



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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Affordable Housing Trip Generation Strategies and Rates

This is multi-method study of motorized vehicle and person trip generation, vehicle miles traveled, and vehicle ownership of affordable housing developments and low-income households in California.

WHAT WAS THE NEED?

There is a lack of information to assess the transportation impacts of planned affordable housing developments, which hamper the ability to meet the requirements of The California Environmental Quality Act (CEQA), Senate Bill (SB) 375, and SB 743. Further, this lack of information may result in overestimation of automobile ownership and use for these sites and thus impose unwarranted costs and mitigations. To better assess the transport demand generated by new affordable sites, more information is needed.

WHAT WAS OUR GOAL?

The goal of this study was to collect original multimodal trip generation data on affordable housing developments in California. Using this data and other archived sources, analysis focused on identifying the characteristics of the site, built environment, and residents that are associated with these trip rates. From this, a methodology for estimating trip generation for affordable housing was developed.

WHAT DID WE DO?

We collected an on-site trip generation study at 26 affordable multifamily housing developments in the San Francisco Bay Area and Los Angeles Area. In addition, a survey was administered via mail to residents of 109 affordable sites, including those 26 included in the on-site study. To complement these original data collection efforts, we analyzed the California Household Travel Survey from 2012. Analysis examined person and vehicle trip generation rates, vehicle miles traveled, automobile ownership, and mode shares.



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knowledge that improves
California's transportation system

WHAT WAS THE OUTCOME?

Low-income households living in multifamily housing own fewer vehicles, make fewer motorized vehicle trips, and generate fewer vehicle miles traveled than their similarly situated higher income counterparts. Residents of affordable housing used walking and transit for nearly half of the trips generated in the morning and evening peak. Vehicle ownership and use declined with increasing urbanization (population & employment density, street connectivity, and mix of uses).

From the data collected in this effort, the study results showed that affordable housing sites generated 35% fewer vehicle mile traveled than would have been predicted using trip rates from The Institute of Transportation Engineers (ITE) Trip Generation. The greater the parking supply and the average number of bedrooms (as a proxy for household size) for a site were associated with higher rates of motorized vehicle trip making. These two attributes of the site have not been used in trip generation estimates in the past and the evidence here supports that a change in the approach is needed.

WHAT IS THE BENEFIT?

This research provides data and methods to estimate trip generation impacts of affordable housing that are more sensitive to the characteristics of the site, location, and residents than were previously available in the US.

Further, the findings point to the differences in vehicle ownership and vehicle miles traveled between low-income households and those with more resources. This information is critical to inform California policies such as CEQA and the mandates in SB 375 and SB 743 and other efforts nationwide to reduce the environmental impacts of automobile use and plan for multimodal transportation.

LEARN MORE

View the Final Report
<https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/final-reports/ca18-2465-finalreport-ally.pdf>

IMAGES

Vehicle trips (home-based) for multi-family residents

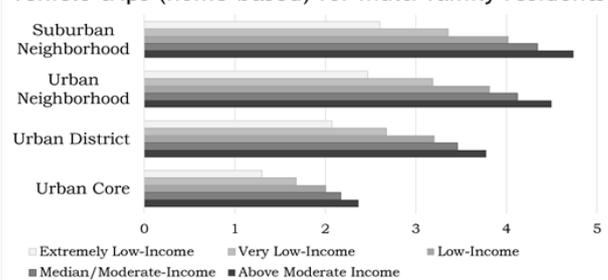


Image 1: Graph illustrates vehicle trips for multi-family residents in suburban, urban, urban district and urban core neighborhoods.

Motorized vehicle trips for PM peak hour

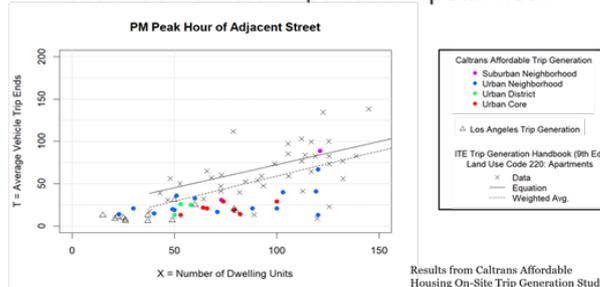


Image 2: Graph illustrates motorized vehicle trips for PM peak hours using average vehicle trip ends and number of dwelling units.