



**GILMORE & ASSOCIATES, INC.**  
ENGINEERING & CONSULTING SERVICES

September 30, 2014

File No. 12-04054

Mr. William Bolla, Esq.  
McNamara, Bolla & Panzer  
116 East Court Street  
Doylestown, PA 18901

Reference: Villanova University – Lancaster Avenue Redevelopment  
CICD Conditional Use Transportation Review  
Radnor Township, Delaware County, PA

Dear Mr. Bolla:

Gilmore & Associates, Inc. has completed the conditional use Transportation review of the submitted materials and offers the following comments for Radnor Township consideration:

**I. BACKGROUND**

The applicant, Villanova University, intends to develop/redevelop several parcels located along Lancaster Avenue, southeast and southwest of Ithan Avenue intersection, in Radnor Township, Delaware County. The project includes construction of student housing (1,135 bed apartment-style residence halls), retail shops (University Bookstore, bistro and small convenience store). In addition, the project includes construction of a Performing Arts Center (with 500 – 650 total seats in two theaters) and multilevel parking structure (1,293 spaces) to be located on the southeast corner of Lancaster Avenue and Ithan Avenue. Villanova University intends to eliminate many of the existing driveway accesses located on the south side of Lancaster Avenue, west of Ithan Avenue and construct a shared surface parking facility to the rear of the existing university buildings with limited access to Lancaster Avenue at the signalized intersection of Chapel Walk.

**II. REVIEWED DOCUMENTS**

Transportation Impact Assessment for Villanova University Lancaster Avenue Student Resident Halls, prepared by F. Tavani and Associates, Inc. dated September 16, 2014.

**III. IMPROVEMENTS**

According to the submitted Transportation Impact Study, Villanova University proposes the following improvements/accesses:

**A. Lancaster Avenue at Church Walk-Signalized Intersection**

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1. Left and right turn lane exit from Chapel Walk to Lancaster Avenue.
  2. Right in/right out on the eastbound approach of Lancaster Avenue, west of Church Walk
  3. A westbound dedicated left-turn lane on Lancaster Avenue entering Church Walk
  4. An eastbound dedicated right-turn lane on Lancaster Avenue entering Church Walk
  5. A new pedestrian bridge spanning Lancaster Avenue at Church Walk.
  6. Eliminate existing pedestrian crosswalks crossing Route 30 at Church Walk.
  7. Optimize signal timings at the intersection during the studied peak hours.
- B. Pike Lot Parking Garage Accesses (Southeast corner of Lancaster Avenue and Ithan Avenue)
1. New left-turn movement directly from westbound Lancaster Avenue to Pike Garage, east of Ithan Avenue along with a right in/right out; however, northbound left turn movements out of the Pike Garage will be prohibited.
  2. Full access on Ithan Avenue at Pike Lot Parking Garage & Lancaster Avenue Housing (LAH) intersection
  3. Right out, north of the full access to Ithan Avenue, just south of Lancaster Avenue.
- C. Lancaster Avenue and Ithan Avenue-Signalized Intersection:
1. Lancaster Avenue eastbound to include a dedicated left turn lane, one through lane and one shared through/right turn lane.
  2. Lancaster Avenue westbound to include an extended dedicated left turn lane, one through lane and one shared through/right turn lane.
  3. Ithan Avenue northbound to include an extended dedicated left turn lane; one shared through/right turn lane.
  4. Ithan Avenue southbound to include a dedicated left turn lane; one shared through/right turn lane.
- D. Lancaster Avenue and Route 320/Kenilworth Street/Aldwyn Lane:  
Optimize signal timings at the intersection during the studied peak hours in order to improve operations and reduce queuing.
- E. Lancaster Avenue and Driveway access:
1. Eight (8) unsignalized and unrestricted driveways will be consolidated to one (1) unsignalized right-in/right-out (RIRO) driveway Between Route 320 and the Church Walk signalized intersection, .
  2. A right-turn deceleration lane will be constructed along Lancaster Avenue at the right-in/right-out driveway, west of Church Walk.

#### **IV. COMMENTS**

A. As required in PennDOT Publication 46 *Traffic Engineering Manual*

1. Provide a turn-lane length analysis for the new proposed turn lanes and for the eastbound right turn at the intersection of Ithan Avenue and Lancaster Avenue.

2. Provide a table indicating the 95<sup>th</sup> percentile queues for all intersections using HCM2010 methodology. A queue analysis was only provided for five intersections.

F. Use HCM2010 methodology in Synchro for the intersection of Church Walk and Lancaster Avenue.

G. In general, when a new development is proposed, the vehicular trips associated with the new land development are calculated based on the type of land use and the size of the proposed land use. The applicant based the Trip Generation for University Student Bookstore, Bistro and the small convenience store on a similar site at St. Joseph University (SJU). The SJU includes approximately 15,000 square feet of retail space including a coffee shop, bookstore and restaurant/bistro.

