



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

NICOLE MAJESKI
SECRETARY

February 5, 2024

Mr. Joseph Caloggero, P.E., PTOE
The Traffic Group, Inc.
9900 Franklin Square Drive
Baltimore, Maryland 21236

Dear Mr. Joseph Caloggero:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Swann Property** (Tax Parcel: 533-18.00-63.00, 533-18.00-56.00) 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 Annamaria.Furmato@delaware.gov.

Sincerely,

Annamaria Furmato
TIS Group Project Engineer

AF:km

Enclosures

cc with enclosures: Dave Sobczak, Crosswinds Landing, LLC
David L. Edgell, Office of State Planning Coordination
Jamie Whitehouse, Sussex County Planning & Zoning
Andrew J. Parker, McCormick Taylor, Inc.
Tucker Smith, McCormick Taylor, Inc.
DelDOT Distribution

DelDOT Distribution

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



February 1, 2024

Ms. Annamaria Furmato
Project Engineer
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1946F
Traffic Impact Study Services
Task No. 5A Subtask 2A – Swann Property

Dear Ms. Furmato:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Swann Property development prepared by The Traffic Group, Inc. (TTG), dated October 26, 2023. TTG prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the proposed Swann Property development, to be located on the west side of West Line Road (Sussex Road 396), the southwest side of Dickerson Road (Sussex Road 389), and the south side of Delaware Route 54 (Lighthouse Road) in Sussex County, Delaware. The proposed development would consist of 191 units of single-family attached housing and 161 units of single-family detached housing. Two access points are proposed: one on West Line Road and one on Lighthouse Road. Both are proposed as full-movement unsignalized T-intersections. Construction is anticipated to be completed in 2029.

The subject land is located on an approximately 180.62-acre assemblage of parcels. The subject land is currently zoned as AR-1 (Agricultural Residential), and the developer plans to rezone the land to MR (Medium Density Residential) with an RPC (Residential Planned Community) overlay.

Currently, there is one active DelDOT project and one active study within the TIS study area.

The 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. Two intersections within the TIS study area are also included in the *Southeast Sussex Study*: Delaware Route 54 & West Line Road and Delaware Route 20 & Johnson Road/Bayard Road. More details are available at the following link: <https://deldot.gov/projects/Studies/southeast-sussex/>

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

As analyzed, the proposed Swann Property development does not exhibit level of service (LOS) deficiencies at any intersections included in the scope of study. A note about potentially deficient conditions at the intersection of Delaware Route 54 and West Line Road is provided below.

Delaware Route 54 and West Line Road

For the unsignalized intersection of Delaware Route 54 and West Line Road, this TIS did not include the shopping center driveway as the 4th leg of the intersection and the analysis did not indicate any LOS deficiencies. However, at least one other TIS (Kingfisher) did include that driveway as the 4th leg, and that TIS found LOS F on the shopping center driveway approach during the future weekday PM peak hour with a volume of 17 vehicles. In addition, 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 No. 4.

Should Sussex 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 (Delaware Route 54, West Line Road and Dickerson Road). 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.

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

Approach	Current Configuration	Approach	Proposed Configuration
Eastbound Delaware Route 54	One through lane	Eastbound Delaware Route 54	One through lane and one right-turn lane
Westbound Delaware Route 54	One through lane	Westbound Delaware Route 54	One left-turn lane and one through lane
Northbound	Approach does not exist	Northbound Site Access A	One shared left/right-turn lane. Stop Control.
Southbound	Approach does not exist	Southbound	No Change

Separate turn lanes are warranted on both Delaware Route 54 approaches based on DelDOT’s *Auxiliary Lane Worksheet*. Initial recommended minimum turn lane lengths (excluding tapers) include a 240-foot right-turn lane on eastbound Delaware Route 54 and a 210-foot left-turn lane on westbound Delaware Route 54. The developer should coordinate with DelDOT’s Development Coordination Section to determine final turn lane lengths and other design details during the site plan review.

3. The developer should construct the full-movement Site Access B on West Line Road. The proposed configuration is shown in the table below.

Approach	Current Configuration	Approach	Proposed Configuration
Eastbound West Line Road	One through lane	Eastbound West Line Road	One shared through/left-turn lane and one bypass lane
Westbound West Line Road	One through lane	Westbound West Line Road	One through lane and one right-turn lane
Northbound	Approach does not exist	Northbound	No Change
Southbound	Approach does not exist	Southbound Site Access B	One shared left/right-turn lane. Stop Control.

Based on DelDOT’s *Auxiliary Lane Worksheet*, a separate right-turn lane is warranted on the westbound approach of West Line Road and a bypass lane is warranted on the eastbound approach of West Line Road. Initial recommended minimum length of the right-turn lane on westbound West Line Road is 190 feet (excluding taper). On eastbound West Line Road, the initial recommend lengths for the bypass lane are 215-foot approach taper, 50-foot bypass lane storage length and 110-foot departure taper. The developer should coordinate with DelDOT’s Development Coordination Section to determine final turn lane and bypass lane lengths and other design details during the site plan review.

