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

NICOLE MAJESKI
SECRETARY

August 21, 2024

Mr. Mark Keeley, P.T.P.
Traffic Concepts, Inc.
7525 Connelley Dr
Hanover, MD 21054

Dear Mr. Keeley,

The enclosed Traffic Impact Study (TIS) review letter for the **Royal Farms Store #463 – Wyoming Woodside** (Tax Parcels: 7-00-111.10-01-24.00-00001 through 27.00-00001, 7-00-111.10-01-30.00-00001, 7-00-111.10-01-31.00-00001, and 7-00-111.10-01-52.00-00001) 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 Group Project Engineer

AF:km
Enclosures
cc with enclosures: Bill Mortorff, Royal Farms
Theresa Colombo, KCI Technologies, Inc
Rhiannon Sayles, KCI Technologies, Inc
Jama Carey, Traffic Concepts, Inc
Kris Connelly, Kent County Planning and Zoning
Andrew J. Parker, McCormick Taylor, Inc.
Tucker Smith, McCormick Taylor, Inc.
DelDOT Distribution

DelDOT

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Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary / Director, Transportation Solutions (DOTS)
Mark Luszcz, Deputy Director, DelDOT Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, DelDOT Traffic, DOTS
Sean Humphrey, Traffic Engineer, DelDOT Traffic, DOTS
Matthew Lichtenstein, Central District Engineer, Central District
Steve McCabe, Central District Public Works Manager, Central District
Jared Kaufman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Pamela Steinebach, Director, Planning
Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
Will Mobley, Acting Kent County Review Coordinator, Development Coordination
Josh Schwartz, Subdivision Reviewer, Development Coordination
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Sireen Muhtaseb, TIS Group Manager, Development Coordination
Ben Fisher, TIS Group Engineer, Development Coordination
Steve Bayer, Regional Transportation Planner, Statewide & Regional Planning

August 15, 2024

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

RE: Agreement No. 1946F
Traffic Impact Study Services
Task No. 4A Subtask 23 – Royal Farms No. 463 – Wyoming Woodside

Dear Ms. Muhtaseb:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Royal Farms Store No. 463 – Wyoming Woodside development prepared by Traffic Concepts, Inc., dated August 22, 2023. Traffic Concepts, Inc. prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the proposed Royal Farms Store No. 463 – Wyoming Woodside development, proposed to be located at the southeast corner of the intersection of US Route 13 (S. DuPont Highway) and Walnut Shade Road (Kent Road 30) in Kent County, Delaware. The proposed site would consist of a 5,154 square-foot convenience store with 16 vehicle fueling positions and 21,045 square feet of additional retail space. The proposed Royal Farms would replace existing several commercial buildings on the site, which would be razed. Two unsignalized access points are proposed; one full access on Walnut Shade Road and one rights-in/rights-out access on northbound US Route 13. Construction of the proposed Royal Farms is anticipated to be complete in 2026.

The subject land is located on an approximately 8.06-acre assemblage of parcels. The land is currently split zoned BG (General Business) and AR (Agricultural Residential) in Kent County, and the developer plans to rezone the AR portion to BG.

Currently, there is one initiative and two active DelDOT Capital projects within the study area.

The initiative is DelDOT's Corridor Capacity Preservation Program (CCPP), a statewide program intended to sustain the through capacity of adopted highway corridors by various means such as limiting access points and using service roads for local vehicle trips. The general purpose of the program is to ensure that existing principal arterial roadways, including this section of US Route 13, are able to efficiently carry regional traffic without impedance from the effects of local development. The first active project below (the HEP project) is tied to goals of the CCPP. Per guidance in the CCPP pertaining to Investment Level 2 areas, DelDOT will allow the proposed development to have direct access (right-in/right-out) on US Route 13. This is because if the access on Walnut Shade Road were to be the only access for the site, that may lead to safety and operational issues at the signalized intersection of US Route 13 and Walnut Shade Road as well

as on the section of Walnut Shade Road immediately east of US Route 13. The CCPP states that, in an Investment Level 1 or 2 area, no direct access to the corridor (US Route 13) will be permitted if the property has reasonable alternative access to a secondary road. Reasonable alternative access is evaluated based on the proposed development's impact on operations or safety of an adjacent intersection. In this case, the alternative access is Site Access A on Walnut Shade Road. Based on analysis in the TIS and this review, when access is prohibited to US Route 13 as opposed to being allowed, the proposed development would add more volume and, for some movements, increased delays and queue lengths on the westbound Walnut Shade Road approach to US Route 13. This is a particular concern since the distance on Walnut Shade Road between US Route 13 and the site entrance is short, at less than 350 feet, and there is already another business access on the north side of Walnut Shade Road in this segment. Additionally, without access to US Route 13, drivers would experience failing operations at the proposed Site Access A approach to Walnut Shade Road. The proposed rights-in/rights-out Site Access B onto US Route 13 is not proposed to be located close to the signal at Walnut Shade Road (it will be 750 feet away) and it will alleviate some of the pressure on Site Entrance A and eliminate the LOS deficiency there. Details on DelDOT's CCPP are available at the following link: https://deldot.gov/Programs/corr_cap/.

The first active DelDOT project is *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* (State Project No. T201800201). This project seeks to widen US Route 13 to provide a third through lane in each direction from south of Walnut Shade Road to Lochmeath Way. This includes the US Route 13 site frontage of the proposed Royal Farms just south of Walnut Shade Road. The intent of this project is to implement safety improvements as identified under the Highway Safety Improvement Program and the Hazard Elimination Program. This project will involve stormwater management facilities, multiple intersection redesigns, traffic signal reconfigurations and multi-modal improvements. The existing crossover on US Route 13 approximately 850 feet south of Walnut Shade Road will be closed as part of this project. Design and right-of-way acquisition are currently underway. Construction was previously anticipated to begin in 2026 and end in 2027, but has been delayed and the current schedule is uncertain. More details, including concept plans for this project, are available at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201800201.

The second active DelDOT project is *Walnut Shade Road, US 13 to Peachtree Run Road* (State Project No. T201800801). This project proposes to upgrade Walnut Shade Road to collector road standards with the installation of a roundabout at the intersection of Walnut Shade Road and Peachtree Run Road and a multi-use path from US Route 13 to Peachtree Run Road. The project is currently in design. Construction is anticipated to begin in late 2024 and be complete by the end of 2025. More details, including concept plans for this project, are available at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201800801.

