

Publicizing historic trends of traffic congestion experienced on Interstate corridors can be beneficial to long distance holiday travelers. Motorists desiring to avoid congested areas can make subtle changes in their travel times and/or routes to avoid areas of expected congestion. Each motorist who makes the decision not to travel during the congested period leads to a reduction in congestion delay for the remaining vehicles. Even if no significant change in congestion occurs, the information and knowledge provided to the traveling public can be helpful in making travel plans throughout the holiday period.

VDOT's Traffic Engineering Division (TED) has been collecting speed and volume data at continuous count sites since April 2003, through the Traffic Monitoring System (TMS). The location of continuous count data collection equipment on the Interstate system is not dense enough to measure small areas of congestion. However, there is potentially enough historical volume and speed data to reasonably predict general areas of congestion or lack of congestion, on longer segments of Interstate corridors.

Figures 1 and 2 show an example of the volume and speed data collected during the Thanksgiving Holiday travel periods, Wednesday through Sunday, from 2003 thru 2008. Both the hourly volumes and average speed graphs show very similar patterns over the six year period. Sharp decreases in average travel speed are consistently seen on Wednesday, Friday, and Saturday afternoons. Figure 3 focuses in on the Wednesday before Thanksgiving for each of the years. The highest hourly volumes correspond with or are immediately followed by the lowest average speeds between 2 pm and 4 pm. The raw data is shown in Figure 4. The fact that there is a high volume of traffic corresponding with a drop in average speed between 3pm and 6pm for the same day of the year for a six year period indicates that motorists can expect congestion at this location on the Wednesday afternoon prior to Thanksgiving for this year (2009), as well.

The drops in travel speeds can be caused by several factors including incidents, lane closures, weather, or simply due to heavy volumes of traffic. It is this latter circumstance (heavy traffic volume) that has been evaluated for this report. Dramatic drops in average travel speed in conjunction with high vehicular volumes can indicate areas of moderate to heavy traffic congestion. For purposes of this analysis, moderate congestion locations are identified as areas with relatively high traffic volumes (generally exceeding 1,300 vehicles per lane per hour) combined with drops in average vehicle speed less than 10 mph below the posted speed limit. Heavy congestion is labeled as areas with drops in average speed more than 10 mph below the posted speed limit combined with relatively high traffic volumes. It is common that traffic volumes decrease with the more dramatic drops in average speed as a result of fewer vehicles traversing the count station area.

The 2000 Highway Capacity Manual (HCM) states "the point at which an increase in flow rate begins to affect the average passenger car speed varies from 1,300 to 1,750 pc/h/ln. Speed will be reduced beginning at 1,300 pc/h/ln for freeway segments with free-flow speeds of 70 mi/h." The location along I-395 southbound in Fairfax County where this continuous count station is located has a cross section of 3 lanes and a speed limit of 55 mph. According to the 2000 HCM, traffic flows for a 3-lane facility generally would begin to be affected between 3,900 passenger cars per hour (3 x 1,300) and 5,250 passenger cars per hour (3 x 1,750). Figure 4 indicates Wednesday peak hour volumes of 6,148 (2003), 5,439 (2004), 6,269 (2005), 5,417 (2006), 6,033 (2007), and 6,036 (2008) all closely followed with sharp decreases in average travel speeds.

Figure 1.

I-395 Southbound (#190073) MP 2.4 (Fairfax County)  
2003-2008 Thanksgiving Holiday (Wed - Sun) Traffic Volumes

