

DRISI

CALTRANS DIVISION OF RESEARCH,
INNOVATION AND SYSTEM INFORMATION

Research Notes

Executive

MAY 2024

Project Title:
Induced travel effects from various
improvements to highways other
than lane additions

Task Number: 4175

Start Date: June 30, 2023

Completion Date: May 31, 2024

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Induced travel effects from various improvements to highways other than lane additions

Vehicle Miles Traveled (VMT) Impact Modeling and Assessment

WHAT IS THE NEED?

To assist public agencies in estimating the amount of induced vehicle travel that may result from roadway capacity expansion projects, University of California at Davis (UC Davis) researchers developed the California Induced Travel Calculator (<https://travelcalculator.ncst.ucdavis.edu>). The Calculator is an online tool that allows users to estimate the additional vehicle miles traveled (VMT) induced by expanding the mainline capacity of major roadways in California's urbanized counties (i.e., counties within Census-defined metropolitan statistical areas). In 2020, Caltrans adopted its inaugural Transportation Analysis Framework in which it recommended using the calculator where possible to estimate—or at least benchmark—induced VMT.

The Calculator currently only applies directly to publicly owned facilities (like those managed by Caltrans) with Federal Highway Administration (FHWA) functional classifications of 1, 2, or 3 in one of California's urbanized counties (the 37 counties within a metropolitan statistical area). That corresponds to interstate highways (class 1), other freeways and expressways (class 2), and other principal arterials (class 3). The Calculator is also limited to use for mainline capacity expansions (lane additions, roadway lengthening, and new facility construction). Given these limitations, Caltrans must rely on other more burdensome and less consistent analytical methods than the Calculator to estimate induced travel from expansions or additions of minor arterials (class 4), interchanges, on- and off-ramps, and non-general-purpose facilities like wildfire evacuation routes, as well as other types of excluded facilities.

WHAT ARE WE DOING?

The work will comprise three main efforts: (1) a thorough review of the peer-reviewed literature on the induced travel effects



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of categories of roadway expansions not currently covered by the Calculator, including minor arterials, interchanges, on- and off-ramps, and non-general-purpose facilities like wildfire evacuation routes, (2) a review and assessment of the best practices currently employed by practitioners to estimate induced VMT from those types of projects; and (3) development of recommendations on whether and how an elasticity-based approach (or other relatively simple, rule-of-thumb method) can be validly used to estimate induced VMT from the studied project types. If the researchers conclude that it would be appropriate to estimate induced VMT using an elasticity-based (or similar) method, they will incorporate that functionality into the Calculator if feasible (given data availability, etc.).

WHAT IS OUR GOAL?

The goal is to provide project teams with valid but simplified means of assessing induced travel impacts for projects now addressed by the department's lane-miles-based tool. Currently, such assessments are burdensome and inconsistent from project to project.

WHAT IS THE BENEFIT?

The benefit of this project is to explore the induced travel effects of categories of roadway expansions not currently covered by the Calculator, including minor arterials, interchanges, on and off-ramps, and non-general-purpose facilities. If feasible, the researchers will also develop recommendations for estimating induced VMT from those facilities using an elasticity-based approach (or other relatively simple, rule-of-thumb method) and incorporate that functionality into the Calculator.

WHAT IS THE PROGRESS TO DATE?

Significant work has been done on this contract. The contract is near completion at about 85%. There has been a challenge for the researcher finding adequate documentation on on-ramp facilities. Due to this, the researcher is looking into a proposal to slightly pivot the research and present this to the project panel to decide if this new direction makes sense to complete this project.

The project meeting will meet to discuss the proposed pivot and come to an agreement.

A No Cost Time Extension is being worked on for this contract to extend the project until September 2024 to complete the project and allow the additional time needed to do so.