



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

NICOLE MAJESKI
SECRETARY

July 22, 2021

Ms. Betty Tustin
The Traffic Group, Inc.
104 Kenwood Court
Berlin, Maryland 21811

Dear Ms. Tustin,

The enclosed Traffic Impact Study (TIS) review letter for the proposed Old Orchard Ventures (Tax Parcels 335-8.00-25.01 and 29.00) development has been completed under the responsible charge of a registered professional engineer whose firm is authorized to work in the State of Delaware. They have found the TIS to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2109.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator

TWB:tbm
Enclosure
cc with enclosure:

Mr. Robert Palmer, Beacon Engineering
Mr. Barry Baker, Old Orchard Ventures, LLC
Mr. David L. Edgell, Office of State Planning Coordination
Mr. Jamie Whitehouse, Sussex County Planning & Zoning
Mr. Andrew J. Parker, McCormick Taylor, Inc.
DelDOT Distribution

DelDOT Distribution

Brad Eaby, Deputy Attorney General

J. Marc Coté, Director, Planning

Shanté Hastings, Director, Transportation Solutions (DOTS)

Mark Luszcz, Deputy Director, Traffic, DOTS

Michael Simmons, Assistant Director, Project Development South, DOTS

Todd J. Sammons, Assistant Director, Development Coordination

Peter A. Haag, Chief Traffic Engineer, Traffic, DOTS

Alistair Probert, South District Engineer, South District

Matthew Schlitter, South District Public Works Manager, 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

Richard S. McCabe, Sussex County Review Coordinator, Development Coordination

John Andrescavage, Sussex County Subdivision Manager, Development Coordination

Mark Galipo, Traffic Engineer, Traffic, DOTS

Troy E. Brestel, Project Engineer, Development Coordination

Claudy Joinville, Project Engineer, Development Coordination

Annamaria L. Fumato, Project Engineer, Development Coordination



July 22, 2021

Mr. Claudy Joinville
Project Engineer
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1773
Traffic Impact Study Services
Task No. 1 Subtask 23A – Orchard Plaza

Dear Mr. Joinville:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Orchard Plaza (aka Old Orchard Ventures) medical-dental office and assisted living development prepared by The Traffic Group, Inc. dated May 3, 2019 and revised February 5, 2020. The Traffic Group prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the proposed Orchard Plaza development. The site is located on the northeast side of Old Orchard Road (Sussex Road 269A), between Bradford Lane and Parker Run, in Sussex County. The proposed development as originally planned was to consist of 110,000 square feet of medical-dental office space and a 75,000 square-foot assisted living facility. *Per the revised TIS dated February 5, 2020, the updated land use plan consists of 55,000 square feet of medical-dental office space, a 75,000 square-foot assisted living facility, and 23 multi-family residential units. Note that this TIS review letter, including future with development analyses and recommendations, reflects the updated land use plan only.* Full buildout was anticipated by 2021.

Per the revised TIS, one unsignalized, full-movement access point is proposed on Old Orchard Road. This replaces the original TIS plan that proposed two access points on Old Orchard Road. The singular new driveway is proposed approximately 200 feet northwest of the Georgetown-Lewes Pathway crossing of Old Orchard Road.

The subject land consists of two parcels totaling approximately 17 acres. Parcel 335-8.00-25.01 (proposed assisted living facility) is currently zoned as AR-1 (Agricultural Residential). Parcel 335-8.00-29.00 (proposed medical-dental offices) is currently split-zoned as AR-1 and C-1 (General Commercial). The developer is seeking to rezone the land to C-1 and C-2 (Medium Commercial) with an AR-1 Special Use Exception. The AR-1 Special Use Exception for the assisted living facility ("Tranquility at Breakwater") was approved by Sussex County in December 2018, however it is unclear if the C-2 rezoning has yet been approved.

Currently, there are five DelDOT projects within the study area. The first project is Realignment of Old Orchard Road at Wescoats Corner (State Project No. T201609601). This involves realigning Old Orchard Road to intersect Savannah Road opposite Wescoats Road and signaling

that intersection. This project will also include pedestrian and bicycle facilities, and will affect traffic volumes at several study area intersections; the associated traffic volume redistributions were considered in the TIS. This project is currently in the preliminary design phase. Construction is anticipated to begin in the spring of 2022.

The second project is the SR 1, Minos Conaway Road Grade Separated Intersection (State Project No. T201612501). This project will construct two service roads along both sides of Delaware Route 1 and will provide grade-separated access under Delaware Route 1 at the existing bridges over the former Delaware Coast Line Railroad. The project will serve to separate through movements on Delaware Route 1 from turning movements to/from Minos Conaway Road, Nassau Road and Old Mill Road. These modifications are intended to maintain capacity of Delaware Route 1 and improve safety at several unsignalized intersections, while improving mobility and access for local traffic. This project will include improvements and turning movement restrictions at several study area intersections, thereby affecting future traffic volumes; the associated traffic volume redistributions were considered in the TIS. This project is currently in the preliminary design phase, and public involvement is ongoing. Construction is anticipated to begin in the spring of 2023.

The third project is the Kings Highway, Dartmouth Drive to Freeman Highway project. The proposed improvements of this project include providing two lanes in each direction, additional capacity/intersection improvements, sidewalks and multi-use paths. Preliminary engineering is not anticipated to begin until at least 2023 (after full buildout of the proposed Orchard Plaza development).

The fourth project is the Georgetown to Lewes Pathway. This project is converting a former railroad corridor to a shared-use path. Phase II was completed in early 2019, extending the trail west from Savannah Road past the Old Orchard site and under Delaware Route 1 to Minos Conaway Road. This project will enhance bicycle and pedestrian travel in the study area, but is not expected to have a significant impact on vehicular traffic volumes. Once complete, this 10-foot wide paved trail will be 17 miles in length and will provide a safe non-motorized connection from Georgetown to Lewes.

The fifth project is Plantation Road Improvements, Robinsonville Road to US 9 (Phase 1) (State Project No. T201111201). The project proposes to provide intersection safety improvements, pedestrian/bicycle improvements and realignment of the Plantation Road/Beaver Dam Road/US Route 9 intersection (including changes at the US Route 9 & US Route 9 Connector intersection that is in the Orchard Plaza TIS study area). This area was identified as a high priority due to high development growth in the corridor over the last several years. The purpose is to preserve mobility for local residents and businesses while providing roadway improvements along Plantation Road to reduce congestion, improve safety, and accommodate anticipated growth in local and seasonal traffic. This project is currently in the design and planning phase, and public involvement is ongoing. Construction is anticipated to begin in 2021.



There are also two active DelDOT studies in the area. The first is the Five Points Transportation Study, which examines potential transportation improvements to reduce congestion and improve capacity in the area surrounding the intersection of US Route 9 and Delaware Route 1. This study established a Five Points Working Group, which meets with members of the public on a quarterly basis. Phase 1 of the study, which was completed in 2018, engaged the community to help develop conceptual improvement alternatives, identify traffic patterns and problems in the area, and make/prioritize recommendations to improve capacity on Delaware Route 1 and move local traffic within the area without having to utilize Delaware Route 1 for every trip. This effort resulted in a number of recommendations that were advanced to Phase 2 of the study, which is currently ongoing and is focused on implementation. The Five Points Transportation Study Working Group will continue to meet and coordinate with DelDOT, Sussex County, stakeholders, and members of the public to facilitate refinement of recommendations and make progress on the implementation plan for specific improvements, many of which are being incorporated into projects.

Regarding the second study, the proposed development lies just outside the boundary of the Henlopen Transportation Improvement District (TID) as presently contemplated by Sussex County and DelDOT. A TID is a planning concept that seeks to proactively align transportation infrastructure spending and improvements with land use projections and future development within the designated district. One intersection within the Orchard Plaza TIS study area (US Route 9 & Minos Conaway Road) is also located within the contemplated boundary of the Henlopen TID.

