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

JENNIFER COHAN
SECRETARY

October 18, 2019

Mr. Christopher Duke
Becker Morgan Associates, Inc.
250 South Main Street
Newark, DE 19711

Dear Mr. Duke:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Royal Farms #219 – Georgetown** (Tax Parcel #135-19.00-67.00) 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 review letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2167.

Sincerely,

Troy Brestel
Project Engineer

TEB:km
Enclosures
cc with enclosures: Mr. J. Michael Riemann, Becker Morgan Group, Inc.
Ms. Constance C. Holland, Office of State Planning Coordination
Mr. Eugene Dvornick, Town Manager, Town of Georgetown
Mr. Andrew Parker, McCormick Taylor, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Brad Eaby, Deputy Attorney General
Shanté Hastings, Director, Transportation Solutions (DOTS)
Drew Boyce, Director, Planning
Mark Luszcz, Deputy Director, Transportation Solutions (DOTS)
Michael Simmons, Assistant Director, Project Development South, DOTS
J. Marc Coté, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Alastair Probert, South District Engineer, South District
Gemez Norwood, South District Public Works Manager, South District
Susanne Laws, Sussex Subdivision Coordinator, Development Coordination
David Dooley, Service Development Planner, Delaware Transit Corporation
Mark Galipo, Traffic Engineer, Traffic, DOTS
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Derek Sapp, Subdivision Manager, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination

McCORMICK TAYLOR

October 16, 2019

Mr. Troy E. Brestel
Project Engineer
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1773
Traffic Impact Study Services
Task No. 1A Subtask 1A – Royal Farms 219 Georgetown

Dear Mr. Brestel:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for Royal Farms 219 Georgetown prepared by Becker Morgan Group, Inc. dated June 2019. Becker Morgan Group prepared the report in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a Royal Farms convenience store, proposed to be located on the southeast corner of US Route 113 (DuPont Boulevard / Sussex Road 113) and Arrow Safety Road (Sussex Road 87), within the Town of Georgetown in Sussex County, Delaware. The proposed development would consist of a 5,154 square-foot Royal Farms convenience store supplemented by gas fueling stations on a 24.02 acre parcel. Two access points are proposed; one full-movement access along Arrow Safety Road and one right-in/right-out access along northbound US Route 113. Construction is anticipated to be completed by 2022.

The land is currently split-zoned HC (Highway Commercial) and LI-2 (Light Industrial) within the Town of Georgetown, and the developer does not plan to rezone the land.

DelDOT has two projects within the study area. DelDOT's Park Avenue Relocation Phase 1 project (State Contract No. T201304601) involves upgrading Park Avenue (Sussex Road 318), a designated truck bypass through Georgetown, with appropriate turn lanes, shoulders, and intersection improvements. Specifically, this project would relocate Park Avenue to create a fourth leg at the intersection of South Bedford Street (Sussex Road 431) and Arrow Safety Road; widen Arrow Safety Road to provide shoulders and sign it as the truck route; provide a dedicated right-turn lane on westbound Arrow Safety Road at the intersection of US Route 113; and provide a roundabout at the intersection of South Bedford Street and Arrow Safety Road / Park Avenue. This project is currently in the design and planning stage. Construction of Phase 1 is anticipated to begin in the fall of 2022.

The second project is the US 113 North / South Study, which aims to make various improvements throughout the US Route 113 corridor from the Maryland state line in Selbyville to Delaware Route 1, north of Milford. This proposed Royal Farms site is within the Georgetown area of the project. A grade-separated intersection has been recommended at the intersection of US Route 113

and Arrow Safety Road through the Georgetown Area Environmental Assessment. The current plan, which is subject to change, proposes a half-diamond interchange with ramps in the northeast and northwest quadrants of the intersection. With the Royal Farms site located in the southeast quadrant of the intersection, the main concern at this time regarding impact of the plan on Royal Farms would be the potential grade differential of the access on Arrow Safety Road. However, depending on how the US 113 North / South Study project evolves, it is possible that the final selected plan for modification of the intersection of US Route 113 and Arrow Safety Road will have a greater and more direct impact on the Royal Farms site. Potentially the impacts could include, but are not necessarily limited to, eliminating access to the site. DelDOT has stated that design for this grade separation is not anticipated to begin until at least 2024.