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 and Agency Scope***	***Situations for which deficiencies occur***
Site Access A and Walnut Shade Road	Unsignalized; DelDOT and Kent County	2026 with development weekday AM and PM – no access on US Route 13 (Case 3a); 2026 with development weekday AM and PM – rights-in but no rights-out on US Route 13 (Case 3b);
US Route 13 and Walnut Shade Road	Signalized; DelDOT only	2023 existing weekday PM (Case 1)
Upper King Road and Lochmeath Way	Unsignalized; Kent County only	2023 existing weekday PM (Case 1); 2026 without development weekday PM (Case 2); 2026 with development weekday PM (Case 3);

Site Access A and Walnut Shade Road (See Recommendation 2 & Table 3, Page 22)
Future LOS deficiencies at this intersection would occur only if there were no egress allowed from the site directly to US Route 13 at Site Access B, which would force all traffic to exit from Site Access A onto Walnut Shade Road. These deficiencies would be mitigated by the access configuration recommended in this review letter (see Items No. 2 and 3 below), which allows rights-out from Site Access B onto US Route 13 and all movements from Site Access A onto Walnut Shade Road. It is noted that Site Access B with rights out onto US Route 13 (a CCPP corridor) is recommended based on the reasoning included in the CCPP description provided on pages 1-2 of this review letter.

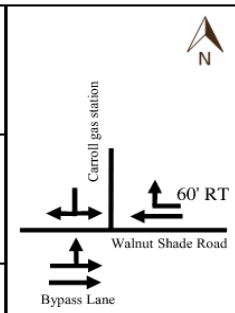
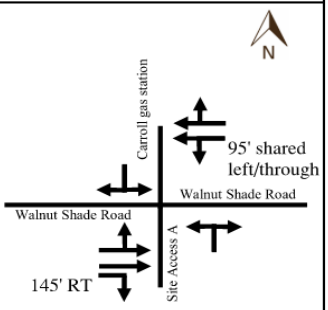
US Route 13 and Walnut Shade Road (See Recommendation 5 and 6 & Table 9, Page 28)
The signalized intersection of US Route 13 and Walnut Shade experiences LOS deficiencies during the PM peak hour under existing conditions, operating at LOS E. However this intersection will be improved by DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project, which will alleviate the LOS deficiencies. As described above, the DelDOT project is currently in the design and right-of-way acquisition phase. The project construction schedule is uncertain. As noted below in Items No. 5 and 6, the developer should make an equitable share contribution towards the DelDOT project and should enter into a traffic signal agreement.

Upper King Road and Lochmeath Road (See Table 13, Page 32)
This unsignalized intersection experiences LOS F conditions on the westbound Lochmeath Road approach in existing and future PM peak hours, with the average delay on that approach increasing from approximately 59 seconds per vehicle in the 2026 opening year without the subject development to approximately 63 seconds per vehicle in the 2026 opening year with the subject development. This intersection is nearly two miles from the site, and the stop-controlled westbound approach experiences only a small increase in delay (less than 5 seconds per vehicle) when traffic from the subject development is added.

Should the County choose to approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan by note or illustration, 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 and Design Deviations approved 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 road(s) on which they front (US Route 13 and Walnut Shade Road), 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 full-movement Site Access A on the south side of Walnut Shade Road across from the Carroll gas station driveway on the north side of Walnut Shade Road. The proposed configuration is shown in the table below.

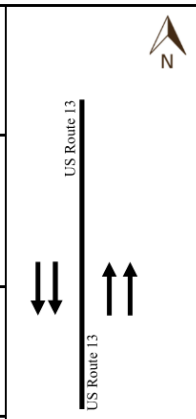
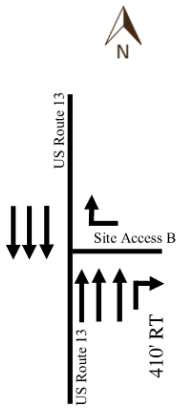
Approach	Current Configuration		Approach	Proposed Configuration	
Northbound	Approach does not exist		Northbound Site Access A	One shared left/ right-turn lane. Stop Control.	
Southbound Carroll gas station access	One shared left/right-turn lane. Stop Control.		Southbound Carroll gas station access	One shared left/ right-turn lane. Stop Control.	
Eastbound Walnut Shade Road	One shared through/left-turn lane and one bypass lane		Eastbound Walnut Shade Road	One shared through/left-turn lane and one through lane (per DelDOT project) and one right-turn lane	
Westbound Walnut Shade Road	One through lane and one right-turn lane		Westbound Walnut Shade Road	One shared through/left-turn lane and one shared through/ right-turn lane (per DelDOT project)	

At the proposed Site Access A intersection, separate turn lanes are warranted on both Walnut Shade Road approaches based on DelDOT's *Auxiliary Lane Worksheet.* Initial recommended minimum turn-lane lengths (excluding tapers) include a 95-foot left-turn lane on westbound Walnut Shade Road and a 145-foot right-turn lane on eastbound Walnut Shade Road. Regarding the westbound left-turn lane, DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project includes a dedicated left-turn lane on westbound Walnut Shade Road at US Route 13 that will begin east of the proposed Site Access A. That left-turn lane will be sufficient to accommodate westbound left turns into the site, as long as the full-width portion of that left-turn lane is constructed to a point at least 95 feet east of Site Access A.

All existing accesses on the south side of Walnut Shade Road between US Route 13 and Merritt Drive should be closed. 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.

Note that the above configuration assumes that the Royal Farms will not open until after improvements on this section of Walnut Shade Road associated with DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project are completed (currently anticipated to be completed no sooner than 2027).

3. The developer should construct the right-in/right-out Site Access B on northbound US Route 13, to be located approximately 750 feet south of Walnut Shade Road. The proposed configuration is shown in the table below.

Approach	Current Configuration		Approach	Proposed Configuration	
Northbound US Route 13	Two through lanes		Northbound US Route 13	Three through lanes (per DelDOT project) and one right-turn lane	
Southbound US Route 13	Two through lanes (separated from northbound lanes by grass median)		Southbound US Route 13	Three through lanes (per DelDOT project) (separated from north-bound lanes by grass median)	
Eastbound	Approach does not exist		Eastbound	Approach does not exist	
Westbound	Approach does not exist		Westbound Site Access B	One right-turn only lane. Stop Control.	

At the proposed Site Access B, a separate right-turn lane is warranted on northbound US Route 13 based on DelDOT's *Auxiliary Lane Worksheet.* The initial recommended minimum turn-lane length (excluding taper) is a 410-foot right-turn lane. The developer should coordinate with DelDOT's Development Coordination Section to determine final turn lane length and other design details during the site plan review.

Note that the above configuration assumes that the Royal Farms will not open until after improvements on this section of US Route 13 associated with DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project are completed (currently anticipated to be completed no sooner than 2027). At all times Site Access B on US Route 13 should be rights-in/rights-out only. Furthermore, the first crossover on US Route 13 south of Walnut Shade Road will be closed as part of the DelDOT project, but regardless of when the DelDOT project is completed the crossover should be closed before Royal Farms opens.

4. The developer should secure perpetual cross-access easements with the adjacent parcels to the south and east of the site. The cross-access easements shall allow those adjacent properties to use the proposed Royal Farms access onto US Route 13. Agriculture, landscaping, signs, and parking may be allowed as a temporary use within the easements. Any future removal or relocation of an item placed within the easement will be the responsibility of the property owner. No structures may be built within these areas.

5. The developer should make an equitable share contribution toward DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project. The amount of the contribution, as determined by DelDOT's Development Coordination Section, should not exceed $129,669.42.

6. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 13 and Walnut Shade Road to account for improvements that may be needed at the signal in conjunction with construction of DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project.

7. The developer should dedicate right of way to DelDOT along the US Route 13 and Walnut Shade Road site frontages as needed for DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project. In that regard, the developer should coordinate with DelDOT's Subdivision Section and DelDOT's Project Development South Section regarding details of the required right of way dedication, the proposed Walnut Shade Road access (Site Access A), the proposed US Route 13 access (Site Access B), and any frontage requirements needed to ensure all aspects are compatible with the latest plans for DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project.

8. The following bicycle, pedestrian and transit 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 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 right-of-way should be dedicated to DelDOT within the site frontages along US Route 13 and Walnut Shade Road. These easements would be beyond the right of way dedication to DelDOT described above in Item No. 7. Within the easements, a minimum of a 10-foot wide shared-use path should be constructed along each site frontage. Each 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 paths 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 all boundaries of the property. They should also coordinate with DelDOT regarding design of all shared-use path as it relates to the ultimate condition that will be constructed by DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project so that facilities can be constructed just once wherever possible. The required shared-use paths on the Royal Farms site frontages are not currently part of the DelDOT project.

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 paths along US Route 13 and Walnut Shade Road.

g. The developer should coordinate with the Delaware Transit Corporation (DTC) regarding the possibility of adding of a bus stop along the US Route 13 and/or Walnut Shade Road site frontage, as Bus Route 117 travels immediately past the site. If a bus stop is desired by DTC, the location and design will need to be coordinated with DelDOT's Subdivision Section and DelDOT's Project Development South Section as it relates to DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project.

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, operational and constructability issues will be further addressed through DelDOT's Plan Review process.

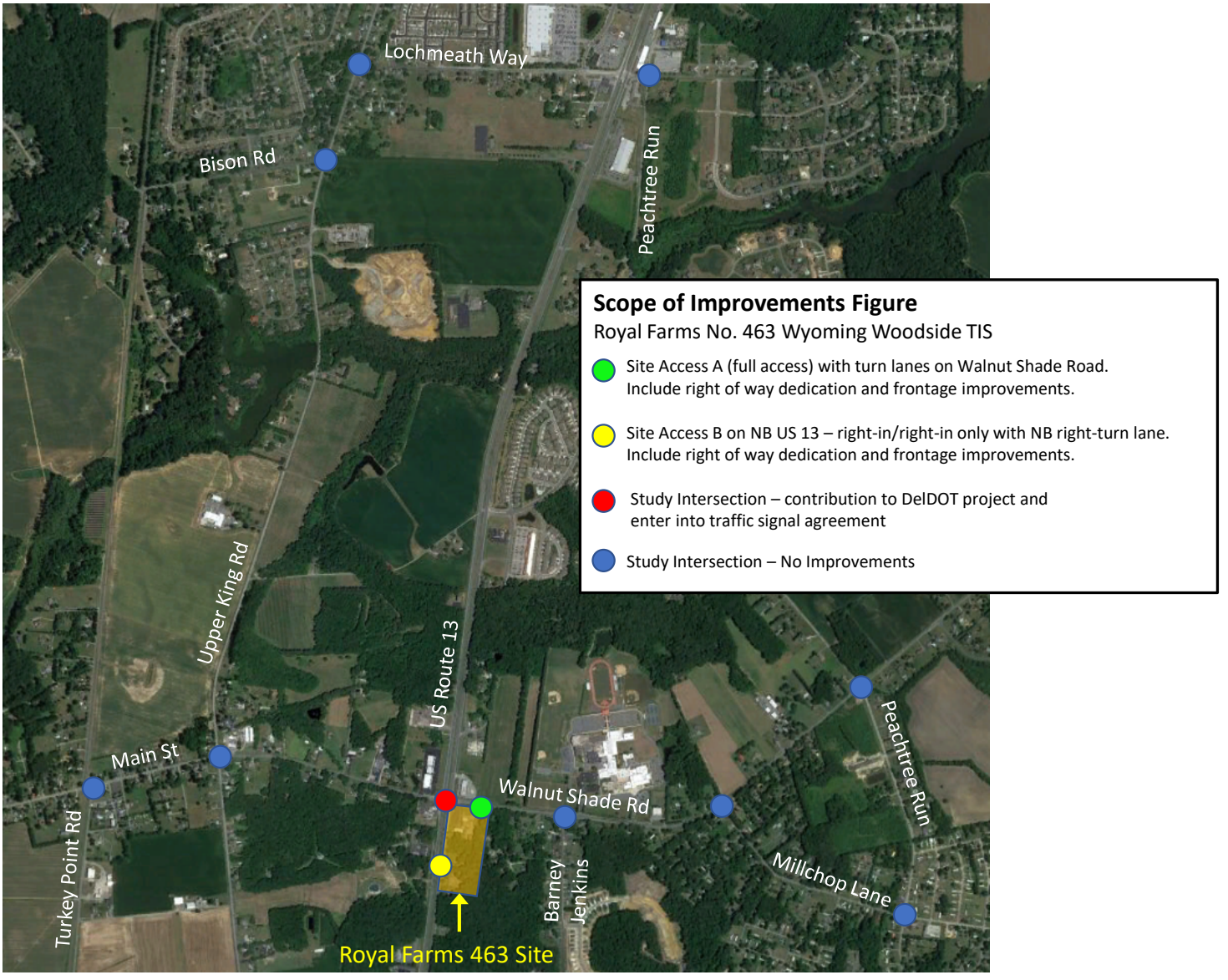
Additional details on our review of this TIS are attached. Please contact me at (610) 640-3500 or through e-mail at ajparker@mccormicktaylor.com if you have any questions concerning this review.

Sincerely,

McCormick Taylor, Inc.

Andrew J. Parker, PE, PTOE
Project Manager

Enclosure



Scope of Improvements Figure

Royal Farms No. 463 Wyoming Woodside TIS

- Site Access A (full access) with turn lanes on Walnut Shade Road. Include right of way dedication and frontage improvements.
- Site Access B on NB US 13 – right-in/right-in only with NB right-turn lane. Include right of way dedication and frontage improvements.
- Study Intersection – contribution to DelDOT project and enter into traffic signal agreement
- Study Intersection – No Improvements

