ON THE WAY BUT NOT THERE YET

Making Accessibility the Core of Equity Planning in Transportation

Joe Grengs

Good transportation is central to equity planning because it provides access to opportunity and promotes a wider range of choices for people who have few. Although transportation planners today are obligated to monitor progress toward social equity, thanks to recent environmental justice requirements, their actions so far have been mostly limited to merely doing no more harm in the transportation services they provide. An alternative approach for equity planners is to target transportation services to compensate for disadvantages in society as a whole. A stronger commitment to advancing social justice in transportation would place priority on serving the least advantaged first. The proper tool to help equity planners focus attention and target resources toward the people and places with the greatest need is the concept of accessibility.

It took violent and damaging urban uprisings in many of the nation's largest cities—including Los Angeles, Newark, and Detroit—in the mid-1960s to reveal how poor accessibility perpetuates social injustice. Public leaders found a range of causes for these riots, including overt institutional racism, systematic police brutality, inadequate housing, and poor schools, with consequences of particular severity for blacks in central cities (Governor's Commission on the Los Angeles Riots 1965, Kerner et al. 1968). Among the causes was an indictment of transportation policy for failing to provide adequate access to jobs and other important destinations like health-care facilities. For example, taking public transportation from south central Los Angeles to jobs at the Hughes Aircraft plant in Culver City or the General Motors factory in Panorama City was virtually impossible (Mozingo and Jennings 2015). In the summer of 1965, Watts erupted in violence,

and the McCone Commission placed part of the blame on inadequate transportation. The commission argued that blacks in south central Los Angeles rose up not only against the powerlessness they felt but also against the isolation that cut them off from opportunity (Governor's Commission on the Los Angeles Riots 1965, 65): "Our investigation has brought into clear focus the fact that the inadequate and costly public transportation currently existing throughout the Los Angeles area seriously restricts the residents of the disadvantaged areas such as south central Los Angeles."

What the residents of Los Angeles and elsewhere were experiencing was a lack of accessibility. Hansen (1959, 73), in a seminal article that introduced the accessibility concept to planners, defined it as the "the potential of opportunities for interaction." This is important because the very purpose of living in cities is the access they provide to help people prosper by offering a wide range of jobs; the variety of goods provided to meet needs; the assortment of amenities and services provided to satisfy diverse tastes; and the social engagement available for interacting with other people. Accessibility is a measure of how a transportation system is meeting the needs of people in reaching the goods, services, and opportunities that help them achieve well-being and participate fully in society. Where people live has a powerful effect on their capacity to achieve a high quality of life (Dreier, Mollenkopf, and Swanstrom 2004), in part through the accessibility that a place provides.

The events of the 1960s brought urgency to the long-standing challenge for transportation planning to ensure that the costs and benefits of a transportation system are distributed among people in a way that achieves an acceptable level of fairness.¹ This task is now mandated by a series of laws and regulations that requires ongoing and active monitoring by the public agencies charged with creating the plans and programs that guide transportation provision. Despite the federal government's moves to lift up transportation equity and mitigate transportation injustice, the public officials in charge of providing transportation infrastructure and services struggle with the task of evaluating whether their decisions are in compliance with equity objectives (Deakin 2007, Karner and Niemeier 2013, Mills and Neuhauser 2000, Schweitzer and Valenzuela 2004).

Advancing the cause of social justice in transportation will surely require directing careful attention not only to uncovering and addressing unjust outcomes but also to strengthening processes that aim for a deeper engagement with the very people that environmental justice regulations are meant to protect. These steps include minimizing language barriers and actively seeking the insights of traditionally marginalized people (Deakin 2007, Pirie 1983). The focus of this chapter is to persuade equity planners both inside and outside of government agencies that they can help advance social equity goals by advocating for the re-

placement of the mobility-based policy framework with an accessibility framework (Levine et al. 2012, van Wee and Geurs 2011). This chapter illustrates that such a shift can improve the analytical capabilities of public agencies. These agencies are now mandated by law to monitor and detect outcomes that have disproportionately harmed transportation-disadvantaged people, such as racial minorities and low-income households, but up until now, they have lacked effective tools for doing so.²

Promoting a Shift in Policy from Mobility to Accessibility

A mobility-based framework for making decisions dominates transportation policy. This mobility framework defines success as easier movement, typically in the form of increasing vehicle travel speeds. In the mobility framework, faster movement is the ultimate goal that is achieved through a variety of common means, such as adding roadway capacity, mitigating congestion through travel demand management, and so forth. The problem with this dominant framework is that movement is not what people want from their transportation system. Instead, what people want is to reach destinations. They want *access*.