The proposed development is also subject to the 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 113, are able to efficiently carry regional traffic without impedance from the effects of local development. As proposed, the development appears to comply with the CCPP.

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

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

Intersection	***Existing Traffic Control***	***Situations for which deficiencies occur***
US Route 113 and Arrow Safety Road	Signalized	2022 Saturday without and with Royal Farms (case 2 & 3)

US Route 113 and Arrow Safety Road

For the projected LOS deficiencies at the signalized intersection of US Route 113 and Arrow Safety Road, it is noted that they are only anticipated to occur under future conditions during the summer Saturday peak hour. When analyzed with improvements planned as part of DelDOT's Park Avenue Relocation Phase 1 project (adding a separate westbound right-turn lane at this intersection), future delays are reduced but the intersection is still anticipated to operate at LOS E during the Saturday peak hour. Additional improvements appear to be necessary to achieve acceptable LOS. Based on projected future volumes that include traffic generated by other planned developments including Whispering Breeze, a separate eastbound right-turn lane would alleviate the LOS deficiencies. However, the eastbound right-turn lane is needed specifically to address the volume increase on the eastbound approach directly attributed to Whispering Breeze traffic. It is not needed until the planned Whispering Breeze development is built, and it is not appropriate to construct that turn lane until that time. While the Royal Farms developer is not required to

construct the eastbound right-turn lane, there are other improvements at this intersection that this developer is required to implement and/or contribute towards as described in Item Nos. 3-5.

It is also important to note that Phase 1 of the Park Avenue Relocation Project is currently anticipated to go to construction in fall of 2022, while the Royal Farms project is anticipated to be complete in 2022. Coordination between the developer, DelDOT, and the Town of Georgetown is critical to ensure acceptable design and operations of the intersection and site accesses as the Royal Farms project is constructed and opens to traffic.

Should the Town of Georgetown 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. 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 should construct Site Access A on Arrow Safety Road, as far east of US Route 113 as possible. The proposed configuration is shown in the table below.

Approach	Current Configuration	Proposed Configuration
Northbound Site Access A	Does not exist	One shared left-turn/right-turn lane
Eastbound Arrow Safety Road	One through lane	One through lane and one right-turn lane
Westbound Arrow Safety Road	One through lane	One left-turn lane and one through lane

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

Approach	Left-Turn Lane	Right-Turn Lane
Northbound Site Access A	N/A	N/A
Eastbound Arrow Safety Road	N/A	240 feet *
Westbound Arrow Safety Road	160 feet *	N/A

* Turn-lane length based on DelDOT's *Auxiliary Lane Worksheet*

2. The developer should construct Site Access B on US Route 113, approximately 425 feet south of Arrow Safety Road. The proposed configuration is shown in the table below.

Approach	Current Configuration	Proposed Configuration
Northbound US Route 113	Two through lanes	Two through lanes and one right-turn lane
Southbound US Route 113	Two through lanes, separated from northbound lanes by grass median	Two through lanes, separated from northbound lanes by grass median
Westbound Site Access B	Does Not Exist	One right-turn lane

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

Approach	Left-Turn Lane	Right-Turn Lane
Northbound US Route 113	N/A	365 feet *
Southbound US Route 113	N/A	N/A
Westbound Site Access B	N/A	N/A

* Turn-lane length based on DelDOT's *Auxiliary Lane Worksheet*.

3. The developer should coordinate with DelDOT regarding an equitable share contribution toward DelDOT's Park Avenue Relocation Phase 1 project. The amount of the contribution should be determined through coordination with DelDOT's Development Coordination Section. The developer should also coordinate with DelDOT regarding the design of site accesses, associated turn lanes, and all bicycle and pedestrian facilities to ensure they are acceptable and integrated into the design of the DelDOT project as appropriate.

