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

SHANTÉ A. HASTINGS
SECRETARY

November 9, 2023
Revised: April 30, 2026

Mr. Marc Coté, P.E.
Rossi Group
555 E. Loockerman St., Suite 220
Dover, DE 19901

Dear Mr. Coté,

The enclosed Revised Traffic Impact Study (TIS) review letter for the **Lynnbury Woods** (Tax Parcel: (Tax Parcel: 4-00-03700-01-1700-00001) 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. The letter has been revised to update Recommendations to intersections US Route 13 / Messina Hill Road South and Moorton Road / Commerce Street and Main Street. 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 Review Engineer

AF:lw
Enclosures
cc with enclosures: Jonathan Contant, K Hovnanian Homes
Charles Barnett, Morris & Ritchie Assoc., Inc.
Kris Connelly, Kent County Planning and Zoning
Michele Green, Kent County Planning and Zoning
Jason Berry, Kent County Planning and Zoning
Andrew J. Parker, McCormick Taylor, Inc.
Tucker Smith, McCormick Taylor, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Mark Luszcz, Chief Engineer, Transportation Solutions (DOTS)
Brad Eaby, Deputy Attorney General, DOTS
Michael Simmons, Chief Project Development South, DOTS
Peter Haag, Chief Traffic Engineer, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, Traffic, DOTS
Sean Humphrey, Traffic Engineer, Traffic, DOTS
Matthew Lichtenstein, Central District Engineer, M&O
Jared Kaufman, Service Development Planner, DTC
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Anthony Aglio, Planning Supervisor, Active Transportation & Community Connections, Planning
Austin Gray, Assistant Director, Statewide & Regional Planning, Planning
Anson Gock, Planner, Statewide & Regional Planning, Planning
Jeff Van Horn, Director, Economic Development Coordination (EDC)
Steve McCabe, Central District Public Works Manager, EDC
Brian Yates, Process and Quality Control Engineer, EDC
Wendy Polasko, Subdivision Engineer, EDC
Will Mobley, Acting Kent Review Coordinator, EDC
Tijah Jones, Kent Review Engineer, EDC
Sireen Muhtaseb, TIS Engineer, EDC
Ben Fisher, TIS Review Engineer, EDC

April 30, 2026

Ms. Sireen Muhtaseb, PE
TIS Engineer
DelDOT Division of Economic Development Coordination
800 Bay Road
Dover, DE 19901

RE: Agreement No. 1946F
Traffic Impact Study Services
Task No. 4A Subtask 19A – Lynnbury Woods

Dear Ms. Muhtaseb:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Lynnbury Woods development prepared by Rossi Group, Inc., dated June 2, 2023. Rossi Group, Inc. prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual. This version of the final TIS review letter is a revision of the final TIS letter dated November 9, 2023, to reflect updated recommendations for Intersection 3: US Route 13 and Messina Hill Road South and Intersection 6: Moorton Road / Commerce Street and Main Street.

The TIS evaluates the impacts of the proposed Lynnbury Woods development, proposed to be located on the north side of Lynnbury Woods Road (Kent Road 152), approximately 1,000 feet west of Messina Hill Road (Kent Road 102), in Kent County, Delaware. The proposed development would consist of 126 single-family detached houses. One full access point is proposed on Lynnbury Woods Road just east of Ruby Drive. Construction is expected to be complete by 2027.

The subject land is located on an approximately 61.00-acre assemblage of parcels. The land is currently zoned as AC (Agricultural Conservation) within a Growth Zone, and the developer is not proposing to rezone the land.

Currently, there are no active DelDOT projects within the study area. The future Cheswold Area Transportation Improvement District (TID) is currently under development between DelDOT and Kent County. The future Cheswold Area TID surrounds the proposed development and includes multiple study intersections. A TID is a planning concept that seeks to proactively align transportation infrastructure spending and improvements with land use projections and future development within the designated district. Certain intersection improvements to be identified as part of the future Cheswold Area TID would typically require contributions from developers within the TID. Presently, DelDOT and the County are still working toward establishing the TID, but when and if that is done, it may be appropriate for the developer to exchange some of the obligations addressed in this letter for an obligation to contribute to the TID. The possibility of the Lynnbury Woods development having an obligation to contribute to the future Cheswold Area TID would depend in part on the timing of approval of plans for this development versus the timing of formal establishment of the TID. It is unknown when the TID will be fully operational.

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***
3 - US Route 13 and Messina Hill Road South	Unsignalized	2027 without development AM (Case 2) 2027 with development AM and PM (Case 3) 2029 with development AM and PM (Case 4)
6 - Moorton Road / Commerce Street and Main Street	Unsignalized	2027 without development AM (Case 2) 2027 with development AM and PM (Case 3) 2029 with development AM and PM (Case 4)

US Route 13 and Messina Hill Road South (See Recommendations 3 & 4 and Table 4, Page 20)
This unsignalized intersection is expected to experience LOS deficiencies during the AM peak hour in Case 2, Case 3, and Case 4, and the PM Peak hour in Case 3 and Case 4. The stop controlled eastbound approach is expected to operate at LOS F with 52.9 seconds of delay and queues over 167 feet long. The northbound left-turn is expected to operate at LOS E with 43.5 seconds of delay and queues over 205 feet long. The developer investigated geometric improvements and turn restrictions at the intersection, but found that they did not fully mitigate the LOS deficiencies. The developer went on to model a signal at the intersection which mitigated the LOS deficiency. McCormick Taylor confirmed these results. However, neither a traffic signal warrant analysis nor a Traffic Signal Justification Study (TSJS) were included in the TIS. To assess the possibility of a signal, McCormick Taylor prepared a TSJS as part of this review and found that a signal would be warranted.

