily Traffic on Delaware Route 16: 7,559
- 2019 Average Annual Daily Traffic on Cedar Creek Road: 1,147

Site Map



**Graphic is an approximation based on the Concept Plan prepared by Davis, Bowen & Friedel, Inc. dated September 2020.*

Relevant and On-going Projects

The proposed development is located within the Coastal Corridors Study which will study east-west travel patterns in Sussex County. The study area is comprised of Delaware Route 16 to the north, Delaware Route 404/US Route 9 to the south, the Maryland State line to the west, and Delaware Route 1 to the east. The initial steps in the study will identify the east-west routes and corridors within northwestern Sussex County which are currently congested or are at risk for congestion based on anticipated growth. The study will consider factors such as: longer trips from the Chesapeake Bay Bridge to the Delaware beaches, regional traffic between Maryland's Eastern Shore and Sussex County, and local east-west traffic within the northwestern part of Sussex County. The study is currently in the data collection and public outreach phase. Listening sessions

were conducted in Fall 2020 and public outreach for the study began in early 2021. More information about the Coastal Corridors Study can be found at:
https://deldot.gov/projects/Studies/404/index.shtml

It is noted that the proposed development is located within the boundary of the proposed Milton Transportation Improvement District (TID). A TID is a planning concept that seeks to proactively align transportation infrastructure spending and improvements with land use projects and future development within the designated district. The Milton TID boundary was approved by the Milton Town Council and the limits generally extend from Gravel Hill Road and Isaacs Road to the west, Diamond Farm Road, Round Pole Bridge Road, and Reynolds Road to the east, approximately 1.20 miles south of Harbeson Road to the south, and Williams Farm Road and Reynolds Pond Road to the north. DelDOT will be completing a 2045 traffic analysis for the TID to determine needed improvements and create conceptual plans and costs. All of the study intersections from the TIS are study intersections as part of the Milton TID.

Livable Delaware
(Source: Delaware Strategies for State Policies and Spending, 2020)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:

The proposed development is located within the Investment Level 1.

Investment Level 1

These areas are often municipalities, towns, or urban/urbanizing places in counties where density is generally higher than in surrounding areas. 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, and to promote well-designed and efficient new growth in Investment Level 1 Areas.

In Level 1 Areas the state's first priority will be for preserving existing facilities and making safety improvements. Level 1 areas will also be the highest priority for context sensitive transportation system capacity enhancements, transit-system enhancements, ADA accessibility, and for closing gaps in the pedestrian system, including the Safe Routes to School projects. Investment Level 1 Areas are ideal locations for Transportation Improvement Districts as well as Complete Community Enterprise Districts. Further, Level 1 areas are the first priority for planning projects and studies, bicycle facilities, signal-system enhancements, and the promotion of interconnectivity of neighborhoods and public facilities.

Proposed Development's Compatibility with Livable Delaware:
The proposed site would be located in Investment Level 1. Investment Level 1 encourage a wide range of uses, densities, transportation options, and foster efficient use of existing public and private investments to enhance community identity and integrity. The proposed development is in an area with no surrounding super convenience stores with gas, which will support ongoing

development in the surrounding area. Therefore, the proposed development is generally consistent with the 2020 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plan

(Source: Town of Milton 2018 Comprehensive Plan)

Town of Milton Comprehensive Plan:

Per the Ordinance No. 2020-11 to amend the *Town of Milton Comprehensive Plan Future Land Use/Potential Expansion Map,* the proposed development is in an area designated as C-1. The developer does not plan to rezone the land as this is consistent with the proposed use.

Proposed Development's Compatibility with the Town of Milton Comprehensive Plan:

The *Town of Milton Comprehensive Plan* states that the Town should work to support opportunities for economic development and guide economic growth to those areas where public facility capacities are available. As there are no other super convenience stores with gas along Delaware Route 16 in the area, the proposed development would provide a service that would support economic growth. Therefore, the proposed development is generally consistent with the *Town of Milton Comprehensive Plan*.

Trip Generation

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Codes 960 (Super Convenience Market/Gas Station). Trip generation was reviewed by DelDOT as part of the Preliminary TIS (PTIS) submission.

