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

NICOLE MAJESKI
SECRETARY

November 23, 2022

Ms. Nicole Kline-Elsier, PE, PTOE
McMahon Associates, Inc.
835 Springdale Drive, Suite 200
Exton, PA 19341

Dear Ms. Kline-Elsier,

The enclosed Traffic Impact Study (TIS) review letter for **Village Brook East Residential (a.k.a. Laurel Residential)** (Tax Parcel: 232-12.00-65.00) 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. Lou Ramunno, Liborio 6, LLC
Mr. David Kuklish, Bohler Engineering
Ms. Jamie Smith, Town of Laurel
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, Traffic, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, DelDOT Traffic
Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
Sireen Muhtaseb, TIS Section Manager, Development Coordination
Alistair 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
Kevin Hickman, Acting Sussex Review Coordinator, Development Coordination
Thomas Gagnon, Sussex County Subdivision Manager, Development Coordination
Mark Galipo, Traffic Engineer, Traffic, DOTS
Annamaria Furmato, Project Engineer, Development Coordination

November 23, 2022

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 13A – Village Brook East Residential (a.k.a. Laurel Residential) Development

Dear Mr. Joinville:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Village Brook East Residential (a.k.a. Laurel Residential) development prepared by McMahon, Inc., dated July 8, 2022. McMahon prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the proposed development. The site is located on the east side of US Route 13 (Sussex Highway) and to the south of Discount Land Road (Sussex Road 468) in the Town of Laurel, Sussex County, Delaware. The TIS evaluates the proposed development of 63 single family detached homes, 168 condominiums and 179 townhomes with one full movement access on Discount Land Road. Construction is anticipated to be completed by 2026.

The subject land consists of an approximately 77-acre parcel. The land is currently zoned VRP (Residential) within the Town of Laurel. The developer does not plan to rezone the land.

DelDOT has one project in the study area, Discount Land Road, US 13A to US 13 (State Project No. T201801301). This project involves roadway improvements along Discount Land Road from Seaford Road to US Route 13. The improvements include roadway widening, bicycle lanes and the construction of sidewalk or multi-use path adjacent to the roadway. This project is in the preliminary design stage, with a public workshop planned for 2022 and construction tentatively anticipated to begin in 2025.

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

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

Intersection	***Existing Traffic Control***	***Situations for Which Deficiencies Occur***
US Route 13 and Boyce Road	Unsignalized	2021 existing weekday PM (Case 1); 2026 without development weekday PM (Case 2); 2026 with development weekday PM (Case 3)
US Route 13 and Camp Road	Unsignalized	2021 existing weekday AM & PM (Case 1); 2026 without development weekday AM & PM (Case 2); 2026 with development weekday AM & PM (Case 3)
US Route 13 and US Route 9	Signalized	2026 without development weekday AM (Case 2); 2026 with development weekday AM (Case 3)
US Route 9 and Taylor Mill Road	Unsignalized	2026 without development weekday AM & PM (Case 2); 2026 with Laurel Plaza weekday AM & PM (Case 3)

US Route 13 and Boyce Road

This unsignalized intersection experiences LOS deficiencies in the weekday PM peak hour under the 2021 existing, 2026 without development, and 2026 with development scenarios.

The eastbound and westbound Boyce Road approaches are expected to operate at LOS F and E in the 2026 PM peak hour, respectively, both without and with development. The 95th percentile queue length is approximately 50 feet in the eastbound direction and approximately 25 feet on the westbound approach during the future PM peak hour. The eastbound and westbound approaches both have existing channelized right-turn lanes. There are no anticipated deficiencies during the AM peak hour. While the installation of a traffic signal would mitigate the LOS deficiencies, it is not found to be warranted. For that reason and because queues on the eastbound and westbound approaches would be short, we recommend that this developer should not be responsible for improvements at this intersection.

US Route 13 and Camp Road

This unsignalized intersection experiences LOS deficiencies in the weekday AM and PM peak hours under the 2021 existing, 2026 without development, and 2026 with development scenarios.

The eastbound Camp Road approach is expected to operate at LOS E during the existing AM peak hour and LOS F during the 2026 AM peak hour both without and with development. The 95th percentile queue length in the 2026 AM peak hour with development scenario is approximately 120 feet. While adding a separate right-turn lane on the eastbound approach would not completely resolve the LOS deficiencies, it is recommended as it would help to reduce the delay and mitigate

the queue. Therefore, we recommend that the developer provide an eastbound right-turn lane as described below in Item No. 3.

The westbound Camp Road approach is expected to operate at LOS E during the existing PM peak hour and LOS F during the 2026 PM peak hour both without and with development. The 95th percentile queue length is less than 25 feet. Adding a separate turn lane on the westbound approach would not resolve the deficiencies. It is noted that installation of a traffic signal would mitigate LOS deficiencies at this intersection. However, installation of a traffic signal is not warranted at this time. For these reasons, no mitigation is recommended for the westbound approach (only for the eastbound approach as stated above and in Item No. 3).