An accessibility framework offers a contrast to the mobility-based approach to decision making. Instead of easier movement, the goal is to increase the amount of interaction a person can achieve in the form of contact with people and places. Figure 6.1 illustrates the accessibility framework and provides five insights. First, achieving higher accessibility is the end target, as it is the core objective of transportation planning. This is consistent with the consensus of the field that transportation is a “derived demand,” meaning that travelers do not consume transportation for the sake of movement but in order to reach destinations (Cheng, Bertolini, and le Clercq 2007; Meyer and Miller 2001; Wachs and Kumagai 1973). The framework therefore allows planners to directly gauge the benefits of transportation policy. Second, it demotes mobility in the hierarchy of importance, showing that mobility matters—all else being equal, speed helps reach destinations—but that it is merely one among several means to the end. Third, it shows that increasing the proximity of destinations can increase accessibility, which opens up the possibility of achieving transportation objectives through land-use planning and not just through transportation infrastructure and services. Fourth, individual characteristics such as income, availability of an automobile, the kind of neighborhood of residence, and the richness of social networks play an influential role in determining a person’s ability to interact with valued destinations, aside from the transportation system and prevailing

FIGURE 6.1. The Accessibility Framework: Reaching Destinations as the Policy Goal.

land-use patterns. Finally, the arrow linking mobility and proximity illustrates an essential element of this framework—in some circumstances, more mobility can actually harm accessibility. If faster travel speeds cause the mobility effect to dominate the proximity effect, accessibility can be undermined when sprawling land-use patterns spread out at a rate faster than average travel speeds (Levine et al. 2012). That mobility can be harmful is the central lesson from the accessibility framework, and sorting out the effects of mobility and proximity on accessibility is a skill that can advance social equity goals.

For a concrete example of how mobility and accessibility take shape in someone's life, consider the case of James Robertson, who came to be widely known in the Detroit metropolitan region as “The Walking Man” after a newspaper told his story of overcoming his lack of access to jobs. Robertson travels from his home in Detroit to a factory in suburban Rochester Hills, where he works as an injection molder. By car, the trip would be about twenty-three miles and take only about a half hour to drive—a high level of mobility stemming from decades of planning that placed priority on fast automobile speeds. But Robertson could not afford to buy, maintain, and insure a car, and hence he could not take advantage of this mobility. Instead, he lacked accessibility because few jobs are reachable from his Detroit neighborhood, in part because mobility-based planning fostered the spread of jobs far into the suburbs. Without a car, he instead took a bus for part of the trip and finished it with an astounding twenty-one miles of walking, each way, every day, Monday through Friday, over a ten-year period. As the *Detroit Free Press* reported, his efforts speak to the determination required to overcome the notoriously poor public transit service in a region built for cars (Laitner 2015):

Every trip is an ordeal of mental and physical toughness for this soft-spoken man with a perfect attendance record at work. And every day is a tribute to how much he cares about his job, his boss and his coworkers. Robertson's daunting walks and bus rides, in all kinds of weather, also reflect the challenges some metro Detroiters face in getting to work in a region of limited bus service, and where car ownership is priced beyond the reach of many.

Each year, Robertson walked the equivalent distance of Detroit to Los Angeles and back again. This is an investment in time and effort that would surely undermine someone's capacity to participate in other fulfilling parts of life.

Overcoming the Harms of Mobility Thinking: Making Accessibility the Core of Social Equity Analysis

The traditional mobility-based framework in transportation planning has, over several decades, promoted dispersed metropolitan spaces that principally accommodate the automobile. This framework is biased in ways that continue to harm people, including people of color and people living in poverty, who have been systematically disadvantaged by transportation policy. Placing the concept of accessibility foremost in evaluating social equity outcomes provides several advantages over mobility-based analysis.

First, as the accessibility framework of Figure 6.1 shows, sometimes improving mobility can undermine accessibility. Mobility-based metrics define success in terms of faster movement (Ewing 1995). Achieving success in providing congestion relief through added roadway capacity—a prominent public policy priority—can induce destinations to move farther apart (Transportation Research Board 1995). Travel to increasingly dispersed destinations might be accomplished at higher speeds, but the geographic spread of these destinations forces travelers to cover more distance, imposing higher costs in money and time that disproportionately fall on those with low incomes. In this way, transportation policy contributes to low-density, auto-oriented development. This form of development disproportionately harms racial minorities and low-income people who tend to live near the urban core and who have fewer resources to adapt to dispersed land-use patterns (Bullard, Torres, and Johnson 2000; Pendall 1999; Squires and Kubrin 2005).