Table 1a

Royals Farms Trip Generation- TIS Report dated May 2021

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**Saturday Peak Hours**		
		In	Out	Total	In	Out	Total	In	Out	Total
5,154 SF Super Convenience Store with Gas (ITE Code 960)	4,314	221	222	443	178	179	357	167	168	335
Total Trips		**221**	**222**	**443**	**178**	**179**	**357**	**167**	**168**	**335**
Pass-by Trips for Super Convenience Market/Gas Station (ITE Code 960)*		-167	-168	-335	-135	-136	-271	-126	-127	-253
New Trips		**54**	**54**	**108**	**43**	**43**	**86**	**41**	**41**	**82**

*Pass-by percentages of 76% were applied to all peak hours, consistent with the *ITE Trip Generation Handbook, 3rd Edition*.

Table 1b
Royals Farms Trip Generation- TIS Addendum dated December 29, 2021

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**Saturday Peak Hours**		
		In	Out	Total	In	Out	Total	In	Out	Total
5,154 SF Super Convenience Store with Gas (ITE Code 960)	4,314	221	222	443	178	179	357	167	168	335
64,308 SF Business Park (ITE Code 770)	1,399	16	10	26	12	15	27	0	0	0
Total Trips	**5,713**	**237**	**232**	**469**	**190**	**194**	**384**	**167**	**168**	**335**
Pass-by Trips for Super Convenience Market/Gas Station (ITE Code 960)*		-167	-168	-335	-135	-136	-271	-126	-127	-253
New Trips	**5,713**	**70**	**64**	**134**	**55**	**58**	**113**	**41**	**41**	**82**

*Pass-by percentages of 76% were applied to all peak hours, consistent with the *ITE Trip Generation Handbook, 3rd Edition*.

Overview of TIS and TIS Addendum

Intersections examined:

TIS (Dated May 2021)

1. Site Entrance A/Delaware Route 16
2. Site Entrance B/Cedar Creek Road (Sussex Road 212A)
3. Delaware Route 16/Delaware Route 5
4. Delaware Route 5/Cedar Creek Road

TIS Addendum (Dated December 29, 2021)

1. Site Entrance A/Delaware Route 16
2. Site Entrance B/Cedar Creek Road (Sussex Road 212A)
3. Delaware Route 16/Delaware Route 5
4. Delaware Route 5/Cedar Creek Road
5. Delaware Route 16 / Mulberry Street/Mulberry Street Extension
6. Cedar Creek Road / Mulberry Street Extension

Conditions examined:

TIS (Dated May 2021)

1. Case 1 – 2021 Existing
2. Case 2 – 2022 without Development
3. Case 3 – 2022 with Development
    a. With full access on Cedar Creek Road and a rights-in/rights-out access on Delaware Route 16
    b. With full access on Cedar Creek Road and a rights-in/rights-out/lefts-in access on Delaware Route 16
    c. With full access on Cedar Creek Road and another full access on Delaware Route 16

TIS Addendum (Dated December 29, 2021)

1. Case 1 – 2021 Existing
2. Case 2 – 2023 without Development
3. Case 3 – 2023 with Development
    a. With full access on Cedar Creek Road and a rights-in/rights-out access on Delaware Route 16
    b. With full access on Cedar Creek Road and a rights-in/rights-out/lefts-in access on Delaware Route 16

Per the Scoping Meeting Memorandum dated February 26, 2021, a Case 3c was requested reviewing full access on Cedar Creek Road and full access on Delaware Route 16. However, as part of the TIS Addendum, Case 3c was omitted as it was assumed that the proposed entrance along Delaware Route 16 would have turn restrictions.

The TIS Addendum evaluated the weekday morning and weekday evening peak hours. The Summer Saturday midday peak hour was not evaluated as it was assumed that the proposed mini warehouse and office uses would be closed on weekends. As such, the future analyses (Cases 2 and 3) for the Summer Saturday peak hour was from the May 2021 TIS and was conducted for 2022.

Committed Developments considered:

1. Clifton Property- 71 low-rise multifamily units, 168 mid-rise multi-family units, and 20,000 SF of retail space.

Peak hours evaluated: The TIS evaluated the weekday morning, weekday evening, and summer Saturday midday peak hours. The TIS Addendum evaluated the weekday morning and weekday evening peak hours. The Summer Saturday midday peak hour was not evaluated as it was assumed that the proposed mini warehouse and office uses would be closed on weekends. Therefore, the Summer Saturday analysis conducted as part of the May 2021 TIS was utilized.

