



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

NICOLE MAJESKI
SECRETARY

April 5, 2022

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

Dear Mr. Hughes,

The enclosed Traffic Impact Study (TIS) review letter for the **Sussex Central Campus** (Tax Parcel: 133-11.00-105.00) 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) 760-2124.

Sincerely,

Claudy Joinville
Project Engineer

CJ:km

Enclosures

cc with enclosures: Mr. Joseph Booth, Indian River School District
Mr. Zac Crouch, Davis Bowen & Friedel, Inc.
Mr. Brian Williams, ABHA Architects, Inc.
Mr. Tim Skibicki, Buck Simperts Architect + Associates, Inc. (BSA+A)
Mr. Jamie Whitehouse, Sussex County Planning & Zoning
Mr. Andrew Parker, McCormick & Taylor, Inc.
DelDOT Distribution

DelDOT Distribution

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



April 5, 2022

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

RE: Agreement No. 1946F
Traffic Impact Study Services
Task No. 3A Subtask 01 – Sussex Central Campus

Dear Mr. Joinville:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Sussex Central Campus of the Indian River School District (IRSD) campus expansion prepared by Davis, Bowen & Friedel, Inc. dated November 2021 and updated January 2022. Davis, Bowen & Friedel prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the proposed Sussex Central Campus development, to be located along the northwest corner of the intersection of Patriots Way (Sussex Road 318) and Avenue of Honor (Sussex Road 86), in Sussex County, Delaware. The proposed campus expansion would consist of an 850-student middle school and a 2,200-student high school, which would replace the existing 1,661-student high school. Three unsignalized access points exist today: two full-movement access driveways and one one-way entrance on Patriots Way. The middle access opposite the proposed Howard T. Ennis School site access is proposed to be converted to full movement. The southern access is proposed to be relocated just south of the stormwater management pond. A fourth full-movement access is proposed on Avenue of Honor. Construction is anticipated to be completed in 2024.

The subject land is located on an approximately 154.63-acre parcel. The subject land is currently zoned I-1 (Institutional). IRSD does not plan to rezone the land.

Currently there are three DelDOT projects within the study area.

The first is the *North Millsboro Bypass, US 113 to SR 24 Project*, which was one of several projects initiated by the US 113 North/South Study. The project is just to the south of the Sussex Central Campus study area. It will improve safety and reduce congestion within the Millsboro area by creating a grade-separated intersection at US Route 113 and Delaware Route 20 (Hardscrabble Road) and constructing a two-lane connector road from US Route 113 at Delaware Route 20 to the east of Millsboro connecting with Delaware Route 24. Construction is not anticipated for completion until at least 2025, and the TIS did not consider any revised travel patterns as the project will not be constructed until after the proposed Sussex Central Campus is completed.

Second, at the intersection of US Route 113 and Avenue of Honor, DelDOT plans to install a signal to improve safety and reduce congestion by converting the existing two-way stop-controlled intersection to a signalized intersection. The signal is expected to be operational in 2023 or 2024, prior to completion of the Sussex Central Campus.

As for the third project, DelDOT has longer-term plans to construct a grade-separated intersection at US Route 113 and Avenue of Honor, in the process removing the future traffic signal referenced in the previous paragraph. The grade-separated intersection would not be constructed until sometime after 2030. The plans for the grade-separated intersection also incorporate the nearby intersection of US Route 113 and Piney Grove Road, converting that to a grade-separated intersection as well. As construction is not anticipated until well after the 2024 build out date of the Sussex Central Campus, this project was not accounted for in this TIS.

Two intersections in the TIS study area are subject to the Corridor Capacity Preservation Program (CCPP), a statewide program intended to sustain the through capacity of adopted highway corridors by various means such as limiting access points and using service roads for local vehicle trips. The general purpose of the program is to ensure that existing principal arterial roadways, including this section of US Route 113, are able to efficiently carry regional traffic without impedance from the effects of local development. The Sussex Central Campus will not have any direct access on US Route 113, and no CCPP related projects are scheduled for construction until after the build out year of the Sussex Central Campus.

It is also noted that DelDOT recently completed safety improvement projects in 2020 at three study area intersections: Patriots Way and Peterkins Road, Zoar Road and Patriots Way / Cedar Lane, and Zoar Road and Peterkins Road. The recent intersection modifications are reflected in the 2021 existing and 2024 future conditions of the TIS, with current configurations described in this review letter on page 16.

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>
Patriots Way and Site Access A	Unsignalized	2021 existing AM (Case 1); 2024 with development AM (Case 3)
Zoar Road and Patriots Way / Cedar Lane	Unsignalized	2021 existing AM (Case 1); 2024 with development AM (Case 3)
Zoar Road and Gov. Stockley Road	Unsignalized	2024 with development AM (Case 3)
Zoar Road and Peterkins Road	Unsignalized	2021 existing AM (Case 1); 2024 without development AM & PM (Case 2); 2024 with development AM & PM (Case 3)

Zoar Road and Morris Mill Road	Unsignalized	2021 existing AM & PM (Case 1); 2024 without development AM (Case 2); 2024 with development AM & PM (Case 3)
Patriots Way and Avenue of Honor / Stockley Access	Unsignalized	2021 existing AM (Case 1); 2024 with development AM (Case 3)
US Route 113 and Avenue of Honor	Unsignalized	2021 existing AM & PM (Case 1); 2024 without development AM & PM (Case 2); 2024 with development AM & PM (Case 3)

Site Entrance A and Patriots Way

This unsignalized intersection experiences LOS deficiencies on the eastbound Site Entrance A approach. This LOS deficiency occurs in the AM peak hour for both the 2021 existing condition and the 2024 condition with the proposed development. In order to mitigate this situation, the developer should stripe the existing right-turn/left-turn egress driveway such that there are exclusive right-turn and left-turn lanes exiting the proposed site. Given that the existing egress driveway is 36 feet wide, there is ample room to accommodate exclusive right-turn and left-turn lanes as described below in Item No. 2. Also, the existing left-turn lane on northbound Patriots Way at Site Entrance A will be modified as needed to accommodate the planned mid-block pedestrian crossing and refuge island on Patriots Way to be located south of Site Entrance A.

Zoar Road at Patriots Way/Cedar Lane

This unsignalized, skewed intersection experiences LOS deficiencies on the southbound Cedar Lane approach. This LOS deficiency occurs in the AM peak hour for both the 2021 existing condition and the 2024 condition with the proposed development. While the approach delay would be reduced by implementing exclusive lanes along southbound Cedar Lane and westbound Zoar Road, that improvement alone would not achieve acceptable LOS. Significant modifications were recently implemented at this intersection to address safety concerns, and converting to all-way stop control is not desired by DelDOT. Projected Case 3 queue lengths are approximately 100 feet on the southbound Cedar Lane approach in the AM peak hour. Given the relatively short queues, recent improvements, and geometric limitations to making further improvements, no improvements are recommended at this intersection.

Zoar Road at Governor Stockley Road

This unsignalized intersection experiences LOS deficiencies on the southbound Governor Stockley Road approach. This LOS deficiency occurs in the AM peak hour for the 2024 condition with the proposed development, but only at LOS E. Projected Case 3 queue lengths are approximately 25 feet on the southbound approach in the AM peak hour. Given the relatively low volumes and short queue lengths on the southbound approach, and that DelDOT finds all-way stop control to be inappropriate for this intersection on a long-term basis, no improvements are recommended at this intersection.