Second, mobility-based measures such as congestion levels are attributes of infrastructure, not of people. Measuring attributes of transportation infrastructure

hides the effect on people and offers little help in understanding equity among social groups. Congestion levels, for example, have little relevance for households without cars, yet carless people typically experience the greatest disadvantage from the automobile-dependent cities that we have been building for decades. Accessibility metrics, by contrast, are attributes of people or places and allow for readily comparing outcomes among social groups.

Third, the mobility metrics commonly used by planners today are not clear about whether a traveler is experiencing disadvantage or not. Commonly used mobility metrics in equity studies include miles traveled per day, trips per day, and minutes traveled per day (Dodson et al. 2010; Forkenbrock and Weisbrod 2001; Giuliano 2003; Johnston-Anumonwo 1995; Manaugh, Badami, and El-Geneidy 2015). But these metrics offer little help in evaluating disadvantage. Travelers prefer shorter travel times to longer ones. But a preference for shorter travel time does not mean that those with longer travel times are somehow disadvantaged. For example, women and poor people face long-standing disadvantages in transportation (Blumenberg 2004, Hess 2005, Pratt and Hanson 1988), but they typically experience much shorter travel times on average than the general population (Pucher and Renne 2003). These shorter travel times cannot be appropriately considered an advantage but rather result from people having fewer choices in how they travel (Taylor and Ong 1995). When the middle- and upper-income classes of the United States choose to trade off longer commutes in exchange for suburban amenities, their longer travel times cannot properly be considered a disadvantage. While mobility-based metrics in equity evaluation are uncertain with regard to disadvantage, accessibility metrics make disadvantage readily evident: "Accessibility as a planning goal provides clear direction for policy makers. Although greater mobility may be a good thing, greater accessibility is inherently a good thing" (Pfeffer et al. 2002, 40). Accessibility provides a clearer basis than mobility for making decisions about social equity.

A fourth reason for placing accessibility at the pinnacle of equity evaluation is that mobility-based regulations sometimes push out projects that would enhance accessibility for disadvantaged people. Mobility-based metrics influence not just transportation projects but also interfere with land-use development projects. The most commonly used metric of transportation performance at all levels of government is level of service (LOS). LOS assesses the amount of delay that motorists experience from the congestion induced by the presence of other vehicles. Some contend that the prevalent use of LOS evaluation further encourages low-density dispersal of residences and businesses (Henderson 2011). When planners forecast that a proposed new land-use development will degrade congestion below LOS guidelines, municipal authorities charge developers an impact

fee to bring surrounding streets up to standard, or they simply reject the development entirely. Because many urban streets in the core of a metropolis are already operating below LOS standards, and because mitigation is prohibitively expensive at higher-density locations, developers often simply shift their projects to suburban and exurban locations where traffic impacts are negligible (Dumbaugh, Tumlin, and Marshall 2014). Strictly abiding by LOS standards places limits on urban densities; most likely imposes a systematic bias against infill development; constrains the supply of affordable housing in the core of regions; and degrades overall metropolitan accessibility by interfering with people's ability to choose where to live.

When municipal authorities reject a proposed central-city grocery store because planners anticipate too much traffic on the surrounding streets, nearby residents lose a chance at better accessibility to jobs and food. When local officials turn down a real estate developer's bid to build an affordable housing project in an inner-ring suburb for fear of congested traffic, as has happened in many communities, planners will never know how many would-be residents may have gained access to the municipality's amenities and opportunities. Accessibility-enhancing projects are too valuable to be rejected by local planning authorities who rely exclusively on the narrow standards of LOS evaluation; accessibility is the tool for counteracting the harmful effects of LOS standards by accounting for the benefits side of the cost-benefit ledger.