Intersection Descriptions

1. **Delaware Route 16 and Site Entrance A**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Southbound Approach: (Site Entrance A) Proposed one left turn lane and one right turn lane, stop controlled
   Eastbound Approach: (Delaware Route 16) Existing one through lane; proposed one left turn lane and one through lane
   Westbound Approach: (Delaware Route 16) Existing one through lane; proposed one through lane and one right turn lane

2. **Cedar Creek Road (Sussex Road 212A) and Site Entrance B**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Cedar Creek Road) Existing one through lane; proposed one through lane and one right turn lane
   Westbound Approach: (Cedar Creek Road) Existing one through lane; proposed one left turn lane and one through lane
   Northbound Approach: (Site Entrance B) Proposed left turn lane and one right turn lane, stop controlled

3. **Delaware Route 16 and Delaware Route 5**
   Type of Control: Signalized intersection (four-legged)
   Northbound Approach: (Delaware Route 5) Existing one shared left turn/through/right turn lane
   Southbound Approach: (Delaware Route 5) Existing one shared left turn/through/right turn lane
   Eastbound Approach: (Delaware Route 16) Existing one shared left turn/through/right turn lane
   Westbound Approach: (Delaware Route 16) Existing one shared left turn/through/right turn lane

4. **Delaware Route 5 and Cedar Creek Road**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Northbound Approach: (Delaware Route 5) Existing one shared left turn/through lane
   Southbound Approach: (Delaware Route 5) Existing one shared through/right turn lane
   Eastbound Approach: (Cedar Creek Road) Existing one shared left turn/right turn lane

5. **Delaware Route 16 and Mulberry Street/Mulberry Street Extension**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Delaware Route 16) Existing one shared left turn/through/right turn lane
   Westbound Approach: (Delaware Route 16) Existing one shared left turn/through/right turn lane
   Northbound Approach: (Mulberry Street) Existing one shared left turn/through/right turn lane; stop controlled
   Southbound Approach: (Mulberry Street Extension) Existing one shared left turn/through/right turn lane; stop controlled

6. **Cedar Creek Road and Mulberry Street Extension/Walls Road**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Cedar Creek Road) Existing one shared left turn/through/right turn lane
   Westbound Approach: (Cedar Creek Road) Existing one shared left turn/through/right turn lane
   Northbound Approach: (Mulberry Street Extension) Existing one shared left turn/through/right turn lane; stop controlled
   Southbound Approach: (Walls Road) Existing one shared left turn/through/right turn lane; stop controlled

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, Delaware Transit Corporation (DTC) currently provides existing services through the study area via DART Route 303. DART Route 303 provides service along Delaware Route 16 within the study area. Bus stops exist adjacent to the study area on either side of Delaware Route 16 at the Mulberry Street intersection. DART Route 303 provides 8 round trips from 4:46 AM to 8:56 PM on weekdays

Planned transit service: Per email correspondence on May 21, 2021 with Mrs. Tremica Cherry-Wall, Planner for DART, transit improvements are not being requested in the area at this time. However, a crosswalk is requested across Delaware Route 5 at Delaware Route 16 for pedestrians to access a requested bus stop at a location on the northeast side of the roadway.

Existing bicycle and pedestrian facilities: According to DelDOT's Sussex County Bicycle Map, a Regional Bicycle Route exists along Delaware Route 16 and a Connector Route exists along Delaware Route 5 within the study area.

Planned bicycle and pedestrian facilities: Per email correspondence dated June 7, 2021, from Mr. John Fiori, DelDOT's Bicycle Coordinator and Ms. Linda Osiecki, DelDOT's Pedestrian Coordinator, the following improvements were recommended:

