

**Brent Spence Bridge
Replacement/Rehabilitation Project
PID No. 75119
Ham-71/75-o.00/0.22
KYTC Project Item No. 6-17**

Travel Time Study

Methodology

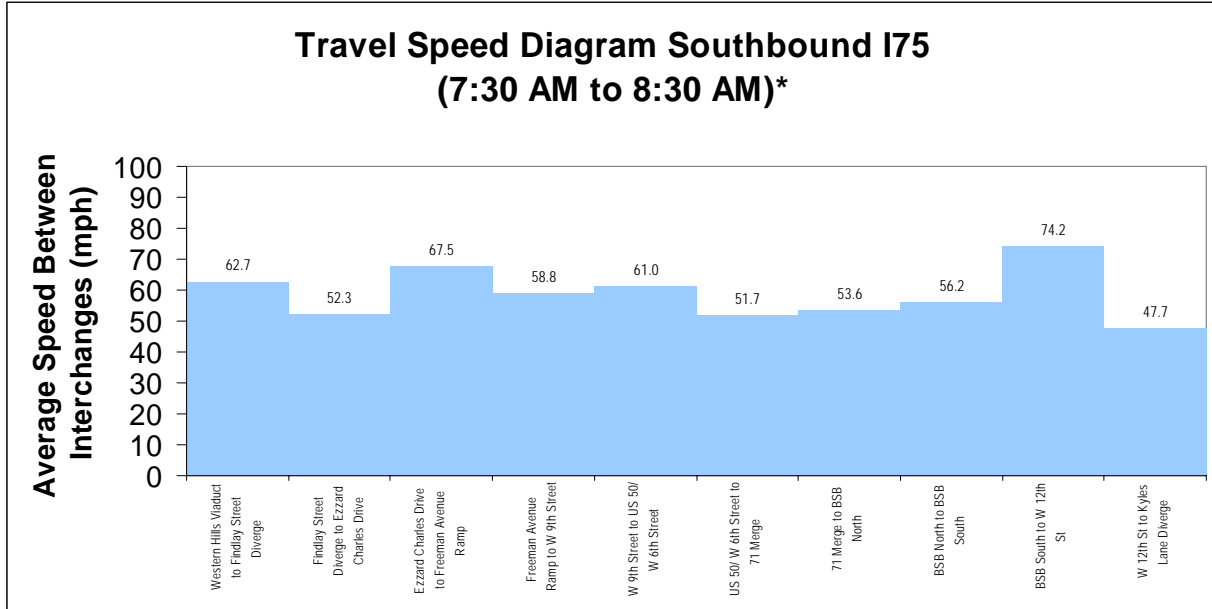
On December 7 and 8, 2005, a travel time study was completed for the Brent Spence Bridge Project (PID 75119) in Cincinnati, Ohio, and Covington, Kentucky, by TranSystems Corporation. The I-75 corridor between the Kyles Lane interchange at the south end of the project area and the Western Hills Viaduct interchange at the north end of the project area was driven several times during the AM peak hour on both December 7th and December 8th (7:30 – 8:30 AM). It was also driven several times during the PM peak hour on December 7th (4:30 – 5:30 PM). Due to inclement weather, no PM peak hour runs were completed on December 8th.

During the AM peak hour, a total of 5 southbound runs and 5 northbound runs were completed, and during the PM peak hour, a total of 2 southbound and 3 northbound runs were completed. During each run, the test vehicle attempted to maintain the average travel speed of the traffic stream. The time (in seconds) between predetermined locations (usually overpasses or diverge points) was recorded during each run. Delays (defined as the vehicle slowing to less than 5 mph) were also recorded, along with any comments about the roadway conditions. Copies of the field data sheets have been maintained in the project files. These data were then analyzed to determine average speed and average delay between the predetermined locations and the cumulative travel time. The results of these analyses can be found in the results section below.