4. 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 \$103,508.77. The developer should coordinate with DelDOT’s Subdivision Section on the equitable cost payment terms.
5. The following bicycle and pedestrian improvements should be included:
 - a. Per the DelDOT Development Coordination Manual section 5.2.9.2, bicycle lanes are required where right-turn lanes are being installed.
 - b. Appropriate bicycle symbols, directional arrows, pavement markings, and signing should be included along bicycle facilities and turn lanes within the project limits.



- c. Utility covers should be made flush with the pavement.
- d. A minimum 15-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontages along Delaware Route 54, West Line Road and Dickerson Road.
- e. Within the easements along the Delaware Route 54, West Line Road and Dickerson Road frontages, a minimum of a 10-foot wide shared-use path should be constructed. The shared-use path should meet AASHTO and ADA standards and should have a minimum of a five-foot buffer from the roadway. At the property boundaries, shared-use paths 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 each boundary of the property.
- f. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including all site entrances. Type 3 curb ramps are discouraged.
- g. Internal sidewalks in the development should connect to the recommended shared-use paths along Delaware Route 54, West Line Road and Dickerson Road.

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 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.

A handwritten signature in black ink, appearing to read "Andrew J. Parker".

Andrew J. Parker, PE, PTOE
Project Manager

Enclosure

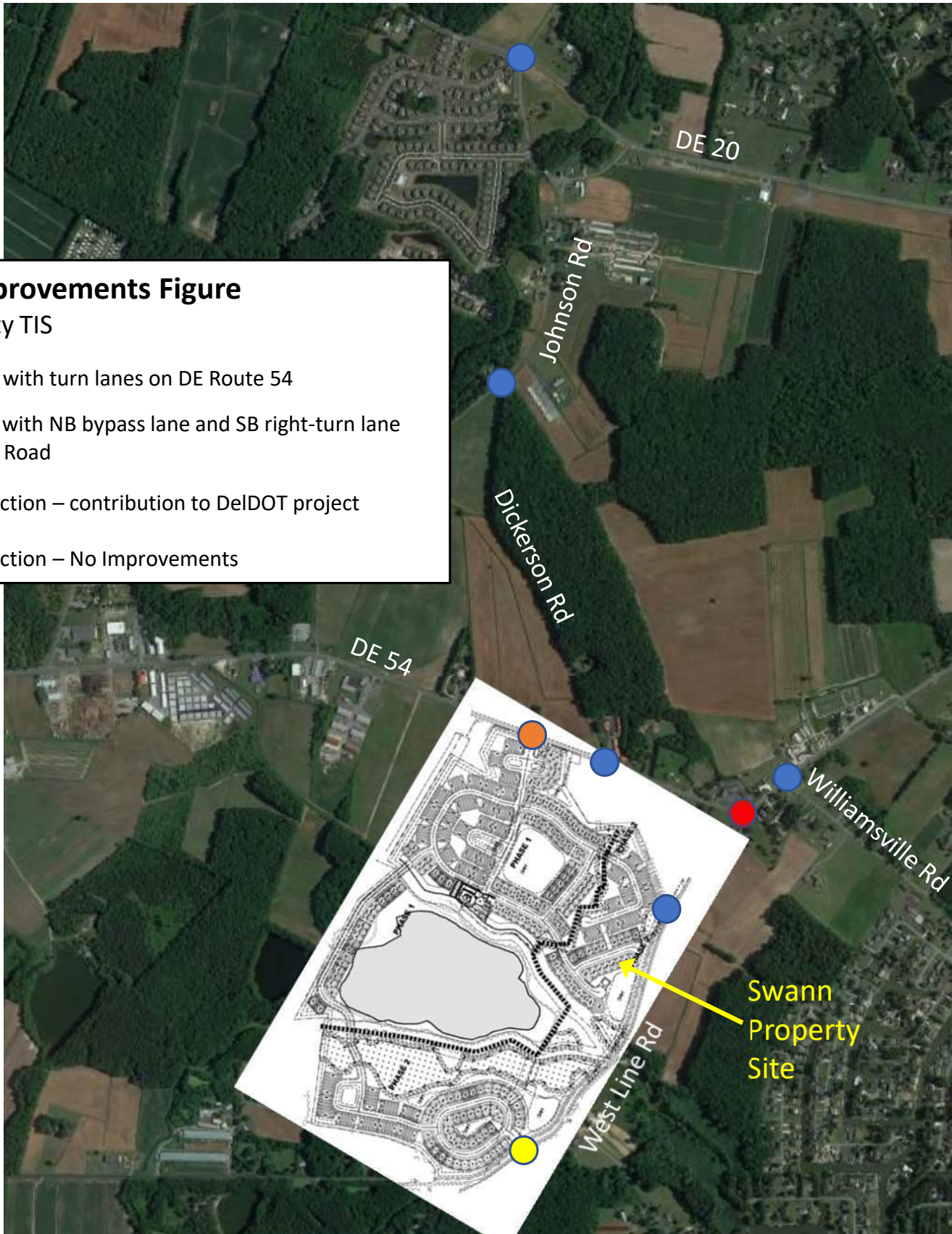
Swann Property

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Page 5

Scope of Improvements Figure

Swann Property TIS

- Site Access A with turn lanes on DE Route 54
- Site Access B with NB bypass lane and SB right-turn lane on West Line Road
- Study Intersection – contribution to DeIDOT project
- Study Intersection – No Improvements



General Information

Report date: October 26, 2023

Prepared by: The Traffic Group, Inc.