- Referring to the State Strategies and Spending Map this site is within Level 1. Per the DelDOT SUP/Sidewalk Policy a non-motorized facility is required unless a physical impossibility exist. It would be recommended that a 10-foot wide shared-use path be installed along all property frontages, with angled terminations into the shoulder and shared-use path extended to the property lines. However, since the site is within the Town of Milton, the Town would determine the type of facility (SUP or Sidewalk) required.
- For all proposed frontage SUP or sidewalk, construct a grass buffer between the curb/edge of road and the pedestrian facility, including along Cedar Creek Road.
- Internal connection to the site of a sidewalk or shared use path from the shared-use path along Delaware Route 16 is required.
- At the entrance along Delaware Route 16, due to the traffic volumes (including truck traffic volumes) and the wide distance shown on the Concept Plan, construct refuge islands which are safer and may be used as refuge areas for pedestrians/bicyclists and so that they will cross only one direction of traffic before taking on the next lane. This significantly improves the amenity for pedestrians/bicyclists trying to cross the busy entrance, as they are much more likely to find two small gaps in traffic rather than one with gaps for both directions coincide.
- Provide a pedestrian crossing of Delaware Route 5 at the Delaware Route 16 intersection which would include improved curb ramps on both sides of the road, marked crosswalks and pedestrian signals.
- Provide a pedestrian crossing of Cedar Creek Road at the Delaware Route 5 intersection which would include improved curb ramps on both sides of the road and a marked crosswalk.
- The internal parking spaces across from the proposed SWM Pond has a sidewalk. This type of design could allow the sidewalk to be blocked by the overhang of vehicles parking in those spaces. It is recommended to widen the sidewalk to a minimum of 8-feet or provide a minimum 3-foot wide grass buffer between the parking spaces and the edge of sidewalk, as well as parking bumpers
- For the bike rack shown on the Concept Plan, it is recommended to relocate the bike rack next to the building. If the bike rack is to remain, then a connection shall be required from the bike rack to the SUP along Delaware Route 5.
- Per the Development Coordination Manual (DCM) the site shall dedicate right-of-way per the roadway classification and establish a 15' wide permanent easement along all roadway property frontages that are state maintained.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then a separate bike lane shall be incorporated along the right turn lane; if a left turn lane is required any roadway improvements shall include a shoulder matching the roadway functional classification or existing conditions (minimum 5-feet).

Bicycle Level of Traffic Stress in Delaware: Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate

and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontage are summarized below. The Bicycle LTS was determined utilizing the map on the DelDOT Gateway.

- Delaware Route 5 LTS: 1 and 2
- Delaware Route 16 LTS: 2 and 3
- Cedar Creek Road LTS: 2 and 3

Crash Evaluation

Per the crash data included in the TIS from January 1, 2018 to January 1, 2021 and provided by the Delaware Crash Analysis Reporting System, a total of nine crashes were reported along Delaware Route 16 from 500 feet west of Delaware Route 5 to 500 feet east of Delaware Route 5. Of the nine crashes reported, five were rear-end, three were angle, and one was a sideswipe. One angle crash resulted in injury and no fatalities were reported within the study area during the 3-year study period.

Previous Comments

All comments from the PTIS have been addressed in the Final TIS.

General HCS Analysis Comments

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

1) JMT and the TIS Addendum used version 7.9.5 of HCS7 to complete the analysis, whereas the TIS utilized version 7.8.

2) Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in the Case 2 and Case 3 future scenario analysis, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for the analysis of future scenarios, whereas the TIS did not.

3) Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways and site entrances in the analyses, whereas the TIS did not.

4) JMT incorporated pedestrians and bicycles in the analysis, whereas the TIS did not.

5) Per DelDOT's *Development Coordination Manual,* JMT and the TIS utilized the existing PHF for the Case 1 scenario and a future PHF for Cases 2 and 3 scenarios of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph or the existing PHF, whichever was higher.

6) The TIS used a base saturation flow rate of 1900 vehicles per hour for the signalized intersection analysis. JMT used a base saturation flow rate of 1750 vehicles per hour at signalized intersections per DelDOT's *Development Coordination Manual*.

7) JMT incorporated right-turn-on-red vehicles per hour at signalized intersections based on provided manual turning movement count.

8) Two different build scenarios were analyzed:
    - Case 3a – rights-in/rights-out access along Delaware Route 16
    - Case 3b – rights-in/rights-out/lefts-in access along Delaware Route 16

9) The AM and PM analysis for Cases 3a and 3b has been updated to reflect the modified proposed development which includes a 5,154 square foot super convenience store with gas pumps and 64,308 square feet of mini warehousing/office space. The volumes utilized are from the TIS Addendum prepared by Duffield Associates, LLC dated December 29, 2021.

