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

SHANTÉ A. HASTINGS
SECRETARY

August 12, 2025

Ms. Teresa Scrocca P.E., PTOE
Pennoni Associates, Inc.
121 Continental Drive, Suite 207
Newark, DE 19713

Dear Ms. Scrocca,

The enclosed Traffic Impact Study (TIS) review letter for the **Grey Wolf Meadows** (Tax Parcels: 334-10.00-23.00, 334-10.00-23.01) mixed use development has been completed under the responsible charge of a registered professional engineer whose firm is authorized to work in the State of Delaware. They have found the TIS to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at Annamaria.Furmato@delaware.gov.

Sincerely,

Annamaria Furmato
TIS Review Engineer

AF:km
Enclosures
cc with enclosures: James Grant, Bedford Holding LLC
Alan Decktor, Pennoni Associates, Inc.
David L. Edgell, Office of State Planning Coordination
Jamie Whitehouse, Sussex County Planning & Zoning
Mir Wahed, Johnson, Mirmiran, & Thompson, Inc.
Joanne M. Arellano, Johnson, Mirmiran, & Thompson, Inc.
DelDOT Distribution

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Lanie Clymer, Deputy Secretary
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
Alastair Probert, South District Engineer, M&O
Matt Schlitter, South District Public Works Engineer, M&O
Jared Kauffman, Service Development Planner, DTC
Tremica Cherry, Service Development Planner, DTC
Anthony Aglio, Planning Supervisor, Active Transportation & Community Connections, Planning
Anson Gock, Planner, Statewide & Regional Planning, Planning
Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
Brian Yates, Process and Quality Control Engineer, Development Coordination
John Pietrobono, Acting Sussex Review Coordinator, Development Coordination
Kevin Hickman, Sussex Review Engineer, Development Coordination
Sireen Muhtaseb, TIS Engineer, Development Coordination
Ben Fisher, TIS Review Engineer, Development Coordination
Tijah Jones, TIS Review Engineer, Development Coordination

August 11, 2025

Ms. Sireen Muhtaseb, P.E.
TIS Group Manager
Delaware Department of Transportation
Development Coordination
800 Bay Road
Dover, DE 19901

RE: Agreement No: 2138S
TIS Support Services – T202369005
Task Name: Task 1-7 Grey Wolf Meadows
JMT No.: 24-01365-107

Dear Ms. Muhtaseb:

Johnson, Mirmiran, and Thompson (JMT) has completed a review of the Traffic Impact Study (TIS) for the Grey Wolf Meadows development, which was prepared by Pennoni Associates Inc. dated May 9, 2025. This review was assigned as Task Number 1-7. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual* and other Department standards.

The TIS evaluates the impacts of a proposed mixed-use development located on the southwest corner of the intersection of US Route 9 and Josephs Road (Sussex Road 281) in Sussex County, Delaware. The development would consist of 41,700 square feet of retail space, 82 units of single-family housing, and 96 units of multi-family low-rise housing on approximately 50.27 acres (Tax Parcels 334-10.00-23.00 & 334-10.00-23.01).

Access is proposed via three access points: two rights-in/rights-out entrances along US Route 9 and one full movement entrance along Josephs Road. Construction is anticipated to be complete in 2030.

Relevant and On-Going Projects and Studies

DelDOT has relevant and on-going improvement projects in the vicinity of the study area. The *Statewide Rail-to-Trail & Rail-with-Trail Facility Master Plan* includes the Georgetown – Lewes, Shared Use Path (SUP). Project segments for the Georgetown – Lewes SUP have been completed and the path will traverse adjacent to Grey Wolf Meadows. The goal of this overall project is to utilize the recently abandoned, inactive, and public owned active rail corridor segments and develop off-road facilities for bicyclists and pedestrians for both transportation and recreation. When complete, the Georgetown-Lewes Running Track Rail-to-Trail & Rail-with-Trail project would run from the Historic Georgetown Train Station to the entrance to the Cape Henlopen State Park in Lewes and would measure approximately 16.7 miles in length. Part of that effort is to also work with the development community and existing communities to have formalized connections, where appropriate. More details are available at the following link:

https://deldot.gov/Publications/plans/rails_to_trails/index.shtml.

The *Georgetown to Lewes Trail, Cool Spring to Fisher Road* project is the next phase of the Georgetown to Lewes Trail that is an extension of the Georgetown to Lewes Trail from Cool Spring Road to Fisher Road. This project aims to continue to extend the trail toward Georgetown connecting to a proposed developing area which includes a county park, medical facility, existing and future businesses and housing. The trail is going to be constructed along the railroad corridor as a Rail to Trail project and include a Kiosk with informational panels near the Fisher Road crossing and also include a connection to the proposed Sussex County Park on the corner of US Route 9 and Cool Springs as well as a trail crossing at the US Route 9 and Fisher Road signal. Construction is substantially complete. More details, including concept plans for this project, are available at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202030001#project-details1.

The *Georgetown to Lewes Trail, Fisher Road to Airport Road* project is the final phase of the Georgetown to Lewes Trail. This project includes the construction of a multi-use trail along and adjacent to the state-owned railroad as well as road intersection improvements where the rail line crosses a road. It aims to improve mobility, connectivity, and safety for bikes and pedestrians. Construction is expected to begin in August 2025 and complete in Spring 2026. More details, including concept plans for this project, are available at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202230001#project-details1.

The *Coastal Corridors Study* aims to study the east-west travel patterns in Sussex County including, but not limited to, Delaware Route 404 and Delaware Route 16. Initial efforts in the study will identify the east-west routes / corridors in northwestern Sussex County that are currently congested or are at risk for congestion based on anticipated growth in the area. The study will focus on a number of factors including longer trips from the Chesapeake Bay Bridge to the Delaware beaches and Ocean City, Maryland, regional traffic between Maryland's Eastern Shore and Sussex County, and local east-west traffic within the northwestern part of Sussex County. Latest updates indicate that the study is in the data collection / public outreach phase. Visit the following link for the latest updates including a map of the corridors in the study: https://deldot.gov/projects/Studies/coastalcorridors/.

The proposed development is located west of the boundary of the Henlopen Transportation Improvement District (TID). The 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. DelDOT and Sussex County developed the TID and the formal creation of the TID was unanimously approved by Sussex County on October 27, 2020. The TID limits generally extend from the Georgetown to Lewes Trail and Delaware Route 1 to the north, Burton Pond and Herring Creek to the south, Arnell Creek and Rehoboth Bay to the east, and Beaver Dam Road to the west. The Henlopen TID CTP Cost Development Report was prepared in December 2019 by JMT and contained a summary of the traffic analysis conducted and the associated roadway concept plans and cost estimates for the TID. An update of the analysis was completed in 2022. More information about the TID can be found in the following link:

https://deldot.gov/Programs/transportation-improvement-districts/index.shtml?dc=tidsunderoperation

Summary of Analysis Results

Based on our review of the TIS, 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	LOS Deficiencies Occur Case			Case
	Weekday AM	Weekday PM	Summer Saturday	
4 – US Route 9 / Josephs Road	X	X	X	Case 2 – 2030 without Development
	X	X	X	Case 3 – 2030 with Development
5 – US Route 9 / Arabian Acres Road (Sussex Road 282)	X	X	-	Case 2 – 2030 without Development
	X	X	X	Case 3 – 2030 with Development
6 – US Route 9 / Dairy Farm Road (Sussex Road 261) / Sweetbriar Road (Sussex Road 261)	X	-	-	Case 2 – 2030 without Development
	X	-	-	Case 3 – 2030 with Development
7 – US Route 9 / Cool Spring Road (Sussex Road 290)	X	X	-	Case 1 – 2024 Existing
	X	X	X	Case 2 – 2030 without Development
	X	X	X	Case 3 – 2030 with Development
9 – Log Cabin Hill Road / Hudson Road (Sussex Road 258)	X	X	X	Case 2 – 2030 without Development
	X	X	X	Case 3 – 2030 with Development
11 – US Route 9 / Hudson Road / Fisher Road (Sussex Road 262)	-	X	-	Case 2 – 2030 without Development
	-	X	-	Case 3 – 2030 with Development
12 – US Route 9 / Hunters Mill Road	X	X	-	Case 1 – 2024 Existing
	X	X	X	Case 2 – 2030 without Development
	X	X	X	Case 3 – 2030 with Development
13 – US Route 9 / Beaver Creek Drive	X	X	-	Case 1 – 2024 Existing
	X	X	X	Case 2 – 2030 without Development
	X	X	X	Case 3 – 2030 with Development

14 – US Route 9 / Delaware Route 5 (Harbeson Road)	X	X	-	Case 1 – 2024 Existing
	X	X	-	Case 2 – 2030 without Development
	X	X	X	Case 3 – 2030 with Development

4 – US Route 9 / Josephs Road (See Table 5, Page 31, Development Improvement #5 & 6)

The two-way stop-controlled intersection of US Route 9 and Josephs Road would exhibit LOS deficiencies along the northbound Josephs Road minor approach during all peak hours under future conditions with or without the proposed development (Case 2 & 3). The intersection would also exhibit LOS deficiencies along the southbound Josephs Road approach during the PM peak hour under future conditions without the proposed development (Case 2) and during all peak hours under future conditions with the proposed development (Case 3). Specifically, under Case 3 conditions during the PM peak hour, the northbound and southbound Josephs Road approaches would operate at LOS F with a delay of over 1,000 seconds per vehicle.

The deficiencies could be mitigated by the provision of a traffic signal or a multi-lane roundabout. However, a multi-lane roundabout would require widening along US Route 9 to accommodate the additional lanes through the roundabout. The additional through lanes would either need to be continued along US Route 9, resulting in significant geometric impacts, or dropped locally at the intersection. A local drop may result in uneven lane utilization which would impact operations at the roundabout and may potentially create safety concerns with the merge condition created by the lane drop. Additionally, widening to provide two through lanes in each direction along US Route 9 would have geometric impacts to properties and utilities near the intersection.

JMT performed a Traffic Signal Justification Study (TSJS) at the intersection. Based on a review of the traffic signal warrants from the 2018 Edition of the Delaware Manual on Uniform Traffic Control Devices (DEMUTCD), the volume warrants are met under future conditions with the proposed development (Case 3). Based on the results of the TSJS, a traffic signal is recommended at the US Route 9 and Josephs Road intersection. Additionally, to reduce projected queue lengths along US Route 9 as a result of signalization, it is recommended that the intersection be coordinated with the adjacent signalized intersections along the corridor. The developer should enter into a signal agreement with DelDOT and install the recommended lane configurations for potential future signalization of the intersection.

5 – US Route 9 / Arabian Acres Road (Sussex Road 282) (See Table 6, Page 34)

The two-way stop-controlled intersection of US Route 9 and Arabian Acres Road would exhibit LOS deficiencies along the northbound Arabian Acres Road minor approach during the AM and PM peak hours under future conditions without the proposed development (Case 2) and during all peak hours under future conditions with the proposed development (Case 3). Specifically, under Case 3 conditions during the PM peak hour, the northbound Arabian Acres Road approach would operate at LOS F with a delay of approximately 58.3 seconds per vehicle and a calculated 95th

percentile queue length of approximately 10 feet. The deficiencies could be mitigated by the provision of a traffic signal or a multi-lane roundabout. However, due to the minimal queue length and traffic volumes along the northbound Arabian Acres Road approach, the nature of the roadway, and the extensive scope of the improvements, it is not recommended that the developer implement any improvements at the intersection.

6 – US Route 9 / Dairy Farm Road (Sussex Road 261) / Sweetbriar Road (Sussex Road 261) (See Table 7, Page 36, Development Improvement #7)

The signalized intersection of US Route 9 and Dairy Farm Road/Sweetbriar Road would exhibit LOS deficiencies during the AM peak hour under future conditions, with or without the proposed development. Specifically, during the AM peak hour under Case 3 conditions, the intersection would operate at LOS E with a delay of approximately 68.3 seconds of delay per vehicle. However, the deficiencies could be mitigated by signal timing coordination along US Route 9. As such, it is not recommended that the developer implement any improvements at this intersection. It is recommended that the developer make an equitable contribution to the Traffic Signal Revolving Fund (TSRF).

