



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

JENNIFER COHAN
SECRETARY

September 1, 2020

Mr. Christopher Duke
Becker Morgan Group, Inc.
100 Discovery Boulevard
Suite 102
Newark, Delaware 19713

Dear Mr. Duke:

The Department has completed its review of the traffic impact study (TIS) for the proposed 7-Eleven - Bridgeville development. The TIS was prepared by Becker Morgan Group, Inc. (BMG), and is dated February 2020. BMG prepared the report in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the traffic impacts of the proposed development, proposed to be located on the northwest corner of US Route 13 and Cannon Road (Delaware Route 18) in the Town of Bridgeville, Sussex County, Delaware.

The proposed development would consist of a 4,063 square foot convenience store with gas pumps on an approximately 3.1-acre assemblage of parcels (Tax Parcels 131-19.00-7.00 & 8.02). Two access points are proposed: one rights-in, rights-out access on US Route 13, and one full access on Cannon Road. Construction is anticipated to be complete in 2022.

The subject land is currently zoned B-1 (Neighborhood Business) in Sussex County, and the developer proposes to have the land annexed into the Town of Bridgeville as C-1 (Commercial).

US Route 13, from Delaware Route 10 in Camden to the Maryland line, is subject to the Corridor Capacity Preservation Program (CCPP). The purposes of the CCPP are to maintain the regional importance to and preserve the intended function and capacity of existing designated transportation routes within the Program. The main objectives of the program are listed below:

- Prevent the need to build an entirely new road
- Minimize the transportation impacts of increased economic growth
- Maintain an existing road's ability to handle traffic efficiently and safely
- Preserve the ability to make future improvements
- Sort local and through traffic

The section of US Route 13 where the proposed development is located is included in the CCPP. More information regarding the CCPP can be found at the following link: https://deldot.gov/Publications/manuals/corr_cap/index.shtml.

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

The review of the TIS shows that all of the intersections analyzed, except for the intersection of US Route 13 and Cannon Road, exhibit Level of Service (LOS) D or better for all scenarios that were studied, and would satisfy the criteria listed in Chapter 2 of DeIDOT's *Development Coordination Manual*.

For the intersection of US Route 13 and Cannon Road, the failing LOS is limited to the 2022 build scenarios for both the p.m. and summer Saturday mid-day peak hours. In the TIS, the developer's engineer proposed to modify the eastbound Cannon Road approach from its current configuration (one shared left-turn / through / right-turn lane) to an alternate configuration (one exclusive left-turn lane, one shared left-turn / through / right-turn lane). Upon our review, we agree with the proposed modification, as it will improve LOS to D or better for the 2022 build scenarios.

Should the Town 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 the State-maintained road(s) on which they front, within the limits of their frontage, to meet DeIDOT's standards for their 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 in whose area the development is located.
2. The developer should construct the site entrance on US Route 13. The proposed configuration is shown on the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance	Does not exist	One right-turn lane
Southbound US Route 13	Two through lanes	Two through lanes, one right-turn lane

Based on DelDOT’s Auxiliary Lane Worksheet (version 2020.1, dated 4/15/2020), a 485-foot right-turn lane is required. Additionally, a channelization island for the right-turns should be installed. The developer should coordinate with DelDOT’s Development Coordination section on the final construction details of the entrance.

- The developer should construct the site entrance on Cannon Road. The proposed configuration is shown on the table below.

Approach	Current Configuration	Proposed Configuration
Northbound Private Driveway	One shared left-turn / right-turn lane	One shared left-turn lane / through / right-turn lane
Southbound Site Entrance	Does not exist	One shared left-turn lane / through / right-turn lane
Eastbound Cannon Road	One shared through / right-turn lane	One left-turn lane, one shared through / right-turn lane
Westbound Cannon Road	One shared left-turn / through lane	One shared left-turn / through lane, one right-turn lane

Regarding the lengths of the turn lanes to be added, there is approximately 135 feet between the proposed site entrance location and US Route 13. In this regard, the developer should coordinate with DelDOT’s Development Coordination section to determine the final lengths, as design deviations may be needed.

- The developer should modify the configuration of the intersection of US Route 13 and Cannon Road. The proposed configuration is shown on the table below.