Results

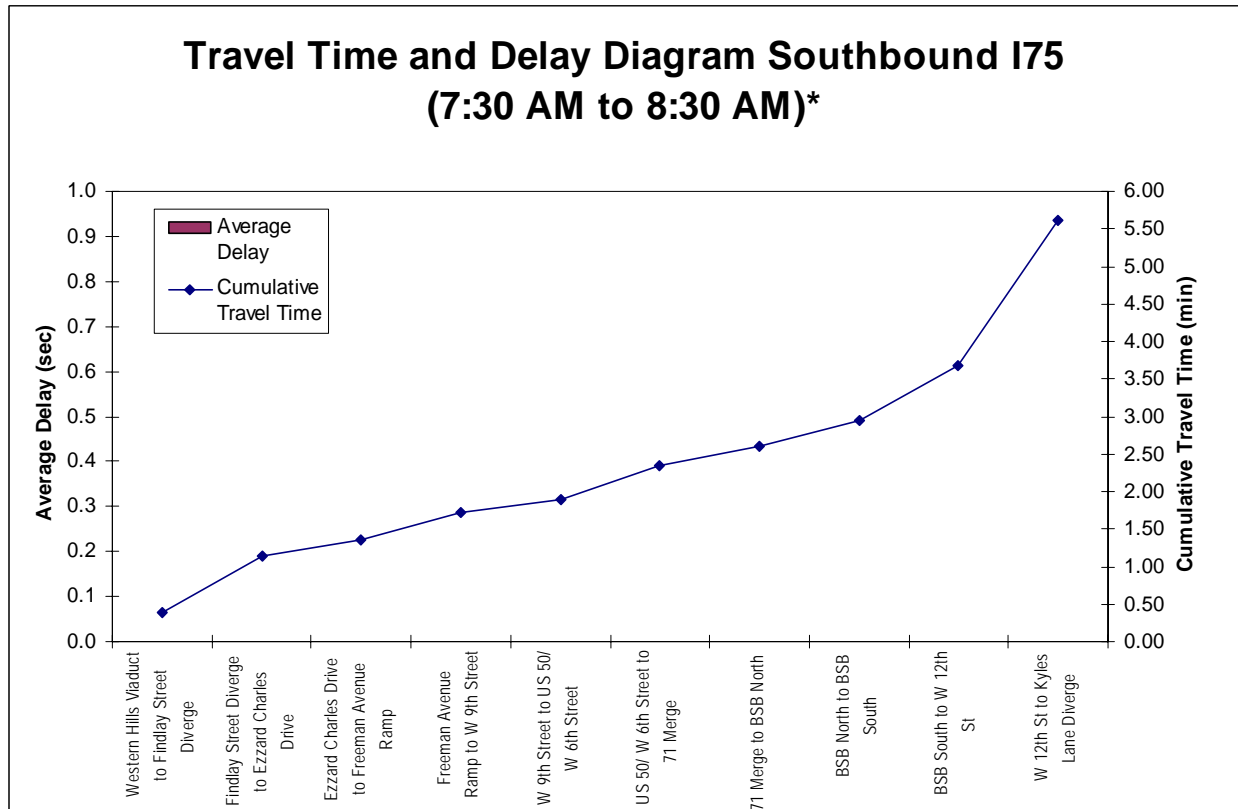
The graphs below (Graphs 1 and 2) show the average speed, average delay and cumulative travel time for the southbound AM peak hour runs.