7 – US Route 9 / Cool Spring Road (Sussex Road 290) (See Table 8, Page 37, Development Improvement #8)

The two-way stop controlled intersection of US Route 9 and Cool Spring Road exhibits LOS deficiencies along the northbound and southbound Cool Spring Road minor approaches during the AM and PM peak hours under existing conditions (Case 1) and during all peak hours under future conditions, with or without the proposed development (Case 2 & 3). Specifically, under Case 3 conditions during the PM peak hour, the northbound and southbound Cool Spring Road approaches would operate at LOS F with a delay of over 1,000 seconds per vehicle.

The deficiencies could be mitigated by the provision of a traffic signal or a multi-lane roundabout. However, a multi-lane roundabout would require widening along US Route 9 to accommodate the additional lanes through the roundabout. The additional through lanes would either need to be continued along US Route 9, resulting in significant geometric impacts, or dropped locally at the intersection. A local drop may result in uneven lane utilization which would impact operations at the roundabout and may potentially create safety concerns with the merge condition created by the lane drop. Additionally, widening to provide two through lanes in each direction along US Route 9 would have geometric impacts to properties and utilities near the intersection.

JMT performed a Traffic Signal Justification Study (TSJS) at the intersection. Based on a review of the traffic signal warrants from the 2018 Edition of the Delaware Manual on Uniform Traffic Control Devices (DEMUTCD), volume warrants (Warrant 2) are met under future conditions with or without the proposed development (Case 2 & 3). Based on crash data from November 20, 2021 to December 20, 2024, the intersection also meets the crash warrant (Warrant 7) for signalization. Based on the results of the TSJS, a traffic signal is recommended at the US Route 9 and Cool Spring Road intersection. Additionally, to reduce projected queue lengths along US Route 9 as a result of signalization, it is recommended that the intersection be coordinated with the adjacent

signalized intersections along the corridor. It is recommended that the developer be responsible to make an equitable contribution to the Traffic Signal Revolving Fund (TSRF).

9 – Log Cabin Hill Road / Hudson Road (Sussex Road 258) (See Table 10, Page 40, Development Improvement #9)

The two-way stop-controlled intersection of Hudson Road and Log Cabin Hill Road would exhibit LOS deficiencies during all peak hours under future conditions, with or without the proposed development (Case 2 & 3). Specifically, under Case 3 conditions during the PM peak hour, the westbound Log Cabin Hill Road approach would operate at LOS F with a delay of approximately 88.3 seconds per vehicle and a calculated 95th percentile queue length of approximately 245 feet. As part of the Cool Spring development, Log Cabin Hill Road is proposed to be realigned to intersect Hudson Road across from Carpenter Road and the intersection will be converted to a single lane roundabout. With these improvements, the intersection would operate at acceptable LOS B with a delay of approximately 10.2 seconds per vehicle under Case 3 conditions during the PM peak hour (results depicted in Table 11). As such, it is recommended that the developer make an equitable share contribution to the realignment of Log Cabin Hill Road and the single lane roundabout at the intersection.

11 – US Route 9 / Hudson Road / Fisher Road (Sussex Road 262) (See Table 12, Page 42, Development Improvement #10)

The signalized US Route 9 intersection with Fisher Road/Hudson Road would exhibit LOS deficiencies during the PM peak hour under future conditions, with or without the proposed development (Case 2 & 3). Specifically, under Case 3 conditions during the PM peak hour, the intersection would operate at LOS E with a delay of approximately 75.4 seconds per vehicle. As proposed by the Cool Spring development, the deficiencies could be mitigated by the provision of an additional left turn lane along the eastbound US Route 9 approach and widening along the northern leg of Hudson Road to provide two receiving lanes. The additional lane along northbound Hudson Road, north of the intersection with US Route 9, should continue past the existing medical center entrance before terminating. As such, it is recommended that the developer make an equitable share contribution to the proposed improvements.

12 – US Route 9 / Hunters Mill Road / Breakwater Acres Lane (See Table 13, Page 43)

The two-way stop-controlled intersection of US Route 9 and Hunters Mill Road exhibits LOS deficiencies along the northbound Breakwater Acres Lane and southbound Hunters Mill Road minor approaches during the AM and PM peak hours under existing conditions (Case 1) and during all peak hours under future conditions, with or without the proposed development (Case 2 & 3). Specifically, under Case 3 conditions during the PM peak hour, the northbound Breakwater Acres Lane approach would operate at LOS F with a delay of approximately 404.9 seconds per vehicle and a calculated 95th percentile queue length of approximately 10 feet. Additionally, under Case 3 conditions during the PM peak hour, the southbound Hunters Mill Road approach would operate at LOS F with a delay of approximately 524.2 seconds per vehicle and a calculated 95th percentile queue length of approximately 70 feet. However, due to the short queue lengths along the northbound and southbound Hunters Mill Road/Breakwater Acres Lane approaches, the nature of

the roadway, and the extensive scope of the improvements, it is not recommended that the developer implement any improvements at the intersection.

13 – US Route 9 / Beaver Creek Drive (See Table 14, Page 46)

The two-way stop-controlled intersection of US Route 9 and Beaver Creek Drive exhibits LOS deficiencies along the southbound Beaver Creek Drive minor approach during the AM and PM peak hours under existing conditions (Case 1) and during all peak hours under future conditions, with or without the proposed development (Case 2 & 3). The northbound driveway minor approach would exhibit LOS deficiencies during the Saturday peak hour under future conditions, with or without the proposed development (Case 2 & 3). Specifically, under Case 3 conditions during the AM peak hour, the southbound Beaver Creek Drive approach would operate at LOS F with a delay of approximately 522.7 seconds per vehicle and a calculated 95th percentile queue length of approximately 105 feet. Additionally, under Case 3 conditions during the Saturday peak hour, the northbound driveway approach would operate at LOS F with a delay of approximately 64.8 seconds per vehicle and a calculated 95th percentile queue length of approximately 15 feet. However, due to the short queue lengths along the northbound driveway approach and southbound Beaver Creek Drive approach, the nature of the roadways, and the extensive scope of the improvements, it is not recommended that the developer implement any improvements at the intersection.

14 – US Route 9 / Delaware Route 5 (Harbeson Road) (See Table 15, Page 49, Development Improvement #11)

The signalized US Route 9 intersection with Delaware Route 5 exhibits LOS deficiencies during the AM and PM peak hours under existing conditions (Case 1) and future conditions without the proposed development (Case 2), and during all peak hours under future conditions with the proposed development (Case 3). Specifically, under Case 3 conditions during the PM peak hour, the intersection would operate at LOS F with a delay of approximately 114.5 seconds per vehicle. The deficiencies could be mitigated by the provision of an additional through lane along the eastbound and westbound US Route 9 approaches. Widening of US Route 9 at this location may be infeasible due to the proximity of utilities and a graveyard at the southwest corner of the intersection. As such, in lieu of constructing improvements, it is recommended that the developer make an equitable contribution to the Traffic Signal Revolving Fund (TSRF).

Additional Intersection Improvements

The following intersection does not exhibit LOS deficiencies with the proposed development. However, DelDOT requested additional analysis of the proposed access.

3 - Site Entrance C/ Josephs Road (Sussex Road 281) (See Table 4, Page 30, Development Improvement #4)

The proposed Site Entrance C intersection with Josephs Road would be a three-legged two-way stop-controlled intersection approximately 600 feet south of the intersection with US Route 9. The

proposed two-way stop-controlled intersection would operate at acceptable LOS under future conditions with the proposed development. However, DelDOT requested the consideration of a single-lane roundabout to be utilized as a traffic calming measure to address speeding along the corridor. With the implementation of a single lane-roundabout, the proposed site access would operate at acceptable LOS A with a delay of approximately 3.6 seconds per vehicle.

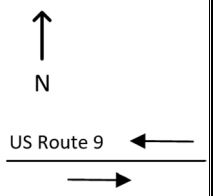
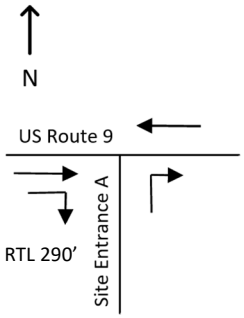
Additionally, the developer should consider relocating Site Entrance C access to be directly across from Foxfield Lane.

Development Improvements

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan, entrance plans, or construction plans 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.

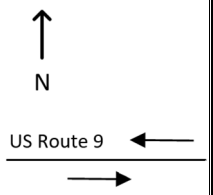
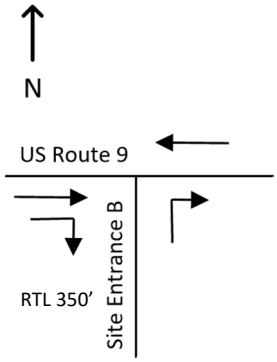
1. The developer shall improve the State-maintained roads on which they front (US Route 9 and Josephs Road) within the limits of their frontage. The improvements shall include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. "Frontage" means the length along the state right-of-way of a single property tract where an entrance is proposed or required. If a single property tract has frontage along multiple roadways, any segment of roadway including an entrance shall be improved to meet DelDOT's Functional Classification criteria as found in Section 1.1 of the Development Coordination Manual and elsewhere therein, and/or improvements established in the Traffic Operational Analysis and/or Traffic Impact Study. "Secondary Frontage" means the length along the state right-of-way of a single property tract where no entrance is proposed or required. The segment of roadway may be upgraded by improving the pavement condition of the existing roadway width. The Pavement Management Section and Subdivision Section will determine the requirements to improve the pavement condition.

2. The developer should construct an unsignalized Site Entrance A rights-in/rights-out only access for the proposed Grey Wolf Meadows development along US Route 9, approximately 1,000 feet west of the intersection with Josephs Road. The intersection should be consistent with the lane configurations shown in the table below:

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound US Route 9	One through lane		Eastbound US Route 9	One through lane and one right turn lane	
Westbound US Route 9	One through lane		Westbound US Route 9	One through lane	
Northbound Site Entrance A	Approach does not exist		Northbound Site Entrance A	One right turn lane	

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length (excluding taper) of the eastbound US Route 9 right turn lane is 290 feet. The projected queues from the traffic analysis can be accommodated within the recommended storage lengths. The developer should design the intersection to prevent and deter illegal movements.

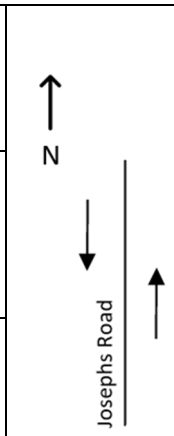
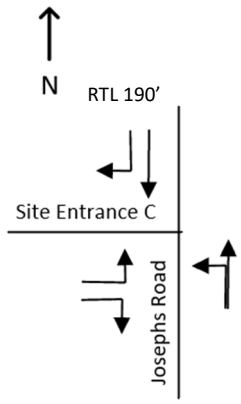
3. The developer should construct an unsignalized Site Entrance B rights-in/rights-out only access for the proposed Grey Wolf Meadows development along US Route 9, approximately 400 feet west of the intersection with Josephs Road. The intersection should be consistent with the lane configurations shown in the table below:

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound US Route 9	One through lane		Eastbound US Route 9	One through lane and one right turn lane	
Westbound US Route 9	One through lane		Westbound US Route 9	One through lane	
Northbound Site Entrance B	Approach does not exist		Northbound Site Entrance B	One right turn lane	

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length (excluding taper) of the eastbound US Route 9 right turn lane is 350 feet. The projected queues from the traffic analysis can be accommodated within the recommended

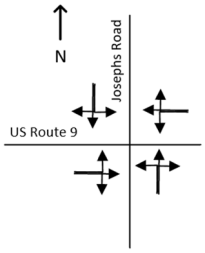
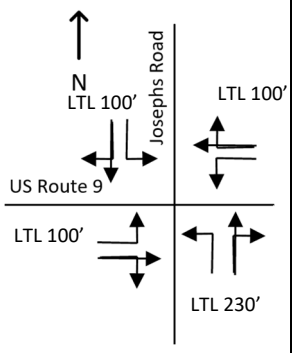
storage lengths. The developer should design the intersection to prevent and deter illegal movements.

