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

NICOLE MAJESKI
SECRETARY

March 3, 2023

Ms. Betty H. Tustin
The Traffic Group, Inc.
104 Kenwood Court
Berlin, Maryland 21811

Dear Ms. Tustin,

The enclosed Traffic Impact Study (TIS) review letter for the **Kingfisher (f.k.a. Evans Jenkins Property)** (Tax Parcels: 533-18.00-5.00 and 533-11.00-35.00) residential 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 (302) 760-2124.

Sincerely,

Claudy Joinville
Project Engineer

CJ:km
Enclosures
cc with enclosures: Mr. Daniel Bunting, Bunting Construction Corporation
Mr. Coleman Bunting, Bunting Construction Corporation
Mr. Jon Hoffman, Bunting Construction Corporation
Mr. Drew Boyce, Century Engineering, Inc.
Mr. Jamie Whitehouse, Sussex County Planning & Zoning
Mr. Andrew Parker, McCormick & Taylor, Inc.
Mr. Tucker Smith, McCormick & Taylor, Inc.
DelDOT Distribution

DelDOT Distribution

Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary / Director of Transportation Solutions (DOTS)
Pamela Steinebach, Director, Planning
Mark Luszcz, Deputy Director, DelDOT Traffic, DOTS
Peter Haag, Chief Traffic Engineer, DelDOT Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, DelDOT Traffic, DOTS
Sean Humphrey, Traffic Engineer, DelDOT Traffic, DOTS
Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
Kevin Hickman, Acting Sussex Review Coordinator, Development Coordination
Thomas Gagnon, Sussex County Subdivision Manager, Development Coordination
Sireen Muhtaseb, TIS Group Manager, Development Coordination
Annamaria Furmato, TIS Group Engineer, Development Coordination
Philip Lindsey, TIS Group Engineer, Development Coordination
Alastair Probert, South District Engineer, South District
Matthew Schlitter, South District Public Works Engineer, South District
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning

March 3, 2023

Mr. Claudy Joinville
Project Engineer
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1946F
Traffic Impact Study Services
Task No. 3A Subtask 11A – Kingfisher (f.k.a. Evans Jenkins Property)

Dear Mr. Joinville:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Kingfisher development (f.k.a. Evans Jenkins Property) prepared by The Traffic Group, Inc. dated June 3, 2022. The Traffic Group, Inc. prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the proposed Kingfisher development (f.k.a. Evans Jenkins Property), to be located along the north side of Delaware Route 54 and west of Bear Hole Road (Sussex Road 390A) in Sussex County, Delaware. The proposed development was originally proposed as 252 single-family detached houses, but in the Preliminary TIS submission that was changed to 214 single-family detached houses and 88 townhomes. By the time the TIS was submitted, the number of proposed units increased slightly, up to 217 single-family detached houses and 90 townhomes. While only a small increase, it is noted that the additional five dwelling units were not accounted for in the TIS analysis. One unsignalized full-movement access is proposed along Delaware Route 54 across from Shipwreck Drive. Construction is anticipated to be completed in 2029.

The subject land is located on an approximately 165.48-acre assemblage of parcels. The subject land is currently zoned AR-1 (Agricultural Residential) in Sussex County, and the developer proposes to annex the land into the Town of Selbyville under R-4 (Residential) zoning with a Residential Planned Community (RPC) overlay.

Currently, there are two active DelDOT projects and one active study within the TIS study area. The first project is *HEP, SC, SR 54 at Hudson Road Roundabout* (State Project No. T202204301). This project seeks to install a roundabout at the intersection of Delaware Route 54 and Hudson Road to address the safety concerns identified in the 2019 Hazard Elimination Program and to accommodate traffic growth from future developments in the area. Construction is anticipated to begin in 2025 and end in 2026.

The second project is the *West Line Road and SR 54, Lighthouse Road, Intersection Improvement* project (Primavera #23-20013 in the FY 2023 – FY 2028 CTP). This project seeks to make intersection improvements to better align three intersecting roads and entrance of shopping area. The CTP states that this project is an ideal candidate for a roundabout. This project currently has funding for the design (PE) phase.

The DelDOT study is the *Southeast Sussex Study*. DelDOT has become aware of concerns expressed by local area residents and public/elected officials regarding increased traffic levels and safety along key transportation corridors west of Fenwick Island, such as Delaware Route 54, Delaware Route 20, and Bayard Road, especially during the summer months. DelDOT has been undertaking improvements at several key locations / intersections along these corridors. In order to further evaluate existing condition area-wide traffic circulation patterns within the area west of Fenwick Island (generally comprising of Roxana, Bayard and Bunting), DelDOT is undertaking the Southeast Sussex Study (S3). The overall goal of the study is to develop short, medium, and long-term improvements that are going to enhance safety and operations through the study corridors and intersections. To date, the study has looked at existing conditions including traffic volumes, travel speeds, crash assessments and intersection performance. The next steps include growth projections, future traffic estimates, future performance estimates, and identification of potential improvements. Those steps should be complete by Summer of 2023. Southeast Sussex Study intersections within the TIS study area include Delaware Route 54 & Hudson Road and Delaware Route 54 & West Line Road.

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

The following intersections 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***
DE Route 54 & Site Access / Shipwreck Drive	Unsignalized	2029 with development Saturday (Case 3)
DE Route 54 & Hudson Road	Unsignalized	2029 without development PM/Saturday (Case 2) 2029 with development AM/PM/Saturday (Case 3)
DE Route 54 & West Line Road	Unsignalized	2029 without development PM (Case 2) 2029 with development PM (Case 3)

<u>Delaware Route 54 and Site Access / Shipwreck Drive</u>
This unsignalized intersection experiences LOS deficiencies during the Summer Saturday peak hour for Case 3. To mitigate operational deficiencies, the developer should add a dedicated southbound left-turn lane to the proposed site access.