Graph 1



*Five runs completed on 12/07/05 & 12/08/05 during the AM Peak

Graph 2

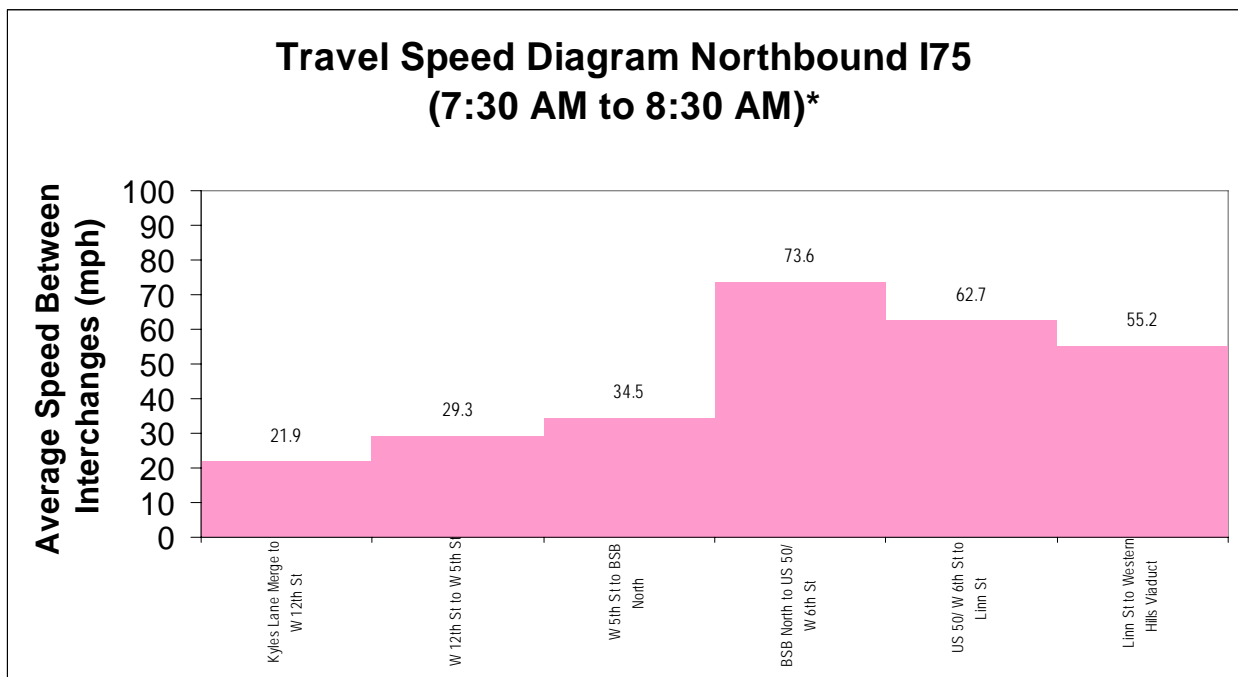


*Five runs completed on 12/07/05 & 12/08/05 during the AM Peak

Graph 1 shows that the average southbound speed during the AM peak is no more than 10 mph below the posted speed limit of 55 mph. Also, some sections of the corridor were being traversed at speeds somewhat higher than the 55 mph posted speed limit. Graph 2 shows that the test vehicle never went below 5 mph, so no delay was recorded. Additionally, it shows that the cumulative average travel time from Western Hills Viaduct to the Kyles Lane diverge was 5.60 minutes. This compares to a cumulative travel time of 5.64 minutes assuming a constant speed of 55 mph.