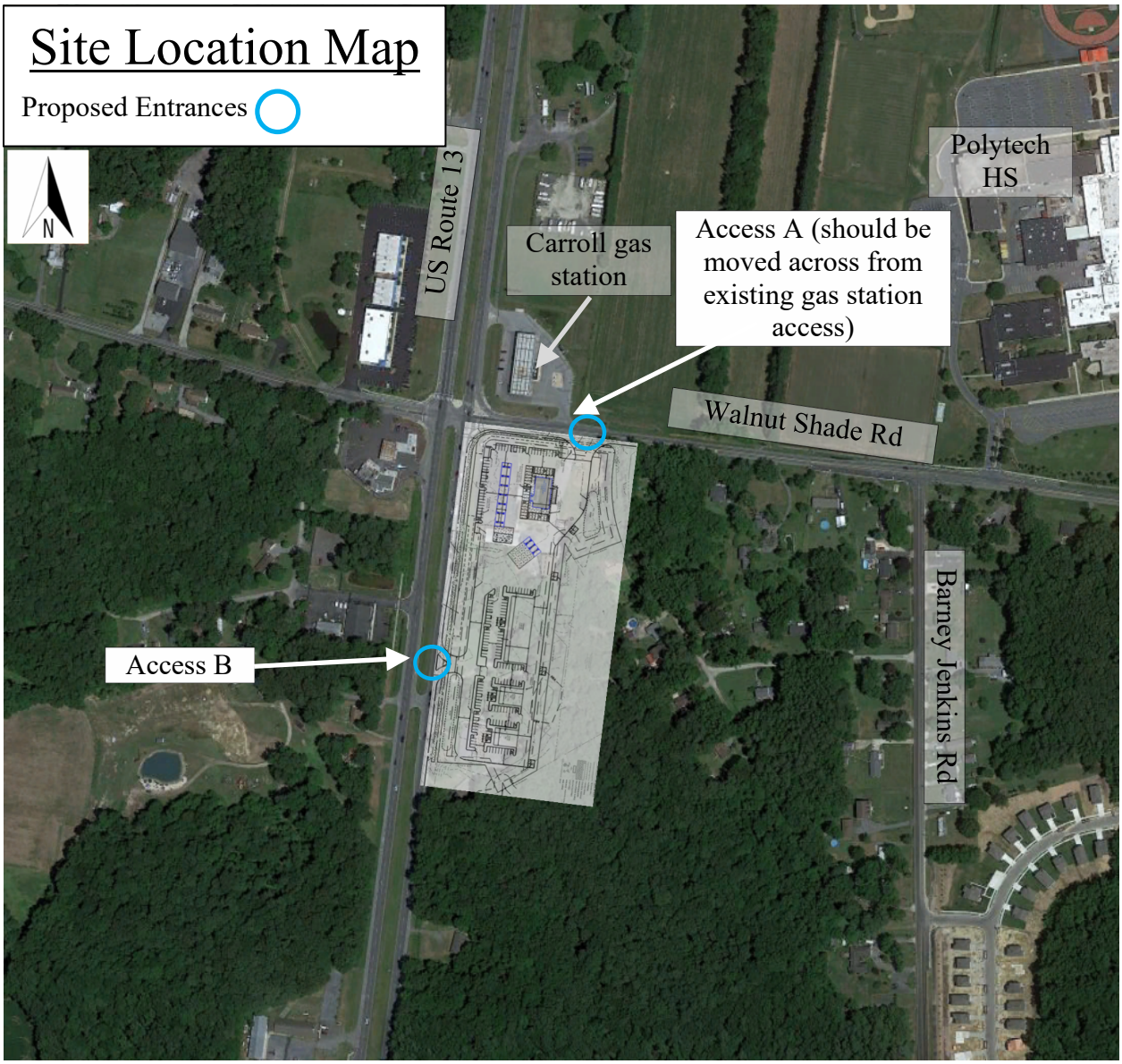
General Information

Report date: August 22, 2023
Prepared by: Traffic Concepts, Inc.
Prepared for: Two Farms, Inc.
Tax parcels: 7-00-111.10-01-24.00-00001, 7-00-111.10-01-25.00-00001, 7-00-111.10-01-26.00-00001, 7-00-111.10-01-27.00-00001, 7-00-111.10-01-30.00-00001, 7-00-111.10-01-31.00-00001, and 7-00-111.10-01-52.00-00001
Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed Royal Farms Store No. 463 – Wyoming Woodside consists of a 5,154 square-foot convenience store with 16 vehicle fueling positions and 21,045 square feet of additional retail space. The proposed Royal Farms would replace existing several commercial buildings on the site, which would be razed.
Location: The site is located at the southeast corner of the intersection of US Route 13 (S. DuPont Highway) and Walnut Shade Road (Kent Road 30) in Kent County, Delaware. A site location map is included on page 11.
Amount of land to be developed: approximately 8.06-acre assemblage of parcels
Land use approval(s) needed: Subdivision approval. The land is currently split zoned BG (General Business) and AR (Agricultural Residential) in Kent County, and the developer plans to rezone the AR portion to BG.
Proposed completion year: 2026
Proposed access locations: Two unsignalized access points are proposed; one full access on Walnut Shade Road and one rights-in/rights-out access on northbound US Route 13.
Daily Traffic Volumes (per DelDOT Traffic Summary 2022):

- 2022 Average Annual Daily Traffic on US Route 13: 29,220 vehicles/day
- 2022 Average Annual Daily Traffic on Walnut Shade Road: 4,522 vehicles/day


Site Location Map
Proposed Entrances
N
US Route 13
Carroll gas station
Access A (should be moved across from existing gas station access)
Polytech HS
Walnut Shade Rd
Barney Jenkins Rd
Access B

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 Store No. 463 development is located within Investment Level 2.

Investment Level 2
This investment level has many diverse characteristics. These areas can be composed of less developed areas within municipalities, rapidly growing areas in the counties that have or will have public water and wastewater services and utilities, areas that are generally adjacent to or near Investment Level 1 Areas, smaller towns and rural villages that should grow consistently with their historic character, and suburban areas with public water, wastewater, and utility services. These areas have been shown to be the most active portion of Delaware's developed landscape. They serve as transition areas between Level 1 and the more open, less populated areas. They generally contain a limited variety of housing types, predominantly detached single-family dwellings.

In Investment Level 2, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity.

Investments should encourage departure from the typical single-family-dwelling developments and promote a broader mix of housing types and commercial sites encouraging compact, mixed-use development where applicable. Overall, the State's intent is to use spending and management tools to promote well-designed development in these areas. Such development provides for a variety of housing types, user-friendly transportation systems, and provides essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community. Investment Level 2 areas are prime locations for designating "pre-permitted areas."

Proposed Development's Compatibility with Strategies for State Policies and Spending:
The proposed Royal Farms Store development falls within Investment Level 2 and is to be developed as convenience store with gas pumps. The proposed development is consistent with the character of Investment Level 2. 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

Kent County Comprehensive Plan:
(Source: Kent County Comprehensive Plan, adopted September 2018)

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

Proposed Development's Compatibility with Comprehensive Plan:
The proposed development appears to comply with the Kent County Comprehensive Plan. The Royal Farms is proposed on land that is planned for Highway Commercial use. The land is

currently split zoned BG (General Business) and AR (Agricultural Residential) in Kent County, and the developer plans to rezone the AR portion to BG.

Relevant Projects in the DelDOT Capital Transportation Program

Currently, there is one initiative and two active DelDOT Capital projects within the study area.

