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TECHNICAL MEMORANDUM

To: Todd Hafner NVRPA

From: Tushar Awar

Lorraine Tacinelli

Date: January 11, 2011

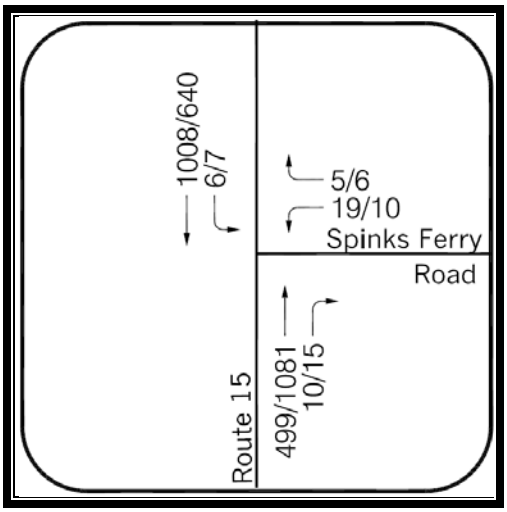
Subject: Route 15 and Spinks Ferry Road Intersection

Northbound Right Turn Analysis

This memorandum is being completed to present the results of the Northbound Right Turn Analysis prepared at the Route 15 and Spinks Ferry Road Intersection. As requested, the northbound right turn volumes were analyzed to determine if a right turn lane would be required with the development of White's Ford Park. The following assumptions were used in the Right Turn analysis for route 15 and Spinks Ferry Road:

- Peak hour existing traffic volumes collected on Wednesday, September 15, 2010 as shown on Figure 1.

Figure 1: Existing Peak Hour Traffic Volumes (2010)



AM/PM peak hour volumes

- The inherent annual growth rate of 1% on Route 15. This was based on VDOT's Annual Average Daily Traffic (AADT) volumes from 2004 to 2009.
- Traffic generated by approved background development. Several residential developments that have been approved and based on the 2008 Loudoun County Growth Summary have not been completed and are summarized on Table 1.

Table 1: Approved Background Development

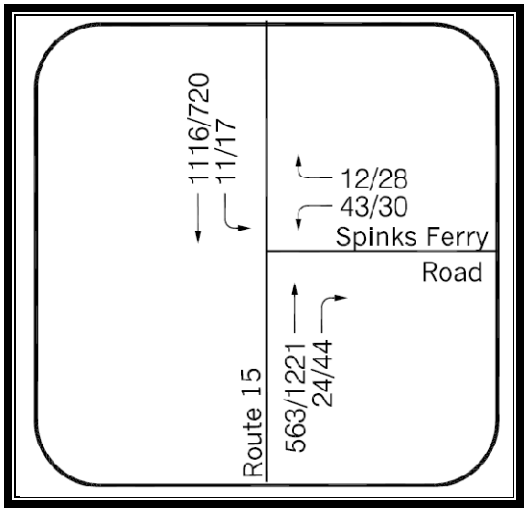
Residential Development	Units remaining to be Built (2008)
Elysian Heights	210 SFU
Historic Selma Estates,	149 SFU
Lees Crossing	37 SFU
Oak Hill Estates	34 SFU

Trips were generated for the above residential development assuming the existing traffic distribution of 25% from the North and 75% from the South.

- Traffic generated by White's Ford Park with an existing traffic distribution of 25% from the North and 75% from the South. It was assumed that 90% of the traffic from the south will access the park via Spinks Ferry Road and 10% from the south will utilize Hibler Road.

Based on the above assumptions, the total future traffic volumes for 2011 are shown in Figure 1.