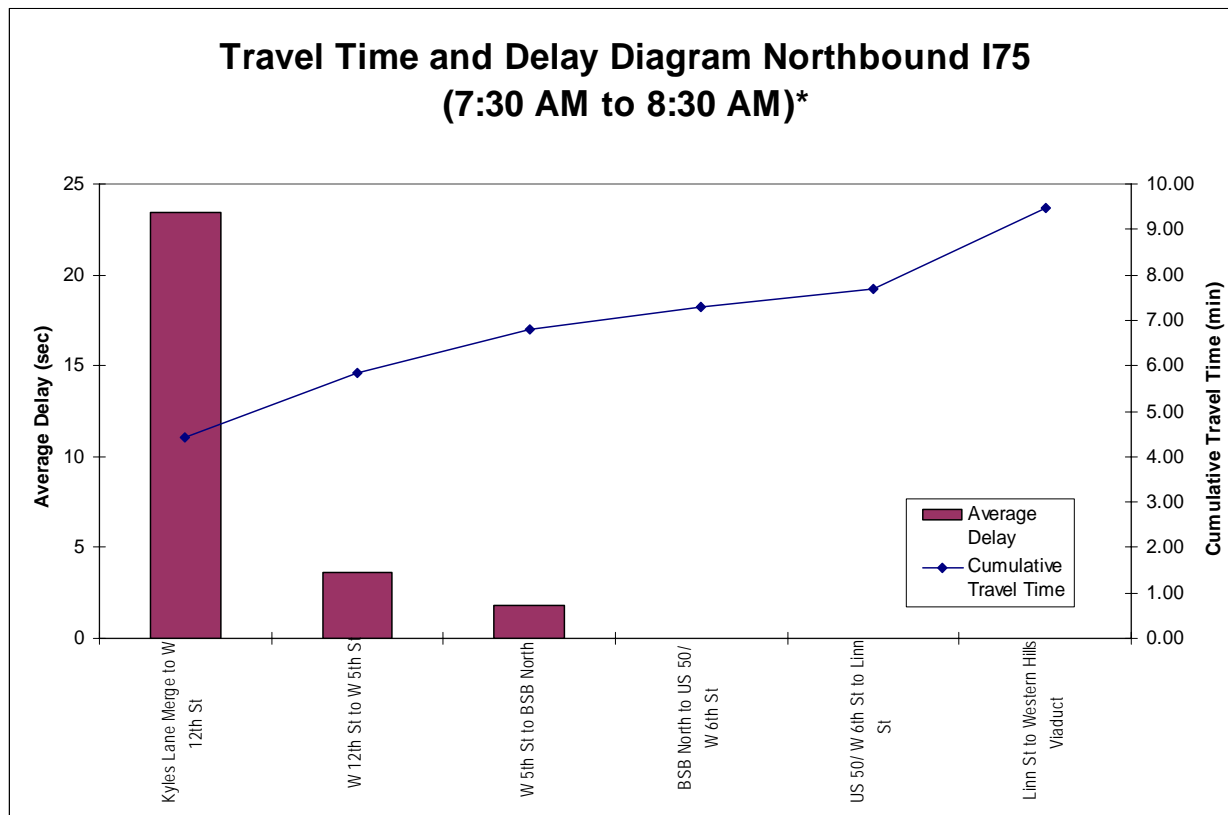
Graphs 3 and 4 depict the average travel speed, delay and cumulative travel time for the northbound runs during the AM peak.

Graph 3