Further, it is recognized that New Road, Savannah Road, Dartmouth Drive, and Kings Highway are all parts of the Lewes Scenic and Historic Byway, which falls under the Delaware Byways Program. The goals of the Byways Program include the identification, promotion, preservation and enhancement of Delaware roadways with at least one of the following intrinsic characteristics: scenic, historic, natural, cultural, recreational and archaeological. The Lewes Scenic and Historic Byway includes a Corridor Management Plan (CMP) that has been and should be used to guide development of transportation improvements and mitigation of traffic impacts along these roadways. From the CMP, two Corridor Master Plans were developed: one in 2016 for Kings Highway and Gills Neck Road and the other in 2019 for New Road. Many elements of these master plans have been and will continue to be incorporated into the Five Points Transportation Study, nearby DelDOT projects considered in the Orchard Plaza TIS and described within this letter, and in the recommendation items of this letter.

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

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

<i>Intersection</i>	<i>Existing Traffic Control</i>	<i>Situations for which deficiencies occur</i>
Delaware Route 1 and Nassau Road (north leg)	Unsignalized	2018 Existing weekday PM (Case 1); 2021 without Orchard Plaza weekday AM & PM (Case 2); 2021 with Orchard Plaza weekday AM & PM (Case 3)
Old Orchard Road and Savannah Road	Unsignalized	2018 Existing weekday AM & PM (Case 1); [future conditions are not listed as deficient because they assume improvements as part of a DelDOT project that would mitigate deficiencies at this intersection]
US Route 9 and Delaware Route 1	Signalized	2021 without Orchard Plaza weekday PM (Case 2); 2021 with Orchard Plaza weekday PM (Case 3)
US Route 9 and Sheffield Drive	Unsignalized	2021 without Orchard Plaza weekday PM (Case 2); 2021 with Orchard Plaza weekday PM (Case 3)
US Route 9 and Minos Conaway Road / Lakeview Boulevard	Unsignalized	2018 Existing weekday PM (Case 1); 2021 without Orchard Plaza weekday PM (Case 2); 2021 with Orchard Plaza weekday AM & PM (Case 3)

Delaware Route 1 and Nassau Road

This unsignalized intersection experiences LOS deficiencies in the PM peak hour under existing conditions, and in the AM and PM peak hours under 2021 conditions without and with Orchard Plaza. However, the Delaware Route 1 crossover at Nassau Road would be closed as part of DelDOT’s SR 1, Minos Conaway Road Grade Separated Intersection project, thereby eliminating the deficiencies. Therefore, no further improvements are required of this developer at this location.

Old Orchard Road and Savannah Road

This unsignalized intersection experiences LOS deficiencies in the existing weekday AM and PM peak hour. DelDOT’s Realignment of Old Orchard Road at Wescoats Corner project will realign Old Orchard Road at Savannah Road to align with Wescoats Road. The realigned intersection will be signalized and include turn lanes, and analysis of future volumes indicates it will operate at acceptable levels of service during weekday AM and PM peak hours. Therefore, no further improvements are required of this developer at this location.

US Route 9 and Delaware Route 1

With the current signal timings, the signalized intersection of US Route 9 and Delaware Route 1 (Five Points) experiences LOS deficiencies in the weekday PM peak hour under the 2021 without Orchard Plaza scenario and in the weekday PM peak hour under the 2021 with Orchard Plaza scenario. With optimized signal timings, the delay can be mitigated to LOS D for the weekday PM peak hour in both 2021 scenarios.

US Route 9 and Sheffield Drive

This unsignalized T-intersection experiences LOS deficiencies in the weekday PM peak hour under 2021 conditions without and with Orchard Plaza. The southbound Sheffield Drive approach is projected to operate at LOS E and LOS F, respectively, under these two PM peak hour scenarios. The future PM peak hour volume on the southbound approach is relatively low, and the 95th percentile queue length is less than two vehicles (50 feet) in both scenarios. Installation of a traffic signal is not warranted or desired. While the addition of a separate right-turn lane on the southbound approach would slightly reduce delays, it would not eliminate LOS deficiencies or noticeably affect queues during the weekday peak hours. Therefore, no improvements are recommended at this intersection.

US Route 9 and Minos Conaway Road / Lakeview Boulevard.

This unsignalized intersection experiences LOS deficiencies in the weekday PM peak hour in existing and 2021 without Orchard Plaza conditions, and during the AM and PM peak hours in the 2021 with Orchard Plaza scenario. However, the 95th percentile queue length for the low volume northbound Lakeview Boulevard approach is less than two vehicles (50 feet) in all scenarios. Volumes are heavier and queues are longer on the southbound Minos Conaway Road approach, and there is a relatively heavy right-turn volume. Installation of a traffic signal is not warranted or desired. The current Implementation Plan of the Five Points Transportation Study recommends adding a separate right-turn lane on only the southbound Minos Conaway Road approach. With this improvement, the southbound LOS deficiencies during the weekday AM and PM peak hours would be eliminated, and queue lengths on both the northbound and southbound approaches would be less than two vehicles (50 feet). Any such improvement will be addressed by an initiative of that study. Therefore, no improvements are required of this developer at this location.

New Road and Nassau Road

Note that while this intersection was not found to have LOS deficiencies in existing or future conditions, it is proposed to be converted to a single-lane roundabout as part of the SR 1, Minos Conaway Road Grade Separated Intersection project.

Should Sussex County choose to approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan by note or illustration. 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 should construct a five-foot paved shoulder on the north side of Old Orchard Road from Oyster Cove Drive (opposite Peach Tree Lane) to New Road.

2. The developer should construct Site Access A on Old Orchard Road. The proposed configuration is shown in the table below.

Approach	Existing Configuration	Proposed Configuration
Eastbound Old Orchard Road	One through lane	One left-turn lane and one through lane
Westbound Old Orchard Road	One through lane	One through lane and one right-turn lane
Southbound Site Access A	Approach does not exist	One left-turn lane and one right-turn lane

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

Approach	Left-Turn Lane	Right-Turn Lane
Eastbound Old Orchard Road	95 feet *	N/A
Westbound Old Orchard Road	N/A	100 feet *

* Initial turn-lane length based on DelDOT’s *Auxiliary Lane Worksheet*, based on 35 mph speed limit on Old Orchard Road and effective radius of greater than 50 feet

3. The developer should contribute toward DelDOT’s Realignment of Old Orchard Road at Wescoats Corner project. That project will realign Old Orchard Road at Savannah Road to align with Wescoats Road. The realigned intersection will be signalized and include turn lanes. DelDOT has agreed to the developer making improvements on Old Orchard Road beyond the limits of the realignment project, specifically Items 1 and 4g. These improvements are in lieu of a portion of the contribution described above. This contribution must be paid prior to entrance plan approval.
4. The following bicycle, pedestrian, and transit improvements should be included:
- Adjacent to the proposed right-turn lane on westbound Old Orchard Road at the site entrance, a minimum of a five-foot bicycle lane should be dedicated and striped with appropriate markings for bicyclists through the turn lane in order to facilitate safe and unimpeded bicycle travel.
 - Appropriate bicycle symbols, directional arrows, pavement markings, and signing should be included along bicycle facilities and turn lanes within the project limits.
 - Utility covers should be made flush with the pavement.