As part of the Cheswold TID and analysis of signal locations, it has been determined that a signal is appropriate at the US Route 13 and Messina Hill Road South intersection. The proposed signal will serve traffic coming from the west to turn left onto northbound US Route 13 and will also provide a way for traffic traveling northbound on US Route 13 to make a left at a signalized intersection onto Messina Hill Road South to travel to the west. It is recommended that the developer design and construct the signal at US Route 13 and Messina Hill Road South.

Moorton Road / Commerce Street and Main Street (Table 7, Page 23)
This unsignalized intersection is expected to experience LOS deficiencies during the PM peak hour in Case 2, Case 3, and Case 4. The stop controlled northbound and southbound approaches are expected to operate at LOS F with queues over 270 feet long. The southbound approach is expected to have 177.3 seconds of delay in Case 4. In the TIS, the developer evaluated dedicated turn lanes on the failing approaches, which failed to fully mitigate the LOS deficiencies. McCormick Taylor found that a traffic signal would mitigate the LOS deficiency. However, neither a traffic signal warrant analysis nor a Traffic Signal Justification Study (TSJS) were included in the TIS. To assess the possibility of a signal, McCormick Taylor prepared a TSJS as

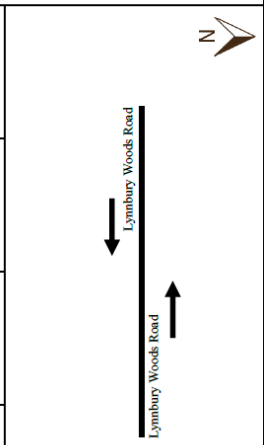
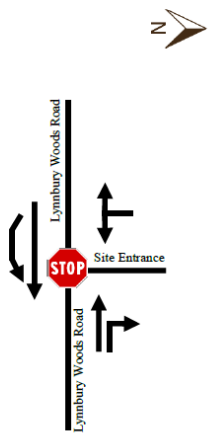
part of this review and found that a signal would be warranted. A roundabout is not recommended at this intersection due to the proximity to the at-grade rail crossing.

Although the intersection does meet the Delaware MUTCD warrants for a traffic signal in 2029 with the development of Lynnbury Woods and two years of additional background growth, design and construction of a traffic signal at this intersection could involve significant coordination with the railroad and additional cost compared to a typical traffic signal. The addition of turn lanes at this intersection involves substantial right-of-way impacts that will require the acquisition of several properties. The full improvements are not financially feasible for one developer to undertake. It is noted that the Cheswold Area TID will accept LOS E in future conditions at this intersection. Considering the acceptance of LOS E at this intersection by DelDOT and that the future Cheswold Area TID will make improvements to this intersection, DelDOT does not recommend any developer improvements at this intersection.

Should Kent 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 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.

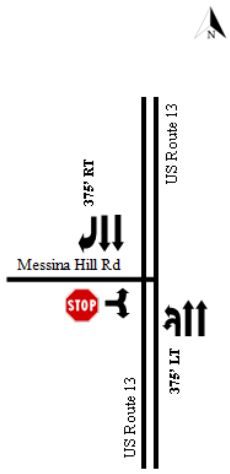
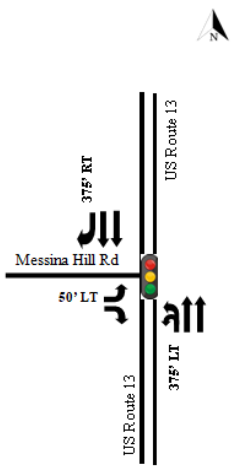
1. The developer shall improve the State-maintained road(s) on which they front (Lynnbury Woods Road), within the limits of their frontage, to meet DelDOT's standards for their Functional Classification as found in Section 1.1 of the Development Coordination Manual and elsewhere therein. The improvements 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 Entrance on Lynnbury Woods Road. The proposed configuration is shown in the table below.

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound Lynnbury Woods Road	One through lane		Eastbound Lynnbury Woods Road	One through lane and one bypass lane	
Westbound Lynnbury Woods Road	One through lane		Westbound Lynnbury Woods Road	One through lane and one right turn lane	
Northbound	Approach does not exist		Northbound	No Change	
Southbound	Approach does not exist		Southbound Site Entrance	One shared left / right turn lane. Stop Control.	

At the proposed Site Entrance intersection, a separate right-turn lane and bypass lane are warranted on the Lynnbury Wood Road approaches based on DelDOT's *Auxiliary Lane Worksheet*. Initial recommended minimum turn-lane lengths (excluding tapers) include a 50-foot bypass lane on eastbound Lynnbury Wood Road and a 190-foot right-turn lane on westbound Lynnbury Wood Road. Consideration should be given to a two-way left-turn lane along Lynnbury Wood Road that could potentially take the place of the turn lane and bypass lane for this development and the existing developments to the east and west. 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 design and construct improvements at the intersection of US Route 13 and Messina Hill Road South as required for signalization of the intersection. The proposed configuration is shown in the table below.

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound Messina Hill Road South	One shared left/ right turn lane. Stop Controlled.		Eastbound Messina Hill Road South	One left-turn lane and one right-turn lane.	
Westbound approach	Approach does not exist.		Westbound approach	No change	
Northbound US Route 13	One u-turn/left-turn lane and two through lanes. Divided highway.		Northbound US Route 13	No change	
Southbound US Route 13	Two through lanes and one right-turn lane. Divided highway. Previously also had a u-turn lane, but that was removed via signing and pavement markings in 2024.		Southbound US Route 13	No change.	

At the intersection of US Route 13 and Messina Hill Road South, a dedicated eastbound left-turn lane is recommended. The initial recommended minimum length (excluding taper) for the eastbound left-turn lane is 50 feet. The existing lengths of the northbound left-turn lane and southbound right-turn lane are sufficient and not required to be lengthened. The southbound US Route 13 u-turn movement would continue to be restricted. One or more other developers may be required to contribute towards the improvements. 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.

4. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 13 and Messina Hill Road South to design and construct a traffic signal and to cover the physical improvements described above in Item No. 3. The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion.

5. The following bicycle, pedestrian and transit improvements should be included:

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

    b. Appropriate bicycle symbols, directional arrows, pavement markings, and signing should be included along bicycle facilities 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 on Lynnbury Woods Road. Within the easement, 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, the shared-use path should connect to the adjacent property or to the shoulder in accordance with DelDOT's Shared-Use Path and/or Sidewalk Termination Reference Guide dated August 1, 2018. The developer shall coordinate with DelDOT's Development Coordination Section through the plan review process to determine the details of the shared-use path design and connections/terminations at or before both boundaries of the property.

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

    f. Internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These sidewalks should each be a minimum of five-feet wide (with a minimum of a five-foot buffer from the roadway) and should meet current AASHTO and ADA standards. Internal sidewalks in the development should connect to the proposed shared-use path along the site frontages.

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.

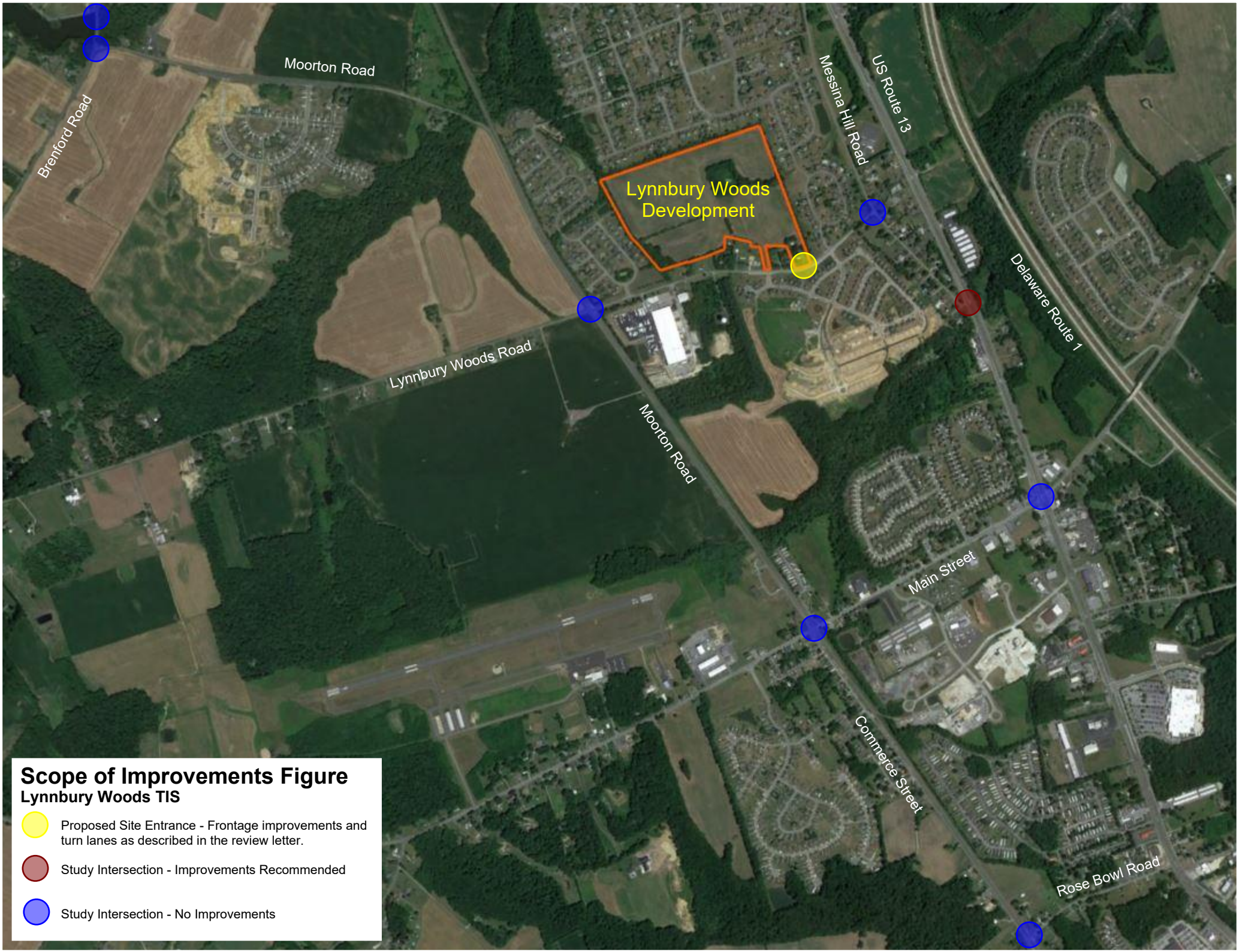
Additional details on our review of this TIS are attached. Please contact me at (610) 640-3500 or through e-mail at ajparker@mccormicktaylor.com if you have any questions concerning this review.

Sincerely,

McCormick Taylor, Inc.