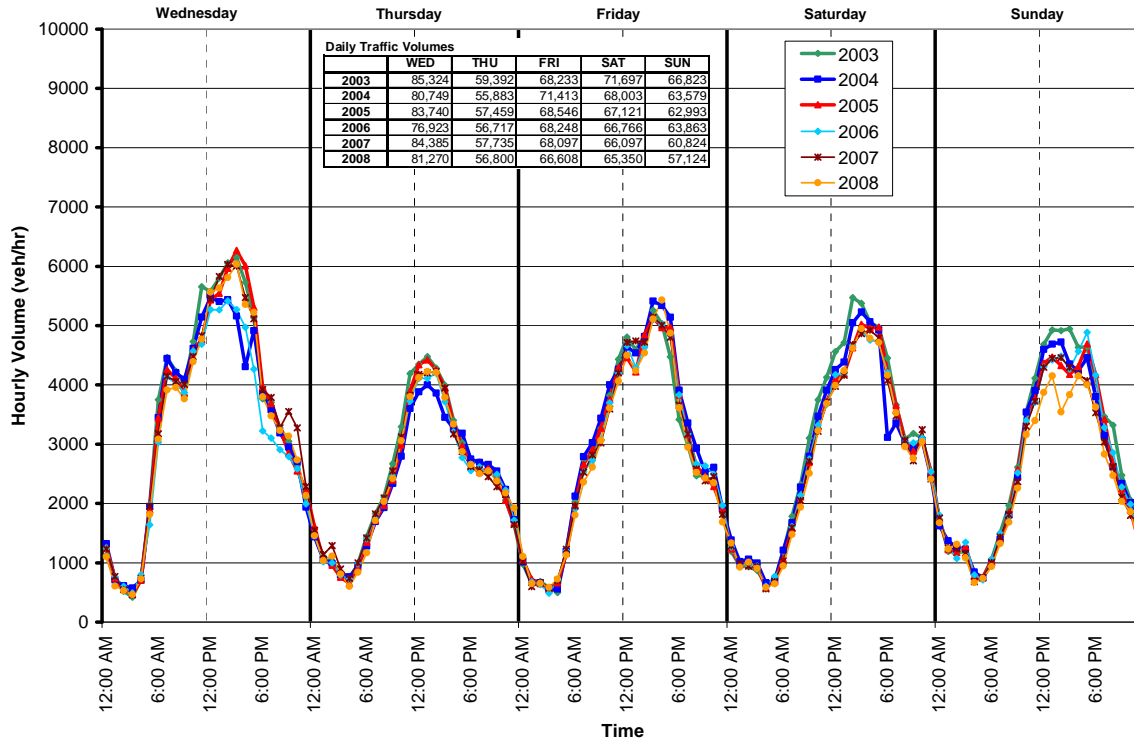


Figure 2.

I-395 Southbound (#190073) MP 2.4 (Fairfax County)  
2003-2008 Thanksgiving Holiday (Wed-Sun) Average Traffic Speeds