Zoar Road at Peterkins Road

This unsignalized intersection was converted from a TWSC intersection to an AWSC intersection as part of a Highway Safety Improvement Project (HSIP) in 2020 due to safety concerns. However,

the overall intersection and especially the westbound Zoar Road approach operates at LOS F during the morning peak hour in existing and future conditions, and will also operate at LOS F in the afternoon peak hour in future conditions. This is largely due to the number of left turns from the westbound Zoar Road approach headed towards the school. Although mitigation is needed, DelDOT has determined that a traffic signal would not be appropriate for this intersection. To improve operations, DelDOT will nominate a capital project for the construction of a single-lane roundabout at this intersection, and the developer should make a contribution toward construction costs as noted below in Item No. 6.

Zoar Road at Morris Mill Road

This unsignalized intersection experiences LOS deficiencies on the northbound Morris Mill Road approach. This LOS deficiency, along with lengthy queues, occurs in the AM peak hour in all three cases and in the PM Peak hour for the existing condition and proposed build condition. DelDOT has determined that converting this intersection to all-way stop control would not be appropriate on a long-term basis. To improve operations, the intersection may be converted to a single-lane roundabout by DelDOT sometime in the future, but the developer will have not be responsible for any part of that potential future project.

Patriots Way at Avenue of Honor / Stockley Access

This unsignalized intersection experiences LOS deficiencies and lengthy queues on the eastbound Avenue of Honor approach during the morning peak hour in the 2021 existing and 2024 build conditions. DelDOT has determined that converting this intersection to all-way stop control would not be appropriate on a long-term basis. To improve operations, the intersection may be converted to a single-lane roundabout by DelDOT sometime in the future, but the developer will have not be responsible for any part of that potential future project.

US Route 113 at Avenue of Honor

This unsignalized intersection experiences significant LOS deficiencies and very long queues along the westbound Avenue of Honor approach in all existing and future cases during both the AM and PM peak hours. In addition, the northbound US Route 113 u-turn movement experiences LOS deficiencies in all future cases during both the AM and PM peak hours. DelDOT is planning to install a traffic signal at this intersection by 2024. To that end, the developer should enter into a traffic signal agreement with DelDOT for this intersection. A contribution to DelDOT's Traffic Signal Revolving Fund (TSRF) is an option in that regard, in which case the amount of the contribution would be determined through coordination with DelDOT's Development Coordination Section.

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 shall improve Avenue of Honor within the limits of the site frontage to meet DelDOT's standards for its Functional Classification as found in Section 1.1 of

the Development Coordination Manual and elsewhere therein. The improvements shall include both directions of travel, regardless of whether the developer’s lands are on one or both sides of the road. Frontage is defined in Section 1 of the Development Coordination Manual, which states “This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway.” Questions on or appeals of this requirement should be directed to the DeIDOT Subdivision Review Coordinator for Sussex County.

- The developer should improve the existing full-movement Site Access A on Patriots Way. The proposed configuration is shown in the table below.

Approach	Existing Configuration	Proposed Configuration
Eastbound Site Access A	One shared left/right-turn lane	One left-turn lane and one right turn lane
Northbound Patriots Way	One left-turn lane and one through lane	One left-turn lane and one through lane
Southbound Patriots Way	One through lane and one right-turn lane	One through 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 DeIDOT’s Development Coordination Section to determine final turn-lane lengths and other design details during the site plan review.

Approach	Left-Turn Lane	Right-Turn Lane
Eastbound Site Access A	N/A	100 feet *
Northbound Patriots Way	110 feet **	N/A
Southbound Patriots Way	N/A	135 feet ***

- * Initial turn-lane length based on storage length per queuing analysis.
- ** Initial turn-lane length based on DeIDOT’s *Auxiliary Lane Worksheet*. Actual length of this turn lane will be less than 110 feet, in accordance with previously approved plans, to accommodate the planned mid-block pedestrian crossing and refuge island on Patriots Way to be located south of Site Access A.
- *** Initial turn-lane length based on DeIDOT’s *Auxiliary Lane Worksheet*. Existing right-turn lane (to remain) exceeds this length.

- The developer should improve the existing Site Access B on Patriots Way, converting the Sussex Central driveway to two-way and thus making it a full-movement unsignalized intersection which will include a fourth leg (driveway for the Howard T. Ennis School currently under construction). The eastbound site driveway approach will consist of one

shared left/through/right-turn lane. The existing northbound left-turn lane and southbound right-turn lane on Patriots Way must each be maintained, and each exceeds the minimum required length per DelDOT's *Auxiliary Lane Worksheet*. A southbound left-turn lane is proposed to be added as part of the Howard T. Ennis School driveway, in accordance with previously approved plans for that driveway. The westbound Howard T. Ennis School driveway will consist of one shared left/through/right-turn lane.

4. The developer should close the existing full-movement Site Access C on Patriots Way and construct a new Site Access C further south on Patriots Way. The proposed configuration is shown in the table below.

Approach	Existing Configuration	Proposed Configuration (Relocated Driveway)
Eastbound Site Access C	One shared left/right-turn lane	One shared left/right-turn lane
Northbound Patriots Way	One left-turn lane and one through lane	One left-turn lane and one through lane
Southbound Patriots Way	One shared through/right-turn lane	One shared through/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 and other design details during the site plan review.

Approach	Left-Turn Lane	Right-Turn Lane
Eastbound Site Access A	N/A	N/A
Northbound Patriots Way	110 feet *	N/A
Southbound Patriots Way	N/A	N/A

* Initial turn-lane length based on DelDOT's *Auxiliary Lane Worksheet*

5. The developer should construct the full-movement Site Access D on Avenue of Honor. The proposed configuration is shown in the table below.

Approach	Existing Configuration	Proposed Configuration
Eastbound Avenue of Honor	One through lane	One left-turn lane and one through lane
Westbound Avenue of Honor	One through lane	One through lane and one right-turn lane
Southbound Site Access	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 and other design details during the site plan review.

Approach	Left-Turn Lane	Right-Turn Lane
Eastbound Avenue of Honor	65 feet *	N/A
Westbound Avenue of Honor	N/A	50 feet *
Southbound Site Access	N/A	65 feet **

* Initial turn-lane length based on DelDOT’s *Auxiliary Lane Worksheet*

** Initial turn-lane length based on storage length per queuing analysis.

6. The developer should make an equitable share contribution towards a future DelDOT capital project that would construct a single-lane roundabout at the intersection of Zoar Road and Peterkins Road. Coordinate with DelDOT’s Development Coordination Section to determine the contribution amount.
7. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 113 and Avenue of Honor. The agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT’s discretion. A contribution to DelDOT’s Traffic Signal Revolving Fund (TSRF) is also an option.
8. The following bicycle and pedestrian improvements should be included:
 - a. Per the DelDOT Development Coordination Manual section 5.2.9.2, bicycle lanes are required where right turn lanes are being installed.

- b. Appropriate bicycle symbols, directional arrows, pavement markings, and signing should be included along bicycle facilities within the project limits.
- c. Utility covers should be made flush with the pavement.
- d. A minimum 15-foot wide easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontages along Patriots Way and Avenue of Honor.
- e. Within the easements along the Patriots Way and Avenue of Honor site frontages, a minimum of a ten-foot wide shared-use path that meets current AASHTO and ADA standards should be constructed. The shared-use path should meet AASHTO and ADA standards and should have a minimum of a five-foot buffer from the roadway. At the property boundaries, the shared-use path should connect to the adjacent property or to the roadway in accordance with DelDOT's *Shared-Use Path and/or Sidewalk Termination Reference Guide* dated August 1, 2018. The developer should coordinate with DelDOT's Development Coordination Section to determine the details of the shared-use path connections at the property boundaries.
- f. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including all site entrances. Type 3 curb ramps are discouraged.
- g. Internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These sidewalks should each be a minimum of five-feet wide (with a minimum of a five-foot buffer from the roadway) and should meet current AASHTO and ADA standards. Internal sidewalks in the development should connect to the proposed shared-use paths along Patriots Way and Avenue of Honor, which includes but is not limited to the construction of a shared-use path from the school building to Patriots Way where it will connect with the planned mid-block pedestrian crossing to be located between Site Entrance A and Site Entrance B.
- h. Where internal sidewalks are located alongside of parking spaces, a buffer should be added to prevent vehicular overhang onto the sidewalk.