4. The developer should construct an unsignalized Site Entrance C full access for the proposed Grey Wolf Meadows development along Josephs Road, approximately 600 feet south of the intersection with US Route 9. The intersection should be consistent with the lane configurations shown in the table below:

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound Site Entrance C	Approach does not exist		Eastbound Site Entrance C	One left turn lane and one right turn lane	
Northbound Josephs Road	One through lane		Northbound Josephs Road	One shared left turn/through lane	
Southbound Josephs Road	One through lane		Southbound Josephs Road	One through lane and one right turn lane	

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length (excluding taper) of the southbound Josephs Road right turn lane is 190 feet. The projected queues from the traffic analysis can be accommodated within the recommended storage lengths.

5. The developer should improve the US Route 9 and Josephs Road intersection to add left turn lanes and be consistent with the lane configurations shown in the table below:

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound US Route 9	One shared left turn/through/ right turn lane		Eastbound US Route 9	One left turn lane and one shared through/right turn lane	
Westbound US Route 9	One shared left turn/through/ right turn lane		Westbound US Route 9	One left turn lane and one shared through/right turn lane	
Northbound Josephs Road	One shared left turn/through/ right turn lane		Northbound Josephs Road	One left turn lane and one shared through/right turn lane	
Southbound Josephs Road	One shared left turn/through/ right turn lane		Southbound Josephs Road	One left turn lane and one shared through/right turn lane	

Based on the Synchro traffic analysis, the recommended minimum storage lengths (excluding taper) of the separate left turn lanes are summarized in the table below. The projected queues from the traffic analysis can be accommodated within the recommended storage lengths.

Approach	Left Turn Lane
Eastbound US Route 9	100 feet
Westbound US Route 9	100 feet
Northbound Josephs Road	230 feet
Southbound Josephs Road	100 feet

6. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 9 and Josephs Road. The developer should coordinate with DelDOT Development Coordination Section to execute the traffic signal agreement.

7. The developer should enter into an agreement with DelDOT to contribute to the Traffic Signal Revolving Fund (TSRF) for the intersection of US Route 9 and Sweetbriar Road/Dairy Farm Road. The contribution amount is $13,268.18.

8. The developer should enter into an agreement with DelDOT to contribute to the Traffic Signal Revolving Fund (TSRF) for the intersection of US Route 9 and Cool Spring Road. The contribution amount is $14,810.78.

9. The developer should make an equitable share contribution to the realignment of Log Cabin Hill Road and the construction of a single lane roundabout at the intersection of Log Cabin Hill Road/Carpenter Road and Hudson Road, proposed as part of the Cool Spring development. The percent contribution amount for Grey Wolf Meadows is 11%.

10. The developer should make an equitable share contribution to the US Route 9 and Hudson Road/Fisher Road improvements proposed as part of the Cool Spring development. The percent contribution amount for Grey Wolf Meadows is 7%.

11. The developer should enter into an agreement with DelDOT to contribute to the Traffic Signal Revolving Fund (TSRF) for the intersection of US Route 9 and Delaware Route 5. The contribution amount is $5,840.31.

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

    a. A minimum fifteen-foot-wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the US Route 9 and Josephs Road frontage. Along the frontage, the developer should construct a ten-foot-wide shared use path (SUP). The SUP should be designed to meet current AASHTO and ADA standards. A minimum five-foot setback should be maintained from the edge of the pavement to the SUP. The developer should coordinate with DelDOT's Development Coordination Section during the plan review process to identify the exact location of the SUP.

    b. Internal connections from the frontage SUP into the site should be provided.

    c. ADA-compliant curb ramps and marked crosswalks should be provided along the site entrances.

    d. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the US Route 9 and Josephs Road site frontages.

    e. Utility covers should be moved outside of any designated bicycle lanes and any proposed SUP/sidewalks or should be flush with the pavement.

    f. Covered bicycle parking should be provided at locations near the mixed-use buildings.

    g. The existing bus stop on US Route 9 on the far-side of Joseph Road traveling toward Lewes (ID 435) should be moved to near-side and constructed as a Type 2 (17'x8') shelter pad.

h. The existing bus stop on US Route 9 traveling toward Georgetown (ID 438) should be constructed as a Type 2 (5'x8') pad.

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

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 https://www.deldot.gov/Publications/manuals/de_mutcd/index.shtml.

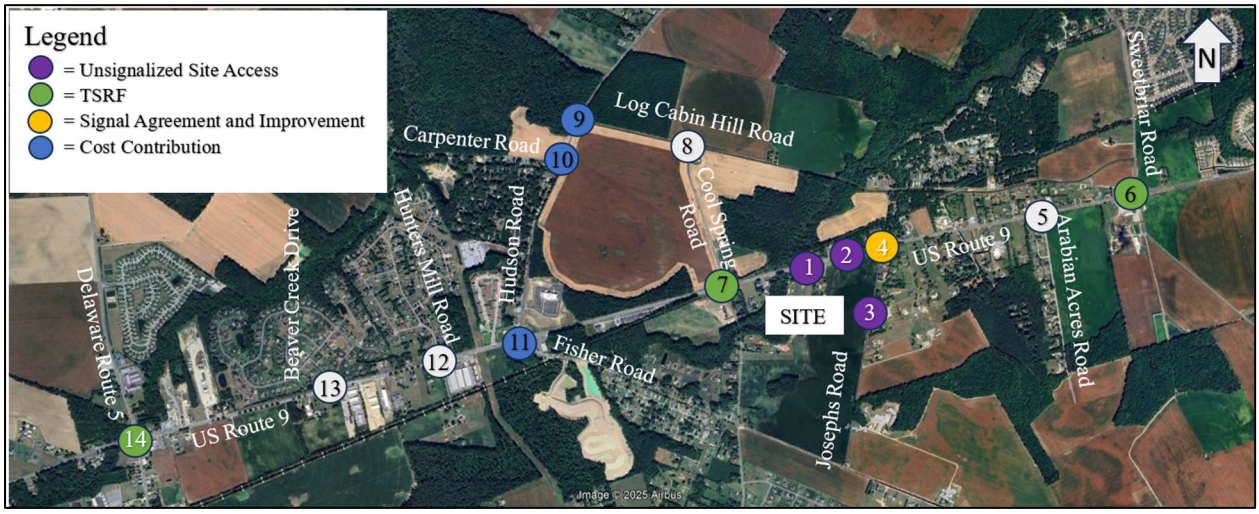
Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

cc: Annamaria Furmato, EIT
Mir Wahed, P.E., PTOE
Janna Brown, P.E., PTOE
Enclosure

Recommendations Map



General Information

Report date: May 9, 2025
Prepared by: Pennoni Associates Inc.
Prepared for: Bedford Holding, LLC
Tax parcel: 334-10.00-23.00 & 334-10.00-23.01
Generally consistent with DelDOT's Development Coordination Manual (DCM): Yes

Project Description and Background

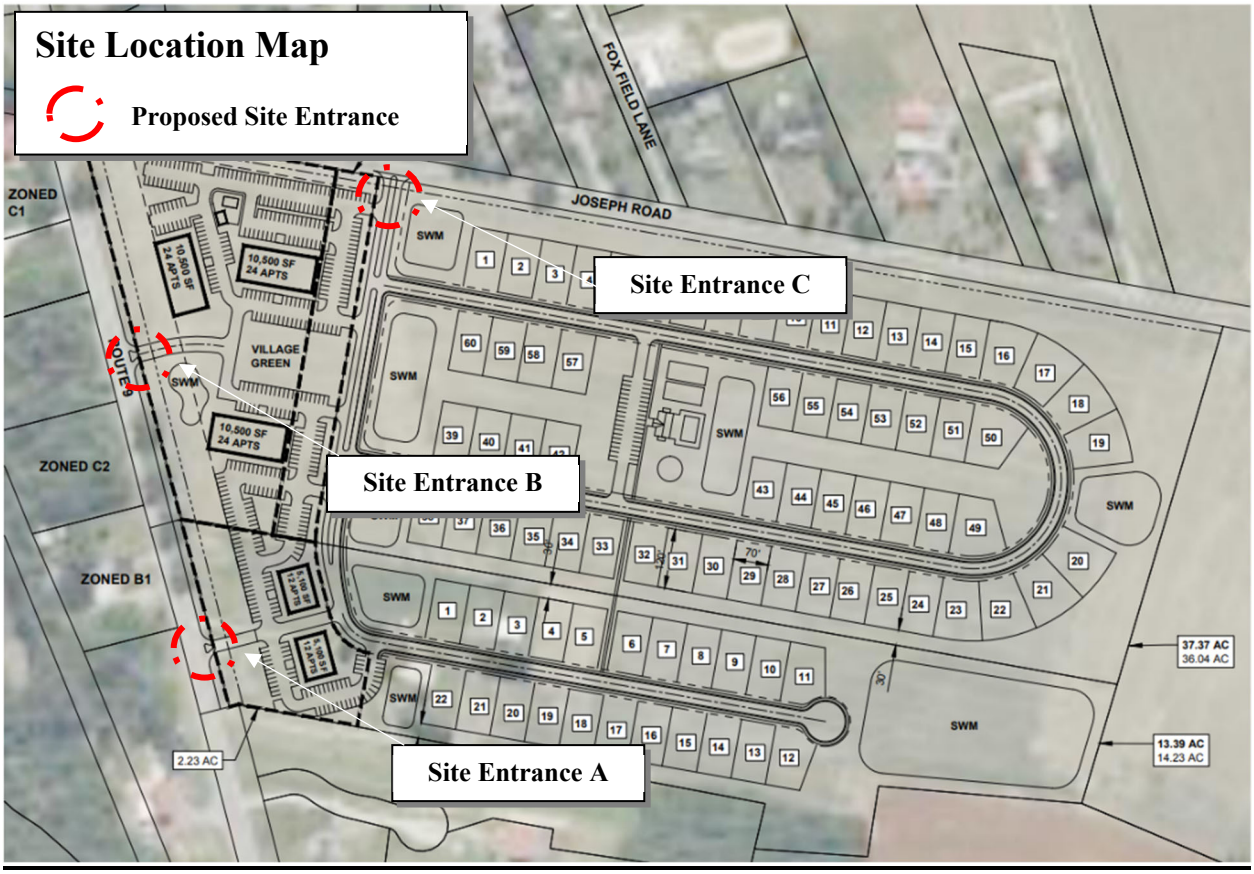
Description: The proposed development consists of 41,700 square feet of retail space with supermarket, 82 dwelling units of single-family detached housing, and 96 dwelling units of multi-family low rise housing.
Location: The site is located on the southwest corner of the intersection of US Route 9 and Josephs Road (Sussex Road 281) in Sussex County, Delaware.
Amount of land to be developed: An approximately 50.27-acre parcel.
Land use approval(s) needed: Entrance Plan.
Proposed completion date: 2030.
Proposed access locations: Two rights-in/rights-out access points are proposed along US Route 9 and one full movement access point is proposed along Joseph Road.

Daily traffic volumes:

- 2024 Average Annual Daily Traffic (AADT)
    - US Route 9: 15,080 vehicles per day
    - Josephs Road (Sussex Road 281): 256 vehicles per day

*AADT is sourced from per ATR count data from 09/28/2024 to 10/09/2024.