US Route 13 and US Route 9

This signalized intersection is expected to experience LOS deficiencies during the 2026 AM peak hour, both without and with development.

The eastbound and westbound approaches operate at LOS E in the existing 2021 scenario and are expected to operate at LOS F during both 2026 scenarios, without and with development. The proposed development is only expected to add minimal delay at this intersection. The deficiencies could potentially be mitigated with the addition of dual left-turn lanes on the US Route 9 approaches. However, that level of improvement is beyond the scope of this development. For this reason, we recommend that this developer should not be responsible for improvements at this intersection.

US Route 9 at Taylor Mill Road

This unsignalized intersection is expected to experience LOS deficiencies during the 2026 AM and PM peak hours, both without and with development. The southbound approach is expected to operate at LOS E in 2026 without development and LOS F in 2026 with development.

The stop-controlled southbound Taylor Mill Road approach is expected to have a 95th percentile queue length of approximately 120 feet. Adding a separate left-turn lane on the southbound approach would not resolve the LOS deficiencies or significantly reduce the queue length. It is noted that installation of a traffic signal would mitigate LOS deficiencies at this intersection, however a traffic signal is not warranted at this time. For these reasons, we recommend that this developer should not be responsible for improvements at this intersection.

Should the Town of Laurel 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(s) on which they front (Discount Land Road and US Route 9), within the limits of their frontage, to meet DelDOT's standards for their Functional Classification as found in Section 1.1 of the Development Coordination Manual and elsewhere therein. The improvements shall include both

directions of travel, regardless of whether the developer's lands are on one or both sides of the road. Frontage is defined in Section 1 of the Development Coordination Manual, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

2. The developer should construct the full movement Site Access on Discount Land Road. The proposed configuration is shown in the table below.

Approach	Existing Configuration	Proposed Configuration
Eastbound Discount Land Road	One through lane	One through lane and one right-turn lane
Westbound Discount Land Road	One through lane	One through lane and one left-turn lane
Northbound Site Access	Approach does not exist	One left-turn lane and one right-turn lane

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

Approach	Left-Turn Lane	Right-Turn Lane
Eastbound Discount Land Road	N/A	145 feet *
Westbound Discount Land Road	95 feet *	N/A
Northbound Site Access	50 feet **	N/A

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

3. The developer should construct an eastbound right-turn lane at the intersection of US Route 13 and Camp Road. This eastbound right-turn lane is initially recommended to be 125 feet in length (excluding taper), although the developer should coordinate with DelDOT's Development Coordination Section to determine final turn-lane length and design details..

4. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 13 and US Route 9. Signal improvements may be constructed there in the future as determined by DelDOT. The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. A contribution to DelDOT's Traffic Signal Revolving Fund (TSRF) is also an option. If the TSRF is utilized, the amount of the contribution, as determined by DelDOT's Development Coordination Section, should not exceed $7,386.

5. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 13 and Discount Land Road. A signal may be constructed there in the future when warranted as determined by DelDOT. The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. The developer should coordinate with DelDOT to determine if a contribution to DelDOT's Traffic Signal Revolving Fund (TSRF) is an option. If the TSRF is utilized, the amount of the contribution, as determined by DelDOT's Development Coordination Section, should not exceed $19,654.

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

    a. Adjacent to the proposed right-turn lanes on eastbound Discount Land Road at the proposed site entrance, a minimum of a five-foot bicycle lane should be dedicated and striped with appropriate markings for bicyclists through the turn lane in order to facilitate safe and unimpeded bicycle travel.

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

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

    d. A minimum 15-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontages along Discount Land Road.

    e. Within the easement along Discount Land Road, a minimum of a ten-foot wide shared-use path (SUP) that meets current AASHTO and ADA standards should be constructed along the site frontage. The SUP should have a minimum of a five-foot buffer from the roadway. At the east end of the site frontage, the SUP should connect to the adjacent property or to the shoulder of Discount Land Road in accordance with DelDOT's *Shared Use Path and/or Sidewalk Termination Reference Guide* dated August 1, 2018. The developer should coordinate with DelDOT's Development Coordination Section to determine details of the SUP connections at the property boundaries.

    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 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. These internal sidewalks should connect to the proposed sidewalks along Discount Land Road.

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

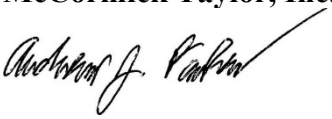
Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at http://deldot.gov/Publications/manuals/de_mutcd/index.shtml.

