



# Planning for transportation equity in small regions: Towards meaningful performance assessment



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## ABSTRACT

Regional transportation planning agencies seek to achieve multiple objectives simultaneously including consensus on key issues, compliance with relevant laws and regulations, and improvements in the congestion, air quality, and safety performance of the transportation system. Some performance areas lend themselves well to operationalization while others do not. One area that has received comparatively little study is the assessment of a plan's impacts on environmental justice and social equity. Although research on regional planning usually emphasizes larger metropolitan areas and agencies, these issues are especially relevant in smaller regions where planners lack the capacity for innovation and careful analysis. Further, the transit services on which disadvantaged populations depend are often lacking or non-existent in less-populated regions. Understanding how planners in these locations undertake social equity-related analyses and providing suggestions for improvement is thus an important endeavor. While prior work has assessed whether, and to what extent, equity objectives are included in plans, there are few detailed investigations of the key analytical choices that shape equity outcomes. This paper fills this important research gap, providing such an analysis of existing practice in a largely rural region in California, the San Joaquin Valley, as well as recommendations for future analyses aimed at improving the consistency between equity analyses and the real-world impacts of transportation plans.

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## 1. Introduction

Achieving transportation equity—encompassing a fair distribution of the benefits and burdens of transportation investments across demographic groups and space—is an ongoing challenge. Yet the analysis of transportation-related benefits and burdens is routinely undertaken by metropolitan planning organizations (MPOs) to comply with environmental justice and civil rights regulations and guidance. Environmental justice activism and regulatory activity has historically sought to mitigate the disproportionately high and adverse environmental impacts borne by communities of color and low-income communities resulting from locally undesirable land uses (Cole and Foster, 2001; McGurty, 2007; Pellow and Brulle, 2005). The US Department of Transportation (DOT) has adopted directives and guidance aimed at achieving environmental justice in planning and programming activities (see, e.g., US Department of Transportation Office of the Secretary, 2012). This guidance requires MPOs to address traditional environmental justice concerns related to burdens, but also prohibits the denial, reduction, or delay in receipt of the *benefits* of transportation projects and plans. Because of the similarities

between the goals of transportation equity and environmental justice, the legal and regulatory frameworks that have emerged to achieve the latter are often used to advance the goals of the former.

In the wake of 1991's Intermodal Surface Transportation Equity Act (ISTEA), the subsequent broadening of factors that transportation planners must consider (Dilger, 1992; Schweppe, 2001), and the empowerment of MPOs, regional planning agencies in the US have become the preferred unit of governance at which to advocate for transportation equity (Marcantonio and Karner, 2014). This scale is also consistent with the literature on regional equity that points to important inequities that manifest at the scale of the metropolitan region (Benner and Pastor, 2012; Pastor et al., 2009; Pastor et al., 2000). In practice, regional planning agencies have been called upon to address differential funding across transit agencies and modes, overall funding shares across all modes, gentrification and displacement, and affordable housing policy, among other areas.

MPOs and other transportation planning agencies are required to follow guidance when assessing transportation equity (see, e.g., Federal Highway Administration, 1998; Federal Highway Administration/Federal Transit Administration, 1999, 2012a, 2012b). Although some prior work has assessed MPO practice generally (Karner and Niemeier, 2013; Martens et al., 2012) or their

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definitions of equity (Manaugh et al., 2015), at least two important gaps remain. First, most analyses of practice focus on large regions, but approximately half of the 408 MPOs designated in the US as of 2015 represent urbanized areas with fewer than 200,000 residents.<sup>1</sup> Resources and analytical capacity are likely to differ substantially across MPOs of differing size so recommendations on improving practice are likely to differ as well. Second, the work has scarcely addressed the fundamental components of an equity analysis, including the definition of comparison communities and the formulation and calculation of performance measures. If these steps are conducted poorly, the ultimate assessment of equity is likely to tell us little about current conditions in a region or the likely effects of a plan in the future. This paper fills these gaps by assessing the environmental justice and equity analyses of eight smaller MPOs located in California's San Joaquin Valley (SJV) to determine the extent to which their results are likely to reflect extant or projected patterns of equity and inequity resulting from the implementation of their regional transportation plans (RTPs). The analysis is aimed at providing concrete recommendations for practice capable of improving the consistency between actual transportation benefits and burdens and the analyses conducted to illuminate them.

The remainder of this paper is structured as follows. After a literature review on transportation performance assessment and equity analysis, the regional transportation planning documents that were reviewed for the study are described. The results section summarizes the major findings of the study and implications for policy and practice are discussed in the concluding section.

