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

NICOLE MAJESKI
SECRETARY

March 29, 2022

Ms. Kelly Kosino
Century Engineering, Inc.
10710 Gilroy Road
Hunt Valley, MD 21031

Dear Ms. Kosino,

The enclosed Traffic Operational Analysis (TOA) review letter for the **Millville by the Sea** (Tax Parcels: 134-15.00-18.00, 19.00, 91.01, 91.02, 119.00, 120.00, 120.01, 120.02, 121.00; 134-16.00-3.02, 17.01, 19.00, 19.01, 19.02, 20.00, 20.01; 134-12.00-380.00 & 3294.00) 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 TOA to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2124.

Sincerely,

Claudy Joinville
Project Engineer

CJ:km
Enclosures
cc with enclosures: Mr. Todd Terwilliger, ASF MBTS, LLC
Mr. Stephen Marsh, George, Miles & Buhr, LLC (GMB)
Mr. Drew Boyce, Century Engineering, Inc.
Mr. Bill Conway, Century Engineering, Inc.
Ms. Deborah Botchie, Town of Millville
Mr. Andrew Lyons, Town of Millville, GMB
Mr. Mir Wahed, Johnson, Mirmiran & Thompson, Inc.
Ms. Joanne Arellano, Johnson, Mirmiran & Thompson, Inc.
DelDOT Distribution

DelDOT

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Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary / Director of Transportation Solutions (DOTS)
Pamela Steinebach, Director, Planning
Mark Luszcz, Deputy Director, Traffic, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, DelDOT Traffic
Todd Sammons, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Alistair Probert, South District Engineer, South District
Matthew Schlitter, South District Public Works Engineer, South District
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Wendy Polasko, Subdivision Engineer, Development Coordination
Steve McCabe, Sussex Review Coordinator, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Mark Galipo, Traffic Engineer, Traffic, DOTS
Annamaria Furmato, Project Engineer, Development Coordination

March 25, 2022

Mr. Claudy Joinville
Project Engineer
Delaware Department of Transportation
Development Coordination, Division of Planning
800 Bay Road
Dover, DE 19901

RE: Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 5-1A - Millville by the Sea TOA

Dear Mr. Joinville:

Johnson, Mirmiran, and Thompson (JMT) has completed a review of the Traffic Operational Analysis (TOA) for the Millville by the Sea (MBTS) mixed-use development, which was prepared by Century Engineering, Inc. dated November 22, 2021. This review was assigned as Task Number 5-1A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TOA evaluates the impacts of a proposed development in the Town of Millville in Sussex County, Delaware. The development would be comprised of 1,327 residential units and 38,400 square feet of commercial space. The land for the development is located on both sides of Delaware Route 17, Substation Road (Sussex Road 366), Powell Farm Road (Sussex Road 365), and Burton Farm Road (Sussex Road 373); and south of Burbage Road (Sussex Road 353). The subject property is on an approximately 424-acre assemblage of parcels. The land is currently zoned as MPC (Master Planned Community) and the developer does not plan to rezone the land. Nine full access points are proposed: two access points on Delaware Route 17, three access points on Substation Road, three access points on Powell Farm Road, and one access point on Burton Farm Road. Construction is anticipated to be complete in 2030.

A Traffic Impact Study (TIS) was completed for a much larger version of the subject development in October 2005 and DelDOT issued a final TIS review letter in June 2006 detailing recommended roadway improvements. Since the issuance of the final TIS review letter, portions of the development and some of the recommended improvements have been built. However, the subject development is now under new ownership and is seeking to fulfill the original masterplan with several modifications. In a July 15, 2020 letter, DelDOT outlined the essential off-site improvements associated with developing the remainder of the undeveloped parcels along Delaware Route 17 and Substation Road. In response to the DelDOT letter, on January 12, 2021, Century Engineering provided clarification on the offsite improvements that would be required as part of the revised masterplan. The TOA has been completed to determine the phased entrance design improvements, appropriate contributions to the signal agreements identified in the July 15, 2020 letter, and appropriate design for the offsite improvements identified therein.

The improvements identified in this review letter supersede the requirements in the June 2006 TIS review letter, the July 15, 2020 DelDOT letter, and the January 12, 2021 Century Engineering letter. The improvements identified herein establish the full entrance and offsite obligations for the revised MBTS masterplan studied under this TOA.

DelDOT does not currently have any relevant projects within the study area.

The following cases were evaluated as part of the TOA:

- Case 1: 2021 Existing
- Case 2: 2023 with Partial Development – Phase 1 (Peninsula Village, Village 2, Village 7; and 20% of West Village)
    - A: With Summerwind Boulevard, without completion of Endless Summer Drive, without Entrance A, without Entrance B, and without Entrance D
    - B: With Summerwind Boulevard and with completion of Endless Summer Drive, without Entrance B and without Entrance D
- Case 3: 2026 with Partial Development - Phase 1 and Phase 2 (Village 3, Village 4 and 40% of Village West)
- Case 4: 2030 with Full development - Phase 1, Phase 2, and Phase 3 (Village 5, Village 6, Town Center, and 40% of Village West)

Based on our review of the TOA, 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
	AM	PM	SAT	
Burbage Road (Sussex Road 353)/Substation Road (Sussex Road 366)	X	X		Case 3 – 2026 with Partial Development
	X	X		Case 4 – 2030 with Full Development
Beaver Dam Road (Sussex Road 368)/Substation Road (Sussex Road 366)		X		Case 2a – 2023 with Partial Development
		X		Case 3 – 2026 with Partial Development*
Delaware Route 17/Peppers Corner Road/Powell Farm Road (Sussex Road 365)	X	X	X	Case 2a – 2023 with Partial Development
	X	X	X	Case 2b – 2023 with Partial Development*

*Intersection improvements are proposed to be constructed as part of Case 3 which are expected to mitigate the LOS deficiencies during Cases 3 and 4.

The existing unsignalized Burbage Road intersection with Substation Road would begin to exhibit LOS deficiencies during the AM and PM peak hours under future 2026 conditions with the partial build of the proposed development (Case 3). These deficiencies occur along the northbound Substation Road approach and with delays of 135.2 seconds per vehicle during the PM peak hour under Case 3 conditions. These LOS deficiencies could be mitigated by converting the intersection to a single lane roundabout, as recommended in the July 15, 2020 DelDOT letter. Therefore, we recommend that the developer coordinate with DelDOT on the implementation of a roundabout installation.

The existing unsignalized Beaver Dam Road intersection with Substation Road would begin to exhibit LOS deficiencies during the PM peak hour under future 2023 conditions with the proposed development (Case 2a). These deficiencies occur along the eastbound Beaver Dam Road approach and with delays of 36.1 seconds per vehicle during the PM peak hour under Case 2a conditions. The existing intersection is a two-way stop-controlled intersection, and these LOS deficiencies could be mitigated by converting the intersection to an all-way stop-controlled intersection, as recommended in the July 15, 2020 DelDOT letter. Therefore, we recommend the developer coordinate with DelDOT on the implementation of converting the intersection to all-way stop-controlled.

The existing unsignalized Delaware Route 17 intersection with Peppers Corner Road/Powell Farm Road would begin to exhibit LOS deficiencies during the AM, PM, and summer Saturday peak hours under future 2023 conditions with the partial build of the proposed development (Case 2a). These deficiencies occur along the eastbound Powell Farm Road and westbound Peppers Corner Road approaches with delays of 56.7 and 147.1 seconds per vehicle, respectively, during the PM peak hour under Case 2a conditions. These LOS deficiencies could be mitigated by converting the intersection to a single lane roundabout, as recommended in the July 15, 2020 DelDOT letter. Therefore, we recommend that the developer coordinate with DelDOT on the implementation of a roundabout installation.

Although, the existing unsignalized Burton Farm Road (Sussex Road 272)/Blackwater Road (Sussex Road 375)/Powell Farm Road (Sussex Road 365) intersection operates at acceptable LOS, DelDOT installed temporary traffic control treatments to mitigate crash concerns in 2019. Since the installation of the temporary treatments, crashes have not been reported at the intersection. However, due to the atypical layout of the intersection, the temporary nature of the existing treatments, and consistent with the recommendations contained in the June 2006 TIS review letter, it is recommended that the intersection be converted to a roundabout. As such, we recommend the developer coordinate with DelDOT on converting the intersection to a single lane roundabout.