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: November 2021

Prepared by: Davis, Bowen & Friedel, Inc

Prepared for: Indian River School District (IRSD)

Tax parcel: 1-33-11.00-105.00

Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed Sussex Central Campus development would consist of an 850-student middle school and a 2,200-student high school. The redeveloped campus would replace the existing 1,661-student high school on this site.

Location: The site is located along the northwest corner of the intersection of Patriots Way (Sussex Road 318) and Avenue of Honor (Sussex Road 86), in Sussex County, Delaware. A site location map is included on page 11.

Amount of land to be developed: approximately 154.63-acre parcel

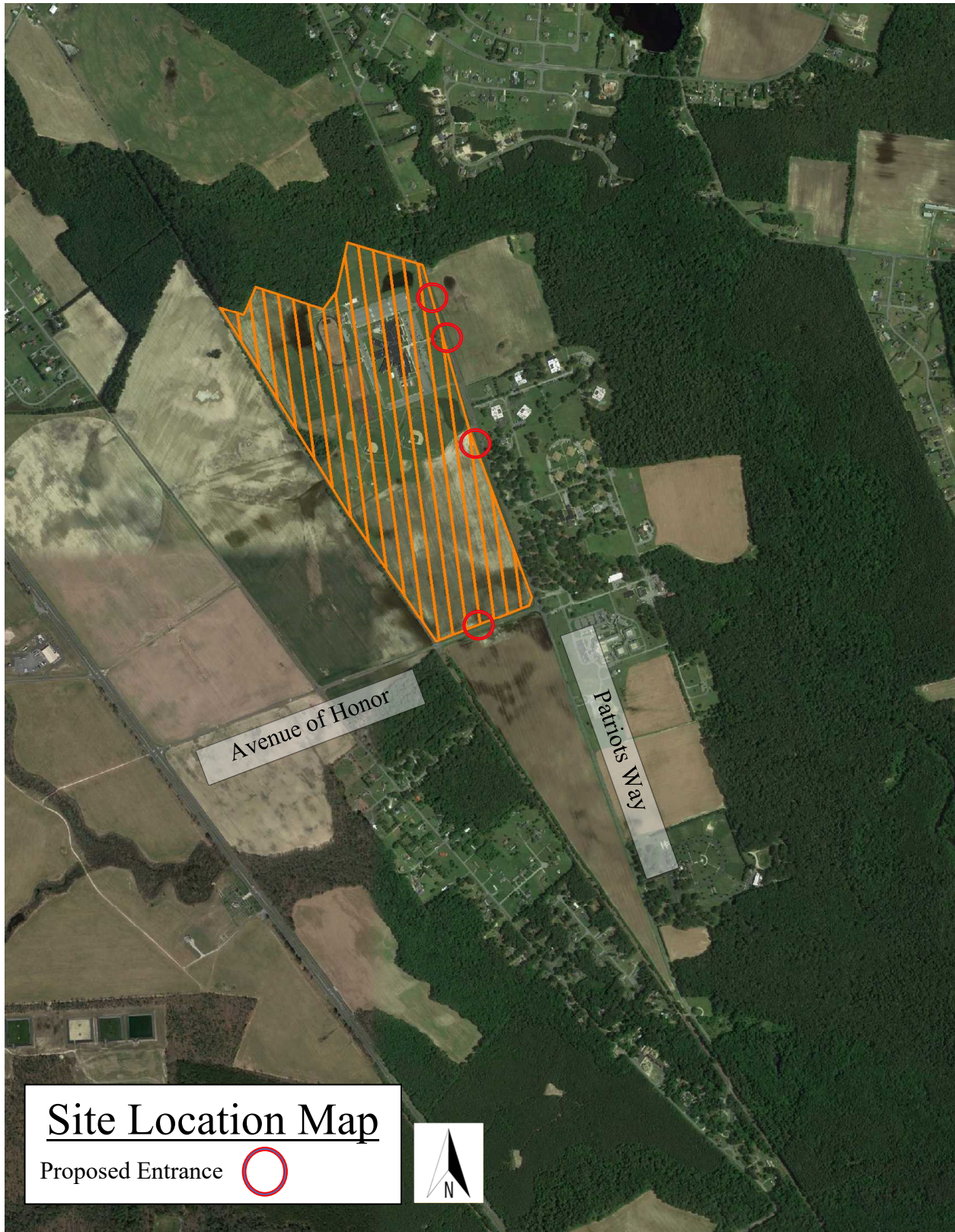
Land use approval(s) needed: Subdivision approval. The subject land is currently zoned I-1 (Industrial), and the developer does not plan to rezone the land.

Proposed completion year: 2024

Proposed access locations: Three unsignalized access points exist today: two full-movement access driveways and one one-way entrance on Patriots Way. The middle access opposite the proposed Howard T. Ennis School site access is proposed to be converted to full movement. The southern access is proposed to be relocated just south of the stormwater management pond. A fourth full-movement access is proposed on Avenue of Honor.

Daily Traffic Volumes (per DelDOT Traffic Summary 2019):

- 2019 Average Annual Daily Traffic on Patriots Way: 3,018 vehicles/day
- 2019 Average Annual Daily Traffic on Avenue of Honor: 2,035 vehicles/day



2020 Delaware Strategies for State Policies and Spending

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

The proposed Sussex Central Campus development is located within Investment Level 3.

Investment Level 3

Investment Level 3 Areas generally fall into two categories. The first category covers lands that are in the long-term growth plans of counties or municipalities where development is not necessary to accommodate expected population growth during this five-year planning period (or longer). In these instances, development in Investment Level 3 may be least appropriate for new growth and development in the near term.

The second category includes lands that are adjacent to or intermingled with fast-growing areas within counties or municipalities that are otherwise categorized as Investment Levels 1 or 2. Environmentally sensitive features, agricultural preservation issues, or other infrastructure issues most often impact these lands. In these instances, development and growth may be appropriate in the near term, but the resources on the site and in the surrounding area should be carefully considered and accommodated by state agencies and local governments with land-use authority.

Due to the limits of finite financial resources, state infrastructure spending on “hard” or “grey” infrastructure such as roads, sewer, water, and public facilities will generally be directed to Investment Level 1 and 2 Areas during this planning period. The State will consider investing in these types of infrastructure in Investment Level 3 Areas once the Investment Level 1 and 2 Areas are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems and deemed appropriate to serve a particular area.

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

The proposed Sussex Central Campus development falls within Investment Level 3 and is to be developed as a Middle School/Junior High School and a High School. The proposed development is consistent with the character of Investment Level 3. It is therefore concluded that the proposed development appears to generally comply with the policies stated in the 2020 “Strategies for State Policies and Spending.”

Comprehensive Plan

Sussex County Comprehensive Plan:

(Source: Sussex County Comprehensive Plan, March 2019)

The Sussex County Comprehensive Plan Future Land Use Map indicates that the proposed Sussex Central Campus site is planned for “Institutional” land use. It would appear that the proposed development fits within the intended land use for this location.

Proposed Development’s Compatibility with Comprehensive Plan:

The proposed development appears to comply with the Sussex County Comprehensive Plan. The Sussex Central Campus is proposed on land that is planned for Institutional use. The land is zoned as I-1 (Institutional); and the developers are not seeking to re-zone.