Andrew J. Parker, PE, PTOE
Project Manager

Enclosure


Moorton Road
Brenford Road
Messina Hill Road
US Route 13
Lynnbury Woods Development
Delaware Route 1
Lynnbury Woods Road
Moorton Road
Main Street
Commerce Street
Rose Bowl Road
Scope of Improvements Figure
Lynnbury Woods TIS
Proposed Site Entrance - Frontage improvements and turn lanes as described in the review letter.
Study Intersection - Improvements Recommended
Study Intersection - No Improvements

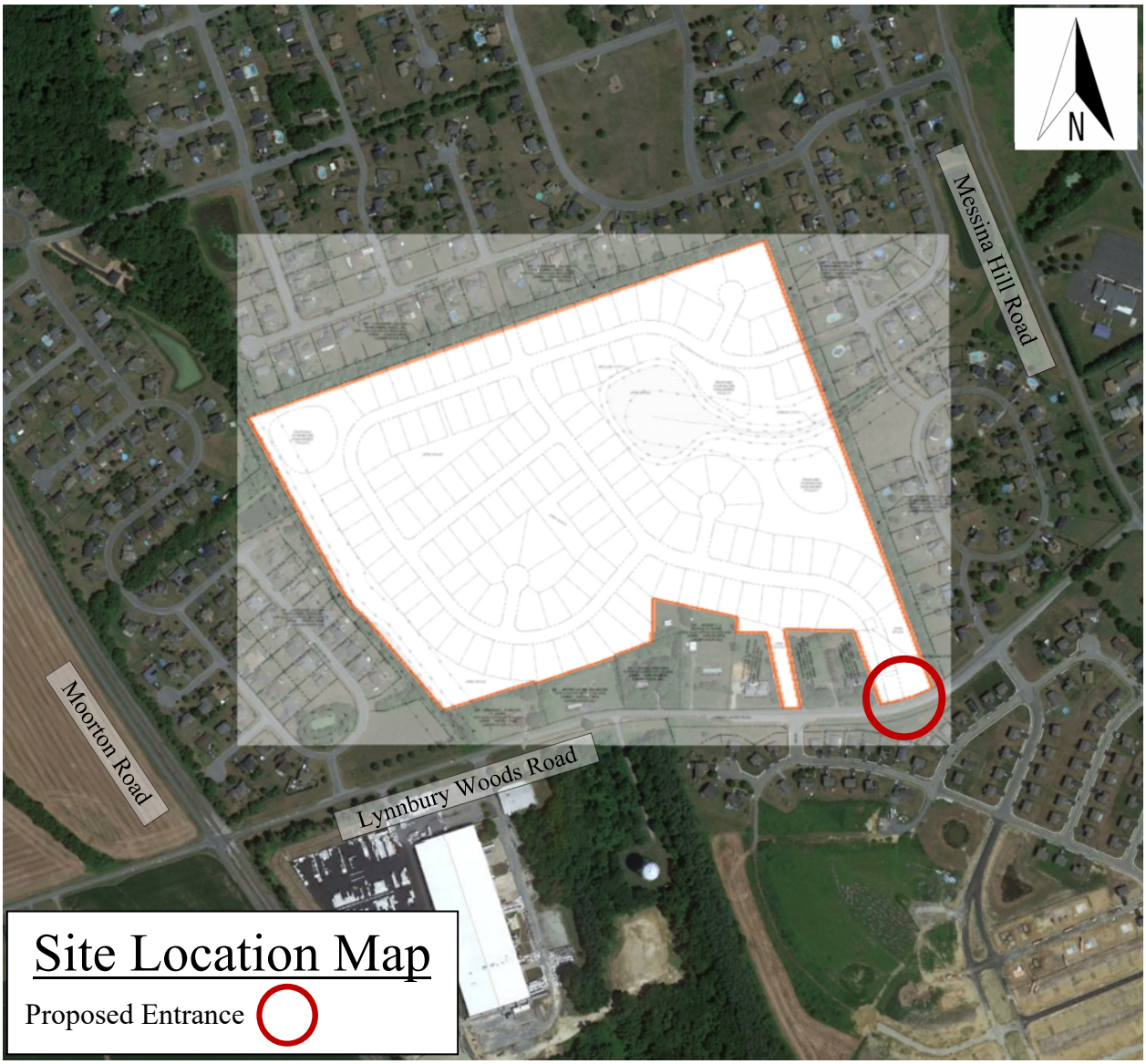
General Information

Report date: June 2, 2023
Prepared by: Rossi Group, Inc.
Prepared for: K. Hovnanian Delaware Division, Inc.
Tax parcels: 4-00-03700-01-1700-00001 and 4-00-03700-01-1702-00001
Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed development would consist of 126 single-family detached houses. The development is proposed to be located on the north side of Lynnbury Woods Road (Kent Road 152), approximately 1,000 feet west of Messina Hill Road (Kent Road 102), in Kent County, Delaware. A site location map is included on page 10.
Amount of land to be developed: An approximately 61.00-acre assemblage parcels.
Land use approval(s) needed: The land is currently zoned as AC (Agricultural Conservation) within a Growth Zone, and the developer is not proposing to rezone the land.
Proposed completion year: 2027
Proposed access locations: One full-access point is proposed on Lynnbury Woods Road.
Average Daily Traffic Volumes (per DelDOT Traffic Summary 2022):

- Lynnbury Woods Road: 1,592 vehicles/day


N
Messina Hill Road
Moorton Road
Lynnbury Woods Road
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 proposed Lynnbury Woods development is primarily located within Investment Level 2.

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

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

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

Proposed Development's Compatibility with Strategies for State Policies and Spending:
The proposed Lynnbury Woods development consists of approximately 126 single-family detached houses in an Investment Level 2 area. Investment Level 2 is an area where growth is anticipated by local, County, and State plans in the near-term future. As such, the proposed development appears to comply with the guidelines set forth in the 2020 "Strategies for State Policies and Spending".

Relevant Projects in the DelDOT Capital Transportation Program

Currently, there are no active DelDOT projects within the study area. The future Cheswold Area Transportation Improvement District (TID) is currently under development between DelDOT and Kent County. The future Cheswold Area TID surrounds the proposed development and includes multiple study intersections. A TID is a planning concept that seeks to proactively align transportation infrastructure spending and improvements with land use projections and future development within the designated district. Certain intersection improvements to be identified as part of the future Cheswold Area TID would typically require contributions from developers within the TID. Presently, DelDOT and the County are still working toward establishing the TID, but when and if that is done, it may be appropriate for the developer to exchange some of the obligations addressed in this letter for an obligation to contribute to the TID. The possibility of the

Lynnbury Woods development having an obligation to contribute to the future Cheswold Area TID would depend in part on the timing of approval of plans for this development versus the timing of formal establishment of the TID. It is unknown when the TID will be fully operational.