The Summer Saturday results for Cases 3a and 3b were not updated in the TIS Addendum as the proposed mini warehousing and office space is assumed to be closed during the weekend. Therefore, the Saturday results are based on the results from the May 2021 TIS which incorporated only the 5,154 square foot super convenience store with gas pumps.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Unsignalized Intersection Two-Way Stop Control (T-Intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Site Entrance A / Delaware Route 16 [2] [3]	Weekday AM	Weekday PM	Summer SAT [4]	Weekday AM	Weekday PM	Summer SAT [4]
2023 with Development (Case 3a)						
Southbound Site Entrance A Approach	B (10.1)	B (11.7)	B (11.3)	B (10.3)	B (12.1)	B (11.6)
2023 with Development (Case 3b)						
Eastbound Delaware Route 16 Left Turn	A (8.2)	A (8.7)	A (8.6)	A (8.0)	A (8.6)	A (8.5)
Southbound Site Entrance A Approach	B (10.1)	B (11.7)	B (11.3)	B (10.3)	B (12.1)	B (11.6)

[1] For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] The AM and PM analysis for Cases 3a and 3b have been updated to reflect the volumes provided in the TIS Addendum prepared by Duffield Associates, LLC dated December 29, 2021. The Saturday analysis was not updated as the proposed additional mini warehousing and office use is assumed to be closed during the weekends. As such, the Saturday results from the Final TIS Report dated May 2021 would not be impacted.
[3] JMT configured the westbound Delaware Route 16 and southbound Site Entrance right turn lanes as a channelized right turn whereas the TIS did not.
[4] The TIS Addendum evaluated the weekday morning and weekday evening peak hours. The Summer Saturday midday peak hour was not evaluated as it was assumed that the proposed mini warehouse and office uses would be closed on weekends. As such, the results for the Summer Saturday peak hour are from the Final TIS.

Table 3
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Unsignalized Intersection Two-Way Stop Control (T-Intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Site Entrance B / Cedar Creek Road (Sussex Road 212A) [2]	Weekday AM	Weekday PM	Summer SAT[4]	Weekday AM	Weekday PM	Summer SAT[4]
2023 with Development (Case 3a)						
Westbound Cedar Creek Road Left Turn	A (7.5)	A (7.5)	A (7.5)	A (7.5)	A (7.5)	A (7.5)
Northbound Site Entrance B Approach	A (9.2)	A (9.2)	A (9.1)	A (9.4)	A (9.4)	A (9.3)
2023 with Development (Case 3b)						
Westbound Cedar Creek Road Left Turn	A (7.4)	A (7.4)	A (7.3)	A (7.4)	A (7.4)	A (7.4)
Northbound Site Entrance B Approach	A (9.0)	A (9.0)	A (8.9)	A (9.1)	A (9.1)	A (9.2)

Table 4
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Delaware Route 16 / Delaware Route 5 [2, 5]	Weekday AM	Weekday PM	Summer SAT [4]	Weekday AM	Weekday PM	Summer SAT [4]
2021 Existing (Case 1) *with DelDOT Timing*[6]	-	-	-	A (18.5)	C (20.9)	B (19.9)
2021 Existing (Case 1) *with Optimization* [7, 8]	A (9.4)	B (11.2)	B (11.4)	B (12.9)	B (14.7)	B (14.9)
2023 without Development (Case 2) *with DelDOT Timing* [6]	-	-	-	B (19.0)	C (21.7)	C (20.8)
2023 without Development (Case 2) *with Optimization* [7, 8]	B (10.1)	B (12.1)	B (12.1)	B (13.4)	B (15.5)	B (15.0)
2023 with Development (Case 3a) *with DelDOT Timing* [6]	-	-	-	C (22.7)	C (31.4)	C (27.8)
2023 with Development (Case 3a) *with Optimization* [7, 8]	B (15.1)	C (22.3)	B (15.1)	B (15.1)	B (17.8)	B (17.5)
2023 with Development (Case 3a) *with Improvement Option 1* [9]	-	-	-	B (17.9)	B (19.5)	C (20.2)