* Five runs completed on 12/07/05 & 12/08/05 during the AM Peak

Graph 4



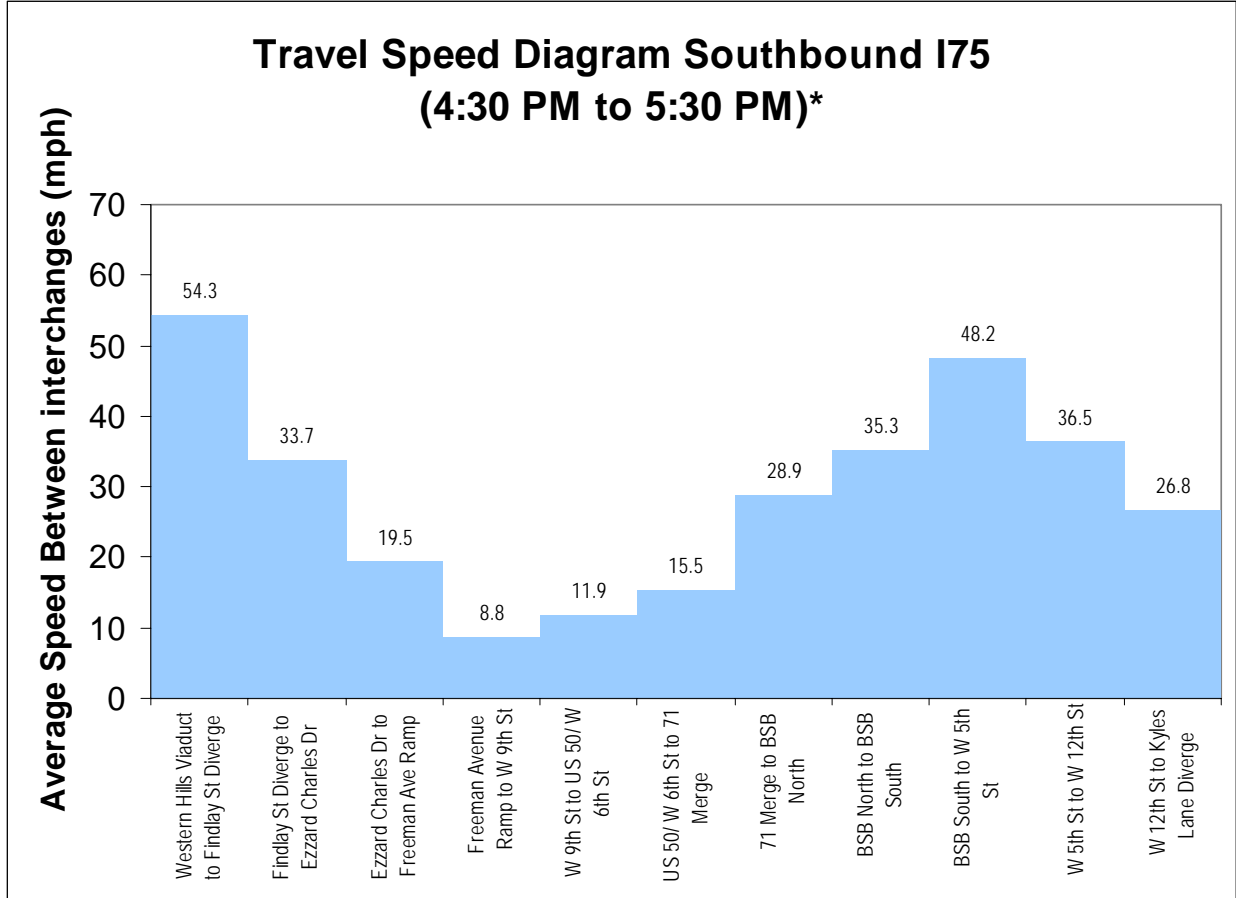
* Five runs completed on 12/07/05 & 12/08/05 during the AM Peak