- d. Bicycle parking should be provided near building entrances. Where building architecture provides for an awning, other overhang, or indoor parking, the bicycle parking should be covered.
- e. A minimum 15-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontage along Old Orchard Road.
- f. Within the easement along Old Orchard Road, a minimum of a ten-foot wide shared-use path (SUP) that meets current AASHTO and ADA standards should be constructed along the site frontage. The SUP should have a minimum of a five-foot buffer from the roadway. The SUP should connect directly to the existing Georgetown to Lewes Pathway at the south end of the Orchard Plaza site frontage and to the existing SUP at the north end of the site frontage (just north of the proposed Orchard Plaza Site Access A). The developer should coordinate with DelDOT's Development Coordination Section to determine details of this SUP including its connections to both existing SUPs described above.
- g. In addition to the new SUP described above in Item 4f, an eight-foot wide SUP that meets current AASHTO and ADA standards should be constructed along northbound Old Orchard Road from Oyster Cove Drive (opposite Peach Tree Lane) to Bradford Lane. The SUP should have a minimum of a five-foot buffer from the roadway. The developer should coordinate with DelDOT's Development Coordination Section to determine details of this SUP including its connections at Oyster Cove Drive and Bradford Lane.
- h. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including the site entrance. Type 3 curb ramps are discouraged.
- i. Internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These sidewalks should each be a minimum of five-feet wide (with a minimum of a five-foot buffer from the roadway) and should meet current AASHTO and ADA standards. Internal sidewalks in the development should connect to the shared-use path along Old Orchard Road and to the Georgetown to Lewes Parkway.
- j. Where internal sidewalks are located alongside of parking spaces, a buffer should be added to prevent vehicular overhang onto the sidewalk.
- k. The developer should coordinate with the Delaware Transit Corporation (DTC) regarding the possibility of including a bus stop to be located along the Old Orchard Road site frontage in the event DTC decides to expand service to Old Orchard Road in the future.



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

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

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

Sincerely,

McCormick Taylor, Inc.

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

Andrew J. Parker, PE, PTOE
Project Manager

Enclosure

General Information

Report date: May 3, 2019; Revised February 5, 2020

Prepared by: The Traffic Group, Inc.

Prepared for: Old Orchard Ventures

Tax parcels: 335-8.00-29.00 and 25.01

Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed development as originally planned was to consist of 110,000 square feet of medical-dental office space and a 75,000 square-foot assisted living facility. *Per the revised TIS dated February 5, 2020, the updated land use plan consists of 55,000 square feet of medical-dental office space, a 75,000 square-foot assisted living facility, and 23 multi-family residential units. Note that this TIS review letter, including future with development analyses and recommendations, reflects the updated land use plan only.*

Location: The site is located on the northeast side of Old Orchard Road (Sussex Road 269A), between Bradford Lane and Parker Run, in unincorporated Sussex County, Delaware. A site location map is included on page 10.

Amount of land to be developed: Approximately 17 acres

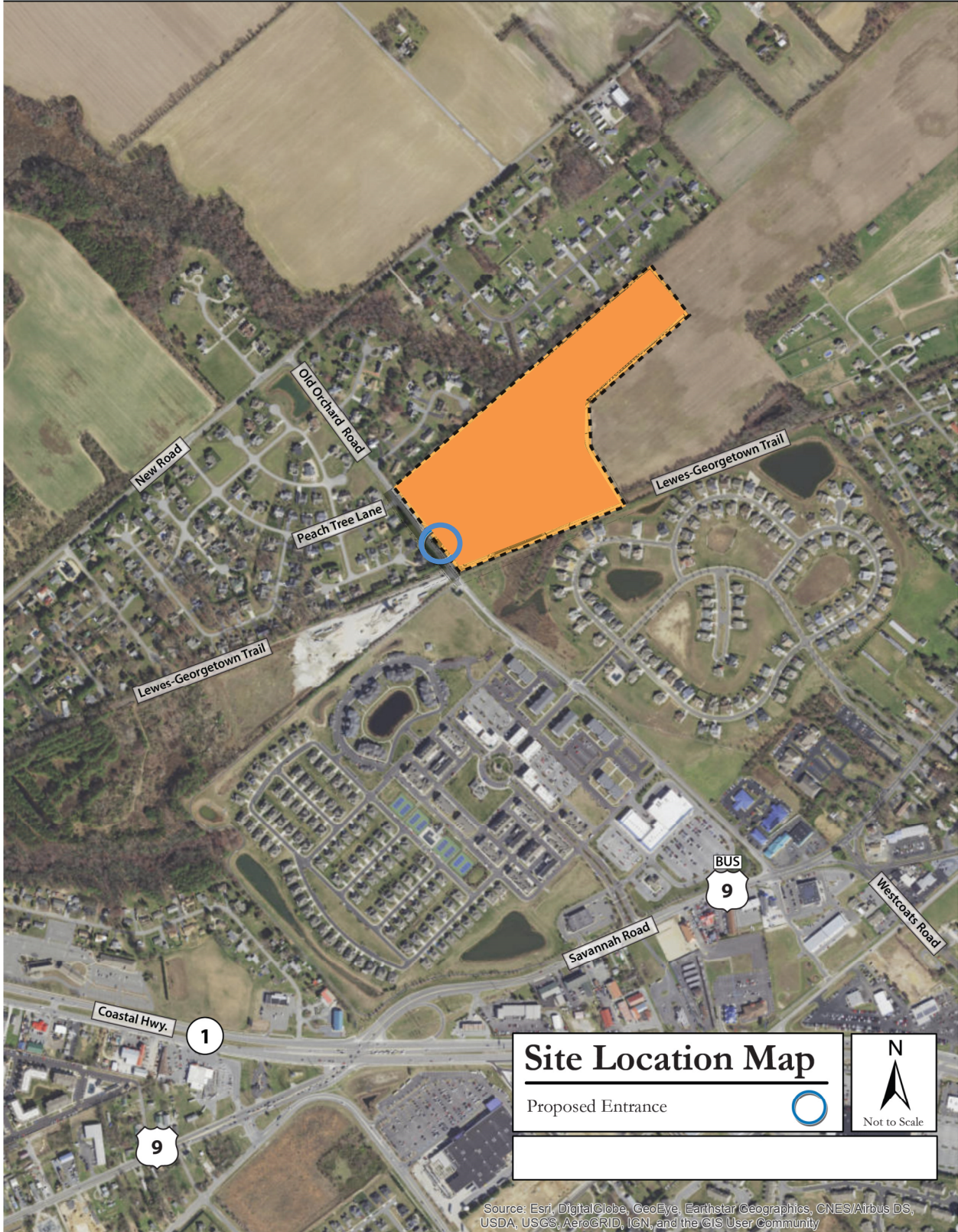
Land use approval(s) needed: Rezoning and Subdivision approval. The land is currently split-zoned as AR-1 (Agricultural Residential) and C-1 (General Commercial) in Sussex County. The developer is seeking to rezone the land to C-1 and C-2 (Medium Commercial) with an AR-1 Special Use Exception.

Proposed completion year: 2021

Proposed access locations: Per the revised TIS, one unsignalized, full-movement access point is proposed on Old Orchard Road. This replaces the original TIS plan that proposed two access points on Old Orchard Road. The singular new driveway is proposed approximately 200 feet northwest of the Georgetown-Lewes Pathway crossing of Old Orchard Road.

Daily Traffic Volumes (per DelDOT Traffic Summary 2018):

- 2018 Average Annual Daily Traffic (AADT) on Old Orchard Road: 13,162 vehicles/day
- It is noted that The Traffic Group completed an Automatic Traffic Recorder (ATR) count on Old Orchard Road near Peach Tree Lane in September/October 2018. The ATR count indicated an Average Daily Traffic (ADT) volume of 3,384 vehicles. Based on the peak hour turning movement count data at intersections along Old Orchard Road, it appears that 3,384 vehicles/day is a more accurate representation of the existing traffic volume.



