



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
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DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

October 1, 2018

Mr. D.J. Hughes
Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, DE 19963

Dear Mr. Hughes:

The Department has completed its review of the TIS for the proposed **Sussex Square** commercial development. The TIS was prepared by Davis, Bowen and Friedel, Inc. (DBF), and is dated February, 2018. DBF prepared the report in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The analysis evaluates the traffic impacts of the proposed development, which would be located on the north side of US Route 9, just east of Minos Conaway Road (Sussex Road 265), in Sussex County.

The proposed development would consist of 12,500 square feet of medical / dental office space, 10,553 square feet of general office space, and 34,200 square feet of specialty retail space on an approximately 6.98-acre portion of a 60.14-acre assemblage of parcels (Tax Parcels 334-5.00-165.00 & 166.00). A 1,947 square foot office building currently exists on the site, but is proposed to be demolished and replaced with the land use listed above. Access is proposed on US Route 9 at Sheffield Drive via interconnection with the Sussex East residential development; additionally, a potential rights-out only from the proposed development, west of Sheffield Drive, is contemplated. Construction is expected to be complete in 2020.

The subject property is currently zoned as B-1 (Neighborhood Business), and the developer does not plan to rezone the land.

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

The review of the TIS shows that the following unsignalized intersections would exhibit LOS deficiencies without the implementation of physical roadway and / or traffic control improvements:

<i>Intersection</i>	<i>Existing Traffic Control</i>	<i>Situation for which deficiencies occur</i>
US Route 9 / Sheffield Drive	Unsignalized two-way stop (three-way intersection)	2017 summer Saturday mid-day peak hour (Case 1 - Existing); 2020 PM and summer Saturday mid-day peak hours with or without the subject development (Case 2 and Case 3)
US Route 9 / Minos Conaway Road / Lakeview Boulevard	Unsignalized two-way stop (four-way intersection)	2017 PM and summer Saturday mid-day peak hours (Case 1 - Existing); 2020 PM and summer Saturday mid-day peak hours with or without the subject development (Case 2 and Case 3)

The LOS deficiencies exhibited at US Route 9 / Sheffield Drive all occur on the southbound Sheffield Drive approach. The worst-case queue lengths for this approach are approximately 175 feet during the p.m. peak hour for Case 3 and 225 feet during the summer Saturday mid-day peak hour for Case 3. As US Route 9 is a high-volume roadway and considered the major street at this intersection, the delays and queue lengths for the minor-street southbound approach are not uncommon, and are reasonable given the surrounding area.

Additionally, a bypass lane exists along eastbound US Route 9 at this intersection. The *Development Coordination Manual* does not allow for bypass lanes at intersections that have 8,000 or more vehicles during an average day. Thus, we are recommending that the bypass lane be removed and replaced with a 260-foot left-turn lane with a 100-foot taper.

The LOS deficiencies exhibited at US Route 9 / Minos Conaway Road all occur on the southbound Minos Conaway Road approach and the northbound Lakeview Boulevard approach. The worst-case queue lengths for the Lakeview Boulevard approach are approximately 50 feet during the p.m. peak hour for Case 3 and 25 feet during the summer Saturday mid-day peak hour for Case 3, while for the Minos Conaway Road approach, they are approximately 200 feet during the p.m. peak hour for Case 3 and 175 feet during the summer Saturday mid-day peak hour for Case 3.

DelDOT currently has two projects and two study efforts in the area that are relevant to this intersection: the SR 1, Minos Conaway Grade-Separated Intersection project; the Georgetown to Lewes Trail project; the Henlopen Transportation Improvement District (TID) study; and the Five Points Transportation Study.

The SR 1, Minos Conaway Grade-Separated Intersection project will create a grade-separated intersection at DE Route 1 and Minos Conaway Road, potentially increasing the amount of future traffic at US Route 9 and Minos Conaway Road. Both of the study efforts are still in progress but in both efforts a signal at this intersection has been identified as a potential improvement.