Relevant Projects in the DelDOT Capital Transportation Program

Currently there are three DelDOT projects within the study area.

The first is the *North Millsboro Bypass, US 113 to SR 24 Project*, which was one of several projects initiated by the US 113 North/South Study. The project is just to the south of the Sussex Central Campus study area. It will improve safety and reduce congestion within the Millsboro area by creating a grade-separated intersection at US Route 113 and Delaware Route 20 (Hardscrabble Road) and constructing a two-lane connector road from US Route 113 at Delaware Route 20 to the east of Millsboro connecting with Delaware Route 24. Construction is not anticipated for completion until at least 2025, and the TIS did not consider any revised travel patterns as the project will not be constructed until after the proposed Sussex Central Campus is completed.

Second, at the intersection of US Route 113 and Avenue of Honor, DelDOT plans to install a signal to improve safety and reduce congestion by converting the existing two-way stop-controlled intersection to a signalized intersection. The signal is expected to be operational in 2023 or 2024, prior to completion of the Sussex Central Campus.

As for the third project, DelDOT has longer-term plans to construct a grade-separated intersection at US Route 113 and Avenue of Honor, in the process removing the future traffic signal referenced in the previous paragraph. The grade-separated intersection would not be constructed until sometime after 2030. The plans for the grade-separated intersection also incorporate the nearby intersection of US Route 113 and Piney Grove Road, converting that to a grade-separated intersection as well. As construction is not anticipated until well after the 2024 build out date of the Sussex Central Campus, this project was not accounted for in this TIS.

Two intersections in the TIS study area are subject to the Corridor Capacity Preservation Program (CCPP), a statewide program intended to sustain the through capacity of adopted highway corridors by various means such as limiting access points and using service roads for local vehicle trips. The general purpose of the program is to ensure that existing principal arterial roadways, including this section of US Route 113, are able to efficiently carry regional traffic without impedance from the effects of local development. The Sussex Central Campus will not have any direct access on US Route 113, and no CCPP related projects are scheduled for construction until after the build out year of the Sussex Central Campus.

It is also noted that DelDOT recently completed safety improvement projects in 2020 at three study area intersections: Patriots Way and Peterkins Road, Zoar Road and Patriots Way / Cedar Lane, and Zoar Road and Peterkins Road. The recent intersection modifications are reflected in the 2021 existing and 2024 future conditions of the TIS, with current configurations described in this review letter on page 16.

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 use was utilized to estimate the amount of new traffic generated for this development:

- 850 Student Middle School/Junior High School (ITE Land Use Code 522)
- 2,200 Student High School (ITE Land Use Code 530)

Table 1
Sussex Central Campus Peak Hour Trip Generation

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour (of generator)			Weekday PM Peak Hour (of adjacent street)		
	In	Out	Total	In	Out	Total	In	Out	Total
Existing High School (1,661 students) – to be replaced	600	264	864	69	396	465	48	88	136
Proposed Middle School (850)	266	227	493	137	161	298	71	74	145
Proposed High School (2,200)	789	355	1144	92	524	616	62	114	176
Total (3,050 students)	1055	582	1637	229	685	914	133	188	321
Increase	455	218	773	160	289	449	85	100	185

Overview of TIS

Intersections examined:

- 1) Site Entrance A / Patriots Way (Existing)
- 2) Site Entrance B / Patriots Way / Howard T. Ennis School Entrance (Existing)
- 3) Site Entrance C / Patriots Way (Existing)
- 4) Site Entrance D / Avenue of Honor (Proposed)
- 5) Patriots Way / Peterkins Road
- 6) Patriots Way / Cedar Lane / Zoar Road
- 7) Zoar Road / Governor Stockley Road
- 8) Zoar Road / Peterkins Road
- 9) Zoar Road / Morris Mill Road
- 10) Peterkins Road / Deep Branch Road
- 11) Patriots Way / Avenue of Honor
- 12) Patriots Way / Bethesda Road
- 13) Patriots Way / Fox Run Road
- 14) Avenue of Honor / Bethesda Road
- 15) US Route 113 / Avenue of Honor
- 16) US Route 113 / E. Piney Grove Road

Conditions examined:

- 1) 2021 Existing (Case 1)
- 2) 2024 without development (Case 2)
- 3) 2024 with development (Case 3)

Peak hours evaluated: Weekday morning and evening peak hours

Committed developments considered:

- 1) Howard T. Ennis School (157,000 square-foot special-needs school)
- 2) TidalHealth (160,000 square-foot hospital)
- 3) Plantations Lakes (961 single-family detached houses, 1,516 townhouses / condominiums, 478,000 square-feet of retail space, and an 18-hole golf course)
- 4) Alderleaf Meadows (f.k.a. Homestead Phase 2) (122 single-family detached houses, 64 townhomes)
- 5) Oaks at Georgetown (58 single-family detached houses, 138 units of multi-family mid-rise housing, and 337 units of multi-family low-rise housing)
- 6) Foster Commons (60 units of multi-family low-rise housing)
- 7) Millwood Phase 2 (92 single-family detached houses)

Intersection Descriptions

1) Site Entrance A & Patriots Way

Type of Control: minor stop-controlled T-intersection

Eastbound Approach: (Site Entrance) existing one shared left/right-turn lane, stop-controlled

Northbound Approach: (Patriots Way) existing one left-turn lane, one through lane

Southbound Approach: (Patriots Way) existing one right-turn lane, one through lane, one bike lane

2) Site Entrance B & Patriots Way

Type of Control: existing 3-legged, proposed 4-legged TWSC intersection

Eastbound Approach: (Site Entrance) existing one-way westbound entrance only, proposed to become two-way driveway with shared left/through/right-turn lane on eastbound egress

Westbound Approach: (Howard T. Ennis School driveway) existing does not exist/construction entrance, proposed shared left/through/right-turn lane

Northbound Approach: (Patriots Way) existing left turn lane and through lane, proposed left turn lane and shared through/right-turn lane

Southbound Approach: (Patriots Way) existing right-turn lane, bike lane, and through lane, proposed right turn lane, bike lane, through lane, and left turn lane

3) Site Entrance C & Patriots Way

Type of Control: existing 3-legged TWSC intersection (proposed to be relocated south)

Eastbound Approach: (Site Entrance) shared left/right-turn lane, stop-controlled

Northbound Approach: (Patriots Way) left-turn lane and through lane

Southbound Approach: (Patriots Way) shared through/right-turn lane

4) Site Entrance D & Avenue of Honor

Type of Control: proposed 3 legged TWSC intersection

Eastbound Approach: (Avenue of Honor) proposed left-turn lane and through lane

Westbound Approach: (Avenue of Honor) proposed right-turn lane, bike lane, and through lane

Southbound Approach: (Site Entrance) proposed left-turn lane and right-turn lane, stop-controlled

5) Patriots Way & Peterkins Road

Type of Control: existing 3-legged TWSC intersection

Eastbound Approach: (Patriots Way) shared left/right-turn lane, stop-controlled

Northbound Approach: (Patriots Way) shared left-turn/through lane

Southbound Approach: (Peterkins Road) shared through/right-turn lane

6) Zoar Road & Patriots Way/Cedar Lane

Type of Control: existing 4-legged TWSC intersection

Eastbound Approach: (Zoar Road) existing shared left/through/right-turn lane

Westbound Approach: (Zoar Road) existing shared through/right-turn lane – no left turns

Northbound Approach: (Patriots Way) one-way away from intersection

Southbound Approach: (Cedar Lane) shared left/right-turn lane – no through traffic, stop-controlled