2015 Delaware Strategies for State Policies and Spending

Location with respect to the Strategies for State Policies and Spending Map of Delaware:

The majority of the proposed Orchard Plaza medical-dental and assisted living development is located within Investment Level 2; a small portion of the land is located in Investment Level 3. A negligible portion of the development is located in Investment Level 1.

Investment Level 2

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

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

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

Investment Level 3

Investment Level 3 reflects areas where growth is anticipated by local, county, and state plans in the longer-term future. 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, but where development is not necessary to accommodate expected short-term population growth. The second category includes lands that are adjacent to fast-growing Investment Level 1 and 2 areas but are often impacted by environmentally sensitive features, agricultural-preservation issues, or other infrastructure issues. 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 governments with land-use authority.

Generally, Investment Level 3 areas should not be developed until surrounding Investment Level 1 and 2 areas are substantially built out. From a housing perspective, Investment Level 3 areas are characterized by low density and rural homes. New housing developments in the short term would, in most cases, represent leap-frog development, which is undesirable. Higher density housing in

Investment Level 3 areas is more appropriate once Level 2 areas are built out and utilities are available.

Proposed Development’s Compatibility with Strategies for State Policies and Spending:

The proposed Orchard Plaza development consists of 55,000 square feet of medical-dental office space, a 75,000 square foot assisted living facility, and 23 multi-family residential units. The land to be developed is open space/farmland that is surrounded by medium-density residential and commercial developments. The development would be served by existing public infrastructure and services, such as transportation facilities, fire/police/EMS services, and water/wastewater services. The development generally appears to comply with Investment Level 2 and Investment Level 3 areas.

Comprehensive Plan

Sussex County Comprehensive Plan:

(Source: Sussex County Comprehensive Plan Update, June 2008)

At the time of this review, the current version of the Sussex County Comprehensive Plan is the June 2008 update. It is noted that Sussex County has completed a 2018 Comprehensive Plan update. However, the 2018 update is not effective until it is certified by the Governor of the State of Delaware.

The Sussex County Comprehensive Plan Future Land Use Map indicates that the proposed development parcels fall within both “Mixed Residential Areas” and “Environmentally Sensitive Developing Area” (categorized as a “Growth Area”). Given the multiple designations in the area of the proposed development, it is important to consider the goals and requirements of each.

Mixed Residential Areas

According to the Comprehensive Plan, mixed residential areas consist of existing residential developments and lands where residential developments are proposed under general residential and medium density residential zoning districts. The following major guidelines apply.

Permitted Uses – A full range of housing types is permitted (e.g. single-family, townhomes, multi-family units). Non-residential development is not encouraged.

Density – Maximum of four homes/acre for single-family detached to a maximum of 12 dwellings/acre for multi-family housing.

Infrastructure – Central water and sewer are strongly encouraged. Otherwise, density should be limited to two units/acre.

Environmentally Sensitive Developing Areas

Based on the Comprehensive Plan, this designation acknowledges that these areas are part of the County’s future growth zone; however, special scrutiny should be applied to spending decisions and development proposals to ensure these activities are consistent with state and local development and preservation policies. In these areas, there is a need to protect natural areas and

mitigate roadway congestion without hindering tourism and real estate markets. The following major guidelines apply.

Permitted Uses – A range of development types can occur as long as special environmental concerns are addressed. A range of housing types, retail, and office uses are appropriate. Large retail and office parks should have access to arterial roads. A careful mixture of homes with light industrial/commercial uses can be appropriate to allow for convenient services and reduce sprawl. Major industrial uses are not appropriate.

Densities – Density is typically controlled by the underlying zoning district.

Infrastructure – Central water and sewer facilities are strongly encouraged. Otherwise, density should be limited to two units/acre.

Proposed Development’s Compatibility with Comprehensive Plan: Due to the multiple Future Land Use designations that cover the lands in question, it is challenging to say definitively if the proposed development complies with the Sussex County Comprehensive Plan. Non-residential development is not encouraged in mixed residential areas. Thus, medical-dental office space may be discouraged. However, the proposed uses appear to be generally compliant with environmentally sensitive developing areas. It is noted that a special use exception for the assisted living facility (“Tranquility at Breakwater”) has been approved by the County. However, the medical-dental office space has not yet been approved. Further discussion with County officials will be needed to determine if the medical-dental office space is compliant with the Comprehensive Plan. The 2018 Comprehensive Plan Update should also be referenced once it is certified by the Governor of the State of Delaware.

As noted above, a special use exception has been approved for the assisted living facility to be constructed on AR-1 (Agricultural Residential) zoning. The developer is seeking to rezone a portion of parcel 335-8.00-29.00 to C-2 (Medium Commercial); further coordination with Sussex County is required, as it appears this rezoning has not yet been approved.

Relevant Projects in the DelDOT Capital Transportation Program

Currently, there are five DelDOT projects within the study area. The first project is Realignment of Old Orchard Road at Wescoats Corner (State Project No. T201609601). This involves realigning Old Orchard Road to intersect Savannah Road opposite Wescoats Road and signaling that intersection. This project will also include pedestrian and bicycle facilities, and will affect traffic volumes at several study area intersections; the associated traffic volume redistributions were considered in the TIS. This project is currently in the preliminary design phase. Construction is anticipated to begin in the spring of 2022.

The second project is the SR 1, Minos Conaway Road Grade Separated Intersection (State Project No. T201612501). This project will construct two service roads along both sides of Delaware Route 1 and will provide grade-separated access under Delaware Route 1 at the existing bridges over the former Delaware Coast Line Railroad. The project will serve to separate through movements on Delaware Route 1 from turning movements to/from Minos Conaway Road, Nassau

Road and Old Mill Road. These modifications are intended to maintain capacity of Delaware Route 1 and improve safety at several unsignalized intersections, while improving mobility and access for local traffic. This project will include improvements and turning movement restrictions at several study area intersections, thereby affecting future traffic volumes; the associated traffic volume redistributions were considered in the TIS. This project is currently in the preliminary design phase, and public involvement is ongoing. Construction is anticipated to begin in the spring of 2023.

The third project is the Kings Highway, Dartmouth Drive to Freeman Highway project. The proposed improvements of this project include providing two lanes in each direction, additional capacity/intersection improvements, sidewalks and multi-use paths. Preliminary engineering is not anticipated to begin until at least 2023 (after full buildout of the proposed Orchard Plaza development).

The fourth project is the Georgetown to Lewes Pathway. This project is converting a former railroad corridor to a shared-use path. Phase II was completed in early 2019, extending the trail west from Savannah Road past the Old Orchard site and under Delaware Route 1 to Minos Conaway Road. This project will enhance bicycle and pedestrian travel in the study area, but is not expected to have a significant impact on vehicular traffic volumes. Once complete, this 10-foot wide paved trail will be 17 miles in length and will provide a safe non-motorized connection from Georgetown to Lewes.

The fifth project is Plantation Road Improvements, Robinsonville Road to US 9 (Phase 1) (State Project No. T201111201). The project proposes to provide intersection safety improvements, pedestrian/bicycle improvements and realignment of the Plantation Road/Beaver Dam Road/US Route 9 intersection (including changes at the US Route 9 & US Route 9 Connector intersection that is in the Orchard Plaza TIS study area). This area was identified as a high priority due to high development growth in the corridor over the last several years. The purpose is to preserve mobility for local residents and businesses while providing roadway improvements along Plantation Road to reduce congestion, improve safety, and accommodate anticipated growth in local and seasonal traffic. This project is currently in the design and planning phase, and public involvement is ongoing. Construction is anticipated to begin in 2021.