Approach	Current Configuration	Proposed Configuration
Northbound US Route 13	One left-turn lane, two through lanes, one right-turn lane	One left-turn lane, two through lanes, one right-turn lane
Southbound US Route 13	One left-turn lane, two through lanes, one right-turn lane	One left-turn lane, two through lanes, one right-turn lane
Eastbound Cannon Road	One shared left-turn / through / right-turn lane	One left-turn lane, one shared left-turn / through / right-turn lane
Westbound Cannon Road	One shared left-turn / through / right-turn lane	One shared left-turn / through / right-turn lane

Per queuing analysis, the eastbound left-turn lane should be 380 feet in length (excluding taper). Because this left-turn will extend past the proposed site entrance, the developer should coordinate with DelDOT’s Development Coordination section on the final construction details of this turn lane.

- The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 13 and Cannon Road. The agreement will cover the necessary changes to the signal as a result of the improvement listed in item 4. The developer should coordinate with DelDOT’s Development Coordination section to discuss the details of this agreement.

6. The following bicycle, pedestrian, and transit improvements should be included:
- a. Adjacent to the right-turn lanes added at the site entrances, 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.
 - b. Appropriate bicycle symbols, directional arrows, striping (including stop bars), and signing should be included along bicycle facilities and right-turn lanes within the project limit.
 - c. 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 13 and Cannon Road.
 - d. The developer should coordinate with DelDOT's Development Coordination section during the plan review process regarding the details of pedestrian facilities needed within the easements along US Route 13 and Cannon Road.
 - e. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings within the development, including all site entrances. Type 3 curb ramps are discouraged.
 - f. DelDOT recommends the construction of internal walkways for pedestrian safety and to promote walking as a viable transportation alternative within the development. These walkways should each be a minimum of five feet wide (with a minimum of a five-foot buffer from the roadway) and should meet current DelDOT and ADA standards. These internal walkways should connect to the frontage pedestrian facilities.

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. Don Weber, Assistant Director for Traffic Operations and Management. Mr. Weber can be reached at (302) 659-4651 or by email at Don.Weber@delaware.gov.

Please note that this review generally focuses on capacity and level of service issues; additional comments relating to bicycle, pedestrian, transit, safety and operational issues may be further addressed through DelDOT's subdivision review process.

Mr. Christopher Duke
September 1, 2020
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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@delaware.gov.

Sincerely,



Troy Brestel
Project Engineer

TEB:km

Enclosures

cc with enclosures:

Mr. William Owen, PennTex Ventures, L.L.C.
Mr. J. Michael Riemann, Becker Morgan Group, Inc.
Ms. Bethany DeBussy, Town of Bridgeville
Ms. Constance C. Holland, Office of State Planning Coordination
Mr. Brad Eaby, Deputy Attorney General
Ms. Shanté Hastings, Director, Transportation Solutions (DOTS)
Mr. J. Marc Coté, Director, Planning
Mr. Mark Luszcz, Deputy Director, Design, DOTS
Mr. Michael Simmons, Assistant Director, Project Development South,
DOTS
Mr. Alistair Probert, South District Engineer, South District
Mr. Todd Sammons, Assistant Director, Development Coordination
Mr. T. William Brockenbrough, Jr., County Coordinator, Development
Coordination
Mr. Don Weber, Assistant Director, Traffic Operations and Management,
Traffic, DOTS
Mr. Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Mr. Chris Sylvester, Traffic Studies Manager, Traffic, DOTS
Mr. Thomas Felice, Program Manager, Development Coordination
Ms. Tremica Cherry, Service Development Planner, Delaware Transit
Corporation
Mr. Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Ms. Susanne Laws, Sussex County Subdivision Coordinator,
Development Coordination
Mr. John Andrescavage, Subdivision Manager, Development
Coordination
Mr. Claudy Joinville, Project Engineer, Development Coordination

General Information

Report date: February 2020

Prepared by: Becker Morgan Group, Inc.

