Washington State Department of Transportation

SR 302 / Elgin Clifton Rd to SR 16 - Corridor Study

Project Update **July 2008**

Project Team Observes Morning Traffic on SR 302

Did you notice WSDOT workers along the roadside recently who seemed to be talking to themselves during the morning commute? They were actually talking in small handheld voice recorders in order to find out more about the impact of congestion at Purdy on eastbound travel time on SR 302. The method relied on matching license plates that passed two locations: at the SR 302/ Key Peninsula Highway (KPH) intersection and again at the Purdy Bridge.

Number plates were recorded at both locations, and later transcribed along with an accurate time stamp on the reading. Each license/time record enabled us to compare how long it took for any particular vehicle to travel between the two points. We assumed for this study that any changes in travel time on SR 302 between Key Peninsula Highway and Purdy during the morning commute were due to changes in traffic congestion level, either due to the higher density of cars and trucks on the road at that time, and/or due to delays caused by the signal (and resulting vehicle queue) at Purdy.

License plate matching was used to measure travel time changes during the morning

Travel times will be used to measure and compare alternative proposals to improve SR 302.

Travel Time Results

On June 10 about 1275 vehicles were counted during the peak hour time period for that day (6:45am-7:45am). The average KPH-Purdy travel time during the peak hour was 8.1 minutes, which is only about one minute longer than the assumed free flow speed for this section of highway. However, those traveling during a 30 minute period within that hour (those arriving at Purdy between 7:05am and 7:35am) experienced significantly higher travel times compared to the average for the hour. (see Figure 1).

On June 12, we found a modest decrease in the total peak hour traffic volume (about 10% decrease), or about 1140 vehicles (see Figure 2). This modest decrease, however, resulted in a substantial decrease in the period during which the travel time was higher than average for the peak hour (from 30 minutes on June 10 to 18 minutes on June 12).

Travel time and delay was found to change substantially with only minor changes in traffic volume.

Travel Delay Results

Travel time measurements allow us to calculate the delay experienced by vehicles compared to the free-flow condition. It is usually expressed as the number of vehicles for the period multiplied by the average time difference between congested and non-congested conditions (or delay) in hours. By this measurement, the 10% decrease in traffic volume between June 10 and June 12 resulted in a 100% decrease in travel delay for the peak hour (from 24 vehicle-hours on June 10, to 11 vehicle hours on June 12).

Figure 1 – June 10 SR 302 travel time from Key Peninsula Highway to Purdy - by arrival time at Purdy

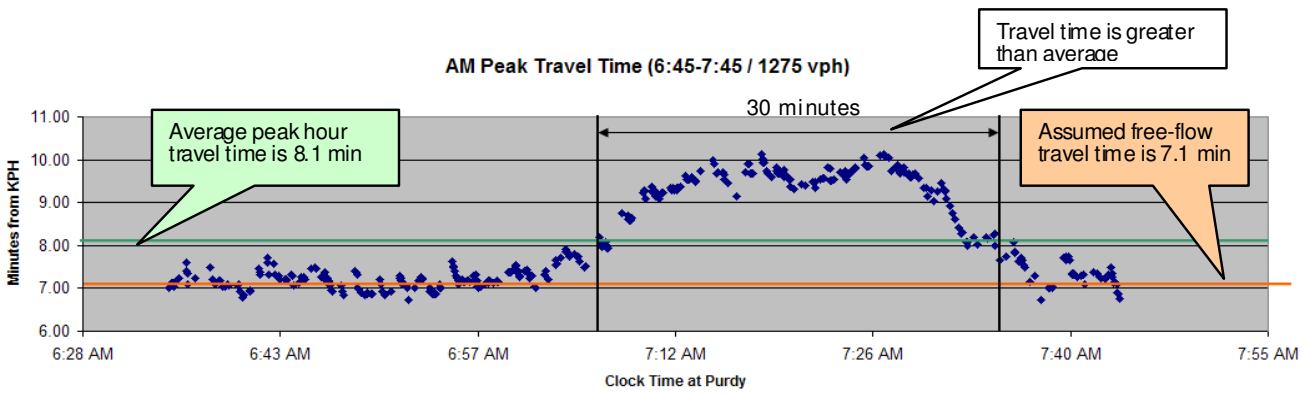
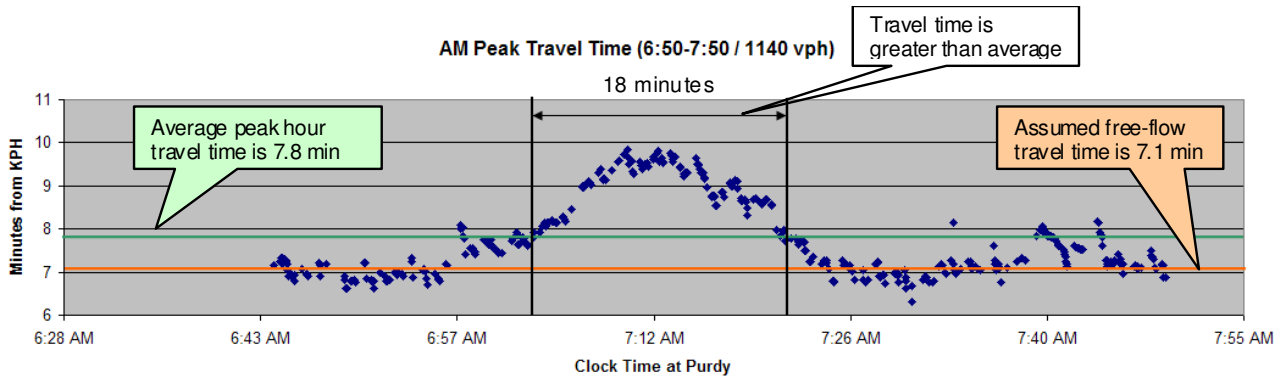


Figure 2 – June 12 SR 302 travel time from Key Peninsula Highway to Purdy - by arrival time at Purdy



Discussion

The goal of this study was to understand the characteristics of travel time and delay in the corridor during the morning commute. The results will provide a baseline comparison between existing conditions and proposals for improvement. Our observations suggest that minor changes in traffic volume can result in substantial changes in travel time and delay. They also confirm the importance of congestion at the traffic signal in Purdy to travel time and delay increases in the corridor.