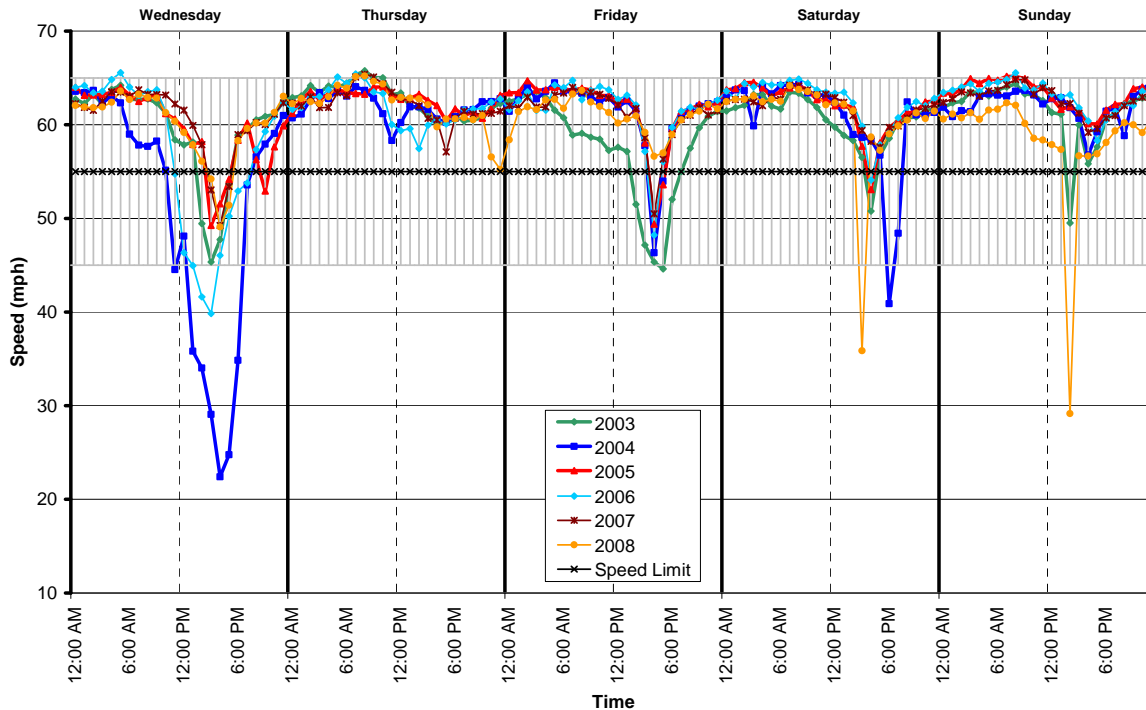
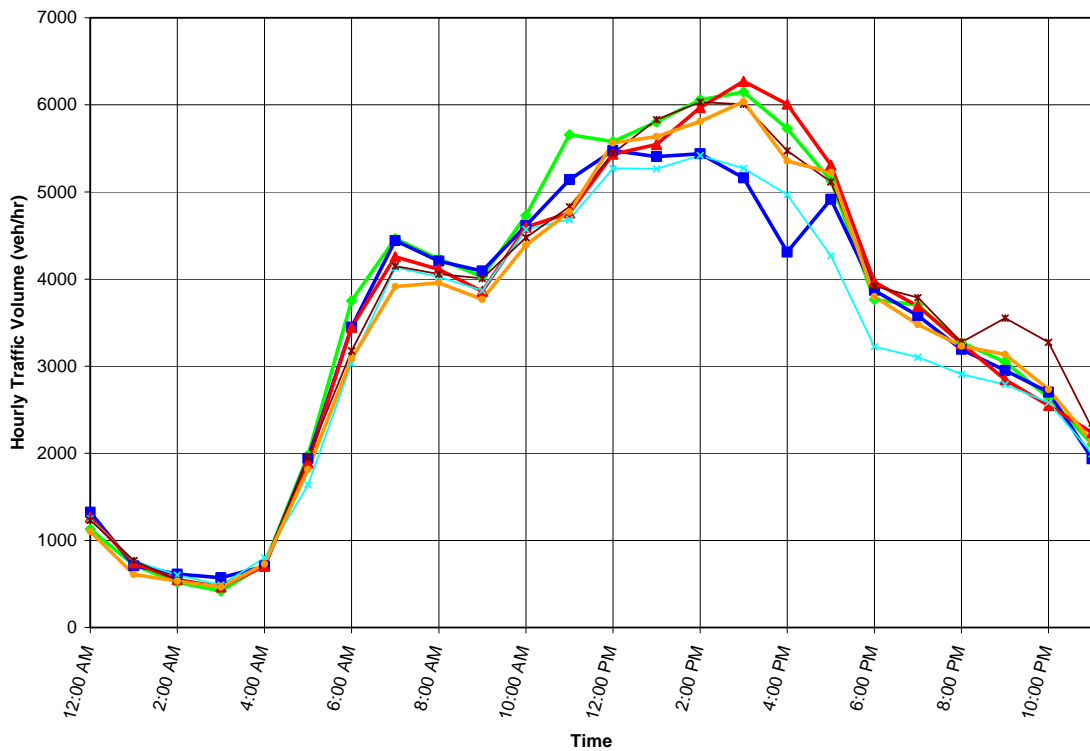
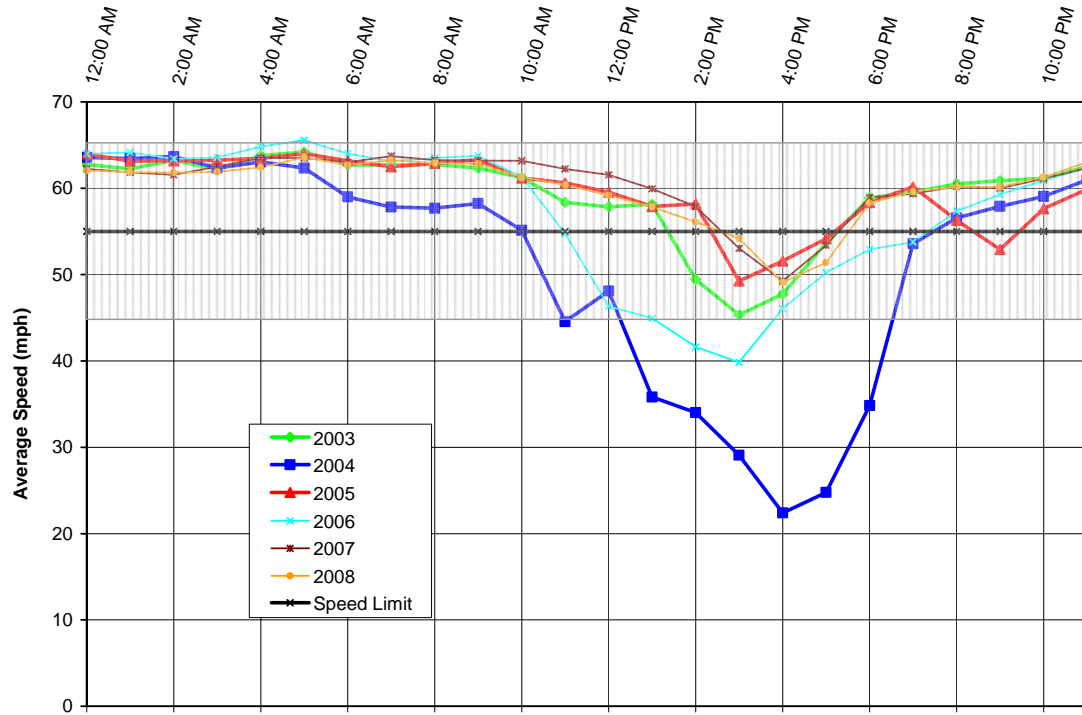


