UNIVERSITY TRANSPORTATION CENTER
RESEARCH BRIEF

PROJECT TITLE: Understanding Truck Parking Behavior and Choice of Commercial Motor Vehicle Operators: Impacts on Roadway Safety

PRINCIPAL INVESTIGATOR: Salvador Hernandez (OSU)

Background

It is nationally recognized that commercial motor vehicle (CMV) operators often cannot find adequate and safe parking for rest purposes. This is especially true for the Northwest, where high-use corridor rest areas are experiencing a heavy demand for truck parking, one that exceeds capacity (FHWA, 2015). These rest areas are intended for short-term safety breaks, yet they are increasingly used for long-term parking. Private truck stops are also experiencing capacity shortfalls. The economic recovery and driver hour-of-service regulations have recently contributed to the rising demand. In addition, winter weather conditions are another factor that adds to the demand of already stressed truck parking facilities. Recent studies performed by Islam and Hernandez, (2013) and Pahukula et al., (2015) have shown that factors related to weather and fatigue increase the likelihood and severity of CMV involved crashes.

Because of the truck parking shortages and limits on stays in public rest areas, CMV operators may be contributing to unsafe situations by driving without a needed short break and/or by parking on roadway access ramps, shoulders, at highway interchanges and on facilities running through cities and towns. With this in mind, the present study seeks to identify the contributing factors that influence CMV operator truck parking behavoir and choice through the application and performance based comparison of two "heterogeneity" models, namely the random parameters- and latent class- discrete choice modeling approaches.

Research Project

In summary, this research aims to address the issues related to CMV parking behavior and choice of US based CMV operators, lack of linkages between survey data and existing crash data and modeling the limitations from previous work through the development and comparison of heterogeneity based methods; this will be accomplished through: (1) a comprehensive existing state-of-the-art and state-of-the-practice as it relates to CMV parking behavior and choice and heterogeneity based methods, (2) conduct statistical analyses and mine current data collected from a stated preference survey, and Oregon and Washington crash data to determine potential factors for the heterogeneity based models, and (3) estimate and validate heterogeneity based models using the 2/3rd of data prepared and identified in (2) using advanced econometric software. Once the models have been estimated the stability of the coefficient estimates of the models will be validated using 1/3rd of set aside data. It's envisaged that two journal manuscripts will result from this work.