Prepared for: Crosswinds Landing, LLC

Tax parcel: 533-18.00-56.00 and 533-18.00-63.00

Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed Swann Property development would consist of 191 units of single-family attached housing and 161 units of single-family detached housing.

Location: The site is located on the west side of West Line Road (Sussex Road 396), the southwest side of Dickerson Road (Sussex Road 389), and the south side of Delaware Route 54 (Lighthouse Road) in Sussex County. A site location map is included on page 8.

Amount of land to be developed: approximately 180.62-acre assemblage of parcels

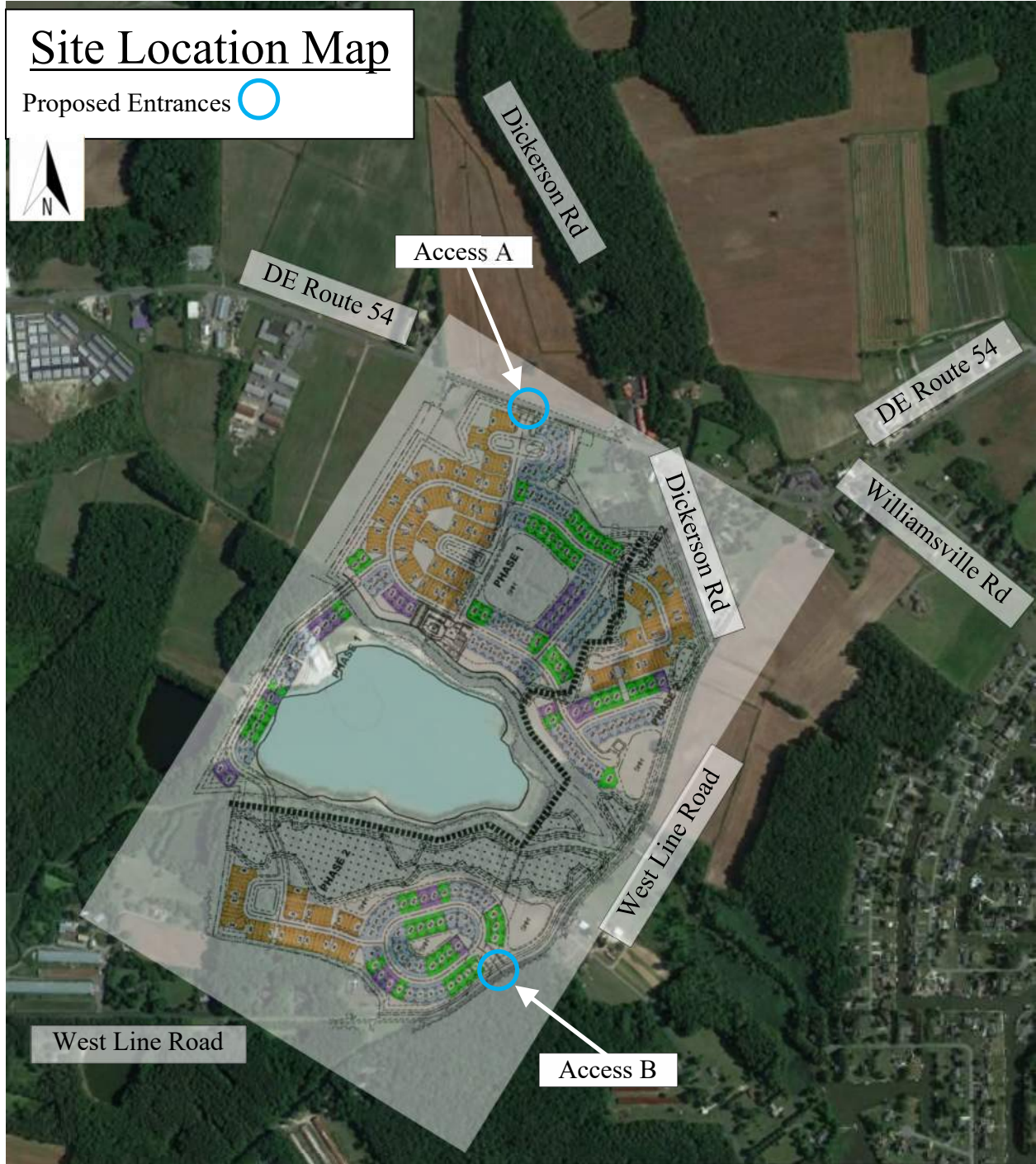
Land use approval(s) needed: The land is currently zoned as AR-1 (Agricultural Residential), and the developer plans to rezone the land to MR (Medium Density Residential) with an RPC (Residential Planned Community) overlay.

Proposed completion year: 2029

Proposed access locations: Two full access points are proposed. One on West Line Road and one on Lighthouse Road. Both are proposed as full-movement unsignalized T-intersections.