Site Map



**Graphic is an approximation based on Figure 1B contained within the May 9, 2025, Final Traffic Impact Study for Greywolf Meadows prepared by Pennoni Associates Inc.*

Relevant and On-going Projects

DelDOT has relevant and on-going improvement projects in the vicinity of the study area. The *Statewide Rail-to-Trail & Rail-with-Trail Facility Master Plan* includes the Georgetown – Lewes, Shared Use Path (SUP). Project segments for the Georgetown – Lewes SUP have been completed and the path will traverse adjacent to Grey Wolf Meadows. The goal of this overall project is to utilize the recently abandoned, inactive, and public owned active rail corridor segments and develop off-road facilities for bicyclists and pedestrians for both transportation and recreation. When complete, the Georgetown-Lewes Running Track Rail-to-Trail & Rail-with-Trail project would run from the Historic Georgetown Train Station to the entrance to the Cape Henlopen State Park in Lewes and would measure approximately 16.7 miles in length. Part of that effort is to also work with the development community and existing communities to have formalized connections, where appropriate. More details are available at the following link: https://deldot.gov/Publications/plans/rails_to_trails/index.shtml.

The *Georgetown to Lewes Trail, Cool Spring to Fisher Road* project is the next phase of the Georgetown to Lewes Trail that is an extension of the Georgetown to Lewes Trail from Cool

Spring Road to Fisher Road. This project aims to continue to extend the trail toward Georgetown connecting to a proposed developing area which includes a county park, medical facility, existing and future businesses and housing. The trail is going to be constructed along the railroad corridor as a Rail to Trail project and include a Kiosk with informational panels near the Fisher Road crossing and also include a connection to the proposed Sussex County Park on the corner of US Route 9 and Cool Springs as well as a trail crossing at the US Route 9 and Fisher Road signal. Construction is substantially complete. More details, including concept plans for this project, are available at the following link: Georgetown to Lewes Trail, Cool Spring Road to Fisher Road Project Website - DelDOT.

The *Georgetown to Lewes Trail, Fisher Road to Airport Road* project is the final phase of the Georgetown to Lewes Trail. This project includes the construction of a multi-use trail along and adjacent to the state owned railroad as well as road intersection improvements where the rail line crosses a road. It aims to improve mobility, connectivity, and safety for bikes and pedestrians. Construction is expected to begin in August 2025 and complete in Spring 2026. More details, including concept plans for this project, are available at the following link: Georgetown to Lewes Trail, Fisher Road to Airport Road Project Website - DelDOT.

The *Coastal Corridors Study* aims to study the east-west travel patterns in Sussex County including, but not limited to, Delaware Route 404 and Delaware Route 16. Initial efforts in the study will identify the east-west routes / corridors in northwestern Sussex County that are currently congested or are at risk for congestion based on anticipated growth in the area. The study will focus on a number of factors including longer trips from the Chesapeake Bay Bridge to the Delaware beaches and Ocean City, Maryland, regional traffic between Maryland's Eastern Shore and Sussex County, and local east-west traffic within the northwestern part of Sussex County. Latest updates indicate that the study is in the data collection / public outreach phase. Visit the following link for the latest updates including a map of the corridors in the study: https://deldot.gov/projects/Studies/coastalcorridors/.

The proposed development is located west of the boundary of the Henlopen Transportation Improvement District (TID). The 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. DelDOT and Sussex County developed the TID and the formal creation of the TID was unanimously approved by Sussex County on October 27, 2020. The TID limits generally extend from the Georgetown to Lewes Trail and Delaware Route 1 to the north, Burton Pond and Herring Creek to the south, Arnell Creek and Rehoboth Bay to the east, and Beaver Dam Road to the west. The Henlopen TID CTP Cost Development Report was prepared in December 2019 by JMT and contained a summary of the traffic analysis conducted and the associated roadway concept plans and cost estimates for the TID. An update of the analysis was completed in 2022. More information about the TID can be found in the following link: https://deldot.gov/Programs/transportation-improvement-districts/index.shtml?dc=tidsunderoperation

Livable Delaware

(Source: Delaware Strategies for State Policies and Spending, 2020)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed development is located within Investment Level 4.

Investment Level 4

Delaware's Investment Level 4 Areas are rural in nature and are where the bulk of the state's open space/natural areas and agricultural industry is located. These areas contain agribusiness activities, farm complexes, and small settlements. They typically include historic crossroads or points of trade, often with rich cultural ties. Delaware's Investment Level 4 Areas are also the location of scattered residential uses, featuring almost entirely single-family detached residential structures. Delaware's Investment Level 4 Areas also include many unincorporated communities, typically with their own distinctive character and identity. Investment Level 4 Areas depend on a transportation system primarily of secondary roads linked to roadways used as regional thoroughfares for commuting and trucking.

It is the state's intent to discourage additional urban and suburban development in Investment Level 4 Areas unrelated to agriculture and to the areas' needs. In Investment Level 4 Areas, the state's investments and policies should retain the rural landscape and preserve open spaces and farmlands, support farmland-related industries, and establish defined edges to more concentrated development. The focus for the Level 4 Areas will be to preserve and maintain existing facilities in safe working order, corridor-capacity preservation, and the enhancement of transportation facilities to support agricultural business. The lowest priority is given to transit system enhancements.

Proposed development's compatibility with Livable Delaware:
The proposed development is located within Investment Level 4, an area designated for the preservation of farmland, restoration of water quality and wildlife habitat, and the support of agricultural infrastructure. While Level 4 areas may contain scattered residential uses, primarily single-family detached homes, new development is strongly discouraged. Exceptions are typically limited to projects that have minimal impact on the existing landscape and directly support agricultural or cultural uses without requiring significant new infrastructure. However, the proposed development consists of 41,700 SF retail space, 82 single-family detached housing, and 96 multi-family low-rise housing. Therefore, the proposed development is not consistent with the 2020 update of *Livable Delaware Strategies for State Policies and Spending.*

Comprehensive Plan

(Source: Sussex County Comprehensive Plan, 2018)

Sussex County Comprehensive Plan:
Per the Sussex County Comprehensive Plan Existing Land Use Map, the proposed development is currently zoned as Agricultural and Undeveloped Lands, and the developer plans to rezone the

land to an AR-1 and C-2 (Medium Commercial) cluster. Per the Sussex County 2045 Future Land Use Map, the proposed development is in areas designated as Low-Density Rural Area.

Proposed development's compatibility with the Sussex County Comprehensive Plan:
The *Sussex County Comprehensive Plan* states that Low-Density Areas include Agricultural Residential District (AR-1) and Medium Commercial District (C-2). Under AR-1 zoning designation, single family detached homes are permitted at two homes per acre on lots containing a minimum of half acre if the tract connects to central sewers. Where onsite septic systems are used, single-family detached homes are permitted on minimum 3/4-acre lots. AR-1 zoning regulations also permit an average of two homes per acre where a cluster-style site plan is used, and a portion of the tract is preserved in permanent open space. The developer plans to rezone the land to a cluster of AR-1 and C-2 to accommodate the mix of housing and medium size retail. Therefore, the proposed development is consistent with the *Sussex County Comprehensive Plan.*

Trip Generation

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 11th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (Single-Family Detached Housing), Land Use Code 220 (Multi-family Low-Rise Housing), Land Use Code 821 (Shopping Plaza, 40-150k).

Table 1
Grey Wolf Meadows Trip Generation

Land Use	ADT	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
41,700 SF Shopping Center (ITE LUC 821)	3,940	91	56	147	211	228	439	225	217	442
Internal Trips	-402	-1	-1	-2	-21	-42	-63	-23	-29	-52
Pass-By Trips	-150	0	0	0	-76	-74	-150	-63	-58	-121
Net External Retail Trips	3,388	90	55	145	114	112	226	139	130	269
82 DU Single-Family Detached Housing (ITE LUC 210)	841	16	46	62	52	30	82	43	37	80
96 DU Multi-family Low-Rise Housing (ITE LUC 220)	691	13	40	53	39	23	62	20	19	39
Total Residential Trips	1,532	29	86	115	91	53	144	63	56	119

Internal Trips	-403	-1	-1	-2	-42	-21	-63	-29	-23	-52
Net External Residential Trips	1,129	28	85	113	49	32	81	34	33	67
Total New Trips	4,517	118	140	258	163	144	307	173	163	336

Trip generation was reviewed by DelDOT as part of the Preliminary TIS (PTIS) submission.

Overview of TIS

Intersections examined:

1. Site Entrance A / US Route 9
2. Site Entrance B / US Route 9
3. Site Entrance C / Josephs Road (Sussex Road 281)
4. US Route 9 / Josephs Road
5. US Route 9 / Arabian Acres Road (Sussex Road 282)
6. US Route 9 / Dairy Farm Road (Sussex Road 261) / Sweetbriar Road (Sussex Road 261)
7. US Route 9 / Cool Spring Road (Sussex Road 290)
8. Cool Springs Road / Log Cabin Hill Road (Sussex Road 247)
9. Log Cabin Hill Road / Hudson Road (Sussex Road 258)
10. Carpenter Road (Sussex Road 259) / Hudson Road
11. US Route 9 / Hudson Road / Fisher Road (Sussex Road 262)
12. US Route 9 / Hunters Mill Road
13. US Route 9 / Beaver Creek Drive
14. US Route 9 / Delaware Route 5 (Harbeson Road)

Conditions examined:

1. Case 1 – 2024 existing
2. Case 2 – 2030 without development
    a. Without Log Cabin Hill Road realignment with Carpenter Road
    b. With Log Cabin Hill Road realignment with Carpenter Road
3. Case 3 – 2030 with development
    a. Without Log Cabin Hill Road realignment with Carpenter Road
    b. With Log Cabin Hill Road realignment with Carpenter Road

Committed developments considered:

1. **Monarch Glen (f.k.a. Fisher Road Property):** 246 units of single-family detached housing.
2. **Compass Point:** 160 units of single-family detached housing remain unbuilt.
3. **Vincent Overlook:** 65 units of single-family detached housing remain unbuilt.
4. **Windstone:** 68 units of single-family detached housing remain unbuilt.
5. **Red Mill Pond South:** 128 units of single-family detached housing remain unbuilt.
6. **Majestic Meadows:** 26 units of single-family detached housing.*

7. **Rt 9 and Fisher Road Commercial:** 14 multi-family low-rise housing units, 6,000 SF convenience store with 12 vehicle fueling positions, 10,000 SF retail, and a 4,525 SF fast-food restaurant with drive-through.
8. **North Star:** 96,118 SF shopping center; 758 units of single-family detached housing; and 94 units of multi-family low-rise housing.
9. **Lightship Cove:** 92 units of single-family detached housing.
10. **Peck Farm:** 128 units of single-family detached housing.
11. **Miralon:** 111 units of single-family detached housing.
12. **Paradise Meadows:** 191 units of single-family detached housing.
13. **Cool Springs:** 918 units of single-family detached housing, 716 units of multi-family low-rise housing, 288 units of multi-family mid-rise housing, a 71,500 SF assisted living facility, 25,000 SF medical-dental office space, a 100 room hotel, a 60,000 SF YMCA, a 150 student junior/community college, 176,975 SF shopping center (which includes a 15,000 SF movie theatre, 85,000 SF supermarket, a 4,400 SF fine dining restaurant, 42,450 SF retail, and a 6,500 SF convenience store with 12 vehicles fueling positions (VFP)).

The committed development information contained within the TIS report supersedes the September 9, 2024, Scoping Meeting Memorandum. The above information is taken from the committed development trip generation table within Appendix E.
**Removed committed development from study*

Peak hours evaluated: Weekday morning, weekday evening, and summer Saturday midday peak hours.

Intersection Descriptions

1. **Site Entrance A / US Route 9**
   Type of Control: Proposed two-way stop-controlled rights-in/rights-out intersection (T-intersection).
   Eastbound Approach: (US Route 9) Existing one through lane. Proposed one through lane and one right turn lane.
   Westbound Approach: (US Route 9) Existing one through lane.
   Northbound Approach: (Site Entrance A) Proposed one right turn lane, stop-controlled.

2. **Site Entrance B / US Route 9**
   Type of Control: Proposed two-way stop-controlled rights-in/rights-out intersection (T-intersection).
   Eastbound Approach: (US Route 9) Existing one through lane. Proposed one through lane and one right turn lane.
   Westbound Approach: (US Route 9) Existing one through lane.
   Northbound Approach: (Site Entrance B) Proposed one right turn lane, stop-controlled.

