

# DRISI

CALTRANS DIVISION OF RESEARCH,  
INNOVATION AND SYSTEM INFORMATION

# Research Notes

Planning, Policy  
and  
Programming

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Project Title:  
Exploring the Integration of Induced  
Travel into Analyses of Costs, Benefits,  
and Air Pollutant Emissions

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## Exploring the Integration of Induced Travel into Analyses of Costs, Benefits, and Air Pollutant Emissions

### WHAT IS THE NEED?

Caltrans' 2020 Transportation Analysis Framework (TAF), developed in response to Senate Bill 743, requires Caltrans to evaluate highway expansion projects on the State Highway System for their induced travel impacts, measured as vehicle-miles-traveled (VMT). Tools like the National Center for Sustainable Transportation's induced travel calculator (<https://travelcalculator.ncst.ucdavis.edu>) and resulting tools such as the SHIFT calculator (<https://shift.rmi.org>) are capable of estimating induced VMT from capacity expansions of large roadways, and are becoming widely used for environmental impact analyses, e.g., under the California Environmental Quality Act. Induced travel also has economic and air quality impacts. However, most conventional cost-benefit and air pollutant emissions analysis tools do not fully incorporate induced travel into economic forecasting as a source of additional costs and benefits. They also generally do not account for the distribution across different populations of induced travel-related impacts, particularly the air quality impacts of induced travel. Methods and guidance are needed to integrate induced travel and the equity of induced travel-related impacts into cost-benefit and air pollutant emissions analysis tools.

### WHAT ARE WE DOING?

The research team will also explore and recommend methods for integrating induced travel and the equity of induced-travel related impacts into emissions and cost-benefit analysis tools. First, the research team identify (in coordination with Caltrans) key collaborators who conduct or utilize cost-benefit and air pollutant emissions analyses for roadway projects in California, including Division of Environmental Analysis and the Cal-B/C/Transportation Economics staff at Caltrans, California Air Resources Board staff, staff at the major metropolitan planning organizations in California, staff at the Federal Highway Administration, and staff



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knowledge that improves  
California's transportation system

at some of the major transportation consulting firms in California. After identifying the state of practice in cost-benefit and air pollutant emissions analysis for roadway projects, the research team will interview users of sketch-level analysis tools to explore how the tools incorporate induced travel and the challenges in doing so.

Second, the research team will review of the methods currently used to estimate the costs, benefits, and air pollutant emissions from roadway projects, including Cal-B/C, to independently determine how the tools incorporate induced travel and how they could be improved to better incorporate induced travel.

Third, the research team will formulate recommendations on how the empirical evidence about induced travel and its equity impacts can be incorporated into air pollutant emissions and cost-benefit analysis models.

## WHAT IS OUR GOAL?

The purpose of this project is to explore the appropriateness of including induced travel and the equity of induced travel-related impacts into cost-benefit and air pollutant emissions analysis tools, like the California Life-Cycle Cost/Benefit Analysis Model (Cal-B/C) currently used by Caltrans. The research team will also explore and recommend methods for integrating induced travel and the equity of induced-travel related impacts into emissions and cost-benefit analysis tools.

## WHAT IS THE BENEFIT?

The project will benefit Caltrans in at least three ways. First, the research team's review will inform Caltrans about the extent to which conventional cost-benefit and air pollutant emissions analysis tools account for induced travel and the distribution of induced travel-related impacts, which is essential for understanding how comprehensive and consistent those tools are. Second, the research team's review will

inform Caltrans about how induced travel affects air pollutant emissions and the cost-benefit calculus for roadway expansion projects. Third, the research team's recommendations will help Caltrans integrate induced travel and the equity of induced-travel related impacts into emissions and cost-benefit analysis tools. This will help ensure that the full suite of roadway capacity expansion projects' impacts are considered during the project development and environmental review stages, and that the analyses are consistent across different types of impacts (e.g., air quality, greenhouse gas emissions, transportation, and environmental justice).

## WHAT IS THE PROGRESS TO DATE?

Contract in process, preparing for DPAC submission

## IMAGES