Average Daily Traffic Volumes (per DelDOT Traffic Summary 2022):

- 2022 Average Annual Daily Traffic on West Line Road: 2,469 vehicles/day
- 2022 Average Annual Daily Traffic on Lighthouse Road: 5,096 vehicles/day



2020 Delaware Strategies for State Policies and Spending

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

The proposed Swann Property development is located within Investment Levels 3 and 4.

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.

Investment Level 4

Delaware's Investment Level 4 Areas are rural in nature and are where the bulk of the state's open space/natural areas and agricultural industry is located. These areas contain agribusiness activities, farm complexes, and small settlements. They typically include historic crossroads or points of trade, often with rich cultural ties (for example, unincorporated areas like Clarksville in Sussex County and Port Penn in New Castle County).

Investment Level 4 Areas also boast undeveloped natural areas, such as forestlands, and large recreational uses, such as state and county parks and fish and wildlife preserves. Level 4 Areas may include natural habitats that are important for providing "ecosystem services" such as improving water quality and reducing flood risk. Sometimes, private recreational facilities, such as campgrounds or golf courses (often with associated residential developments), are also situated in Investment Level 4 Areas.

It is the State's intent to discourage additional urban and suburban development in Investment Level 4 Areas unrelated to agriculture and to the areas' needs.

Proposed Development's Compatibility with Strategies for State Policies and Spending:

The proposed Swann Property residential development falls within Investment Levels 3 and 4, and is to be developed with 352 single-family residential units on approximately 180 acres. The proposed development would have a mix of home densities and would include a clubhouse. Some aspects of the development appear to be consistent with characteristics of Investment Level 3 areas, however high-density residential development is generally not encouraged in this area. Further, in Investment Level 4 areas, the State's investments and policies should retain the rural landscape,

preserve open spaces and farmlands, support farmland-related industries, and establish defined edges to more concentrated development. New housing developments are generally discouraged in such areas. Further discussion may be required to determine if the proposed development complies with the Strategies. Based on the *2020 Delaware Strategies for State Policies and Spending* document, the proposed development does not appear to be compatible with Investment Level 4 and its compatibility with Investment Level 3 is at least questionable. As such, additional discussion is required.

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 Swann Property development is within a Coastal Area, which is categorized as a Growth Area.

Coastal Area: Sussex County has designated the areas around Rehoboth Bay, Indian River Bay, and Little Assawoman Bay (the inland bays) as Coastal Areas. Coastal Areas generally encompass areas on the south-eastern side of Sussex County within what was previously referred to as the Environmentally Sensitive Developing Areas of prior Comprehensive Plans. The updated name more accurately reflects the function of this land use classification. While the Coastal Area is a Growth Area, additional considerations should be taken into account in this Area that may not apply in other Growth Areas.

The Coastal Area designation is intended to recognize two characteristics. First, this region is among the most desirable locations in Sussex County for new housing, as is reflected in new construction data and real estate prices. Second, this region contains ecologically important and sensitive characteristics as well as other coastal lands which help to absorb floodwaters and provide extensive habitat for native flora and fauna. This area also has significant impact upon water quality within the adjacent bays and inlets as well as upon natural the region's various habitats. And, these factors are themselves part of the reason that this Area is so desirable- making the protection of them important to both the environment and the economy.

The County has significant initiatives to extend public sewer service to replace inadequate on-site systems. Careful control of stormwater runoff is also an important concern in keeping sediment and other pollutants out of the Inland Bays.

The challenge in this region is to safeguard genuine natural areas and mitigate roadway congestion without stifling the tourism and real estate markets which: a) provide many jobs; b) create business for local entrepreneurs; and c) help keep local tax rates low.

The following guidelines should apply to future growth in Coastal Areas:

- Permitted Uses – Coastal Areas are areas that can accommodate development provided special environmental concerns are addressed. A range of housing types should be permitted in Coastal Areas, including single-family homes, townhouses, and multi-family

units. Retail and office uses are appropriate but larger shopping centers and office parks should be confined to selected locations with access along arterial roads. Appropriate mixed-use development should also be allowed. In doing so, careful mixtures of homes with light commercial, office and institutional uses can be appropriate to provide for convenient services and to allow people to work close to home. Major new industrial uses are not proposed in these areas.

- Densities – Sussex County’s base density of 2 units per acre is appropriate throughout this classification; however, medium and higher density (4-12 units per acre) can be appropriate in certain locations. Medium and higher density could be supported in areas: where there is central water and sewer; near sufficient commercial uses and employment centers; where it is in keeping with the character of the area; where it is along a main road or at/or near a major intersection; where there is adequate Level of Service; or where other considerations exist that are relevant to the requested project and density. A clustering option permitting smaller lots and additional flexibility in dimensional standards is encouraged on tracts of a certain minimum size, provided significant permanent common open space is preserved and the development is connected to central water and sewer service. The preservation of natural resources or open space is strongly encouraged in this land use classification. The County should revisit environmental protection in the Coastal Areas.

