

# Defining and Measuring Equity in Public Transportation

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## Introduction

How do transit agencies ensure public transportation justly and fairly serves California's many diverse communities, especially those who are transportation disadvantaged? This report is meant to aid Caltrans and the state's transit agencies in assessing transit service equity and assisting with the evaluation of potential solutions for past, existing, and future inequities. This report identifies and evaluates policies and practices associated with equity measurement in public transit from extant sources. By researching federal laws and regulations related to Title VI, metropolitan planning organization (MPO) planning and policy documents, and academic papers related to equity measurement, the research team evaluated extant information regarding current equity measurement. From this information, the study applies a series of possible metrics to a test case in Santa Cruz County, California and compares results to those generated by Title VI metric requirements. Using this comparison, the study evaluates the need for new metrics in transit equity analysis.

## Study Methods

The research team conducted a case study that measured how well the Santa Cruz County Metropolitan Transit District (METRO) serves its county's most transit-dependent and underserved populations. Spatial analysis was performed by overlaying socio-demographic data from the American Community Survey (ACS) on METRO General Transit Feed Specification (GTFS) data to determine whether METRO service adequately meets the needs of the region's most disadvantaged groups. Results indicate that while there are meaningful and statistically significant correlations between the standard Title VI metrics (race and income) and the other metrics evaluated, these correlations are, for the most part,

weak. This case study demonstrates that current Title VI guideline metrics may miss significant measures of transit equity for transportation-disadvantaged populations. These findings from both the literature review and the case study reveal that there is a compelling need for new metrics on both theoretical and empirical grounds.

Additionally, at the request of the project's client (the California Department of Transportation), the research team qualitatively evaluated methods and metrics for evaluating the effects of new transportation infrastructure investments on neighborhood secondary housing displacement using literature review and interviews with planning professionals.

## Findings

Review of the literature and transit practices found that FTA Title VI requirements have significant shortcomings for measuring transit equity. These are:

- They only look at race and income.
- They only address planned service change inequities and not existing inequities.
- They do not set standards for defining and measuring equity.

The literature contains numerous examples of proposed equity measures, but many are not suited for practice because of their data collection and analysis requirements. One concern is with displacement due to the construction of new transit facilities or with secondary displacement due to gentrification from new transit facilities. However, this is of limited applicability because displacement due to gentrification has been found very difficult to predict. Identifying and diagnosing transit service inequities are difficult since public hearings are typically least

accessible to groups with low incomes who often have the greatest equity concerns. To address this, San Francisco MTA has done extensive door-to-door survey work in historically disadvantaged neighborhoods to identify transit needs.

Equity is also a matter of process (i.e., how well equity concerns are integrated into transit agencies' day-to-day processes). For example, Los Angeles Metro has adopted the goal of making equity a prime consideration in every agency action. While analysis found statistically significant correlations between the standard Title VI metrics (race and income) and alternative metrics, these correlations were weak. This demonstrates that current Title VI metrics may miss significant aspects of transit equity for transportation disadvantaged populations.

### Policy/Practice Recommendations

The literature and practice review includes findings on evaluating neighborhood displacement risk and the potential for individual anti-displacement strategies to mitigate that risk. Based on these findings, the research team concludes that the available methods for forecasting secondary displacement effects of transit infrastructure improvements are not mature enough to be used in practical applications. However, there are benefits to using descriptive and comparative methods of displacement that will identify potential risks.

The evaluation of new transit equity metrics found that the current standard practice metrics (race and income) likely miss critical aspects of equity, and therefore, it is recommended that practitioners employ new metrics that will capture these overlooked populations who may not have the access to the transit services they require. Practitioners should consider additional metrics such as households without personal vehicles, female-headed households with children, and households without internet—which all show potential to help to identify these overlooked populations.

### About the Authors

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### To Learn More

For more details about the study, download the full report at [transweb.sjsu.edu/research/2100](https://transweb.sjsu.edu/research/2100)



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