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, P.E., PTOE
Project Manager

Enclosure

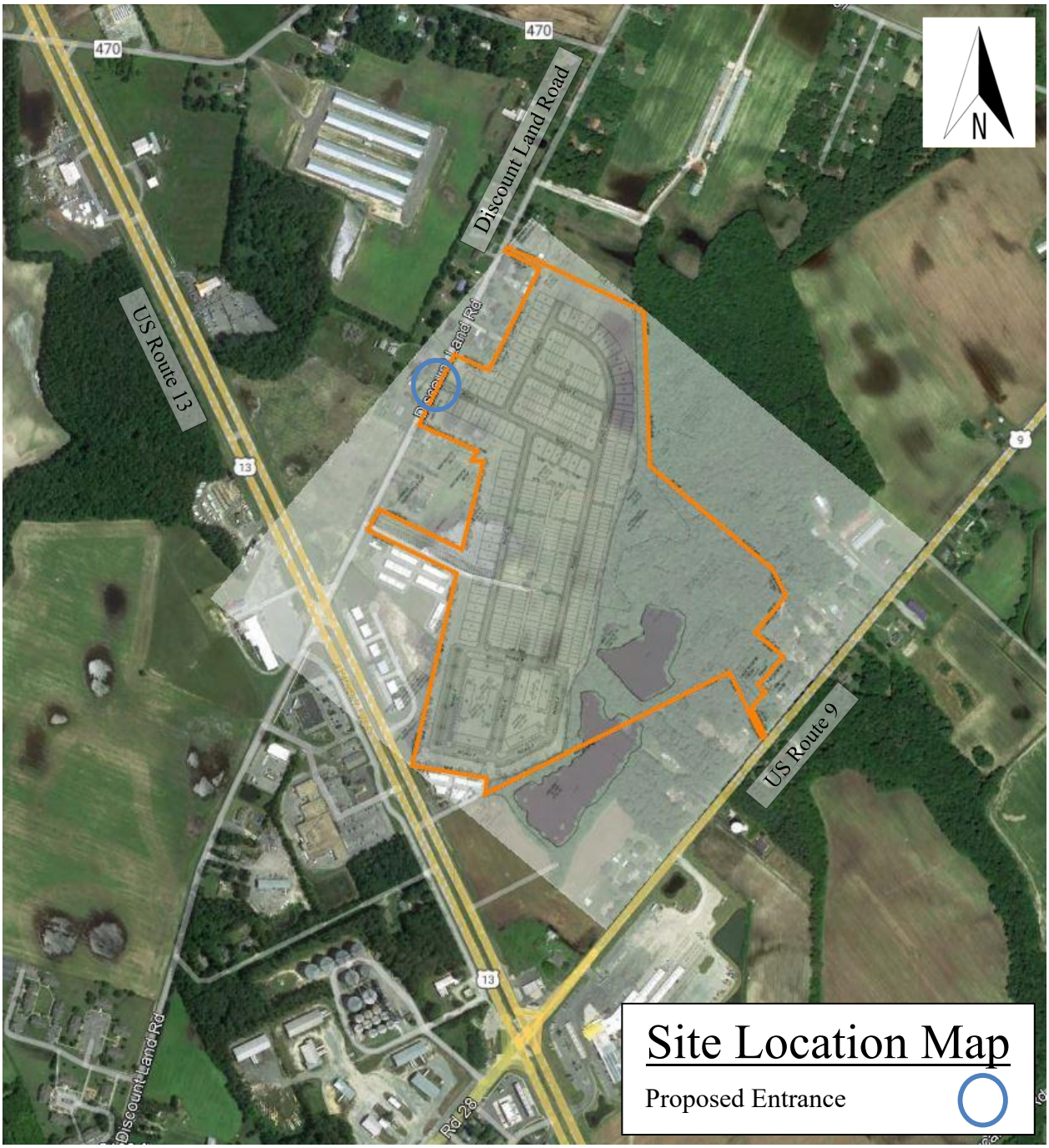
General Information

Report date: July 8, 2022
Prepared by: McMahon, Inc.
Prepared for: Liborio Watergate, LLC
Tax parcel: 232-12.00-65.00
Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed Village Brook East Residential development would consist of 63 single family detached homes, 168 condominiums, and 179 townhomes.
Location: The site is proposed to be located on the east side of US Route 13 (Sussex Highway) and to the south of Discount Land Road (Sussex Road 468) in the Town of Laurel, Sussex County, Delaware. A site location map is included on page 8.
Amount of land to be developed: Approximately 77.0 acres
Land use approval(s) needed: Subdivision approval. The land is currently zoned VRP (Residential) within the Town of Laurel. The developer does not plan to rezone the land.
Proposed completion date: 2026
Proposed access locations: One full access entrance onto Discount Land Road
Daily Traffic Volumes (per DelDOT Traffic Summary 2021):

- 2021 Average Annual Daily Traffic on Discount Lane Road: 854 vehicles/day


470
470
Discount Land Road
US Route 13
Discount Land Rd
13
9
US Route 9
13
Discount Land Rd
Rd 28
N
Site Location Map
Proposed Entrance

2020 Delaware Strategies for State Policies and Spending

Location with respect to the Strategies for State Policies and Spending Map of Delaware: The majority of the proposed development is located within an Investment Level 1 area. A small portion of the property is located within Investment Level 2

Investment Level 1
Investment Level 1 Areas are often municipalities, towns, or urban/urbanizing places in counties. Density is generally higher than in the surrounding areas. There are a variety of transportation opportunities available. Buildings may have mixed uses, such as a business on the first floor and apartments above.

In Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote a variety of transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Overall, it is the State's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in Investment Level 1 Areas. These areas would be a prime location for designating "pre-permitted areas" to help steer development where the local government and citizens are most prepared to accept it.

Proposed Development's Compatibility with Strategies for State Policies and Spending:
The proposed development consists of 63 single family detached homes, 168 condominiums, and 179 townhomes in an Investment Level 1 area. Investment Level 1 supports this type of development. As such, the proposed development appears to comply with the guidelines set forth 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 Future Land Use Map indicates that the proposed development is in the Town of Laurel, 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 the zoning ordinance for that municipality, its public water and sewer capacities, and its comprehensive planning policies.

Town of Laurel Comprehensive Plan:
(Source: Reimagining Laurel Comprehensive Plan 2018, approved October 2017)

The Town of Laurel Comprehensive Plan Future Land Use Map indicates that the site is planned for residential use. Based on the Town of Laurel Zoning Ordinance, the proposed land use appears to be appropriate within the existing zoning.

Proposed Development's Compatibility with Comprehensive Plan:
The proposed development would consist of 63 single family detached homes, 168 condominiums, and 179 townhomes. The land is currently zoned VRP (Residential). The proposed development appears to comply with the characteristics of Laurel's future land use plan and current zoning designation.

Relevant Projects in the DelDOT Capital Transportation Program

DelDOT has one project in the study area, Discount Land Road, US 13A to US 13 (State Project No. T201801301). This project involves roadway improvements along Discount Land Road from Seaford Road to US Route 13. The improvements include roadway widening, bicycle lanes and the construction of sidewalk or multi-use path adjacent to the roadway. This project is in the preliminary design stage, with a public workshop planned for 2022 and construction tentatively anticipated to begin in 2025.

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:

- 63 units, Single-Family Detached (ITE Land Use Code 210)
- 179 units, Multifamily Housing (Low Rise) (ITE Land Use Code 220)
- 168 units, Multifamily Housing (Mid Rise) (ITE Land Use Code 221)

Table 1
VILLAGE BROOK EAST RESIDENTIAL PEAK HOUR TRIP GENERATION

Land Use	Total Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In & Out	In	Out	Total	In	Out	Total
63 units, Single-Family Detached	680	12	38	50	41	24	65
179 units, Multifamily Housing (Low Rise)	1,312	19	64	83	62	37	99
168 units, Multifamily Housing (Mid Rise)	914	15	42	57	44	29	73
TOTAL TRIPS	**2,906**	**46**	**144**	**190**	**147**	**90**	**237**

Overview of TIS

Intersections examined:
1) Discount Land Road and Site Access
2) US Route 13 and Discount Land Road
3) US Route 13 and US Route 9/Georgetown Road
4) US Route 13 and Sycamore Road/Delaware Avenue (Sussex Road 466)
5) US Route 13 and Camp Road (Sussex Road 470)
6) US Route 13 and Boyce Road (Sussex Road 482)

7) Discount Land Road and Camp Road
8) Discount Land Road and Taylor Mill Road (Sussex Road 467)
9) US Route 9 and Taylor Mill Road

Conditions examined:
1) 2021 Existing (Case 1)
2) 2026 without development (Case 2)
3) 2026 with development (Case 3)

Peak hours evaluated: Weekday morning and evening peak hours

Committed developments considered:
1) Laurel Plaza (89,000 square foot Shopping Center)
2) Laurel Burger King (4,000 square-foot Fast Food Restaurant w/ Drive-Thru)

Intersection Descriptions

1) Discount Land Road and Site Access
Type of Control: One-way stop (T-intersection)
Northbound approach: (Site Access) one left-turn lane and one right-turn lane, stop control
Eastbound approach: (Discount Land Road) existing one through lane, proposed one through lane and one right-turn lane
Westbound approach: (Discount Land Road) existing one through lane, proposed one through lane and one left-turn lane

2) US Route 13 and Discount Land Road
Type of Control: Two-way stop/yield
Eastbound Approach: (Discount Land Road) one channelized right-turn lane, yield control
Westbound Approach: (Discount Land Road) one channelized right-turn lane, yield control
Northbound Approach: (US Route 13) one stop-control channelized left-turn lane, two through lanes, and one yield control channelized right-turn lane
Southbound Approach: (US Route 13) one stop-control channelized left-turn lane, two through lanes, and one yield control channelized right-turn lane