7) Zoar Road & Governor Stockley Road

Type of Control: existing 4-legged TWSC intersection

Eastbound Approach: (Zoar Road) shared left-turn/through/right-turn lane

Westbound Approach: (Zoar Road) shared left-turn/through/right-turn lane

Northbound Approach: (Governor Stockley Road) shared left-turn/through/right-turn lane, stop-controlled

Southbound Approach: (Governor Stockley Road) shared left-turn/through/right-turn lane, stop-controlled

8) Zoar Road & Peterkins Road

Type of Control: existing 4-legged all-way stop controlled (AWSC) intersection

Eastbound Approach: (Zoar Road) shared left-turn/through/right-turn lane

Westbound Approach: (Zoar Road) shared left-turn/through/right-turn lane

Northbound Approach: (Peterkins Road) shared left-turn/through/right-turn lane

Southbound Approach: (Peterkins Road) shared left-turn/through/right-turn lane

9) Zoar Road & Morris Mill Road

Type of Control: existing 4-legged TWSC intersection

Eastbound Approach: (Zoar Road) shared left-turn/through/right-turn lane

Westbound Approach: (Zoar Road) shared left-turn/through/right-turn lane

Northbound Approach: (Morris Mill Road) shared left-turn/through/right-turn lane, stop-controlled

Southbound Approach: (private driveway) shared left-turn/through/right-turn lane, stop-controlled

10) Peterkins Road & Deep Branch Road

Type of Control: existing 4-legged TWSC intersection

Eastbound Approach: (Deep Branch Road) shared left-turn/through/right-turn lane, stop-controlled

Westbound Approach: (Deep Branch Road) shared left-turn/through/right-turn lane, stop-controlled

Northbound Approach: (Peterkins Road) shared left-turn/through/right-turn lane

Southbound Approach: (Peterkins Road) shared left-turn/through/right-turn lane

11) Patriots Way & Avenue of Honor / Stockley Access

Type of Control: existing 4-legged TWSC intersection

Eastbound Approach: (Avenue of Honor) shared left-turn/through/right-turn lane, stop-controlled

Westbound Approach: (Stockley Access) shared left-turn/through/right-turn lane, stop-controlled

Northbound Approach: (Patriots Way) shared left-turn/through/right-turn lane

Southbound Approach: (Patriots Way) shared left-turn/through lane and exclusive right-turn lane

12) Patriots Way & Bethesda Road

Type of Control: existing 3-legged TWSC intersection

Eastbound Approach: (Bethesda Road) left-turn lane and right-turn lane, stop-controlled

Northbound Approach: (Patriots Way) shared left-turn/through lane

Southbound Approach: (Patriots Way) shared through/right-turn lane

13) Patriots Way and Fox Run Road

Type of Control: existing 3-legged TWSC intersection

Eastbound Approach: (Patriots Way) shared through/right-turn lane

Westbound Approach: (Patriots Way) shared through/left-turn lane

Northbound Approach: (Fox Run Road) shared left/right-turn lane, stop-controlled

14) Avenue of Honor & Bethesda Road

Type of Control: existing 4-legged TWSC intersection

Eastbound Approach: (Avenue of Honor) shared left-turn/through/right-turn lane

Westbound Approach: (Avenue of Honor) shared left-turn/through/right-turn lane

Northbound Approach: (Bethesda Road) shared left-turn/through/right-turn lane, stop-controlled

Southbound Approach: (Bethesda Road) shared left-turn/through/right-turn lane, stop-controlled

15) US Route 113 & Avenue of Honor

Type of Control: existing 3-legged TWSC intersection

Westbound Approach: (Avenue of Honor) shared left-turn/right-turn lane (stop-controlled) with channelized right-turn (yield controlled)

Northbound Approach: (US 113) U-turn lane, two through lanes, right turn lane

Southbound Approach: (US 113) left-turn/U-turn lane, two through lanes

16) US 113 & E. Piney Grove Road

Type of Control: existing 3-legged TWSC intersection

Eastbound Approach: (E. Piney Grove Road) shared left-turn/right-turn lane, stop-controlled

Northbound Approach: (US 113) one left-turn/U-turn lane and two through lanes

Southbound Approach: (US 113) one U-turn lane, two through lanes, one right-turn lane

Safety Evaluation

Crash Data: Delaware Crash Analysis Reporting System (CARS) data was provided in the TIS for the three-year period from November 11, 2018, through November 11, 2021. A total of 97 crashes occurred within the study area during the three-year period, with 4 of those occurring at/near the existing and proposed site entrances. The other 93 occurred at near the remaining 12 intersections within the study area. Of the 93 crashes, 20 were rear-end crashes, 39 were angle collisions, 1 was a sideswipe, and 8 were head on. One fatality occurred, while 31 crashes resulted in injuries. Three of the crashes were alcohol related. None of the crashes involved pedestrians or bicyclists. It should be noted that improvements to three intersections: Zoar Road/Patriots Way/Cedar Lane, Zoar Road/Peterkins Road, and Peterkins Road/Patriots Way significantly reduced safety issues since being constructed on August 17, 2020. Rates of crashes were reduced from 28 crashes in 21 months prior to improvements (1.33/mo.), to 6 crashes in 15 months (.40/mo.).

Sight Distance: The study area generally consists of relatively flat roadways and there are few visual obstructions. Patriots Way is posted with a 35-mph speed limit, requiring a 383-foot and a 471-foot sight distance to the left and right, respectively, for the proposed site access. Avenue of Honor is posted with a 25-mph speed limit, requiring a 287-foot and a 353-foot sight distance to the left and right, respectively, for the proposed site access. 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 current DART Bus Stop Map, the Delaware Transit Corporation (DTC) does not currently operate any fixed-route transit bus route in the area of the proposed Sussex Central Campus development.

Planned transit service: DBF contacted a representative from DART regarding existing and planned service in the area. There are no planned transit services in the area of the proposed Sussex Central Campus development but coordination with DART is ongoing for comments.

Existing bicycle and pedestrian facilities: According to DelDOT's Sussex County Bicycle Map, Bethesda Road is designated as a Statewide Bicycle Route without a Bikeway. No other roads within the study area are designated as a Bicycle Route. There is currently an existing bicycle lane along the existing site frontage on Patriot's Way, as well as on Patriots Way at the Avenue of Honor intersection. There are currently no Shared-Use Paths (SUPs) or sidewalks within the study area.

Planned bicycle and pedestrian facilities: The developer plans to implement a shared-use path (SUP) along each site frontage road providing almost a mile of new SUP. Bike lanes are provided along Patriots Way at the site accesses between the through and right-turn lanes and the same will occur along Avenue of Honor. A mid-block pedestrian crossing with refuge island is planned on Patriots Way between Site Entrance A and Site Entrance B.

Previous Comments

In a review letter dated October 20, 2021, DelDOT indicated that the Preliminary TIS was acceptable as submitted with minor revisions for the Final TIS.

It appears that all substantive comments from DelDOT'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 TIS and McCormick Taylor utilized Highway Capacity Software (HCS) version 7.9.5 to complete the traffic analyses.
- 2) For two-way stop control intersections, the TIS and McCormick Taylor applied heavy vehicle factors (HV) by movement using existing data. For signalized intersections, the TIS and McCormick Taylor applied HV by lane group using existing data. The TIS typically adjusted the future HV by assuming 3% HV in the added volume, with detailed adjustments documented in the TIS, and McCormick Taylor typically agreed with that approach.
- 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 that were available. Future PHFs were determined as per the DelDOT Development Coordination Manual section 2.2.8.11.6.F where applicable.
- 4) The TIS and McCormick Taylor used different signal timings when analyzing the signalized intersections in some cases.