Should the Town of Millville approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

1. The developer shall improve Delaware Route 17 within the limits of their frontage to meet DelDOT's standards for Functional Classification as found in Section 1.1 of the *Development Coordination Manual* and elsewhere therein. The improvements shall

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

2. The developer shall improve Substation Road (Sussex Road 366) within the limits of their frontage to meet DelDOT's standards for Functional Classification as found in Section 1.1 of the *Development Coordination Manual* and elsewhere therein. The improvements shall include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. Frontage is defined in Section 1 of the *Development Coordination Manual*, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

3. The developer shall improve Powell Farm Road within the limits of their frontage to meet DelDOT's standards for Functional Classification as found in Section 1.1 of the *Development Coordination Manual* and elsewhere therein. The improvements shall include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. Frontage is defined in Section 1 of the *Development Coordination Manual*, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

4. The developer shall improve Burton Farm Road (Sussex Road 373) within the limits of their frontage to meet DelDOT's standards for Functional Classification as found in Section 1.1 of the *Development Coordination Manual* and elsewhere therein. The improvements shall include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. Frontage is defined in Section 1 of the *Development Coordination Manual*, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

5. The developer shall improve Burbage Road (Sussex Road 353) within the limits of their frontage to meet DelDOT's standards for Functional Classification as found in Section 1.1 of the *Development Coordination Manual* and elsewhere therein. The improvements shall include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. Frontage is defined in Section 1 of the *Development Coordination Manual*, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

6. The developer should construct a full access site entrance on Delaware Route 17, approximately 950 feet south of the southeast point of tangency at the Burbage Road intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Westbound Site Entrance A	Approach does not exist	One left turn lane and one right turn lane
Northbound Delaware Route 17	One through lane	One shared through and right turn lane
Southbound Delaware Route 17	One through lane	One shared left turn and through lane

Based on DelDOT's *Development Coordination Manual,* the provision of a left turn lane and right turn lane along northbound and southbound Delaware Route 17 is not required. However, per coordination with DelDOT and the developer, turn lanes will be provided. The final design of the storage lengths should be determined during the Entrance Plan review process.

7. The developer should construct a full access site entrance on Delaware Route 17, approximately 2,200 feet south of the southeast point of tangency at the Burbage Road intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Westbound Site Entrance B	Approach does not exist	One left turn lane and one right turn lane
Northbound Delaware Route 17	One through lane	One through lane and one right turn lane
Southbound Delaware Route 17	One through lane	One left turn lane and one through lane

Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length is 350 feet (excluding taper) for the northbound Delaware Route 17 right turn lane and 210 feet (excluding taper) for the southbound Delaware Route 17 left turn

lane. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths.

8. The developer should maintain the full access site entrance on Substation Road, approximately 550 feet south of the southwest point of tangency at the Burbage Road intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance C	One left turn lane and one right turn lane	No change
Northbound Substation Road	One left turn lane and one through lane	No change
Southbound Substation Road	One through lane and one right turn lane	No change

Based on DelDOT's *Development Coordination Manual*, the existing storage lengths of the northbound Substation Road left turn lane and the southbound Substation Road right turn lane meet or exceed the recommended minimum storage lengths (excluding taper). As such, the existing auxiliary lane storage lengths should be maintained. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths.

9. The developer should construct a full access site entrance on Substation Road, approximately 2,000 feet south of the southeast point of tangency at the Cypress Point Trail intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance D	Approach does not exist	One left turn lane and one shared through/right turn lane
Westbound Site Entrance D	Approach does not exist	One left turn lane and one shared through/right turn lane
Northbound Substation Road	One through lane	One left turn lane, one through lane, and one right turn lane
Southbound Substation Road	One through lane	One left turn lane, one through lane, and one right turn lane

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of auxiliary lanes along Substation Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths.

Approach	Left Turn Lane	Right Turn Lane
Northbound Substation Road	95 feet	110 feet
Southbound Substation Road	95 feet	85 feet

10. The developer should maintain the single lane roundabout full access Site Entrance E intersection with Substation Road. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance E	One shared left turn/through/right turn lane	No change
Westbound Site Entrance E	One shared left turn/through/right turn lane	No change
Northbound Substation Road	One shared left turn/through/right turn lane	No change
Southbound Substation Road	One shared left turn/through/right turn lane	No change

11. The developer should construct a full access site entrance on Powell Farm Road, approximately 750 feet north of the northwest point of tangency at the Delaware Route 17 intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance F	Approach does not exist	One left turn lane and one right turn lane
Northbound Powell Farm Road	One through lane	One left turn lane and one through lane
Southbound Powell Farm Road	One through lane	One through lane and one right turn lane

Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length is 210 feet (excluding taper) for the northbound Powell Farm Road left turn lane and 145 feet (excluding taper) for the southbound Powell Farm Road right turn lane. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths.

12. The developer should construct a full access site entrance on Powell Farm Road, approximately 1,100 feet south of the southwest point of tangency at the Burton Farm Road/Blackwater Road intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance G	Approach does not exist	One left turn lane and one right turn lane
Northbound Powell Farm Road	One through lane	One left turn lane and one through lane
Southbound Powell Farm Road	One through lane	One through lane and one right turn lane

Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length is 210 feet (excluding taper) for the northbound Powell Farm Road left turn lane and 145 feet (excluding taper) for the southbound Powell Farm Road right turn lane. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths.

13. The developer should construct a full access site entrance on Powell Farm Road, approximately 350 feet north of the northwest point of tangency at the Burton Farm Road/Blackwater Road intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Westbound Site Entrance H	Approach does not exist	One left turn lane and one right turn lane
Northbound Powell Farm Road	One through lane	One through lane and one right turn lane
Southbound Powell Farm Road	One through lane	One left turn lane and one through lane

Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length is 185 feet (excluding taper) for the southbound Powell Farm Road left turn lane. Due to the proximity of the proposed roundabout at the Burton Farm Road (Sussex Road 272)/Blackwater Road (Sussex Road 375)/Powell Farm Road (Sussex Road 365) intersection, the recommended minimum storage length is 100 feet (excluding taper) for the northbound Powell Farm Road right turn lane. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths. The final

design of the storage lengths should be determined during the Entrance Plan review process.

14. The developer should construct a full access site entrance on Burton Farm Road, approximately 2,500 feet west of the northwest point of tangency at the Powell Farm Road intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Burton Farm Road	One through lane	One through lane and one right turn lane
Westbound Burton Farm Road	One through lane	One shared left turn/through lane
Northbound Site Entrance I	Approach does not exist	One left turn/through/right turn lane
Southbound Site Entrance I	Approach does not exist	One left turn/through/right turn lane

Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length is 190 feet (excluding taper) for the eastbound Burton Farm Road right turn lane. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths.

15. The developer should convert the existing unsignalized Burbage Road intersection with Substation Road to a single lane roundabout. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Burbage Road	One shared through/right turn lane	No change
Westbound Burbage Road	One shared left turn/through lane	No change
Northbound Substation Road	One shared left turn/right turn lane	No change

The roundabout design should follow *NCHRP: Report 672 2nd Edition – Roundabouts: An Information Guide*, DelDOT's *Road Design Manual*, and DelDOT's *Design Guidance Memorandum Number 1-26* for roundabouts. The roundabout should also be designed to accommodate pedestrians and bicyclists. Additionally, lighting at the roundabout should be evaluated per DelDOT's lighting guidelines. The developer should submit a plan to DelDOT's Development Coordination Section depicting the roundabout design. The final design of the roundabout should be determined during the Entrance Plan review process. The improvement should be completed in conjunction with the proposed 2026 partial build (Case 3 – Phases 1 and 2) of the site.

16. The developer should convert the existing unsignalized two-way stop-controlled Beaver Dam Road intersection with Substation Road to all-way stop controlled. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Beaver Dam Road	One shared left turn/through/right turn lane	No change
Westbound Beaver Dam Road	One shared left turn/through/right turn lane	No change
Northbound Substation Road	One shared left turn/through/right turn lane	No change
Southbound Substation Road	One shared left turn/through/right turn lane	No change

The developer should submit a plan to DelDOT's Development Coordination Section depicting the design. Additionally, lighting at the intersection should be evaluated per DelDOT's lighting guidelines. The final design should be determined during the Entrance Plan review process. The improvement should be completed in conjunction with the proposed partial 2023 build (Case 2 – Phase 1) of the site.