3) US Route 13 and US Route 9/Georgetown Road
Type of Control: Signalized four-leg intersection
Eastbound Approach: (Georgetown Road) one left-turn lane, one through lane, and one yield control channelized right-turn lane
Westbound Approach: (US Route 9) one left-turn lane, one through lane, and one yield control channelized right-turn lane
Northbound Approach: (US Route 13) one left-turn lane, two through lanes, and one yield control channelized right-turn lane
Southbound Approach: (US Route 13) one left-turn lane, two through lanes, and one yield control channelized right-turn lane

4) US Route 13 and Sycamore Road/Delaware Avenue
Type of Control: Signalized four-leg intersection
Eastbound Approach: (Delaware Avenue) one left-turn lane, one through lane, and one yield control channelized right-turn lane
Westbound Approach: (Sycamore Road) one left-turn lane, one through lane, and one yield control channelized right-turn lane
Northbound Approach: (US Route 13) one left-turn lane, two through lanes, and one right-turn lane
Southbound Approach: (US Route 13) one left-turn lane, two through lanes, and one right-turn lane

5) US Route 13 and Camp Road
Type of Control: Two-way stop
Eastbound Approach: (Camp Road) one shared left-turn/through/right-turn lane, stop control
Westbound Approach: (Camp Road) one shared left-turn/through/right-turn lane, stop control
Northbound Approach: (US Route 13) one left-turn lane, two through lanes, and one yield control channelized right-turn lane
Southbound Approach: (US Route 13) one left-turn lane, two through lanes, and one yield control channelized right-turn lane

6) US Route 13 and Boyce Road
Type of Control: Two-way stop
Eastbound Approach: (Boyce Road) one stop control shared left-turn/through lane and one yield control channelized right-turn lane
Westbound Approach: (Boyce Road) one stop control shared left-turn/through lane and one yield control channelized right-turn lane
Northbound Approach: (US Route 13) one left-turn lane, two through lanes, and one right-turn lane
Southbound Approach: (US Route 13) one left-turn lane, two through lanes, and one right-turn lane

7) Discount Land Road and Camp Road
Type of Control: One-way stop (T-intersection)
Eastbound Approach: (Camp Road) one shared left-turn/right-turn lane, stop control
Northbound Approach: (Discount Land Road) one shared left-turn/through lane
Southbound Approach: (Discount Land Road) one shared through/right-turn lane

8) Discount Land Road and Taylor Mill Road
Type of Control: One-way stop (T-intersection)
Westbound Approach: (Taylor Mill Road) one shared left-turn/right-turn lane, stop control
Northbound Approach: (Discount Land Road) one shared through/right-turn lane
Southbound Approach: (Discount Land Road) one shared left-turn/through lane

9) US Route 9 and Taylor Mill Road
Type of Control: Two-way stop
Eastbound Approach: (Taylor Mill Road) one shared left-turn/through/right-turn lane, stop control
Westbound Approach: (Taylor Mill Road) one shared left-turn/through/right-turn lane, stop control
Northbound Approach: (US Route 9) one shared left-turn/through lane and one right-turn lane
Southbound Approach: (US Route 9) one shared left-turn/through lane and one right-turn lane

Safety Evaluation

Crash Data: Delaware Crash Analysis Reporting System (CARS) data was provided in Appendix B of the TIS for the period from August 25, 2018, through August 25, 2021. The crash data shows that a significant proportion of crashes in the study area occurred at the intersection of US Route 13 and US Route 9 and the intersection of US Route 13 and Delaware Avenue / Sycamore Avenue, both of which are signalized intersections. 60 intersection crashes occurred at US Route 13 and US Route 9, accounting for 42% of all crashes within the study limits. Of those 60 crashes, 38 were rear-end crashes, 5 were angle crashes (63% and 8%, respectively). In September 2020 a fatal pedestrian crash occurred at this intersection. The intersection of US Route 13 and Delaware Avenue / Sycamore Avenue experienced 37 intersection crashes, accounting for 26% of all crashes within the study limits. Of those 37 crashes, 27 were rear-end crashes, 3 were angle crashes (73% and 8%, respectively).

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

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Based on the DART Bus Stop Map (accessed August 2022), the Delaware Transit Corporation (DTC) does not currently operate any fixed-route transit bus service in the immediate vicinity of the proposed development. DART Bus Route 212 does travel through Laurel, but along Central Avenue / Seaford Road, not US Route 13.

Planned transit service: During the TIS review for the proposed Laurel Plaza development, David Dooley, a Senior Planner with the Delaware Transit Corporation (DTC) requested sidewalks along Discount Land Road and US Route 13 to facilitate future transit service adjacent to the development. DTC did not request any transit related improvements for this TIS.
Existing bicycle and pedestrian facilities: Several study area roadways are identified as "Bicycling Routes" on the *Sussex County Bicycle Map* published by DelDOT.