Table 2
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹ One-Way Stop (T-intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Patriots Way & Site Access A				
2021 Existing (Case 1)				
Eastbound Site Access A	E (47.8)	C (19.0)	E (47.8)	C (19.0)
Northbound Patriots Way – Left	B (10.5)	A (7.6)	B (10.5)	A (7.6)
2024 without SCC (Case 2)				
Eastbound Site Access A	C (18.5)	B (13.3)	C (18.5)	B (13.3)
Northbound Patriots Way – Left	A (9.2)	A (7.5)	A (9.2)	A (7.5)
2024 with SCC (Case 3)				
Eastbound Site Access A	E (42.8)	C (17.8)	E (42.8)	C (17.8)
Northbound Patriots Way – Left	A (9.8)	A (7.6)	A (9.8)	A (7.6)
2024 with SCC (Case 3) <i>With Separate Lanes on Egress</i>				
Eastbound Site Access A	D (33.5)	B (14.5)	D (33.5)	B (14.5)
Northbound Patriots Way – Left	A (9.8)	A (7.6)	A (9.8)	A (7.6)

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

Table 3
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ² One-Way Stop (T-intersection, west leg one-way WB) Future Four-Leg Intersection (west leg two-way)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Patriots Way & Site Access B / Howard T. Ennis School Driveway				
2021 Existing (Case 1)				
Northbound Patriots Way – Left	A (8.5)	A (8.0)	A (8.2)	A (8.0)
2024 without SCC (Case 2)				
Westbound Howard T. Ennis Driveway	C (16.1)	B (12.4)	C (16.1)	B (12.4)
Northbound Patriots Way – Left	A (8.2)	A (7.8)	A (8.2)	A (7.8)
Southbound Patriots Way – Left	A (8.3)	A (7.7)	A (8.3)	A (7.7)
2024 with SCC (Case 3)				
Eastbound Site Access B	D (31.5)	C (16.8)	D (33.9)	C (16.4)
Westbound Howard T. Ennis Driveway	D (26.7)	C (17.5)	D (27.7)	C (17.3)
Northbound Patriots Way – Left	A (8.5)	A (8.1)	A (8.6)	A (8.1)
Southbound Patriots Way – Left	A (8.6)	A (7.9)	A (8.8)	A (7.9)

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

Table 4
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ³ One-Way Stop (T-intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Patriots Way & Site Access C				
2021 Existing (Case 1)				
Eastbound Site Access C	C (23.5)	C (18.8)	C (23.5)	C (18.8)
Northbound Patriots Way – Left	A (7.9)	A (7.7)	A (7.9)	A (7.7)
2024 without SCC (Case 2)				
Eastbound Site Access C	C (15.6)	B (13.3)	C (15.6)	B (13.3)
Northbound Patriots Way – Left	A (7.8)	A (7.8)	A (7.8)	A (7.8)
2024 with SCC (Case 3)				
Eastbound Site Access C	C (19.8)	B (13.0)	C (18.9)	B (13.1)
Northbound Patriots Way – Left	A (8.3)	A (8.4)	A (8.0)	A (8.3)

³ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 5
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ⁴ One-Way Stop (T-intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Avenue of Honor & Site Access D				
2024 with SCC (Case 3)				
Eastbound Avenue of Honor – Left	A (8.8)	A (8.1)	A (8.8)	A (8.1)
Southbound Site Access D	C (22.4)	B (12.8)	C (22.4)	B (12.8)

⁴ 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 Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ⁵ One-Way Stop (T-Intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Patriots Way & Peterkins Road				
2021 Existing (Case 1)				
Northbound Patriots Way – Left	A (8.4)	A (7.5)	A (8.4)	A (7.5)
Southbound Patriots Way	C (17.9)	A (9.4)	C (17.9)	A (9.4)
2024 without SCC (Case 2)				
Northbound Patriots Way – Left	A (8.2)	A (7.6)	A (8.6)	A (7.7)
Southbound Patriots Way	C (15.3)	A (10.0-)	C (15.3)	B (10.3)
2024 with SCC (Case 3)				
Northbound Patriots Way – Left	A (8.6)	A (7.7)	A (8.2)	A (7.6)
Southbound Patriots Way	C (24.6)	B (10.4)	C (23.8)	A (9.7)

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 7
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ⁶ One-Way Stop (south leg one-way SB)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Zoar Road & Patriots Way / Cedar Lane				
2021 Existing (Case 1)				
Eastbound Zoar Road – Left	A (8.6)	A (8.3)	A (8.6)	A (8.3)
Southbound Cedar Lane	E (45.4)	C (22.2)	E (45.4)	C (22.2)
2024 without SCC (Case 2)				
Eastbound Zoar Road – Left	A (8.4)	A (8.6)	A (8.4)	A (8.6)
Southbound Cedar Lane	D (31.9)	D (26.8)	D (31.9)	D (26.8)
2024 with SCC (Case 3)				
Eastbound Zoar Road – Left	A (8.6)	A (8.7)	A (8.6)	A (8.7)
Southbound Cedar Lane	F (54.9)	D (29.1)	F (54.9)	D (29.1)
2024 with SCC (Case 3) <i>With Separate Lanes on SB Cedar Lane</i>				
Eastbound Zoar Road – Left	A (8.6)	A (8.7)	A (8.6)	A (8.7)
Southbound Cedar Lane	E (46.0)	D (27.0)	E (46.0)	D (27.0)

Unsignalized Intersection ⁶ All-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Zoar Road & Patriots Way / Cedar Lane				
2024 with SCC (Case 3)				
Eastbound Zoar Road	B (13.7)	C (16.7)	B (13.7)	C (16.7)
Westbound Zoar Road	C (20.0)	C (19.2)	C (20.0)	C (19.2)
Southbound Cedar Lane	B (10.9)	B (10.1)	B (10.9)	B (10.1)
Overall Intersection	C (16.7)	C (17.7)	C (16.7)	C (17.7)

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 8
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ⁷ Two-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Zoar Road & Governor Stockley Road				
2021 Existing (Case 1)				
Eastbound Zoar Road – Left	A (8.0)	A (7.9)	A (8.0)	A (7.9)
Westbound Zoar Road – Left	A (8.5)	A (8.7)	A (8.5)	A (8.7)
Northbound Governor Stockley Road	B (14.8)	B (14.6)	B (14.8)	B (14.6)
Southbound Governor Stockley Road	D (25.5)	C (23.5)	D (25.5)	C (23.5)
2024 without SCC (Case 2)				
Eastbound Zoar Road – Left	A (8.1)	A (8.0)	A (8.1)	A (8.0)
Westbound Zoar Road – Left	A (8.7)	A (8.9)	A (8.7)	A (8.9)
Northbound Governor Stockley Road	C (17.8)	C (20.5)	C (17.8)	C (20.5)
Southbound Governor Stockley Road	D (31.0)	D (29.6)	D (31.0)	D (29.6)
2024 with SCC (Case 3)				
Eastbound Zoar Road – Left	A (8.2)	A (8.1)	A (8.2)	A (8.1)
Westbound Zoar Road – Left	A (9.0)	A (8.9)	A (9.0)	A (8.9)
Northbound Governor Stockley Road	C (21.6)	C (21.5)	C (21.6)	C (21.5)
Southbound Governor Stockley Road	E (41.1)	D (31.2)	E (41.1)	D (31.2)

Unsignalized Intersection ⁷ All-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Zoar Road & Governor Stockley Road				
2024 with SCC (Case 3)				
Eastbound Zoar Road	D (29.8)	C (15.9)	D (29.8)	C (15.9)
Westbound Zoar Road	D (27.2)	C (20.7)	D (27.2)	C (20.7)
Northbound Governor Stockley Road	B (12.4)	B (10.2)	B (12.4)	B (10.2)
Southbound Governor Stockley Road	B (11.0)	A (9.7)	B (11.0)	A (9.7)
Overall Intersection	D (25.6)	C (17.5)	D (25.6)	C (17.5)