Thus, we are recommending that the developer enter into a traffic signal agreement with DelDOT for the intersection of US Route 9 and Minos Conaway Road. While we are not requiring the developer to complete a traffic signal justification study or to design or construct a signal at the intersection, the signal agreement will primarily address an equitable contribution from the developer toward the installation of a signal at this intersection when DelDOT determines that that is appropriate.

The Georgetown to Lewes Trail project proposes connecting a trail from Lewes to Georgetown. Phase 1, from Gills Neck Road to Savannah Road, is completed, while Phase 2, from Savannah Road to Minos Conaway Road, is scheduled to begin construction in the Fall of 2018.

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. At the intersection of US Route 9 and Sheffield Drive, the developer should remove the existing bypass lane and install a new left-turn lane along eastbound US Route 9, while extending the existing westbound right-turn lane. The left-turn should have a storage length of 260 feet with a 100 foot taper, while the right-turn lane should be extended to provide a storage length of 400 feet with a 50 foot taper.
2. The developer should provide a bituminous concrete overlay to the existing travel lanes and right-turn lane along the US Route 9 site frontage, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer if necessary.
3. The developer should coordinate with DelDOT on the installation of guard rail along westbound US Route 9, starting on the western edge of the site entrance, such that it is placed between the utility pole and beginning of pavement along US Route 9.
4. Should the developer wish to install a right-out only access on US Route 9, west of Sheffield Drive, it shall be designed and constructed in a manner such that left-turns are prohibited. The developer should coordinate with DelDOT's Development Coordination Section to design the access in a manner acceptable to DelDOT.
5. The developer should enter into a signal agreement with DelDOT for the intersection of US Route 9 / Minos Conaway Road / Lakeview Boulevard. The agreement will cover an equitable contribution to be made by the developer towards a potential future installation of a signal at the intersection. The developer has the option to make this contribution using the Traffic Signal Revolving Fund rather than through a traditional signal agreement.

6. The following bicycle, pedestrian, and transit improvements should be included:
 - a. Adjacent to the existing right-turn lane along westbound US Route 9 at Sheffield Drive, a minimum of a four-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. The westbound US Route 9 through lane may be narrowed to 11 feet to help accommodate the bike lane.
 - b. Adjacent to the new left-turn lane along eastbound US Route 9 at Sheffield Drive, 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. The eastbound US Route 9 through lane may be narrowed to 11 feet to help accommodate the bike lane.
 - c. Appropriate bicycle symbols, directional arrows, striping (including stop bars), and signing should be included along bicycle facilities and right-turn lanes within the project limits.
 - d. Utility covers should be made flush with the pavement.
 - e. A fifteen-foot wide easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontage along US Route 9. Within the easement along US Route 9, a minimum of a ten-foot wide shared-use path that meets current AASHTO and ADA standards should be constructed along the site frontage. The shared-use path should have a minimum of a five-foot buffer from the roadway. The developer should coordinate with DelDOT's Subdivision Section to determine exact locations and details of the shared-use path connections to the shoulders.
 - f. DelDOT recommends the construction of internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative 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.
 - g. Where internal sidewalks are located alongside of parking spaces, DelDOT recommends that a buffer be added to eliminate vehicular overhang onto the sidewalk.
 - 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. The bus stop along US Route 9 at the proposed site should be made ADA-compliant with a 5' X 8' concrete pad with a connecting sidewalk.

- j. The developer should construct a connection to the Georgetown to Lewes Trail project via the Sussex East and Sussex West residential developments. The developer should contact Mr. Anthony Aglio, of DelDOT's Statewide and Regional Planning Section, in this regard. Mr. Aglio may be reached at (302) 760-2509.

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://www.deldot.gov/information/pubs_forms/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Mark Buckalew of DelDOT's Traffic Section. Mr. Buckalew can be reached at (302) 894-6353 or by email at Mark.Buckalew@state.de.us.