17. The developer should convert the existing unsignalized Delaware Route 17 intersection with Powell Farm Road/Peppers Corner Road to a single lane roundabout. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Delaware Route 17	One shared left turn/through/right turn lane	No change
Westbound Delaware Route 17	One shared left turn/through/right turn lane	No change
Northbound Peppers Corner Road	One shared left turn/through/right turn lane	No change
Southbound Peppers Corner Road	One shared left turn/through/right turn lane	No change

The roundabout design should follow *NCHRP: Report 672 2nd Edition – Roundabouts: An Information Guide*, DelDOT's *Road Design Manual*, and DelDOT's *Design Guidance Memorandum Number 1-26* for roundabouts. The roundabout should also be designed to accommodate pedestrians and bicyclists. Additionally, lighting at the roundabout should be evaluated per DelDOT's lighting guidelines. The developer should submit a plan to DelDOT's Development Coordination Section depicting the roundabout design. The final design of the roundabout should be determined during the Entrance Plan review process. The improvement should be completed in conjunction with the proposed partial 2023 build (Case 2 – Phase 1) of the site.

18. The developer should convert the existing unsignalized Burton Farm Road (Sussex Road 272)/Blackwater Road (Sussex Road 375)/Powell Farm Road (Sussex Road 365) to a single lane roundabout. The roundabout design should follow *NCHRP: Report 672 2nd Edition – Roundabouts: An Information Guide*, DelDOT's *Road Design Manual*, and DelDOT's *Design Guidance Memorandum Number 1-26* for roundabouts. The roundabout should also be designed to accommodate pedestrians and bicyclists. Additionally, lighting at the roundabout should be evaluated per DelDOT's lighting guidelines. The developer should submit a plan to DelDOT's Development Coordination Section depicting the roundabout design. The final design of the roundabout should be determined during the Entrance Plan review process. The improvement should be completed in conjunction with the proposed partial 2023 build (Case 2 – Phase 1) of the site.

19. The developer should enter into a traffic signal agreement with DelDOT for the intersection of Burbage Road (Sussex Road 353) and Windmill Drive (Sussex Road 352). The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion.

20. The developer should enter into a traffic signal agreement with DelDOT for the intersection of Windmill Drive and Central Avenue (Sussex Road 84). The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion.

21. The developer should enter into a traffic signal agreement with DelDOT for the intersection of Delaware Route 26 and Windmill Drive. The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion.

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

    a. A minimum of fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the site frontages. Within the easement, 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. If feasible, the SUP should be placed behind utility poles and street trees should be provided within the buffer area. The developer should coordinate with DelDOT's Development Coordination Section during the plan review process to identify the exact location of the SUP.

    b. A minimum five-foot wide bicycle lane should be incorporated in the right turn lanes and shoulders along the approaches to the Site Entrances.

    c. ADA compliant curb ramps and marked crosswalks should be provided along all Site Entrance approaches. The use of diagonal curb ramps is discouraged.

    d. Bike parking should be provided near the commercial building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

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

    f. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

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

Improvements in this TOA 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. For any additional information regarding the work zone impact and mitigation procedures during construction, please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TOA 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: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.

Enclosure

General Information

Report date: November 22, 2021
Prepared by: Century Engineering, Inc.
Prepared for: The Ardent Companies
Tax Parcels: 134-15.00-18.00, 19.00, 91.01, 91.02, 119.00, 120.00, 120.01, 120.02, 121.00; 134-16.00-3.02, 17.01, 19.00, 19.01, 19.02, 20.00, 20.01; 134-12.00-380.00 & 3294.00
Generally consistent with DelDOT's *Development Coordination Manual (DCM)*: Yes

Project Description and Background

Description: The TOA evaluates the impacts of a proposed mixed-use development comprised of 552 single family detached houses, 138 duplexes, 640 low-rise and mid-rise houses, and 38,400 SF of commercial space.
Location: The subject site is located on both sides of Delaware Route 17, Substation Road (Sussex Road 366), Powell Farm Road (Sussex Road 365), and Burton Farm Road (Sussex Road 373); and south of Burbage Road (Sussex Road 353), in the Town of Millville.
Amount of Land to be developed: An approximately 424-acre assemblage of parcels.
Land Use approval(s) needed: Entrance Plan.
Proposed completion date: Phase 1 of the development is anticipated to be completed in 2023, Phase 2 of the development is anticipated to be completed in 2026, and Phase 3 of the development is anticipated to be completed in 2030.
Proposed access locations: Nine full access points are proposed: two access points on Delaware Route 17, three access points on Substation Road, three access point on Powell Farm Road, and one access point on Burton Farm Road.

Daily Traffic Volumes:

- 2019 Average Annual Daily Traffic on Delaware Route 17: 4,780
- 2019 Average Annual Daily Traffic on Substation Road (Sussex Road 366): 1,507
- 2019 Average Annual Daily Traffic on Powell Farm Road / Peppers Corner Road (Sussex Road 365): 1,619
- 2019 Average Annual Daily Traffic on Burton Farm Road (Sussex Road 373): 501

Site Map

**Graphic is an approximation based on the Master Plan Rendering prepared by George, Miles, and Buhr, LLC dated June 2021.*

Relevant and On-going Projects

DelDOT does not currently have any relevant projects within the study area.

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 2 and Level 3.

Investment Level 2

These areas can be composed of less developed areas within municipalities, rapidly growing areas in the counties that have or will have public water and wastewater services and utilities, areas that are generally adjacent to or near Investment Level 1 Areas, smaller towns and rural villages that should grow consistently with their historic character, and suburban areas with public water,

wastewater, and utility services. They serve as transition areas between Level 1 and the state's more open, less populated areas. They generally contain a limited variety of housing types, predominantly detached single-family dwellings.

In Investment Level 2 Areas, like Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Investments should encourage departure from the typical single-family-dwelling developments and promote a broader mix of housing types and commercial sites encouraging compact, mixed-use development where applicable. Overall, the State's intent is to use its spending and management tools to promote well-designed development in these areas. Such development provides for a variety of housing types, user-friendly transportation systems, essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community.

Level 2 Areas share similar priorities as with the Level 1 Areas where the aim remains to: make context sensitive transportation system capacity enhancements, preserve existing facilities, make safety enhancements, make transportation system capacity improvements, create transit system enhancements, ensure ADA accessibility, and close gaps in the pedestrian system, including the Safe Routes to School projects. Investment Level 2 Areas are ideal locations for Transportation Improvement Districts and Complete Community Enterprise Districts. Other priorities for Level 2 Areas include: Corridor Capacity Preservation, off-alignment multi-use paths, interconnectivity of neighborhoods and public facilities, and signal-system enhancements.

Investment Level 3

Investment Level 3 Areas generally fall into two categories. The first category covers lands that are in the long-term growth plans of counties or municipalities where development is not necessary to accommodate expected population growth during a five-year planning period (or longer). In these instances, development in Investment Level 3 may be least appropriate for new growth and development in the near term. The second category includes lands that are adjacent to or intermingled with fast-growing areas within counties or municipalities that are otherwise categorized as Investment Levels 1 or 2. Environmentally sensitive features, agricultural-preservation issues, or other infrastructure issues most often impact these lands. In these instances, development and growth may be appropriate in the near term, but the resources on the site and in the surrounding area should be carefully considered and accommodated by state agencies and local government with land-use authority. Investment Level 3 is further characterized by areas with new development separated from existing development by a substantial amount of vacant land that is not contiguous with existing infrastructure, areas that are experiencing some development pressure, areas with existing but disconnected development, and possible lack of adequate infrastructure.

The state will consider investing in infrastructure within Investment Level 3 Areas once the Investment Level 1 and 2 Areas are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems and deemed appropriate to serve a particular area. The priorities in the Level 3 Areas are for DelDOT to focus on regional movements between towns

and other population centers. DelDOT also supports the development and implementation of Transportation Improvement Districts in Investment Level 3 areas. Local roadway improvements will be made by developers and property owners as development occurs. Lower priority is given to transportation system–capacity improvements and transit-system enhancements.

Proposed Development's Compatibility with Livable Delaware:
The proposed site would be located in Investment Level 2 and Level 3 areas. Investment Level 2 encompasses a wide variety of usages and densities and encourages diversified housing beyond single family detached homes. The various villages within the proposed development are comprised of single-family homes, townhomes, and villas. Additionally, Investment Level 3 can encompass lands that are adjacent to fast-growing areas within municipalities that have environmentally sensitive features. As such, the site is generally consistent with Livable Delaware.