Specific regulations governing cluster developments are designated by zoning district. There currently is an option where density can be increased with optional density bonuses for certain zoning districts. Those optional bonuses may involve payment of fees that fund permanent land preservation elsewhere in the County, or other options. RPC’s are encouraged to allow for a mix of housing types and to preserve open space and natural areas/resources. Cluster development that allows for smaller lots and flexibility in dimensional standards is encouraged if the developer uses a cluster option that results in permanent preservation of a substantial percentage of the tract and/or natural areas/resources. Master planning should be encouraged especially for large-scale developments on large parcels or groups of parcels, higher density and mixed-use developments to provide flexibility in site design.

All applicants for developments of a minimum size (as specified in zoning) should continue to be required to provide information that analyzes the development’s potential environmental impacts, including effects on stormwater runoff, nitrogen and phosphorous loading, wetlands, woodlands, wastewater treatment, water systems, and other matters that affect the ecological sensitivity of the inland bays.

- Infrastructure – Central water and sewer facilities are strongly encouraged. If central utilities are not possible, permitted densities should be limited to two units per acre provided a septic permit can be approved.

Proposed Development's Compatibility with Comprehensive Plan:

The proposed Swann Property residential development is planned to include 191 single-family attached houses and 161 single-family detached houses on approximately 180.62 acres. This amounts to 1.95 units per acre. The site is currently zoned as AR-1 (Agricultural Residential), and the developer plans to rezone the land to MR (Medium Density Residential) with an RPC (Residential Planned Community) overlay.

The purpose of the MR district is to provide for medium-density residential development in areas which are or which are expected to become generally urban in character, but where sanitary sewers and public water supplies may or may not be available at the time of construction, together with such churches, recreational facilities and accessory uses as may be necessary or are normally compatible with residential surroundings. The district is located to protect existing development of this character and contains vacant land considered appropriate for such development in the future.

RPC districts are established to encourage large-scale developments as a means of creating a superior living environment through unified developments, and to provide for the application of design ingenuity while protecting existing and future developments and achieving the goals of the Comprehensive Plan.

The proposed development appears to comply with the characteristics of Medium Density Residential (if one classifies this location as, or expected to become, generally urban in character) as well as with the Permitted Uses and Densities for a Coastal Area. While the type of use proposed for this site appears to be permitted in this location by the Comprehensive Plan, there are specific regulations that must be followed. For these reasons this development raises questions regarding consistency with Sussex County regulations; therefore additional discussion may be required.

Relevant Projects in the DelDOT Capital Transportation Program

Currently, there is one active DelDOT project and one active study within the TIS study area.

The 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. Two intersections within the TIS study area are also included in the *Southeast Sussex Study*: Delaware Route 54 & West Line Road and Delaware Route 20 & Johnson Road/Bayard Road. More details are available at the following link: <https://deldot.gov/projects/Studies/southeast-sussex/>

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:

- 161 Single-Family Detached Houses (ITE Land Use Code 210)
- 191 Single-Family Attached Houses (ITE Land Use Code 215)

Table 1
Swann Property 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 (161 units)	29	86	115	98	57	155	80	68	148
Single Family Attached House (191 units)	23	71	94	65	46	111	55	59	114
TOTAL TRIPS	52	157	209	163	103	266	135	127	262

Table 2
Swann Property Daily Trip Generation

Land Use	Weekday ADT		
	In	Out	Total
Overall Site	2,970	1,485	1,485
TOTAL TRIPS	2,970	1,485	1,485

Overview of TIS

Intersections examined:

- 1) Delaware Route 54 (Lighthouse Rd) & Site Entrance A
- 2) West Line Road & Site Entrance B
- 3) West Line Road & Dickerson Road
- 4) Delaware Route 54 & Dickerson Road
- 5) Delaware Route 54 & West Line Road
- 6) Delaware Route 54 & Williamsville Road (Sussex Road 395)
- 7) Johnson Road (Sussex Road 390) & Dickerson Road
- 8) Delaware Route 20 & Johnson Road/Bayard Road (Sussex Road 384)

Conditions examined:

- 1) 2023 Existing (Case 1)
- 2) 2029 No Build (Case 2)
- 3) 2029 Build (Case 3)

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

Committed developments considered:

- 1) Coastal Villages: 601 single family detached houses and 100 single family attached houses
- 2) Selbyville Town Village (f.k.a Atlantic Lakes): 129 single-family detached houses (47 unbuilt) and 53 single-family attached houses (19 unbuilt)
- 3) Lighthouse Lakes Meadows: 222 single family detached houses and 80 single family attached houses (fully built out)
- 4) Schooner Landing (f.k.a. Strawberry Ridge): 129 single-family detached houses
- 5) Saltwater Landing (f.k.a. Warrington Property): 99 single-family detached houses (fully built out)
- 6) Fox Haven I: 76 single-family detached houses (fully built out)
- 7) Fox Haven II: 97 single-family detached houses (fully built out)
- 8) Twin Cedars: 42 single-family detached houses, 44 single-family attached houses, and 168 multi-family mid-rise houses
- 9) Sweetbay: 65 single-family detached houses (51 unbuilt)
- 10) Cobb Property (a.k.a. Sandpiper Cove): 68 single-family detached houses
- 11) Ashton Oaks: 178 multi-family mid-rise houses