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 subdivision review process.

Additional details on our review of this TIS are attached. If you have any questions concerning this review, please contact me at (302) 760-2167. My email is Troy.Brestel@state.de.us.

Sincerely,



Troy Brestel
Project Engineer

TWB:tbm

Enclosures

cc with enclosures: Ms. Janelle Cornwell, Sussex County Planning & Zoning
Mr. Robert McCleary, Director, Transportation Solutions (DOTS)
Mr. Drew Boyce, Director, Planning
Mr. Mark Luszcz, Chief Traffic Engineer, Traffic, DOTS
Mr. Michael Simmons, Assistant Director, Project Development South,
DOTS
Mr. Alastair Probert, South District Engineer, DOTS
Mr. J. Marc Coté, Assistant Director, Development Coordination
Mr. T. William Brockenbrough, Jr., County Coordinator, Development
Coordination
Mr. Peter Haag, Traffic Studies Manager, Traffic, DOTS
Mr. David Dooley, Service Development Planner, Delaware Transit
Corporation
Mr. Robert Perrine, Constructability Review Engineer, DOTS
Mr. Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Mr. Stephen Sisson, Sussex County Subdivision Coordinator,
Development Coordination
Mr. Mark Buckalew, Traffic Safety Engineer, DelDOT Traffic, DOTS
Ms. Susanne Laws, Subdivision Manager, Development Coordination
Mr. Claudy Joinville, Project Engineer, Development Coordination

General Information

Report date: February 2018

Prepared by: Davis, Bowen & Friedel, Inc.

Prepared for: Colonial East, L.P.

Tax parcels: 334-5.00-165.00 & 166.00

Generally consistent with DelDOT's *Development Coordination Manual*: Yes

Project Description and Background

Description: The proposed development would consist of 12,500 square feet of medical / dental office space, 10,553 square feet of general office space, and 34,200 square feet of specialty retail space

Location: North side of US Route 9, east of Minos Conaway Road in Sussex County

Amount of land to be developed: 6.98-acre portion of a 60.14-acre assemblage of parcels

Land use approval(s) needed: DelDOT Subdivision approval and Sussex County land use approval.

Proposed completion date: 2020

Proposed access: Access is proposed US Route 9 via Sheffield Drive, and as a potential rights-out only access west of Sheffield Drive.

Daily Traffic Volumes (per DelDOT Traffic Summary 2017):

- 2017 Average Annual Daily Traffic on US Route 9: 14,696 vpd

2015 Delaware Strategies for State Policies and Spending

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed development is located within Investment Level 2 area.

Investment Level 2

Investment Level 2 Areas are areas of the state that are the most active portion of Delaware's developed landscape. Investment Level 2 Areas consist of less developed areas within municipalities, rapidly growing areas in the counties that have or will have public water or 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 serve as a transition between Investment Level 1 Areas and the state's more open, less populated areas.

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. In addition, investments should encourage a 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, it is the State's intent to use its spending and management tools to promote well-designed development in Investment Level 2 Areas.

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

Based on the above description, the proposed development generally complies with the policies stated in the "2015 Strategies for State Policies and Spending."

Comprehensive Plan

Sussex County Comprehensive Plan:

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

The Sussex County Comprehensive Plan Future Land Use Map indicates that the proposed development is located within a low density, environmentally sensitive developing area.

Based on the Sussex County Comprehensive Plan, the following major guidelines should apply to future growth in environmentally sensitive developing areas.

Permitted Uses – Retail and office uses are appropriate, but larger shopping centers and office parks should be confined to areas with access to arterial roads.

Infrastructure – Central water and sewer facilities are strongly encouraged.

Proposed Development’s Compatibility with Comprehensive Plan: Based on the above description, the proposed development generally complies with the permitted uses in the Sussex County Comprehensive Plan.