3. **Site Entrance C / Josephs Road (Sussex Road 281)**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection).
   Eastbound Approach: (Site Entrance C) Proposed one left turn lane and one right turn lane, stop-controlled.
   Northbound Approach: (Josephs Road) Existing one through lane. Proposed one shared left turn/through lane.
   Southbound Approach: (Josephs Road) Existing one through lane. Proposed one through lane and one right turn lane.

4. **US Route 9 / Josephs Road**
   Type of Control: Two-way stop-controlled intersection (Four-legged).
   Eastbound Approach: (US Route 9) Existing one shared left turn/through/right turn lane.
   Westbound Approach: (US Route 9) Existing one shared left turn/through/right turn lane.
   Northbound Approach: (Josephs Road) Existing one shared left turn/through/right turn lane, stop controlled.
   Southbound Approach: (Josephs Road) Existing one shared left turn/through/right turn lane, stop-controlled.

5. **US Route 9 / Arabian Acres Road (Sussex Road 282)**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (US Route 9) Existing one shared through/right turn lane.
   Westbound Approach: (US Route 9) Existing one shared left turn/through lane and one bypass lane.
   Northbound Approach: (Arabian Acres Road) Existing one shared left turn/right turn lane, stop-controlled.

6. **US Route 9 / Dairy Farm Road (Sussex Road 261) / Sweetbriar Road (Sussex Road 261)**
   Type of Control: Existing four-legged signalized intersection
   Eastbound Approach: (US Route 9) Existing one left turn lane, one through lane and one yield-controlled channelized right turn lane.
   Westbound Approach: (US Route 9) Existing one left turn lane, one through lane and one yield-controlled channelized right turn lane.
   Northbound Approach: (Dairy Farm Road) Existing one left turn lane, one through lane and one yield-controlled channelized right turn lane.
   Southbound Approach: (Sweetbriar Road) Existing one left turn lane, one through lane and one yield-controlled channelized right turn lane.

7. **US Route 9 / Cool Spring Road**
   Type of Control: Two-way stop-controlled intersection (Four-legged).
   Eastbound Approach: (US Route 9) Existing one shared left turn/through/right turn lane.
   Westbound Approach: (US Route 9) Existing one shared left turn/through/right turn lane.
   Northbound Approach: (Cool Spring Road) Existing one shared left turn/through/right turn lane, stop controlled.
   Southbound Approach: (Cool Spring Road) Existing one shared left turn/through/right turn lane, stop-controlled.

8. **Cool Spring Road / Log Cabin Hill Road (Sussex Road 247)**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Log Cabin Hill Road) Existing one shared through/right turn lane.
   Westbound Approach: (Log Cabin Hill Road) Existing one shared left turn/through lane.
   Northbound Approach: (Cool Spring) Existing one shared left turn/right turn lane, stop-controlled.

9. **Log Cabin Hill Road / Hudson Road (Sussex Road 258)**
   Type of Control: Two-way stop-controlled intersection (T-intersection).
   Westbound Approach: (Log Cabin Hill Road) Existing one shared left turn/right turn lane, stop-controlled.
   Northbound Approach: (Hudson Road) Existing one shared through/right turn lane.
   Southbound Approach: (Hudson Road) Existing one shared left turn/through lane.

   **As part of the Cool Spring TIS, this intersection will become one four-legged intersection with Log Cabin Hill Road as the east leg and Carpenter Road as the west leg.*

10. **Carpenter Road (Sussex Road 259) / Hudson Road**
    Type of Control: Two-way stop-controlled intersection (T-intersection).
    Eastbound Approach: (Carpenter Road) Existing one shared left turn/right turn lane, stop-controlled.
    Northbound Approach: (Hudson Road) Existing one shared left turn/through lane.
    Southbound Approach: (Hudson Road) Existing one shared through/right turn lane.

    **As part of the Cool Spring TIS, this intersection will become one four-legged intersection with Log Cabin Hill Road as the east leg and Carpenter Road as the west leg.*

11. **US Route 9 / Hudson Road / Fisher Road (Sussex Road 262)**
Type of Control: Existing four-legged signalized intersection
Eastbound Approach: (US Route 9) Existing one left turn lane, one through lane and one right turn lane.
Westbound Approach: (US Route 9) Existing one left turn lane, one through lane and one yield-controlled channelized right turn lane.
Northbound Approach: (Fisher Road) Existing one left turn lane, one through lane and one yield-controlled channelized right turn lane.
Southbound Approach: (Hudson Road) Existing one left turn lane, one through lane and one yield-controlled channelized right turn lane.

12. **US Route 9 / Hunters Mill Road**
Type of Control: Two-way stop-controlled intersection (Four-legged).
Eastbound Approach: (US Route 9) Existing one shared left turn/through lane and one bypass lane.
Westbound Approach: (US Route 9) Existing one shared left turn/through lane and one right turn lane.
Northbound Approach: (Breakwater Acres Lane) Existing one shared left turn/through/right turn lane.
Southbound Approach: (Hunters Mill Road) Existing one shared left turn/through/right turn lane, stop-controlled.

13. US Route 9 / Beaver Creek Drive
Type of Control: Two-way stop-controlled intersection (Four-legged).
Eastbound Approach: (US Route 9) Existing one left turn lane and one shared through/right turn lane.
Westbound Approach: (US Route 9) Existing one shared left turn/through lane and one right turn lane.
Southbound Approach: (Beaver Creek Drive) Existing one left turn and one right turn lane, stop-controlled.
*A private driveway is located at the northbound leg of the intersection

14. **US Route 9 / Delaware Route 5 (Harbeson Road)**
Type of Control: Existing four-legged signalized intersection
Eastbound Approach: (US Route 9) Existing one left turn lane, one through/right turn lane.
Westbound Approach: (US Route 9) Existing one left turn lane, one through/right turn lane.
Northbound Approach: (Delaware Route 5) Existing one left turn lane and one through/right turn lane.

Southbound Approach: (Delaware Route 5) Existing one left turn lane and one through/right turn lane.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, DART Routes 206 and 303 exist within the study area, with a total of six bus stops US Route 9.

Planned transit service: Per email correspondence from Jared Kauffman, DART Fixed-Route Planner, on June 10, 2025, the following comments were provided:

- The existing stop on US 9 far-side of Joseph Rd traveling toward Lewes (ID 435) should be moved to near-side and constructed as a Type 2 (17x8) shelter pad.
- The existing stop on US 9 traveling toward Georgetown (ID 438) should be constructed as a Type 2 (5x8) pad.
- A crosswalk is needed in order to connect the two bus stop pads.
- It is recommended to provide covered bicycle parking locations near the mixed-use buildings.

Existing bicycle and pedestrian facilities: Per DelDOT's Sussex County Bicycle Map, several study roadways are considered bicycle routes. US Route 9 and Delaware Route 5 are considered a high traffic regional bicycle route with bikeway present along the US Route 9. Sweetbriar Road and Dairy Farm Road are considered statewide bicycle route with bikeway present along the Sweetbriar Road. Carpenter Road, Log Cabin Hill Road, and Hudson Road are the connector bicycle routes. American Discovery Trail present along the US Route 9 and Hudson Road. Pedestrian crossings are present along the eastbound approach crossing US Route 9 from and along the northbound approach crossing Delaware Route 5. At Hudson Road and US Route 9 intersection, pedestrian crosswalks are present along westbound US Route 9 and southbound Hudson Road. Furthermore, pedestrian crosswalks are present along the northern side of US Route 9 and its intersection with the Beaver Creek Drive and Cool Spring Road.

Planned bicycle and pedestrian facilities: DelDOT sent an email to Mr. Anthony Aglio on June 3, 2025. A response has not yet been received.

Bicycle Level of Traffic Stress in Delaware: Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontages are summarized below. The Bicycle LTS was determined utilizing DelDOT's Gateway.

- US Route 9 LTS: 3
- Josephs Road LTS: 3

Crash Evaluation

Per the crash data included in the TIS From November 20, 2021, to December 20, 2024, provided by the Delaware Department of Transportation (DelDOT), a total of 12 crashes were reported within the Josephs Road frontage area. Of the 12 crashes reported, three crashes involved personal injury, and nine crashes were property damage only.

Nine Crashes were reported along the US Route 9 from Edward Family Lane to Joseph Farm Road, including five rear-ends, and four not a collision between two vehicles. Seven of these crashes were property damage only and two crashes resulted in personal injury.

Three crashes were reported at the intersection of US Route 9 and Josephs Road, including one angle, one rear-end, and one sideswipe in the same direction. Two of these crashes were property damage only and one resulted in personal injury.

The TIS did not evaluate crashes at any of the other study intersections.

Previous Comments

Some comments from the April 9, 2025, DelDOT PTIS review letter were not addressed in the Final TIS. JMT's review incorporates updated volumes, which addressed the PTIS review letter comments.

Sight Distance Evaluation

No sight distance constraints were noted at the proposed locations of the site entrances per the field visit conducted on May 29, 2025.

General Synchro Analysis Comments
(See table footnotes on the following pages for specific comments)

1) JMT and the TIS used HCM 7th edition within Synchro 12 traffic analysis software to complete the analysis.

2) Per DelDOT's *Development Coordination Manual*, JMT utilized the future intersection PHF of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph, or used the existing PHF if higher, whereas the TIS utilized the existing PHF.

3) JMT and the TIS utilized the existing heavy vehicle percentage for each movement greater than 100 vph in the Case 1 - Existing analysis.

4) Per DelDOT's *Development Coordination Manual* and coordination with DelDOT, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways in the analyses, whereas the TIS utilized the existing heavy vehicle percentage.

5) Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in Case 2 and Case 3 future scenario analysis, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for the analysis of future scenarios, whereas the TIS utilized the existing heavy vehicle percentages in all cases.

6) JMT and the TIS utilized a saturation flow rate of 1,750 vphpl for the signalized intersections under existing conditions. Due to the changing character of the US Route 9 corridor with the anticipated increase in volume, JMT increased the saturation flow rate to 1,900 vphpl for future analysis (Case 2 & 3), whereas the TIS maintained 1,750 vphpl for all cases.

7) Some comments from the April 9, 2025, DelDOT PTIS review letter were not addressed in the Final TIS. JMT's review incorporates updated volumes, which addressed the PTIS review letter comments.

Table 2
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
1 - Site Entrance A/ US Route 9	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development [2]						
Northbound Site Entrance A Approach	C (23.6)	C (19.6)	C (17.7)	C (23.8)	C (19.7)	C (17.8)

[1] The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] JMT and the TIS modeled the intersection as two-way stop-controlled.

Table 3
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
2 - Site Entrance B/ US Route 9	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development [2]						
Northbound Site Entrance B Approach	C (24.7)	C (20.3)	C (18.1)	C (24.9)	C (20.4)	C (18.2)

Table 4
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
3 - Site Entrance C/ Josephs Road (Sussex Road 281)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development [2]						
Eastbound Site Entrance C Approach	A (9.0)	A (9.3)	A (9.4)	A (9.0)	A (9.3)	A (9.4)
Northbound Josephs Road Left Turn	A (7.4)	A (7.6)	A (7.6)	A (7.4)	A (7.6)	A (7.6)
Roundabout						
Case 3A – 2030 with Development [3]						
Eastbound Site Entrance C Approach	-	-	-	A (3.5)	A (3.8)	A (3.8)
Northbound Josephs Road Approach	-	-	-	A (3.1)	A (3.4)	A (3.4)
Southbound Josephs Road Approach	-	-	-	A (3.1)	A (3.5)	A (3.4)
Overall	-	-	-	A (3.3)	A (3.6)	A (3.6)

[3] JMT conducted an additional analysis of the intersection as a single-lane roundabout.