The initiative is DelDOT's Corridor Capacity Preservation Program (CCPP), a statewide program intended to sustain the through capacity of adopted highway corridors by various means such as limiting access points and using service roads for local vehicle trips. The general purpose of the program is to ensure that existing principal arterial roadways, including this section of US Route 13, are able to efficiently carry regional traffic without impedance from the effects of local development. The first active project below (the HEP project) is tied to goals of the CCPP. Per guidance in the CCPP pertaining to Investment Level 2 areas, DelDOT will allow the proposed development to have direct access (right-in/right-out) on US Route 13. This is because if the access on Walnut Shade Road were to be the only access for the site, that may lead to safety and operational issues at the signalized intersection of US Route 13 and Walnut Shade Road as well as on the section of Walnut Shade Road immediately east of US Route 13. The CCPP states that, in an Investment Level 1 or 2 area, no direct access to the corridor (US Route 13) will be permitted if the property has reasonable alternative access to a secondary road. Reasonable alternative access is evaluated based on the proposed development's impact on operations or safety of an adjacent intersection. In this case, the alternative access is Site Access A on Walnut Shade Road. Based on analysis in the TIS and this review, when access is prohibited to US Route 13 as opposed to being allowed, the proposed development would add more volume and, for some movements, increased delays and queue lengths on the westbound Walnut Shade Road approach to US Route 13. This is a particular concern since the distance on Walnut Shade Road between US Route 13 and the site entrance is short, at less than 350 feet, and there is already another business access on the north side of Walnut Shade Road in this segment. Additionally, without access to US Route 13, drivers would experience failing operations at the proposed Site Access A approach to Walnut Shade Road. The proposed rights-in/rights-out Site Access B onto US Route 13 is not proposed to be located close to the signal at Walnut Shade Road (it will be 750 feet away) and it will alleviate some of the pressure on Site Entrance A and eliminate the LOS deficiency there. Details on DelDOT's CCPP are available at the following link: https://deldot.gov/Programs/corr_cap/.

The first active DelDOT project is *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* (State Project No. T201800201). This project seeks to widen US Route 13 to provide a third through lane in each direction from south of Walnut Shade Road to Lochmeath Way. This includes the US Route 13 site frontage of the proposed Royal Farms just south of Walnut Shade Road. The intent of this project is to implement safety improvements as identified under the Highway Safety Improvement Program and the Hazard Elimination Program. This project will involve stormwater management facilities, multiple intersection redesigns, traffic signal reconfigurations and multi-modal improvements. The existing crossover on US Route 13 approximately 850 feet south of Walnut Shade Road will be closed as part of this project. Design and right-of-way acquisition are currently underway. Construction was previously anticipated to begin in 2026 and end in 2027, but has been delayed and the current schedule is uncertain. More details, including concept plans

for this project, are available at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201800201.

The second active DelDOT project is *Walnut Shade Road, US 13 to Peachtree Run Road* (State Project No. T201800801). This project proposes to upgrade Walnut Shade Road to collector road standards with the installation of a roundabout at the intersection of Walnut Shade Road and Peachtree Run Road and a multi-use path from US Route 13 to Peachtree Run Road. The project is currently in design. Construction is anticipated to begin in late 2024 and be complete by the end of 2025. More details, including concept plans for this project, are available at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201800801.

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:

- 5,154 sf Convenience Store with Gas Pumps (ITE Land Use Code 945)
- 21,045 square-foot retail plaza (ITE Land Use Code 822)

Table 1
Royal Farms Store 463 Peak Hour Trip Generation

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
5,145 sf C-Store w/ Gas	190	189	379	160	159	319
Pass-By Trips	144	144	288	120	119	239
Subtotal	46	45	91	40	40	80
21,045 sf Retail Plaza	30	20	50	69	70	139
TOTAL NEW TRIPS	**76**	**65**	**141**	**109**	**110**	**219**

Table 2
Royal Farms Store 463 Daily Trip Generation

Land Use	Weekday ADT		
	In	Out	Total
Overall Site	2,373	2,373	4,746
TOTAL TRIPS	**2,373**	**2,373**	**4,746**

Overview of TIS

Intersections examined:

1) Site Access A & Walnut Shade Road
2) Site Access B & US Route 13
3) Walnut Shade Road & Barney Jenkins Road
4) Walnut Shade Road & Millchop Lane
5) Walnut Shade Road & Peachtree Run
6) Peachtree Run & Millchop Lane
7) US Route 13 & Walnut Shade Road
8) Walnut Shade Road / Main Street & Upper King Road
9) Main Street & Turkey Point Road
10) Upper King Road & Bison Road
11) Upper King Road & Lochmeath Way
12) Peachtree Run & Lochmeath Way

Conditions examined:

1) 2023 Existing (Case 1)
2) 2026 No Build (Case 2)
3) 2026 Build
    a. Case 3a: Full access on Walnut Shade Road only via Site Access A
    b. Case 3b: Full access on Walnut Shade Road via Site Access A and right-in-only access on US Route 13 at Site Access B
    c. Case 3c: Full access on Walnut Shade Road via Site Access A and right-in/right-out access on US Route 13 at Site Access B

Peak hours evaluated: Weekday morning and evening peak hours

Committed developments considered:

1) Woodfield Village: single-family detached houses – 69 units unbuilt
2) Stratford Village: 164 unbuilt units of low-rise multi-family housing
3) Pinehurst Village: single-family detached houses – 55 units unbuilt
4) Knollwood Phase 4: 282 unbuilt single-family detached houses
5) King Property – Residential: 192 unbuilt units of multi-family housing
6) Brookfield Phase IV: 95 unbuilt single-family detached houses

Intersection Descriptions

1) **Site Access A & Walnut Shade Road**
   Type of Control: proposed one-way stop (T-intersection)
   Northbound Approach: (Site Access A) proposed one shared left/right-turn lane, stop controlled
   Eastbound Approach: (Walnut Shade Road) existing one through lane; proposed one dedicated through lane and one shared through/right-turn lane
   Westbound Approach: (Walnut Shade Road) existing one through lane; proposed one dedicated through lane and one shared through/left-turn lane
   Note: *future configuration assumes completion of DelDOT projects*

2) **Site Access B & US Route 13**
   Type of Control: proposed one-way stop (right-in/right-out T-intersection)
   Northbound Approach: (US Route 13) existing two through lanes; proposed three through lanes and one right-turn lane
   Southbound Approach: (US Route 13) existing two through lanes separated from northbound lanes by grass median; proposed three through lanes separated from northbound lanes by grass median
   Westbound Approach: (Site Access B) one right-turn only lane, stop controlled
   Note: *future configuration assumes completion of DelDOT projects*

3) **Walnut Shade Road & Barney Jenkins Road**
   Type of Control: minor stop-controlled T-intersection
   Northbound Approach: (Barney Jenkins Road) existing and proposed one shared left/right-turn lane, stop-controlled
   Eastbound Approach: (Walnut Shade Road) existing one through lane and one right-turn lane; proposed one left-turn lane (for downstream lefts into high school) and one shared through/right-turn lane
   Westbound Approach: (Walnut Shade Road) existing and proposed one shared through/left-turn lane
   Note: *future configuration assumes completion of DelDOT projects*