Comprehensive Plan

(Source: Town of Millville 2019 Comprehensive Plan)

Millville Comprehensive Plan:
Per the *Town of Millville Comprehensive Plan Town Zoning Map* adopted October 2019, the subject land is currently zoned as MPC (Master Planned Community) and the developer does not plan to rezone the land. Per the *Future Land Use Map* the proposed development is in areas designated Master Planned Community and Residential.

Proposed Development's Compatibility with the Millville Comprehensive Plan:
The objective of the MPC District is to establish procedures and standards for the implementation of master planned land use recommendations for comprehensively planned, multi-use projects. The proposed development is comprised of housing and retail uses. Therefore, the proposed development is generally consistent with the *Town of Millville 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, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (Single-Family Detached Houses), Land Use Code 220 (Multi-Family Housing Low-Rise), Land Use Code 820 (Shopping Center) and Land Use Code 221 (Multi-Family Housing Mid-Rise).

Table 1
Millville By The Sea Trip Generation

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**Saturday**		
		In	Out	Total	In	Out	Total	In	Out	Total
East Villages 398 Single Family Detached Houses (ITE Code 210)	3,705	71	216	287	241	142	383	190	162	352
East Villages 289 Low-Rise Multi-Family Houses (ITE Code 220)	2,144	30	101	131	96	56	152	109	93	202
East Villages 60 Mid-Rise Multi-Family Houses (ITE Code 221)	325	5	16	21	16	11	27	16	16	32
West Villages 293 Single Family Detached Houses (ITE Code 210)	2,795	53	160	213	179	106	285	143	121	264
West Villages 348 Mid-Rise Multi-Family Houses (ITE Code 221)	1,895	30	86	116	89	58	147	75	78	153
East Villages 38,400 SF Shopping Center (ITE Code 820)	3,136	22	14	36	128	140	268	151	140	291
Total Trips	**14,000**	**211**	**593**	**804**	**749**	**513**	**1,262**	**684**	**610**	**1,294**
Pass-by Trips for Shopping Center (ITE Code 820)*		0	0	0	45	46	91	40	36	70
New Trips	**14,000**	**211**	**593**	**804**	**704**	**467**	**1,171**	**644**	**574**	**1,224**

*Pass-by percentages of 34% and 26% were applied to the PM and Saturday peak hours, respectively, consistent with the *ITE Trip Generation Handbook, 3rd Edition.*

Overview of TOA

Intersections examined:

1. Site Entrance A / Endless Summer (Proposed) / Delaware Route 17
2. Site Entrance B / Delaware Route 17
3. Site Entrance C / Endless Summer / Substation Road (Sussex Road 366) (existing entrance)
4. Site Entrance D / Substation Road
5. Site Entrance E / Substation Road (existing entrance)
6. Site Entrance F / Powell Farm Road (Sussex Road 365)
7. Site Entrance G / Powell Farm Road
8. Site Entrance H / Powell Farm Road
9. Site Entrance I / Burton Farm Road
10. Burbage Road / Substation Road (Sussex Road 366)
11. Beaver Dam Road (Sussex Road 368) / Substation Road (Sussex Road 368)
12. Delaware Route 17 / Peppers Corner Road (Sussex Road 365) / Powell Farm Road
13. Powell Farm Road / Burton Farm Road (Sussex Road 373) / Blackwater Road (Sussex Road 374)

Conditions examined:

1. Case 1: Existing (2021)
2. Case 2: 2023 with Phase 1 (Peninsula Village, Village 2, Village 7; and 20% of West Village)
   a) With Summerwind Boulevard, without completion of Endless Summer Drive, without Entrance A, without Entrance B, and without Entrance D
   b) With Summerwind Boulevard and with completion of Endless Summer Drive, without Entrance B and without Entrance D
3. Case 3: 2026 with Phase 1 and Phase 2 (Village 3, Village 4 and 40% of Village West)
4. Case 4: 2030 with full development – Phase 1, Phase 2, and Phase 3 (Village 5, Village 6, Town Center, and 40% of Village West)

Committed Developments considered:

1. Hudson Property (70 single-family detached homes, 52 units of mid-rise multifamily housing, and a 14,500 square foot shopping center)
2. Sea Edge (41 units of low-rise multifamily housing)
3. Estuary (380 single-family detached homes, 62 units of low-rise multifamily housing)
4. Milos Haven (Lakelynns) (41 single-family detached homes, 138 units of low-rise multifamily housing)
5. Orr Properties (Miller Creek Multi-family) (133 units of low-rise multifamily housing)
6. Beebee Roxanna (216 units of mis-rise multifamily housing and 175 units of continuing care retirement community)
7. Bishops Landing (Dove Landing) (53 single-family detached homes and 113 units of low-rise multifamily housing)
8. Christopher & Companies (54 single-family detached houses)

Note: Committed development information provided in the TOA supersedes the information provided in the April 27, 2021 DelDOT Scoping Meeting Memorandum.

Peak hours evaluated: Weekday morning and evening peak hours. Saturday midday peak hour for intersection 12 only.

Intersection Descriptions

1. **Site Entrance A / Endless Summer / Delaware Route 17**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Westbound Approach: (Site Entrance A) Proposed one left turn lane and one right turn lane, stop controlled.
   Northbound Approach: (Delaware Route 17) Existing one through lane; proposed one shared through/right turn lane.
   Southbound Approach: (Delaware Route 17) Existing one through lane; proposed one shared left turn/through lane.

2. **Site Entrance B / Delaware Route 17**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Westbound Approach: (Site Entrance B) Proposed one left turn lane and one right turn lane, stop controlled.
   Northbound Approach: (Delaware Route 17) Existing one through lane; proposed one through lane and one right turn lane.
   Southbound Approach: (Delaware Route 17) Existing one through lane, proposed one through lane and one left turn lane.

3. **Site Entrance C / Endless Summer / Substation Road (Sussex Road 366)**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Site Entrance C) Existing one left turn lane and one right turn lane, stop controlled.
   Northbound Approach: (Substation Road) Existing one left turn lane and one through lane.
   Southbound Approach: (Substation Road) Existing one through lane and one right turn lane.

4. **Site Entrance D / Substation Road**
   Type of Control: Proposed two-way stop-controlled intersection
   Eastbound Approach: (Site Entrance D) Proposed one left turn lane and one shared through/right turn lane, stop controlled.
   Westbound Approach: (Site Entrance D) Proposed one left turn lane and one shared through/right turn lane, stop controlled.

Northbound Approach: (Substation Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane.
Southbound Approach: (Substation Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane.

5. **Site Entrance E / Substation Road**
   Type of Control: Existing single-lane roundabout
   Eastbound Approach: (Site Entrance E) Existing one shared left turn/through/right turn lane.
   Westbound Approach: (Site Entrance E) Existing one shared left turn/through/right turn lane.
   Northbound Approach: (Substation Road) Existing one shared left turn/through/right turn lane.
   Southbound Approach: (Substation Road) Existing one shared left turn/through/right turn lane.

6. **Site Entrance F / Powell Farm Road (Sussex Road 365)**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Site Entrance F) Proposed one left turn lane and one right turn lane, stop controlled.
   Northbound Approach: (Powell Farm Road) Existing one through lane; proposed one left turn lane and one through lane.
   Southbound Approach: (Powell Farm Road) Existing one through lane; proposed one through lane and one right turn lane.

7. **Site Entrance G / Powell Farm Road**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Site Entrance G) Proposed one left turn lane and one right turn lane, stop controlled.
   Northbound Approach: (Powell Farm Road) Existing one through lane; proposed one left turn lane and one through lane.
   Southbound Approach: (Powell Farm Road) Existing one through lane; proposed one right turn lane and one through lane.

8. **Site Entrance H / Powell Farm Road**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Westbound Approach: (Site Entrance H) Proposed one left turn lane and one right turn lane, stop controlled.
   Northbound Approach: (Powell Farm Road) Existing one through lane; proposed one through lane and one right turn lane.

Southbound Approach: (Powell Farm Road) Existing one through lane; proposed one left turn lane and one through lane.

9. **Site Entrance I / Burton Farm Road**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Burton Farm Road) Existing one through lane; proposed one through lane and one right turn lane.
   Westbound Approach: (Burton Farm Road) Existing one through lane; proposed one shared left turn/through lane.
   Northbound Approach: (Site Entrance I) Proposed one left turn lane and one right turn lane, stop controlled.

