



STATE OF DELAWARE  
**DEPARTMENT OF TRANSPORTATION**  
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JENNIFER COHAN  
SECRETARY

**MEMORANDUM**

**TO:** Sireen Muhtaseb, New Castle Review Coordinator

**FROM:** Troy Brestel, Project Engineer TEB

**DATE:** June 16, 2020

**SUBJECT:** **Pencader Corporate Center – Lot 30A (Protocol Tax Parcel #1102100042)  
Results of Traffic Operational Analysis (TOA)**

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We have reviewed the traffic operational analysis (TOA) for the proposed Pencader Corporate Center – Lot 30A commercial development, submitted by Landmark Science and Engineering on March 3, 2020. The analysis evaluates the traffic impacts of the proposed development, which is to be located on the northwest corner of the intersection of Delaware Route 896 / Corporate Boulevard / GBC Drive in New Castle County. The proposed development would supersede a previous plan for which a previous traffic impact study (TIS) was conducted; the purpose of this analysis is to examine the traffic impacts of the new proposed plan at the proposed site entrance on Corporate Boulevard as well as the intersection of Corporate Boulevard and Executive Drive and the intersection of Delaware Route 896, Corporate Boulevard and GBC Drive.

The proposed development would consist of 131,468 square feet of general office space, a 5,585 square foot super convenience store with gasoline pumps, a 10,000 square foot day care center, a 12,000 square foot variety store, 4,000 square feet of high-turnover sit-down restaurant space, and a 120-room hotel. One rights-in / rights-out / lefts-out access to the site is proposed to be located on Corporate Boulevard, with full access provided on Executive Drive. Construction is expected to be complete in 2022.

There are two relevant DelDOT projects in the area. One project is an improvement at the intersection of Delaware Route 896, Corporate Boulevard and GBC Drive, scheduled for construction beginning in Fiscal Year 2021. It will add a second northbound left-turn lane on Route 896 and the subject development would be providing rights-of-way and construction for a receiving lane on Corporate Boulevard. The other project is a widening project to provide a third through lane each way on Route 896 from US Route 40 to I-95. It is scheduled for construction beginning in Fiscal Year 2026.

Based on our review, we find the following:

- 1) The proposed site entrance, configured as a right-in / right-out / left-out approach, on Corporate Boulevard would operate at level of service (LOS) D or better during the a.m. and p.m. peak hours for the future build condition, and would meet the LOS criteria listed in Chapter 2 of the Development Coordination Manual. In addition to the discussion below in item 3, the details of this entrance will need to be coordinated with DelDOT's Development Coordination and Project Development North sections so that it is designed and constructed appropriately.
- 2) The southbound Executive Drive approach to the intersection of Corporate Boulevard and Executive Drive would operate at worse than LOS D during the p.m. peak hour for the future build condition. This poor LOS would be due to the heavier traffic volumes along Corporate Boulevard. The traffic queues along the Executive Drive approach during this scenario are minimal. Therefore, we do not recommend any improvements for this intersection
- 3) The intersection of Delaware Route 896 / Corporate Boulevard / GBC Drive would operate at worse than LOS D during the a.m. and p.m. peak hours for the future build condition. Construction of the planned DelDOT projects mentioned above will fully mitigate the poor LOS at this intersection. However, the projects will not be complete prior to the construction of the proposed development.

In this regard, the developer has looked at several phasing options for the site to determine what portion could be built prior to the construction of the DelDOT projects, so that the proposed entrance along Corporate Boulevard would not be blocked by the eastbound traffic queue extending back from the intersection. Analysis of those options have found that if the first phase of the development consisted of the office space, the convenience store, the day care center, and the variety store, the traffic queue along Corporate Boulevard would block the proposed entrance there approximately 50 percent of the p.m. peak hour. At those times, drivers would necessarily need to divert to Executive Drive to leave the site.

While the queuing on Corporate Boulevard is undesirable, DelDOT finds it acceptable on an interim basis, pending completion of the DelDOT projects mentioned above. Therefore, we would not be opposed to the proposed entrance, configured as a right-in / right-out / left-out, on Corporate Boulevard.

- 4) The developer should construct a portion of the DelDOT project that will add a second northbound left-turn lane to the intersection of Delaware Route 896 / Corporate Boulevard / GBC Drive. The portion of construction mentioned above would be the receiving lane for the second northbound left-turn lane; the details of this construction should be coordinated with DelDOT's Development Coordination and Project Development North sections.
- 5) The developer should make an equitable contribution to the DelDOT project that will construct a third through lane on Delaware Route 896 in both the northbound and southbound directions. The details of this contribution should be coordinated with DelDOT's Development Coordination and Project Development North sections.