There are also two active DelDOT studies in the area. The first is the Five Points Transportation Study, which examines potential transportation improvements to reduce congestion and improve capacity in the area surrounding the intersection of US Route 9 and Delaware Route 1. This study established a Five Points Working Group, which meets with members of the public on a quarterly basis. Phase 1 of the study, which was completed in 2018, engaged the community to help develop conceptual improvement alternatives, identify traffic patterns and problems in the area, and make/prioritize recommendations to improve capacity on Delaware Route 1 and move local traffic within the area without having to utilize Delaware Route 1 for every trip. This effort resulted in a number of recommendations that were advanced to Phase 2 of the study, which is currently ongoing and is focused on implementation. The Five Points Transportation Study Working Group will continue to meet and coordinate with DelDOT, Sussex County, stakeholders, and members of the public to facilitate refinement of recommendations and make progress on the implementation plan for specific improvements, many of which are being incorporated into projects.

Regarding the second study, the proposed development lies just outside the boundary of the Henlopen Transportation Improvement District (TID) as presently contemplated by Sussex County and DelDOT. A TID is a planning concept that seeks to proactively align transportation infrastructure spending and improvements with land use projections and future development within the designated district. One intersection within the Orchard Plaza TIS study area (US Route 9 & Minos Conaway Road) is also located within the contemplated boundary of the Henlopen TID.

Further, it is recognized that New Road, Savannah Road, Dartmouth Drive, and Kings Highway are all parts of the Lewes Scenic and Historic Byway, which falls under the Delaware Byways Program. The goals of the Byways Program include the identification, promotion, preservation and enhancement of Delaware roadways with at least one of the following intrinsic characteristics: scenic, historic, natural, cultural, recreational and archaeological. The Lewes Scenic and Historic Byway includes a Corridor Management Plan (CMP) that has been and should be used to guide development of transportation improvements and mitigation of traffic impacts along these roadways. From the CMP, two Corridor Master Plans were developed: one in 2016 for Kings Highway and Gills Neck Road and the other in 2019 for New Road. Many elements of these master plans have been and will continue to be incorporated into the Five Points Transportation Study, nearby DelDOT projects considered in the Orchard Plaza TIS and described within this letter, and in the recommendation items of this letter.

Trip Generation

Trip generation for the proposed development was computed using comparable land uses and equations contained in Trip Generation, Tenth Edition, published by the Institute of Transportation Engineers (ITE). The following land uses were utilized to estimate the amount of new traffic generated for this development:

- 55,000 square feet medical-dental office (ITE Land Use Code 720)
- 75,000 square feet assisted living (ITE Land Use Code 254)
- 23 multi-family residential units (ITE Land Use Code 220)

Table 1
ORCHARD PLAZA PEAK HOUR TRIP GENERATION

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
55,000 SF medical-dental office	102	29	131	53	135	188
75,000 SF assisted living	23	6	29	11	25	36
23 multi-family residential units	3	9	12	10	6	16
TOTAL TRIPS	128	44	172	74	166	240

Table 2
ORCHARD PLAZA DAILY TRIP GENERATION

Land Use	Weekday Daily		
	In	Out	Total
55,000 SF medical-dental office	1,012	1,012	2,025
75,000 SF assisted living	157	157	314
23 multi-family residential units	66	66	133
TOTAL TRIPS	1,235	1,235	2,472

Overview of TIS

Intersections examined:

- 1) Old Orchard Road & Site Access A
- 2) Old Orchard Road & Peach Tree Lane / Future Oyster Cove Access
- 3) Old Orchard Road & New Road (Sussex Road 266)
- 4) New Road & Nassau Road (Sussex Road 266B)
- 5) Delaware Route 1 & Nassau Road (north leg)
- 6) Old Orchard Road & Parker Run/E Chesapeake Street
- 7) Old Orchard Road & Savannah Road (Sussex Road 18)
- 8) US Route 9 & Delaware Route 1
- 9) US Route 9 & US Route 9 Connector (Sussex Road 18A)
- 10) US Route 9 & Sheffield Drive
- 11) US Route 9 & Minos Conaway Road (Sussex Road 265)/Lakeview Boulevard
- 12) Delaware Route 1 & Wescotts Road (Sussex Road 12)
- 13) Delaware Route 1 & Dartmouth Drive (Sussex Road 268A)
- 14) Delaware Route 1 & Kings Highway (Sussex Road 268)

Conditions examined:

- 1) 2018 existing (Case 1)
- 2) 2021 without development (Case 2)
- 3) 2021 with development (Case 3)

Peak hours evaluated: Weekday AM and PM peak hours

Committed developments considered:

- Mitchell Farm (206,500 SF medical-dental office, 150 single-family detached homes, 72 multi-family mid-rise homes)
- Groome Church Property (295 single-family homes)
- Beebe Medical (175-unit continuing care retirement, 216 multi-family mid-rise homes)
- Showfield (298 single-family detached homes: 129 units proposed in the City of Lewes, 169 units recorded in Sussex County of which 10 units were built as of 5/15/2018)
- Cape Henlopen High School Expansion (400 students)
- Oyster Cove (now planned as 24 senior-adult detached homes; analysis in TIS assumed 100 units as was planned when the TIS was prepared)

Intersection Descriptions

1) Old Orchard Road & Site Access A

Type of Control: Proposed one-way stop (T-intersection)

Eastbound Approach: (Old Orchard Road) proposed one left-turn lane and one through lane

Westbound Approach: (Old Orchard Road) proposed one through lane and one right-turn lane

Southbound Approach: (Site Access A) proposed one left-turn lane and one right-turn lane, stop control

2) Old Orchard Road & Peach Tree Lane / Future Oyster Cove Access

Type of Control: Two-way stop control

Eastbound Approach: (Old Orchard Road) one shared left/through/right-turn lane

Westbound Approach: (Old Orchard Road) one shared left-turn/through lane and one right-turn lane

Northbound Approach: (Peach Tree Lane) one shared left/through/right-turn lane, stop control

Southbound Approach: (Future Oyster Cove Access) one shared left/through/right-turn lane, stop control

Although Future Oyster Cove Access was already constructed as of June 2019, movements to/from the site were not open to the public during 2018 existing conditions.

3) Old Orchard Road & New Road

Type of Control: one-way stop (T-intersection)

Westbound Approach: (Old Orchard Road) one shared left-turn/right-turn lane, stop control

Northbound Approach: (New Road) one shared through/right-turn lane

Southbound Approach: (New Road) one shared left-turn/through lane

4) New Road & Nassau Road

Type of Control: one-way stop (T-intersection)

Eastbound Approach: (Nassau Road) one shared left-turn/through lane

Westbound Approach: (Nassau Road) one shared through/right-turn lane

Southbound Approach: (New Road) one shared left-turn/right-turn lane, stop control

5) Delaware Route 1 & Nassau Road (north leg)

Type of Control: two-way stop

Eastbound Approach: (Delaware Route 1 crossover) one shared left-turn/through lane, stop control

Westbound Approach: (Nassau Road) one shared through/right-turn lane, stop control

Northbound Approach: (Delaware Route 1) one left-turn lane, two through lanes, and one right-turn lane

6) Old Orchard Road & Parker Run/E Chesapeake Street

Type of Control: two-way stop

Eastbound Approach: (Old Orchard Road) one shared left-turn/through/right-turn lane

Westbound Approach: (Old Orchard Road) one shared left-turn/through/right-turn lane

Northbound Approach: (E Chesapeake Street) one shared left-turn/through/right-turn lane, stop control

Southbound Approach: (Parker Run) one shared left-turn/through/right-turn lane, stop control

7) Old Orchard Road & Savannah Road

Type of Control: existing two-way stop; DelDOT realignment project will eliminate eastbound approach and convert westbound approach to right-in/right-out

Eastbound Approach: (Old Orchard Road) one shared left-turn/through lane and one channelized right-turn lane, stop control

Westbound Approach: (Retail Driveway) one shared left-turn/through lane and one right-turn lane, stop control

Northbound Approach: (Savannah Road) one left-turn lane, one through lane, and one channelized right-turn lane