Figure 3.

I-395 Southbound in Fairfax County South of Little River Tpke (VA 236) at Mile Post 2.4  
2003-2008 Thanksgiving Holiday (Thursday)



**Figure 4**  
**I-395 Southbound in Fairfax County South of Little River Tpke (VA 236) at Mile Post 2.4**  
**2003-2008 Thanksgiving Holiday (Wednesday) Hourly Volume/Average Speed Data**

Start Time	2003		2004		2005		2006		2007		2008	
	Volume	Average Speed	Volume	Average Speed	Volume	Average Speed	Volume	Average Speed	Volume	Average Speed	Volume	Average Speed
10:00 am	4,730	61	4,614	55	4,594	61	4,570	61	4,477	63	4,391	61
11:00 am	5,656	58	5,142	45	4,762	61	4,685	55	4,830	62	4,770	60
12:00 pm	5,580	58	5,474	48	5,433	60	5,270	46	5,445	62	5,563	59
1:00 pm	5,804	58	5,406	36	5,546	58	5,266	45	5,830	60	5,635	58
2:00 pm	6,057	49	5,439	34	5,969	58	5,417	42	6,033	58	5,809	56
3:00 pm	6,148	45	5,163	29	6,269	49	5,270	40	6,005	53	6,036	54
4:00 pm	5,729	48	4,309	22	6,009	52	4,970	46	5,472	49	5,356	49
5:00 pm	5,131	54	4,915	25	5,309	54	4,267	50	5,115	53	5,223	51
6:00 pm	3,764	59	3,870	35	3,966	58	3,223	53	3,920	59	3,798	58
7:00 pm	3,702	60	3,581	54	3,689	60	3,104	54	3,787	59	3,480	60
8:00 pm	3,271	61	3,192	57	3,263	56	2,908	57	3,274	60	3,232	60

In similar fashion to the example above, the Traffic Engineering Division (TED), conducted a review and analysis of Interstate traffic speed and volume data collected by TMS during the Thanksgiving holiday travel periods of 2003 through 2008 along Interstates 64, 66, 77, 81, 85, 95, 295, 395, 495, and 664. The analysis was limited to approximately 184 continuous count sites with useable data for the holiday period. The results of this analysis include historical time periods of congestion on Interstate routes by direction. Detailed summary maps and data can be found in a separate technical appendix. This analysis is an update to similar studies of Thanksgiving holiday travel prepared in 2005, 2006, 2007 and 2008.

**The following paragraph discusses the limitations of the congestion information and should be included with any publication of this data.**

The information provided in this report is not a prediction of future congestion levels but a generalized listing of the historical occurrence of traffic delays combined with heavy traffic volumes and is limited to locations where sufficient data is available. The analysis focuses on longer distance city-to-city travel on interstate routes and does not identify all localized congested areas within the urban regions of the state such as Hampton Roads, Northern Virginia, Richmond-Petersburg and Roanoke-Salem-Christiansburg. Due to the data limitations of the analysis as well as factors that influence congestion, such as weather and traffic incidents as well as changes in travel patterns and behaviors, the traveler may experience congestion levels greater or less than indicated or at locations and times different than has occurred in the past. For current information on incidents dial 511 from any phone - wireless or landline within the state of Virginia. Outside of Virginia, call 1-800-578-4111. The information can also be accessed at the 511 Virginia website at <http://www.511virginia.org/>.