



Consulting

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December 12, 2007

Allen & O'Hara Development Company
530 Oak Court Drive, Suite 300
Memphis, TN 38117

Attn: Mr. William Harris

**Re: Traffic Impact Assessment – Syracuse University Apartments
City of Syracuse, NY**

Dear Mr. Harris:

I have completed my review of the potential traffic impacts associated with the proposed Syracuse University student apartments along the south side of East Colvin Street by Slocum Drive in the City of Syracuse, NY. This letter summarizes the work completed in this review, the results of the analysis and my conclusions.

Project Information

The proposed development will be located on the south side of East Colvin Street in the City of Syracuse on the Syracuse University South Campus. The project includes 120 apartments with a total of 432 beds that will be used as student housing for Syracuse University. Access to the apartments will be via Slocum Drive on the eastern end of the south campus. There are no changes to the existing City road network proposed with this project.

A site plan prepared by Holmes King Hallquist & Associates has been attached.

Existing Operations

Existing turning movement counts were collected at the intersections of East Colvin Street with Comstock Avenue, Skytop Road and Slocum Drive during the typical morning (7-9am) and evening (4-6pm) peak commuter periods on Wednesday, December 5th, 2007. Counts were also collected at the intersection of Skytop Road at Lambreth Lane toward the south end of the Campus as this location is where the south campus transitions from student residential to research/education uses. Based on the data collected, the peak hours were identified as follows:

Morning Peak Hour – 7:45am to 8:45am

Evening Peak Hour – 4:30pm to 5:30pm

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The 2007 existing traffic volumes have been attached as Figure 1. In addition to traffic counts, other data such as pedestrian volumes, speed limits, intersection geometry and signal timings were collected to assist in the analysis of the traffic operations.

Capacity analysis of the existing operations at the study area intersections were completed using Synchro6, an industry accepted standard for the analysis of signalized and unsignalized intersections that is based on methodologies developed in the Highway Capacity Manual. The results of the analysis show all operations at a Level of Service D or better during both peak hours at all of the study area intersections. Level of Service D or better is generally considered acceptable operations for a signalized intersection while Level of Service E or better is generally considered acceptable for an unsignalized intersection.

The detailed Level of Service Summary and capacity analysis printouts have been attached.

Design Year Background Operations

The anticipated design year for the proposed development is 2009. In order to fully understand the impacts of a development on the adjacent roadway system, analysis of the operations immediately before the project opening must first be completed. The existing traffic volumes were adjusted by a growth rate to account for any unknown development that may occur prior to the project opening.

Historical traffic volumes were taken from the 2006 NYSDOT Traffic Volume Report in order to identify an appropriate growth rate for the area. Since Route 92 is the only state route in the area, this road was chosen for the background growth calculations. Based on the data reviewed, the long term average annual growth rate on Route 92 has been approximately 1.7% per year between 1997 and 2006. In order to maintain a conservative review of traffic operations, a 2% annual growth rate was applied to the 2007 existing traffic volumes for the resultant 2009 background traffic volumes expected before the proposed development opens, as shown in Figure 2. The growth calculations have also been attached.

Capacity analysis of the background condition shows minimal increases in delay from the existing condition with Levels of Service D or better maintained during both peak hours.

The detailed Level of Service summary and capacity analysis printouts have been attached.

Trip Generation and Distribution

The proposed development includes 120 student apartments with a total of 432 beds. Due to the unique nature of student housing, typical Institute of Transportation Engineers Trip Generation traffic estimates for apartments would not apply. Additionally, since Syracuse University does not provide student parking on the main campus, the students rely heavily on transit operations to travel from the

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south campus and would not be expected to be driving for classes. Student vehicular trips would be expected to be more based on employment or running errands such as grocery shopping, etc.