Delaware Route 54 and Hudson Road

This all-way stop controlled intersection experiences LOS deficiencies during the weekday PM and Summer Saturday peak hours for Case 2 and all peak hours for Case 3. The westbound approach of the intersection is expected to operate at LOS F without mitigation. DelDOT's *HEP, SC, SR 54 at Hudson Road Roundabout* project is designing a roundabout at this intersection which, when implemented, will provide acceptable levels of service. The developer should contribute towards that project.

Delaware Route 54 and West Line Road

This unsignalized intersection experiences LOS deficiencies during the weekday PM peak hour for Cases 2 and 3. The southbound approach to this intersection is a shopping center driveway. During the highest peak hour, this approach is expected to operate at LOS F with a peak hour volume of 17 vehicles. This intersection is part of the *Southeast Sussex Study* and preliminarily, DelDOT has contemplated installing a roundabout here. Therefore, the developer should coordinate with DelDOT to contribute towards construction of improvements at this intersection, as described below in Item 5.

Should Town of Selbyville 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 shall improve the State-maintained road on which they front (Delaware Route 54), within the limits of their frontage, to meet DelDOT's standards for their Functional Classification as found in Section 1.1 of the Development Coordination Manual and elsewhere therein. The improvements shall include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. Frontage is defined in Section 1 of the Development Coordination Manual, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

2. The developer shall make improvements along Johnson Road, from Delaware Route 54 to Bear Hole Road, to meet DelDOT's standards for their Functional Classification as found in Section 1.1 of the Development Coordination Manual and elsewhere therein. The improvements shall include both directions of travel. At the intersection of Johnson Road and Delaware Route 54, the developer shall construct a left-turn lane to provide an ultimate configuration of one left-turn lane and one right-turn lane on the southbound Johnson Road approach. The length of the proposed left-turn lane should be determined through coordination with DelDOT's Traffic Section.

3. The developer should construct the full-movement Site Access on Delaware Route 54. The proposed configuration is shown in the table below.

Approach	Existing Configuration	Proposed Configuration
Eastbound Delaware Route 54	One through lane and one right-turn lane	One left-turn lane, one through lane, and one right-turn lane
Westbound Delaware Route 54	One left-turn lane and one through lane	One left-turn lane, one through lane, and one right-turn lane
Northbound Shipwreck Drive	Shared left-turn / right-turn lane	One shared left-turn / through / right-turn lane
Southbound Site Access	Approach does not exist	One left-turn lane and one shared through / 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 and other design details during the site plan review.

Approach	Left-Turn Lane	Right-Turn Lane
Eastbound Delaware Route 54	235 feet **	315 feet *
Westbound Delaware Route 54	215 feet *	350 feet **
Northbound Shipwreck Drive	N/A	N/A
Southbound Site Access	50 feet ***	N/A

* Existing turn-lane length
** Initial turn-lane length based on DelDOT's *Auxiliary Lane Worksheet*
*** Initial turn-lane length based on queuing analysis

4. The developer should make an equitable contribution to DelDOT's *HEP, SC, SR 54 at Hudson Road Roundabout* project, which will feature installation of a roundabout at the intersection of Delaware Route 54 and Hudson Road. The amount of the contribution is $79,269.15. The developer should coordinate with DelDOT's Subdivision Section on the equitable cost payment terms.

5. The developer should make an equitable contribution to DelDOT's *West Line Road and SR 54, Lighthouse Road, Intersection Improvement* project, which may feature installation of a roundabout at the intersection of Delaware Route 54 and West Line Road. The developer's equitable share contribution has been determined by DelDOT's Development

Coordination Section to be 5.38%, which is applied to 20% of the estimated construction cost of the project. The actual amount of the contribution depends on the estimated construction cost of the project, and this amount will be provided at a later date. The developer should coordinate with DelDOT's Subdivision Section on the equitable cost payment terms.

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

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

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

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

   d. If clubhouses or other community facilities are constructed within the site, bicycle parking should be provided near building entrances. Where building architecture provides for an awning, other overhang, or indoor parking, the bicycle parking should be covered.

   e. A minimum 15-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontage along Delaware Route 54. Within the easement, a minimum of a 10-foot wide shared-use path that meets current AASHTO and ADA standards should be constructed and should have a minimum of a five-foot buffer from the roadway. At the property boundaries, the shared-use path should connect to the adjacent property or to the shoulder in accordance with DelDOT's Shared-Use Path and/or Sidewalk Termination Reference Guide dated August 1, 2018. 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 both boundaries of the property.

   f. A crosswalk should be installed across the main site access off Delaware Route 54 that connects to the shared-use path described in Item 6.e.

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

   h. Internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These sidewalks should each be a minimum of five-feet wide (with a minimum of a five-foot buffer from the roadway) and should meet current AASHTO and ADA standards.

Internal sidewalks in the development should connect to the proposed shared-use path along Delaware Route 54.

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

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

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

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

Sincerely,

McCormick Taylor, Inc.

