



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

NICOLE MAJESKI
SECRETARY

November 9, 2023

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

Dear Mr. Marc Coté,

The enclosed Traffic Impact Study (TIS) review letter for the **Lynnbury Woods** (Tax Parcels: (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. This letter has been revised to reflect the inclusion of minimum turn lane lengths in Item 4 of the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at Annamaria.Furmato@delaware.gov.

Sincerely,

Annamaria Furmato
TIS Group Project Engineer

AF:km

Enclosures

cc with enclosures: 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 Distribution

Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary / Director, Transportation Solutions (DOTS)
Mark Luszcz, Deputy Director, DelDOT Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, DelDOT Traffic, DOTS
Sean Humphrey, Traffic Engineer, DelDOT Traffic, DOTS
Matthew Lichtenstein, Central District Engineer, Central District
Steve McCabe, Central District Public Works Manager, Central District
Jared Kaufman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Pamela Steinebach, Director, Planning
Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
Will Mobley, Acting Kent County Review Coordinator, Development Coordination
Michael Vandevander, Subdivision Reviewer, Development Coordination
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Sireen Muhtaseb, TIS Group Manager, Development Coordination



November 9, 2023

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

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

Dear Ms. Furfato:

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.

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. The TID is expected to be fully operational by early 2024.



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:

<i>Intersection</i>	<i>Existing Traffic Control</i>	<i>Situations for which deficiencies occur</i>
3 - US Route 13 and Messina Hill Road	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 (Table 4, Page 19)

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.

Although the intersection does meet the warrants for a traffic signal, a traffic signal is not the desired traffic control at this location along US Route 13. As discussed in this letter, 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 the future Cheswold Area TID, it is recommended that the developer design and construct raised channelizing islands to prohibit the eastbound left-turn from Messina Hill Road onto northbound US Route 13 as described below in Item No. 3.

Moorton Road / Commerce Street and Main Street (Table 7, Page 22)

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. As discussed in this letter, 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 the future Cheswold Area TID, it is recommended that the developer design and construct left-turn lanes on northbound Commerce Street and southbound Moorton Street as described in Item No 4 below.

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.

- 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.

- The developer should design and construct raised channelizing islands to prohibit eastbound left-turns at the intersection of US Route 13 and Messina Hill Road (south). The developer should coordinate with DelDOT’s Development Coordination Section and Traffic Section to determine design details.
- The developer should design and construct dedicated left-turn lanes on northbound Commerce Street and southbound Moorton Street at the intersection of Moorton Road / Commerce Street and Main Street. Minimum turn-lane lengths (excluding tapers) include a 50-foot left-turn lane on northbound Commerce Street and a 75-foot left-turn lane on southbound Moorton Street. The developer should coordinate with DelDOT’s Development Coordination Section and Traffic Section to determine design details. Additionally, the developer should coordinate the design and implementation of the improvements with DelDOT’s project team for the *HRGX FY 23 intersection of Moorton Road / Main Street (SR 42)* project.

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.

