DRISI

CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes

Empirical Assessment of Land Use and Other Policy Impacts on Warehousing Location Choices in Southern California

Review the local policies and evaluate if they help explain the growth and dynamics of warehouse and distribution centers.

Planning, Policy, and Programming

January 2026

Project Title:

Empirical Assessment of Land Use and Other Policy Impacts on Warehousing Location Choices in Southern California

Task Number: 4705

Start Date: January 1, 2026

Completion Date: March 31, 2027

Task Manager:

Luke Tia
Planning and Policy Research Associate
luke.tia@dot.ca.gov

WHAT IS THE NEED?

The California Department of Transportation (Caltrans) needs more information on the relationship between local policies and location choices of warehouses in Southern California. For example, the environmental impacts associated with warehousing activities have increased during the last few decades due to the rapid spatial expansion of the industry in major metropolitan areas. Moreover, land use is a critical link between urban development and the production and consumption of goods. This growing concentration of freight facilities and the lack of adequate freight-related land use planning contributes to safety hazards, congestion, and pollution in disadvantaged and historically marginalized communities. Several factors, including the lack of coordination between institutions, the absence of disaggregated policy impact measures, the exclusion of historically marginalized communities and the uncertainty of economic development pose great challenges for policymakers in achieving decarbonization and environmental justice goals.

WHAT ARE WE DOING?

This research aims to investigate the causal relationship associated with the performance of local policies and the location of logistics warehouses within the Southern California region and the impact on disadvantaged and historically marginalized communities. The research team will conduct a comprehensive review of the local policies implemented in the region and evaluate, through spatial and econometric analyses, the extent to which those policies help explain the growth and dynamics of warehouse and distribution center quantity and locations. The project will explore

Caltrans

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

policies focusing on zoning, growth management, environmental protection and land use pattern analysis to analyze disparities and the perpetuation of inequities due to warehouse location.

R1. Task 2: Characterize freight facilities location: Determine the warehouses' and distribution centers' location patterns over time and space.

R2. Task 3: Analyze land-use patterns: Identify land-use patterns' variation over time and assess data acquisition, incorporating socio-demographic aspects of the area; and land cover classification from satellite image through remote sensing analysis.

R3. Task 4: Identify land-use policies: Inventory of policies related to land-use that may affect the location of warehouses and distribution centers in the Southern California region and develop a regional-level collection of policies focusing on zoning, growth management, regulations, environmental protection, and affordable housing; and design a map layout to represent policies and regulation implementation.

R4. Task 6: Perform causality tests: Analyze how those policies influence the freight facilities' location choice and develop, implement, and perform preliminary diagnostic tests to identify the appropriate model. The team will implement at least two tests, some examples include specification, goodness-of fit, diagnostic tests for assumptions, multicollinearity, and model comparison. The selected model will be incorporated into the project to test the dependent variable, the spatial distribution of warehouses and distribution centers based on warehousing activity intensity in each zip code.

R5. Task 7: Assess community and equity impact: Evaluate the main effects of those policies on communities and travel demand. The team will gather a set of relevant variables to theoretically contribute to the assessment of land use policy impact on disadvantaged and historically marginalized communities in the Southern California region due to the distribution of warehouses and distribution centers. The team will examine whether facilities are in marginalized and disadvantaged communities via binary logistic regression.

WHAT IS OUR GOAL?

The main goal of this project is to examine local policies in the region and evaluate their effectiveness in explaining the growth and dynamics of the quantity and location of warehouses and distribution centers through spatial and econometric analyses. The results will be delivered in a draft report.

WHAT IS THE BENEFIT?

This research will help California policymakers to better understand how their policies affect communities and the location of warehouses, particularly marginalized and disadvantaged residents. This will provide them with the information to create or modify policies to benefit all residents and mitigate negative impacts and equally distribute the benefits of warehousing.

WHAT IS THE PROGRESS TO DATE?

The contract has been executed with a kickoff meeting planned for February 18, 2026.

IMAGES

Image 1: Kyryl Gorlov, Getty Images. https://www.marketplace.org/story/2022/11/16/with-warehouses-full-retailers-look-to-store-goods-outside