



Caltrans Division of Research,  
Innovation and System Information

# Research



# Results



Transportation  
Safety and  
Mobility

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**Project Title:**  
Trip-Generation Rates for  
California

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## Trip-Generation Rates for Smart Growth Land Use Projects

The goal of this project is to develop, validate, and disseminate an acceptable methodology for estimating multimodal trip-generation rates for proposed land use projects located in urban infill, transit-oriented, and other "smart growth" land uses in California, as no data or accepted methodology for assessing such projects is currently available in the U.S.

### WHAT WAS THE NEED?

The California Environmental Quality Act (CEQA) and other state, federal, and local laws require the identification, analysis, and mitigation of transportation-related impacts of proposed land use projects. One of the first steps in preparing a transportation impact analysis (TIA) is to estimate the number of trips by automobiles, trucks, and other modes of travel that may result from a proposed land development project – a process commonly referred to as "trip generation."

In most cases, practitioners use vehicle trip generation rates published by the Institute of Transportation Engineers (ITE), a national professional organization, or other rates established or accepted by local agencies requesting the TIA. These are derived from data that are almost all from suburban sites in single land use areas and with virtually all trips to and from the sites made by motor vehicles.

However, more recently, more development has occurred in areas served by transit and bicycle facilities. Developers have become more sensitized to making developments walkable, and there have been more mixed- and multi-use developments where complementary land uses are mixed closely together, facilitating walk and bicycle travel for some trips. This new (smart growth) style of development generates some trips by non-vehicle modes. Hence, to be credible and accurate, TIAs need to reflect the multimodal trip generation associated with such developments.



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## WHAT WAS OUR GOAL?

Phase 1 of Smart Growth Trip Generation (SGTG) established the basics for this project, including procedures for collecting and analyzing data, and provided data for 30 initial sites.

Phase 2 was contracted to refine the approach used in Phase 1 based on Phase 1 experiences and findings, to add data from another 30 sites to the California SGTG database, and to extend the findings. More specifically, the goal of the Phase 2 project was to produce a validated and improved estimation method and a user-friendly tool to more accurately estimate trip generation for use in determining proper transportation improvements for smart growth developments in California and beyond. To improve the accuracy of the trip generation estimation model developed in Phase 1, this project was to collect trip generation data at approximately 30 smart growth sites and combine it with data already in the California Department of Transportation (Caltrans) database.

## WHAT DID WE DO?

Caltrans initiated the SGTG project to determine the difference in vehicular trip generation between the suburban-oriented ITE rates and those to be determined from surveys of California smart growth developments. The report summarizes the findings and recommendations of Phase 2 of the SGTG project which followed the initial Phase 1 that was documented in a separate report.

## WHAT WAS THE OUTCOME?

Both methods produced a spreadsheet tool for easy data entry and computation. Both include detailed direction for data acquisition and use.

## WHAT IS THE BENEFIT?

The Caltrans Task 1940 project (referred to as Phase 1 in this report) and similar research conducted in California and other states have demonstrated that developments exhibiting smart growth characteristics (such as mixed or multiple uses, compactness, transit proximity, or pedestrian friendly) generate fewer vehicle trips than do conventional suburban types of development. The lower vehicle trip generation rates then require less traffic mitigation and generate less vehicular emissions, among other benefits, and contribute to increasing sustainability.

## LEARN MORE

View the Final Report  
<https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/ca14-2464-finalreport-a11y.pdf>