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:

- 126 Single-Family Detached Housing Units (ITE Land Use Code 210)

Table 1
LYNNBURY WOODS PEAK HOUR TRIP GENERATION

Land Use	Size	Weekday AM Peak Hour			Weekday PM Peak Hour			Average Daily Trips (Weekday)		
		In	Out	Total	In	Out	Total	In	Out	Total
LUC 210: Single Family Detached Housing	126 Units	23	69	92	77	46	123	624	624	1248
TOTAL TRIPS		**23**	**69**	**92**	**77**	**46**	**123**	**624**	**624**	**1248**

Overview of TIS

Intersections examined:

1) Site Entrance / Lynnbury Woods Road (Kent Road 152)
2) Lynnbury Woods Road / Messina Hill Road (Kent Road 102)
3) US Route 13 / Messina Hill Road (Kent Road 102) South
4) US Route 13 / Fast Landing Road (Kent Road 14) / Main Street (Kent Road 45)
5) Lynnbury Woods Road / Moorton Road (Kent Road 92)
6) Moorton Road / Commerce Street / Main Street
7) Moorton Road (aka McKee Road) / Rose Bowl Road (Kent Road 154)
8) Brenford Road / Moorton Road
9) Brenford Road / Masseys Millpond Road (Kent Road 148)

Conditions examined:

1) 2022 Existing (Case 1)
2) 2027 No-Build (Case 2)
3) 2027 Build (Case 3)
4) 2029 Build, including two years of background growth from site buildout date. (Case 4)

Peak hours evaluated: Weekday morning and evening peak hours

Committed developments considered:

1) Anderson Property – 222 low-rise multi-family houses, apartments (excluded from analysis; all units remain to be built)
2) Hidden Brook – 398 single-family detached houses (290 units remain to be built)
3) Stonington – 642 residential condominiums/townhouses, 99 single-family detached houses (all multifamily units and 10 single family units remain to be built)
4) Auburn Meadows Subdivision – 262 age-restricted detached houses (222 units remain to be built)
5) Heritage Trace Phase II – 233 single-family detached houses (61 units remain to be built)
6) Green Hill Farm Estates – 139 single-family detached houses (70 units remain to be built)
7) Saratoga – 253 single family detached houses, 252 condominiums/townhouses, and 463 age-restricted detached houses (excluded from analysis; defunct development)

Intersection Descriptions

1) Site Entrance / Lynnbury Woods Road (Kent Road 152)

Type of Control: proposed minor stop-controlled intersection
Southbound Approach: (Site Entrance) one shared left/right-turn lane, stop controlled
Eastbound Approach: (Lynnbury Woods Road) one through lane and one bypass lane
Westbound Approach: (Lynnbury Woods Road) one through lane and one right-turn lane

2) **Lynnbury Woods Road / Messina Hill Road (Kent Road 102)**
   Type of Control: minor stop-controlled intersection
   Northbound Approach: (Messina Hill Road) one shared left-turn/through lane
   Southbound Approach: (Messina Hill Road) one shared through/right-turn lane
   Eastbound Approach: (Lynnbury Woods Road) one shared left/right-turn lane, stop-controlled

3) **US Route 13 / Messina Hill Road (Kent Road 102) South**
   Type of Control: minor stop-controlled intersection
   Northbound Approach: (US 13) one left-turn lane and two through lanes
   Southbound Approach: (US 13) one U-turn lane, two through lanes, and one right-turn lane
   Eastbound Approach: (Messina Hill Road) one shared left/right-turn lane, stop-controlled

4) **US Route 13 / Fast Landing Road (Kent Road 14) / Main Street (Kent Road 42)**
   Type of Control: signalized intersection
   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
   Eastbound Approach: (Main Street) one shared left-turn/through lane and one right-turn lane
   Westbound Approach: (Fast Landing Road) one shared left-turn/through lane and one right-turn lane

5) **Lynnbury Woods Road / Moorton Road (Kent Road 92)**
   Type of Control: two-way stop-controlled intersection
   Northbound Approach: (Moorton Road) one shared left-turn/through/right-turn lane
   Southbound Approach: (Moorton Road) one shared left-turn/through/right-turn lane
   Eastbound Approach: (Lynnbury Woods Road) one shared left-turn/through/right-turn lane, stop-controlled
   Westbound Approach: (Lynnbury Woods Road) one shared left-turn/through/right-turn lane, stop-controlled

6) **Moorton Road / Commerce Street / Main Street**
   Type of Control: two-way stop-controlled intersection
   Northbound Approach: (Commerce Street) one shared left-turn/through/right-turn lane
   Southbound Approach: (Moorton Road) one shared left-turn/through/right-turn lane
   Eastbound Approach: (Main Street) one shared left-turn/through/right-turn lane, stop-controlled
   Westbound Approach: (Main Street) one shared left-turn/through/right-turn lane, stop-controlled

7) **Moorton Road (aka McKee Road) / Rose Bowl Road (Kent Road 154)**
   Type of Control: minor stop-controlled intersection
   Northbound Approach: (Moorton Road) one shared through/right-turn lane
   Southbound Approach: (Moorton Road) one shared left-turn/through lane
   Westbound Approach: (Rose Bowl Road) one shared left/right-turn lane, stop-controlled

8) **Brenford Road / Moorton Road**
   Type of Control: minor stop-controlled intersection
   Northbound Approach: (Brenford Road) one shared through/right-turn lane
   Southbound Approach: (Brenford Road) one shared left-turn/through lane
   Westbound Approach: (Moorton Road) one shared left/right-turn lane, stop-controlled