Graphs 3 and 4 show that the average northbound speed during the AM peak is slow from Kyles Lane in Kentucky to the Brent Spence Bridge; however, the travel speed increases markedly on the Ohio side of the river. Graph 4 shows that delay was also recorded from Kyles Lane to the Brent Spence Bridge. More than 23 seconds of delay, on average, occurred between the Kyles Lane merge and West KY 12th Street. Additionally, it shows that the cumulative average travel time from the Kyles Lane merge to Western Hills Viaduct was 9.47 minutes, almost four minutes greater than the southbound travel time along the same corridor during the AM peak. The cumulative travel time assuming a constant speed of 55 mph was 5.69 minutes, which is also almost four minutes less than the average.

The Cincinnati Central Business District (CBD) lies in the middle of the I-75 corridor. Intuitively, this would indicate that, during the AM peak when commuters are traveling to work, travel speeds might be less traveling northbound from Kyles Lane to just north of Brent Spence Bridge and might then increase in Ohio. It also could indicate that travel speeds might be less traveling southbound from Western Hills Viaduct to the Brent Spence Bridge and then might increase in Kentucky. In the case of the northbound traffic, this appears to be true. However, the southbound traffic seems to travel at high speeds throughout the corridor.

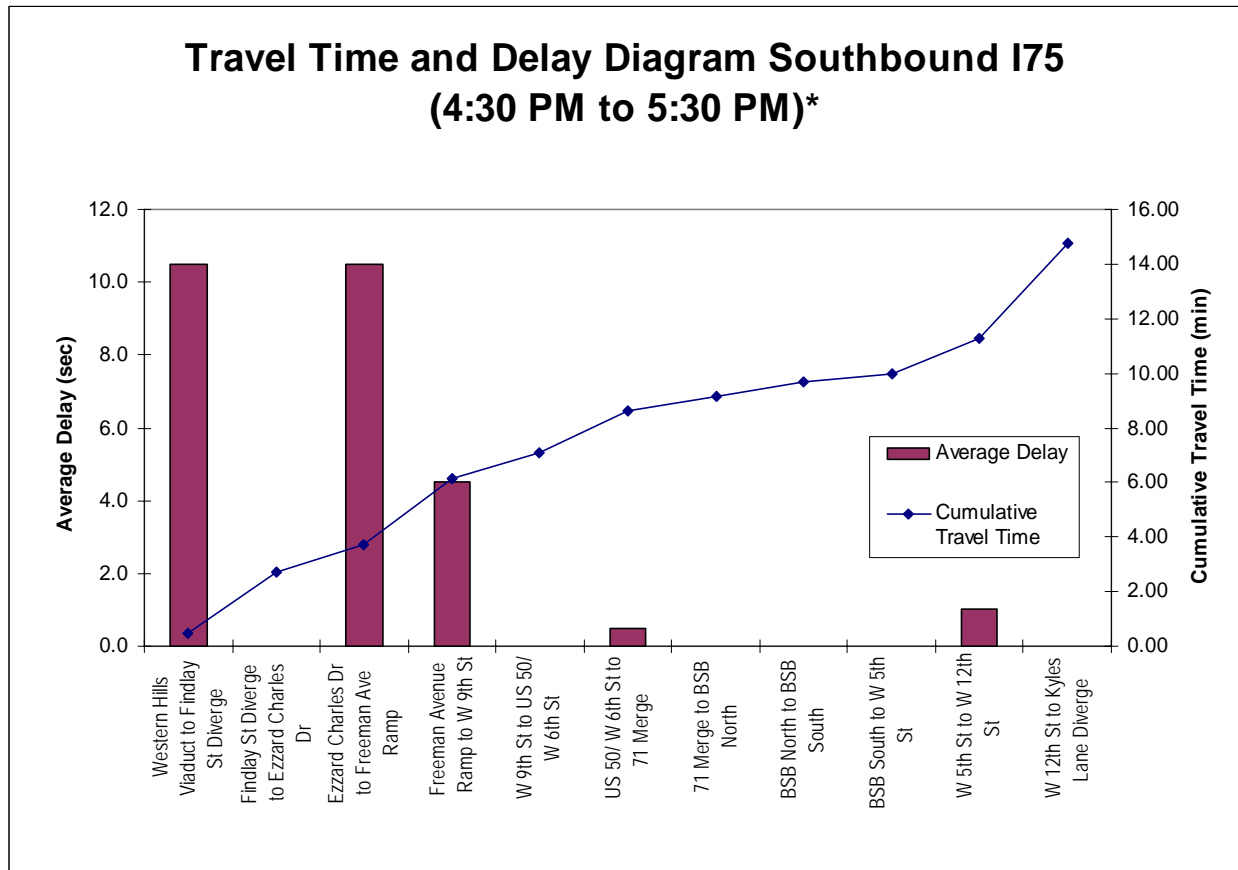
Graphs 5 and 6 depict the average travel speed, delay and cumulative travel time for the southbound runs during the PM peak.