Andrew J. Parker, PE, PTOE
Project Manager

Enclosure

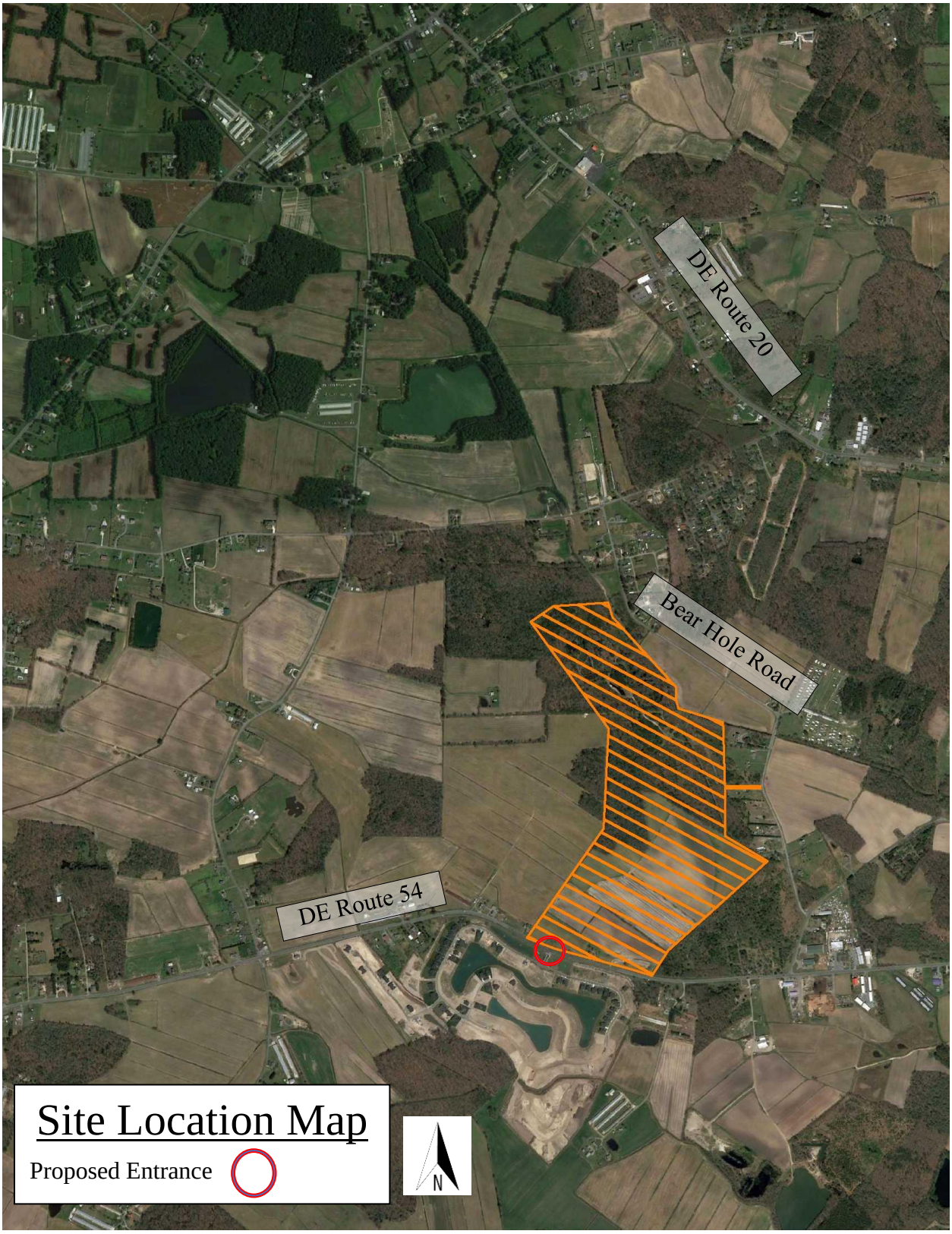
General Information

Report date: June 2022
Prepared by: The Traffic Group, Inc.
Prepared for: West Selbyville Joint Venture, LLC
Tax parcel: 533-18.00-5.00 and 533-11.00-35.00
Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed Kingfisher development (f.k.a. Evans Jenkins Property) would consist of 217 single-family homes and 90 townhomes. It was originally proposed as 252 single-family detached houses, but in the Preliminary TIS submission that was changed to 214 single-family detached houses and 88 townhomes. By the time the TIS was submitted, the number of proposed units increased slightly, up to 217 single-family detached houses and 90 townhomes. While only a small increase, it is noted that the additional five dwelling units were not accounted for in the TIS analysis.
Location: The site is located along the north side of Delaware Route 54 and west of Bear Hole Road (Sussex Road 390A) in Sussex County, Delaware. A site location map is included on page 8.
Amount of land to be developed: approximately 165.48-acre assemblage of parcels
Land use approval(s) needed: Subdivision approval. The subject land is currently zoned AR-1 (Agricultural Residential). The developer plans to annex the land into the Town of Selbyville under R-4 (Residential) zoning with a Residential Planned Community (RPC) overlay.
Proposed completion year: 2029
Proposed access locations: One unsignalized full-movement access is proposed along Delaware Route 54.
Daily Traffic Volumes (per DelDOT Traffic Summary 2021):

- 2021 Average Annual Daily Traffic on Prettyman Road: 5,502 vehicles/day


DE Route 20
Bear Hole Road
DE Route 54
Site Location Map
Proposed Entrance
N

2020 Delaware Strategies for State Policies and Spending

Location with respect to the Strategies for State Policies and Spending Map of Delaware: The Kingfisher development is located within Investment Level 3, as described below.

Investment Level 3
Investment Level 3 generally falls into two categories. The first category covers lands that are 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. In these instances, development and growth may be appropriate in the near term, but the resources on the site and in the surrounding area should be carefully considered and accommodated by state Agencies and local governments with land-use authority.

Generally, Investment Level 3 areas should not be developed until surrounding Investment Level 1 and 2 areas are substantially built out. From a housing perspective, Investment Level 3 areas are characterized by low density and rural homes. New housing developments in the short term would, in most cases, represent leap-frog development, which is undesirable. Higher density housing in Investment Level 3 areas is more appropriate once Level 2 areas are built out and utilities are available.