4. The developer should improve the signalized intersection of US Route 113 and Arrow Safety Road by adding pedestrian signals along with ADA-compliant curb ramps and crosswalks. The developer should coordinate with DelDOT's Development Coordination Section and Traffic Section to determine details regarding design and implementation of the pedestrian signalization. Design of the pedestrian facilities must be coordinated with design of DelDOT's Park Avenue Relocation Phase 1 project. The future curb ramp to be constructed on the southeast corner of the intersection should connect with shared-use path to be constructed along the Royal Farms site frontage as described in Item No. 7.e.

5. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 113 and Arrow Safety Road, in association with the physical improvements described in Item No. 4 and other modifications to be constructed at this intersection by DelDOT's Park Avenue Relocation Phase 1 project. The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion.

6. The developer should install roadway lighting along the US Route 113 site frontage. The developer should coordinate with DelDOT's Development Coordination Section and Traffic Section to determine design details and implementation requirements for the roadway lighting.

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

   a. Adjacent to the proposed right-turn lanes on northbound US Route 113 and eastbound Arrow Safety Road at the proposed site entrances, a minimum of a five-foot bicycle lane should be dedicated and striped with appropriate markings for bicyclists through the turn lane in order to facilitate safe and unimpeded bicycle travel.

   b. Appropriate bicycle symbols, directional arrows, pavement markings, and signing should be included along bicycle facilities and turn lanes within the project limits.

   c. Utility covers should be made flush with the pavement.

   d. A minimum 15-foot wide easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontage along US Route 113 and Arrow Safety Road.

   e. Within the easements along US Route 113 and Arrow Safety Road, a minimum of a ten-foot wide shared-use path that meets current AASHTO and ADA standards should be constructed along each site frontage. Each shared-use path should have a minimum of a five-foot buffer from the roadway. Each shared-use path should connect to the adjacent property or to the shoulder in accordance with DelDOT's *Shared-Use Path and/or Sidewalk Termination Reference Guide* dated August 1, 2018. The developer should coordinate with DelDOT's Development Coordination Section to determine exact locations and details of the shared-use path connections at the property boundaries. The shared-use paths must connect to the required ADA-compliant curb ramp to be constructed on the southeast corner of the signalized intersection of US Route 113 and Arrow Safety Road, as described in Item No. 4.

   f. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings within the development. Type 3 curb ramps are discouraged.

g. Internal sidewalks for pedestrian safety should be constructed within the development. These sidewalks should each be a minimum of five feet wide and should meet current AASHTO and ADA standards. These internal sidewalks should connect to the proposed shared-use paths along US Route 113 and Arrow Safety Road.

h. Where internal sidewalks are located alongside of parking spaces, a buffer should be added to prevent vehicular overhang onto the sidewalk.

i. The developer should coordinate with the Delaware Transit Corporation (DTC) regarding the possibility of including a bus stop to be located within the site frontage along US Route 113.

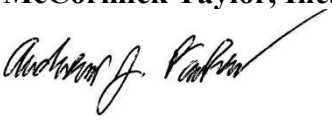
Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at http://deldot.gov/Publications/manuals/de_mutcd/index.shtml.

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

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

Sincerely,

McCormick Taylor, Inc.



