

To: Mr. Mike Sawyer; Mr. Travis Bridewell (Richmond Traffic Engineering)  
From: W. Scott Dunn, AICP, PTP  
Date: January 15, 2016  
Re: Union Seminary Apartments – Response to Citizens’ Comments on Traffic Study  
Copy: Chris Sibold (TG); Thomas Ruff (TG)

Timmons Group offers the following in responses to comments contained in the letter presented by Mr. Homer and Mr. Scribner. For your convenience, the comments are shown as stated in the original letter and the responses as shown in *blue italics*.

- We reach our conclusions based on the fact that this development (301 units), by itself, is larger than our entire adjacent neighborhood of Laburnum Park (225 units).

*In number of units, yes, but with respect to traffic, single family homes typically generate more traffic than apartments. A comparison between Laburnum Park and the proposed development is summarized below:*

LAND USE	ITE CODE	AMOUNT	UNITS	WEEKDAY						
				ADT	AM PEAK HOUR			PM PEAK HOUR		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Detached	210	225	DU	2,215	42	125	167	137	81	218
Apartment (Multi-Family)	220	301	DU	1,948	30	121	151	119	64	183

*These numbers do not include the Veritas School, which as part of the Laburnum Park neighborhood, contributes an additional 1,240 daily trips, 405 AM peak hour trips, and 85 PM peak hour trips (based on the 438-students currently enrolled)*

- The June 25 traffic study looked only at artificially constrained 2015 traffic, even though the development will not be completed until at least 2018. The standard of care for a traffic study in support of such a large development typically requires a traffic study that accounts for background traffic growth (typically 2% for this area) and a reasonable buildout traffic forecast.

*The 2015 traffic volumes were not constrained, the numbers were collected manually in the field while school was in session.*

*With regard to the size of the development, this project is deemed a Category I (lowest tier) TIA based on the traffic generated.*

*There is nothing typical about 2% traffic growth. Lacking other data, that “rule of thumb” is sometimes used; however, in this case, City staff and the development team agreed that only current year traffic needed to be analyzed. This decision was made based on historical data along both Brook Road and Westwood Avenue (from the VDOT Count Book) that indicate traffic volumes have actually been declining on both adjacent roads over the past 5 years:*

<i>Year</i>	<i>Westwood Avenue - Hermitage to Chamberlayne</i>	<i>Brook Road – Brookland to Laburnum</i>
<i>2014</i>	<i>4,600 ADT</i>	<i>8,900 ADT</i>
<i>2009</i>	<i>6,100 ADT</i>	<i>10,000 ADT</i>
	<i>-6.6% / Year</i>	<i>-2.4% / Year</i>

*Since traffic in the study area has been declining over the past 5 years, any analysis that looked forward could theoretically examine less traffic than is present today.*

- The June 25 traffic study did not include the traffic generation from the remainder of the Westwood parcel. As the developer repeatedly told the neighborhoods, the underlying zoning allows for an *additional 800 units* (for a total of 1100 units) on the Westwood tract. The standard of care for a traffic study in support of such a large development typically requires a traffic study that accounts for *all* reasonably anticipated traffic generation and growth over a reasonable period of time—a change that would increase the average daily trips from the entire Westwood site from at least 1,948 (the developer projection) to at least 7,110 trips per day!

*As noted, the current zoning would allow for the development of additional units and therefore the “standard of care” with regards to this traffic study needs to reflect that this is a “by right” development. It should be noted (1) the additional land is not included in the current POD, (2) the developer does not have an option on the remaining property, and (3) no plans (conceptual or approved) are on file with the City for the remainder of the property. Lastly, traffic studies do typically include proximal approved developments that could increase traffic in the area; in this case there are no approved projects to assume as additional traffic generators.*

- Of critical importance to the surrounding neighborhood is the fact that the proposed Westwood Connector (Lamont Extended) would provide development access to the balance of the Westwood tract—and the additional 800 units authorized under the existing R-53 zoning. The standard of care for a traffic study in support of a development such as this would require a traffic study that incorporates all reasonably achievable development densities, including the balance of the entire Westwood tract and its 1100 units of housing.

*While the concern over the remaining land and potential development is understandable, the inclusion of any additional development was not required. The subject POD is specifically for the 301 apartment units on the 15 acre property. No plans, conceptual or preliminary, are available or approved for the remaining land. Any assumptions would be speculative.*

*The size of the development requires an analysis of the entrance impacts and the adjacent intersections, which was completed and approved by City staff.*

- While we do not accept the assumptions or approach of the June 25 traffic study, our review did identify the following errors, omissions and issues in the June 25 traffic study:
  - Table 4 shows Eastbound AM peak traffic at the Westwood/Brook intersections is Level of Service (LOS) E today (2015). Yet that same intersection is shown in Table 5 as LOS D after the addition of 301 apartments. The June 25 level of service findings for the Westwood/Brook intersection are not realistic or defensible.