Proposed Development's Compatibility with Strategies for State Policies and Spending:
The proposed Kingfisher residential development includes 217 single-family homes and 90 townhomes and falls entirely within Investment Level 3. The proposed development is located along Delaware Route 54, and the developer plans to annex the land into the Town of Selbyville. Multiple developments are proposed or under construction in the immediate area and along Delaware Route 54. The TIS states that multi-use paths will be provided along the site frontages on Delaware Route 54, which will help promote active transportation options as adjacent properties are also developed in the future. The development is located near existing transportation facilities and will be served by public water and sewer systems. The development will have a mix of home densities, will be served by established fire, police, and education systems. The site plan also depicts space for a community park, recreational facilities, and walking trails. As such, the proposed development generally appears to comply with the guidelines for Investment Levels as described in the 2020 "Strategies for State Policies and Spending."

Comprehensive Plan

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

The Sussex County Comprehensive Plan 2045 Future Land Use Map indicates that the proposed Kingfisher development is proposed on land designated as a "Developing Area". However, the developer plans to annex the land into the Town of Selbyville, 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 Selbyville Comprehensive Land Use Plan:
(Source: Town of Selbyville Comprehensive Plan, August 2020)

The town of Selbyville's Comprehensive Plan, Areas of Potential Annexation Map indicates that the proposed Kingfisher development is planned for "Mixed Residential/Agriculture" land use. It would appear that the proposed Kingfisher development fits within the intended land use for this location.

Proposed Development's Compatibility with Comprehensive Plan: The proposed Kingfisher residential development is planned to be developed as 217 single-family detached homes and 90 townhomes on a 165.48-acre assemblage of parcels. The land is currently zoned as AR-1 (Agricultural Residential) in Sussex County, and the developer proposed to annex the land into the Town of Selbyville under R-4 (Residential_ zoning with a Residential Planned Community (RPC) overlay.

The Residential Planned Community District (RPC) was created to be superimposed on the R-4 Residential District in order to encourage the best possible layout of buildings and site planning; provide for a unified plan of development; promote imaginative and environmentally responsible development; provide opportunities for streetscape variations to avoid repetitive building facades, excessive linear street configurations, and under-landscaped street frontages; preserve open space for passive and active recreation; protect existing and future development; and implement the goals of the Comprehensive Plan.

Relevant Projects in the DelDOT Capital Transportation Program

Currently, there are two active DelDOT projects and one active study within the TIS study area. The first project is *HEP, SC, SR 54 at Hudson Road Roundabout* (State Project No. T202204301). This project seeks to install a roundabout at the intersection of Delaware Route 54 and Hudson Road to address the safety concerns identified in the 2019 Hazard Elimination Program and to accommodate traffic growth from future developments in the area. Construction is anticipated to begin in 2025 and end in 2026.

The second project is the *West Line Road and SR 54, Lighthouse Road, Intersection Improvement* project (Primavera #23-20013 in the FY 2023 – FY 2028 CTP). This project seeks to make intersection improvements to better align three intersecting roads and entrance of shopping area. The CTP states that this project is an ideal candidate for a roundabout. This project currently has funding for the design (PE) phase.

The DelDOT study is the *Southeast Sussex Study*. DelDOT has become aware of concerns expressed by local area residents and public/elected officials regarding increased traffic levels and safety along key transportation corridors west of Fenwick Island, such as Delaware Route 54, Delaware Route 20, and Bayard Road, especially during the summer months. DelDOT has been

undertaking improvements at several key locations / intersections along these corridors. In order to further evaluate existing condition area-wide traffic circulation patterns within the area west of Fenwick Island (generally comprising of Roxana, Bayard and Bunting), DelDOT is undertaking the Southeast Sussex Study (S3). The overall goal of the study is to develop short, medium, and long-term improvements that are going to enhance safety and operations through the study corridors and intersections. To date, the study has looked at existing conditions including traffic volumes, travel speeds, crash assessments and intersection performance. The next steps include growth projections, future traffic estimates, future performance estimates, and identification of potential improvements. Those steps should be complete by Summer of 2023. Southeast Sussex Study intersections within the TIS study area include Delaware Route 54 & Hudson Road and Delaware Route 54 & West Line Road.

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 use was utilized to estimate the amount of new traffic generated for this development:

- 217 single-family detached houses (ITE Land Use Code 210)
- 90 multifamily housing mid-rise (ITE Land Use Code 221)

The TIS noted that the concept plan was revised following DelDOT's review of the Preliminary TIS. The revisions to the proposed development increased the number of single-family detached homes from 214 to 217 and increased the number of townhomes (multifamily housing mid-rise) from 88 to 90. The increase in five dwelling units results in an increase of four (4) peak hour trips at the site access. This additional volume is neither presented in the table below, nor the HCS analysis in the TIS or this review letter (except as noted in footnote 2 below Table 2 of this letter).

Table 1
Kingfisher Peak Hour Trip Generation*

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Single Family Detached House (214 units)	39	118	157	133	78	211	107	91	198
Multifamily Housing, Mid-Rise (88 units)	8	22	30	24	15	39	22	22	44

* Peak hour volumes presented in this table reflect the trip generation from the preliminary TIS and do not include the total trips generated from the five additional dwelling units, as discussed in the previous paragraph.