Prepared for: PennTex Ventures Contracting

Tax parcels: 131-19.00-7.00 & 8.02

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

Project Description and Background

Description: 4,063 square foot convenience store with gas pumps

Location: Northwest corner of the intersection of US Route 13 and Cannon Road in the Town of Bridgeville, Sussex County, Delaware

Amount of land to be developed: approximately 3.1 acres

Land use approval(s) needed: DelDOT Subdivision approval and Town of Bridgeville land use approval

Proposed completion date: 2022

Proposed access location: Two access points are proposed: one rights-in, rights-out access on US Route 13, and one full access on Cannon Road.

Daily Traffic Volumes (taken from DelDOT's 2019 Vehicle Volume Summary):

- 2019 Average Annual Daily Traffic on US Route 13: 22,255 vpd
- 2019 Average Annual Daily Traffic on Cannon Road: 2,236 vpd

2020 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 an Investment Level 2 area.

Investment Level 2

This investment level has many diverse characteristics. Level 2 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 state's more open, less populated areas. They generally contain a limited variety of housing types, predominantly detached single-family dwellings.

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

Such development provides for a variety of housing types, user-friendly transportation systems, essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community. Like the Level 1 Areas, Level 2 Areas would be a prime location for designating “pre-permitted areas.”

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

The proposed development is located in an Investment Level 2 area. Comparing the land use to the description above, the proposed development is generally consistent with the 2020 update of the Strategies for State Policies and Spending.

Comprehensive Plan

Town of Bridgeville Comprehensive Plan:

(Source: Town of Bridgeville Comprehensive Plan Update, July 2018)

The 2018 Town of Bridgeville Comprehensive Plan Future Land Use Map indicates that the proposed development parcels are within an area designated as a mixed-use area. The plan describes mixed-use areas suitable for plans that have a mix of residential and / or commercial uses, including parks and open space. Smaller parcels that are designated mixed use can be one or the other. Larger parcels would be likely to be zoned for a Residential Planned Community (RPC), which requires a mix of residential, commercial and open space. Mixed-use development preferably would be “townlike,” compatible with the town’s street grid.

Proposed Development’s Compatibility with Comprehensive Plan: The proposed development is located in a mixed-use area. Comparing the land use to the description above, the proposed development is generally consistent with the 2018 Town of Bridgeville Comprehensive Plan Future Land Use Map.

Relevant Projects in the DelDOT Capital Transportation Program

There are currently no active DelDOT projects within the area of study.

Trip Generation

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

- 4,063 square foot super convenience store with gas pumps (ITE code 960);

Table 1
 7-ELEVEN - BRIDGEVILLE PEAK HOUR TRIP GENERATION

Land Use 4,063 SF super convenience store with gas pumps	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Total Gross Trips	146	147	293	140	141	281	110	111	221
Pass-By Trips	111	112	223	106	107	213	84	84	168
TOTAL NEW TRIPS	35	35	70	34	34	68	26	27	53

Table 2
 7-ELEVEN - BRIDGEVILLE REDEVELOPMENT DAILY TRIP GENERATION

Land Use 4,063 SF super convenience store with gas pumps	Weekday ADT			Saturday ADT		
	In	Out	Total	In	Out	Total
TOTAL TRIPS	1,700	1,701	3,401	1,421	1,421	2,842

Overview of TIS

Intersections examined:

- 1) Site Entrance A / US Route 13
- 2) Site Entrance B / Cannon Road (Sussex Road 18) / Private Driveway
- 3) US Route 13 / Cannon Road

Conditions examined:

- 1) 2019 existing conditions (Case 1)
- 2) 2022 without development (Case 2)
- 3) 2022 with development and rights-in only on US Route 13 (Case 3a)
- 4) 2022 with development and rights-in / rights-out on US Route 13 (Case 3b)

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

Committed developments considered:

- 1) Bridgeville Town Center (114,500 square-foot shopping center, 180 units of multi Family mid-rise housing, 150 units of senior adult attached housing, and a 100-room hotel)
- 2) Coastal Run Apartments (300 apartment units)
- 3) Heritage Shores North – (a.k.a. Bridgeville South) – 1,111 single-family detached houses, 889 townhouses, a 266,500 square-foot shopping center, and an 18-hole golf course)

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: DART currently operates Route 212 within the study area.

Planned transit service: There are no current plans to change the transit service that currently exists within the study area.

Existing bicycle and pedestrian facilities: According to the Sussex County bicycle map, both US Route 13 and Cannon Road are connector bicycle routes with bikeways. There are no existing pedestrian facilities in the study area.

