



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

SHAILEN P. BHATT
SECRETARY

May 21, 2012

Mr. David Culver
General Manager
New Castle County Department of Land Use
87 Reads Way
New Castle, DE 19720

Dear Mr. Culver:

DelDOT has completed its review of the addendum to the **Greenville Center** traffic impact study (TIS) prepared by Apex Engineering, Inc., dated April 18, 2012.

Briefly, since the submittal and review of the original TIS in 2009, the proposed land use for the subject development has changed. The table below shows the recent history of the site's current and proposed land use:

Land Use	Existing	2009 TIS	2012 TIS addendum
Retail	72,468 square feet	94,703 square feet	94,017 square feet
General Office	62,851 square feet	58,805 square feet	60,605 square feet
Medical Office	3,451 square feet	3,451 square feet	3,451 square feet
Residential Units	N/A	27 condominiums	N/A

Additionally, it is understood that there is concern that the general office space, while listed as such, could function largely as medical office space, which would generate more traffic than general office space.

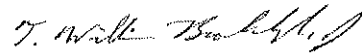
The purpose of the addendum is two-fold. First, it provides an update to the build scenario of the 2009 TIS. Second, it provides an analysis of a "worst-case" scenario, whereby all of the proposed general office space would function as medical office space.

Based on our review, we find that the intersections in the study area show very small increases in delay with the changes listed above. Because levels of service (LOS) change at fixed intervals, some LOS predicted in the 2009 study would change with these increases in delay. Most would not. None would change from D to E. This would be true even if all of the proposed office space were used as medical office space. Therefore, we feel that the recommendations listed in our October 19, 2009 TIS review letter (copy attached) would be sufficient for the new proposed land use.

Mr. David Culver
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Please contact Mr. Troy Brestel at (302) 760-2167 if you have any questions concerning this review.

Sincerely,



T. William Brockenbrough, Jr.
County Coordinator

TWB:tbm
Enclosures
cc with enclosures:

Carol Ohm, Apex Engineering, Inc.
John Janowski, New Castle County Department of Land Use
Owen Robatino, New Castle County Department of Land Use
Frederick H. Schranck, Deputy Attorney General
Terry Gorlich, Legislative Liaison, Public Relations
Nicole Majeski, Deputy Chief of Staff
Natalie Barnhart, Director, Transportation Solutions (DOTS)
Michael Strange, Director, Division of Planning
Drew Boyce, Assistant Director, Project Development North, DOTS
Donald D. Weber, Chief Traffic Engineer, Traffic, DOTS
Cleon Cauley, Deputy Director, Division of Planning
Adam Weiser, Safety Programs Engineer, Traffic, DOTS
Mark Luszczyk, Assistant Chief Traffic Engineer, Traffic, DOTS
Thomas E. Meyer, Traffic Studies Manager, Traffic, DOTS
J. Marc Coté, Subdivision Engineer, Development Coordination
Jennifer Pinkerton, Chief Materials Engineer, Maintenance & Operations
Mark Alexander, Canal District Engineer, Canal District
Kevin Canning, Public Works Engineer, Canal District
Mark Tudor, Project Manager, Project Development South, DOTS
Wayne Henderson, Service Development Planner, Delaware Transit Corporation
Semia Hackett, Service Development Planner, Delaware Transit Corporation
Marco Boyce, Planning Supervisor, Statewide & Regional Planning
Joshua Schwartz, Subdivision Manager, Development Coordination
Troy Brestel, Project Engineer, Development Coordination
W. Paul Hogge, Project Engineer, Development Coordination
Sean McEvelly, Johnson, Mirmiran & Thompson



October 19, 2009

Mr. Todd J. Sammons
Project Engineer
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1404
Traffic Impact Study Services
Task No. 42A – Greenville Center

Dear Mr. Sammons,

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Greenville Center development (expansion) prepared by Apex Engineering, Inc. (Apex), dated May 22, 2009. This review was assigned as Task Number 42A. Apex prepared the report in a manner generally consistent with DelDOT's *Rules and Regulations for Subdivision Streets*.

The TIS evaluates the impacts of the proposed expansion of the Greenville Center development, located on the east side of Delaware Route 52 (Kennett Pike / New Castle Road 9) and the north side of Buck Road (New Castle Road 265), within Christiana Hundred in New Castle County, Delaware. The proposed expansion would add 22,235 square feet of retail space and 27 luxury condominium units, and would eliminate 4,064 square feet of office space. Including the existing development plus the proposed expansion, the completed Greenville Center would consist of 94,703 square feet of retail space, 58,805 square feet of office space, 3,451 square feet of medical office space, and 27 luxury condominium units on approximately 10.5 acres of land. There are two existing access points for the Greenville Center development; one on Delaware Route 52 and one on Buck Road. They will remain as the only access points. Construction is anticipated to be complete by 2012.

The land is currently zoned as CR (Commercial Regional) in New Castle County. The developer does not propose to change the zoning.

DelDOT currently does not have any relevant projects within the study area. However, since the development is located within the Brandywine Valley Scenic Byway area, DelDOT's policy, as part of the strategies to manage the byway, is to avoid widening Delaware Route 52 and Montchanin Road (Delaware Route 100 / New Castle Road 225) if possible.

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

The proposed development meets the New Castle County Level of Service (LOS) Standards as stated in Section 40.11.210 of the Unified Development Code (UDC). The stop-controlled minor street approach at the following intersection does not meet the DelDOT level of service criteria without the implementation of physical roadway and/or traffic control improvements.