9) **Brenford Road / Masseys Millpond Road (Kent Road 148)**
   Type of Control: minor stop-controlled intersection
   Northbound Approach: (Brenford Road) one shared left-turn/through lane
   Southbound Approach: (Brenford Road) one through/right-turn lane
   Eastbound Approach: (Masseys Millpond Road) one shared left/right-turn lane, stop-controlled

Safety Evaluation

Crash Data: Delaware Crash Analysis Reporting System (CARS) data was provided in the TIS for the three-year period from December 20, 2019, through December 20, 2022. A total of 93 crashes were reported within the three-year period at the nine intersections included in the study area. Of those 93 crashes, 55 (59 percent) crashes occurred at the intersection of US Route 13 and Fast Landing Road / Main Street. At this intersection, Front-to-rear crashes were the most common type, accounting for 73 percent. The second highest number of crashes were observed at the intersection of Lynnbury Woods Road and Moorton Road, where 11 crashes were reported in three years. Angle crashes were the most common crash type at this intersection (82 percent). On 5 of the 11 crash reports, "passed stop sign" was noted as a contributing circumstance. It appears that signing and pavement marking improvements were made at the intersection, on or before 2019 that include oversized stop signs and pavement marking legends. There were no fatalities reported in the three-year window.

Sight Distance: The proposed Site Entrance on Lynnbury Woods Road is located on the inside of a curve that could impact sight distance. There is also mature vegetation along the frontage that could restrict sight distance. It is expected that this vegetation will be removed. As always, the adequacy of available sight distance must be confirmed during the site plan review process for all proposed movements at the site accesses.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Based on the current DART Bus Stop Map, the Delaware Transit Corporation (DTC) operates two bus routes along US Route 13. The nearest bus stops are located to the north at the intersection of US Route 13 / Hickory Ridge Road / Spring Meadow Drive and to the south at US Route 13 / Main Street. Neither location is convenient to future residents of the proposed development.

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 the *Kent County Bicycle Map* published by DelDOT, Moorton Road is designated as a Statewide Bicycle Route and Brenford Road is a Suggested Connector Bicycle Route, both without Bikeways and AADT under 5,000 vehicles per day. Main Street and US Route 13 are designated as Statewide Bicycle Routes, both with a bikeway and have an AADT over 5,000 vehicles per day. US Route 13 is also noted to be challenging for cyclists. There are existing sidewalks along segments of Moorton Road, Main Street, and US Route 13.

Planned bicycle and pedestrian facilities: A multi-use path is recommended along all property frontages with a bicycle lane to be included between the through lane and right-turn lanes into the site entrances.

Previous Comments

The initial scoping memorandum between the developer and DelDOT was dated November 29, 2022.

In a review letter dated January 25, 2023, DelDOT requested revisions, including the desired use of the ATR traffic data, provided growth factors for background growth, and directed the developer to proceed with the Preliminary TIS.

In a second review letter dated March 23, 2023, DelDOT requested corrections to the use of growth factors, revisions to affected volume figures, and directed the developer to proceed with the Final TIS. The developer responded to DelDOT via email on March 31, 2023, noting that the correct growth factor was used. DelDOT responded on the same date, noting that the developer had in fact used the correct growth factor.

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

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

1) The TIS used Highway Capacity Software (HCS) version 7.9.5 to complete the traffic analyses. McCormick Taylor used HCS 2023.

2) The TIS and McCormick Taylor generally used heavy vehicle percentages (HV%) from turning movement counts for existing and future conditions (as per DelDOT's Development Coordination Manual section 2.2.8.11.6.H). McCormick Taylor and the TIS assumed 3% HV at proposed site entrances in future conditions.

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

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

Table 2
Peak Hour Levels of Service (LOS)
Based on Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Unsignalized Intersection [1] **Minor Stop-Controlled**	**LOS per TIS**		**LOS per McCormick Taylor**	
1 – Site Entrance / **Lynnbury Woods Road (Kent Road 152)**	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2027 Build Condition (Case 3)				
Eastbound Lynnbury Woods Road – Lefts	A (7.5)	A (8.1)	A (7.5)	A (8.1)
Southbound Site Entrance	B (11.4)	B (12.5)	B (11.4)	B (12.5)
2029 Build Condition (Case 4)				
Eastbound Lynnbury Woods Road – Lefts	A (7.5)	A (8.1)	A (7.5)	A (8.1)
Southbound Site Entrance	B (11.5)	B (12.6)	B (11.5)	B (12.6)

[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 Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Unsignalized Intersection [2] Minor Stop-Controlled	**LOS per TIS**		**LOS per McCormick Taylor**	
2 – Lynnbury Woods Road / Messina Hill Road (Kent Road 102)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2022 Existing Condition (Case 1)				
Eastbound Lynnbury Woods Road	B (10.1)	B (10.2)	B (10.1)	B (10.2)
Northbound Messina Hill Road – Lefts	A (7.5)	A (7.6)	A (7.5)	A (7.6)
2027 No Build Condition (Case 2)				
Eastbound Lynnbury Woods Road	B (13.8)	C (16.2)	B (13.8)	C (16.2)
Northbound Messina Hill Road – Lefts	A (7.7)	A (8.1)	A (7.7)	A (8.1)
2027 Build Condition (Case 3)				
Eastbound Lynnbury Woods Road	C (16.0)	C (21.2)	C (16.0)	C (21.2)
Northbound Messina Hill Road – Lefts	A (7.7)	A (8.3)	A (7.7)	A (8.3)
2029 Build Condition (Case 4)				
Eastbound Lynnbury Woods Road	C (16.1)	C (21.6)	C (16.1)	C (21.6)
Northbound Messina Hill Road – Lefts	A (7.7)	A (8.3)	A (7.7)	A (8.3)