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

Table 9
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ⁸ All-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Zoar Road & Peterkins Road				
2021 Existing (Case 1)				
Eastbound Zoar Road	E (36.7)	C (19.3)	E (36.3)	C (19.3)
Westbound Zoar Road	F (119.9)	C (21.5)	F (119.6)	C (21.5)
Northbound Peterkins Road	C (16.9)	B (11.8)	C (16.8)	B (11.8)
Southbound Peterkins Road	B (13.3)	B (10.5)	B (13.3)	B (10.5)
Overall Intersection	F (68.5)	C (18.7)	F (68.3)	C (18.7)
2024 without SCC (Case 2)				
Eastbound Zoar Road	D (33.2)	E (38.7)	D (33.2)	E (38.7)
Westbound Zoar Road	F (92.7)	F (51.6)	F (92.7)	F (51.6)
Northbound Peterkins Road	C (17.1)	C (19.9)	C (17.1)	C (19.9)
Southbound Peterkins Road	B (14.0)	B (12.7)	B (14.0)	B (12.7)
Overall Intersection	F (53.9)	E (38.3)	F (53.9)	E (38.3)
2024 with SCC (Case 3)				
Eastbound Zoar Road	F (90.3)	E (49.5)	F (90.3)	E (49.5)
Westbound Zoar Road	F (257.3)	F (75.8)	F (257.3)	F (75.8)
Northbound Peterkins Road	E (49.6)	D (25.8)	E (49.6)	D (25.8)
Southbound Peterkins Road	C (21.1)	B (13.6)	C (21.1)	B (13.6)
Overall Intersection	F (137.1)	F (51.6)	F (137.1)	F (51.6)
2024 with SCC (Case 3) <i>With Separate Lanes on Each Approach</i>				
Eastbound Zoar Road	F (64.5)	E (40.9)	F (61.4)	E (40.9)
Westbound Zoar Road	D (28.5)	D (28.7)	D (27.8)	D (28.7)
Northbound Peterkins Road	C (17.5)	B (14.6)	C (17.2)	B (14.6)
Southbound Peterkins Road	C (15.4)	B (11.8)	C (15.3)	B (11.8)
Overall Intersection	D (34.6)	D (28.5)	D (33.3)	D (28.5)
Signalized Intersection ⁸	LOS per TIS		LOS per McCormick Taylor	
Zoar Road & Peterkins Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2024 with SCC (Case 3)	C (29.4)	B (13.6)	N/A	N/A

⁸ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 10
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ⁹ Two-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Zoar Road & Morris Mill Road				
2021 Existing (Case 1)				
Eastbound Zoar Road – Left	A (7.9)	A (7.9)	A (7.9)	A (7.9)
Westbound Zoar Road – Left	A (8.4)	A (8.5)	A (8.4)	A (8.5)
Northbound Morris Mill Road	F (63.1)	E (36.3)	F (63.1)	E (36.3)
Southbound Residential Driveway	-	B (14.0)	-	B (14.0)
2024 without SCC (Case 2)				
Eastbound Zoar Road – Left	A (7.9)	A (7.9)	A (7.9)	A (7.9)
Westbound Zoar Road – Left	A (8.6)	A (8.7)	A (8.6)	A (8.7)
Northbound Morris Mill Road	F (79.7)	D (25.2)	F (79.7)	D (25.2)
Southbound Residential Driveway	-	B (14.9)	-	B (14.9)
2024 with SCC (Case 3)				
Eastbound Zoar Road – Left	A (8.0)	A (8.0)	A (8.0)	A (8.0)
Westbound Zoar Road – Left	A (8.6)	A (8.7)	A (8.6)	A (8.7)
Northbound Morris Mill Road	F (122.6)	F (57.0)	F (122.6)	F (57.0)
Southbound Residential Driveway	-	C (15.2)	-	C (15.2)
2024 with SCC (Case 3) <i>With Separate Lanes on EB, WB and NB</i>				
Eastbound Zoar Road – Left	A (8.0)	A (8.0)	A (8.0)	A (8.0)
Westbound Zoar Road – Left	A (8.6)	A (8.7)	A (8.6)	A (8.7)
Northbound Morris Mill Road	F (66.0)	D (33.1)	F (66.0)	D (33.1)
Southbound Residential Driveway	-	C (15.2)	-	C (15.2)

Unsignalized Intersection ⁹ All-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Zoar Road & Morris Mill Road				
2024 with SCC (Case 3)				
Eastbound Zoar Road	D (29.2)	D (26.8)	D (29.2)	D (26.8)
Westbound Zoar Road	C (17.6)	B (14.2)	C (17.6)	B (14.2)
Northbound Morris Mill Road	C (17.0)	B (13.8)	C (17.0)	B (13.8)
Southbound Residential Driveway	-	A (9.7)	-	A (9.7)
Overall Intersection	C (22.8)	C (20.7)	C (22.8)	C (20.7)

⁹ 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 Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹⁰ Two-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Peterkins Road & Deep Branch Road				
2021 Existing (Case 1)				
Eastbound Deep Branch Road	A (9.8)	B (10.4)	A (9.9)	B (10.4)
Westbound Deep Branch Road	B (10.2)	B (10.3)	B (10.2)	B (10.3)
Northbound Peterkins Road – Left	A (7.4)	A (7.3)	A (7.4)	A (7.3)
Southbound Peterkins Road – Left	A (7.4)	A (7.5)	A (7.4)	A (7.5)
2024 without SCC (Case 2)				
Eastbound Deep Branch Road	B (10.1)	B (10.9)	B (10.1)	B (10.9)
Westbound Deep Branch Road	B (10.7)	B (10.9)	B (10.7)	B (10.9)
Northbound Peterkins Road – Left	A (7.5)	A (7.4)	A (7.5)	A (7.4)
Southbound Peterkins Road – Left	A (7.5)	A (7.7)	A (7.4)	A (7.6)
2024 with SCC (Case 3)				
Eastbound Deep Branch Road	B (10.7)	B (11.5)	B (10.7)	B (11.5)
Westbound Deep Branch Road	B (11.9)	B (11.7)	B (11.9)	B (11.7)
Northbound Peterkins Road – Left	A (7.6)	A (7.4)	A (7.6)	A (7.4)
Southbound Peterkins Road – Left	A (7.5)	A (7.7)	A (7.5)	A (7.7)

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 12
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹¹ Two-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Patriots Way & Avenue of Honor / Stockley Access				
2021 Existing (Case 1)				
Eastbound Avenue of Honor	F (63.1)	B (12.6)	F (63.1)	B (12.6)
Westbound Stockley Access	C (15.5)	B (12.6)	C (15.5)	B (12.6)
Northbound Patriots Way – Left	A (7.8)	A (7.9)	A (7.8)	A (7.9)
Southbound Patriots Way – Left	A (8.1)	A (7.4)	A (8.1)	A (7.4)
2024 without SCC (Case 2)				
Eastbound Avenue of Honor	D (27.7)	B (12.5)	D (27.7)	B (12.5)
Westbound Stockley Access	B (13.5)	B (12.4)	B (13.5)	B (12.4)
Northbound Patriots Way – Left	A (7.8)	A (8.0)	A (7.8)	A (8.0)
Southbound Patriots Way – Left	A (7.9)	A (7.4)	A (7.9)	A (7.4)
2024 with SCC (Case 3)				
Eastbound Avenue of Honor	F (161.1)	C (16.4)	F (161.1)	C (16.4)
Westbound Stockley Access	C (17.6)	B (14.6)	C (17.6)	B (14.6)
Northbound Patriots Way – Left	A (8.2)	A (8.3)	A (8.2)	A (8.3)
Southbound Patriots Way – Left	A (8.0)	A (7.4)	A (8.0)	A (7.4)
2024 with SCC (Case 3) <i>With Added EB Left-Turn Lane</i>				
Eastbound Avenue of Honor	F (70.3)	B (14.9)	F (68.8)	B (14.6)
Westbound Stockley Access	C (17.6)	B (10.6)	C (17.6)	B (14.6)
Northbound Patriots Way – Left	A (8.2)	A (8.3)	A (8.2)	A (8.3)
Southbound Patriots Way – Left	A (8.0)	A (7.4)	A (8.0)	A (7.4)