Figure 1: Future Traffic Volumes (2011)



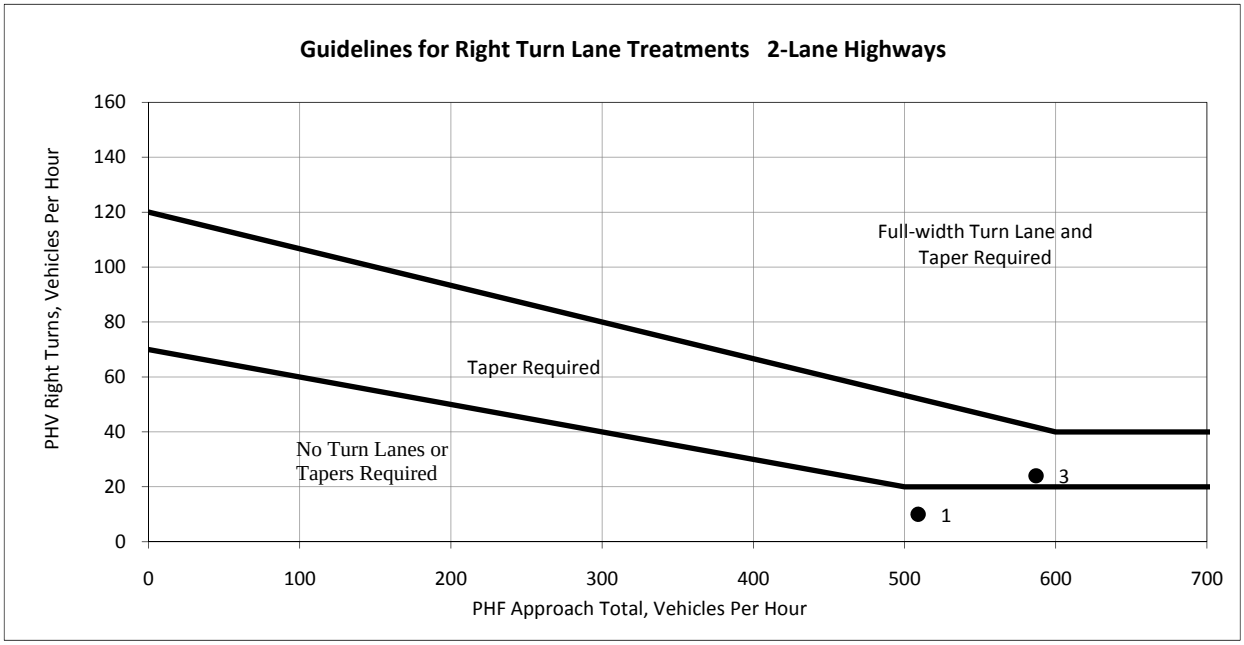
AM/PM peak hour volumes

Based on the above traffic volumes a right turn analysis was completed and is presented below:

Guidelines for Right Turn Treatments
Two-Lane Highways

Project Number:	White's Ford Park
Intersection:	Route 15 and Spinks Ferry Road
Movement:	Northbound Right Turns onto Spinks Ferry Road
Analyst:	LTT

	Condition	PHV Approach Total	PHV Right Turns	Taper Threshold	Full Lane Threshold	Treatment
1	Existing 2010 AM	509	10	20	52	No turn lane or Tapers Required
2	Existing 2010 PM	1096	15	20	40	No turn lane or Tapers Required
3	Future 2010 AM	587	24	20	42	Taper Required
4	Future 2010 PM	1265	44	20	40	Full-width Lane and Taper Required



CONCLUSIONS

The above analysis was completed and it was determined that a right turn lane would be required on the northbound approach of Route 15 for the Route 15 and Spinks Ferry Road intersection. The PM peak hour volumes are not shown graphically since they exceed the limits of the right turn lane graph for the Approach total. A full-width lane and taper are required based on the future PM peak hour scenario because the right turn volume exceeds 40 vph.

A capacity analysis was conducted for future conditions, which revealed that there is no queuing observed for the right turn lane movement. Per VDOT's Access Management Guidelines (Section 3 – Turning Lanes; Figure 3-1), a 200' turn lane with 200' taper is recommended.