<i>Intersection</i>	<i>Existing Traffic Control</i>	<i>Situations for which deficiencies occur</i>
Delaware Route 52 and Greenville Crossing Shopping Center (North Egress)	Unsignalized	2008 Existing AM and PM; 2012 AM and PM without Greenville Center expansion; 2012 AM and PM with Greenville Center expansion

The unsignalized T-intersection of Delaware Route 52 and Greenville Crossing Shopping Center (North Egress) exhibits LOS deficiencies under existing and future conditions. However, we do not recommend additional improvements be implemented by the developer at this intersection. While improvements could be made to improve traffic operations at this location, such as widening the median of Delaware Route 52 to allow left turns exiting the shopping center to be completed as a two-stage movement (with drivers stopping in the median if necessary), the impacts would be significant and a two-stage exit could potentially be less safe than the existing design. Additionally, the traffic volume exiting Greenville Crossing at this location would not increase due to the Greenville Center expansion, and motorists leaving Greenville Crossing also have the option of exiting via the south access, which is a signalized intersection across from Hillside Road (New Castle Road 264).

Should the County choose to approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

1. The developer should improve the intersection of Buck Road and the Site Entrance. The proposed configuration is shown in the table below.

Approach	Current Configuration	Proposed Configuration
Southbound Site Entrance	One shared left/right-turn lane	One 12' left-turn lane and one 12' right-turn lane*
Eastbound Buck Road	One left-turn lane and one through lane	One left-turn lane and one through lane
Westbound Buck Road	One shared through/right-turn lane	One through lane and one right-turn lane

* The northern leg of this intersection should also include a 15' receiving lane for traffic entering the site, separated from southbound traffic leaving the site by a mountable median.

These improvements must meet all DelDOT and AASHTO entrance design standards, including adequate radius of the entrance curblines for the appropriate design vehicle that would enter and exit the site. Based on evidence of tire scuff marks on curbs at this site entrance, the existing geometry is inadequate for vehicles entering and exiting this development.

Initial recommended minimum turn-lane lengths (excluding tapers) of the separate turn lanes are listed below. The developer should coordinate with DeIDOT's Subdivision Section to determine final turn-lane lengths.

Approach	Left-Turn Lane	Right-Turn Lane
Southbound Site Entrance	25 feet*	25 feet*
Eastbound Buck Road	185 feet**	N/A
Westbound Buck Road	N/A	100 feet***

- * turn-lane length based on storage length per queuing analysis, with 25-foot minimum
- ** turn-lane length based on deceleration + storage length per DeIDOT's *Standards and Regulations for Subdivision Streets and State Highway Access*, but length is limited by the existing upstream left-turn lane along westbound Buck Road at the intersection of Delaware Route 52. These are back-to-back left-turn lanes and queuing analyses indicate that the current lengths should be maintained.
- *** turn-lane length based on deceleration + storage length per DeIDOT's *Standards and Regulations for Subdivision Streets and State Highway Access*

2. The developer should enter into a traffic signal agreement with DeIDOT for the intersection of Buck Road and the Site Entrance. The agreement should include pedestrian signals, crosswalks and interconnection at DeIDOT's discretion, and the developer will be required to perform a signal warrant analysis for eight-hour volume (Warrant 1), four-hour volume (Warrant 2), peak hour volume (Warrant 3), pedestrian volume (Warrant 4), and crash experience (Warrant 7).
3. To the extent that it is legally permissible, physically feasible, and financially viable, the adjoining property owner reasonably cooperates, and there are no other constraints, the developer should make a good faith attempt to establish a cross access easement for a roadway connection between the Greenville Center development and the Greenville Crossing Shopping Center immediately to the north. At a minimum, the developer should identify a location on the Greenville Center property where this easement can be established and protected even if it is not possible to complete the connection under current conditions or constraints.
4. The following bicycle, pedestrian, and transit improvements should be included:
 - a. A right-turn yield to bikes sign (MUTCD R4-4) should be added at the start of the right-turn lane added to Buck Road.
 - b. Where the right-turn lane is added to Buck Road, 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.
 - c. Appropriate bicycle symbols, directional arrows, striping (including stop bars), and signing should be included along bicycle facilities and right-turn lanes within the project limits.

- d. Utility covers should be moved outside of the designated bicycle lane or be flush with the pavement.
- e. Covered bike parking should be included near the entrances of all commercial establishments and office buildings to be included within this development.
- f. Sidewalks along the Delaware Route 52 and Buck Road site frontages should be upgraded as needed to ensure they are ADA compliant.
- g. Along Buck Road, the existing sidewalk should be extended down to the reconfigured site entrance.
- h. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including all site entrances. Type 3 curb ramps are discouraged.
- i. Internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These internal sidewalks should connect the building entrances to the frontage sidewalks and to adjacent parcels where applicable.
- j. Where internal sidewalks are located alongside of parking spaces, a buffer should be added to eliminate vehicular overhang onto the sidewalk.
- k. The developer should install an ADA accessible 5' x 3' concrete pad at the existing bus stop along the Delaware Route 52 site frontage at the northern end of the site. The pad should have a maximum slope of 2% for water drainage. It should be connected to the existing frontage sidewalk and internal sidewalks. The Parking facilities for bicyclists should be included. The developer should coordinate with the Delaware Transit Corporation regarding the details and implementation of the transit-related improvements.

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_muted/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Adam Weiser of DelDOT's Traffic Section. Mr. Weiser can be reached at (302) 659-4073 or by email at Adam.Weiser@state.de.us.



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

Additional details on our review of this TIS are attached. Please contact me at (302) 738-0203 or through e-mail at ajparker@mtmail.biz 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, P.E., PTOE
Project Manager

Enclosure