Ms. Sireen Muhtaseb

June 16, 2020

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Please note that this analysis generally focuses on capacity and level of service issues. Other comments relating to bicycle, pedestrian, and frontage improvements may be made during the plan review process. Level of Service tables for the existing and future cases are attached with this memorandum.

TB:km

cc: Jerome Heisler, Jr., Reybold, Inc.  
Ted Williams, Landmark Science and Engineering, Inc.  
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Table 1  
PEAK HOUR LEVELS OF SERVICE (LOS)  
Pencader Corporate Center Lot 30A – TOA  
Prepared by Landmark Science and Engineering, Inc.

<b>Unsignalized Intersection<sup>1</sup></b>	<b>LOS per TOA</b>		<b>LOS per DelDOT</b>	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Site Entrance / Corporate Boulevard 2022 with full development				
Southbound Site Entrance	D (29.0)	D (28.3)	D (29.5)	D (28.8)

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<sup>1</sup> Numbers in parentheses are average seconds of delay per vehicle.

Table 2  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Pencader Corporate Center Lot 30A – TOA  
 Prepared by Landmark Science and Engineering, Inc.

Unsignalized Intersection <sup>1</sup>	LOS per TOA <sup>2</sup>		LOS per DelDOT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Corporate Boulevard / Executive Drive				
2020 Existing				
Eastbound Corporate Boulevard Left-Turn	A (8.3)	A (7.8)	A (8.3)	A (7.8)
Westbound Corporate Boulevard Left-Turn	A (8.0)	A (8.4)	A (8.0)	A (8.4)
Northbound Executive Drive	B (12.2)	B (14.7)	B (12.2)	B (14.7)
Southbound Executive Drive	C (20.0)	C (19.8)	C (20.0)	C (19.8)
2022 without development				
Eastbound Corporate Boulevard Left-Turn	A (8.3)	A (7.8)	A (8.3)	A (7.8)
Westbound Corporate Boulevard Left-Turn	A (8.0)	A (8.4)	A (8.0)	A (8.4)
Northbound Executive Drive	B (12.2)	B (14.7)	B (12.2)	B (14.7)
Southbound Executive Drive	C (20.0)	C (19.8)	C (20.0)	C (19.8)
2022 with full development				
Eastbound Corporate Boulevard Left-Turn	A (8.5)	A (8.1)	A (8.7)	A (8.0)
Westbound Corporate Boulevard Left-Turn	A (7.9)	A (8.3)	A (7.9)	A (8.3)
Northbound Executive Drive	B (13.7)	C (15.2)	B (14.0)	C (15.1)
Southbound Executive Drive	F (105.4)	F (80.8)	F (112.9)	F (80.8)

<sup>1</sup> Numbers in parentheses are average seconds of delay per vehicle.

<sup>2</sup>

Table 3  
 PEAK HOUR LEVELS OF SERVICE (LOS)  
 Pencader Corporate Center Lot 30A – TOA  
 Prepared by Landmark Science and Engineering, Inc.

Signalized Intersection <sup>1</sup>	LOS per TOA		LOS per DelDOT <sup>2</sup>	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Delaware Route 896 / Corporate Boulevard / GBC Drive				
2020 Existing	C (22.1)	F (99.2)	C (21.1)	C (33.8)
2022 without development	C (34.6)	F (210.7)	D (44.8)	E (57.9)
2022 with Phase 1 <sup>3</sup> of the development	E (60.3)	F (286.4)	E (55.3)	F (104.7)
2022 with Phase 1 <sup>3</sup> of the development and without Glasgow Commons as a committed development	C (34.4) <sup>4</sup>	E (60.3) <sup>4</sup>	D (37.4)	E (77.2)
2022 with full development	E (61.7)	F (284.7)	E (55.3)	F (107.0)
2022 with full development and with DelDOT Project A <sup>5</sup>	E (58.8)	F (223.4)	D (52.9)	F (88.9)
2022 with full development and both DelDOT Project A and B <sup>6</sup>	C (31.3)	F (119.4)	C (32.1)	D (45.6)

<sup>1</sup> Numbers in parentheses are average seconds of delay per vehicle.

<sup>2</sup> In the review of the TOA, DelDOT considered the westbound right-turn lane on GBC Drive as a free-flow movement; therefore, it was removed from the analysis. DelDOT also used a cycle length of 150 seconds.

<sup>3</sup> Phase 1 consists of 131,468 square feet of general office space, a 5,585 square foot super convenience store with gasoline pumps, a 10,000 square foot day care center, and a 12,000 square foot variety store.

<sup>4</sup> The engineer removed all committed developments from consideration in this scenario, whereas DelDOT only removed Glasgow Commons.

<sup>5</sup> DelDOT Project A consists of adding a second northbound left-turn lane on Delaware Route 896.

<sup>6</sup> DelDOT Project B consists of adding an additional through lane on northbound and southbound Delaware Route 896.