Overview of TIS

Intersections examined:

1) Delaware Route 54 and Site Access/Shipwreck Drive
2) Delaware Route 54 and Hudson Road (Sussex Road 387)
3) Delaware Route 54 and Polly Branch Road (Sussex Road 386)
4) Delaware Route 54 and Bishopville Road (Sussex Road 397)
5) Delaware Route 54 and Johnson Road/Bunting Road (Sussex Road 390)
6) Delaware Route 54 and Dickerson Road (Sussex Road 389)
7) Delaware Route 54 and West Line Road (Sussex Road 396)
8) Johnson Road/Bunting Road and Dickerson Road (summer Saturday counts not needed)
9) Delaware Route 20 and Bayard Road (Sussex Road 384)/Johnson Road (Sussex Road 382A)

Conditions examined:

1) 2021 Existing (Case 1)
2) 2029 without development (Case 2)
3) 2029 with development (Case 3)

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

Committed developments considered:

1) Schooner Landing (f.k.a. Strawberry Ridge) (132 single-family detached)
2) Coastal Villages (695 single-family detached)
3) Selbyville Town Village (131 single-family detached)
4) Saltwater Landing (f.k.a. Warrington Property) (99 single-family detached)
5) Lighthouse Lakes (302 single-family detached)
6) Twin Cedars (144 single-family detached)
7) Sweetbay (65 single-family detached)
8) Ashton Oaks (178 multi-family, mid-rise)
9) Fox Haven I (76 single-family detached)
10) Fox Haven II (99 single-family detached)
11) Cobb Property (66 single-family detached)

Intersection Descriptions

1) **Delaware Route 54 and Site Access/Shipwreck Drive**
   Type of Control: two-way minor stop-controlled intersection
   Eastbound Approach: (DE 54) existing through lane and dedicated right-turn lane, proposed left-turn lane
   Westbound Approach: (DE 54) existing through lane and dedicated left-turn lane, proposed right-turn lane
   Northbound Approach: (Shipwreck Drive) existing shared right-turn/through/left-turn lane
   Southbound Approach: (Site Access A) proposed left-turn lane and through/right-turn lane

2) **Delaware Route 54 and Hudson Road (Sussex Road 387)**
   Type of Control: all-way stop-controlled intersection
   Eastbound Approach: (DE 54) existing shared right-turn/through/left-turn lane
   Westbound Approach: (DE 54) existing shared right-turn/through/left-turn lane
   Northbound Approach: (Hudson Road) existing shared right-turn/through/left-turn lane
   Southbound Approach: (Hudson Road) existing shared right-turn/through/left-turn lane

3) **Delaware Route 54 and Polly Branch Road (Sussex Road 386)**
   Type of Control: minor stop-controlled T-intersection
   Eastbound Approach: (DE 54) existing shared through/left-turn lane
   Westbound Approach: (DE 54) existing shared through/right-turn lane
   Southbound Approach: (Polly Branch Road) existing shared right-turn/left-turn lane

4) **Delaware Route 54 and Bishopville Road (Sussex Road 397)**
   Type of Control: minor stop-controlled T-intersection
   Eastbound Approach: (DE 54) existing shared through/right-turn lane
   Westbound Approach: (DE 54) existing shared through/left-turn lane
   Northbound Approach: (Bishopville) existing shared right-turn/left-turn lane

5) **Delaware Route 54 and Johnson Road/Bunting Road (Sussex Road 390)**
   Type of Control: minor stop-controlled T-intersection
   Eastbound Approach: (DE 54) existing shared through/left-turn lane
   Westbound Approach: (DE 54) existing shared through/right-turn lane
   Southbound Approach: (Johnson Road) existing shared right-turn/left-turn lane

6) **Delaware Route 54 and Dickerson Road (Sussex Road 389)**
   Type of Control: two-way stop-controlled intersection
   Eastbound Approach: (DE 54) existing shared left-turn/through/right-turn lane
   Westbound Approach: (DE 54) existing shared left-turn/through/right-turn lane
   Northbound Approach: (Dickerson Road) existing shared left-turn/through/right-turn lane
   Southbound Approach: (Dickerson Road) existing shared through/left-turn lane and a dedicated right-turn lane

7) **Delaware Route 54 and West Line Road (Sussex Road 396)**
   Type of Control: minor stop-controlled T-intersection w/ shopping center access driveway
   Eastbound Approach: (DE 54) existing shared left-turn/through/right-turn lane
   Westbound Approach: (DE 54) existing shared left-turn/through/right-turn lane
   Northbound Approach: (West Line Road) existing shared right-turn/left-turn lane and dedicated left turn lane
   Southbound Approach: (Driveway) existing shared left-turn/through/right-turn lane

8) **Johnson Road/Bunting Road and Dickerson Road**
   Type of Control: minor stop-controlled T-intersection
   Eastbound Approach: (Johnson Road) existing shared through/right-turn lane
   Westbound Approach: (Johnson Road) existing shared through/left-turn lane
   Northbound Approach: (Dickerson Road) existing shared right-turn/left-turn lane

9) **Delaware Route 20 and Bayard Road (Sussex Road 384)/Johnson Road (Sussex Road 382A)**
Type of Control: 4-legged signalized intersection
Eastbound Approach: (DE 20) existing dedicated left-turn lane, through lane, and dedicated right-turn lane
Westbound Approach: (DE 20) existing shared left-turn/through/right-turn lane
Northbound Approach: (Johnson Road) existing shared left-turn/through/right-turn lane
Southbound Approach: (Bayard Road) existing shared left-turn/through/right-turn lane

Safety Evaluation

Crash Data: Delaware Crash Analysis Reporting System (CARS) data was provided in the TIS for the three-year period from October 18, 2018, to October 18, 2021. A total of 70 crashes occurred within the study area during the three-year period. Of those 70 collisions, 10 resulted in personal injury. Of the 70 crashes, 22 occurred at or near the intersection of DE Route 20 and Bayard Road / Johnson Road. There were no fatalities in the three-year window.

Sight Distance: The study area generally consists of relatively 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. 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) currently does not operate any bus routes in the study area.