10. **Burbage Road (Sussex Road 353) / Substation Road (Sussex Road 366)**
    Type of Control: Existing two-way stop-controlled intersection (T-intersection); proposed single-lane roundabout
    Eastbound Approach: (Burbage Road) Existing one shared through/right turn lane
    Westbound Approach: (Burbage Road) Existing one shared left turn/through lane
    Northbound Approach: (Substation Road) Existing one shared left turn/right turn lane.

11. **Beaver Dam Road (Sussex Road 368) / Substation Road (Sussex Road 366)**
    Type of Control: Existing two-way stop-controlled intersection; proposed all-way stop controlled intersection
    Eastbound Approach: (Beaver Dam Road) Existing one shared left turn/through/right turn lane, stop controlled.
    Westbound Approach: (Beaver Dam Road) Existing one shared left turn/through/right turn lane, stop controlled.
    Northbound Approach: (Substation Road) Existing one shared left turn/through/right turn lane; proposed one shared left turn/through/right turn lane, stop controlled.
    Southbound Approach: (Substation Road) Existing one shared left turn/through/right turn lane; proposed one shared left turn/through/right turn lane, stop controlled.

12. **Delaware Route 17 / Peppers Corner Road / Powell Farm Road (Sussex Road 365)**
    Type of Control: Existing two-way stop controlled; proposed single lane roundabout
    Eastbound Approach: (Powell Farm Road) Existing one shared left turn/through/right turn lane, stop controlled.
    Westbound Approach: (Peppers Corner Road) Existing one shared left turn/through/right turn lane, stop controlled.
    Northbound Approach: (Delaware Route 17) Existing one shared left turn/through/right turn lane.
    Southbound Approach: (Delaware Route 17) Existing one shared left turn/through/right turn lane.

13. **Burton Farm Road (Sussex Road 373) / Blackwater Road (Sussex Road 374) / Powell Farm Road (Sussex Road 365)**
    Type of Control: Existing two-way stop-controlled intersection
    Eastbound Approach: (Burton Farm Road/Blackwater Road) Existing one left turn lane, stop controlled, and one channelized right turn lane.
    Northbound Approach: (Powell Farm Road) Existing one shared left turn/through lane.
    Southbound Approach: (Powell Farm Road) Existing one shared through/right turn lane.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, Delaware Transit Corporation (DTC) does not currently provide existing services through the study area.

Planned transit service: Per email correspondence on December 7, 2021, with Mr. Jared Kauffman, Fixed-Route Planner for DART, there are no transit improvements recommendations at this time.

Existing bicycle and pedestrian facilities: Per DelDOT Gateway, connector bicycle routes exist within the study area along Powell Farm Road/Blackwater Road/Peppers Corner Road and Delaware Route 17. No pedestrian facilities are provided within the study area along the site frontages.

Planned bicycle and pedestrian facilities: Per email correspondence dated December 16, 2021, from Mr. John Fiori, DelDOT's Bicycle Coordinator and Ms. Linda Osiecki, DelDOT's Pedestrian Coordinator, the following improvements were recommended:

- As per the entrance plan, a shared-use path is being shown along their property frontage.
- Per the Development Coordination Manual (DCM) the site shall dedicate right-of-way per the roadway classification and establish a 15' wide permanent easement along the property frontage.
- At this time, the Department has no capital improvements or bicycle/pedestrian improvement projects within the area of this project.

- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then a separate bike lane shall be incorporated along the right turn lane; if a left turn lane is required any roadway improvements shall include a shoulder matching the roadway functional classification or existing conditions (minimum 5-feet)

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 frontage are summarized below. The Bicycle LTS was determined utilizing the map on the DelDOT Gateway.

- Delaware Route 17 LTS: 3
- Substation Road LTS: 3
- Powell Farm Road LTS: 4
- Burton Farm Road LTS: 4

Sight Distance Evaluation
Based on a qualitative field visit, there are no sight distance concerns expected at any of the proposed or existing site entrances.

Crash Evaluation
A crash evaluation was not included in the TOA.

Previous Comments
All comments made during the Preliminary TOA (PTOA) were addressed in the Final TOA (FTOA).

General HCS Analysis Comments

(See table footnotes on the following pages for specific comments)

1. JMT and the TOA utilized version 7.9.5 of HCS7.

2. Per DelDOT's *Development Coordination Manual* and due to the lack of recent count data, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph, whereas the TOA utilized a heavy vehicle percentage of 3% for all movements.

3. Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways. Additionally, the JMT utilized a heavy vehicle percentage of 3% for movements entering and exiting the proposed site.

4. Per DelDOT's *Development Coordination Manual* and due to the lack of recent count data, JMT a 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. The TOA utilized a PHF of 0.92 for all scenarios.

5. The analysis results include various scenarios and are summarized below:

    - Case 1: 2021 Existing

    - Case 2: 2023 with Partial Development – Phase 1 (Peninsula Village, Village 2, Village 7; and 20% of West Village)

        - A: With Summerwind Boulevard, without completion of Endless Summer Drive, without Entrance A, without Entrance B, and without Entrance D
        - B: With Summerwind Boulevard and with completion of Endless Summer Drive, without Entrance B and without Entrance D

    - Case 3: 2026 with Partial Development - Phase 1 and Phase 2 (Village 3, Village 4 and 40% of Village West)

    - Case 4: 2030 with Full development - Phase 1, Phase 2, and Phase 3 (Village 5, Village 6, Town Center, and 40% of Village West)

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TOA**		**LOS per JMT**	
Entrance A/ Endless Summer/ Delaware Route 17[2]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Partial Development (Case 2a)				
Westbound Site Entrance A Approach	B (11.1)	B (11.7)	B (11.2)	B (11.9)
Southbound Delaware Route 17 Left Turn	A (7.8)	A (7.9)	A (7.9)	A (7.9)
2023 with Partial Development (Case 2b)				
Westbound Site Entrance A Approach	B (10.9)	B (11.5)	B (11.3)	B (12.0)
Southbound Delaware Route 17 Left Turn	A (7.9)	A (7.9)	A (7.9)	A (8.0)
2026 with Partial Development (Case 3)				
Westbound Site Entrance A Approach	B (12.4)	B (13.4)	B (12.8)	B (13.9)
Southbound Delaware Route 17 Left Turn	A (8.1)	A (8.1)	A (8.1)	A (8.2)
2030 with Full Development (Case 4)				
Westbound Site Entrance A Approach	B (13.3)	C (16.0)	B (13.7)	C (16.1)
Southbound Delaware Route 17 Left Turn	A (8.4)	A (8.4)	A (8.4)	A (8.4)

[1] For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] The TOA modeled the intersection with separate lanes along all approaches, whereas JMT modeled the intersection with shared turn lanes along all approaches.

Table 3
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TOA**		**LOS per JMT**	
Entrance B/ Delaware Route 17 [2]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Partial Development (Case 2a)				
Westbound Site Entrance B Approach	B (11.4)	B (12.0)	B (11.6)	B (12.4)
Southbound Delaware Route 17 Left Turn	A (7.8)	A (7.9)	A (7.9)	A (7.9)
2023 with Partial Development (Case 2b)				
Westbound Site Entrance B Approach	B (11.4)	B (12.1)	B (11.7)	B (12.5)
Southbound Delaware Route 17 Left Turn	A (7.8)	A (7.9)	A (7.9)	A (8.0)
2026 with Partial Development (Case 3)				
Westbound Site Entrance B Approach	B (13.8)	B (13.3)	B (14.7)	C (14.6)
Southbound Delaware Route 17 Left Turn	A (8.1)	A (8.2)	A (8.1)	A (8.3)
2030 with Full Development (Case 4)				
Westbound Site Entrance B Approach	C (15.5)	C (21.5)	C (18.7)	D (29.5)
Southbound Delaware Route 17 Left Turn	A (8.4)	A (8.8)	A (8.4)	A (8.8)

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TOA**		**LOS per JMT**	
Site Entrance C (Endless Summer) / Substation Road (Sussex Road 366)[3]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing (Case 1)				
Eastbound Site Entrance C Approach	B (10.0)	B (10.5)	B (10.3)	B (11.0)
Northbound Substation Road Left Turn	A (7.5)	A (7.8)	A (7.6)	A (7.9)
2023 with Partial Development (Case 2a)				
Eastbound Site Entrance C Approach	B (11.0)	B (11.9)	B (11.6)	B (12.2)
Northbound Substation Road Left Turn	A (7.6)	A (8.1)	A (7.7)	A (8.1)
2023 with Partial Development (Case 2b)				
Eastbound Site Entrance C Approach	B (10.7)	B (11.5)	B (11.3)	B (11.8)
Northbound Substation Road Left Turn	A (7.6)	A (8.0)	A (7.6)	A (8.1)
2026 with Partial Development (Case 3)				
Eastbound Site Entrance C Approach	B (11.8)	B (13.2)	B (12.1)	B (13.6)
Northbound Substation Road Left Turn	A (7.6)	A (8.3)	A (7.7)	A (8.4)

[3] Both the TOA and JMT modeled the intersection with shared lanes along all approaches.