*The Level of Service (LOS) findings in the report are not in error. LOS is measured in seconds of delay/vehicle and in cases where the overall intersection operates below capacity, an increase in traffic can sometimes result in a lower average delay. In this case, the eastbound AM LOS of E improves to a LOS D for two (2) reasons.*

*First, the overall number of vehicles utilizing the eastbound approach during the AM peak hour increases by 54 vehicles. As this analysis did not alter the signal timings provided by the City (Brook Road is part of a coordinated system), the eastbound green time is allowing more vehicles to enter the intersection. Under existing 2015 conditions, excess capacity exists under the provided green time. Under 2015 total conditions, the additional vehicles fill the green time in a more efficient manner. The end result is that while the overall approach delay remains the same, the number of eastbound vehicles being processed increases, effectively decreasing the average delay for each vehicle.*

*Second, the volume of right turns increases by 18 vehicles under the 2015 total conditions. Right turn movements typically have a lower average delay than the through or left turn movements (i.e. right turn on red). With the increased right turns, the overall average delay per vehicle improved from 57.1 sec/vehicle (just below the LOS E threshold of 55 sec/veh) to 52.2 sec/veh (which equates to a LOS D).*

*Please refer to the 95<sup>th</sup> percentile queues in both Table 4 and 5 as a further illustration. 95<sup>th</sup> percentile queues measure the number of vehicles that are stacked on the approach. As shown in Table 4, under existing conditions, the 95<sup>th</sup> percentile queue is 113 feet (approximately 4 vehicles). As shown in Table 5, under total conditions, the 95<sup>th</sup> percentile queue increases to 144 feet (approximately 6 vehicles). In both cases, the vehicles must wait for the green light and then travel through the intersection. Since the queued vehicles are clearing with each cycle, the total wait time is approximately the same; however, that overall delay time is divided by the number of vehicles to calculate the delay/vehicle. Under existing conditions, the overall wait time is divided by 4 vehicles whereas under total conditions, the overall wait time is divided by 6. Ultimately this results in a lower average delay/vehicle and the noted improvement in LOS on the eastbound approach.*

- The traffic study did not include a traffic count at the Westwood/Lamont intersection. This means that the study does not consider the approximately 400 AM peak traffic movements from Veritas at the Lamont/Westwood intersection. That Veritas traffic exists today. We believe that this intersection and roadway segment fail without considering the Veritas traffic. Adding the Veritas traffic into the study adds to failure of the Westwood/Lamont intersection and introduces very serious safety and pedestrian conflict issues.

*The existing traffic counts were conducted when Veritas was in session and therefore captured the traffic to/from Veritas in the AM peak hour. Any westbound traffic entering Veritas from Westwood Avenue is captured in the traffic count at the Brook Road/Westwood Road intersection. Similarly, any traffic exiting Veritas via a southbound left from Lamont Street to eastbound Westwood Avenue is also captured in the Brook Road/Westwood Road data.*

*This being noted, southbound traffic at the Lamont Street/Westwood Avenue was estimated using the AM peak hour data from the Brook Road/Westwood Avenue intersection in conjunction with the 400 peak hour exiting trips cited in the comment; this equated to 100 southbound lefts and 300 southbound rights from Lamont Street onto Westwood Avenue.*

*These volumes were combined with the site-generated traffic from the proposed apartments and an unsignalized intersection capacity analysis was completed. The results indicate that the Westwood Avenue/Lamont intersection will operate at a LOS C during the AM peak hour. Both the northbound and southbound approaches are anticipated to operate at a LOS with 24.8 and 17.8 seconds delay/vehicle, respectively.*

- Figure 6 illustrates that the AM peak traffic projections/assumptions do not include any westbound turns onto Westwood or Rennie from the development. These projections/assumptions are not realistic or credible, and they disguise the very significant traffic impacts on the existing Laburnum Park and Sherwood Park neighborhoods—even more so if the development of the entire Westwood tract is included in the study.

*With regards to Westwood Avenue, the site traffic was directed toward the study intersection (not away from it). This provides a conservative analysis of how the adjacent signalized will operate in the future.*

*If it were assumed that Site Access #2 will accommodate 45% of the site-generated traffic and this traffic was distributed using a 75% westbound/25% eastbound split (same as estimated for school based on provided information), that would equate to approximately 50 AM peak vehicles and 60 PM peak vehicles travelling along the western section of Westwood Avenue; this is approximately 1 additional vehicle per minute. This is not a significant volume and would not warrant any geometric improvements.*

*As for Rennie Avenue, the proposed apartments do not have a direct connection. In addition, existing counts indicate 3 southbound AM peak right turns and 8 PM peak southbound right turns, 0.3% and 1.7% of the peak hour approach volumes, respectively. Rennie Avenue is not currently used as a cut through and the presence of the apartments is not anticipated to make this change.*

- Figure 6 illustrates that the AM peak traffic is projected/assumed to be 55% exiting onto Brook Road, and only 45% exiting onto to Westwood. There is no basis for this assumption, and it does not appear to be realistic or credible.

*Existing traffic counts on Brook Road, which reflect commuter traffic patterns, show the following:*

- *AM Peak – 30% northbound, 70% southbound*
- *PM Peak – 35% southbound, 65% northbound*

*For the purposes of this study, a 30/70 split was assumed. The AM peak northbound 30% was assumed to use Westwood Avenue for direct access to the signal for left turns. The remaining 70% of existing traffic was split 15% Westwood Avenue/55% Brook Road based on the layout of the site and unopposed right turn access to Brook Road via the site's right in/right out entrance.*

- Even a modestly accurate, short-term traffic study would show intersection failures and safety issues at the Westwood/Lamont (Veritas and Apartment conflicts) and the Westwood/Brook intersections, as well as significant traffic impacts on the surrounding neighborhoods. A fair and longer term study consistent with prevailing transportation practice would show far more significant neighborhood and safety impacts, especially on Westwood Avenue.

*The subject traffic study was scoped in consultation with the City's Traffic Engineering Department, and has been reviewed and approved by the same. This analysis showed no intersection failures at the Westwood Avenue/Brook Road intersection. In addition, subsequent analysis (cited above and in response to these comments) demonstrates that the Westwood Avenue/Lamont Street intersection will also operate at an acceptable level of service under total conditions.*

*The anticipated traffic increases on the adjacent roads are minimal and it has been demonstrated that capacity exists to accommodate the site-generated traffic.*