Southbound Approach: (Savannah Road) one left-turn lane, one through lane, and one right-turn lane

8) US Route 9 & Delaware Route 1

Type of Control: signalized

Eastbound Approach: (Delaware Route 1) two left-turn lanes, three through lanes, and one channelized right-turn lane

Westbound Approach: (Delaware Route 1) two left-turn lanes, two through lanes, and one channelized right-turn lane

Northbound Approach: (US Route 9) two through lanes and one channelized right-turn lane

Southbound Approach: (Business US Route 9) two through lanes and one channelized right-turn lane

9) US Route 9 & US Route 9 Connector

Type of Control: signalized

Eastbound Approach: (US Route 9) one left-turn lane, one through lane, and one right-turn lane

Westbound Approach: (US Route 9) one left-turn lane and one shared through/right-turn lane

Northbound Approach: (US Route 9 Connector) one left-turn lane, one through lane, and one right-turn lane

Southbound Approach: (Retail Driveway) one shared left-turn/through lane and one right-turn lane

10) US Route 9 & Sheffield Drive

Type of Control: one-way stop (T-intersection)

Eastbound Approach: (US Route 9) one shared left-turn/through lane and one bypass lane

Westbound Approach: (US Route 9) one through lane and one right-turn lane

Southbound Approach: (Sheffield Drive) one shared left-turn/right-turn lane, stop control

11) US Route 9 & Minos Conaway Road/Lakeview Boulevard

Type of Control: two-way stop

Eastbound Approach: (US Route 9) one left-turn lane, one through lane, one bicycle lane, and one right-turn lane

Westbound Approach: (US Route 9) one left-turn lane, one through lane, and one right-turn lane

Northbound Approach: (Lakeview Boulevard) one shared left-turn/through/right-turn lane, stop control

Southbound Approach: (Minos Conaway Road) one shared left-turn/through/right-turn lane, stop control

12) Delaware Route 1 & Wescoats Road

Type of Control: signalized

Eastbound Approach: (Delaware Route 1) one left-turn lane, three through lanes

Westbound Approach: (Delaware Route 1) one left-turn lane, and three through lanes

Southbound Approach: (Wescoats Road) two left-turn lanes, and one channelized right-turn lane.

13) Delaware Route 1 & Dartmouth Drive

Type of Control: signalized

Eastbound Approach: (Delaware Route 1) one left-turn lane, three through lanes, and one right-turn lane

Westbound Approach: (Delaware Route 1) two left-turn lanes, three through lanes, and one right-turn lane

Northbound Approach: (Dartmouth Drive) one left-turn lane, one shared left-turn/through lane, and one right-turn lane

Southbound Approach: (Dartmouth Drive) two left-turn lanes, one shared left-turn/through lane, and one channelized right-turn lane.

14) Delaware Route 1 & Kings Highway

Type of Control: one-way stop (T-intersection)

Westbound Approach: (Delaware Route 1) three through lanes

Southbound Approach: (Kings Highway) one right-turn lane, stop control

Safety Evaluation

Crash Data: Per current DelDOT policy, review of crash data was not conducted at this time.

Sight Distance: Based on a field visit conducted during May 2019, there are no apparent sight distance issues at the study intersections. Sight distance is also not anticipated to be a problem at the proposed site accesses. As always adequacy of available sight distance should be confirmed during the site plan review process for all proposed movements at the site accesses.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Based on the DART Bus Stop Map, the Delaware Transit Corporation (DTC) currently operates multiple fixed-route transit bus service in the area of the proposed Orchard Plaza residential development. There are eastbound and westbound stops for DART bus route 201, 204 and 206 along US Route 9 and Savannah Road. These stops do not have a bench or shelter. There are also northbound and southbound stops for DART bus route along Delaware route 201, 203, 215, and 305. The closest bus stop is 0.75 miles south of the proposed development.

No trip reductions were assumed due to transit, carpooling, or non-motorized transportation options.

Planned transit service: The TIS states that a representative from DelDOT's Local Systems Planning Section was contacted to determine requested accommodations for bicycles and pedestrians. DelDOT representative Tremica Cherry-Wall states that at this time there are no planned transit services along Old Orchard Road, however would request a pedestrian pathway along the frontage of the site property for future expansion.

Existing bicycle and pedestrian facilities: Several study area roadways are identified as "Bicycling Routes" on the *Sussex County Bicycle Map* published by DelDOT.

- Old Orchard Road
 - American Discovery Trail
- New Road
 - American Discovery Trail
- Savannah Road
 - Regional bicycle route with bikeway
 - Over 5,000 vehicles daily
 - American Discovery Trail
- Delaware Route 1
 - Connector bicycle route
 - Over 5,000 vehicles daily, challenging for cyclists
- Kings Highway
 - Connector bicycle route with bikeway
 - Over 5,000 vehicles daily

Additionally, Phase II of the Georgetown to Lewes Pathway shared-use path was recently completed, extending the trail west from Savannah Road past the Old Orchard site and under Delaware Route 1 to Minos Conaway Road.

There are no existing sidewalks or exclusive pedestrian facilities in the immediate areas of the proposed site entrances on Old Orchard Road, but DeIDOT would request pedestrian pathways along the site frontage for future expansion. Currently there is an existing bicycle lane along a portion of the site frontage. It runs along the proposed site access B right-turn lane.

Planned bicycle and pedestrian facilities: There will be a trail across the site frontage that will connect directly to the nearby Georgetown to Lewes Pathway. Once complete, this 10-foot wide trail will be 17 miles in length and will provide a safe non-motorized connection from Georgetown to Lewes.

Another project will realign Old Orchard Road to intersect Savannah Road. This will include a shared use path along a portion of Old Orchard Road. Additionally if the ROW exists, the shared use path should extend to Bradford Lane. This project is anticipated to improve safety for pedestrians and cyclists by creating new sidewalk that will extend to the northwest corner of the Orchard Plaza development.

As per the Development Coordination Manual section 3.5.4.2, shared-use path/sidewalk construction shall be required for all projects that generate a total of 2,000 Average Daily Trips (ADT) or more, and are requesting an Entrance Plan Approval (EPA) or Entrance Permit in all Investment Level Areas. Based on the trip generation for this development, shared-use path/sidewalk construction shall be required.

Per the Development Coordination Manual, the site shall dedicate right-of-way per the roadway classification and establish a 15' wide permanent easement along all property frontages. All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the Development Coordination Manual, if a right turn lane is warranted, then a 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 classification or existing conditions.

Previous Comments

In a review letter dated December 26, 2018, DeIDOT indicated that the Preliminary TIS was acceptable as submitted with a few minor exceptions.

It appears that all substantive comments from DeIDOT's TIS Scoping Memorandum, Traffic Count Review, Preliminary TIS Review, and other correspondence were addressed in the Final TIS submission.

General HCS Analysis Comments

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

- 1) Both The Traffic Group, Inc. and McCormick Taylor utilized Highway Capacity Software (HCS) version 7.8 to complete the traffic analyses.
- 2) As per HCM methodologies, The Traffic Group and McCormick Taylor applied percent heavy vehicles (HV) by movement at two-way stop control and roundabout intersections, HV by lane at all-way stop control intersections, and HV by lane group at signalized intersections. In general, existing HV were applied to future conditions as well. For new intersections, 3% was assumed as per the DelDOT Development Coordination Manual section 2.2.8.11.6.H.
- 3) For existing conditions, the TIS and McCormick Taylor determined overall intersection peak hour factors (PHF) for each intersection based on the turning movement counts. Future PHFs were determined as per the DelDOT Development Coordination Manual section 2.2.8.11.6.F.
- 4) For analyses of signalized intersections, The Traffic Group, Inc. and McCormick Taylor used a base saturation flow rate of 1,750 pc/hr/lane per DelDOT's Development Coordination Manual section 2.2.8.11.6.I.
- 5) The TIS and McCormick Taylor used different signal timings and Arrival Type settings when analyzing the signalized intersections in some cases. The exact signal timings to be implemented are currently being developed.
- 6) McCormick Taylor used field-measured roadway grades in all analyses. It appears that The Traffic Group, Inc. assumed 0% roadway grades throughout the study area.