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TOA**		**LOS per JMT**	
Site Entrance C (Endless Summer) / Substation Road (Sussex Road 366)[3]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2030 with Full Development (Case 4)				
Eastbound Site Entrance C Approach	B (12.2)	B (13.8)	B (12.5)	B (14.3)
Northbound Substation Road Left Turn	A (7.7)	A (8.4)	A (7.7)	A (8.5)

Table 5
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TOA**		**LOS per JMT**	
Site Entrance D / Substation Road (Sussex Road 366) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Partial Development (Case 3)				
Eastbound Site Entrance D Approach	A (9.9)	B (11.3)	B (10.6)	B (12.0)
Westbound Site Entrance D Approach	B (10.4)	B (11.5)	B (11.8)	B (12.7)
Northbound Substation Road Left Turn	A (7.4)	A (7.7)	A (7.4)	A (7.8)
Southbound Substation Road Left Turn	A (7.6)	A (7.7)	A (7.6)	A (7.7)
2030 with Full Development (Case 4)				
Eastbound Site Entrance D Approach	A (9.2)	B (10.0)	B (11.1)	B (13.2)
Westbound Site Entrance D Approach	A (9.4)	B (10.2)	B (12.1)	B (13.9)
Northbound Substation Road Left Turn	A (7.3)	A (7.4)	A (7.6)	A (8.0)
Southbound Substation Road Left Turn	A (7.4)	A (7.6)	A (7.6)	A (7.7)

[4] The TOA modeled the intersection with one left turn lane, one through lane, and one right turn lane along the northbound and southbound approaches, and one left turn lane and one shared through/right turn lane along the eastbound and westbound approaches. JMT modeled the intersection with shared lanes along all approaches.

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Roundabout [1]	**LOS per TOA**		**LOS per JMT**	
Site Entrance E / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing (Case 1)				
Eastbound Site Entrance E Approach	A (3.6)	A (3.5)	A (3.8)	A (3.7)
Westbound Site Entrance E Approach	A (3.3)	A (3.2)	A (3.5)	A (3.4)
Northbound Substation Road Approach	A (3.3)	A (3.5)	A (3.5)	A (3.7)
Southbound Substation Road Approach	A (3.1)	A (3.9)	A (3.2)	A (4.2)
Overall	A (3.4)	A (3.6)	A (3.6)	A (3.9)
2023 with Partial Development (Case 2a)				
Eastbound Site Entrance E Approach	A (4.4)	A (4.1)	A (4.8)	A (4.3)
Westbound Site Entrance E Approach	A (3.6)	A (3.8)	A (3.8)	A (3.8)
Northbound Substation Road Approach	A (3.7)	A (4.6)	A (4.0)	A (4.5)
Southbound Substation Road Approach	A (3.4)	A (4.8)	A (3.6)	A (5.1)
Overall	A (4.0)	A (4.5)	A (4.3)	A (4.6)

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Roundabout [1]	**LOS per TOA**		**LOS per JMT**	
Site Entrance E / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Partial Development (Case 2b)				
Eastbound Site Entrance E Approach	A (4.3)	A (4.0)	A (4.6)	A (4.2)
Westbound Site Entrance E Approach	A (3.5)	A (3.6)	A (3.8)	A (3.7)
Northbound Substation Road Approach	A (3.7)	A (4.3)	A (3.9)	A (4.4)
Southbound Substation Road Approach	A (3.4)	A (4.7)	A (3.6)	A (4.9)
Overall	A (3.9)	A (4.3)	A (4.2)	A (4.5)
2026 with Partial Development (Case 3)				
Eastbound Site Entrance E Approach	A (4.3)	A (4.0)	A (4.7)	A (4.2)
Westbound Site Entrance E Approach	A (3.5)	A (3.8)	A (3.8)	A (3.9)
Northbound Substation Road Approach	A (3.8)	A (4.6)	A (4.0)	A (4.8)
Southbound Substation Road Approach	A (4.0)	A (4.8)	A (4.2)	A (5.0)
Overall	A (4.0)	A (4.6)	A (4.2)	A (4.8)

Table 6 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Roundabout [1]	**LOS per TOA**		**LOS per JMT**	
Site Entrance E / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2030 with Full Development (Case 4)				
Eastbound Site Entrance E Approach	A (4.5)	A (4.6)	A (4.7)	A (4.8)
Westbound Site Entrance E Approach	A (3.6)	A (3.9)	A (3.7)	A (4.1)
Northbound Substation Road Approach	A (3.9)	A (4.9)	A (4.0)	A (5.1)
Southbound Substation Road Approach	A (4.2)	A (5.8)	A (4.3)	A (6.0)
Overall	A (4.1)	A (5.2)	A (4.3)	A (5.4)

Table 7
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)	**LOS per TOA**		**LOS per JMT**	
Entrance F/ Powell Farm Road (Sussex Road 365) [5]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Partial Development (Case 2a)				
Eastbound Site Entrance F Approach	A (9.5)	A (9.5)	A (9.8)	A (9.8)
Northbound Powell Farm Road Left Turn	A (7.6)	A (7.6)	A (7.7)	A (7.7)
2023 with Partial Development (Case 2b)				
Eastbound Site Entrance F Approach	A (9.5)	A (9.5)	A (9.8)	A (9.8)
Northbound Powell Farm Road Left Turn	A (7.6)	A (7.6)	A (7.7)	A (7.7)
2026 with Partial Development (Case 3)				
Eastbound Site Entrance F Approach	B (10.1)	B (10.2)	B (10.7)	B (10.5)
Northbound Powell Farm Road Left Turn	A (7.8)	A (7.9)	A (7.9)	A (7.9)
2030 with Full Development (Case 4)				
Eastbound Site Entrance F Approach	B (10.9)	B (11.1)	B (11.5)	B (11.7)
Northbound Powell Farm Road Left Turn	A (8.0)	A (8.1)	A (8.0)	A (8.2)

[5] The TOA modeled the intersection with separate turn lanes along all approaches, whereas JMT modeled the intersection with shared lanes along all approaches.

Table 8
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)	**LOS per TOA**		**LOS per JMT**	
Entrance G/ Powell Farm Road (Sussex Road 365) [5]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Partial Development (Case 2a)				
Eastbound Site Entrance G Approach	A (9.4)	A (9.5)	A (9.7)	A (9.7)
Northbound Powell Farm Road Left Turn	A (7.6)	A (7.6)	A (7.7)	A (7.7)
2023 with Partial Development (Case 2b)				
Eastbound Site Entrance G Approach	A (9.4)	A (9.5)	A (9.7)	A (9.7)
Northbound Powell Farm Road Left Turn	A (7.6)	A (7.6)	A (7.7)	A (7.7)
2026 with Partial Development (Case 3)				
Eastbound Site Entrance G Approach	A (9.8)	B (10.0)	B (10.2)	B (10.5)
Northbound Powell Farm Road Left Turn	A (7.7)	A (7.8)	A (7.7)	A (7.9)
2030 with Full Development (Case 4)				
Eastbound Site Entrance G Approach	B (10.2)	B (10.5)	B (11.0)	B (11.1)
Northbound Powell Farm Road Left Turn	A (7.8)	A (8.0)	A (7.9)	A (8.0)

Table 9
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TOA**		**LOS per JMT**	
Entrance H/ Powell Farm Road (Sussex Road 365) [6]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Partial Development (Case 2a)				
Westbound Site Entrance H Approach	A (8.9)	A (9.0)	A (9.0)	A (9.1)
Southbound Powell Farm Road Left Turn	A (7.3)	A (7.4)	A (7.3)	A (7.4)
2023 with Partial Development (Case 2b)				
Westbound Site Entrance H Approach	A (8.9)	A (9.0)	A (9.0)	A (9.1)
Southbound Powell Farm Road Left Turn	A (7.3)	A (7.4)	A (7.3)	A (7.4)
2026 with Partial Development (Case 3)				
Westbound Site Entrance H Approach	A (9.1)	A (9.3)	A (9.3)	A (9.5)
Southbound Powell Farm Road Left Turn	A (7.4)	A (7.5)	A (7.4)	A (7.5)
2030 with Full Development (Case 4)				
Westbound Site Entrance H Approach	A (9.3)	A (9.4)	A (9.5)	A (9.8)
Southbound Powell Farm Road Left Turn	A (7.4)	A (7.5)	A (7.5)	A (7.6)

[6] The TOA modeled the intersection with one through lane and one right turn lane along the northbound approach, one left turn lane and one through lane along the southbound approach, and one shared left turn/right turn lane along the westbound approach. JMT modeled the intersection with shared lanes along all approaches.