Andrew J. Parker, P.E., PTOE
Project Manager

Enclosure

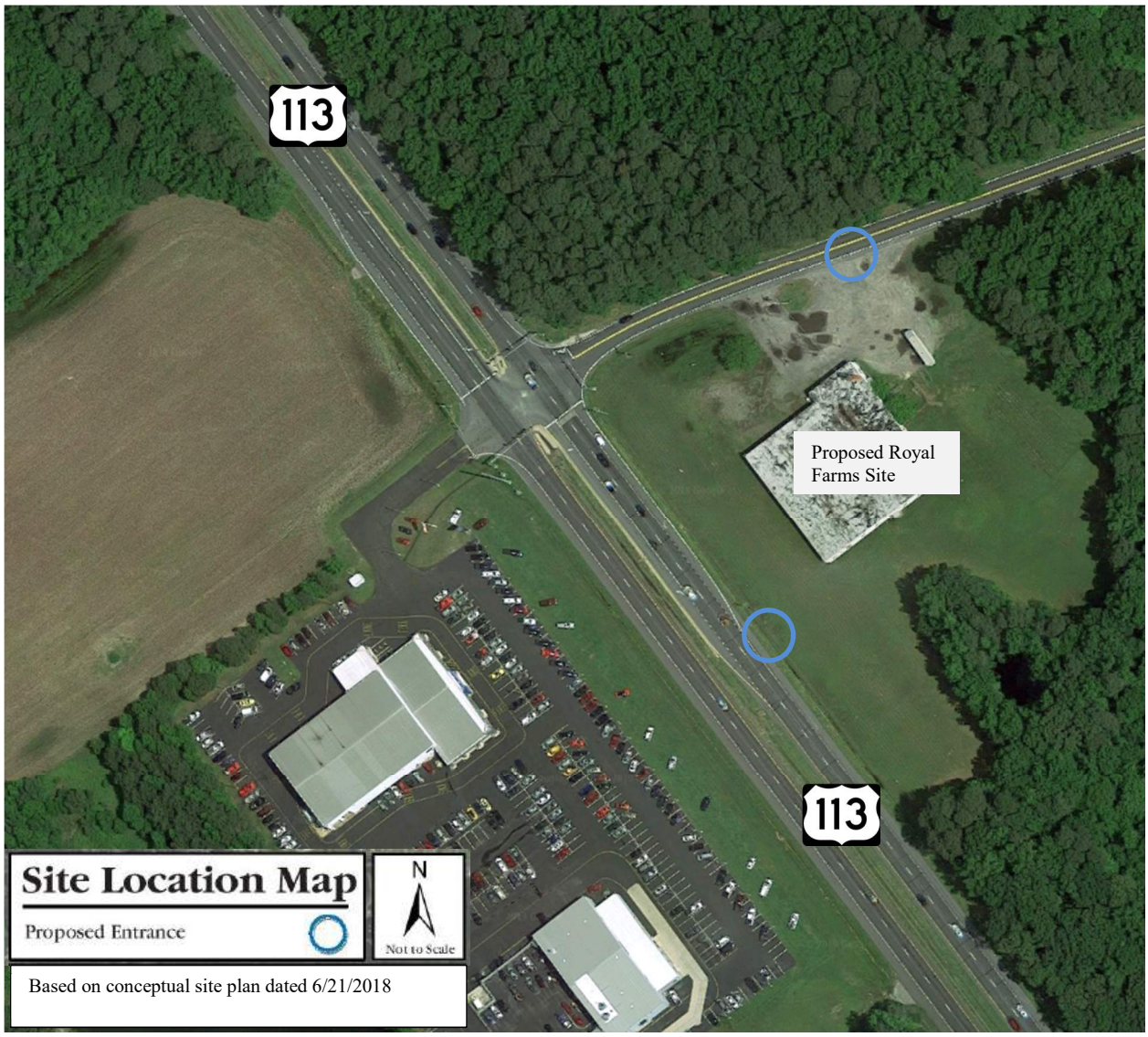
General Information

Report date: June 2019
Prepared by: Becker Morgan Group, Inc.
Prepared for: Two Farms, Inc.
Tax parcel: 135-19.00-67.00
Generally consistent with DelDOT's *Development Coordination Manual*: Yes