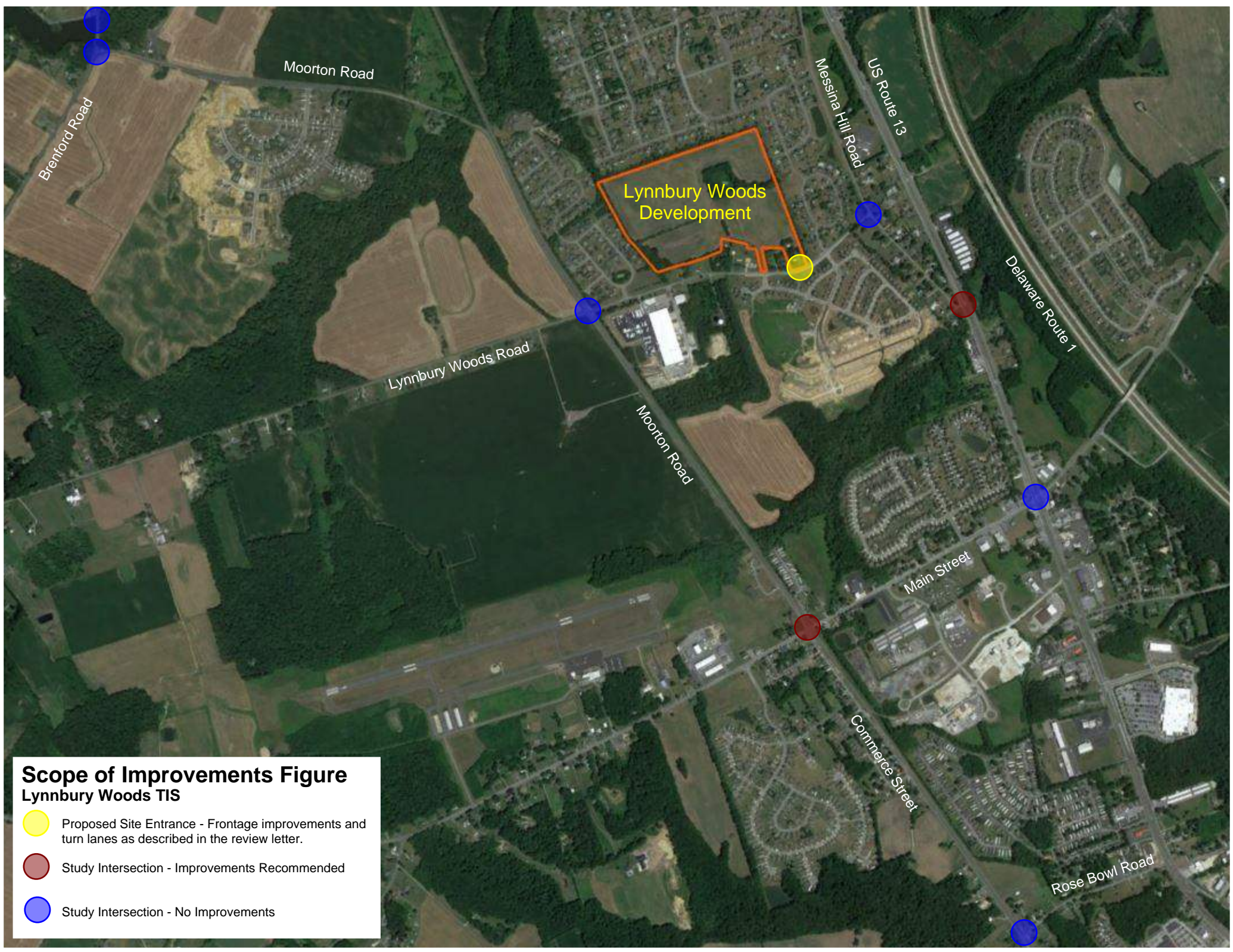
Sincerely,

McCormick Taylor, Inc.




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

Andrew J. Parker, PE, PTOE
Project Manager

Enclosure



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 9.

Amount of land to be developed: An approximately 61.00-acre assemblage parcels.

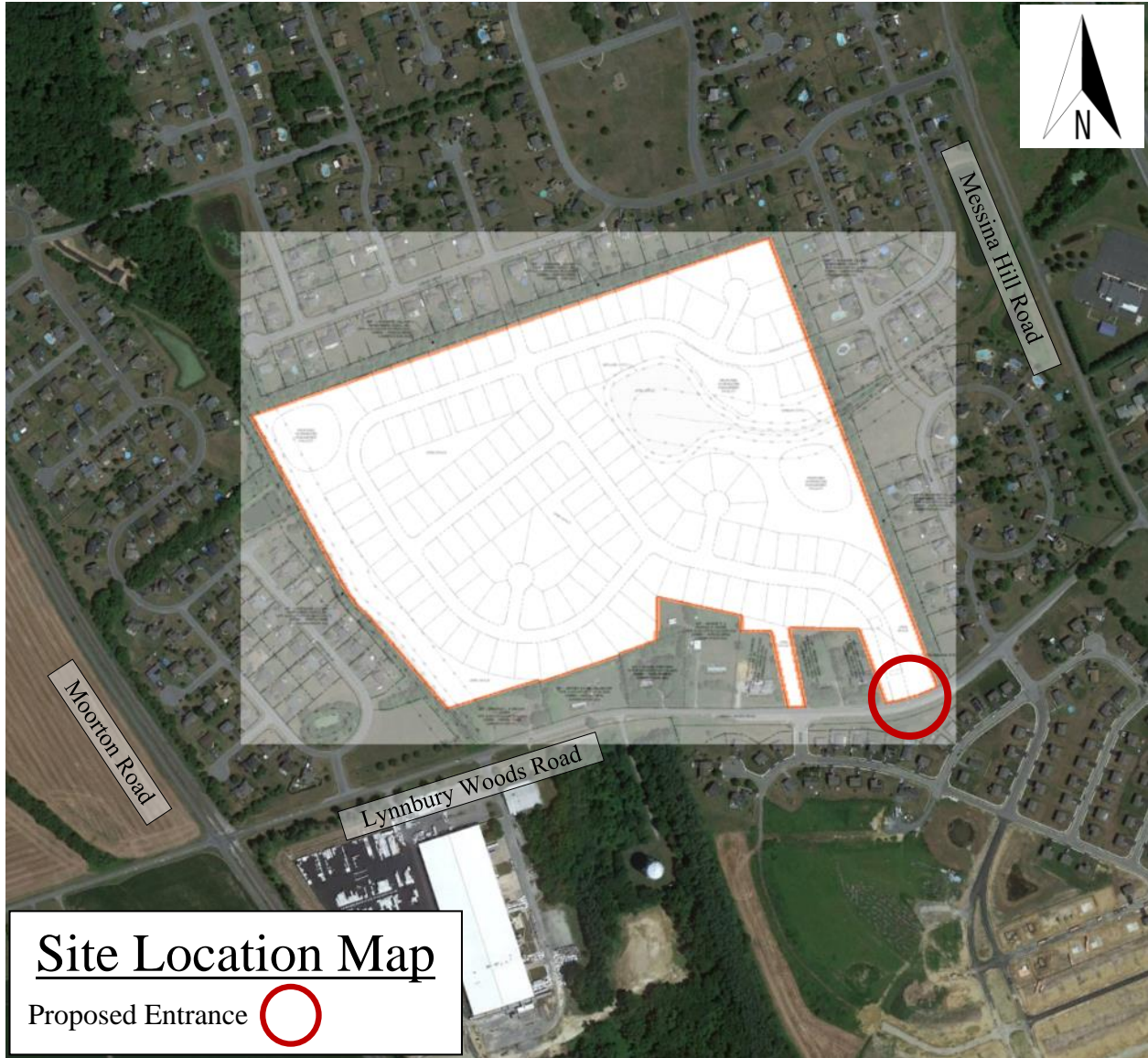
Land use approval(s) needed: The land is currently zoned as AC (Agricultural Conservation) within a Growth Zone, and the developer is not proposing to rezone the land.

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



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. The TID is expected to be operational by early 2024.

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