Table 10
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control (T-Intersection) [1]	**LOS per TOA**		**LOS per JMT**	
Entrance I/ Burton Farm Road (Sussex Road 373) [5]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2023 with Partial Development (Case 2a)				
Westbound Burton Farm Road Left Turn	A (7.3)	A (7.3)	A (7.3)	A (7.3)
Northbound Entrance I Approach	A (8.6)	A (8.7)	A (8.6)	A (8.7)
2023 with Partial Development (Case 2b)				
Westbound Burton Farm Road Left Turn	A (7.3)	A (7.3)	A (7.3)	A (7.3)
Northbound Entrance I Approach	A (8.6)	A (8.7)	A (8.6)	A (8.7)
2026 with Partial Development (Case 3)				
Westbound Burton Farm Road Left Turn	A (7.3)	A (7.3)	A (7.3)	A (7.3)
Northbound Entrance I Approach	A (8.7)	A (8.7)	A (8.7)	A (8.8)
2030 with Full Development (Case 4)				
Westbound Burton Farm Road Left Turn	A (7.3)	A (7.3)	A (7.3)	A (7.3)
Northbound Entrance I Approach	A (8.7)	A (8.8)	A (8.8)	A (8.9)

Table 10 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TOA**		**LOS per JMT**	
Entrance I/ Burton Farm Road (Sussex Road 373) [7]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2030 with Full Development (Case 4)				
Eastbound Burton Farm Road Left Turn	-	-	A (7.3)	A (7.3)
Westbound Burton Farm Road Left Turn	-	-	A (7.3)	A (7.3)
Northbound Entrance I Approach	-	-	A (8.8)	A (9.1)
Southbound Entrance I Approach	-	-	A (8.7)	A (8.9)

[7] JMT conducted an additional analysis of the intersection as a four-legged intersection to account for the southbound Entrance I approach. Volumes were provided on February 25, 2022 by Century Engineering. JMT modeled the intersection with one shared left turn/through/right turn lane along all approaches.

Table 11
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TOA**		**LOS per JMT**	
Burbage Road (Sussex Road 353) / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing (Case 1)				
Westbound Burbage Road Left Turn	A (7.8)	A (8.3)	A (7.9)	A (8.4)
Northbound Substation Road Approach	B (14.6)	C (18.1)	C (15.2)	C (19.4)
2023 with Partial Development (Case 2a)				
Westbound Burbage Road Left Turn	A (8.0)	A (8.8)	A (8.0)	A (8.9)
Northbound Substation Road Approach	C (20.8)	D (35.0)	C (23.2)	D (35.1)
2023 with Partial Development (Case 2b)				
Westbound Burbage Road Left Turn	A (8.0)	A (8.7)	A (8.0)	A (8.8)
Northbound Substation Road Approach	C (19.0)	D (30.3)	C (20.8)	D (30.4)
2026 with Partial Development (Case 3)				
Westbound Burbage Road Left Turn	A (8.2)	A (9.4)	A (8.3)	A (9.4)
Northbound Substation Road Approach	E (36.4)	F (135.2)	E (46.0)	F (135.2)

Table 11 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Roundabout [1]	**LOS per TOA**		**LOS per JMT**	
Burbage Road (Sussex Road 353) / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Partial Development (Case 3)				
Eastbound Site Entrance E Approach	A (5.5)	A (9.3)	A (5.6)	A (9.3)
Westbound Site Entrance E Approach	A (7.3)	A (8.6)	A (7.7)	A (8.6)
Northbound Substation Road Approach	A (6.6)	A (6.4)	A (6.8)	A (6.5)
Overall	A (6.5)	A (8.5)	A (6.8)	A (8.5)
2030 with Full Development (Case 4)				
Eastbound Site Entrance E Approach	A (6.1)	B (11.0)	A (6.1)	B (11.0)
Westbound Site Entrance E Approach	A (7.9)	B (10.5)	A (8.0)	B (10.5)
Northbound Substation Road Approach	A (7.4)	A (7.3)	A (7.4)	A (7.4)
Overall	A (7.1)	B (10.1)	A (7.1)	B (10.1)

Table 12
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TOA**		**LOS per JMT**	
Beaver Dam Road (Sussex Road 368) / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing (Case 1)				
Eastbound Beaver Dam Road Approach	B (12.5)	C (16.0)	B (13.6)	C (17.0)
Westbound Beaver Dam Road Approach	B (13.3)	C (16.0)	B (14.8)	C (16.9)
Northbound Substation Road Left Turn	A (7.4)	A (7.4)	A (7.4)	A (7.4)
Southbound Substation Road Left Turn	A (7.4)	A (7.5)	A (7.5)	A (7.6)
2023 with Partial Development (Case 2a)				
Eastbound Beaver Dam Road Approach	C (15.8)	D (29.8)	C (16.7)	E (36.1)
Westbound Beaver Dam Road Approach	C (16.5)	C (22.8)	C (17.5)	D (25.7)
Northbound Substation Road Left Turn	A (7.5)	A (7.6)	A (7.6)	A (7.6)
Southbound Substation Road Left Turn	A (7.5)	A (7.7)	A (7.6)	A (7.7)
2023 with Partial Development (Case 2b)				
Eastbound Beaver Dam Road Approach	C (15.6)	D (28.6)	C (16.5)	D (34.2)
Westbound Beaver Dam Road Approach	C (16.4)	C (22.7)	C (17.4)	D (25.5)
Northbound Substation Road Left Turn	A (7.5)	A (7.6)	A (7.6)	A (7.6)
Southbound Substation Road Left Turn	A (7.5)	A (7.7)	A (7.6)	A (7.7)

Table 12 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TOA**		**LOS per JMT**	
Beaver Dam Road (Sussex Road 368) / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Partial Development (Case 3)				
Eastbound Beaver Dam Road Approach	C (18.7)	F (65.0)	C (20.2)	F (95.9)
Westbound Beaver Dam Road Approach	C (19.6)	D (32.8)	C (21.3)	E (40.1)
Northbound Substation Road Left Turn	A (7.6)	A (7.7)	A (7.7)	A (7.7)
Southbound Substation Road Left Turn	A (7.6)	A (7.7)	A (7.6)	A (7.8)

Table 12 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection All-Way Stop Control[1]	**LOS per TOA**		**LOS per JMT**	
Beaver Dam Road (Sussex Road 368) / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Partial Development (Case 3)				
Eastbound Beaver Dam Road Approach	A (9.9)	B (13.1)	B (10.3)	B (14.0)
Westbound Beaver Dam Road Approach	B (10.1)	B (12.1)	B (10.5)	B (12.8)
Northbound Substation Road Approach	A (9.4)	B (11.5)	A (9.6)	B (12.1)
Southbound Substation Road Approach	B (11.1)	B (14.2)	B (11.6)	B (15.46)
Overall	B (10.3)	B (13.0)	B (10.7)	B (13.8)
2030 with Full Development (Case 4)				
Eastbound Beaver Dam Road Approach	B (10.3)	B (14.6)	B (10.7)	C (16.0)
Westbound Beaver Dam Road Approach	B (10.5)	B (13.5)	B (10.9)	B (14.5)
Northbound Substation Road Approach	A (9.8)	B (12.9)	B (10.1)	B (13.8)
Southbound Substation Road Approach	B (11.9)	C (17.1)	B (12.5)	C (19.2)
Overall	B (10.9)	B (14.9)	B (11.3)	C (16.3)

