



Caltrans Division of Research,
Innovation and System Information

Research

Notes

Planning
Policy
Programming

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Project Title:
Urban Spatial Structure and
Greenhouse Gas Emissions

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Task Manager:
Patrick Tyner
Associate Transportation Planner
patrick.tyner@dot.ca.gov

Urban Spatial Structure and Greenhouse Gas Emissions

Analysis of the links between employment sub-centering and the spatial distribution of jobs in Los Angeles.

WHAT IS THE NEED?

The evidence on land use and travel shows that employment access has a larger association with travel than population density. In a policy world that is focused on links between residential density and travel, the more important path is possibly (likely) from employment density to travel. California Senate Bill (SB) 375 is at heart an attempt to change urban form in ways that will meet specified GHG reduction targets. This requires clear evidence that links from urban spatial structure to travel behavior.

WHAT ARE WE DOING?

In this research, we will analyze the links between employment sub-centering and the spatial distribution of jobs in Los Angeles and travel behavior outcomes. The following identifies the research activities: UCLA Lake Arrowhead Symposium on the Transportation - Land Use - Environment Connection. The unique signature of this series is its balance of both scholarly and practice-oriented presentations and ideological perspectives.

- Task 1) Obtain and Prepare Travel Diary.
- Task 2) Obtain Sub-Center Locations.
- Task 3) Obtain and Prepare Employment Data.
- Task 4) Employment Accessibility Measures and Analysis.
- Task 5) Analyze Impact of Growth Patterns on VMT Based on Regressions.
- Task 6) Final Report Preparation and Delivery.



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California's transportation system

WHAT IS OUR GOAL?

We intend to produce new evidence on the link between employment sub-centers and vehicle travel.

WHAT IS THE BENEFIT?

California's regulatory environment, including by not limited to SB 375, requires that local agencies and municipal governments understand the links between employment location and vehicle GHG reduction goals. This research will provide evidence that is tailored to the sub-centered structure of California's metropolitan areas. California's policy makers and transportation planners need clear guidance on how the geography of employment influences VMT. This research will help move our understanding forward in ways that can inform regional transportation plans and Sustainable Communities Strategies (SCSs), in addition to providing insights for policy-makers and modelers.

WHAT IS THE PROGRESS TO DATE?

The researcher has obtained access to the 2012 California Household Travel Survey through the National Renewable Energy Laboratory (NREL) geoportal which allows secure access to household location data. The researcher has also used the travel survey data to obtain information on daily vehicle miles traveled (VMT) for each household, and have analyzed the household VMT data descriptively, and has identified employment sub-centers in the Los Angeles region using data from the National Employment Time Series (NETS). The researcher is proceeding to a regression analysis of household VMT as a function of spatial access to employment centers. The 4th quarter activities will continue with the regression analysis. The researcher has requested a No Cost Time Extension (NCTE) to April 2016.