4) **Walnut Shade Road & Millchop Lane**
   Type of Control: minor stop-controlled T-intersection
   Northbound Approach: (Millchop Lane) one shared left/right-turn lane, stop-controlled
   Eastbound Approach: (Walnut Shade Road) one shared through/right-turn lane
   Westbound Approach: (Walnut Shade Road) one shared through/left-turn lane

5) **Walnut Shade Road & Peachtree Run**
Type of Control: existing all-way stop-controlled intersection; proposed single-lane roundabout
Northbound Approach: (Peachtree Run) one shared left/through/right-turn lane
Southbound Approach: (Peachtree Run) one shared left/through/right-turn lane
Eastbound Approach: (Walnut Shade Road) one shared left/through/right-turn lane
Westbound Approach: (Walnut Shade Road) one shared left/through/right-turn lane
Note: *future configuration assumes completion of DelDOT projects*

6) **Peachtree Run & Millchop Lane**
Type of Control: all-way stop-controlled intersection
Northbound Approach: (Peachtree Run) one shared left/through/right-turn lane, stop-controlled
Southbound Approach: (Peachtree Run) one shared left/through/right-turn lane, stop-controlled
Eastbound Approach: (Millchop Lane) one shared left/through/right-turn lane, stop-controlled
Westbound Approach: (Millchop Lane) one shared left/through/right-turn lane, stop-controlled

7) **US Route 13 & Walnut Shade Road**
Type of Control: signalized 4-legged intersection
Northbound Approach: (US Route 13) existing one left-turn lane, two through lanes and one right-turn lane; proposed one left-turn lane, three through lanes and one right-turn lane
Southbound Approach: (US Route 13) existing one left-turn lane, two through lanes and one right-turn lane; proposed two left-turn lanes, three through lanes and one right-turn lane
Eastbound Approach: (Walnut Shade Road) existing one shared through/left-turn lane and one right-turn lane; proposed one left-turn lane, one through lane and one right-turn lane
Westbound Approach: (Walnut Shade Road) existing one shared through/left-turn lane and one right-turn lane; proposed one dedicated left-turn lane, one shared through/left-turn lane and one right-turn lane
Note: *future configuration assumes completion of DelDOT projects*

8) **Walnut Shade Road / Main Street & Upper King Road**
Type of Control: signalized 4-legged intersection
Northbound Approach: (Upper King Road) one shared left/through/right-turn lane
Southbound Approach: (Upper King Road) one shared left/through/right-turn lane
Eastbound Approach: (Main Street) one shared left/through/right-turn lane
Westbound Approach: (Walnut Shade Road) one shared left/through/right-turn lane

9) **Main Street & Turkey Point Road**
   Type of Control: minor stop-controlled T-intersection
   Northbound Approach: (Turkey Point Road) one shared left/right-turn lane, stop-controlled
   Eastbound Approach: (Main Street) one shared through/right-turn lane
   Westbound Approach: (Main Street) one shared through/left-turn lane

10) **Upper King Road & Bison Road**
   Type of Control: minor stop-controlled T-intersection
   Northbound Approach: (Upper King Road) one shared through/left-turn lane
   Southbound Approach: (Upper King Road) one shared through/right-turn lane
   Eastbound Approach: (Bison Road) one shared left/right-turn lane, stop-controlled

11) **Upper King Road & Lochmeath Way**
   Type of Control: minor stop-controlled T-intersection
   Northbound Approach: (Upper King Road) one shared through/right-turn lane
   Southbound Approach: (Upper King Road) one shared through/left-turn lane
   Westbound Approach: (Lochmeath Way) one shared left/right-turn lane, stop-controlled

12) **Peachtree Run & Lochmeath Way**
   Type of Control: all-way stop-controlled intersection
   Northbound Approach: (Peachtree Run) one shared left/through/right-turn lane, stop-controlled
   Southbound Approach: (Peachtree Run) one shared left/through/right-turn lane, stop-controlled
   Eastbound Approach: (Lochmeath Way) one shared left/through/right-turn lane, stop-controlled
   Westbound Approach: (Lochmeath Way) one shared left/through/right-turn lane, stop-controlled

Safety Evaluation

Crash Data: Delaware Crash Analysis Reporting System (CARS) data was provided in Appendix I of the TIS for the period from March 3, 2020 through March 3, 2023. The crash data shows that a significant number of crashes (15 or more during this three-year period) occurred at the following intersections during that three-year span:

- US Route 13 and Walnut Shade Road: 69 crashes occurred, including 7 with injuries
- Walnut Shade Road / Main Street and Upper King Road: 16 crashes occurred, including 4 with injuries
- Walnut Shade Road and Peachtree Run: 15 crashes occurred, including 1 with injuries
- Millchop Lane and Peachtree Run: 19 crashes occurred, but there were none with injuries

There were no fatalities within the study area during this three-year period.

It is noted that DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project is set to make improvements at the intersection of US Route 13 and Walnut Shade Run, and DelDOT's *Walnut Shade Road, US 13 to Peachtree Run Road* project is set to convert the intersection of Walnut Shade Road and Peachtree Run from an all-way stop-control intersection to a roundabout.

Sight Distance: The study area near the proposed Royal Farms generally consists of relatively straight and flat roadways and there are few visual obstructions. Sight distance appears adequate throughout the study area. No problematic sight distance issues have been reported or indicated by crash data. Any vegetation that could potentially impact sight distance should be cleared and maintained. As always 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) does currently operate fixed-route transit bus services in the area of the proposed Royal Farms development. Route 117 runs along US Route 13 and Walnut Shade Road immediately past the proposed site. There are currently no existing bus stops adjacent to the site frontage. The nearest stops are at Polytech High School (to the east along Walnut Shade Road) and on US Route 13 at Crestwood (approximately one mile south of the site).

Planned transit service: DTC did not respond to a request for comments. We are not aware of any planned changes to nearby transit routes. The developer should install shared-use path along all site frontages of US Route 13 and Walnut Shade Road, and should coordinate with DTC about the possibility of adding a bus stop within one or both site frontages.

Existing bicycle and pedestrian facilities: The following study area roadways are identified as "Bicycling Routes" on the *Kent County Bicycle Map* published by DelDOT:

- US Route 13
  - Connector Bicycle Route with Bikeway
  - Over 5,000 vehicles daily
- Walnut Shade Road
  - Connector Bicycle Route (partially with Bikeway, partially without Bikeway)
- Peachtree Run
  - Connector Bicycle Route without Bikeway
- Upper King Road
  - Connector Bicycle Route with Bikeway
- Turkey Point Road
  - Statewide Bicycle Route without Bikeway

There are pedestrian curb ramps, ped signals and crosswalks at the intersection of US Route 13 and Walnut Shade Road (except across the south leg), and there is a short section of sidewalk on the northwest corner. However, there are no sidewalk connections to the proposed site on the southwest corner. There are bicycle lanes on Walnut Shade Road at the intersection with Barney Jenkins Road and at the accesses for Polytech High School.