Relevant Projects in the DelDOT Capital Transportation Program

DelDOT currently has one capital project in the area, which is the SR 1, Minos Conaway Grade-Separated Intersection. This project looks to create a grade-separated intersection at Delaware Route 1 and Minos Conaway Road. The project is currently scheduled to begin in late 2018, and complete construction in 2022.

Trip Generation

Trip generation for the proposed development was determined using the 9th edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual, as well as the 2nd edition of the ITE Trip Generation Handbook.

Table 1
SUSSEX SQUARE PEAK HOUR TRIP GENERATION

Land Use	Weekday PM Peak Hour			Saturday mid-day Peak Hour		
	In	Out	Total	In	Out	Total
10,553 square feet of general office space	3	13	16	3	2	5
12,500 square feet of medical / dental office space	13	32	45	26	19	45
34,200 square feet of specialty retail space	41	52	93	72	72	144
Total	57	97	154	101	93	194
Internal Capture	9	12	21	10	11	21
External Trips	48	85	133	91	82	173
Pass-by Trips	10	10	20	16	16	32
Total Primary Trips	38	75	113	75	66	141

Table 2
SUSSEX SQUARE DAILY TRIP GENERATION

Land Use	Weekday ADT		
	In	Out	Total
10,553 square feet of general office space	119	119	238
12,500 square feet of medical / dental office space	148	148	296
34,200 square feet of specialty retail space	758	758	1516
Total Trips	1025	1025	2050

Overview of TIS

Intersections examined:

- 1) US Route 9 / Sheffield Drive
- 2) US Route 9 / Minos Conaway Road (Sussex Road 265) / Lakeview Boulevard

Conditions examined:

- 1) 2017 existing conditions (Case 1)
- 2) 2020 without development (Case 2)
- 3) 2020 with development (Case 3)

Peak hours evaluated: Weekday afternoon and summer Saturday mid-day peak hours

Committed developments considered:

- 1) Sussex West (350-unit mobile home park)
- 2) Sussex Consortium (415-student elementary school)
- 3) Red Mill Pond North (343 single-family detached houses)
- 4) Red Mill Pond South (177 townhouses)
- 5) Lewes Crossing (192 single-family detached houses)
- 6) Vineyards at Nassau Valley (170 townhouses, 23,500 square feet of general office space, 150,000 square feet of shopping center space, 20,000 square feet of high-turnover sit-down restaurant space)

Intersection Descriptions

1) **US Route 9 / Sheffield Drive**

Type of Control: existing two-way stop-controlled (T-intersection)

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

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

Westbound approach: (US Route 9) one through lane, one right-turn lane

2) **US Route 9 / Minos Conaway Road / Lakeview Boulevard**

Type of Control: existing two-way stop-controlled (four-way intersection)

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

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

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

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

Safety Evaluation

Crash Data: Crash data was obtained from February 22, 2014 to February 22, 2017 for each of the two study intersections for the proposed development. The crash data requests returned a total of 9 reportable crashes, which include 2 personal injury crashes and no fatalities. One of the crashes was alcohol-related. The data indicate that the most common types of crashes were rear-end crashes, mostly caused by driver distraction / inattention and following too close.

All of the crashes occurred during daylight hours, and the surface, lighting, or weather conditions were not primary contributing factors. The data do not indicate any major crash trends and no additional safety improvements are recommended at this time as a result of the crash data analysis.

- US Route 9 / Sheffield Drive
 - 3 crash reported (3 property damage, no personal injury)
- US Route 9 / Minos Conaway Road / Lakeview Boulevard
 - 6 crashes reported (6 property damage, 2 personal injury)

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: The Delaware Transit Corporation (DTC) currently has one service route within the project area, which is Route 206 – Georgetown / Lewes / Rehoboth.

Planned transit service: At the time of the TIS, the DTC indicated that at the time, no additional service is contemplated beyond the existing service.