Although in general, we agree with utilizing the trip generation of a similar local site there are some assumptions in the Villanova trip generation we disagree with as follows:

1. In accordance with Conditional Use (CU) Exhibit A.6.A, the Villanova retail space is approximately 20,440 square feet and the SJU retail is only 15,000 square feet. No factor was applied to account for the approximate 33% increase in square footage.
2. The SJU restaurant/bistro opens at 11:00 AM while the bookstore opens at 9AM. The SJU restaurant/bistro and bookstore were not opened during the studied AM peak hour (7:30 - 8:30 AM); however, Villanova University Student Bookstore currently opens at 8:00 AM.
3. The report should clarify if Villanova University intends to operate the Bistro and Bookstore during the AM Peak Hour and modify the trip generation data accordingly. Based on the above differences and to account for the Trip Generation of the Villanova retail component, it is recommended the study utilize the ITE Trip Generation 9th Edition for the three retail uses of convenience store, bookstore and restaurant/bistro. According to the SJU survey study, a 75% capture rate could be applied to the calculated ITE Trip Generation.

H. The Transportation Impact Study identifies 1,135 new beds for undergraduate students and 1,293 parking spaces for the proposed Pike garage. However, the CU application dated May 4, 2014 identifies 1,159 new beds and 1,265 new garage spaces. All conditional use documents must be consistent.

I. CU Exhibit A.6.A and A.18 identifies site plans that are not consistent as follows:

1. The pedestrian bridge entry point locations are inconsistent
2. Exhibit A.6.A indicates over 20,000 square feet of retail space while Exhibit.A.18 indicates 15,000 square feet of retail space.

3. Verify and revise as necessary so both are consistent.

- J. Verify the 2023 PM Peak Hour traffic volumes for the eastbound right turn lane at the intersection of Lancaster Avenue and Ithan Avenue and revise as needed. It appears the PM Peak Hour 2023 traffic volumes are less than the existing conditions and the 2018 conditions; verify and revise as necessary.
- K. There are some inconsistencies between the 2014 figure volumes and the analysis. These inconsistencies should be corrected.
- L. The applicant indicates an eastbound right-turn lane at the intersection of Lancaster Avenue and Ithan Avenue would have limited value during ordinary traffic conditions and would be insignificant during special events. No analysis was provided for this conclusion. The report must include a right turn lane warrant analysis based on PennDOT Publication 46 Traffic Engineering Handbook. During special events, a right turn lane will provide relief for the congested eastbound through movement and if a right turn is not provided, it is anticipated the two eastbound lanes will operate as one though lane and a de facto right turn lane thus reducing the capacity of Lancaster Avenue. To improve the operation of the intersection and to better accommodate special event traffic, an eastbound right-turn should be provided.
- M. Add traffic volumes figures depicting the 2023 projected traffic for special events such as men's basketball game and homecoming.
- N. PennDOT Strike-Off-Letter (SOL) 470-09-4 identifies mitigation for deficient critical movements or approaches (page 29). Revise Table 1 to include the delay in seconds where there are critical movements with LOS degradation.
- O. The applicant has proposed an all way stop at the intersection Ithan Road and the Pike parking garage access. Based on the analysis a two way stop seems to operate at acceptable LOS. The traffic volumes do not appear to warrant an all-way stop in accordance with the MUTCD. Traffic calming measures or other pedestrian improvements should be considered in lieu of an all-way stop.
- P. We recommend eliminating the second right turn out only from the Pike Garage to northbound Ithan Avenue. Superfluous
- Q. The street level pedestrian crossing on Lancaster Avenue at Church Walk must be maintained between the public sidewalk south of Lancaster Avenue and the public sidewalk north of Lancaster Avenue.
- R. The applicant should consider the following improvements associated with the pedestrian overpass:
  - 1. Provide an elevator for the physically challenged for access from the LAH surface parking lot to the pedestrian overpass.
  - 2. Install fencing between the north-side Lancaster Avenue sidewalk and the Villanova University property frontage along Lancaster Avenue to

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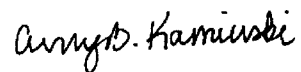
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discourage pedestrians from taking access to Villanova University from the northern public sidewalk.

3. Discuss alternative SEPTA bus stop locations with SEPTA officials

Please let me know if you require additional information or further clarification related to this subject.

Sincerely,



Amy B. Kaminski, P.E., PTOE  
Department Manager of Transportation  
Gilmore & Associates, Inc.