Accessibility and the Capabilities Approach to Justice

The fifth and final point in support of the concept of accessibility is that accessibility offers more conceptual consistency with the latest philosophical debates about social justice. Theoretical views of justice have been influenced for several hundred years by the idea of utilitarianism, which argues that people achieve well-being through the goods and services they consume, and that this consumption leads to utility or happiness. Critics contend that such an approach to theorizing justice places too much emphasis on commodity consumption; they believe that it fails to sufficiently address other dimensions of well-being. Recent writers propose an alternative theory of justice that has come to be known as the "capabilities approach." This approach argues that individual well-being can be evaluated not just by the extent of goods and services that a person has command over but also by the person's capacity to convert goods and services into "capabilities" that enable a satisfying life (Nussbaum 2000, 2003; Sen 1985, 1992, 1999).

Amartya Sen's (1981) analysis of famines revealed a surprising source of starvation and illustrated how a utilitarian perspective falls short in assessing well-being. It was commonly believed that famines occur because of a decline in food production and supply. A utilitarian view would stress that a lack of commodities led to starvation. Sen's analysis challenged this conventional view by showing that famines typically occur not because of any lack of commodities—food supplies are typically plentiful during famines—but rather because some people lack the ability to purchase the food when prices shoot up. In short, this alternative perspective places emphasis on the source of starvation—not on a lack of commodities, but on a lack of *access* to the commodities. Sen's analysis showed that hunger depends not just on the availability of a good in the form of food but also, critically, on the economic and political institutions that set prices and distribute the good.

The capabilities approach offers a different and more expansive understanding of social justice than the more traditional views that have dominated social science. Instead of the traditional concern with commodities and utility, the capabilities approach focuses on the two related but distinct concepts of *functionings* and *capabilities*. A functioning is an achievement, or what a person manages to do or be. Having access to goods can enable a functioning, but a good and a functioning are not the same thing. A bike is a good that enables the functioning of mobility, in this case by moving freely to valued destinations more rapidly than by walking. But personal characteristics affect whether a person can convert this good into a functioning. For example, if one person is physically disabled and cannot ride a bike, while a second person is not, then the first person is restricted from converting the bike into the functioning of movement in ways that the second is not. Aside from such personal attributes, social and environmental characteristics can influence a person's ability to convert goods into a functioning as well (Robeyns 2005). The ability to use a bike can be hindered from a lack of sufficient income to keep it properly maintained, for example, if women are not allowed to ride bikes due to societal or cultural norms, if a neighborhood is so violent that riding a bike in certain hours is regarded by residents as unsafe, or if vehicular traffic on nearby roads is too dangerous for bikes. A utilitarian view would evaluate two people merely on the basis of their each having a bike, while the capabilities approach goes further to account for differences in the ability to convert the bike into a useful achievement.

But objectively adding up the functionings that a person accomplishes is not enough to adequately assess a person's overall well-being, because a person's quality of life is also determined in part by the opportunities that a person faces. A capability is a functioning that a person *could have* achieved—a concept with

special relevance for accessibility. A functioning represents the condition of a person in terms of what one manages to do or be. The capabilities reflect the combination of functionings that a person can possibly achieve through exercising choice. Capabilities are the wide range of opportunities that contribute to having a high quality of life, and they indicate the extent of freedom of choice that a person has to achieve a set of functionings. Sen (1985) illustrates the importance of capabilities by comparing two people with identical functionings. Both experience the same functioning of starvation and the misery that comes with the lack of food. One person is hungry because poverty prevents the purchase of food. The other is fasting and is hungry as a matter of choice, perhaps due to religious beliefs. Fasting in this case is something other than just starving—it is *choosing* to starve when other options are available (Sen 1992). Although these two people may be experiencing identical misery resulting from the material lack of food, Sen argues that it would be a mistake to claim that these two experience similar levels of well-being because of the consequential difference in what they each bring by way of their freedom to choose in the matter of starvation. Quality of life involves more than material comfort. Being capable of freely choosing how to live one's life is a fundamental dimension of well-being.

Like the capabilities approach, the concept of accessibility acknowledges the intrinsic value of having the freedom and capacity to choose among a variety of options. As the distinction between fasting and starving illustrates, having a choice in one's life is a highly valued quality in and of itself (Sen 1985, 1988). To live a fulfilling and satisfying life requires engaging in freely chosen activities when one is faced with a range of valuable and feasible opportunities. Instead of utility or resources, a person's well-being should be evaluated by the functionings and capabilities that enable the exercise of choice to do or be what one values. Accessibility represents a measure of choice—as an indicator of a person's potential for seizing available opportunities. Following the equity planning movement, advancing policies that broaden the scope of choice has become a central principle in the field of urban planning (Krumholz and Clavel 1994, Krumholz and Forester 1990). Many professional planners now espouse providing “a wider range of choices for . . . residents who have few, if any, choices” (Krumholz 1982, 163)—a tenet now codified in the ethical standards of the American Institute of Certified Planners (Solin 1997). The concept of accessibility provides the needed measurement tool as the critical link between social equity and the built environment in the pursuit of expanding choices for those who have few.