Table 5
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
4 – US Route 9 / Josephs Road	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing						
Eastbound US Route 9 Left Turn	A (8.6)	B (10.1)	A (8.4)	A (8.7)	A (10.0)	A (8.5)
Westbound US Route 9 Left Turn	A (9.5)	A (9.0)	A (8.6)	A (9.7)	A (9.1)	A (8.7)
Northbound Josephs Road Approach	C (22.6)	D (30.2)	C (18.4)	C (23.0)	D (26.9)	C (18.7)
Southbound Josephs Road Approach	B (12.0)	C (24.0)	C (15.7)	B (12.1)	C (21.8)	C (15.8)
Case 2 – 2030 without Development						
Eastbound US Route 9 Left Turn	A (9.5)	B (12.1)	A (9.6)	A (9.6)	B (11.9)	A (9.7)
Westbound US Route 9 Left Turn	B (11.1)	A (10.0)	A (9.8)	B (11.3)	B (10.1)	A (9.9)
Northbound Josephs Road Approach	E (45.2)	F (83.9)	E (42.5)	E (46.6)	F (66.1)	E (43.8)
Southbound Josephs Road Approach	C (15.1)	E (49.9)	D (31.2)	C (15.3)	E (41.4)	D (31.8)
Case 2 – 2030 without Development *with auxiliary lanes*[4]						
Eastbound US Route 9 Left Turn	-	-	-	A (9.6)	B (11.9)	A (9.7)
Westbound US Route 9 Left Turn	-	-	-	B (11.3)	B (10.1)	A (9.9)
Northbound Josephs Road Approach	-	-	-	E (46.6)	F (62.0)	E (41.3)
Southbound Josephs Road Approach	-	-	-	C (15.3)	E (41.4)	D (29.7)
Case 3 – 2030 with Development						
Eastbound US Route 9 Left Turn	A (9.5)	B (11.8)	A (9.5)	A (9.6)	B (11.6)	A (9.6)
Westbound US Route 9 Left Turn	B (12.2)	B (11.3)	B (11.0)	B (12.4)	B (11.5)	B (11.1)
Northbound Josephs Road Approach	F (*)	F (*)	F (*)	F (*)	F (*)	F (*)
Northbound Josephs Road Approach Queue Length	285’	473’	428’	288’	*	430’
Southbound Josephs Road Approach	F (69.0)	F (766.2)	F (139.8)	F (72.3)	F (*)	F (151.7)
Southbound Josephs Road Approach Queue Length	18’	78’	65’	20’	*	68’

* Indicates delay exceeds 1,000 seconds per vehicle

[4] JMT conducted an additional analysis incorporating separate left turn lanes along the northbound and the southbound approaches.

Table 5 (continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
4 – US Route 9 / Josephs Road	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development *with auxiliary lanes*[4]						
Eastbound US Route 9 Left Turn	-	-	-	A (9.6)	B (11.6)	A (9.6)
Westbound US Route 9 Left Turn	-	-	-	B (12.4)	B (11.5)	B (11.1)
Northbound Josephs Road Approach	-	-	-	F (760.1)	F (*)	F (*)
Northbound Josephs Road Left Turn	-	-	-	F (*)	F (*)	F (*)
Northbound Josephs Road Through/Right Turn	-	-	-	F (152.9)	F (651.0)	F (112.1)
Southbound Josephs Road Approach	-	-	-	F (72.3)	F (512.9)	F (104.4)
Southbound Josephs Road Left Turn	-	-	-	A (0.0)	A (0.0)	F (320.0)
Southbound Josephs Road Through/Right Turn	-	-	-	F (72.3)	F (512.9)	F (83.5)

* Indicates delay exceeds 1,000 seconds per vehicle

Table 5 (continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
4 – US Route 9 / Josephs Road	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development [3]						
Eastbound US Route 9 Approach	-	-	-	F (67.2)	D (26.0)	C (21.1)
Westbound US Route 9 Approach	-	-	-	C (15.4)	F (113.0)	C (18.2)
Northbound Josephs Road Approach	-	-	-	C (17.3)	B (13.0)	B (12.1)
Southbound Josephs Road Approach	-	-	-	A (7.9)	B (14.3)	A (9.2)
Overall	-	-	-	E (44.0)	F (72.0)	C (19.0)
Case 3 – 2030 with Development [5]						
Eastbound US Route 9 Approach	-	-	-	A (9.1)	A (7.6)	A (7.2)
Westbound US Route 9 Approach	-	-	-	A (6.6)	B (10.3)	A (6.9)
Northbound Josephs Road Approach	-	-	-	C (17.3)	B (13.0)	B (12.1)
Southbound Josephs Road Approach	-	-	-	A (7.9)	B (14.3)	A (9.2)
Overall	-	-	-	A (8.4)	A (9.4)	A (7.4)
Signalized Intersection[6]						
Case 2 – 2030 without Development	A (6.0)	A (8.0)	A (7.6)	A (2.0)	A (3.8)	A (3.2)
Case 3 – 2030 with Development	C (26.9)	F (116.0)	C (26.6)	B (15.9)	B (10.4)	C (29.8)

[5] JMT modeled the intersection as a multi-lane roundabout.

[6] JMT and the TIS modeled the intersection as a signalized intersection. JMT included the signal as part of a coordinated corridor along US Route 9 with a cycle length of 150 seconds. JMT modeled the intersection with one left turn lane and one shared through/right turn lane along all approaches and protected-permitted left turns, whereas the TIS modeled the intersection with shared left/through/right turn lanes along all approaches and various cycle lengths.

Table 6
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
5 – US Route 9 / Arabian Acres Road (Sussex Road 282)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing						
Northbound Arabian Acres Road Approach	C (19.4)	C (23.3)	C (15.8)	C (19.8)	C (23.8)	C (16.1)
Westbound US Route 9 Left Turn	A (9.5)	A (9.0)	A (8.6)	A (9.7)	A (9.1)	A (8.7)
Case 2 – 2030 without Development						
Northbound Arabian Acres Road Approach	E (35.8)	E (46.6)	D (28.7)	E (35.8)	E (48.1)	D (29.7)
Westbound US 9 Route Left Turn	B (11.2)	B (10.0)	A (9.7)	B (11.3)	B (10.2)	A (9.8)
Case 2 – 2030 without Development *with auxiliary lanes*[7]						
Northbound Arabian Acres Road Approach	-	-	-	D (33.6)	E (47.1)	D (29.1)
Westbound US 9 Route Left Turn	-	-	-	B (11.3)	B (10.2)	A (9.8)
Case 3 – 2030 with Development						
Northbound Arabian Acres Road Approach	E (41.4)	F (56.3)	D (34.3)	E (41.4)	F (58.3)	E (35.5)
Northbound Arabian Acres Road Approach Queue Length	13’	8’	5’	13’	8’	5’
Westbound US 9 Route Left Turn	B (11.6)	B (10.3)	B (10.0)	B (11.7)	B (10.5)	B (10.2)
Case 3 – 2030 with Development *with auxiliary lanes*[7]						
Northbound Arabian Acres Road Approach	-	-	-	E (38.4)	F (56.8)	D (34.7)
Northbound Arabian Acres Road Left Turn	-	-	-	F (85.3)	F (108.5)	F (56.6)
Northbound Arabian Acres Road Left Turn Queue Length	-	-	-	C (24.0)	C (18.1)	C (17.1)
Westbound US 9 Route Left Turn	-	-	-	B (11.7)	B (10.5)	B (10.2)

[7] JMT modeled the intersection with separate a left turn lane along northbound Arabian Acres Road.

Table 6 (continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
5 – US Route 9 / Arabian Acres Road (Sussex Road 282)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development[3]						
Eastbound US Route 9 Approach	-	-	-	F (54.3)	C (15.7)	B (13.0)
Westbound US Route 9 Approach	-	-	-	B (13.4)	E (45.0)	B (12.1)
Northbound Arabian Acres Road Approach	-	-	-	B (12.8)	A (7.9)	A (7.4)
Overall	-	-	-	E (36.9)	D (32.1)	B (12.6)
Case 3 – 2030 with Development[8]						
Eastbound US Route 9 Approach	-	-	-	A (8.6)	A (6.4)	A (6.0)
Westbound US Route 9 Approach	-	-	-	A (6.2)	A (8.0)	A (5.9)
Northbound Arabian Acres Road Approach	-	-	-	A (9.7)	A (6.4)	A (6.0)
Overall	-	-	-	A (7.6)	A (7.3)	A (5.9)
Signalized Intersection[9]						
Case 2 – 2030 without Development	-	-	-	A (2.6)	A (1.4)	A (1.3)
Case 3 – 2030 with Development	-	-	-	A (2.1)	A (1.4)	A (1.2)

[8] JMT modeled the intersection as a multi-lane roundabout with one through lane and one shared through/right turn lane along the eastbound approach, one shared left/through lane and one through lane along the westbound approach, and one shared left turn/right turn lane along the northbound approach.

[9] JMT modeled the intersection as a signalized intersection as part of a coordinated corridor along US Route 9 with a cycle length of 150 seconds. JMT modeled the intersection with one shared through/right turn lane along the eastbound approach, one left turn lane and one through lane along the westbound approach with protected-permitted left turns, and one left turn lane and one right turn lane along the northbound approach.

Table 7
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
6 – US Route 9 / Dairy Farm Road (Sussex Road 261) / Sweetbriar Road (Sussex Road 261)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing	D (39.6)	C (28.0)	C (23.0)	C (33.6)	C (27.3)	C (21.9)
Case 2 – 2030 without Development[10]	F (125.6)	F (87.6)	D (35.1)	E (63.1)	D (43.2)	C (34.2)
Case 2 – 2030 without Development *with improvement* [11]	F (85.6)	D (52.3)	C (31.5)	D (48.4)	D (44.4)	C (28.8)
Case 3 – 2030 with Development[12]	F (145.0)	F (107.3)	D (45.7)	E (68.3)	D (49.1)	C (34.2)
Case 3 – 2030 with Development *with improvement* [11]	F (96.9)	E (60.7)	D (35.6)	D (53.1)	D (43.8)	C (29.6)

[10] JMT used an optimized cycle length of 150 seconds in the AM and PM peak hours and 90 seconds in the Saturday peak hour, whereas the TIS used the existing 130 second cycle length.
[11] JMT included the signal as part of a coordinated corridor along US Route 9 with a cycle length of 150 seconds.
[12] JMT used an optimized cycle length of 150 seconds in the AM, 180 seconds in the PM, and 120 seconds in the Saturday peak hour whereas the TIS used the existing 130-second cycle length.

Table 8
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
7 – US Route 9 / Cool Spring Road (Sussex Road 290)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing						
Eastbound US Route 9 Left Turn	A (0.0)	A (9.5)	A (8.4)	A (0.0)	A (9.6)	A (8.4)
Westbound US Route 9 Left Turn	A (9.4)	A (9.5)	A (8.6)	A (9.4)	A (9.5)	A (8.6)
Northbound Cool Spring Road Approach	E (45.2)	F (67.6)	C (15.3)	E (44.2)	F (67.0)	C (15.5)
Southbound Cool Spring Road Approach	E (40.5)	F (57.9)	C (19.2)	E (39.7)	F (59.6)	C (19.4)
Case 2 – 2030 without Development						
Eastbound US Route 9 Left Turn	A (9.7)	B (12.1)	A (9.8)	A (9.7)	B (12.4)	A (10.0)
Westbound US Route 9 Left Turn	B (11.0)	B (11.1)	A (9.8)	B (10.8)	B (11.1)	A (9.8)
Northbound Cool Spring Road Approach	F (*)	F (*)	F (*)	F (*)	F (*)	F (*)
Southbound Cool Spring Road Approach	F (*)	F (*)	F (574.3)	F (*)	F (*)	F (*)
Case 2 – 2030 without Development *with auxiliary lanes*[13]						
Eastbound US Route 9 Left Turn	-	-	-	A (9.7)	B (12.4)	A (10.0)
Westbound US Route 9 Left Turn	-	-	-	B (10.8)	B (11.1)	A (9.8)
Northbound Cool Spring Road Approach	-	-	-	F (*)	F (*)	F (684.0)
Southbound Cool Spring Road Approach	-	-	-	F (*)	F (*)	F (*)
Case 3 – 2030 with Development						
Eastbound US 9 Route Left Turn	A (9.9)	B (12.5)	B (10.1)	A (10.0)	B (12.8)	B (10.3)
Westbound US 9 Route Left Turn	B (11.2)	B (11.3)	A (10.0)	B (11.0)	B (11.3)	B (10.0)
Northbound Cool Spring Road Approach	F (*)	F (*)	F (*)	F (*)	F (*)	F (*)
Northbound Cool Spring Road Approach Queue Length	785’	718’	515’	*	*	525’
Southbound Cool Spring Road Approach	F (*)	F (*)	F (*)	F (*)	F (*)	F (*)
Southbound Cool Spring Road Approach Queue Length	715’	540’	488’	*	*	*
Case 3 – 2030 with Development *with auxiliary lanes*[13]						
Eastbound US 9 Route Left Turn	-	-	-	A (10.0)	B (12.8)	B (10.3)
Westbound US 9 Route Left Turn	-	-	-	B (11.0)	B (11.3)	B (10.0)
Northbound Cool Spring Road Approach	-	-	-	F (*)	F (*)	F (*)
Southbound Cool Spring Road Approach	-	-	-	F (*)	F (*)	F (*)

* Indicates delay exceeds 1,000 seconds per vehicle

[13] JMT modeled the intersection with a separate left turn lane along the northbound and southbound approaches.