## 2. Literature review

Whether implicit or explicit, performance management—setting goals, establishing metrics, and tracking progress—has been present in transportation planning in multiple forms since the field's inception. The topic of performance assessment and management has been extensively studied (Black et al., 2002; Cambridge Systematics, 2000; Transportation Research Board, 2001). Its allure is clear: with explicit performance measures, transportation planning and decision-making would no longer be affected by political whims. Sensible goals would be set and progress towards them measured and made. Although more data and better analysis are unlikely to result in a planning revolution (Wachs, 1995), better articulating and measuring progress towards or away from our multiple, often conflicting, goals for the transportation system certainly would represent an improvement over current practice by allowing decision makers and the public to better understand the inherent tradeoffs between popular objectives.

In the wake of the Intermodal Surface Transportation Act of 1991 (ISTEA), transportation performance concepts were broadened beyond highway level of service to include many additional "planning factors" including safety, environmental performance, and reliability, among others (Dilger, 1992; Dittmar, 1995; Schweppe, 2001). One area of transportation system performance in which interest has been steadily gaining is transportation equity (Brenman and Sanchez, 2012; Bullard and Johnson, 1997; Bullard et al., 2004). The history of transportation planning in the United States is rife with examples of the negative effects of transportation infrastructure on people of color and low-income populations. Throughout the 1950s, these involved rather explicit efforts to use

the combined interstate and urban renewal programs to displace people of color populations from central cities (Rose and Mohl, 2012, pp. 95–7). Disparities in the distribution of benefits and burdens tend to persist and are deeply ingrained due to biases, incentives, and behaviors that tend to lock in patterns of racial discrimination (see, e.g., Golub et al., 2013; Pulido, 2000). Academic research on this topic has proceeded briskly, with researchers routinely making recommendations for and carrying out the analysis of transportation system costs and benefits, stratified either by demographic group or across space (see, e.g., Grengs, 2010; Hu, 2015; Karner and London, 2014; Morency et al., 2011; Rowangould, 2013; Sanchez, 1998; Schweitzer and Valenzuela, 2004; Shen, 1998; Welch and Mishra, 2013). These studies are useful for bringing advances in geographic information science, spatial analysis, and data availability to bear on problems of transportation equity.

Despite the proliferation of academic studies, sophisticated data and methods are slow to diffuse to practice. MPOs routinely assess equity performance as part of their efforts to comply with various laws that govern planning activities including Title VI of the 1964 Civil Rights Act and Executive Order 12898 (Karner and Niemeier, 2013; Sanchez et al., 2003). General practice-oriented reviews have found agency efforts to be particularly lacking (Manaugh et al., 2015; Martens and Golub, 2014; Martens et al., 2012). These reviews have variously addressed whether equity is stated as a goal, the outcome measures used to assess it, or the definition of equity either implicitly or explicitly adopted.

In terms of equity definitions, Bullard (1994) provides a helpful taxonomy that maps onto the equity assessment practice among MPOs. Specifically, he defines three types of equity: procedural, geographic, and social. Procedural equity refers to process-related factors including the timing and location of public meetings and the languages in which information is distributed. This type of equity has its roots in the early environmental justice movement that connected a lack of inclusion with unjust outcomes (Cole and Foster, 2001). Geographic equity refers to the distribution of costs and benefits across space and social equity refers to the distribution of costs and benefits across demographic groups. From a civil rights and justice perspective, geographic equity obtains its relevance because of ongoing patterns of spatial separation and segregation in US cities on the basis of demographics (e.g. race and income). All analyses of transportation equity in practice are undergirded by the notion of social equity.

Understanding geographic and social equity requires some type of qualitative or quantitative performance assessment. Popular performance measures include accessibility, commute time, dollar amounts of investments, and air quality, although others are possible. An analysis of geographic equity compares performance for different spatial units (e.g., cities, counties, or groups of census tracts) while an analysis of social equity compares the performance for different demographic groups (e.g. low-income people and non-low-income people). In practice, and because of the structure of traditional travel demand models, these two approaches are often merged, with two groups of transportation analysis zones identified based on their demographics (e.g., disadvantaged and non-disadvantaged zones or environmental justice and non-environmental justice communities) and compared to each other.

While procedural equity is undeniably important, a just process does not guarantee just outcomes. Virtually all of the MPOs studied included some mention of their public meetings and distribution of information in multiple languages and at convenient times. The focus of the present analysis is instead their treatment of geographic and social equity performance. Methodological and conceptual challenges plague these assessments, and more guidance and critical analyses of practice are needed (Karner and

<sup>1</sup> Based on MPO boundary data from FHWA combined with population data from the US Decennial Census Summary File 1. This threshold is significant; urbanized areas exceeding 200,000 in population are designated as transportation management agencies (TMAs) and must undertake a congestion management process alongside other planning responsibilities.

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