Intersection Descriptions

1) Delaware Route 54 & Site Entrance A

Type of Control: proposed minor stop-controlled T-intersection

Eastbound Approach: (Delaware Route 54) existing one through lane; proposed one through lane and one right-turn lane

Westbound Approach: (Delaware Route 54) existing one through lane; proposed one left-turn lane and one through lane

Northbound Approach: (Site Entrance) proposed one shared left-turn/right-turn lane, stop controlled

2) West Line Road & Site Entrance B

Type of Control: proposed minor stop-controlled T-intersection

Eastbound Approach: (West Line Road) existing one through lane; proposed one shared through/left-turn lane and one bypass lane

Westbound Approach: (West Line Road) existing one through lane; proposed one through lane and one right-turn lane

Southbound Approach: (Site Entrance) proposed one shared left-turn/right-turn lane, stop controlled

3) West Line Road & Dickerson Road

Type of Control: minor stop-controlled T-intersection

Eastbound Approach: (Dickerson Road) one shared left-turn/right-turn lane, stop controlled

Northbound Approach: (West Line Road) one shared left-turn/through lane

Southbound Approach: (West Line Road) one shared through/right-turn lane

4) Delaware Route 54 & Dickerson Road

Type of Control: two-way stop-controlled intersection

Eastbound Approach: (Delaware Route 54) one shared left-turn/through/right-turn lane

Westbound Approach: (Delaware Route 54) one shared left-turn/through/right-turn lane

Northbound Approach: (Dickerson Road) one shared left-turn/through/right-turn lane, stop controlled

Southbound Approach: (Dickerson Road) one shared left-turn/through lane and one right-turn lane, stop controlled

5) Delaware Route 54 & West Line Road

Type of Control: minor stop-controlled T-intersection w/ shopping center access driveway

Eastbound Approach: (Delaware Route 54) one shared left-turn/through/right-turn lane

Westbound Approach: (Delaware Route 54) one shared left-turn/through/right-turn lane

Northbound Approach: (West Line Rd) one left-turn lane and one shared through/right-turn lane, stop controlled

Southbound Approach: (shopping center) one shared left-turn/through/right-turn lane, stop controlled

6) Delaware Route 54 & Williamsville Road

Type of Control: minor stop-controlled T-intersection

Eastbound Approach: (Delaware Route 54) one shared through/right-turn lane

Westbound Approach: (Delaware Route 54) one shared left-turn/through turn lane

Northbound Approach: (Williamsville Rd) one shared left-turn/right-turn lane, stop controlled

7) Johnson Road & Dickerson Road

Type of Control: minor stop-controlled T-intersection

Westbound Approach: (Dickerson Road) one shared left-turn/right-turn lane, stop controlled

Northbound Approach: (Johnson Rd) one shared through/right-turn lane

Southbound Approach: (Johnson Rd) one shared left-turn/through lane

8) Delaware Route 20 & Johnson Road/Bayard Road

Type of Control: signalized intersection

Eastbound Approach: (Delaware Route 20) one left-turn lane, one through lane, and right-turn lane

Westbound Approach: (Delaware Route 20) one shared left-turn/through/right-turn lane

Northbound Approach: (Johnson Road) one shared left-turn/through/right-turn lane

Southbound Approach: (Johnson Road) one 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 July 24, 2020 to July 24, 2023. A total of 47 crashes occurred within the study area during the three-year period. Of those 47 collisions, 7 resulted in personal injury and there were no fatalities. The location with the most crashes was the signalized intersection of Delaware Route 20 & Johnson Road/Bayard Road, where 12 crashes occurred over the three-year period. The most common types of collisions were angle crashes (28) followed by Not a Collision of Two Vehicles (11).

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, with the exception of limited sight distance at the intersection of West Line Road & Dickerson Road due to vegetation and embankment close to the intersection. No problematic sight distance issues are 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 DART Bus Stop Map, the Delaware Transit Corporation (DTC) does not operate any transit routes within or near the study area.

Planned transit service: DTC was contacted regarding the existing and planned transit service in the area. DTC stated that they have no transit related comments regarding this site.

Existing bicycle and pedestrian facilities: According to DelDOT's Sussex County Bicycle Map, Delaware Route 54 is classified as a Regional Bicycle Route with Bikeway. East of West Line Road Delaware Route 54 is designated as High Traffic (vehicular traffic over 5,000 vehicles per day). West of West Line Road it is not designated as High Traffic. Delaware Route 20 is also classified as a High Traffic Regional Bicycle Route with Bikeway. Johnson Road and Bayard Road are both classified as a Connector Bicycle Route Suggestions.

Delaware Route 54 is marked with bike lanes. Delaware Route 200 also has bike lanes at the intersection with Johnson Road/Bayard Road. There are currently no existing bicycle lanes along other study area roadways. There are no pedestrian facilities in the study area except for a short stretch of sidewalk along the south side of Delaware Route 54 near Williamsville Road, and at the intersection of Delaware Route 20 and Johnson Road/Bayard Road there is shared-use path on the southwest corner plus crosswalks across the west and south legs of the signalized intersection.