Project Description and Background

Description: The proposed development would consist of a 5,154 square-foot Royal Farms convenience store supplemented by gas fueling stations.
Location: The Royal Farms is proposed to be located on the southeast corner of US Route 113 (DuPont Boulevard / Sussex Road 113) and Arrow Safety Road (Sussex Road 87), within the Town of Georgetown in Sussex County, Delaware. A site location map and concept plan are included on pages 8 and 9.
Amount of land to be developed: approximately 24.02 acres
Land use approval(s) needed: Subdivision approval. The land is currently split-zoned HC (Highway Commercial) and LI-2 (Light Industrial) within the Town of Georgetown, and the developer does not plan to rezone the land.
Proposed completion date: 2022
Proposed access locations: Two access points are proposed; one full-movement access along Arrow Safety Road and one right-in/right-out access along northbound US Route 113.
Daily Traffic Volumes (per DelDOT Traffic Summary 2017):

- 2017 Average Annual Daily Traffic on US Route 113: 30,648 vpd
- 2017 Average Annual Daily Traffic on Arrow Safety Road: 2,584 vpd


113
Proposed Royal Farms Site
113
Site Location Map
Proposed Entrance
N
Not to Scale
Based on conceptual site plan dated 6/21/2018


ARROW SAFETY ROAD
COUNTY ROAD #87
U.S. ROUTE 113
ROYAL FARMS
STORE No. 219
U.S. ROUTE 113 &
ARROW SAFETY ROAD
TOWN OF GEORGETOWN
SUSSEX COUNTY, DE
CONCEPT PLAN
1 OF 3

Figure I-1

2015 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 is located within Investment Levels 2 and 3.

Investment Level 2

Investment Level 2 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 state's more open, less populated areas. They generally contain a limited variety of housing types, predominantly detached single-family dwellings.

In Investment Level 2 Areas, like Investment Level 1 Areas, 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 its 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. Level 2 Areas would be a prime location for designating "pre-permitted areas."

Investment Level 3

Investment Level 3 areas fall into two categories. The first category covers land that is in the long-term growth plans of counties or municipalities, but where development is not necessary to accommodate expected short-term population growth. The second category includes lands that are adjacent to fast growing Investment Level 1 and 2 areas but are often impacted by environmentally sensitive features, agricultural-preservation issues, or other infrastructure issues. From a housing perspective, Investment Level 3 areas are characterized by low density and rural homes.

Proposed Development's Compatibility with Strategies for State Policies and Spending: The proposed Royal Farms is comprised of a 5,154 square-foot convenience store supplemented by gas fueling stations and is located within Investment Levels 2 and 3. Investment Levels 2 and 3 reflect areas where growth is anticipated by local, county, and State plans. As such, the proposed development generally appears to comply with the guidelines of Investment Level 2 and 3 areas as described in the 2015 "Strategies for State Policies and Spending."

Comprehensive Plan

Sussex County Comprehensive Plan:
(Source: Sussex County Comprehensive Plan Update, June 2008)

The Sussex County Comprehensive Plan Future Land Use Map indicates that the proposed Royal Farms is in the Town of Georgetown, a municipality. Sussex County strongly favors directing development to municipalities that desire it. The specific permitted uses and densities governing new construction within an incorporated municipality will continue to be governed by that municipality's zoning ordinance, its public water and sewer capacities, and its comprehensive planning policies.

Town of Georgetown Comprehensive Plan:
(Source: Town of Georgetown Comprehensive Plan, January 2010)

The Town of Georgetown's Comprehensive Plan Future Land Use Map indicates that the proposed Royal Farms site is planned for "Commercial" land use. It would appear that the proposed convenience store with gas pumps fits within the intended land use for this location.

Proposed Development's Compatibility with Comprehensive Plan:
The proposed development appears to comply with the Town of Georgetown's Comprehensive Plan. The Royal Farms is proposed on land that is planned for commercial use, and the land is currently zoned HC (Highway Commercial). The proposed commercial facility generally aligns with both the Future Land Use Map and the existing zoning.