- US Route 13
  - Connector bicycle route with bikeway
  - Over 5,000 vehicles per day
- US Route 9
  - Regional bicycle route with bikeway
  - Over 5,000 vehicles per day
- Georgetown Road
  - Regional bicycle route with bikeway
  - Over 5,000 vehicles per day
- Delaware Avenue
  - Regional bicycle route with bikeway
- Sycamore Road
  - Connector bicycle route without bikeways

There are no existing marked bicycle lanes in the study area. There are no existing sidewalks or exclusive pedestrian facilities in the immediate area of the proposed site entrance on Discount Land Road. There is a short section of sidewalk along the south side of Discount Land Road, west of US Route 13.

Planned bicycle and pedestrian facilities: The T201801301 Discount Land Road, US 13A to US 13 project is in the preliminary design stages. The proposed improvements include roadway widening, bicycle lanes and the construction of sidewalk or multi-use path adjacent to the roadway. A public workshop is planned for 2022 and construction is tentatively anticipated to begin in 2025.

Previous Comments

In a review letter dated September 10, 2021, DelDOT provided review comments on the traffic counts and volume development, directing McMahon to correct a seasonal adjustment factor, nuclide seasonal adjustment increases at the intersection of US Route 13 and US Route 9, and a note about growth factors for 2026 volumes.

In a second review letter dated November 2, 2021, DelDOT provided additional review comments regarding volume figures, background traffic volumes, and trip distribution.

In a third review letter dated November 22, 2021, DelDOT provided review comments on the Preliminary TIS regarding growth factors and volume figures. DelDOT also indicted that McMahon could proceed with the Final TIS once all comments were addressed.

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 7.6 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. For signalized intersections, the TIS and McCormick Taylor applied HV by lane group using existing data. The TIS and McCormick Taylor generally assumed future HV to be the same as existing HV at all intersections other than site access. For site accesses, 3% was assumed as per the DelDOT Development Coordination Manual section 2.2.8.11.6.H.

3) For existing conditions, The TIS and McCormick Taylor determined and utilized overall intersection peak hour factors (PHF) for each intersection based on the turning movement counts. For proposed intersections, future PHFs were determined as per the DelDOT Development Coordination Manual section 2.2.8.11.6.F. For existing intersections, the existing PHF was also used for the future condition. There were some instances where the TIS used PHFs that deviated from these methods. However, they had little impact on the Level of Service results.

4) For analyses of signalized intersections, The TIS and McCormick Taylor used a base saturation flow rate of 1,750 pc/hr/ln per DelDOT's Development Coordination Manual section 2.2.8.11.6.I.

5) The TIS and McCormick Taylor used the same signal timings when analyzing both signalized intersections.

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

7) The TIS and McCormick Taylor input Right-Turn-On-Red (RTOR) volumes for existing and future conditions analyses based on existing RTOR volumes collected during the traffic counts.

Table 2
Peak Hour Levels of Service (LOS)
Based on Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection [1] **One-Way Stop Control (T-Intersection)**	**LOS per TIS**		**LOS per McCormick Taylor**	
Discount Land Road & Site Access	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)				
Northbound Site Access – Left/Right	--	--	--	--
Westbound Discount Land Road – Left	--	--	--	--
2026 No Build Condition (Case 2)				
Northbound Site Access – Left/Right	--	--	--	--
Westbound Discount Land Road – Left	--	--	--	--
2026 Build Condition (Case 3)				
Northbound Site Access – Left/Right	A (7.5)	A (7.8)	A (7.6)	A (7.9)
Westbound Discount Land Road – Left	A (10.0)	B (10.2)	B (10.3)	B (10.5)