Graph 5



* Two runs completed on 12/07/05 during the PM Peak

Graph 6

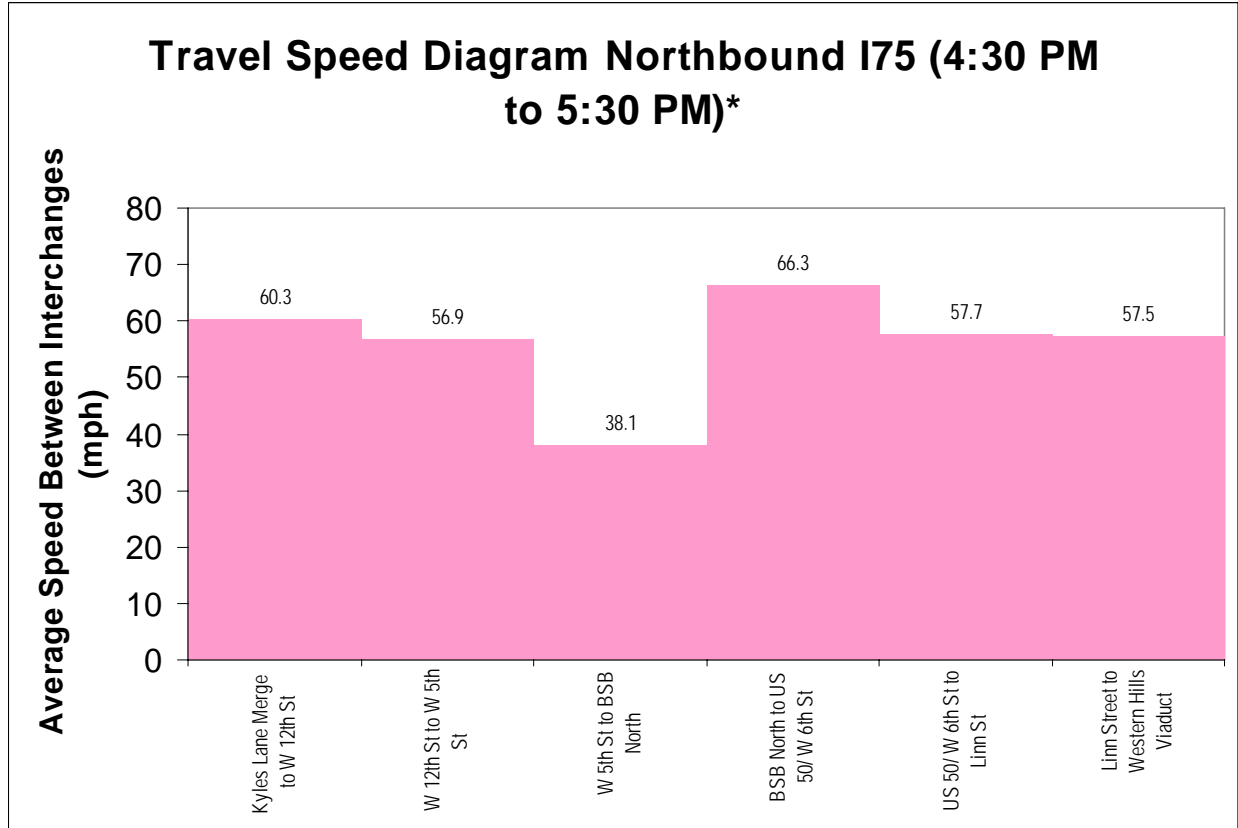


* Two runs completed on 12/07/05 during the PM Peak

Graphs 5 and 6 depict that the average southbound speed during the PM peak is below the posted speed limit along the entire corridor. It is especially slow between Ezzard Charles Drive and the I-71 merge where the average speeds in this area were below 20 mph. The second chart shows that delay was also recorded throughout the corridor. Two sections (Western Hills Viaduct to the Findlay Street Diverge and Ezzard Charles Drive to the Freeman Avenue Ramp) have average delays greater than 10 seconds, which means that the traffic stream was either stopped or moving at speeds below 5 mph for an average duration of 10 seconds. Additionally, it shows that the cumulative average travel time from Western Hills Viaduct to the Kyles Lane diverge was 14.73 minutes, more than 9 minutes greater than the southbound travel time along the same corridor during the AM peak. The cumulative travel time assuming a constant speed of 55 mph was 5.64 minutes, which is also more than 9 minutes less than the average.

Graphs 7 and 8 show the average travel speed, delay and cumulative travel time for the northbound runs during the PM peak.

