DRISI

CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes

Investigation of the Abilities and Limitations of Travel Demand Modeling in Informing Decision-Making

Provide an assessment of the role of Travel Demand Models in public policy, including regulatory compliance

Planning, Policy and Programming

NOVEMBER 2023

Project Title:
Investigation of the Abilities and Limitations of Travel Demand Modeling in Informing Decision-Making

Task Number: 4173

Start Date: June 30, 2023

Completion Date: September 30, 2024

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WHAT IS THE NEED?

Caltrans and other agencies rely on travel demand models (TDMs) to understand the outcomes that will result from proposed projects and plans, including effects on travel times and speeds, operations-related safety, equity (regarding both access to opportunity and harm from impacts), GHG emissions, air quality, noise, VMT, and health. Understanding these outcomes when choosing projects is a prerequisite to ensuring public benefit from taxpayer investment. Caltrans currently lags behind in understanding these limitations of existing TDMs. As a result, Caltrans will not be able to make informed decision regarding the choice of assessment tools and the need for further tool development.

WHAT ARE WE DOING?

The approach for the research is comprised of the following tasks below:

- Task 1: Meetings. The research team will hold a kick-off meeting with Caltrans staff to review the scope of work, deliverables, and schedule. Check-in meetings will be scheduled at appropriate intervals.
- Task 2: Modeling applications and capabilities
- Task 3: Sensitivity Testing
- Task 4: TDM assessment
- Task 5: Dissemination

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WHAT IS OUR GOAL?

The goals of this research project are to delineate the capabilities of TDMs to provide accurate forecasts for different types of projects and plans for different outcome measures of interest given particular regulatory setting,to determine the susceptibility of TDM analyses to bias introduced by the operator, and to determine their usefulness in regulatory settings. The project will examine the swing in outcome values that results from a range of operator choices.

WHAT IS THE BENEFIT?

The project will provide initial recommendations on the use of TDMs, including situations in which the use of TDMs is appropriate and situations in which agencies should turn to alternative assessment tools that could better inform decision-making. Situations for which new tools are needed will also be highlighted. This research effort aims to inform the choice of assessment tools and to shed light on the need for further tool development. It will also inform policymakers on the opportunities for and limitations to relying on TDMs as regulatory tools. It will aid Caltrans in advancing its Strategic Management Plan goals to improve operational safety, climate, equity (including disparities in both community harms as well as benefits), accessibility/ connectivity, stewardship, and efficiency.

WHAT IS THE PROGRESS TO DATE?

Kick-off meeting was held on July 25. Began work on Task 2.1 Literature review, Task 2.2 Expert and stakeholder input, Task 2.3 TDMs at California MPOs, and Task 3.1 Prepare TDM. The research team has previously used the Sacramento TDM (SACSIM) for research purposes and will prepare this model for the sensitivity testing.

The following tasks/deliverables are planned for the next quarter:

Deliverable 2.1 Interim report with item descriptions and overall summary from the literature (12/31/2023)
Deliverable 2.2: Interim report summarizing findings from experts and stakeholders on the task objectives (12/31/2023)
Deliverable 3.1: memo providing important details of the Sacramento Regional Activity-Based Travel Simulation Model (SACSIM)
Deliverable 3.2: memo presenting the inputs and parameters for the scenarios (12/31/2023)