Table 8 (continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
7 – US Route 9 / Cool Spring Road (Sussex Road 290)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development[3]						
Eastbound US Route 9 Approach	-	-	-	F (75.4)	F (58.7)	C (20.8)
Westbound US Route 9 Approach	-	-	-	C (21.8)	F (176.9)	C (21.5)
Northbound Cool Spring Road Approach	-	-	-	E (39.6)	C (19.7)	B (12.8)
Southbound Cool Spring Road Approach	-	-	-	C (16.5)	D (25.1)	B (12.6)
Overall	-	-	-	E (46.8)	F (111.7)	C (19.8)
Case 3 – 2030 with Development[14]						
Eastbound US Route 9 Approach	-	-	-	A (9.9)	A (9.2)	A (7.3)
Westbound US Route 9 Approach	-	-	-	A (7.5)	B (12.7)	A (7.3)
Northbound Cool Spring Road Approach	-	-	-	C (21.9)	B (13.6)	A (9.8)
Southbound Cool Spring Road Approach	-	-	-	B (12.0)	C (16.1)	A (9.7)
Overall	-	-	-	B (10.5)	B (11.6)	A (7.7)
Signalized Intersection[15]						
Case 2 – 2030 without Development	C (27.5)	B (18.5)	B (15.9)	D (37.0)	D (45.9)	B (18.3)
Case 3 – 2030 with Development	C (28.0)	C (22.6)	B (16.0)	D (39.0)	D (49.9)	B (19.5)

[14] JMT modeled the intersection as a multi-lane roundabout with one shared left turn/through lane and one shared through/right turn lane along the eastbound and westbound approaches, and one shared left turn/through/right turn lane along the northbound and southbound approaches.

[15] JMT modeled the intersection as a signalized intersection as part of a coordinated corridor along US Route 9 with a cycle length of 150 seconds. JMT modeled the intersection with one left turn lane and one shared through/right turn lane along all approaches with protected-permitted left turns. The TIS modeled the intersection with one left turn lane and one shared through/right turn lane along the eastbound and westbound approaches, and one shared left turn/through/right turn lane along the northbound and southbound approaches.

Table 9
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
8 – Cool Spring Road / Log Cabin Hill Road (Sussex Road 247)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing						
Westbound Log Cabin Road Left Turn	A (7.3)	A (7.3)	A (0.0)	A (7.3)	A (7.3)	A (0.0)
Northbound Cool Spring Road Approach	A (9.1)	A (9.3)	A (9.0)	A (9.1)	A (9.2)	A (9.1)
Case 2 – 2030 without Development[16]						
Eastbound Log Cabin Road Left Turn	A (7.4)	A (7.8)	A (7.6)	A (7.4)	A (7.8)	A (7.6)
Westbound Log Cabin Road Left Turn	A (7.6)	A (7.4)	A (7.5)	A (7.6)	A (7.5)	A (7.5)
Northbound Cool Spring Road Approach	B (13.8)	C (20.8)	C (16.9)	B (13.7)	C (18.1)	C (17.1)
Southbound Cool Spring Road Approach	B (13.5)	C 15.3)	B (14.4)	B (13.5)	B (14.2)	B (14.5)
Case 3 – 2030 with Development [16]						
Eastbound Log Cabin Road Left Turn	A (7.4)	A (7.8)	A (7.6)	A (7.5)	A (7.8)	A (7.7)
Westbound Log Cabin Road Left Turn	A (7.6)	A (7.5)	A (7.6)	A (7.7)	A (7.6)	A (7.7)
Northbound Cool Spring Road Approach	C (15.7)	D (26.1)	C (20.6)	C (15.5)	C (21.2)	C (20.9)
Southbound Cool Spring Road Approach	B (14.1)	C (16.3)	C (15.3)	B (14.1)	B (14.9)	C (15.4)

[16] Case 2 and 3 incorporate a southbound approach to be constructed by others.

Table 10
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
9 – Log Cabin Hill Road / Hudson Road (Sussex Road 258)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing						
Southbound Hudson Road Left Turn	A (7.8)	A (7.5)	A (7.6)	A (7.8)	A (7.6)	A (7.6)
Westbound Log Cabin Road Approach	B (10.3)	B (10.6)	A (9.8)	B (10.3)	B (10.6)	A (9.9)
Case 2A – 2030 without Development						
Southbound Hudson Road Left Turn	A (8.8)	A (8.9)	A (9.0)	A (8.6)	A (9.0)	A (9.0)
Westbound Log Cabin Road Approach	F (73.2)	F (52.4)	E (43.1)	E (41.1)	F (52.0)	E (42.3)
Case 3A – 2030 with Development						
Southbound Hudson Road Left Turn	A (8.9)	A (9.1)	A (9.2)	A (8.7)	A (9.2)	A (9.2)
Westbound Log Cabin Road Approach	F (123.3)	F (89.0)	F (73.9)	F (60.7)	F (88.3)	F (71.4)

Table 11
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
10 – Carpenter Road (Sussex Road 259) / Hudson Road	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing						
Northbound Hudson Road Left Turn	A (8.0)	A (7.9)	A (7.6)	A (7.8)	A (7.9)	A (7.7)
Eastbound Carpenter Road Approach	B (11.6)	B (11.0)	B (10.4)	B (11.4)	B (11.0)	B (10.4)
Case 2A – 2030 without Development						
Northbound Hudson Road Left Turn	B (10.2)	A (9.3)	A (9.1)	A (9.3)	A (9.2)	A (9.0)
Eastbound Carpenter Road Approach	F (62.5)	D (29.2)	D (32.8)	D (33.4)	D (29.3)	D (26.6)
Case 3A – 2030 with Development						
Northbound Hudson Road Left Turn	B (10.2	A (9.3)	A (9.1)	A (9.3)	A (9.2)	A (9.0)
Eastbound Carpenter Road Approach	F (62.5)	D (29.2)	D (32.8)	D (33.4)	D (29.4)	D (26.6)
Roundabout[17]						
Case 2B – 2030 with Development						
Eastbound Carpenter Road Approach	B (13.2)	A (7.6)	A (7.9)	A (8.2)	A (7.7)	A (7.6)
Westbound Log Cabin Road Approach	B (15.0)	A (8.6)	A (8.6)	A (9.4)	A (8.2)	A (8.4)
Northbound Hudson Road Approach	B (11.6)	A (9.9)	B (10.1)	A (8.0)	A (9.6)	A (9.7)
Southbound Hudson Road Approach	C (17.9)	B (10.5)	A (9.9)	B (10.3)	B (10.2)	A (9.2)
Overall	B (14.6)	A (9.7)	A (9.6)	A (9.1)	A (9.4)	A (9.1)
Case 3B – 2030 with Development						
Eastbound Carpenter Road Approach	B (14.1)	A (8.1)	-	A (8.6)	A (8.1)	A (8.1)
Westbound Log Cabin Road Approach	C (17.6)	A (9.4)	-	B (10.3)	A (8.9)	A (9.3)
Northbound Hudson Road Approach	B (12.7)	B (10.7)	-	A (8.5)	B (10.4)	B (10.6)
Southbound Hudson Road Approach	C (20.1)	B (11.4)	-	B (11.0)	B (11.1)	B (10.1)
Overall	C (16.5)	B (10.5)	-	A (9.7)	B (10.2)	A (9.9)

[17] As part of the Cool Springs development, Log Cabin Hill Road is proposed to be realigned to intersect Hudson Road directly across from Carpenter Road. Additionally, the intersection will be converted to a single-lane roundabout.

Table 12
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
11 – US Route 9 / Hudson Road / Fisher Road (Sussex Road 262)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing	C (22.4)	D (35.8)	B (18.4)	C (27.0)	C (34.8)	C (20.8)
Case 2 – 2030 without Development[18]	F (98.3)	F (120.5)	E (61.3)	D (49.6)	E (69.6)	D (36.7)
Case 2 – 2030 without Development *with improvements* [19]	E (62.5)	E (77.9)	D (40.1)	D (41.8)	D (47.3)	D (49.2)
Case 3 – 2030 with Development[18]	F (107.6)	F (131.8)	E (70.8)	D (52.2)	E (75.4)	D (38.8)
Case 3 – 2030 with Development *with improvements* [19]	E (67.5)	F (81.7)	D (43.4)	D (48.4)	D (49.1)	D (49.9)

[18] JMT used an optimized cycle length of 150 seconds in the AM and PM and 120 seconds in the Saturday peak hours, whereas the TIS used the existing 95 second cycle length.

[19] JMT modeled the intersection as a signalized intersection as part of a coordinated corridor along US Route 9 with a cycle length of 150 seconds. JMT incorporated improvements proposed as part of the Cool Spring development, including dual left turn lanes along the eastbound US Route 9 and protected-only left turns along eastbound and westbound US Route 9, whereas the TIS did not.

Table 13
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
12 – US Route 9 / Hunters Mill Road	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing						
Eastbound US Route 9 Left Turn	A (9.4)	B (10.4)	A (8.7)	A (9.5)	B (10.6)	A (8.6)
Westbound US Route 9 Left Turn	A (0.0)	A (9.3)	A (0.0)	A (0.0)	A (9.4)	A (0.0)
Northbound Breakwater Acres Lane Approach	E (45.2)	F (73.0)	C (22.8)	E (46.3)	F (73.8)	C (21.3)
Southbound Hunters Mill Road Approach	F (53.3)	F (61.7)	C (22.9)	F (53.5)	F (59.7)	C (21.8)
Case 2 – 2030 without Development						
Eastbound US Route 9 Left Turn	B (12.1)	B (12.5)	B (10.4)	B (12.2)	B (12.7)	B (10.0)
Westbound US Route 9 Left Turn	A (0.0)	B (11.9)	A (0.0)	A (0.0)	B (11.9)	A (0.0)
Northbound Breakwater Acres Lane Approach	F (205.5)	F (379.8)	F (71.1)	F (200.0)	F (333.6)	F (67.3)
Southbound Hunters Mill Road Approach	F (469.1)	F (523.4)	F (98.5)	F (432.6)	F (416.9)	F (86.0)
Case 2 – 2030 without Development *with auxiliary lanes*[20]						
Eastbound US Route 9 Left Turn	-	-	-	B (12.2)	B (12.7)	B (10.2)
Westbound US Route 9 Left Turn	-	-	-	A (0.0)	B (11.9)	A (0.0)
Northbound Breakwater Acres Lane Approach	-	-	-	F (197.5)	F (333.6)	F (66.8)
Northbound Breakwater Acres Lane Left Turn	-	-	-	F (285.4)	F (333.6)	F (113.4)
Northbound Breakwater Acres Lane Through/Right Turn	-	-	-	C (21.8)	A (0.0)	C (20.2)
Southbound Hunters Mill Road Approach	-	-	-	F (432.6)	F (416.9)	F (86.0)
Southbound Hunters Mill Road Left Turn	-	-	-	F (773.1)	F (729.1)	F (148.7)
Southbound Hunters Mill Road Through/Right Turn	-	-	-	D (27.3)	D (26.7)	C (17.0)

[20] JMT modeled the intersection with a separate left turn lane along the northbound Breakwater Acres Lane approach.