Relevant Projects in the DelDOT Capital Transportation Program

DelDOT has two projects within the study area. DelDOT's Park Avenue Relocation Phase 1 project (State Contract No. T201304601) involves upgrading Park Avenue (Sussex Road 318), a designated truck bypass through Georgetown, with appropriate turn lanes, shoulders, and intersection improvements. Specifically, this project would relocate Park Avenue to create a fourth leg at the intersection of South Bedford Street (Sussex Road 431) and Arrow Safety Road; widen Arrow Safety Road to provide shoulders and sign it as the truck route; provide a dedicated right-turn lane on westbound Arrow Safety Road at the intersection of US Route 113; and provide a roundabout at the intersection of South Bedford Street and Arrow Safety Road / Park Avenue. This project is currently in the design and planning stage. Construction of Phase 1 is anticipated to begin in the fall of 2022.

The second project is the US 113 North / South Study, which aims to make various improvements throughout the US Route 113 corridor from the Maryland state line in Selbyville to Delaware Route 1, north of Milford. This proposed Royal Farms site is within the Georgetown area of the project. A grade-separated intersection has been recommended at the intersection of US Route 113 and Arrow Safety Road through the Georgetown Area Environmental Assessment. The current plan, which is subject to change, proposes a half-diamond interchange with ramps in the northeast and northwest quadrants of the intersection. With the Royal Farms site located in the southeast quadrant of the intersection, the main concern at this time regarding impact of the plan on Royal

Farms would be the potential grade differential of the access on Arrow Safety Road. However, depending on how the US 113 North / South Study project evolves, it is possible that the final selected plan for modification of the intersection of US Route 113 and Arrow Safety Road will have a greater and more direct impact on the Royal Farms site. Potentially the impacts could include, but are not necessarily limited to, eliminating access to the site. DelDOT has stated that design for this grade separation is not anticipated to begin until at least 2024.

The proposed development is also subject to the 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 113, are able to efficiently carry regional traffic without impedance from the effects of local development. As proposed, the development appears to comply with the CCPP.

Trip Generation

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

- 5,154 square-foot convenience store supplemented by gas fueling stations (Super Convenience Market/Gas Station - ITE Land Use Code 960)

Table 1
ROYAL FARMS PEAK HOUR TRIP GENERATION

Land Use	**Weekday AM Peak Hour**			**Weekday PM Peak Hour**			**SAT Peak Hour**		
	In	Out	Total	In	Out	Total	In	Out	Total
Royal Farms (5,154 sf)	221	222	443	178	179	357	167	138	335
Pass-By Trips	-168	-169	-337	-135	-136	-271	-137	-128	-255
TOTAL NEW TRIPS	**53**	**53**	**106**	**43**	**43**	**86**	**40**	**40**	**80**

Table 2
ROYAL FARMS DAILY TRIP GENERATION

Land Use	**Weekday Daily**		
	In	Out	Total
Royal Farms (5,541 sf)	2157	2157	4314
Pass-By Trips	-1639	-1639	-3279
TOTAL NEW TRIPS	**518**	**518**	**1035**

Overview of TIS

Intersections examined:

1) Arrow Safety Road & Proposed Site Access A
2) US Route 113 & Proposed Site Access B
3) US Route 113 & Arrow Safety Road

Conditions examined:

1) 2019 existing conditions (case 1)
2) 2022 without Royal Farms (case 2)
3) 2022 with Royal Farms (case 3)
4) 2022 with Royal Farms, with Park Avenue Relocation Phase 1 complete (case 3a)

Peak hours evaluated: Weekday morning and evening, and Saturday mid-day peak hours

Committed developments considered:

1) Fountains of Georgetown (51 age-restricted single family dwelling units and 32 single-story age-restricted multi-family dwelling units)
2) Oaks at Georgetown (58 single family detached houses, 337 dwelling units classified as multifamily low-rise housing, and 138 dwelling units classified as multi-family mid-rise housing)
3) Whispering Breeze (552 dwelling units classified as multifamily low-rise housing and 190,400 sf shopping center)

