11-222: Easy Breezy Beautiful DTA Modeling of the Geary Boulevard Bus Rapid Transit Project – Was it Really That Simple?

Topic Area: Travel Demand Modeling and Analysis - Advances in Practice

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Abstract: Who said that raw trip tables from a travel demand model can't fit nicely into a traffic simulation model? This paper documents the calibration and validation of a mesoscopic dynamic traffic assignment (DTA) model for the northwest portion of San Francisco for use in the Geary Boulevard Bus Rapid Transit project environmental analysis. The Project Team was able to successfully and fairly seamlessly link the SF-CHAMP regional activity-based travel demand model with the subarea DTA model by directly using raw SF-CHAMP trip tables for the base and future years. The DTA model in turn provided reasonable intersection-level data for use in a traffic microsimulation model. The DTA model was validated to several hundred mainline and intersection counts as well as travel speeds. This paper highlights the calibration techniques used, problems encountered and quickly solved, computation issues (or lack thereof) and a quick tour of the open-source tools the team developed to make quick work of most tasks. This paper discusses the types of metrics that can be gleaned from a DTA model, the questions that were answered with each of the three levels of modeling (SF-CHAMP, DTA, and traffic micro-simulation), and a selection of graphics that helped tell the story of what was going on with each scenario. Finally, the paper will address the question: "Was it worth it?" by attempting to quantify if DTA gave us better results or made the process easier.

Keywords: DTA, activity based travel demand model, Bus Rapid Transit, BRT