[5] JMT utilized field measured phase timing whereas the TIS did not.
[6] DelDOT Timing scenario includes utilizing the split green times consistent with DelDOT MAX I green times.
[7] Signal Optimization scenario includes optimizing splits and utilizing a cycle length of 60 seconds during the AM, PM, and Summer Saturday peak hours.
[8] JMT utilized a cycle length of 60 seconds during the AM, PM, and Summer Saturday peak hours whereas the TIS utilized various cycle lengths.
[9] Improvement Option 1 scenario includes improving the eastbound and westbound Delaware Route 16 approaches to provide a shared through/right turn lane and a separate left turn lane with protected-permissive phasing. Additionally, the southbound Delaware Route 5 approach was improved to provide shared left/through lane and a separate right turn lane while maintaining the existing concurrent phasing. A cycle length of 60 seconds was utilized.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Delaware Route 16 / Delaware Route 5 [2]	Weekday AM	Weekday PM	Summer SAT [4]	Weekday AM	Weekday PM	Summer SAT [4]
2023 with Development (Case 3a) *with Improvement Option 2* [10]	-	-	-	D (38.3)	D (50.0)	D (45.2)
2023 with Development (Case 3a) *with Improvement Option 1 and Mulberry Street signal* [9, 11]				C (21.6)	C (22.2)	
2023 with Development (Case 3b) *with DelDOT Timing* [6]	-	-	-	C (22.2)	C (30.2)	C (26.3)
2023 with Development (Case 3b) *with Optimization* [7, 8]	B (15.0)	C (21.8)	B (14.2)	B (14.9)	B (17.3)	B (16.8)
2023 with Development (Case 3b) *with Improvement Option 1* [9]	-	-	-	B (18.9)	C (20.0)	C (22.0)
2023 with Development (Case 3b) *with Improvement Option 2* [10]	-	-	-	D (38.8)	D (46.4)	D (46.2)
2023 with Development (Case 3b) *with Improvement Option 2 and Mulberry Street signal* [10]				C (22.7)	C (22.2)	

[10] Improvement Option 2 scenario includes the improvements in Improvement Option 1, but with split phase along the northbound and southbound approaches. A cycle length of 90 seconds was utilized.
[11] JMT conducted an additional analysis of the Delaware Route 16 intersections with Mulberry Street and Delaware Route 5 as a signalized, coordinated corridor.

Table 5
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Delaware Route 5 / Cedar Creek Road (Sussex Road 212A) [2, 12]	Weekday AM	Weekday PM	Summer SAT [4]	Weekday AM	Weekday PM	Summer SAT [4]
2021 Existing (Case 1)						
Eastbound Cedar Creek Road Approach	A (9.6)	B (10.8)	B (10.6)	A (9.6)	B (10.8)	B (10.6)
Northbound Delaware Route 5 Left Turn	A (7.6)	A (7.9)	A (7.9)	A (7.6)	A (7.9)	A (8.0)
2023 without Development (Case 2)						
Eastbound Cedar Creek Road Approach	A (9.6)	B (10.8)	B (10.6)	A (9.7)	B (10.8)	B (10.7)
Northbound Delaware Route 5 Left Turn	A (7.6)	A (7.9)	A (8.0)	A (7.7)	A (8.0)	A (8.0)
2023 with Development (Case 3a)						
Eastbound Cedar Creek Road Approach	B (10.8)	B (12.4)	B (11.7)	B (10.8)	B (12.4)	B (11.7)
Northbound Delaware Route 5 Left Turn	A (7.9)	A (8.2)	A (8.2)	A (7.9)	A (8.2)	A (8.2)
2023 with Development (Case 3b)						
Eastbound Cedar Creek Road Approach	B (10.5)	B (11.9)	B (11.4)	B (10.4)	B (11.8)	B (11.4)
Northbound Delaware Route 5 Left Turn	A (7.7)	A (8.0)	A (8.0)	A (7.7)	A (8.0)	A (8.0)

[12]The TIS utilized a PHF of 0.92 for all the cases during the AM, PM, and Summer SAT peak hours, whereas JMT utilized a PHF consistent with existing count data.

Table 6
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TIS**		**LOS per JMT**	
Delaware Route 16 / Mulberry Street / Mulberry Street Extension [13]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing (Case 1)				
Eastbound Delaware Route 16 Left Turn	-	-	A (7.8)	A (8.1)
Westbound Delaware Route 16 Left Turn	-	-	A (8.3)	A (8.2)
Northbound Mulberry Street Approach	-	-	D (32.2)	F (57.6)
Southbound Mulberry Street Extension Approach	-	-	D (25.4)	C (22.6)
2023 without Development (Case 2)				
Eastbound Delaware Route 16 Left Turn	A (7.9)	A (8.1)	A (7.8)	A (8.2)
Westbound Delaware Route 16 Left Turn	A (8.3)	A (8.2)	A (8.4)	A (8.3)
Northbound Mulberry Street Approach	E (38.4)	F (69.9)	E (38.9)	F (72.4)
Southbound Mulberry Street Extension Approach	D (28.5)	C (23.7)	D (28.8)	C (24.3)
2023 with Development (Case 3a)				
Eastbound Delaware Route 16 Left Turn	A (7.9)	A (8.1)	A (7.9)	A (8.2)
Westbound Delaware Route 16 Left Turn	A (8.4)	A (8.3)	A (8.4)	A (8.3)
Northbound Mulberry Street Approach	E (46.1)	F (86.4)	E (46.8)	F (89.5)
Southbound Mulberry Street Extension Approach	D (32.1)	D (25.5)	D (32.5)	D (26.2)