Intersection Descriptions

1) Arrow Safety Road & Proposed Site Access A

Type of Control: proposed one-way stop (T-intersection), stop controlled
Northbound approach: (proposed Site Access A) proposed shared left/right-turn lane, stop controlled
Eastbound approach: (Arrow Safety Road) existing one through lane; proposed one through lane and one right-turn lane
Westbound approach: (Arrow Safety Road) existing one through lane; proposed one left-turn lane and one through lane

2) US Route 113 & Proposed Site Access B

Type of Control: proposed one-way stop (right-in/right-out driveway), stop controlled
Northbound approach: (US Route 113) existing two through lanes; proposed two through lanes and one right-turn lane
Southbound approach: (US Route 113) existing two through lanes separated from northbound lanes by grass median; proposed two through lanes separated from northbound lanes by grass median
Eastbound approach: (proposed Site Access B) proposed one right-turn lane, stop controlled

3) US Route 113 & Arrow Safety Road
Type of Control: signalized four-leg intersection
Northbound approach: (US Route 113) one left-turn lane, two through lanes, and one right-turn lane
Southbound approach: (US Route 113) one left-turn lane, two through lanes, and one right-turn lane
Eastbound approach: (First State Chevrolet Driveway) one shared through/left/right-turn lane
Westbound approach: (Arrow Safety Road) one shared through/left/right-turn lane

Safety Evaluation

Crash Data: Per current DelDOT policy, review of crash data was not conducted at this time.

Sight Distance: Sight distance is not anticipated to be a problem at the proposed site accesses on US Route 113 and Arrow Safety Road, but as always adequacy of available sight distance should be confirmed during the site plan review process for all proposed movements at the site accesses. The designer must verify that adequate sight distance will be provided for both ingress and egress movements at the proposed site driveways.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: The nearest existing transit service is provided by DART bus routes 206, 901 and 902, each of which run along US Route 113 past the Royal Farms site. There are no bus stops near the immediate area of the site. The nearest existing marked transit stops are at the Georgetown State Service Center and the Sussex County Correctional Institute to the south along US Route 113 and at Georgetown Plaza to the north along US Route 113. Each of these stops is over ½ mile from the proposed Royal Farms site.

Planned transit service: There are currently no plans to provide transit service to the proposed development.

Existing bicycle and pedestrian facilities: According to the Sussex County bicycle map, Arrow Safety Road is an undesignated road, in terms of bicycling routes, and it does not have a bikeway (i.e. shoulders). US Route 113 is also an undesignated road, in terms of bicycling routes, and it is shown on the map as a high traffic roadway (over 5,000 vehicles daily) that has a bikeway. Neither Arrow Safety Road nor US Route 113 have any marked bike lanes in this area.

There are no existing pedestrian facilities throughout the study area. There are no marked crosswalks, curb ramps, or pedestrian signals at the intersection of US Route 113 & Arrow Safety Road. There are no sidewalks along the site frontage of the future Royal Farms site.

Planned bicycle and pedestrian facilities: Representatives of DelDOT's Local Systems Planning Section, Traffic Studies Section and DART were contacted to determine recommended pedestrian and bicycle accommodations for the proposed development. They recommended to install

sidewalk or shared-use path along the site frontages, pedestrian signals at the intersection of US Route 113 & Arrow Safety Road, and roadway lighting in the vicinity of the site.

Previous Comments

In a review letter dated May 31, 2019, DelDOT indicated that the Preliminary TIS was acceptable as submitted.

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

1) For unsignalized and signalized intersections, the TIS and McCormick Taylor applied heavy vehicle factors (HV) by movement using existing data. In some instances, the TIS and McCormick Taylor calculated different heavy vehicle factors with the existing data. Both the TIS and McCormick Taylor assumed 3% HV for future movements to and from the proposed site access point (as per DelDOT's Development Coordination Manual).

2) For existing conditions, the TIS and McCormick Taylor determined and utilized overall intersection peak hour factors (PHF). For future conditions, the TIS and McCormick Taylor generally assumed existing PHF for all intersections other than the proposed site entrances. At the site entrances, future PHF were based on the DelDOT Development Coordination Manual.