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

Table 4
Peak Hour Levels of Service (LOS)
Based on Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Unsignalized Intersection [3] Minor Stop-Controlled	**LOS per TIS**		**LOS per McCormick Taylor**	
3 – US Route 13 / Messina Hill Road South (Kent Road 102)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2022 Existing Condition (Case 1)				
Eastbound Messina Hill Road	C (17.9)	C (19.7)	C (17.9)	C (19.7)
Northbound US Route 13 – Lefts	C (15.1)	C (16.1)	C (15.1)	C (16.1)
2027 No Build Condition (Case 2)				
Eastbound Messina Hill Road	E (35.4)	D (34.8)	E (35.4)	D (34.8)
Northbound US Route 13 – Lefts	C (23.9)	D (30.8)	C (23.9)	D (30.8)
2027 Build Condition (Case 3)				
Eastbound Messina Hill Road	E (45.6)	E (41.6)	E (45.6)	E (41.6)
Northbound US Route 13 – Lefts	D (33.9)	E (39.2)	D (33.9)	E (39.2)
2029 Build Condition (Case 4)				
Eastbound Messina Hill Road	E (48.7)	F (52.9)	E (48.7)	F (52.9)
Northbound US Route 13 – Lefts	E (40.4)	E (43.5)	E (40.4)	E (43.5)
2027 Build Condition (Case 3) w/ Improvements (Signal) [4]				
Overall	C (25.0)	B (17.9)	C (20.7)	B (16.4)
2029 Build Condition (Case 4) w/ Improvements (Signal) [4]				
Overall	C (25.0)	B (18.6)	C (21.5)	B (19.1)
2029 Build Condition (Case 4) w/ Improvements (EB Left Prohibited) [5]				
Eastbound Messina Hill Road	--	--	E (48.7)	D (32.8)
Northbound US Route 13 – Lefts	--	--	E (40.4)	E (43.7)

[3] For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.
[4] Improvements include traffic signal with dedicated eastbound left-turn lane on Messina Hill Road. Note that a signal warrant analysis has not been conducted for this intersection.
[5] As recommended in the Traffic Signal Justification Study (TSJS) for this intersection.

Table 5
Peak Hour Levels of Service (LOS)
Based on Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Signalized Intersection [6]	**LOS per TIS**		**LOS per McCormick Taylor**	
4 – US Route 13 / Fast Landing Road (Kent Road 14) / Main Street (Kent Road 45)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2022 Existing Condition (Case 1)				
Overall	C (20.3)	C (26.3)	B (14.9)	C (21.5)
2027 No Build Condition (Case 2)				
Overall	C (21.8)	C (29.9)	B (16.5)	C (26.3)
2027 Build Condition (Case 3)				
Overall	C (21.9)	C (30.3)	B (16.8)	C (26.4)
2029 Build Condition (Case 4)				
Overall	C (22.1)	C (31.3)	B (17.1)	C (27.1)

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

Table 6
Peak Hour Levels of Service (LOS)
Based on Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Unsignalized Intersection [7] Minor Stop-Controlled (TWSC)	**LOS per TIS**		**LOS per McCormick Taylor**	
5 – Lynnbury Woods Road / Moorton Road (Kent Road 92)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2022 Existing Condition (Case 1)				
Eastbound Lynnbury Woods Road	B (10.9)	B (11.3)	B (10.9)	B (11.3)
Westbound Lynnbury Woods Road	B (10.3)	B (11.6)	B (10.4)	B (11.6)
Northbound Moorton Road – Lefts	A (7.4)	A (7.4)	A (7.4)	A (7.4)
Southbound Moorton Road – Lefts	A (7.4)	A (7.5)	A (7.4)	A (7.5)
2027 No Build Condition (Case 2)				
Eastbound Lynnbury Woods Road	B (14.2)	C (15.5)	B (14.2)	C (15.5)
Westbound Lynnbury Woods Road	B (13.4)	C (17.2)	B (13.6)	C (17.4)
Northbound Moorton Road – Lefts	A (7.6)	A (7.5)	A (7.6)	A (7.5)
Southbound Moorton Road – Lefts	A (7.6)	A (8.0)	A (7.6)	A (8.0)
2027 Build Condition (Case 3)				
Eastbound Lynnbury Woods Road	B (14.4)	C (16.3)	B (14.4)	C (16.3)
Westbound Lynnbury Woods Road	B (13.9)	C (18.6)	B (14.2)	C (19.0)
Northbound Moorton Road – Lefts	A (7.6)	A (7.5)	A (7.6)	A (7.5)
Southbound Moorton Road – Lefts	A (7.6)	A (8.0)	A (7.6)	A (8.0)
2029 Build Condition (Case 4)				
Eastbound Lynnbury Woods Road	B (14.4)	C (16.4)	B (14.4)	C (16.4)
Westbound Lynnbury Woods Road	B (13.9)	C (18.8)	B (14.2)	C (19.2)
Northbound Moorton Road – Lefts	A (7.6)	A (7.5)	A (7.6)	A (7.5)
Southbound Moorton Road – Lefts	A (7.6)	A (8.0)	A (7.6)	A (8.0)

