

## RENAISSANCE PLANNING GROUP

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December 23, 2005

Mr. Frank Pohl  
Weather Hill Development  
703 East Jefferson Street  
Charlottesville, VA 22902

**Subject: Liberty Hall Mitigation**

Dear Frank:

To determine the type of mitigation needed to offset traffic impacts generated by the proposed Liberty Hall development, a sub-area analysis around Liberty Hall was conducted for the PM peak hour using Synchro. Buildout of the sub-area includes currently approved and proposed development. Where development has not yet been proposed, the Crozet Master Plan was used to generate assumptions about the land use and density of development. Beyond the sub-area, traffic operations during the AM peak hour for the intersections of Route 250 at Crozet Avenue and Route 250 at Route 240 were also analyzed using Synchro.

**PM Peak Hour Analysis**

Assuming that the Eastern Connector will not be constructed by buildout of this proposed development, the results show that a traffic signal is needed at the entrance to Liberty Hall on "Road A" with a proportionate share of 16.6 percent as a result of traffic generated from Liberty Hall. If the Eastern Connector is constructed through Cory Farm Road, a second traffic signal may be needed at the intersection of Route 250 and Cory Farm Road. If the Eastern Connector is constructed through Road A, no additional mitigation will be necessary. A summary of the results is shown in Table 1 on the following page.

Assuming that the Eastern Connector will not be constructed by buildout of this proposed development, both the northbound left turn and southbound left turn movements at the intersection of Route 250 and Road A will operate at a level of service (LOS) of F. With a traffic signal in place, all movements are forecast to operate at a LOS of B. The capacity for the combined northbound and southbound left turn movements with an unsignalized intersection is 165 vehicles during the PM peak hour. Installing a signal increases the combined capacity to 497 vehicles during the PM peak hour. Liberty Hall is forecast to generate 55 southbound left turn trips during the PM peak hour. The proportionate share is calculated by determining how much capacity will increase after installing a traffic signal and dividing that by the proportion of trips generated by a

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development. In this case, the intersection improvement increases the capacity by 332 vehicles per hour, so the proportionate share is  $55 / 332$  or 16.6 percent.

**Table 1. PM peak hour intersection analyses**

Scenario	Intersection	Signalization	Intersection LOS, Delay	Critical Movement	Critical Movement LOS, Delay
No Eastern Connector	250 @ Road A	unsignalized	C, 30.9 s	NB left	F, 197.8 s
	250 @ Road A	signalized	B, 11.0 s	NB left	B, 15.9 s
	250 @ Cory Farm Rd	unsignalized	A, 1.9 s	SB left	C, 16.1 s
Eastern Connector @ Road A	250 @ Road A	unsignalized	B, 13.0 s	SB left	F, 999.9 s
	250 @ Road A	signalized	B, 12.6 s	SB left	C, 18.2 s
	250 @ Cory Farm Rd	unsignalized	A, 2.1 s	SB left	C, 16.9 s
Eastern Connector @ Cory Farm Road	250 @ Road A	unsignalized	E, 37.7 s	NB left	F, 269.8 s
	250 @ Road A	signalized	B, 11.6 s	NB left	B, 16.5 s
	250 @ Cory Farm Rd	unsignalized	B, 7.1 s	SB left	E, 39.6 s
	250 @ Cory Farm Rd	signalized	B, 7.2 s	SB left	B, 10.9 s

If the Eastern Connector is constructed, the Crozet Master Plan indicates that the alignment will be along the existing Cory Farm Road. In this case, a signal will still be needed at the intersection of Route 250 and Road A, and a second signal may be needed at the intersection of Route 250 and Cory Farm Road, as the Synchro results forecast the southbound left turn movement to operate at a LOS of E with 39.6 seconds of delay. Traffic generated by Liberty Hall will have little to no impact on the LOS at this intersection. However, installing these two traffic signals in such close proximity could potentially have a significant negative impact on Route 250 traffic traveling through this corridor.

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A second alternative that was tested in Synchro is to move the alignment of the Eastern Connector to Road A. The analysis indicates that the additional traffic load on the intersection of Route 250 and Road A will have a minimal impact while reducing the potential need for a second signal at Cory Farm Road. This alignment would have an impact on the proposed Liberty Hall development, although this impact will be minimized through a neighborhood-oriented roadway design as the Liberty Hall site plan already indicates.

### AM Peak Hour Analysis

A Synchro analysis was also conducted to analyze the impacts of the Liberty Hall development during the AM peak hour at the intersections of Route 250 at Crozet Avenue and Route 250 at Route 240. The level of service at both intersections remains unchanged between the background condition and the addition of trips from Liberty Hall. The intersection of Route 240 and Route 250 is projected to fail with or without the development of Liberty Hall. The failing movement at this intersection is the SB left turn from Route 240 onto Route 250. As the Liberty Hall development is not projected to add any traffic to this turning movement, no mitigation should be necessary.

**Table 2. AM peak hour intersection analyses**

Intersection	Scenario	Intersection LOS, Delay	Critical Movement	Critical Movement LOS, Delay
Route 250 and Crozet Avenue	Existing	B, 12.3 s	SB thru	B, 18.9 s
	Background	B, 13.0 s	SB thru	C, 21.0 s
	Liberty Hall	B, 13.4 s	SB thru	C, 21.6 s
Route 240 and Route 250	Existing	E, 33.9 s	SB <sup>1</sup> left	F, 77.6 s
	Background	F, 153.4 s	SB <sup>1</sup> left	F, 324.3 s
	Liberty Hall	F, 165.0 s	SB <sup>1</sup> left	F, 356.7 s

(1) Traffic on Route 240 making a left onto Route 250 is considered the southbound left.

Thank you for providing us with an opportunity to review the mitigation alternatives for Liberty Hall. If you have any additional questions or concerns, please let me know.