[13] The intersection was analyzed during the AM and PM peak hours as part of the TIS Addendum prepared by Duffield Associates, LLC dated December 29, 2021.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TIS**		**LOS per JMT**	
Delaware Route 16 / Mulberry Street Extension [13]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Development (Case 3a) *with Improvements* [14]				
Eastbound Delaware Route 16 Left Turn	-	-	A (7.9)	A (8.2)
Westbound Delaware Route 16 Left Turn	-	-	A (8.4)	A (8.3)
Northbound Mulberry Street Approach	-	-	D (27.3)	D (34.9)
Southbound Mulberry Street Extension Approach	-	-	D (32.5)	D (26.2)
2023 with Development (Case 3b)				
Eastbound Delaware Route 16 Left Turn	A (7.9)	A (8.1)	A (7.9)	A (8.2)
Westbound Delaware Route 16 Left Turn	A (8.4)	A (8.3)	A (8.4)	A (8.3)
Northbound Mulberry Street Approach	E (46.4)	F (86.9)	E (47.0)	F (90.0)
Southbound Mulberry Street Extension Approach	D (32.3)	D (25.5)	D (32.7)	D (26.2)
2023 with Development (Case 3b) *with Improvements* [14]				
Eastbound Delaware Route 16 Left Turn	-	-	A (7.9)	A (8.2)
Westbound Delaware Route 16 Left Turn	-	-	A (8.4)	A (8.3)
Northbound Mulberry Street Approach	-	-	D (27.3)	D (34.8)
Southbound Mulberry Street Extension Approach	-	-	D (32.7)	D (26.2)

[14] JMT performed an additional analysis of the intersection incorporating a separate left turn lane along the northbound approach.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Signalized Intersection [1]	**LOS per TIS**		**LOS per JMT**	
Delaware Route 16 / Mulberry Street Extension [13]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Development (Case 3a) *with Improvement [11]*	-	-	C (24.5)	C (24.2)
2023 with Development (Case 3b) *with Improvement [11]*	-	-	C (24.8)	C (23.9)

Table 7
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TIS**		**LOS per JMT**	
Cedar Creek Road / Mulberry Street Extension [13]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing (Case 1)				
Eastbound Cedar Creek Road Left Turn	-	-	A (7.3)	A (7.4)
Westbound Cedar Creek Road Left Turn	-	-	A (7.5)	A (7.5)
Northbound Mulberry Street Extension Approach	-	-	B (10.7)	B (11.2)
Southbound Walls Road	-	-	A (9.7)	A (9.6)
2023 without Development (Case 2)				
Eastbound Cedar Creek Road Left Turn	-	-	A (7.3)	A (7.4)
Westbound Cedar Creek Road Left Turn	-	-	A (7.6)	A (7.5)
Northbound Mulberry Street Extension Approach	-	-	B (10.8)	B (11.3)
Southbound Walls Road	-	-	A (9.8)	A (9.7)
2023 with Development (Case 3a)				
Eastbound Cedar Creek Road Left Turn	A (7.5)	A (7.4)	A (7.4)	A (7.5)
Westbound Cedar Creek Road Left Turn	A (7.4)	A (7.4)	A (7.6)	A (7.5)
Northbound Mulberry Street Extension Approach	B (11.4)	B (11.3)	B (11.0)	B (11.5)
Southbound Walls Road	A (9.7)	A (9.7)	A (9.9)	A (9.7)

Table 7 (continued)
Peak Hour Levels Of Service (LOS)
Based on Final Traffic Impact Study for Royal Farms #428
Report Dated: May 2021
Prepared by: Duffield Associates, LLC

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TIS**		**LOS per JMT**	
Cedar Creek Road / Mulberry Street Extension [13]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Development (Case 3b)				
Eastbound Cedar Creek Road Left Turn	-	-	A (7.4)	A (7.5)
Westbound Cedar Creek Road Left Turn	-	-	A (7.6)	A (7.5)
Northbound Mulberry Street Extension Approach	-	-	B (11.0)	B (11.5)
Southbound Walls Road	-	-	A (9.9)	A (9.7)