[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 3
Peak Hour Levels of Service (LOS)
Based on Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection [2] **Two-Way Stop/Yield Control**	**LOS per TIS**		**LOS per McCormick Taylor**	
US Route 13 & Discount Land Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)				
Eastbound Discount Land Road – Left	B (13.5)	B (13.5)	B (13.5)	B (13.5)
Westbound Discount Land Road – Left	B (13.9)	B (13.6)	B (13.9)	B (13.6)
Northbound US Route 13 - Left	B (13.0)	B (11.9)	B (13.0)	B (13.1)
Southbound US Route 13 – Left	B (13.0)	B (17.2)	B (13.2)	C (17.3)
2026 No Build Condition (Case 2/Laurel 3A)				
Eastbound Discount Land Road – Left	B (14.5)	B (14.9)	B (14.5)	B (14.9)
Westbound Discount Land Road – Left	C (15.5)	C (15.8)	C (15.5)	C (15.8)
Northbound US Route 13 - Left	B (14.1)	B (13.0)	B (14.3)	B (15.0)
Southbound US Route 13 – Left	B (14.6)	C (15.9)	C (15.2)	C (16.9)
2026 No Build Condition (Case 2/Laurel 3B)				
Eastbound Discount Land Road – Left	B (14.5)	B (14.9)	B (14.5)	B (14.9)
Westbound Discount Land Road – Left	C (15.5)	C (15.8)	C (15.5)	C (15.8)
Northbound US Route 13 - Left	B (14.1)	B (13.0)	B (14.3)	B (15.0)
Southbound US Route 13 – Left	B (14.1)	C (20.9)	B (14.7)	C (21.2)
2026 No Build Condition (Case 2/Laurel 3C)	A (9.6)	B (15.6)	A (9.9)	B (14.7)
2026 Build Condition (Case 3/Laurel 3A)				
Eastbound Discount Land Road – Left	C (15.1)	C (15.6)	C (15.1)	C (15.6)
Westbound Discount Land Road – Left	C (21.0)	C (18.6)	C (21.0)	C (18.6)
Northbound US Route 13 - Left	B (14.8)	B (13.4)	C (15.1)	C (15.5)
Southbound US Route 13 – Left	C (15.4)	C (17.4)	C (16.5)	C (20.1)
2026 Build Condition (Case 3/Laurel 3B)				
Eastbound Discount Land Road – Left	C (15.1)	C (15.6)	C (15.1)	C (15.6)
Westbound Discount Land Road – Left	C (21.0)	C (18.6)	C (21.0)	C (18.6)
Northbound US Route 13 - Left	B (14.8)	B (13.4)	C (15.1)	C (15.5)
Southbound US Route 13 – Left	C (15.0)	C (16.2)	C (15.9)	C (17.8)
2026 Build Condition (Case 3/Laurel 3C)	B (12.7)	B (19.7)	B (13.2)	B (18.0)

[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 4
Peak Hour Levels of Service (LOS)
Based on Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Signalized Intersection [3]	**LOS per TIS**		**LOS per McCormick Taylor**	
US Route 13 & US Route 9 / Georgetown Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)	D (48.0)	D (39.5)	D (48.0)	D (39.5)
2026 No Build Condition (Case 2)	E (59.1)	D (48.3)	E (59.1)	D (48.3)
2026 Build Condition (Case 3)	E (59.9)	D (49.4)	E (59.9)	D (49.4)

[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 5
Peak Hour Levels of Service (LOS)
Based on Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Signalized Intersection [4]	**LOS per TIS**		**LOS per McCormick Taylor**	
US Route 13 & Sycamore Road / Delaware Avenue	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)	C (20.1)	B (19.5)	C (20.7)	B (19.0)
2026 No Build Condition (Case 2)	C (23.8)	C (21.3)	C (24.6)	C (20.6)
2026 Build Condition (Case 3)	C (24.0)	C (21.6)	C (25.1)	C (20.8)

[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 6
Peak Hour Levels of Service (LOS)
Based on Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection [5] **Two-Way Stop Control**	**LOS per TIS**		**LOS per McCormick Taylor**	
US Route 13 & Camp Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)				
Eastbound Camp Road – Left/Through/Right	E (47.6)	D (26.4)	E (47.6)	D (26.4)
Westbound Camp Road – Left/Through/Right	D (29.5)	E (41.9)	D (29.5)	E (42.1)
Northbound US Route 13 – Left	B (13.3)	B (13.2)	B (13.3)	B (13.3)
Southbound US Route 13 – Left	B (11.8)	B (11.7)	B (11.8)	B (11.7)
2026 No Build Condition (Case 2)				
Eastbound Camp Road – Left/Through/Right	F (65.9)	D (29.9)	F (66.0)	D (30.0)
Westbound Camp Road – Left/Through/Right	D (34.6)	F (58.8)	D (34.7)	F (59.3)
Northbound US Route 13 – Left	B (14.4)	B (14.6)	B (14.4)	B (14.6)
Southbound US Route 13 – Left	B (12.4)	B (12.3)	B (12.4)	B (12.3)
2026 Build Condition (Case 3)				
Eastbound Camp Road – Left/Through/Right	F (74.0)	D (31.4)	F (74.1)	D (31.6)
Westbound Camp Road – Left/Through/Right	E (36.9)	F (65.8)	E (36.9)	F (66.5)
Northbound US Route 13 – Left	B (14.7)	C (15.1)	B (14.7)	C (15.1)
Southbound US Route 13 – Left	B (12.7)	B (12.5)	B (12.7)	B (12.5)