Planned bicycle and pedestrian facilities: Based on coordination with Mr. John Fiori, of DelDOT's Statewide and Regional Planning Section, it is required to install 10' wide shared-use path along the site frontages (US Route 13 and Walnut Shade Road). In addition, shared-use path along US Route 13 (north of Walnut Shade Road) along with upgrades to the pedestrian crossings and push buttons at the signalized intersection of US Route 13 & Walnut Shade Road are proposed via DelDOT's *HEP, KC, US 13, Walnut Shade Road to Lochmeath Way* project. A shared-use path will also be installed along the north side of Walnut Shade Road from US Route 13 to Peachtree Run as part of the above project as well as DelDOT's *Walnut Shade Road, US 13 to Peachtree Run Road* project.

Previous Comments

In a review letter dated August 21, 2023, DelDOT indicated that the revised Preliminary TIS was acceptable as submitted, with one change which was made when submitting 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 Analysis Comments
(see table footnotes on the following pages for specific comments)

1) For two-way stop and roundabout intersections, the TIS and McCormick Taylor applied heavy vehicle factors (HV) by movement using existing data. For all-way stop and signalized intersections, the TIS and McCormick Taylor applied HV by lane group using existing data. The TIS and McCormick Taylor assumed future HV of 3% HV for all movements at the proposed site accesses.

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

3) The TIS and McCormick Taylor used different signal timings when analyzing the signalized intersections in some cases.

Table 3
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [1] **One-Way Stop (T-intersection)**	**LOS per TIS**		**LOS per McCormick Taylor**	
Site Access A & Walnut Shade Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 Build Condition (Case 3a)				
Northbound Site Access A	F (75.3)	F (51.6)	F (73.5)	F (50.5)
Westbound Walnut Shade Road – Left	A (9.6)	A (9.2)	A (9.6)	A (9.2)
2026 Build Condition (Case 3b)				
Northbound Site Access A	F (61.2)	E (42.9)	F (59.9)	E (42.2)
Westbound Walnut Shade Road – Left	A (9.3)	A (8.9)	A (9.3)	A (8.9)
2026 Build Condition (Case 3c)				
Northbound Site Access A	D (32.2)	D (25.2)	D (31.8)	C (24.9)
Westbound Walnut Shade Road – Left	A (9.3)	A (8.9)	A (9.3)	A (8.9)

[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.

Table 4
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [2] **One-Way Stop (RIRO intersection)**	**LOS per TIS**		**LOS per McCormick Taylor**	
Site Access B & US Route 13	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 Build Condition (Case 3c)				
Westbound Site Access B – Right	C (20.0)	C (16.7)	C (19.4)	C (16.3)

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

Table 5
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [3] One-Way Stop (T-Intersection)	**LOS per TIS**		**LOS per McCormick Taylor**	
Walnut Shade Road & Barney Jenkins Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)				
Northbound Barney Jenkins Road	C (20.5)	B (14.5)	C (20.5)	B (14.5)
Westbound Walnut Shade Road – Left	A (9.2)	A (8.2)	A (9.2)	A (8.2)
2026 No-Build Condition (Case 2)				
Northbound Barney Jenkins Road	C (22.0)	C (15.5)	C (22.0)	C (15.5)
Westbound Walnut Shade Road – Left	A (9.2)	A (8.3)	A (9.2)	A (8.3)
2026 Build Condition (Case 3a-3b-3c)				
Northbound Barney Jenkins Road	C (24.4)	C (17.0)	C (24.3)	C (16.9)
Westbound Walnut Shade Road – Left	A (9.3)	A (8.5)	A (9.3)	A (8.5)

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

Table 6
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [4] One-Way Stop (T-Intersection)	**LOS per TIS**		**LOS per McCormick Taylor**	
Walnut Shade Road & Millchop Lane	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)				
Northbound Millchop Lane	B (14.8)	B (11.8)	C (17.3)	B (13.5)
Westbound Walnut Shade Road – Left	A (7.7)	A (7.9)	A (7.7)	A (7.9)
2026 No-Build Condition (Case 2)				
Northbound Millchop Lane	C (16.1)	B (12.2)	C (18.6)	B (13.9)
Westbound Walnut Shade Road – Left	A (7.7)	A (8.0)	A (7.7)	A (8.0)
2026 Build Condition (Case 3a-3b-3c)				
Northbound Millchop Lane	C (17.5)	B (13.0)	C (20.0)	B (14.7)
Westbound Walnut Shade Road – Left	A (7.8)	A (8.1)	A (7.8)	A (8.1)

[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.

Table 7
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [5] **All-Way Stop**	**LOS per TIS**		**LOS per McCormick Taylor**	
Walnut Shade Road & Peachtree Run	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)				
Northbound Peachtree Run	B (12.6)	B (13.4)	B (12.6)	B (13.4)
Southbound Peachtree Run	A (9.2)	B (13.2)	A (9.2)	B (13.2)
Eastbound Walnut Shade Road	A (9.6)	B (11.1)	A (9.6)	B (11.1)
Westbound Walnut Shade Road	B (10.5)	B (12.4)	B (10.5)	B (12.4)
Overall Intersection	B (11.2)	B (12.8)	B (11.2)	B (12.8)

Unsignalized Intersection [6] **Roundabout**	**LOS per TIS**		**LOS per McCormick Taylor**	
Walnut Shade Road & Peachtree Run	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 No-Build Condition (Case 2)				
Northbound Peachtree Run	A (7.2)	A (6.4)	A (7.2)	A (6.4)
Southbound Peachtree Run	A (4.3)	A (7.4)	A (4.3)	A (7.4)
Eastbound Walnut Shade Road	A (3.9)	A (6.2)	A (3.9)	A (6.2)
Westbound Walnut Shade Road	A (6.7)	A (6.7)	A (6.7)	A (6.7)
Overall Intersection	A (6.3)	A (6.7)	A (6.3)	A (6.7)
2026 Build Condition (Case 3a-3b-3c)				
Northbound Peachtree Run	A (7.3)	A (6.5)	A (7.3)	A (6.5)
Southbound Peachtree Run	A (4.4)	A (7.6)	A (4.4)	A (7.6)
Eastbound Walnut Shade Road	A (3.9)	A (6.5)	A (3.9)	A (6.5)
Westbound Walnut Shade Road	A (6.8)	A (6.9)	A (6.8)	A (6.9)
Overall Intersection	A (6.4)	A (6.9)	A (6.4)	A (6.9)