Table 3
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ¹ One-Way Stop (T-Intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Old Orchard Road & Site Access A				
2021 with Orchard Plaza (Case 3)				
Eastbound Old Orchard Road – Left	A (7.9)	A (8.1)	A (7.8)	A (8.1)
Southbound Site Access A – Left	B (12.9)	C (15.8)	B (12.9)	C (15.9)
Southbound Site Access A – Right	A (9.3)	B (10.2)	A (9.3)	B (10.3)

¹ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 4
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ² Two-Way Stop	LOS per TIS		LOS per McCormick Taylor ³	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Old Orchard Road & Peach Tree Lane / Future Oyster Cove Acc.				
2018 Existing (Case 1)				
Eastbound Old Orchard Road - Left	-	-	-	-
Westbound Old Orchard Road - Left	A (7.5)	A (7.5)	A (7.5)	A (7.6)
Northbound Peach Tree Lane	A (9.2)	A (9.0)	A (9.3)	A (9.1)
Southbound Oyster Cove Access	-	-	-	-
2021 without Orchard Plaza (Case 2)				
Eastbound Old Orchard Road - Left	A (7.6)	A (7.8)	A (7.7)	A (7.9)
Westbound Old Orchard Road - Left	A (7.7)	A (7.6)	A (7.7)	A (7.8)
Northbound Peach Tree Lane	A (9.8)	A (9.4)	A (10.0)	A (9.6)
Southbound Oyster Cove Access	B (11.4)	B (12.2)	A (12.0)	B (13.1)
2021 with Orchard Plaza (Case 3)				
Eastbound Old Orchard Road - Left	A (7.6)	A (7.9)	A (7.7)	A (8.0)
Westbound Old Orchard Road - Left	A (7.8)	A (7.7)	A (7.8)	A (7.8)
Northbound Peach Tree Lane	B (10.1)	A (9.5)	B (10.1)	A (9.6)
Southbound Oyster Cove Access	B (11.9)	B (13.0)	B (12.1)	B (13.4)
2021 with Orchard Plaza (Case 3) with Improvement Option 1 ⁴				
Eastbound Old Orchard Road - Left	-	-	A (7.6)	A (8.0)
Westbound Old Orchard Road - Left	-	-	A (7.8)	A (7.8)
Northbound Peach Tree Lane	-	-	B (10.1)	A (9.6)
Southbound Oyster Cove Access	-	-	B (12.1)	B (13.4)

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

³ McCormick Taylor analysis includes separate right-turn lanes on the Old Orchard Road approaches, reflecting the actual configuration based on field view. The TIS analyzed these approaches as shared lanes.

⁴ Improvement Option 1 includes addition of a separate left-turn lane on the eastbound Old Orchard Road approach.

Table 5
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study – May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ⁵ One-Way Stop (T-Intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Old Orchard Road & New Road				
2018 Existing (Case 1)				
Westbound Old Orchard Road	B (11.9)	B (11.7)	B (11.7)	B (11.7)
Southbound New Road - Left	A (8.1)	A (7.8)	A (8.1)	A (7.8)
2021 without Orchard Plaza (Case 2)				
Westbound Old Orchard Road	C (15.6)	C (17.7)	B (15.0)	C (17.5)
Southbound New Road - Left	A (8.5)	A (8.3)	A (8.5)	A (8.3)
2021 with Orchard Plaza (Case 3)				
Westbound Old Orchard Road	C (17.4)	C (23.4)	C (16.5)	C (22.9)
Southbound New Road - Left	A (8.6)	A (8.4)	A (8.6)	A (8.3)

⁵ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 6
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ⁶ One-Way Stop (T-Intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
New Road & Nassau Road				
2018 Existing (Case 1)				
Eastbound Nassau Road - Left	A (7.8)	A (7.5)	A (8.0)	A (7.6)
Southbound New Road	B (10.2)	B (10.1)	B (10.5)	B (10.7)
2021 without Orchard Plaza (Case 2)				
Eastbound Nassau Road - Left	A (8.0)	A (7.8)	A (8.0)	A (7.9)
Southbound New Road	B (13.3)	B (12.2)	B (13.3)	B (13.0)
2021 with Orchard Plaza (Case 3)				
Eastbound Nassau Road - Left	A (8.1)	A (7.8)	A (7.7)	A (7.7)
Southbound New Road	B (14.0)	B (12.6)	B (13.9)	B (13.7)

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

Table 7
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ^{7,8,9} Two-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Delaware Route 1 & Nassau Road (north leg)				
2018 Existing (Case 1)				
Southbound DE 1 - Left	B (11.6)	C (16.6)	B (11.7)	C (17.0)
Westbound Nassau Road - Left	D (33.1)	E (41.1)	D (33.1)	E (41.7)
2021 without Orchard Plaza (Case 2)				
Southbound DE 1 - Left	B (13.1)	C (24.9)	B (13.2)	D (25.9)
Westbound Nassau Road - Left	E (42.2)	F (63.0)	E (42.4)	F (65.1)
2021 with Orchard Plaza (Case 3)				
Southbound DE 1 - Left	B (13.6)	D (26.5)	B (13.8)	D (27.7)
Westbound Nassau Road - Left	E (46.2)	F (67.6)	E (46.4)	F (70.2)

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

⁸ Westbound right turns were not included in analysis of this intersection; assumed to merge to northbound Delaware Route 1 north of this intersection.

⁹ This at-grade intersection would be removed by DelDOT's proposed SR 1, Minos Conaway Grade Separated Intersection project.

Table 8
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ¹⁰ Two-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Old Orchard Road & Parker Run / E. Chesapeake Street				
2018 Existing (Case 1)				
Eastbound Old Orchard Road - Left	A (7.4)	A (7.5)	A (7.5)	A (7.7)
Westbound Old Orchard Road - Left	A (7.5)	A (7.5)	A (7.6)	A (7.6)
Northbound Chesapeake Street	B (10.4)	B (10.6)	B (10.7)	B (11.3)
Southbound Parker Run	A (9.9)	B (10.6)	B (10.2)	B (11.0)
2021 without Orchard Plaza (Case 2)				
Eastbound Old Orchard Road - Left	A (7.5)	A (7.8)	A (7.6)	A (7.9)
Northbound Summit Bridge Road - Left	A (7.8)	A (7.7)	A (7.9)	A (7.8)
Northbound Chesapeake Street	B (11.5)	B (12.5)	B (12.0)	B (13.8)
Southbound Parker Run	B (10.7)	B (12.1)	B (10.9)	B (13.0)
2021 with Orchard Plaza (Case 3)				
Eastbound Old Orchard Road - Left	A (7.8)	A (7.9)	A (7.8)	A (8.1)
Northbound Summit Bridge Road - Left	A (7.8)	A (8.0)	A (8.0)	A (8.2)
Northbound Chesapeake Street	B (12.8)	C (14.8)	B (13.5)	C (17.4)
Southbound Parker Run	B (11.9)	C (13.8)	B (12.1)	C (15.5)

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

Table 9
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ¹¹ Two-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Old Orchard Road & Savannah Road				
2018 Existing (Case 1)				
Eastbound Old Orchard Road - Left/Through	F (71.3)	F (100.8)	F (52.2)	F (110.3)
Eastbound Old Orchard Road – Right	B (10.9)	C (15.1)	B (10.5)	B (15.0)
Westbound Old Orchard Road - Left/Through	E (38.6)	F (86.1)	E (36.1)	F (108.0)
Westbound Old Orchard Road – Right	B (13.9)	B (12.3)	B (13.6)	B (12.5)
Northbound Savannah Road - Left	A (8.5)	A (10.0)	A (8.4)	A (9.9)
Southbound Savannah Road – Left	A (9.3)	A (8.8)	A (9.2)	A (8.9)
2021 without Orchard Plaza (Case 2) (With Intersection Realignment - Signalized)	C (20.8)	C (26.2)	C (29.4)	D (36.7)
2021 with Orchard Plaza (Case 3) (With Intersection Realignment - Signalized)	C (22.8)	C (30.1)	C (31.2)	C (39.3)

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

Table 10
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study – May 2019
Prepared by The Traffic Group, Inc.

