DRISI
Caltrans Division of Research, Innovation and System Information

Research Results

Improving Estimates of Greenhouse Gas Reductions from Bikeway Projects

Under what conditions does the decision to construct a bikeway facility lead to net reductions in lifecycle GHG emissions?

Planning, Policy and Programming

MAY 2019

Project Title:
Improving Estimates of Greenhouse Gas Reductions from Bikeway Projects

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Task Manager:
Harold Hunt
Senior Environmental Planner
harold_hunt@dot.ca.gov

WHAT IS THE NEED?

Bikeway projects that can demonstrate greenhouse gas (GHG) emissions reductions are eligible for funding from the Greenhouse Gas Reduction Fund. However, forecasting GHG emissions reductions for transportation projects requires consideration of specific consequential activities and forecasts of future travel behavior. As such, many estimates of GHG from proposed and historical bikeway projects use standard assumptions and consider a very limited scope of consequential activities.

WHAT WAS OUR GOAL?

We sought to accurately and validly model emissionsgenerating and activities, including changes in traveler behavior and thus GHG emissions in the wake of bikeway projects. We wanted the results to be applicable to practice and policy in California.

WHAT DID WE DO?

We created a lifecycle assessment model for GHG emissions resulting from bikeway construction and use by those who formerly used cars, used transit, cycled on other routes, walked, or did not make trips. We conducted intercept surveys at 20 new bikeway facilities across Los Angeles County to understand the changes in travel induced by the bikeway. We also aggregated before and after count data from across the country to understand the range of observed changes in annual cycling volumes that result from a new or upgraded bikeway, and perform statistical tests on the correlation between Census variables and bikeway volume outcomes.

WHAT WAS THE OUTCOME?

Though far less GHG emissions are attributable to cycling than driving, not all bikeways reduce lifecycle GHG emissions. But many do. We specify the conditions under which a bikeway is more likely to reduce GHG emissions. We also make recommendations to the Air Resources Board and Strategic Growth Council to adjust an existing method used to estimate reductions in GHG emissions from bikeway projects.

WHAT IS THE BENEFIT?

This research can play a key role to support future decisions to use revenues from the Greenhouse Gas Reduction Fund for expenditures on high-performing individual bikeway, bikeway networks, and bikerelated programs.