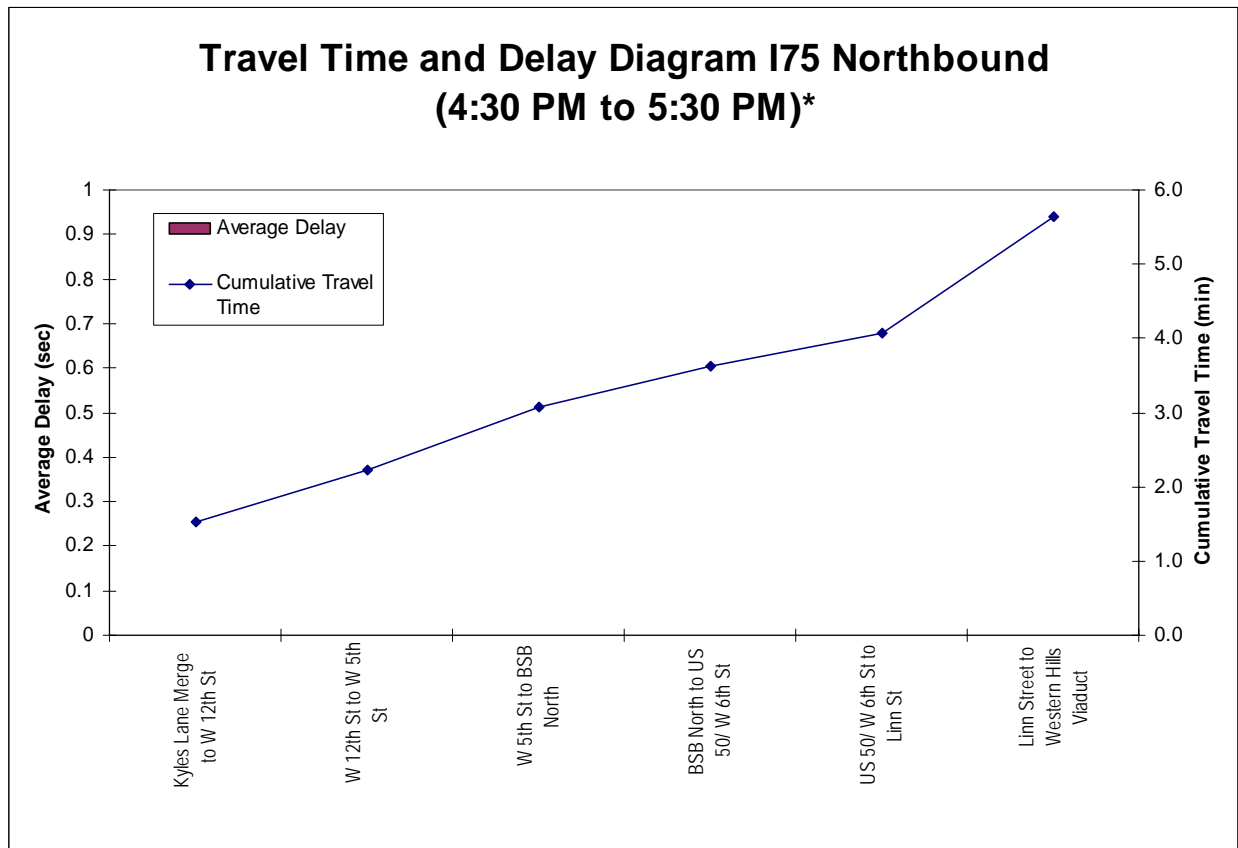
Graph 7



- Three runs completed on 12/07/05 during the PM Peak

Graph 7 shows the average northbound speed during the PM peak is above the posted speed limit along the entire corridor except between West KY 5th Street and the Brent Spence Bridge in Kentucky. Graph 8 shows that no delay was recorded during the runs. Additionally, it shows that the cumulative average travel time from the Kyles Lane merge to the Western Hills Viaduct was 5.60 minutes, which is more than 9 minutes less than the travel time in the southbound direction. This compares to a cumulative travel time of 5.69 minutes assuming a constant speed of 55 mph.

Graph 8



* Three runs completed on 12/07/05 during the PM Peak

Again, the CBD district lies in the middle of the I-75 corridor. During the PM peak, it would seem that traffic leaving the CBD would be heavier than traffic leaving the CBD due to commuters traveling home. Therefore, traffic traveling southbound from the Brent Spence Bridge to the Kyles Lane exit and traffic traveling northbound from the Brent Spence Bridge to Western Hills Viaduct might travel at lower speeds. However, in both cases, this pattern does not seem to show. The southbound traffic travels at speeds lower than the posted speed limit throughout the corridor and is slowest north of the Brent Spence Bridge. The northbound traffic travels above the posted speed limit throughout most of the corridor, only dropping below the posted speed limit south of the Brent Spence Bridge.

The charts above show that congestion is a problem along the I-75 corridor in the project area. It appears that the congestion is worse in the southbound direction during the PM peak and in the northbound direction during the AM peak. It also appears that the part of the corridor that surrounds the Brent Spence Bridge fares the worst in the travel time study.