Planned transit service: Jared Kaufmann, representing DTC, was contacted regarding existing and planned transit service in the area. He stated that DTC has no transit-specific comments regarding this site. DTC does not have plans to provide service along Delaware Route 54.

Existing bicycle and pedestrian facilities: According to DelDOT's Sussex County Bicycle Map, Johnson Road and Bayard Road are classified as a Connector Bicycle Route without Bikeway, while DE 54 and DE 20 are both classified as a High Traffic Regional Bicycle Route with a bikeway. There are currently no existing bicycle lanes along the existing site frontages; however, there are bike lanes and Shared-Use Paths (SUPs) along DE 54 adjacent to the Lighthouse Lakes Development site frontage. Additionally, there are bike lanes throughout the study area: namely, at the intersections of DE 54 and Hudson Road, DE 54 and Polly Branch Road, DE 54 and Johnson Road, DE 54 and Dickerson Road, DE 54 and West Line Road, and DE 20 and Bayard Road.

Planned bicycle and pedestrian facilities: Anthony Aglio, representing DelDOT's Statewide and Regional Planning section, was contacted regarding existing and planned bicycle and pedestrian facilities. A multi-use path is requested along the property frontage with a bicycle lane to be included between the through lane and right-turn lane into the site.

Previous Comments

In a review letter dated December 16, 2021, DelDOT indicated that the traffic counts, existing volumes, committed development distributions, and site traffic distributions were acceptable with some requested revisions to the traffic volume figures.

In a second review letter dated March 21, 2022, DelDOT indicated that the Preliminary TIS was acceptable as submitted and directed the developer to proceed with the Final TIS.

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

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

1) The TIS used Highway Capacity Software (HCS) version 7.9.5 to complete the traffic analyses. McCormick Taylor used HCS 2022.

2) For two-way stop control intersections, the TIS and McCormick Taylor applied heavy vehicle factors (HV) by movement using existing data. The TIS and McCormick Taylor assumed future HV to be the same as existing HV at all intersections. Both the TIS and McCormick Taylor assumed 3% HV for future movements to and from the proposed site access points (as per DelDOT's Development Coordination Manual section 2.2.8.11.6.H).

3) 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. In future conditions, the TIS selectively applied alternative PHFs following the guidance in the DelDOT Development Coordination Manual section 2.2.8.11.6.F. There is no record of prior DelDOT approval to use these alternative PHFs. Also, it is not clear how the TIS determined which intersection and peak hour to apply the alternative PHFs. In the HCS results tables on the following pages, McCormick Taylor has applied the existing PHFs to all future scenarios.

4) As noted earlier in this review letter, the capacity analysis presented in the TIS does not include additional site trips based on recent changes to the proposed site plan. The addition of five dwelling units would add up to four peak hour trips at the intersection of Delaware Route 54 and Site Access/Shipwreck Drive and those trips would be distributed across the roadway network.

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

Table 2
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – June 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [1] Two-Way Stop-Controlled (TWSC)	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 54 & Site Access / Shipwreck Drive	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2021 Existing Condition (Case 1)						
Westbound DE 54 - Lefts	A (8.3)	A (8.0)	A (7.9)	A (8.3)	A (8.0)	A (7.9)
Northbound Shipwreck Drive	B (12.0)	B (12.1)	B (11.9)	B (12.0)	B (12.1)	B (11.9)
2029 No Build Condition (Case 2)						
Westbound DE 54 - Lefts	A (8.9)	A (8.4)	A (8.4)	A (8.9)	A (8.4)	A (8.4)
Northbound Shipwreck Drive	C (15.3)	C (16.0)	C (15.8)	C (15.3)	C (16.0)	C (15.8)
2029 Build Condition (Case 3)						
Eastbound DE 54 - Lefts	A (7.9)	A (9.0)	A (8.9)	A (7.9)	A (9.0)	A (8.9)
Westbound DE 54 - Lefts	A (8.9)	A (8.4)	A (8.3)	A (8.9)	A (8.4)	A (8.4)
Northbound Shipwreck Drive	C (19.7)	D (25.7)	C (23.5)	C (18.8)	C (24.2)	C (23.0)
Southbound Site Access	C (19.3)	D (27.5)	D (29.5)	C (22.1)	D (30.7) [2]	E (37.2) [2]
2029 Build Condition (Case 3) w/ Improvements [3]						
Eastbound DE 54 - Lefts	--	--	--	A (7.9)	A (9.0)	A (8.9)
Westbound DE 54 - Lefts	--	--	--	A (8.9)	A (8.4)	A (8.4)
Northbound Shipwreck Drive	--	--	--	C (18.8)	C (24.2)	C (23.0)
Southbound Site Access	--	--	--	C (18.8)	D (26.5)	D (29.7)

[1] For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.
[2] As a sensitivity analysis, McCormick Taylor also evaluated these scenarios with the addition of four (4) site trips (for the additional five dwelling units) at the site access, and using the alternative PHF of 0.92, the intersection is expected to operate at LOS E in the PM and Summer Saturday peak hours. The results presented in this table use the same volumes presented in the TIS. However, the McCormick Taylor results use the PHF from the existing conditions (0.97 in PM peak hour and 0.90 in the Summer Saturday peak hour).
[3] Improvements include the addition of a southbound left-turn lane.

