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Caltrans Division of Research,
Innovation and System Information

Research Notes

Planning
Policy
Programming

JULY 2015

Infill Dynamics of Rail Corridors

Insights into the expected nature and magnitude of impacts of urban transit system improvements/expansions on infill and growth.

Project Title:
Infill Dynamics in Rail Transit Corridors: Challenges and Prospects for Integrating Transportation and Land Use Planning

Task Number: 2641

Start Date: April 1, 2015

Completion Date: January 30, 2016

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WHAT IS THE NEED?

Local and regional planning entities are directing substantial employment and housing growth into transit corridors to achieve the sustainability goals of California Senate Bill 375. Despite the substantial focus on transit investment and infill growth, our knowledge base for understanding near-transit infill land use dynamics remains limited.

The proposed research will shed light on whether existing plans will be sufficient to encourage favorable land use changes which reorient growth into transit corridors by examining two critical dynamic processes: (1) transit system improvements/expansions and (2) associated land use changes, particularly infill and redevelopment dynamics. More specifically, the project will:

a) develop a historical geo-database of the dynamic changes in transit systems and land use over the last two decades (i.e., 1990s and 2000s) in southern California

b) identify key transit system and policy factors that can shape and re-shape land use patterns in surrounding areas

c) analyze infill and redevelopment dynamics associated with transit system improvements/expansions using a parcel-based land use change model.

Results will provide insights into the expected nature and magnitude of impacts of urban rail transit system improvements/expansions on infill and growth, and will support ongoing efforts to more effectively integrate transportation and land use planning.

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WHAT ARE WE DOING?

This research project consists of the following four major tasks:

1) **Collect and process data:** The first task will compile, clean, and integrate the following three sets of geographic information: i) transit system, ii) land use change, and iii) policy and context.

2) **Explore, analyze and identify key transit factors:** The second task will reveal how transit system and land use changes vary across space and over time. It will also provide an initial assessment of the circumstances and factors of the transit system which could be associated with significant land use conversion, particularly infill dynamics.

3) **Analyze land use change dynamics associated with transit system improvements/expansions:** The third task will use a parcel-level land use change model to show how transit system improvements and/or expansions can influence land use changes in the study area, while controlling for the influences of other factors.

4) **Identify and discuss policy implications and recommendations and develop a final report:** The fourth task will identify and discuss the implications of analysis findings for state, regional, and local policy making and implementation.

WHAT IS OUR GOAL?

The goal of this task order is to conduct a research project designed to explore the near-transit land use change dynamics in Southern California. The performance tests or criteria which demonstrate that the goal is achieved are:

i) the quality of data collection and processing

ii) the completeness of the proposed analysis of the land use dynamics under the influence of transit system improvements/expansions

iii) the relevance of the research findings for real-world policy making

WHAT IS THE BENEFIT?

The project will result in a more complete understanding of the transit-land use relationship that is essential for guiding the state-wide endeavor to create more socially, economically, and environmentally sustainable communities.

Additionally, this project will contribute to the integration of transportation and land use planning to achieve the state, regional, and local environmental sustainability goals. It will lead to a salient dialogue concerning the circumstances and types of transit system improvements /expansions which could more effectively address chronic urban transportation-land use problems and help enhance efficiencies in human and commodity flows in California.

WHAT IS THE PROGRESS TO DATE?

Between July and September 2015, the project team will compile, clean, and integrate the data required for the proposed research. The data include not only transit and land use layers but also a range of relevant policy and context information.

The research team will also investigate the consistencies and discrepancies between the general plan and existing land use at the parcel level to understand the mechanism of local plan implementation. From this they will construct a metric which will be used to understand the circumstances in which infill or (re)development is likely to occur in relation to a transit system improvement or expansion.