Planned bicycle and pedestrian facilities: John Fiori, representing DelDOT's Statewide and Regional Planning section, was contacted regarding existing and planned bicycle and pedestrian facilities. He stated that a 10' wide shared-use path (SUP) will be required along all roadway frontages with angled terminations to the shoulders and internal connections to the development. If the right-of-way exists, it is recommended to extend the SUP to the corner of Delaware Route 54 & West line Road along Parcel 64.00. If the right-of-way does not exist, then the SUP from Delaware Route 54 to West Line Road shall be connected through the development. Additionally, if a right-turn lane is warranted at a site access then a separate bike lane shall be incorporated along the right-turn lane; if a left-turn lane is required any roadway improvements shall include a shoulder matching the roadway functional classification or existing conditions (minimum 5 feet).

Previous Comments

In a review letter dated October 10, 2023, DelDOT indicated that the Preliminary TIS was acceptable with one minor change.

It appears that all substantive comments from DelDOT's TIS Scoping Memorandum, Traffic Count Review, Preliminary TIS Review, Revised 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 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).
- 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. Those PHFs were also used for future conditions.
- 3) For analyses of all intersections, McCormick Taylor and the TIS assumed 0% grade for all movements.

Table 3
Peak Hour Levels of Service (LOS)
Based on the Swann Property Traffic Impact Study – October 2023
Prepared by Crosswinds Landing, LLC

Unsignalized Intersection ¹ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
DE Route 54 (Lighthouse Rd) & Site Entrance A						
2029 Build Condition (Case 3)						
Westbound DE 54 – Left	A (8.0)	A (8.3)	A (8.6)	A (8.0)	A (8.3)	A (8.6)
Northbound Site Entrance	B (12.2)	B (12.8)	C (15.1)	B (12.2)	B (12.8)	C (15.1)

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 the Swann Property Traffic Impact Study – October 2023
Prepared by Crosswinds Landing, LLC

Unsignalized Intersection ² One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
West Line Road & Site Entrance B						
2029 Build Condition (Case 3)						
Eastbound West Line Road – Left	A (7.7)	A (7.7)	A (7.8)	A (7.7)	A (7.7)	A (7.8)
Southbound Site Entrance	B (11.3)	B (11.9)	B (11.7)	B (11.3)	B (11.9)	B (11.7)

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 the Swann Property Traffic Impact Study – October 2023
Prepared by Crosswinds Landing, LLC

Unsignalized Intersection ³ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
West Line Road & Dickerson Road						
2023 Existing (Case 1)						
Eastbound Dickerson Rd	A (9.3)	A (9.1)	A (9.2)	A (9.3)	A (9.1)	A (9.2)
Northbound West Line Rd – Left	A (7.9)	A (7.5)	A (7.7)	A (7.9)	A (7.5)	A (7.7)
2029 No-Build Condition (Case 2)						
Eastbound Dickerson Rd	A (9.3)	A (9.1)	A (9.2)	A (9.3)	A (9.1)	A (9.2)
Northbound West Line Rd – Left	A (7.9)	A (7.5)	A (7.7)	A (7.9)	A (7.5)	A (7.7)
2029 Build Condition (Case 3)						
Eastbound Dickerson Rd	A (9.4)	A (9.3)	A (9.5)	A (9.4)	A (9.3)	A (9.5)
Northbound West Line Rd – Left	A (8.0)	A (7.6)	A (7.8)	A (8.0)	A (7.6)	A (7.8)

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 the Swann Property Traffic Impact Study – October 2023
Prepared by Crosswinds Landing, LLC

Unsignalized Intersection ⁴ Two-Way Stop Controlled (TWSC)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
Delaware Route 54 & Dickerson Road						
2023 Existing (Case 1)						
Eastbound DE 54 - Left	A (7.5)	A (7.8)	A (7.9)	A (7.5)	A (7.8)	A (7.9)
Westbound DE 54 - Left	A (7.6)	A (7.6)	A (8.1)	A (7.6)	A (7.6)	A (8.1)
Northbound Dickerson Rd	B (11.6)	B (13.4)	B (14.1)	B (11.6)	B (13.4)	B (14.1)
Southbound Dickerson Rd	B (10.6)	B (11.9)	B (13.5)	B (10.6)	B (11.9)	B (13.5)
2029 No-Build Condition (Case 2)						
Eastbound DE 54 - Left	A (7.6)	A (8.1)	A (8.1)	A (7.6)	A (8.1)	A (8.1)
Westbound DE 54 - Left	A (7.8)	A (7.8)	A (8.3)	A (7.8)	A (7.8)	A (8.4)
Northbound Dickerson Rd	B (13.1)	C (16.5)	C (17.0)	B (13.0)	C (16.4)	C (16.9)
Southbound Dickerson Rd	B (11.5)	B (14.4)	C (16.5)	B (11.5)	B (14.3)	C (16.4)
2029 Build Condition (Case 3)						
Eastbound DE 54 - Left	A (7.7)	A (8.3)	A (8.4)	A (7.7)	A (8.3)	A (8.4)
Westbound DE 54 - Left	A (8.0)	A (8.0)	A (8.5)	A (8.0)	A (7.9)	A (8.6)
Northbound Dickerson Rd	C (16.2)	C (24.8)	D (27.1)	C (16.1)	C (24.6)	D (27.0)
Southbound Dickerson Rd	B (12.5)	C (15.9)	C (18.6)	B (12.6)	C (15.7)	C (18.5)