Table 3
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [4] **All-Way Stop Controlled (AWSC)**	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 54 & **Hudson Road**	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2021 Existing Condition (Case 1)						
Eastbound DE 54	B (11.8)	B (10.1)	A (10.0)	B (11.8)	B (10.1)	A (10.0)
Westbound DE 54	B (10.8)	B (11.9)	B (12.3)	B (10.8)	B (11.9)	B (12.3)
Northbound Hudson Road	A (9.3)	B (10.1)	A (9.6)	A (9.3)	B (10.1)	A (9.6)
Southbound Hudson Road	A (9.7)	A (9.2)	A (9.2)	A (9.7)	A (9.2)	A (9.2)
2029 No Build Condition (Case 2)						
Eastbound DE 54	D (26.7)	D (27.2)	D (26.5)	D (26.7)	D (27.2)	D (26.5)
Westbound DE 54	C (18.0)	F (57.0)	F (61.3)	C (18.0)	F (57.0)	F (61.3)
Northbound Hudson Road	B (13.3)	C (20.0)	C (18.4)	B (13.3)	C (20.0)	C (18.4)
Southbound Hudson Road	C (15.9)	C (16.6)	C (17.3)	C (15.9)	C (16.6)	C (17.3)
2029 Build Condition (Case 3)						
Eastbound DE 54	E (35.5)	E (38.1)	D (34.2)	E (35.5)	E (38.1)	D (34.2)
Westbound DE 54	D (26.9)	F (105.6)	F (115.1)	D (26.9)	F (105.6)	F (115.1)
Northbound Hudson Road	B (14.9)	C (22.7)	C (20.0)	B (14.9)	C (22.7)	C (20.0)
Southbound Hudson Road	C (18.4)	C (19.2)	C (19.5)	C (18.4)	C (19.2)	C (19.5)
2029 Build Condition (Case 3) w/ Improvements (Roundabout)						
Eastbound DE 54	B (11.2)	A (8.0)	A (8.9)	B (11.2)	A (8.0)	A (8.9)
Westbound DE 54	A (6.8)	A (10.0)	A (9.1)	A (6.8)	A (10.0)	A (9.1)
Northbound Hudson Road	A (7.8)	A (8.4)	A (7.8)	A (7.8)	A (8.4)	A (7.8)
Southbound Hudson Road	A (7.3)	A (7.8)	A (7.9)	A (7.3)	A (7.8)	A (7.9)

[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 4
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [5] **One-Way Stop (T-intersection)**	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 54 & **Polly Branch Road**	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2019 Existing Condition (Case 1)						
Eastbound DE 54 – Lefts	A (7.6)	A (7.8)	A (7.6)	A (7.6)	A (7.8)	A (7.6)
Southbound Polly Branch Road	B (10.4)	B (11.4)	B (10.1)	B (10.4)	B (11.4)	B (10.1)
2029 No Build Condition (Case 2)						
Eastbound DE 54 – Lefts	A (8.3)	A (8.5)	A (8.2)	A (8.3)	A (8.5)	A (8.2)
Southbound Polly Branch Road	B (14.6)	C (19.8)	B (14.4)	B (14.6)	C (19.8)	B (14.4)
2029 Build Condition (Case 3)						
Eastbound DE 54 – Lefts	A (8.4)	A (8.5)	A (8.2)	A (8.4)	A (8.5)	A (8.2)
Southbound Polly Branch Road	C (15.3)	C (19.9)	C (15.1)	C (15.3)	C (19.9)	C (15.1)

[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 5
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [6] **One-Way Stop (T-intersection)**	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 54 & **Bishopville Road**	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2019 Existing Condition (Case 1)						
Westbound DE 54 - Lefts	A (7.9)	A (7.7)	A (7.7)	A (7.9)	A (7.7)	A (7.7)
Northbound Bishopville Road	A (9.1)	B (10.6)	A (9.4)	B (11.7)	B (12.2)	B (11.0)
2029 No Build Condition (Case 2)						
Westbound DE 54 - Lefts	A (8.2)	A (8.6)	A (8.3)	A (8.2)	A (8.6)	A (8.3)
Northbound Bishopville Road	B (10.1)	B (14.1)	B (10.4)	B (14.5)	C (19.3)	B (14.7)
2029 Build Condition (Case 3)						
Westbound DE 54 - Lefts	A (8.3)	A (8.6)	A (8.4)	A (8.3)	A (8.6)	A (8.4)
Northbound Bishopville Road	B (10.6)	B (14.3)	B (11.0)	B (15.0)	C (19.5)	C (15.4)

[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 6
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [7] **One-Way Stop (T-intersection)**	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 54 & **Johnson Road**	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2019 Existing Condition (Case 1)						
Eastbound DE 54 – Lefts	A (7.7)	A (8.0)	A (7.9)	A (7.7)	A (8.0)	A (7.9)
SB Johnson Road	A (9.9)	B (11.0)	B (11.7)	A (9.9)	B (11.0)	B (11.7)
2029 No Build Condition (Case 2)						
Eastbound DE 54 – Lefts	A (7.9)	A (8.6)	A (8.4)	A (7.9)	A (8.6)	A (8.4)
SB Johnson Road	B (10.8)	B (13.6)	C (15.5)	B (10.8)	B (13.6)	C (15.5)
2029 Build Condition (Case 3)						
Eastbound DE 54 – Lefts	A (8.1)	A (8.9)	A (8.6)	A (8.1)	A (8.9)	A (8.6)
SB Johnson Road	C (11.2)	C (15.2)	C (18.0)	C (11.2)	C (15.2)	C (18.0)