Table 12 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Roundabout [1]	**LOS per TOA**		**LOS per JMT**	
Beaver Dam Road (Sussex Road 368) / Substation Road (Sussex Road 366)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Partial Development (Case 3)				
Eastbound Beaver Dam Road Approach	-	-	A (5.1)	A (6.7)
Westbound Beaver Dam Road Approach	-	-	A (4.7)	A (5.9)
Northbound Substation Road Approach	-	-	A (4.7)	A (6.0)
Southbound Substation Road Approach	-	-	A (6.0)	A (6.6)
Overall	-	-	A (5.3)	A (6.4)
2030 with Full Development (Case 4)				
Eastbound Beaver Dam Road Approach	-	-	A (5.4)	A (7.2)
Westbound Beaver Dam Road Approach	-	-	A (4.9)	A (6.3)
Northbound Substation Road Approach	-	-	A (4.9)	A (6.5)
Southbound Substation Road Approach	-	-	A (6.3)	A (7.2)
Overall	-	-	A (5.5)	A (6.9)

Table 13
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TOA**			**LOS per JMT**		
Delaware Route 17 / Peppers Corner Road/Powell Farm Road (Sussex Road 365)	Weekday AM	Weekday PM	SAT	Weekday AM	Weekday PM	SAT
2021 Existing (Case 1)						
Eastbound Powell Farm Road Approach	B (13.9)	C (18.7)	C (16.8)	B (14.5)	C (20.2)	C (17.8)
Westbound Peppers Corner Road Approach	C (18.3)	D (27.3)	C (23.7)	C (19.9)	D (32.1)	D (27.0)
Northbound Delaware Route 17 Left Turn	A (7.6)	A (7.8)	A (7.8)	A (7.6)	A (7.9)	A (7.9)
Southbound Delaware Route 17 Left Turn	A (7.8)	A (7.9)	A (8.0)	A (7.8)	A (8.0)	A (8.0)
2023 with Partial Development (Case 2a)						
Eastbound Powell Farm Road Approach	C (19.9)	F (56.0)	E (41.6)	C (22.0)	F (56.7)	E (43.4)
Westbound Peppers Corner Road Approach	E (38.3)	F (144.4)	F (128.0)	F (49.7)	F (147.1)	F (137.5)
Northbound Delaware Route 17 Left Turn	A (7.7)	A (8.0)	A (8.0)	A (7.8)	A (8.0)	A (8.0)
Southbound Delaware Route 17 Left Turn	A (7.9)	A (8.2)	A (8.3)	A (8.0)	A (8.3)	A (8.3)

Table 13 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Roundabout [1]	**LOS per TOA**			**LOS per JMT**		
Delaware Route 17 / Peppers Corner Road/Powell Farm Road (Sussex Road 365)	Weekday AM	Weekday PM	SAT	Weekday AM	Weekday PM	SAT
2023 with Partial Development (Case 2a)						
Eastbound Powell Farm Road Approach	A (6.2)	A (6.3)	A (6.4)	A (6.7)	A (6.4)	A (6.6)
Westbound Peppers Corner Road Approach	A (5.8)	A (6.8)	A (6.9)	A (6.0)	A (6.9)	A (7.1)
Northbound Delaware Route 17 Approach	A (5.6)	A (7.7)	A (7.1)	A (5.9)	A (7.8)	A (7.2)
Southbound Delaware Route 17 Approach	A (5.8)	A (7.0)	A (7.4)	A (6.1)	A (7.1)	A (7.7)
Overall	A (5.8)	A (7.1)	A (7.1)	A (6.2)	A (7.2)	A (7.3)
2023 with Partial Development (Case 2b)						
Eastbound Powell Farm Road Approach	A (6.2)	A (6.3)	A (6.5)	A (6.7)	A (6.4)	A (6.7)
Westbound Peppers Corner Road Approach	A (5.7)	A (6.8)	A (6.9)	A (6.1)	A (6.9)	A (7.1)
Northbound Delaware Route 17 Approach	A (5.6)	A (7.7)	A (7.1)	A (5.9)	A (7.8)	A (7.2)
Southbound Delaware Route 17 Approach	A (5.9)	A (7.1)	A (7.4)	A (6.2)	A (7.1)	A (7.6)
Overall	A (5.8)	A (7.1)	A (7.1)	A (6.2)	A (7.2)	A (7.2)

Table 13 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Roundabout [1]	**LOS per TOA**			**LOS per JMT**		
Delaware Route 17 / Peppers Corner Road/Powell Farm Road (Sussex Road 365)	Weekday AM	Weekday PM	SAT	Weekday AM	Weekday PM	SAT
2026 with Partial Development (Case 3)						
Eastbound Powell Farm Road Approach	A (8.2)	A (8.5)	A (8.9)	A (8.4)	A (8.6)	A (9.0)
Westbound Peppers Corner Road Approach	A (7.2)	A (9.5)	A (9.6)	A (7.3)	A (9.7)	A (9.7)
Northbound Delaware Route 17 Approach	A (6.7)	B (11.1)	A (9.8)	A (6.8)	B (11.1)	A (9.8)
Southbound Delaware Route 17 Approach	A (7.1)	B (10.2)	B (10.4)	A (7.1)	B (10.3)	B (10.5)
Overall	A (7.3)	B (10.1)	A (9.8)	A (7.4)	B (10.2)	A (9.9)
2030 with Full Development (Case 4)						
Eastbound Powell Farm Road Approach	B (10.9)	B (12.0)	B (13.2)	B (11.0)	B (12.1)	B (13.3)
Westbound Peppers Corner Road Approach	A (8.8)	B (13.9)	B (14.5)	A (8.8)	B (14.1)	B (14.6)
Northbound Delaware Route 17 Approach	A (8.0)	C (17.5)	B (14.9)	A (8.1)	C (17.5)	B (15.0)
Southbound Delaware Route 17 Approach	A (8.4)	C (16.4)	C (16.4)	A (8.5)	C (16.5)	C (16.5)
Overall	A (9.0)	C (15.4)	C (15.0)	A (9.1)	C (15.5)	C (15.1)

Table 14
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TOA**		**LOS per JMT**	
Burton Farm Road (Sussex Road 373) and Blackwater Road (Sussex Road 374) / Powell Farm Road (Sussex Road 365)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2021 Existing (Case 1)				
Eastbound Burton Farm Road/Blackwater Road Approach	A (9.2)	A (9.0)	A (9.3)	A (9.1)
Northbound Powell Farm Road Left Turn	A (7.5)	A (7.5)	A (7.6)	A (7.6)
2023 with Partial Development (Case 2a)				
Eastbound Burton Farm Road/Blackwater Road Approach	A (9.3)	A (9.2)	A (9.5)	A (9.4)
Northbound Powell Farm Road Left Turn	A (7.6)	A (7.6)	A (7.7)	A (7.6)
2023 with Partial Development (Case 2b)				
Eastbound Burton Farm Road/Blackwater Road Approach	A (9.3)	A (9.2)	A (9.5)	A (9.4)
Northbound Powell Farm Road Left Turn	A (7.6)	A (7.6)	A (7.7)	A (7.6)
2026 with Partial Development (Case 3)				
Eastbound Burton Farm Road/Blackwater Road Approach	A (9.5)	A (9.5)	A (9.7)	A (9.7)
Northbound Powell Farm Road Left Turn	A (7.7)	A (7.6)	A (7.8)	A (7.7)
2030 With Full Development (Case 4)				
Eastbound Burton Farm Road/Blackwater Road Approach	A (9.8)	A (9.7)	B (10.1)	A (10.0)
Northbound Powell Farm Road Left Turn	A (7.7)	A (7.7)	A (7.8)	A (7.8)

Table 14 Continued
Peak Hour Levels Of Service (LOS)
Based on Traffic Operational Analysis for Millville by the Sea
Report Dated: November 22, 2021
Prepared by: Century Engineering, Inc.

Roundabout [1]	**LOS per TOA**		**LOS per JMT**	
Burton Farm Road (Sussex Road 373) and Blackwater Road (Sussex Road 374) / Powell Farm Road (Sussex Road 365) [8]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Partial Development (Case 3)				
Eastbound Burton Farm Road/Blackwater Road Approach			A (3.9)	A (4.0)
Northbound Powell Farm Road Approach			A (3.9)	A (4.2)
Southbound Powell Farm Road Approach			A (4.1)	A (4.1)
Overall			A (4.0)	A (4.1)
2030 with Full Development (Case 4)				
Eastbound Burton Farm Road/Blackwater Road Approach			A (4.1)	A (4.3)
Northbound Powell Farm Road Approach			A (4.2)	A (4.4)
Southbound Powell Farm Road Approach			A (4.3)	A (4.2)
Overall			A (4.2)	A (4.3)

[8] The intersection was modeled as a three-legged intersection due to the current operation. However, the proposed roundabout is anticipated to be four-legged. The design of the roundabout will be determined during the Entrance Plan review.