

MEMORANDUM

To: Tom Vincent, Halvorsen Development Corporation
 From: Earl Lewellyn, P.E. *EL*
 Kimley-Horn and Associates, Inc.
 Date: January 25, 2016
 Subject: North River Village - Daily Segmental Capacity Analysis



Daily Traffic Generation

The daily traffic generation data referenced below was not readily available at the recent neighborhood meeting as it is not information that is used in a traffic impact analysis (TIA). TIA's are based on peak hour traffic volumes (actually the peak 15-minute periods during the peak hour) instead of daily volumes. Analyzing daily traffic volumes would yield a less conservative result.

Based on the *Institute of Transportation Engineers Trip Generation Manual*, the proposed North River Village Rezoning in total will generate 4,938 trips in and 4,938 trips out of the site on an average weekday.

The above volumes are gross, unadjusted trip ends. **However, with retail projects, a significant portion of the site traffic is already on the adjacent street network and is "captured" by the site – referred to as Passby Trips.** For example, a commuter may stop at the grocery store on his/her way home from work to pick up items needed for the upcoming week.

There are also trips that are "internally captured" between the different land uses. For example, someone living in the proposed residential units may visit one of the proposed restaurants or the grocery store. These internally linked trips may never impact the external street network or they may only impact the network as one trip instead of two completely separate trips.

Other similar types of trip adjustments include: Diverted Link Trips, Retail Trip-Chaining, and Bike/Pedestrian/Transit Reduction. However, to be conservative, no such adjustments were made for these particular trips in the North River Village TIA.

Daily Site-Generated Trip Summary		
Trip Type	Entering	Exiting
Gross Trips	4,938	4,938
Internal Trip Adjustment	-494	-494
Passby Trip Adjustment	-1,146	-1,146
Net New External Trips	3,298	3,298

Traffic Distribution

Traffic distribution refers to the paths that vehicle trips will take to enter or exit the site. **It is extremely important to understand that not all of the trips impact any one particular road segment.** This is due to the fact that there are multiple access points along two different roadways. For this reason one cannot simply add the trip generation to the current traffic volumes to determine if a roadway segment is at or over capacity.

Planning Level Capacity Analysis

Although this method should not be given preference over a detailed traffic impact analysis, these generalized “planning level” segmental capacity assessments can sometimes prove helpful. Daily traffic volumes were obtained from NCDOT. Roadway capacities are based on *Highway Capacity Manual* methodologies.

Road Segment	Current Volume	Current Capacity	Current Excess Capacity	Ambient Traffic Growth	Site Traffic Impact	Future Volume	Future Capacity	Future Excess Capacity
Guess Rd Latta – N. Site Dr	21,000	41,790	20,790	1,285	2,963	25,248	41,790	16,542
Guess Rd S. Site Dr - Lebanon	21,000	39,800	18,800	1,285	1,731	24,016	39,800	15,784
Latta Rd Guess - Autumn	8,800	12,744	3,944	539	2,130	11,469	16,727	5,258
Latta Rd E. of Green Oak	8,800	12,744	3,944	539	1,444	10,783	15,930	5,147

This type of generalized segmental capacity assessment is limited in that it is unable to accurately account for detailed traffic signal operations, the directional nature of traffic flows or specific turning movements, the presence of multiple turn lanes, or poor peak hour performance. For these reasons the above segmental analysis suggests that Latta Road currently has excess capacity. During most of the day this may be true. However, based on the detailed traffic impact analysis and field observations, we know that the westbound left turn movement on Latta Road at Guess Road currently exceeds capacity during peak hours, leading to the recommendation to provide dual left turn lanes on Latta Road at Guess Road.

Summary

The above daily trip generation and segmental capacity analyses are offered in response to neighborhood questions. As noted above, daily segmental capacity analyses have inherent limitations and more importance should be placed on the results of the detailed TIA, which will be submitted with the rezoning application. **It is critical to understand the following.**

- (1) **A significant portion of the trips generated by the proposed project are already on the adjacent street network and will simply be “captured” by the propose project, and,**

- (2) Due to the number and orientation of access points, daily trip generation cannot be simply added to daily volumes to assess capacity.**

Understanding and accounting for the noted limitations of a daily analysis, the results are generally consistent with those of the more detailed traffic impact analysis. Note that the subject zoning application will require that both NCDOT and City Transportation Staff review and comment on the full traffic impact analysis.