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 the Swann Property Traffic Impact Study – October 2023
Prepared by Crosswinds Landing, LLC

Unsignalized Intersection ⁵ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
Delaware Route 54 & West Line Road ⁶						
2023 Existing (Case 1)						
Westbound DE 54 – Left	A (8.0)	A (8.0)	A (8.2)	A (8.0)	A (8.0)	A (8.2)
Northbound West Line Rd	B (10.8)	B (11.3)	B (10.7)	B (10.9)	B (11.7)	B (10.9)
2029 No-Build Condition (Case 2)						
Westbound DE 54 – Left	A (8.4)	A (8.4)	A (8.5)	A (8.4)	A (8.4)	A (8.5)
Northbound West Line Rd	B (11.9)	B (11.9)	B (11.7)	B (12.3)	B (13.0)	B (12.0)
2029 Build Condition (Case 3)						
Westbound DE 54 – Left	A (8.6)	A (8.5)	A (8.7)	A (8.6)	A (8.5)	A (8.7)
Northbound West Line Rd	B (12.9)	B (13.3)	B (12.4)	B (13.5)	B (14.0)	B (12.8)

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.

⁶ While analyzed in this TIS as a T-intersection, this intersection also has a shopping center driveway as a 4th leg. In at least one other TIS (Kingfisher) it was analyzed as a four-leg intersection, and LOS deficiencies were found on the southbound driveway approach. DelDOT has initiated the *West Line Road and SR 54, Lighthouse Road, Intersection Improvement* project at this intersection, which may include installation of a roundabout.

Table 8
Peak Hour Levels of Service (LOS)
Based on the Swann Property Traffic Impact Study – October 2023
Prepared by Crosswinds Landing, LLC

Unsignalized Intersection ⁷ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
Delaware Route 54 & Williamsville Road						
2023 Existing (Case 1)						
Westbound DE 54 - Left	A (8.2)	A (8.2)	A (8.2)	A (8.2)	A (8.2)	A (8.2)
Northbound Williamsville Rd	B (14.2)	B (14.5)	C (15.8)	B (14.2)	B (14.5)	C (15.8)
2029 No-Build Condition (Case 2)						
Westbound DE 54 - Left	A (8.6)	A (8.4)	A (8.5)	A (8.6)	A (8.4)	A (8.5)
Northbound Williamsville Rd	C (16.8)	C (17.8)	C (20.4)	C (16.9)	C (17.7)	C (20.3)
2029 Build Condition (Case 3)						
Westbound DE 54 - Left	A (8.8)	A (8.6)	A (8.7)	A (8.8)	A (8.6)	A (8.7)
Northbound Williamsville Rd	C (19.0)	C (20.5)	C (24.3)	C (19.3)	C (20.3)	C (24.2)

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 9
Peak Hour Levels of Service (LOS)
Based on the Swann Property Traffic Impact Study – October 2023
Prepared by Crosswinds Landing, LLC

Unsignalized Intersection ⁸ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
Johnson Road & Dickerson Road						
2023 Existing (Case 1)						
Westbound Dickerson Road	A (9.0)	A (9.1)	A (9.1)	A (9.0)	A (9.1)	A (9.1)
Southbound Johnson Road - Left	A (7.5)	A (7.5)	A (7.4)	A (7.5)	A (7.5)	A (7.4)
2029 No-Build Condition (Case 2)						
Westbound Dickerson Road	A (9.1)	A (9.1)	A (9.2)	A (9.1)	A (9.2)	A (9.1)
Southbound Johnson Road - Left	A (7.4)	A (7.6)	A (7.5)	A (7.6)	A (7.5)	A (7.5)
2029 Build Condition (Case 3)						
Westbound Dickerson Road	A (9.3)	A (9.4)	A (9.4)	A (9.3)	A (9.4)	A (9.4)
Southbound Johnson Road - Left	A (7.6)	A (7.6)	A (7.6)	A (7.6)	A (7.6)	A (7.6)

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 10
Peak Hour Levels of Service (LOS)
Based on the Swann Property Traffic Impact Study – October 2023
Prepared by Crosswinds Landing, LLC.

Signalized Intersection ⁹	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
Delaware Route 20 & Johnson Road/Bayard Road						
2023 Existing (Case 1)	B (11.6)	B (13.1)	B (13.5)	B (16.3)	B (18.0)	B (18.1)
2029 No Build Condition (Case 2)	B (12.0)	B (15.3)	B (16.0)	B (16.3)	B (18.1)	B (19.7)
2029 Build Condition (Case 3)	B (12.5)	B (16.1)	B (16.9)	B (16.6)	C (20.3)	C (23.0)

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.