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

Table 7
Peak Hour Levels of Service (LOS)
Based on Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Unsignalized Intersection [8] Minor Stop-Controlled (TWSC)	**LOS per TIS**		**LOS per McCormick Taylor**	
6 – Moorton Road / Commerce Street / Main Street	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2022 Existing Condition (Case 1)				
Eastbound Main Steet – Lefts	A (7.5)	A (8.0)	A (7.5)	A (8.0)
Westbound Main Street – Lefts	A (8.0)	A (7.8)	A (8.0)	A (7.8)
Northbound Commerce Street	B (12.7)	C (20.8)	B (12.8)	C (21.2)
Southbound Moorton Road	B (14.5)	C (22.9)	B (14.5)	C (23.7)
2027 No Build Condition (Case 2)				
Eastbound Main Steet – Lefts	A (7.6)	A (8.1)	A (7.6)	A (8.1)
Westbound Main Street – Lefts	A (8.0)	A (7.8)	A (8.0)	A (7.8)
Northbound Commerce Street	C (15.2)	F (67.6)	C (15.7)	F (74.9)
Southbound Moorton Road	C (21.5)	F (79.3)	C (21.7)	F (127.2)
2027 Build Condition (Case 3)				
Eastbound Main Steet – Lefts	A (7.6)	A (8.1)	A (7.6)	A (8.1)
Westbound Main Street – Lefts	A (8.0)	A (7.8)	A (8.0)	A (7.8)
Northbound Commerce Street	C (15.3)	F (72.2)	C (15.8)	F (80.5)
Southbound Moorton Road	C (22.0)	F (89.3)	C (22.2)	F (149.7)
2029 Build Condition (Case 4)				
Eastbound Main Steet – Lefts	A (7.6)	A (8.1)	A (7.6)	A (8.1)
Westbound Main Street – Lefts	A (8.0)	A (7.8)	A (8.0)	A (7.8)
Northbound Commerce Street	C (15.5)	F (79.3)	C (16.1)	F (89.0)
Southbound Moorton Road	C (22.5)	F (102.3)	C (22.7)	F (177.3)
2029 Build Condition (Case 4) w/ Improvements (Turn Lanes) [9]				
Eastbound Main Steet – Lefts	--	--	A (7.5)	A (8.1)
Westbound Main Street – Lefts	--	--	A (7.9)	A (7.9)
Northbound Commerce Street	--	--	B (14.7)	E (46.7)
Southbound Moorton Road	--	--	C (19.0)	E (44.8)

[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.
[9] Improvements, as recommended in the TSJS, include northbound and southbound left-turn lane.

Table 8
Peak Hour Levels of Service (LOS)
Based on Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Unsignalized Intersection [10] Minor Stop-Controlled	**LOS per TIS**		**LOS per McCormick Taylor**	
7 – Moorton Road (aka McKee Road) / Rose Bowl Road (Kent Road 154)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2022 Existing Condition (Case 1)				
Westbound Rose Bowl Road	B (10.3)	B (11.0)	B (10.3)	B (11.0)
Southbound Moorton Road – Lefts	A (7.5)	A (7.7)	A (7.5)	A (7.7)
2027 No Build Condition (Case 2)				
Westbound Rose Bowl Road	B (11.5)	B (12.9)	B (11.5)	B (12.9)
Southbound Moorton Road – Lefts	A (7.5)	A (8.1)	A (7.5)	A (8.1)
2027 Build Condition (Case 3)				
Westbound Rose Bowl Road	B (11.6)	B (13.0)	B (11.6)	B (13.0)
Southbound Moorton Road – Lefts	A (7.6)	A (8.1)	A (7.6)	A (8.1)
2029 Build Condition (Case 4)				
Westbound Rose Bowl Road	B (11.6)	B (13.0)	B (11.6)	B (13.0)
Southbound Moorton Road – Lefts	A (7.6)	A (8.1)	A (7.6)	A (8.1)

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

Table 9
Peak Hour Levels of Service (LOS)
Based on Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Unsignalized Intersection [11] Minor Stop-Controlled	**LOS per TIS**		**LOS per McCormick Taylor**	
8 – Brenford Road / Moorton Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2022 Existing Condition (Case 1)				
Westbound Moorton Road	A (9.6)	B (10.0)	A (9.6)	B (10.0)
Southbound Brenford Road – Lefts	A (7.7)	A (7.7)	A (7.7)	A (7.7)
2027 No Build Condition (Case 2)				
Westbound Moorton Road	B (10.5)	B (11.4)	B (10.5)	B (11.4)
Southbound Brenford Road – Lefts	A (8.0)	A (8.1)	A (8.0)	A (8.1)
2027 Build Condition (Case 3)				
Westbound Moorton Road	B (10.6)	B (11.5)	B (10.6)	B (11.5)
Southbound Brenford Road – Lefts	A (8.0)	A (8.1)	A (8.0)	A (8.1)
2029 Build Condition (Case 4)				
Westbound Moorton Road	B (10.6)	B (11.5)	B (10.6)	B (11.5)
Southbound Brenford Road – Lefts	A (8.0)	A (8.1)	A (8.0)	A (8.1)

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

Table 10
Peak Hour Levels of Service (LOS)
Based on Lynnbury Woods Traffic Impact Study – June 2, 2023
Prepared by Rossi Group, Inc.

Unsignalized Intersection [12] Minor Stop-Controlled	**LOS per TIS**		**LOS per McCormick Taylor**	
9 – Brenford Road / Masseys Millpond Road (Kent Road 148)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2022 Existing Condition (Case 1)				
Eastbound Masseys Millpond Road	B (10.4)	B (11.6)	B (10.4)	B (11.6)
Northbound Brenford Road – Lefts	A (7.7)	A (7.9)	A (7.7)	A (7.9)
2027 No Build Condition (Case 2)				
Eastbound Masseys Millpond Road	B (11.9)	B (14.1)	B (11.9)	B (14.1)
Northbound Brenford Road – Lefts	A (7.9)	A (8.2)	A (7.9)	A (8.2)
2027 Build Condition (Case 3)				
Eastbound Masseys Millpond Road	B (12.0)	B (14.1)	B (12.0)	B (14.1)
Northbound Brenford Road – Lefts	A (8.0)	B (8.3)	A (8.0)	B (8.3)
2029 Build Condition (Case 4)				
Eastbound Masseys Millpond Road	B (12.0)	B (14.2)	B (12.0)	B (14.2)
Northbound Brenford Road – Lefts	A (8.0)	A (8.3)	A (8.0)	A (8.3)

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