[5] For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 8
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [6] **All-Way Stop**	**LOS per TIS**		**LOS per McCormick Taylor**	
Peachtree Run & Millchop Lane	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)				
Northbound Peachtree Run	B (14.7)	B (11.8)	B (14.7)	B (11.8)
Southbound Peachtree Run	A (8.7)	B (11.3)	A (8.7)	B (11.3)
Eastbound Millchop Lane	A (9.0)	A (9.9)	A (9.0)	A (9.9)
Westbound Millchop Lane	A (9.2)	A (9.5)	A (9.2)	A (9.5)
Overall Intersection	B (12.7)	B (11.0)	B (12.7)	B (11.0)
2026 No-Build Condition (Case 2)				
Northbound Peachtree Run	C (21.8)	C (15.0)	C (21.8)	C (15.0)
Southbound Peachtree Run	A (9.4)	B (14.7)	A (9.4)	B (14.7)
Eastbound Millchop Lane	A (9.6)	B (11.0)	A (9.6)	B (11.0)
Westbound Millchop Lane	A (9.8)	B (10.5)	A (9.8)	B (10.5)
Overall Intersection	C (17.6)	B (13.8)	C (17.6)	B (13.8)
2026 Build Condition (Case 3a-3b-3c)				
Northbound Peachtree Run	C (23.5)	C (16.1)	C (23.5)	C (16.1)
Southbound Peachtree Run	A (9.5)	C (15.3)	A (9.5)	C (15.3)
Eastbound Millchop Lane	A (9.8)	B (11.5)	A (9.8)	B (11.5)
Westbound Millchop Lane	B (10.0)	B (10.8)	A (10.0-)	B (10.8)
Overall Intersection	C (18.7)	B (14.5)	C (18.7)	B (14.5)

[6] For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 9
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Signalized Intersection [7]	**LOS per TIS**		**LOS per McCormick Taylor**	
US Route 13 & Walnut Shade Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)	D (53.5)	E (61.8)	D (53.4)	E (57.9)
2026 No-Build Condition (Case 2)	D (43.6)	D (43.8)	D (35.8)	D (38.4)
2026 Build Condition (Case 3a)	D (40.8)	D (42.7)	D (41.0)	D (43.5)
2026 Build Condition (Case 3b)	D (40.8)	D (42.8)	D (41.2)	D (43.7)
2026 Build Condition (Case 3c)	D (42.0)	D (42.9)	D (41.3)	D (43.9)

[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.

Table 10
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Signalized Intersection [8]	**LOS per TIS**		**LOS per McCormick Taylor**	
Walnut Shade Road / Main Street & Upper King Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)	B (17.8)	B (18.0)	B (17.8)	B (18.0)
2026 No-Build Condition (Case 2)	B (17.9)	B (18.1)	B (17.9)	B (18.1)
2026 Build Condition (Case 3a-3b-3c)	B (17.9)	B (18.1)	B (17.9)	B (18.1)

[8] For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 11
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [9] **One-Way Stop (T-Intersection)**	**LOS per TIS**		**LOS per McCormick Taylor**	
Main Street & **Turkey Point Road**	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)				
Northbound Turkey Point Road	B (14.0)	B (14.2)	B (14.0)	B (14.2)
Westbound Main Street – Left	A (8.1)	A (8.1)	A (8.1)	A (8.1)
2026 No-Build Condition (Case 2)				
Northbound Turkey Point Road	B (14.2)	B (14.4)	B (14.2)	B (14.4)
Westbound Main Street – Left	A (8.1)	A (8.1)	A (8.1)	A (8.1)
2026 Build Condition (Case 3a-3b-3c)				
Northbound Turkey Point Road	B (14.5)	B (14.8)	B (14.5)	B (14.7)
Westbound Main Street – Left	A (8.2)	A (8.1)	A (8.2)	A (8.1)

[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.

Table 12
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [10] One-Way Stop (T-Intersection)	**LOS per TIS**		**LOS per McCormick Taylor**	
Upper King Road & Bison Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)				
Northbound Upper King Road - Lefts	A (7.7)	A (8.7)	A (7.7)	A (8.7)
Eastbound Bison Road	B (14.6)	C (18.4)	B (14.6)	C (18.4)
2026 No-Build Condition (Case 2)				
Northbound Upper King Road - Lefts	A (7.7)	A (8.7)	A (7.7)	A (8.7)
Eastbound Bison Road	B (14.8)	C (18.7)	B (14.8)	C (18.7)
2026 Build Condition (Case 3a-3b-3c)				
Northbound Upper King Road - Lefts	A (7.7)	A (8.7)	A (7.7)	A (8.7)
Eastbound Bison Road	B (14.9)	C (19.0)	B (14.9)	C (18.9)

[10] For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 13
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [11] One-Way Stop (T-Intersection)	**LOS per TIS**		**LOS per McCormick Taylor**	
Upper King Road & Lochmeath Way	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)				
Southbound Upper King Road - Lefts	A (8.4)	A (8.3)	A (8.4)	A (8.3)
Westbound Lochmeath Way	B (14.1)	F (59.5)	B (14.0)	F (53.2)
2026 No-Build Condition (Case 2)				
Southbound Upper King Road - Lefts	A (8.4)	A (8.3)	A (8.4)	A (8.3)
Westbound Lochmeath Way	B (14.3)	F (66.5)	B (14.2)	F (58.8)
2026 Build Condition (Case 3a-3b-3c)				
Southbound Upper King Road - Lefts	A (8.4)	A (8.4)	A (8.4)	A (8.4)
Westbound Lochmeath Way	B (14.4)	F (71.4)	B (14.4)	F (62.6)

[11] For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 14
Peak Hour Levels of Service (LOS)
Based on Royal Farms # 463 Traffic Impact Study – August 2023
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection [12] **All-Way Stop**	**LOS per TIS**		**LOS per McCormick Taylor**	
Peachtree Run & Lochmeath Way	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 Existing (Case 1)				
Northbound Peachtree Run	B (13.2)	B (14.0)	B (13.2)	B (14.0)
Southbound Peachtree Run	A (8.8)	B (10.9)	A (8.8)	B (10.9)
Eastbound Lochmeath Way	A (9.3)	B (12.6)	A (9.3)	B (12.6)
Westbound Lochmeath Way	A (9.3)	B (10.4)	A (9.3)	B (10.4)
Overall Intersection	B (11.4)	B (12.5)	B (11.4)	B (12.5)
2026 No-Build Condition (Case 2)				
Northbound Peachtree Run	C (17.4)	C (19.8)	C (17.4)	C (19.8)
Southbound Peachtree Run	A (9.5)	B (13.3)	A (9.5)	B (13.3)
Eastbound Lochmeath Way	B (10.3)	C (19.1)	B (10.3)	C (19.1)
Westbound Lochmeath Way	B (10.6)	B (12.6)	B (10.6)	B (12.6)
Overall Intersection	B (14.1)	C (17.3)	B (14.1)	C (17.3)
2026 Build Condition (Case 3a-3b-3c)				
Northbound Peachtree Run	C (17.6)	C (20.1)	C (17.6)	C (20.1)
Southbound Peachtree Run	A (9.5)	B (13.4)	A (9.5)	B (13.4)
Eastbound Lochmeath Way	B (10.4)	C (19.6)	B (10.4)	C (19.6)
Westbound Lochmeath Way	B (10.7)	B (12.8)	B (10.7)	B (12.8)
Overall Intersection	B (14.2)	C (17.6)	B (14.2)	C (17.6)

[12] 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.