Signalized Intersection ¹²	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
US Route 9 & Delaware Route 1				
2018 Existing (Case 1)	D (42.2)	D (49.9)	D (45.9)	D (55.0-)
2021 without Orchard Plaza (Case 2)	D (46.5)	E (57.9)	D (52.5)	E (55.1)
2021 with Orchard Plaza (Case 3)	D (49.8)	E (60.7)	D (54.1)	E (58.3)
2021 with Orchard Plaza (Case 3) (With optimized splits)	-	D (51.0)	D (36.5)	D (45.4)

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

Table 11
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Signalized Intersection ¹³	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
US Route 9 & US Route 9 Connector				
2018 Existing (Case 1)	C (21.0)	B (16.0)	C (21.4)	C (20.3)
2021 without Orchard Plaza (Case 2)	C (21.2)	B (17.4)	C (23.0)	C (25.2)
2021 with Orchard Plaza (Case 3)	C (21.6)	B (17.7)	C (23.9)	C (27.1)

¹³ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 12
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ¹⁴ One-Way Stop (T-Intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
US Route 9 & Sheffield Drive				
2018 Existing (Case 1)				
Eastbound US Route 9 - Left	A (8.2)	A (9.4)	A (8.3)	A (9.5)
Southbound Sheffield Drive	C (20.6)	D (29.7)	C (21.4)	D (31.3)
2021 without Orchard Plaza (Case 2)				
Eastbound US Route 9 - Left	A (8.6)	A (10.0)	A (8.7)	B (10.2)
Southbound Sheffield Drive	D (26.9)	E (46.5)	D (28.5)	E (45.0) ¹⁵
2021 with Orchard Plaza (Case 3)				
Eastbound US Route 9 - Left	A (8.6)	B (10.2)	A (8.7)	B (10.3)
Southbound Sheffield Drive	D (27.9)	F (50.0)	D (29.5)	F (51.9)
2021 with Orchard Plaza (Case 3) <i>With Improvement Option 1</i> ¹⁶				
Eastbound US Route 9 - Left	-	-	A (8.7)	B (10.3)
Southbound Sheffield Drive	-	-	D (29.0)	E (48.2)

¹⁴ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

¹⁵ The projected 95th percentile queue length is approximately 1 vehicle (25 feet).

¹⁶ Improvement Option 1 consists of adding a separate right-turn lane on the southbound approach.

Table 13
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ¹⁷ One-Way Stop (T-Intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
US Route 9 & Minos Conaway Road / Lakeview Blvd				
2018 Existing (Case 1)				
Eastbound US Route 9 - Left	A (8.5)	A (9.4)	A (8.5)	A (9.7)
Westbound US Route 9 - Left	A (9.2)	A (8.8)	A (9.4)	A (9.0)
Northbound Lakeview Boulevard	D (25.2)	E (42.4)	D (25.6)	E (40.8) ¹⁸
Southbound Minos Conaway Road	C (17.1)	C (22.9)	C (18.0)	C (24.6)
2021 without Orchard Plaza (Case 2)				
Eastbound US Route 9 - Left	A (8.9)	A (10.0)	A (8.8)	B (10.5)
Westbound US Route 9 - Left	A (9.6)	A (9.2)	A (9.9)	A (9.6)
Northbound Lakeview Boulevard	D (33.9)	F (75.6)	D (34.7) ¹⁹	F (72.1) ²⁰
Southbound Minos Conaway Road	C (24.6)	E (36.1)	D (26.8)	E (41.1) ²¹
2021 with Orchard Plaza (Case 3)				
Eastbound US Route 9 - Left	A (8.9)	B (10.2)	A (8.8)	B (10.3)
Westbound US Route 9 - Left	A (9.7)	A (9.3)	A (9.8)	A (9.4)
Northbound Lakeview Boulevard	E (35.3)	F (82.7)	E (36.2) ²²	F (78.9) ²³
Southbound Minos Conaway Road	D (26.5)	E (40.9)	D (29.1)	E (47.4) ²⁴
2021 with Orchard Plaza (Case 3) <i>With Improvement Option 1</i> ²⁵				
Eastbound US Route 9 - Left	-	-	A (8.8)	B (10.3)
Westbound US Route 9 - Left	-	-	A (9.8)	A (9.4)
Northbound Lakeview Boulevard	-	-	D (34.0)	F (74.4) ²⁶
Southbound Minos Conaway Road	-	-	C (23.3)	D (32.7) ²⁷

¹⁷ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

¹⁸ The projected 95th percentile queue length is less than 1 vehicle (25 feet).

¹⁹ The projected 95th percentile queue length is less than 1 vehicle (25 feet).

²⁰ The projected 95th percentile queue length is less than 2 vehicles (50 feet).

²¹ The projected 95th percentile queue length is less than 4 vehicles (100 feet).

²² The projected 95th percentile queue length is less than 1 vehicle (25 feet).

²³ The projected 95th percentile queue length is less than 2 vehicles (50 feet).

²⁴ The projected 95th percentile queue length is approximately 4 vehicles (100 feet).

²⁵ Improvement Option 1 includes separate right-turn lanes on the northbound and southbound approaches.

²⁶ The projected 95th percentile queue length is approximately 1 vehicle (25 feet).

²⁷ The projected 95th percentile queue length is just over 1 vehicle (25 feet).

Table 14
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - April 2019
Prepared by The Traffic Group, Inc.

Signalized Intersection ²⁸	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Delaware Route 1 & Wescoats Road				
2018 Existing (Case 1)	B (16.7)	B (17.7)	B (15.6)	C (21.4)
2021 without Orchard Plaza (Case 2)	C (21.0)	B (18.8)	B (17.1)	C (22.9)
2021 with Orchard Plaza (Case 3)	C (22.0)	C (21.9)	B (17.9)	C (25.8)

²⁸ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 15
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Signalized Intersection ²⁹	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Delaware Route 1 & Dartmouth Drive				
2018 Existing (Case 1)	C (27.6)	C (31.4)	C (30.9)	C (34.5)
2021 without Orchard Plaza (Case 2)	D (35.7)	D (44.0)	D (38.3)	D (51.0)
2021 with Orchard Plaza (Case 3)	D (35.5)	D (44.0)	D (38.5)	D (50.8)

²⁹ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 16
Peak Hour Levels of Service (LOS)
Based on Orchard Plaza Traffic Impact Study - May 2019
Prepared by The Traffic Group, Inc.

Unsignalized Intersection ³⁰ One-Way Stop (T-Intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Delaware Route 1 & Kings Highway				
2018 Existing (Case 1)				
Southbound Kings Highway - Right	B (14.0)	C (18.7)	B (14.0)	C (19.4)
2021 without Orchard Plaza (Case 2)				
Southbound Kings Highway - Right	B (14.4)	C (19.9)	B (14.4)	C (20.6)
2021 with Orchard Plaza (Case 3)				
Southbound Kings Highway - Right	B (14.7)	C (20.2)	B (14.7)	C (20.9)

³⁰ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.