Existing bicycle and pedestrian facilities: According to DelDOT's Sussex County Bicycle Map (dated 2012), US Route 9 is classified as a Regional Bicycle Route with separate bikeway, while Minos Conaway Road is part of the American Discovery Trail.

Planned bicycle and pedestrian facilities: DelDOT's Statewide & Regional Planning Section provided comments regarding planned or requested bicycle and pedestrian facilities in the study area of this proposed development. The following comments were provided:

- Install a four-foot wide bicycle lane along westbound US Route 9.

Previous Comments

All comments from DelDOT's Scoping Letter, Traffic Count Review, and Preliminary TIS (PTIS) Review were addressed in the Final TIS submission.

General HCS Analysis Comments

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

There are no general differences between the TIS and DelDOT's review of it.

Table 3
 PEAK HOUR LEVELS OF SERVICE (LOS)
based on the Traffic Impact Study for Sussex Square
Report dated February 2018
 Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹ Two-Way Stop Control	LOS per TIS		LOS per DeIDOT	
	Weekday PM	Summer Saturday mid-day	Weekday PM	Summer Saturday mid-day
US Route 9 / Sheffield Drive				
2017 Existing (Case 1)				
Eastbound US Route 9 Left-Turn	A (9.7)	A (9.0)	A (9.7)	A (9.0)
Southbound Sheffield Drive	E (39.3)	E (46.9)	D (33.1)	E (38.2)
2020 without development (Case 2)				
Eastbound US Route 9 Left-Turn	B (10.6)	A (9.8)	B (10.7)	A (9.2)
Southbound Sheffield Drive	F (77.9)	F (105.5)	F (59.5)	F (76.4)
2018 with development (Case 3)				
Eastbound US Route 9 Left-Turn	B (11.1)	B (10.3)	B (11.1)	B (10.3)
Southbound Sheffield Drive	F (284.7)	F (417.3)	F (182.3)	F (275.7)

¹ The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 4
 PEAK HOUR LEVELS OF SERVICE (LOS)
based on the Traffic Impact Study for Sussex Square
Report dated February 2018
 Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹ Two-Way Stop Control	LOS per TIS		LOS per DelDOT	
	Weekday PM	Summer Saturday mid-day	Weekday PM	Summer Saturday mid-day
US Route 9 / Minos Conaway Road / Lakeview Boulevard				
2017 Existing (Case 1)				
Eastbound US Route 9 Left-Turn	A (10.0)	A (9.1)	A (10.0)	A (9.1)
Westbound US Route 9 Left-Turn	A (8.9)	A (9.2)	A (8.9)	A (9.2)
Northbound Lakeview Boulevard ²	F (58.1)	D (26.6)	F (50.9)	C (25.0)
Southbound Minos Conaway Road ³	F (62.7)	F (61.8)	E (48.3)	E (48.7)
2020 without development (Case 2)				
Eastbound US Route 9 Left-Turn	B (11.2)	B (10.0)	B (11.2)	A (9.9)
Westbound US Route 9 Left-Turn	A (9.6)	A (9.9)	A (9.6)	A (9.9)
Northbound Lakeview Boulevard ²	F (174.6)	E (45.5)	F (130.2)	E (40.8)
Southbound Minos Conaway Road ³	F (242.4)	F (214.6)	F (158.1)	F (144.7)
2020 with development (Case 3)				
Eastbound US Route 9 Left-Turn	B (11.5)	B (10.1)	B (11.5)	B (10.1)
Westbound US Route 9 Left-Turn	A (9.6)	B (10.1)	A (9.7)	B (10.0)
Northbound Lakeview Boulevard ²	F (199.6)	E (48.3)	F (148.0)	E (43.9)
Southbound Minos Conaway Road ³	F (364.4)	F (375.3)	F (246.5)	F (249.7)

¹ The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

² In the analysis, DelDOT did not modify the heavy vehicle percentages due to small increases in projected future volume.

³ In the analysis, DelDOT did not modify the heavy vehicle percentages due to small increases in projected future volume.