[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 7
Peak Hour Levels of Service (LOS)
Based on Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection [6] **Two-Way Stop Control**	**LOS per TIS**		**LOS per McCormick Taylor**	
US Route 13 & Boyce Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)				
Eastbound Boyce Road – Left/Through/Right	C (24.9)	E (38.3)	C (24.9)	E (38.6)
Westbound Boyce Road – Left/Through/Right	C (23.4)	D (33.9)	C (23.4)	D (34.1)
Northbound US Route 13 – Left	B (12.0)	B (14.8)	B (12.0)	B (14.8)
Southbound US Route 13 – Left	B (12.6)	B (13.9)	B (12.6)	B (13.9)
2026 No Build Condition (Case 2)				
Eastbound Boyce Road – Left/Through/Right	D (28.7)	E (46.7)	D (28.8)	E (47.0)
Westbound Boyce Road – Left/Through/Right	D (25.9)	E (41.7)	D (26.0)	E (42.0)
Northbound US Route 13 – Left	B (12.8)	C (16.2)	B (12.8)	C (16.2)
Southbound US Route 13 – Left	B (13.2)	C (15.1)	B (13.2)	C (15.1)
2026 Build Condition (Case 3)				
Eastbound Boyce Road – Left/Through/Right	D (30.0)	F (50.6)	D (30.1)	F (50.9)
Westbound Boyce Road – Left/Through/Right	D (27.2)	E (44.0)	D (27.2)	E (44.3)
Northbound US Route 13 – Left	B (12.9)	C (16.8)	B (12.9)	C (16.8)
Southbound US Route 13 – Left	B (13.4)	C (15.4)	B (13.4)	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 8
Peak Hour Levels of Service (LOS)
Based on Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection [7] One-Way Stop Control (T-Intersection)	**LOS per TIS**		**LOS per McCormick Taylor**	
Discount Landing Road & Camp Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)				
Eastbound Camp Road – Left/Right	A (7.3)	A (7.4)	A (7.3)	A (7.4)
Northbound Discount Land Road – Left	A (9.1)	A (9.2)	A (9.1)	A (9.2)
2026 No Build Condition (Case 2)				
Eastbound Camp Road – Left/Right	A (7.4)	A (7.5)	A (7.4)	A (7.5)
Northbound Discount Land Road – Left	A (9.5)	A (9.9)	A (9.5)	A (9.9)
2026 Build Condition (Case 3)				
Eastbound Camp Road – Left/Right	A (7.4)	A (7.6)	A (7.4)	A (7.6)
Northbound Discount Land Road – Left	B (10.0)	B (10.5)	B (10.0)	B (10.5)

[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 Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection [8] **One-Way Stop Control (T-Intersection)**	**LOS per TIS**		**LOS per McCormick Taylor**	
Discount Landing Road & Taylor Mill Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)				
Westbound Taylor Mill Road – Left/Right	A (7.6)	A (7.4)	A (7.6)	A (7.4)
Southbound Discount Land Road – Left	A (9.0)	A (9.3)	A (9.0)	A (9.3)
2026 No Build Condition (Case 2)				
Westbound Taylor Mill Road – Left/Right	A (7.6)	A (7.5)	A (7.6)	A (7.5)
Southbound Discount Land Road – Left	A (9.3)	A (9.9)	A (9.3)	A (9.9)
2026 Build Condition (Case 3)				
Westbound Taylor Mill Road – Left/Right	A (7.7)	A (7.6)	A (7.7)	A (7.6)
Southbound Discount Land Road – Left	A (9.6)	B (10.5)	A (9.6)	B (10.5)

[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 Village Brook East Residential Traffic Impact Study – July 8, 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection [9] **Two-Way Stop Control**	**LOS per TIS**		**LOS per McCormick Taylor**	
US Route 9 & Taylor Mill Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing Condition (Case 1)				
Northbound Taylor Mill Rd – Left/Through/Right	C (22.3)	C (24.2)	C (22.3)	C (24.2)
Southbound Taylor Mill Rd – Left/Through/Right	D (29.3)	D (25.1)	D (29.5)	D (25.7)
Eastbound US Route 9 – Left	A (8.2)	A (8.7)	A (8.2)	A (8.7)
Westbound US Route 9 – Left	A (9.0)	A (8.3)	A (9.0)	A (8.3)
2026 No Build Condition (Case 2)				
Northbound Taylor Mill Rd – Left/Through/Right	D (25.8)	D (28.4)	D (25.7)	D (28.4)
Southbound Taylor Mill Rd – Left/Through/Right	E (40.4)	E (36.0)	E (42.2)	E (38.7)
Eastbound US Route 9 – Left	A (8.4)	A (8.9)	A (8.4)	A (8.9)
Westbound US Route 9 – Left	A (9.2)	A (8.4)	A (9.2)	A (8.4)
2026 Build Condition (Case 3)				
Northbound Taylor Mill Rd – Left/Through/Right	D (26.4)	D (30.2)	D (26.3)	D (29.9)
Southbound Taylor Mill Rd – Left/Through/Right	F (64.7)	E (46.2)	F (70.7)	F (53.9)
Eastbound US Route 9 – Left	A (8.4)	A (9.0)	A (8.4)	A (9.0)
Westbound US Route 9 – Left	A (9.2)	A (8.4)	A (9.2)	A (8.4)

[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.