The existing south campus currently has approximately 1,058 apartments with 2,543 students housed. In order to most reasonably estimate the trips that will generated by the additional 432 students, the trip generation rates for the existing campus were used. The one complexity in using the existing trip generation rates is that there is substantial other uses other than student housing such as research or academic buildings at the south end of the south campus, south of Lambreth Lane. This other development is accessed via Skytop Road which cuts through the residential areas.

Since a full origin destination study was not completed to identify cut through traffic using Skytop Road to access the other uses, there was concern that using a simple assumption that 80% of the traffic traveling south of Lambreth Lane was cut through traffic would invalidate the traffic study. Therefore, a most conservative approach was taken in assuming that all traffic entering and exiting the south campus via Skytop Road or Slocum Drive was student based traffic from the existing apartments. This would provide the absolute worst case estimate of trips generated per bed by the additional student housing.

Under the existing conditions there are 367 vehicles entering and 208 vehicles exiting the south campus via Skytop Road or Slocum Drive during the morning peak hour for a total of 575 trips generated. During the evening peak hour there are 244 trips entering and 468 trips exiting for total of 710 trips generated. With 2,543 total beds on the south campus, the trips equate to trip generation rates of 0.23 trips per bed during the morning peak hour and 0.28 trips per bed during the evening peak hour. Applying these rates to the proposed 120 apartments with 432 beds, the following table summarizes the worst case trip generation estimate for this proposed development.

	Trip Generation Summary		Evening Peak Hour	
	Morning Peak Hour Entering	Exiting	Entering	Exiting
120 Apartments – 432 Beds				
AM – 0.23 trips/bed	42	57	61	60
PM – 0.28 trips/bed				

The trips generated were split between entering and exiting based on existing traffic patterns entering and exiting Slocum Drive. As shown in the table, the additional apartments would not be expected to generate significant additional trips in the area. The existing campus does not generate high volumes per student due to the lack of parking at the main campus and high use of transit.

The existing traffic patterns accessing the south campus were used as the basis for developing a distribution of new trips accessing the proposed apartments. All new trips generated would be

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expected to use Slocum Drive to access East Colvin Street. It is estimated that approximately 70% will enter from the west on Colvin Street and 30% will enter from the east during both peak hours. 90% of the traffic exiting in the morning is expected to travel west and 75% of the evening exiting traffic is expected to travel west on East Colvin Street. The distribution of new trips is shown in Figure 3.

The new trips were distributed through the study area intersections based on the distribution developed, as shown in Figure 4 for the morning peak hour and evening peak hours. They were then added to the 2009 background traffic volumes for the resultant 2009 combined traffic volumes, shown in Figure 5 for the morning and evening peak hours.

2008 Combined Operations

The results of the combined capacity analysis show that the proposed development will result in minimal increases in delay at the signalized intersections with no individual movement delays expected to increase by more than 4 seconds and no drops in Level of Service during either peak hour. The analysis does show some moderate increase in delay for traffic exiting Slocum Drive onto East Colvin Street, however the exiting movement will continue to operate at Level of Service E or better during both peak hours.

The detailed Level of Service Summary and capacity analysis printouts have been attached.

There have been some discussions regarding parking in area. Specifically whether parking for the apartments should be located near the proposed buildings or by the Goldstein Student Center as well as discussion on potential parking impacts to adjacent residential streets. The exact location of on-site parking will not significantly impact traffic operations. As previously noted, personal vehicles are not the primary mode of transportation for students traveling to classes as no parking is provided for at the main campus. From a safety standpoint, it would be logical to provide parking close to the buildings so that students do not need to potentially be walking alone at night. Since students are not using vehicles for class, the traffic that is generated will be lower and less concentrated than typical peak hour type operations. Also, the proposed development will have no impact on parking on adjacent residential streets. It is understood that there are some concerns associated with the parking when there are games at the soccer fields. This is an issue independent of the proposed apartments and would not be affected by this project.

Other than the existing university bus system, the other significant mode of transportation will be pedestrians when the weather is nice. The existing pedestrian facilities include crosswalks at both Colvin Street intersections with Skytop Road and Comstock Avenue along with sidewalks on both side of East Colvin Street. There should be no issue with increased pedestrian demands in this area.



