



Caltrans Division of Research,
Innovation and System Information

Research



Results



Planning, Policy
&
Programming

The Benefits of Transportation Research

White Paper examines the literature on the status of research in the United States

OCTOBER 2018

Project Title:

The Benefits of Transportation Research

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WHAT WAS THE NEED?

Transportation agencies provide substantial funding for research, but their budgets are constrained, and research is only one of many programmatic needs competing for financial support. Transportation research is a vulnerable budget item because unlike, e.g., construction or maintenance projects, research rarely delivers a tangible product, or if it does, the product requires further development to more into market or practice. This raises the question, what are the benefits of research and how and over what time frame can they be measured?

WHAT WAS OUR GOAL?

This study investigated parcel-level land use dynamics in Los Angeles County, where the light rail transit system has expanded over the last few decades, in order to provide insights into the effectiveness of transit investment in achieving a more desirable pattern of urban development.

WHAT DID WE DO?

In order to enhance our understanding of the land use impacts of transit, the research team used a historical geo-database of the changes in transit systems and land use to identify key factors that shape land use patterns, with a focus on the areas around rail transit stations in Los Angeles County. Attention was given to land use change dynamics near thirteen stations along the first phase of the Gold Line, which opened in 2003, while consideration was also given to the other station areas in the



DRISI provides solutions and knowledge that improves California's transportation system

region. By analyzing parcel-level land use change patterns near the Los Angeles transit system that has expanded substantially over the last two decades, the researchers attempted to provide critical insights into the mechanisms between urban transit expansion and land (re)development processes and meaningful lessons for guiding the local, regional, and state-level initiatives to create more (socially, economically, and environmentally) sustainable communities through a more systematic integration of transportation and land use planning.

WHAT WAS THE OUTCOME?

The results of this study indicate that vacant parcels within transit vicinities were more likely to be developed for various urban purposes than those with limited transit accessibility, while low-density (single-family) residential accounts for a large proportion of new development, particularly in the areas with a 0.5- to 1-mile distance from newly developed stations. Although relatively small in terms of magnitude, the presence of long-term (indirect) effect was also detected, suggesting that continuing investment in the transit system might benefit both new and existing station areas. Transit stations with low ridership, however, did not attract the same (expected) amount of infill development, indicating potential deterrent effects of low ridership. The impacts on redevelopment also appear to be less evident, even though transit investment appeared to increase the probabilities of industrial site reuse for multi-family housing and urban open space in some conditions.

These results show that although generally positive, transit investment does not always lead to infill development as expected. The researchers recommend that the deterrent effects of low ridership deserve special attention and further investigations with a rigorous treatment of potential endogeneity issues. In making transit investment decisions, attention also needs to be paid to the benefits that can take place not only in target areas, but also around the existing transit stations.

Furthermore, planners need to think beyond a narrow boundary of transit vicinity (0.5-mile circle), and make efforts to promote more compact development in a broader area (which is often neglected in conventional transit-oriented planning processes) through a more systematic integration of land use and transportation planning.

WHAT IS THE BENEFIT?

The results of this project help to create 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 contributes to the integration of transportation and land use planning to achieve the state, regional, and local environmental sustainability goals by providing evidence for the potential benefits of continuing investment in public transit and possible variation in land use outcomes. This leads 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 to help enhance efficiencies in human and commodity flows in California. The project findings also suggest some areas that require more attention from researchers (e.g., variation in land use impacts by ridership or other transit quality factors) and from a broad group of policy-makers and stakeholders (e.g., land uses beyond a narrow boundary of transit vicinity).

LEARN MORE

The final report can be viewed at <http://ucconnect.berkeley.edu/research>



IMAGES

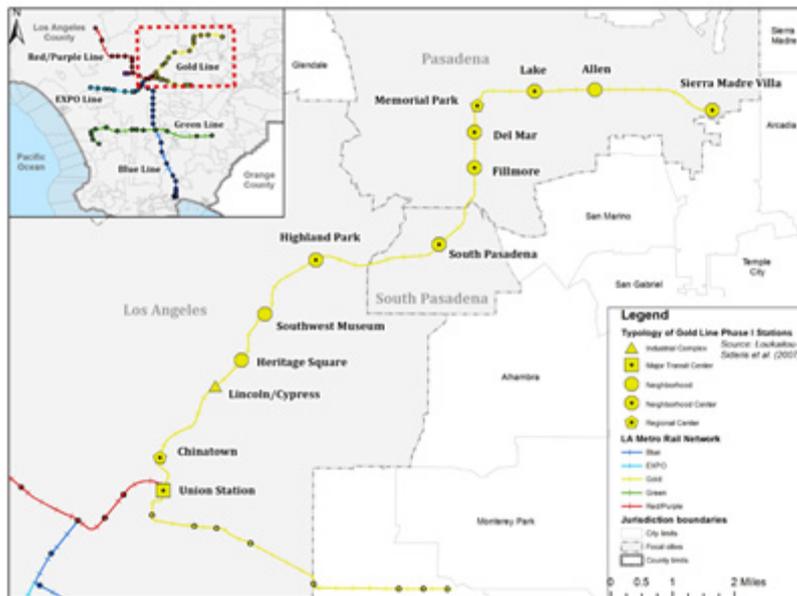


Image 1: Study Areas: Gold Line Phase #1 Stations

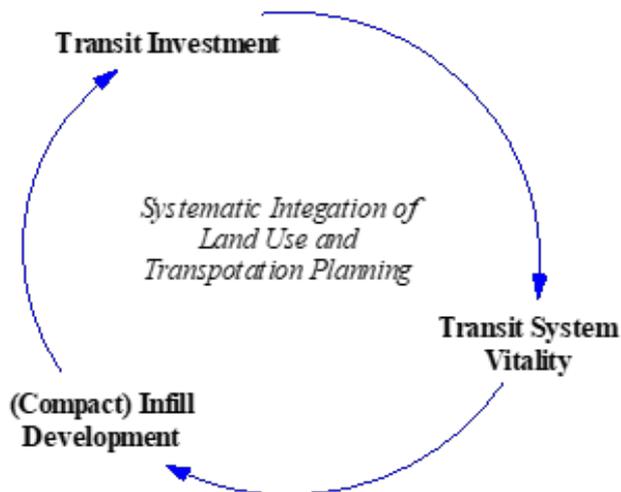


Image 2: A Major Finding: The Importance of Continuing Investment and the Improvement of Transit System Vitality

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