Planned bicycle and pedestrian facilities: Adjacent to the right-turn lanes added at the site entrances, 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. Regarding pedestrian facilities, the developer should coordinate with DelDOT's Development Coordination section during the plan review process regarding the details of any facilities needed within the easements along US Route 13 and Cannon Road.

Previous Comments

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

General HCS Analysis Comments

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

There were 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 7-Eleven - Bridgeville
Report dated February 2020
 Prepared by Becker Morgan Group, Inc.

Unsignalized Intersection ¹	LOS per TIS			LOS per DeDOT		
	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
Site Entrance A / US Route 13						
2022 with development – with rights-in only on US Route 13						
Eastbound Site Entrance	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
2022 with development – with rights-in / rights-out on US Route 13						
Eastbound Site Entrance	B (14.9)	C (17.1)	C (20.0)	B (14.9)	C (17.1)	C (20.0)

¹ For both unsignalized and signalized intersection analyses, the numbers in parentheses following levels of service (LOS) are average delay per vehicle, measured in seconds.

Table 4
 PEAK HOUR LEVELS OF SERVICE (LOS)
based on the Traffic Impact Study for 7-Eleven - Bridgeville
Report dated February 2020
 Prepared by Becker Morgan Group, Inc.

Unsignalized Intersection ¹	LOS per TIS			LOS per DeDOT		
	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
Site Entrance B / Cannon Road / Private Driveway						
2022 with development – with rights-in only on US Route 13						
Eastbound Cannon Road Left-Turn	A (7.8)	A (8.1)	A (7.8)	A (7.8)	A (8.1)	A (7.8)
Westbound Cannon Road Left-Turn	A (7.7)	A (7.8)	A (7.8)	A (7.7)	A (7.8)	A (7.8)
Northbound Private Driveway	A (9.6)	A (0.0)	B (11.9)	A (9.6)	A (0.0)	B (11.8)
Southbound Site Entrance	C (15.5)	C (18.6)	B (14.7)	C (15.2)	C (17.7)	B (14.4)
2022 with development – with rights-in / rights-out on US Route 13						
Eastbound Cannon Road Left-Turn	A (7.8)	A (8.1)	A (7.8)	A (7.8)	A (8.1)	A (7.8)
Westbound Cannon Road Left-Turn	A (7.7)	A (7.8)	A (7.8)	A (7.7)	A (7.8)	A (7.8)
Northbound Private Driveway	A (9.6)	A (0.0)	B (11.9)	A (9.6)	A (0.0)	B (11.8)
Southbound Site Entrance	B (13.6)	C (15.6)	B (13.4)	B (13.4)	C (15.3)	B (13.2)

¹ For both unsignalized and signalized intersection analyses, the numbers in parentheses following levels of service (LOS) are average delay per vehicle, measured in seconds.

Table 5
 PEAK HOUR LEVELS OF SERVICE (LOS)
based on the Traffic Impact Study for 7-Eleven - Bridgeville
Report dated February 2020
 Prepared by Becker Morgan Group, Inc.

Signalized Intersection ¹	LOS per TIS			LOS per DeDOT		
	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
US Route 13 / Cannon Road						
2019 existing	C (27.4)	C (26.6)	C (23.9)	C (28.2)	C (27.7)	C (25.3)
2022 without development	C (33.9)	D (42.4)	D (50.3)	D (36.5)	D (48.9)	D (48.6)
2022 with development – with rights-in only on US Route 13	D (51.1)	E (60.5)	E (74.5)	D (48.8)	E (64.2)	E (63.1)
2022 with development – with rights-in / rights-out on US Route 13	D (44.6)	D (54.6)	E (63.8)	D (43.7)	E (71.9)	E (71.5)
2022 with development – with rights-in / rights-out on US Route 13 – with improvement ²	C (33.9)	D (39.1)	D (42.0)	C (34.6)	D (45.4)	D (43.4)

¹ For both unsignalized and signalized intersection analyses, the numbers in parentheses following levels of service (LOS) are average delay per vehicle, measured in seconds.

² Improvement consists of modifying the eastbound Cannon Road approach to an exclusive left-turn lane and a shared left-turn / through / right-turn lane.