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Conclusions

The existing student housing on the south campus does not generate substantial traffic volumes as students use transit as their primary mode of transportation to class. The proposed apartments will result in a minor increase in traffic with 60 vehicles or less expected to be entering or exiting the south campus during peak hours, even under extremely conservative traffic estimates. This minor increase in traffic will not result in any degradation in traffic operations during either peak hour and no improvements to the roadway system are needed.

If you have any questions or need additional information, please call.

Sincerely,

A handwritten signature in black ink, appearing to read 'G. Stansbury', is written over a light gray rectangular background.

Gordon T. Stansbury, P.E., P.T.O.E.
GTS Consulting

- Attachments –
- Site Plan
 - Detailed Level of Service Summary
 - Traffic Volume Figures 1-5
 - Background Growth Calculations
 - Trip Generation Calculations
 - Synchro Capacity Analysis Printouts

**Proposed Syracuse University Apartments
City of Syracuse, NY
Level of Service Summary**

Intersection	Morning Peak Hour			Evening Peak Hour		
	2007 Existing	2009 Background	2009 Combined	2007 Existing	2009 Background	2009 Combined
East Colvin Street @ Comstock Avenue	C(24)	C(24)	C(25)	C(25)	C(25)	C(26)
EB Left	B(16)	B(16)	B(16)	B(15)	B(15)	B(15)
EB Through/Right	C(30)	C(31)	C(32)	C(29)	C(30)	C(30)
WB Left	B(15)	B(15)	B(15)	B(16)	B(16)	B(17)
WB Through	C(34)	D(35)	D(37)	C(30)	C(30)	C(31)
WB Right	A(6)	A(6)	A(6)	A(5)	A(5)	A(5)
NB Left	C(27)	C(28)	C(28)	C(27)	C(27)	C(27)
NB Through	C(33)	C(33)	C(33)	C(33)	C(34)	C(34)
NB Right	A(8)	A(8)	A(8)	A(8)	A(8)	A(8)
SB Left	C(30)	C(30)	C(30)	D(38)	D(41)	D(45)
SB Through	C(28)	C(28)	C(28)	C(29)	C(30)	C(30)
SB Right	B(11)	B(11)	B(11)	A(8)	A(8)	A(9)
East Colvin Street @ Sky Top Road / Lamp Athletic Complex	B(12)	B(12)	B(13)	B(15)	B(15)	B(16)
EB Left	A(9)	A(9)	A(9)	A(0)	A(0)	A(0)
EB Through	B(12)	B(12)	B(12)	B(15)	B(15)	B(15)
EB Right	A(2)	A(2)	A(2)	A(3)	A(3)	A(3)
WB Left	B(11)	B(11)	B(11)	B(11)	B(11)	B(11)
WB Through/Right	B(16)	B(16)	B(17)	B(16)	B(16)	B(16)
NB Left/Through	B(14)	B(15)	B(17)	B(19)	C(20)	C(23)
NB Right	B(13)	B(14)	B(15)	B(11)	B(11)	B(13)
SB Left/Through	B(13)	B(13)	B(15)	B(12)	B(13)	B(15)
SB Right	B(11)	B(11)	B(13)	A(7)	A(7)	A(8)
East Colvin Street @ Slocum Drive / Athletic Fields						
EB Left/Through/Right	a(0)	a(0)	a(0)	a(0)	a(0)	a(0)
WB Left/Through/Right	a(1)	a(1)	a(1)	a(1)	a(1)	a(2)
NB Left/Through/Right	c(21)	c(23)	d(34)	c(21)	c(22)	e(44)
SB Left/Through/Right	a(0)	a(0)	a(0)	a(0)	a(0)	a(0)

B(15) – Signalized Level of Service (Average Delay Per Vehicle in Seconds)

b(15) – Unsignalized Level of Service (Average Delay Per Vehicle in Seconds)