The State of Practice in Transportation Equity Analysis: Notable Achievements that Remain Incomplete

Equity planners have the power of legal mandates to support their efforts in redistributing transportation benefits to disadvantaged people. But so far, they have not yet found a way to take full advantage of this power, in part for failing to sufficiently embrace the accessibility concept.

Public agencies in the United States are now required by law to prevent discrimination in their plans and programs. Relevant laws include Title VI of the Civil Rights Act of 1964, the National Environmental Policy Act of 1969 (NEPA), and several Federal-Aid Highway Acts of the 1970s (Cairns, Greig, and Wachs 2003; Sanchez and Brenman 2007). The Clinton administration, in response to a growing environmental justice movement, issued Executive Order 12898 in 1994 and elevated attention to social equity by directing all federal agencies to develop a strategy that “identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations” (Executive Order No. 12898 of 1994).

Agencies within the U.S. Department of Transportation (DOT) adopted their own regulations for meeting these principles. For example, the Federal Transit Agency (FTA) issued specific guidance through a circular in 2007 (later amended in 2012) that provides instructions necessary to carry out Title VI regulations to ensure that the considerations expressed in the DOT’s principles of environmental justice (EJ) are integrated into programs and activities (FTA 2007, 2012). Transportation agencies are required to identify and address issues related to Title VI and EJ and must ensure that their programs and policies distribute benefits widely without imposing disproportionately high burdens on any one social group. These regulations prescribe a requirement to consider impacts specifically on low-income and racial-minority groups. They direct agencies to evaluate not just the *burdens* of transportation decisions, which are typically the central concern in environmental regulation, but also the *benefits*. And the ultimate benefit of any transportation investment is improved access to opportunities, the purpose that underlies all transportation decisions.

Public agencies often find EJ requirements challenging to implement, despite the growing awareness of inequities in the transportation sector and the recent demands on governments to address them. The various laws, regulations, and internal policies that mandate ongoing equity analysis do not recommend specific methods for doing so. This lack of standardized techniques is, on the one hand, a means of providing the flexibility for planners to explore and invent the evalu-

ation techniques that are best suited for particular circumstances. Metropolitan regions differ in their rate of growth or decline, in economic specialization, and in the problems (such as congestion and air pollution) they face, and it is sensible that methods of analysis ought to reflect these regional differences. On the other hand, because the guidelines are vague and the requirements rarely enforced, the extent and quality of analysis varies substantially among regions and commonly results in analyses that are highly incomplete (Karner 2016; Karner and Niemeier 2013; Sanchez, Stolz, and Ma 2003). Indeed, planners and decision makers have requested better technical tools for carrying out the EJ mandates (Cambridge Systematics 2002, 1).

The FTA has provided the most specific guidance on carrying out equity analysis by providing instructions for all recipients of financial assistance from the FTA; this includes state departments of transportation, metropolitan planning organizations (MPOs), and public transit agencies (FTA 2007, 2012). The FTA circulars stipulate that these agencies “should have an analytic basis in place for certifying their compliance with Title VI,” including methods for identifying “locations of socioeconomic groups, including low-income and minority populations,” having in place a planning process that “identifies the needs of low-income and minority populations,” and having an “analytical process that identifies the benefits and burdens of metropolitan transportation system investments for different socioeconomic groups, identifying imbalances and responding to the analyses produced” (FTA 2007, chap. VI, 1). However, the circulars do not specify what methods and practices should be used.

Equity Analysis in Metropolitan Planning

Although accessibility-based evaluation has not yet been fully embraced in practice (Levine and Grengs 2011), some regional agencies have started to include accessibility metrics in carrying out equity analysis at the regional scale. The most common type of equity analysis is conducted by MPOs to certify that their regional plans are in compliance with Title VI. Several MPOs exemplify the use of accessibility metrics in equity analysis, including the Boston Region Metropolitan Planning Organization, the Metropolitan Transportation Commission of the San Francisco Bay Area, the Mid-Ohio Regional Planning Commission of Columbus, and the Southern California Association of Governments (Cambridge Systematics 2002; Manaugh, Badami, and El-Geneidy 2015; Purvis 2001). Yet even among these early adopters, recent plans reveal that accessibility metrics remain merely supplements to a mix of mobility-based metrics in their equity analyses (Boston Region Metropolitan Planning Organization 2015, Metropolitan Transportation Commission 2009, Mid-Ohio Regional Planning Commission 2012).

