



Caltrans Division of Research,
Innovation and System Information

Research



Notes

Planning, Policy
and
Programming

FEBRUARY 2023

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

Task Number: 4173

Start Date: July 1, 2023

Completion Date: September
30, 2024

Task Manager:
Frank Law
Senior Transportation Planner
frank.law@dot.ca.gov

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

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



DRISI provides solutions and
knowledge that improves
California's transportation system

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?

Caltrans seeks to hire the experts at University of California, Davis to investigate and research the abilities and limitations of Travel Demand Modeling in informing decision-making and the anticipated contract start date is July 1, 2023.