Using a Statewide Model to Analyze Truck Traffic for the I-81 Corridor Study in Virginia

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I-81 Study Area

I-81 Study Area
Fast Facts on I-81

1. Longest Virginia Interstate at 325 miles
2. Transverses rolling and mountainous terrain through predominantly rural areas
3. Typical 2004 ADT: 40,000 – 60,000
4. One of the Top 8 Truck Routes in the U.S.
5. Interstate was designed for 15% Trucks, but Trucks now account for 20-40% of Total Traffic
6. For More Info. on I-81 Study: http://www.i-81.org/

Virginia Statewide Model Overview

• 1st Virginia Statewide Model (VSM)
• Developed by Wilbur Smith Associates
• Completed in April, 2005
• Base & Horizon Year: 2000/2025
• Internal TAZs: 1,642
• Internal Subzones: 7,007
• Links/Nodes: 247,000/109,000
• Standard Model Run = about 100 minutes
• Select Link Run = up to 40 hours (Pent. 4 – 2.8 GHz)
VSM TAZ Structure

VSM Network for Virginia

Legend
- WATER
- Roads
  - Interstate
  - Primary
- Railroads
- Statewide TAZ
- Urbanized Region
What Can the VSM Do?

1. Model car & truck traffic outside of urban areas

2. Model interstate traffic passing through Virginia, e.g., TN to WV on I-81

3. Model intercity passenger rail traffic, e.g., AMTRAK
What Can't the VSM Do?

1. Compete with or replace urban models
2. Model traffic within urban areas
3. Model total traffic outside of Virginia
4. Model intermodal freight traffic

VSM Truck Model

- Includes Heavy Trucks (3+ axles)
- Long distance truck travel is based on 2001 Global Insight Transearch data (predominantly interstate)
- Short distance truck travel is based on a combination of Transearch data and matrix estimation (all intrastate)
I-81 Study Application

- Heavy Truck Percentages
- Local vs. Through Truck Traffic
- Truck Travel Patterns through Virginia

VSM Heavy Truck Percentages at Some Critical I-81 Study Points

South of I-66: 35%
North of Roanoke: 31%
South of Roanoke: 32%

I-81 Study Area
I-81 Study Area

VSM Through vs. Local Truck Traffic at Some Critical I-81 Study Points

- North of Roanoke: 93% vs. 7%
- South of Roanoke: 83% vs. 17%
- South of I-66: 90% vs. 10%

More Long Distance Truck Traffic Going SB vs. NB?
VSM Use in Planning Process

- To provide traffic data over a wider area
- To provide traffic forecasts and analysis not easily obtainable by other means
- To provide a “Big Picture” view of traffic patterns through and around the state

Conclusions/Lessons Learned

- 2001 Transearch Data did not include empty trucks.
- Importance of updating VSM with 2003 Transearch Data to include empty trucks.
- Statewide model can produce reasonable results for truck traffic analysis
Questions?