[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 7
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [8] **One-Way Stop (T-intersection)**	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 54 & **Dickerson Road**	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2019 Existing Condition (Case 1)						
Eastbound DE 54 – Lefts	A (7.9)	A (7.8)	A (7.8)	A (7.9)	A (7.8)	A (7.8)
Westbound DE 54 – Lefts	A (7.7)	A (7.7)	A (7.7)	A (7.7)	A (7.7)	A (7.7)
Northbound Dickerson Road	B (12.4)	B (13.9)	B (13.5)	B (12.4)	B (13.9)	B (13.5)
Southbound Dickerson Road	B (11.8)	B (13.0)	B (13.4)	B (11.7)	B (13.0)	B (13.4)
2029 No Build Condition (Case 2)						
Eastbound DE 54 – Lefts	A (8.1)	A (8.3)	A (8.2)	A (8.1)	A (8.3)	A (8.2)
Westbound DE 54 – Lefts	A (8.1)	A (8.0)	A (8.1)	A (8.1)	A (8.0)	A (8.1)
Northbound Dickerson Road	B (14.9)	C (18.2)	C (17.4)	B (14.9)	C (18.2)	C (17.4)
Southbound Dickerson Road	B (14.2)	C (17.4)	C (18.3)	B (14.2)	C (17.7)	C (18.5)
2029 Build Condition (Case 3)						
Eastbound DE 54 – Lefts	A (8.1)	A (8.4)	A (8.3)	A (8.1)	A (8.4)	A (8.3)
Westbound DE 54 – Lefts	A (8.1)	A (8.0)	A (8.2)	A (8.1)	A (8.0)	A (8.2)
Northbound Dickerson Road	C (15.2)	C (19.6)	C (18.8)	C (15.2)	C (19.6)	C (18.8)
Southbound Dickerson Road	B (14.5)	C (19.1)	C (20.1)	B (14.5)	C (19.2)	C (20.2)

[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 8
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [9] **One-Way Stop (T-intersection)**	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 54 & **W Line Road**	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2019 Existing Condition (Case 1)						
Westbound DE 54 - Lefts	A (7.5)	A (7.8)	A (7.7)	A (7.5)	A (7.8)	A (7.7)
Eastbound DE 54 - Left	A (8.2)	A (8.1)	A (8.2)	A (8.2)	A (8.1)	A (8.2)
Northbound W Line Road	C (11.0)	B (11.9)	B (10.7)	C (11.0)	B (11.0)	B (10.6)
Southbound Shopping Center Access	-	D (27.8)	C (21.2)	-	D (27.8)	C (21.2)
2029 No Build Condition (Case 2)						
Westbound DE 54 - Lefts	A (7.6)	A (8.3)	A (8.1)	A (7.6)	A (8.3)	A (8.1)
Eastbound DE 54 - Left	A (8.7)	A (8.5)	A (8.6)	A (8.7)	A (8.5)	A (8.6)
Northbound W Line Road	B (12.8)	B (14.0)	B (12.1)	B (12.8)	B (12.4)	B (11.9)
Southbound Shopping Center Access	-	E (49.4)	D (32.5)	-	E (49.4)	D (32.5)
2029 Build Condition (Case 3)						
Westbound DE 54 - Lefts	A (7.7)	A (8.4)	A (8.2)	A (7.7)	A (8.4)	A (8.2)
Eastbound DE 54 - Left	A (8.9)	A (8.6)	A (8.7)	A (8.9)	A (8.6)	A (8.7)
Northbound W Line Road	B (13.4)	B (14.7)	B (12.5)	B (13.4)	B (14.7)	B (12.5)
Southbound Shopping Center Access	-	F (57.7)	E (36.4)	-	F (52.4)	D (34.7)

[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 9
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [10] **One-Way Stop (T-intersection)**	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 54 & **W Line Road**	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2019 Existing Condition (Case 1)						
Northbound W Line Road - Left	B (11.1)	B (12.0)	B (11.9)	B (11.1)	B (12.0)	B (11.9)
2029 No Build Condition (Case 2)						
Northbound W Line Road - Left	B (13.1)	C (15.0)	B (14.6)	B (13.1)	C (15.0)	B (14.6)
2029 Build Condition (Case 3)						
Northbound W Line Road - Left	B (13.7)	C (16.1)	C (15.5)	B (13.7)	C (16.1)	C (15.5)

[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 10
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Unsignalized Intersection [11] One-Way Stop (T-intersection)	**LOS per TIS**			**LOS per McCormick Taylor**		
Johnson Road & Dickerson Road	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2019 Existing Condition (Case 1)						
Westbound Johnson Road - Lefts	A (7.5)	A (7.6)	-	A (7.4)	A (7.6)	-
Northbound Dickerson Road	A (9.0)	A (9.0)	-	A (9.0)	A (9.0)	-
2029 No Build Condition (Case 2)						
Westbound Johnson Road - Lefts	A (7.6)	A (7.7)	-	A (7.5)	A (7.7)	-
Northbound Dickerson Road	A (9.1)	A (9.3)	-	A (9.2)	A (9.3)	-
2029 Build Condition (Case 3)						
Westbound Johnson Road - Lefts	A (7.7)	A (7.8)	-	A (7.6)	A (7.8)	-
Northbound Dickerson Road	A (9.3)	A (9.4)	-	A (9.3)	A (9.4)	-

[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.

Table11
Peak Hour Levels of Service (LOS)
Based on Kingfisher Traffic Impact Study – February 2022
Prepared by The Traffic Group, Inc.

Signalized Intersection [12]	**LOS per TIS**			**LOS per McCormick Taylor**		
DE Route 20 & Bayard Road / Johnson Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2021 Existing (Case 1)						
Overall	B (11.2)	B (13.9)	B (14.8)	B (11.2)	B (13.9)	B (15.1)
2029 Without Development (Case 2)						
Overall	B (12.7)	B (17.3)	B (19.2)	B (12.7)	B (18.6)	C (20.4)
2029 With Development (Case 3)						
Overall	B (13.2)	B (18.5)	C (20.6)	B (13.2)	C (20.3)	C (21.9)

[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.