3) Some lane widths were inconsistent with the values presented elsewhere in the study. The TIS utilized the default HCS7 lane width values. McCormick Taylor used field data and measurements from Google Earth for the lane widths.

4) For analyses of all intersections, the TIS and McCormick Taylor used a base saturation flow rate of 1,750 pc/hr/ln per DelDOT's Development Coordination Manual.

5) The TIS and McCormick Taylor used different signal timings when analyzing the signalized intersections in some cases. The exact signal timings to be implemented are currently being developed

6) At the intersection of US Route 113 & Arrow Safety Road, both the TIS and McCormick Taylor input existing right turn on red (RTOR) volumes for existing and future conditions.

Table 3
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Royal Farms 219 Georgetown
Report dated June 2019
Prepared by Becker Morgan Group, Inc.

Proposed Unsignalized Intersection [1] **One-Way Stop Control (T-Intersection)**	**LOS per TIS**			**LOS per McCormick Taylor**		
Arrow Safety Road & Proposed Site Access A	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
2022 with Royal Farms (Case 3)						
Westbound Arrow Safety Road – Left	A (8.0)	A (8.2)	A (8.1)	A (8.0)	A (8.2)	A (8.1)
Northbound Site Access A	B (14.4)	C (15.8)	B (14.9)	B (14.4)	C (15.7)	B (14.9)

[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 Traffic Impact Study for Royal Farms 219 Georgetown
Report dated June 2019
Prepared by Becker Morgan Group, Inc.

Proposed Unsignalized Intersection [2] **One-Way Stop Control (Right-in/Right-Out)**	**LOS per TIS**			**LOS per McCormick Taylor**		
US Route 113 & Proposed Site Access B	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
2022 with Royal Farms (Case 3)						
Westbound Site Access B – Right	C (18.0)	C (19.5)	C (22.7)	C (17.9)	C (19.5)	C (22.6)

[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 Traffic Impact Study for Royal Farms 219 Georgetown
Report dated June 2019
Prepared by Becker Morgan Group, Inc.

Signalized Intersection [3]	**LOS per TIS**			**LOS per McCormick Taylor**		
US Route 113 & Arrow Safety Road	Weekday AM	Weekday PM	Saturday Mid-Day	Weekday AM	Weekday PM	Saturday Mid-Day
2019 existing (Case 1)	B (10.9)	B (13.0)	A (8.6)	B (11.1)	B (13.0)	A (8.6)
2022 without Royal Farms (Case 2)	C (28.5)	C (33.6)	E (65.0)	C (31.8)	D (44.6)	E (68.1)
2022 with Royal Farms (Case 3)	D (42.0)	D (43.3)	F (80.3) [4]	D (50.8)	D (51.5)	E (74.4)
2022 with Royal Farms with Park Avenue Relocation Phase 1 (Case 3a) [5]	C (30.2)	C (31.4)	E (62.5) [4]	C (32.5)	C (34.1)	E (56.9)
2022 with Royal Farms with Park Avenue Relocation Phase 1 (Case 3a) *with added eastbound right-turn lane* [6]	N/A	N/A	N/A	C (27.7)	C (27.2)	D (43.1)

[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.
[4] The TIS used an incorrect volumes (greater than projected) for the southbound US Route 113 left-turn movement for Case 3/3a scenarios.
[5] This project will result in the addition of a separate westbound channelized right-turn lane at this intersection with a long acceleration lane onto northbound US Route 113. Because the westbound right-turn movement will not be controlled by the signal and has a long acceleration lane, McCormick Taylor removed that movement/volume from the signalized intersection analysis. The TIS kept it in for their analysis.
[6] This alternative includes the Park Avenue Relocation improvement (westbound right-turn lane) and adds an eastbound right-turn lane to reduce delays and queue lengths. As analyzed, the added eastbound right-turn lane would be controlled by the signal and would not have an acceleration lane.