The guidance provided by the FTA circulars has influenced what has become a common approach for analyzing equity of regional transportation plans by MPOs, which can be summarized in three main steps (Cambridge Systematics 2002, Karner and Niemeier 2013). The first step is to identify geographic concentrations of population groups, including (at a minimum) racial-minority and low-income residents of the region. For example, a geographic concentration of low-income households might consist of contiguous groups of census tracts that exceed 40 percent of persons below the federal poverty line. The second step is to define the metrics to be used for evaluating the benefits and burdens of the regional transportation plan. The third step is to evaluate whether the distribution of the benefits and burdens are disproportionate, typically by comparing the metrics between what some refer to as a “protected population” or “EJ population” (e.g., minority or low income) to a “control population” (e.g., nonminority or non-low-income) (Steinberg 2000).

The concept of accessibility offers a way to address two main shortcomings with this approach. First, MPOs use widely divergent definitions for identifying geographic concentrations of populations, especially for “low income” (Cambridge Systematics 2002).³ The outcome of an equity analysis is likely to be highly determined by this definition, and any equity analysis should include a sensitivity analysis to reflect the complexity of social groups (Rowangould, Karner, and London 2016). More problematic than defining the groups, however, is the approach of comparing protected populations to control populations. In the U.S. metropolis, racial minorities, people in poverty, and other vulnerable populations tend to be confined to pockets of high concentrations, although not all are. Because accessibility is an attribute of people or households—unlike mobility metrics, which are attributes of infrastructure—an accessibility-based analysis allows for overcoming the limitations of comparing geographic concentrations of populations. Instead, by attaching accessibility to people, rather than places, and then plotting out the full spectrum of all populations, a more accurate comparison can be made across full social groups regardless of whether they live at certain threshold concentrations (Grengs 2012, 2015).

The second and even more essential way of addressing shortcomings in this common approach to equity analysis is to make accessibility the fundamental metric of comparison. Even the leading MPOs continue to use a wide range of mobility-based metrics for evaluating benefits and burdens without acknowledging the central role of accessibility. Indeed, an otherwise excellent guidebook on approaches to EJ analysis provides an example of how accessibility is but one dimension of equity analysis, presenting it as though it is on par with a wide range of mobility metrics (Forkenbrock and Weisbrod 2001). Mobility-based metrics

commonly used in equity analysis include trips per day, miles per day, average travel time to work, mode share distributions, congested vehicle-miles of travel, the share of population within a half mile of home, and so forth. But to consider accessibility as merely one of a set of metrics that are mobility-based is to misguidedly place on equal footing a means (mobility) and an end (accessibility).

Equity Analysis of Public Transit Service

Aside from equity analysis performed at the regional level, another common type of evaluation is required for changes in the service delivery of public transit. The FTA has done an admirable job of elevating awareness of the potential for injustice and ensuring that ongoing monitoring takes place, principally through the publication of recent circulars that are widely regarded as among the most authoritative guidelines for analyzing environmental justice outcomes (FTA 2007, 2012; Reddy, Chennadu, and Lu 2010). Transit agencies are required to maintain systemwide service standards and to perform an equity analysis of proposed changes in service or fares, including when routes or schedules are altered, or if bus lines or stops are eliminated.⁴ Any finding of disparities requires corrective action. Although the guidelines are extensive, a main purpose is “to collect and analyze racial and ethnic data showing the extent to which members of minority groups are beneficiaries of programs receiving Federal financial assistance” (FTA 2012, chap. V, 1).

In summary, the standard approach to demonstrate compliance is to create maps that show the proximity of minority and low-income population groups to bus and rail stations and lines. Service levels are then evaluated on a range of metrics that include vehicle loads (e.g., passengers per vehicle), headways (the frequency of service as the time interval between vehicles arriving at a stop), on-time performance, availability of amenities (e.g., benches, shelters, trash receptacles), and service availability (e.g., whether large shares of a population live within walking distance of a transit stop). This approach suffers from a fundamental shortcoming that prevents these guidelines from being effective in advancing social equity; they say nothing about disparities in the ability to reach destinations. Because the ultimate purpose of a transit agency is to help riders reach destinations, the standard approach that has emerged from FTA guidelines is merely an indirect assessment of whether transit services are meeting the core objective of providing access to destinations.