Unsignalized Intersection ¹¹ All-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Patriots Way & Ave of Honor / Stockley				
2024 with SCC (Case 3)				
Eastbound Avenue of Honor	D (26.0)	B (10.6)	D (26.0)	B (10.6)
Westbound Stockley Access	B (10.5)	A (9.5)	B (10.5)	A (9.5)
Northbound Patriots Way	C (18.5)	A (9.6)	C (18.5)	A (9.6)
Southbound Patriots Way	B (13.1)	B (10.3)	B (13.1)	B (10.3)
Overall Intersection	C (19.1)	B (10.2)	C (19.1)	B (10.2)

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 13
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹² One-Way Stop (T-intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Patriots Way & Bethesda Road				
2021 Existing (Case 1)				
Eastbound Bethesda Road	A (9.5)	A (9.2)	A (9.5)	A (9.2)
Northbound Patriots Way – Left	A (7.6)	A (7.5)	A (7.6)	A (7.5)
2024 without SCC (Case 2)				
Eastbound Bethesda Road	A (9.7)	A (9.5)	A (9.7)	A (9.5)
Northbound Patriots Way – Left	A (7.6)	A (7.7)	A (7.6)	A (7.7)
2024 with SCC (Case 3)				
Eastbound Bethesda Road	B (10.6)	A (10.0-)	B (10.6)	A (10.0-)
Northbound Patriots Way – Left	A (7.9)	A (7.8)	A (7.9)	A (7.8)

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 14
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹³ One-Way Stop (T-intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Patriots Way & Fox Run Road				
2021 Existing (Case 1)				
Westbound Patriots Way – Left	A (8.0)	A (7.5)	A (8.0)	A (7.5)
Northbound Fox Run Road	B (10.5)	A (9.1)	B (10.5)	A (9.1)
2024 without SCC (Case 2)				
Westbound Patriots Way – Left	A (8.1)	A (7.6)	A (8.1)	A (7.6)
Northbound Fox Run Road	B (11.0)	A (9.3)	B (11.0)	A (9.3)
2024 with SCC (Case 3)				
Westbound Patriots Way – Left	A (8.6)	A (7.8)	A (8.6)	A (7.8)
Northbound Fox Run Road	B (13.0)	A (9.5)	B (13.0)	A (9.5)

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 15
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹⁴ Two-Way Stop	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Avenue of Honor & Bethesda Road				
2021 Existing (Case 1)				
Eastbound Avenue of Honor – Left	A (7.5)	A (7.6)	A (7.5)	A (7.6)
Westbound Avenue of Honor – Left	A (7.8)	A (8.6)	A (7.8)	A (7.4)
Northbound Bethesda Road	B (11.9)	B (11.0)	B (12.2)	B (11.2)
Southbound Bethesda Road	B (12.6)	B (11.2)	B (13.0)	B (11.4)
2024 without SCC (Case 2)				
Eastbound Avenue of Honor – Left	A (7.6)	A (7.8)	A (7.6)	A (7.8)
Westbound Avenue of Honor – Left	A (8.0)	A (7.5)	A (8.0)	A (7.5)
Northbound Bethesda Road	B (13.0)	B (11.8)	B (13.5)	B (12.1)
Southbound Bethesda Road	B (14.0)	B (12.1)	B (14.6)	B (12.4)
2024 with SCC (Case 3)				
Eastbound Avenue of Honor – Left	A (8.0)	A (8.1)	A (8.0)	A (8.1)
Westbound Avenue of Honor – Left	A (8.6)	A (7.7)	A (8.6)	A (7.7)
Northbound Bethesda Road	C (19.2)	B (13.9)	C (20.8)	B (14.5)
Southbound Bethesda Road	C (22.5)	B (14.2)	D (25.1)	B (14.8)

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.

Table 16
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹⁵ One-Way Stop (T-intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
US Route 113 & Avenue of Honor				
2021 Existing (Case 1)				
Westbound Avenue of Honor	E (38.0)	D (26.4)	F (68.4)	F (50.1)
Northbound US 113 – U-turn	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound US 113 – Left	B (13.0)	B (11.2)	B (13.0)	B (11.2)
2024 without SCC (Case 2)				
Westbound Avenue of Honor	F (1250)	F (659)	F (1257)	F (670.9)
Northbound US 113 – U-turn	F (53.9)	F (50.8)	F (53.9)	F (50.8)
Southbound US 113 – Left	C (16.9)	B (13.6)	C (16.9)	B (13.6)
2024 with SCC (Case 3)				
Westbound Avenue of Honor	F (3410)	F (857)	F (3412)	F (865.4)
Northbound US 113 – U-turn	F (53.9)	F (50.8)	F (53.9)	F (50.8)
Southbound US 113 – Left	C (19.7)	B (13.8)	C (19.7)	B (13.8)
2024 with SCC (Case 3) <i>With Separate Turn Lanes on WB Approach</i>				
Westbound Avenue of Honor	F (2107)	F (480)	F (2107)	F (480.3)
Northbound US 113 – U-turn	F (53.9)	F (50.8)	F (53.9)	F (50.8)
Southbound US 113 – Left	C (19.7)	B (13.8)	C (19.7)	B (13.8)

Signalized Intersection ¹⁵	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
US Route 113 & Avenue of Honor				
2024 with SCC (Case 3) ¹⁶	D (38.5)	C (34.8)	D (40.1)	C (28.4)
2024 with SCC (Case 3) ¹⁷	C (25.6)	C (27.4)	B (18.8)	B (17.6)

¹⁵ 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.

¹⁶ Assumes protected-only phasing.

¹⁷ Assumes permissive phasing and separate left and right-turn lanes on westbound approach.

Table 17
Peak Hour Levels of Service (LOS)
Based on Sussex Central Campus Traffic Impact Study – November 2021
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹⁸ One-Way Stop (T-intersection)	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
US Route 113 & Piney Grove Road				
2021 Existing (Case 1)				
Eastbound Piney Grove Road	C (17.3)	C (18.8)	C (17.3)	C (18.8)
Northbound US 113 – Left	B (12.1)	B (14.2)	B (12.1)	B (14.2)
Southbound US 113 – U-turn	C (20.9)	C (18.7)	C (20.9)	C (18.7)
2024 without SCC (Case 2)				
Eastbound Piney Grove Road	C (23.6)	D (26.3)	C (23.6)	D (26.3)
Northbound US 113 – Left	B (14.4)	C (19.6)	B (14.4)	C (19.6)
Southbound US 113 – U-turn	D (30.8)	D (28.1)	D (30.8)	D (28.1)
2024 with SCC (Case 3)				
Eastbound Piney Grove Road	D (26.5)	D (26.7)	D (26.5)	D (26.7)
Northbound US 113 – Left	C (15.1)	C (20.0)	C (15.1)	C (20.0)
Southbound US 113 – U-turn	D (31.5)	D (28.3)	D (31.5)	D (28.3)

¹⁸ 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.