Table 13 (continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
12 – US Route 9 / Hunters Mill Road	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development						
Eastbound US Route 9 Left Turn	B (12.3)	B (12.7)	B (10.5)	B (12.4)	B (13.0)	B (10.4)
Westbound US Route 9 Left Turn	A (0.0)	B (12.1)	A (0.0)	A (0.0)	B (12.4)	A (0.0)
Northbound Breakwater Acres Lane Approach	F (230.4)	F (437.2)	F (78.9)	F (223.7)	F (404.9)	F (74.6)
Northbound Breakwater Acres Lane Approach Queue Length	13’	8’	3’	13’	8’	3’
Southbound Hunters Mill Road Approach	F (533.7)	F (614.7)	F (114.4)	F (491.5)	F (524.2)	F (98.8)
Southbound Hunters Mill Road Left Turn	F (958.2)	F (*)	F (202.1)	F (880.5)	F (921.4)	F (172.6)
Southbound Hunters Mill Road Left Turn Queue Length	103’	70’	30’	100’	68’	28’
Southbound Hunters Mill Road Through/Right Turn	D (28.3)	D (28.1)	C (17.8)	D (28.4)	D (27.7)	C (17.5)
Case 3 – 2030 with Development *with auxiliary lanes*[20]						
Eastbound US Route 9 Left Turn	-	-	-	B (12.4)	B (13.0)	B (10.4)
Westbound US Route 9 Left Turn	-	-	-	A (0.0)	B (12.4)	A (0.0)
Northbound Breakwater Acres Lane Approach	-	-	-	F (220.5)	F (404.9)	F (74.0)
Northbound Breakwater Acres Lane Left Turn	-	-	-	F (319.6)	F (404.9)	F (127.1)
Northbound Breakwater Acres Lane Through/Right Turn	-	-	-	C (22.4)	A (0.0)	C (21.0)
Southbound Hunters Mill Road Approach	-	-	-	F (491.5)	F (524.2)	F (98.8)
Southbound Hunters Mill Road Left Turn	-	-	-	F (880.5)	F (921.4)	F (172.6)
Southbound Hunters Mill Road Through/Right Turn	-	-	-	D (28.4)	D (27.7)	C (17.5)

Table 13 (continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
12 – US Route 9 / Hunters Mill Road	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development[3]						
Eastbound US Route 9 Approach	-	-	-	F (51.2)	F (59.1)	D (25.3)
Westbound US Route 9 Approach	-	-	-	F (57.6)	F (76.3)	B (14.2)
Northbound Breakwater Acres Lane Approach	-	-	-	B (11.1)	B (11.5)	A (9.4)
Southbound Hunters Mill Road Approach	-	-	-	B (14.9)	B (14.3)	A (8.7)
Overall	-	-	-	F (53.8)	F (67.3)	C (20.1)
Case 3 – 2030 with Development[21]						
Eastbound US Route 9 Approach	-	-	-	A (8.5)	A (8.0)	A (7.1)
Westbound US Route 9 Approach	-	-	-	A (8.3)	A (8.5)	A (6.2)
Northbound Breakwater Acres Lane Approach	-	-	-	A (8.5)	B (11.5)	A (7.3)
Southbound Hunters Mill Road Approach	-	-	-	B (10.8)	B (14.3)	A (7.0)
Overall	-	-	-	A (8.5)	A (8.4)	A (6.7)
Signalized Intersection[22]						
Case 2 – 2030 without Development	-	-	-	A (6.5)	A (4.6)	A (2.5)
Case 3 – 2030 with Development	-	-	-	A (7.1)	A (4.5)	A (2.6)

[21] JMT modeled the intersection as a multi-lane roundabout with a shared left turn/through lane and a shared through/right turn lane along the eastbound and westbound approaches, and a shared left turn/through/right turn lane along the northbound and southbound approaches.

[22]JMT modeled the intersection as a signalized intersection as part of a coordinated corridor along US Route 9 with a cycle length of 150 seconds. JMT modeled the intersection with one left turn lane and one through/right turn lane along the eastbound approach, one shared left turn/through and one right turn lane along westbound approach, and one left turn lane and one shared through/right turn lane along northbound and southbound approaches with protected-permitted left turns.

Table 14
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
13 – US Route 9 / Beaver Creek Drive	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing						
Eastbound US Route 9 Left Turn	B (10.2)	B (10.3)	A (8.7)	A (9.5)	B (10.5)	A (8.7)
Westbound US Route 9 Left Turn	A (0.0)	A (0.0)	A (8.9)	A (0.0)	A (0.0)	A (9.0)
Northbound Driveway	A (0.0)	A (0.0)	C (18.4)	A (0.0)	A (0.0)	C (18.7)
Southbound Beaver Creek Drive Approach	F (52.5)	F (53.0)	C (19.4)	F (54.1)	F (52.0)	C (19.7)
Case 2 – 2030 without Development						
Eastbound US Route 9 Left Turn	B (13.7)	B (12.3)	B (10.4)	B (12.3)	B (12.6)	B (10.4)
Westbound US Route 9 Left Turn	A (0.0)	A (0.0)	B (11.0)	A (0.0)	A (0.0)	B (11.1)
Northbound Driveway	A (0.0)	A (0.0)	F (56.0)	A (0.0)	A (0.0)	F (57.9)
Southbound Beaver Creek Drive Approach	F (439.2)	F (354.8)	F (72.4)	F (460.5)	F (344.2)	F (75.1)
Case 2 – 2030 without Development *with auxiliary lanes* [23]						
Eastbound US Route 9 Left Turn	-	-	-	B (12.3)	B (12.6)	B (10.4)
Westbound US Route 9 Left Turn	-	-	-	A (0.0)	A (0.0)	B (11.1)
Northbound Driveway	-	-	-	A (0.0)	A (0.0)	F (54.8)
Northbound Driveway Left Turn	-	-	-	A (0.0)	A (0.0)	F (145.2)
Northbound Driveway Through/Right Turn	-	-	-	A (0.0)	A (0.0)	C (20.9)
Southbound Beaver Creek Drive Approach	-	-	-	F (460.5)	F (344.2)	F (75.1)
Southbound Beaver Creek Drive Left Turn/Through	-	-	-	F (777.3)	F (613.4)	F (177.3)
Southbound Beaver Creek Drive Right Turn	-	-	-	D (26.9)	D (26.0)	C (17.7)

[23] JMT modeled the intersection with a separate left turn lane along the northbound and southbound approaches.

Table 14 (continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
13 – US Route 9 / Beaver Creek Drive	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development						
Eastbound US Route 9 Left Turn	B (13.9)	B (12.5)	B (10.6)	B (12.5)	B (12.8)	B (10.6)
Westbound US Route 9 Left Turn	A (0.0)	A (0.0)	B (11.2)	A (0.0)	A (0.0)	B (11.3)
Northbound Driveway	A (0.0)	A (0.0)	F (62.6)	A (0.0)	A (0.0)	F (64.8)
Northbound Driveway Queue Length	0’	0’	13’	0’	0’	13’
Southbound Beaver Creek Drive Approach	F (498.7)	F (409.2)	F (83.1)	F (522.7)	F (397.0)	F (86.5)
Southbound Beaver Creek Drive Left Turn/Through	F (842.1)	F (732.3)	F (198.1)	F (884.2)	F (710.1)	F (207.7)
Southbound Beaver Creek Drive Left Turn/Through Queue Length	103’	58’	28’	103’	58’	28’
Southbound Beaver Creek Drive Right Turn	D (28.8)	D (27.5)	C (18.4)	D (28.0)	D (27.0)	C (18.3)
Case 3 – 2030 with Development *with auxiliary lanes*[23]						
Eastbound US Route 9 Left Turn	-	-	-	B (12.5)	B (12.8)	B (10.6)
Westbound US Route 9 Left Turn	-	-	-	A (0.0)	A (0.0)	B (11.3)
Northbound Driveway	-	-	-	A (0.0)	A (0.0)	F (61.0)
Northbound Driveway Left Turn	-	-	-	A (0.0)	A (0.0)	F (165.8)
Northbound Driveway Through/Right Turn	-	-	-	A (0.0)	A (0.0)	C (21.8)
Southbound Beaver Creek Drive Approach	-	-	-	F (522.7)	F (397.0)	F (86.5)
Southbound Beaver Creek Drive Left Turn/Through	-	-	-	F (884.2)	F (710.1)	F (207.7)
Southbound Beaver Creek Drive Right Turn	-	-	-	D (28.0)	D (27.0)	C (18.3)

Table 14 (continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
13 – US Route 9 / Beaver Creek Drive	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 3 – 2030 with Development[3]						
Eastbound US Route 9 Approach	-	-	-	E (42.8)	E (42.9)	C (24.3)
Westbound US Route 9 Approach	-	-	-	F (52.3)	F (56.9)	B (14.7)
Northbound Driveway	-	-	-	A (0.0)	A (0.0)	A (9.5)
Southbound Beaver Creek Drive Approach	-	-	-	B (14.2)	B (13.2)	A (8.3)
Overall	-	-	-	E (47.2)	E (49.7)	C (19.8)
Case 3 – 2030 with Development[24]						
Eastbound US Route 9 Approach	-	-	-	A (8.4)	A (8.1)	A (7.3)
Westbound US Route 9 Approach	-	-	-	A (8.4)	A (8.5)	A (6.4)
Northbound Driveway	-	-	-	A (0.0)	A (0.0)	A (7.7)
Southbound Beaver Creek Drive Approach	-	-	-	B (10.8)	B (10.2)	A (7.0)
Overall	-	-	-	A (8.4)	A (8.3)	A (6.9)
Signalized Intersection[25]						
Case 2 – 2030 without Development	-	-	-	A (6.1)	A (5.2)	A (6.0)
Case 3 – 2030 with Development	-	-	-	A (6.4)	A (5.1)	A (6.3)

[24] JMT modeled the intersection as a multi-lane roundabout with one shared left turn/through lane and one shared through/right turn lane along the eastbound and westbound approaches and one shared left turn/through/right turn lane along the northbound and southbound approaches.

[25] JMT modeled the intersection as a signalized intersection as part of a coordinated corridor along US Route 9 with a cycle length of 150 seconds. JMT modeled the intersection with one left turn lane and one shared through/right turn lane along northbound and southbound approaches with protected-permitted left turns, one left turn lane and one through/right turn lane along the eastbound approach, and one shared left turn/through and one right turn lane along westbound approach.

Table 15
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Grey Wolf Meadows
Report Dated: May 9, 2025
Prepared by: Pennoni Associates, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
14 – US Route 9 / Delaware Route 5 (Harbeson Road)	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
Case 1 – 2024 Existing	E (70.2)	E (66.2)	D (36.0)	E (72.8)	E (68.7)	D (40.0)
Case 2 – 2030 without Development[26]	F (193.7)	F (209.0)	F (95.6)	F (93.2)	F (108.1)	D (54.0)
Case 2 – 2030 without Development *with improvements*[27]	F (166.3)	F (174.2)	E (78.7)	D (44.7)	D (37.3)	C (32.7)
Case 3 – 2030 with Development[26]	F (204.3)	F (221.0)	F (103.4)	F (99.0)	F (114.5)	E (58.4)
Case 3 – 2030 with Development *with improvements*[27]	F (176.5)	F (184.8)	F (86.4)	D (44.9)	D (49.8)	C (33.0)

[26] JMT used an optimized cycle length of 150 seconds in the AM, PM and Saturday peak hours whereas the TIS used the existing 130-second cycle length.
[27] JMT improvement scenario includes an additional through lane along the eastbound and westbound US Route 9 approaches, whereas the TIS maintained the existing lane configurations. JMT modeled the intersection as part of a coordinated corridor along US Route 9 with a cycle length of 150 seconds.