

ERP Final Report Appendix F: Limitations of WSDOT's Level 2 (Preliminary Study) Modeling Analysis

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The level 2 traffic modeling conducted by WSDOT has two limitations which both result in an underestimation of the benefits of express toll lanes. The first limitation is the conservative approach taken in assigning vehicles to the express toll lane within the models. Express toll lanes can typically serve 1,500-1,700 vehicles per hour per lane; however WSDOT has only used 1,000 to 1,200 in their analysis. This 40-50% reduction was selected to avoid overestimating express toll lane use. Actual operation of the express toll lanes will likely achieve the 1,500-1,700 level as seen by other facilities around the country. By taking this conservative approach, WSDOT has underestimated the benefits of the express toll lanes on congestion reduction and general purpose lane benefits.

The second limitation is in the traffic micro-simulation modeling. The WSDOT micro-simulation modeling has observed several bottlenecks in the freeway network. The level of congestion at these bottlenecks is under-represented in the process of assigning traffic to the express toll lanes. This results in vehicles continuing to use the general purpose lanes when the express toll lanes provide a superior trip. An investment grade study, which involves more detailed traffic data, travel surveys, demand forecasts and sensitivity analyses, should be able to address both limitations above. Based upon results exhibited by projects in operation, it is anticipated that resolution of these limitations would result in more efficient express toll lanes, greater benefits to the general purpose lanes, and greater overall transportation network performance than represented in the study.