Furthermore, the state of practice in equity analysis—including both examples of metropolitan planning and public transit service—suffers from a conceptual flaw that has the unfortunate effect of preserving the status quo and thereby

perpetuating disadvantages to social groups. Equity analyses typically use as the basis of comparison a criterion of proportionality when assessing the fairness of a proposed project or a plan, and therefore fail to account for any preexisting disadvantages (Cambridge Systematics 2002; Karner and Niemeier 2013; Martens, Golub, and Robinson 2012; Steinberg 2000). If, for example, an “EJ population” is found to experience benefits and burdens from a proposed project that are approximately the same as the “control population,” the project is deemed to have no disproportionate effect, and it can proceed without violating EJ provisions. This is a highly questionable approach given the long, painful history of how racial segregation and concentrated poverty have been deeply etched into the landscape of the American metropolis (Frug 1999, Goldsmith and Blakely 2010, Marcuse 1997, Wacquant 1997). For African Americans in particular, the intense and debilitating social isolation that has persisted for decades “was constructed through a series of well-defined institutional practices, private behaviors, and public policies by which whites sought to contain growing urban black populations” (Massey and Denton 1993, 10).⁵ A more assertive commitment to advancing social justice in transportation would acknowledge preexisting disparities and, by taking a more explicitly normative position, would then seek to redress them.

In recognition of the severe limitations of restricting equity analysis to the proportionality criterion, equity planners ought to take a more aggressive normative stance on distributive justice. To move beyond the limitations of current equity guidelines, planners can take the position that transportation benefits ought to be provided more favorably to some groups over others to address preexisting disadvantages (Foth, Manaugh, and El-Geneidy 2013; Karner and Niemeier 2013; Martens 2012; Martens, Golub, and Robinson 2012; Murray and Davis 2001). Such a strategy would require identifying places of preexisting disadvantage and then strategically targeting investments where they can address the greatest needs. For example, the defining feature of transportation disadvantage in the typical U.S. metropolitan region is the severe difference between reaching opportunities by car or by public transit (Blumenberg and Manville 2004, Grengs 2010). Any policy that aims to address social equity in transportation must confront the conditions of people who are unable or unwilling to drive in metropolitan regions that are designed to give advantage to cars throughout the nation. Mobility metrics are not suited to identifying disadvantage. By contrast, accessibility-based evaluation tools can offer a more realistic reflection of the current distribution of transportation benefits and disadvantages and can help equity planners focus attention and target resources toward underserved people and areas.

Conclusion: Lessons for Getting to Equity Planning in Transportation with Accessibility

If planners aim to advance the goal of social equity, they should promote a fundamentally different way of thinking about transportation policy by shifting from mobility to accessibility as the primary criterion by which transportation policy is evaluated. This fundamental shift has so far not yet arrived. Although some agencies have tentatively included accessibility metrics as complements of traditional mobility metrics, none have yet fully embraced an accessibility-based perspective to guide decisions. Planners therefore do not yet have successful examples of how accessibility-focused analysis from practice can guide their work.

Public officials have, however, made notable advancements toward addressing social inequality in recent years. They have institutionalized a set of practices to ensure that planners pay attention to equity in their day-to-day work. But in contrast to the findings of many scholars, public agencies routinely find no evidence of disparities in the transportation they provide. This discrepancy is in part because planners continue to rely on the flawed framework of mobility and have not yet properly adopted the concept of accessibility.

In response to the alarming social unrest of the 1960s that awakened public officials to transportation's role in social injustice, Wachs and Kumagai (1973) took a normative stance by asserting that transportation policy ought to be directed at improving access to opportunities and thus elevating the quality of life for disadvantaged people. Decades later, equity planners of today can heed their prescient call and reinvigorate their commitment to ensuring equity in transportation by taking several steps.

First, equity planners should promote the replacement of mobility-based evaluation with accessibility-based evaluation, making the enhancement of accessibility the primary goal of policy decisions. Accessibility-based metrics address several serious shortcomings in commonly used mobility-based metrics. And because social equity analysis mandated by law is expected to address not only the *costs* but also the *benefits* of a transportation system, accessibility-based metrics gauge directly the benefit outcomes of transportation policy. An example target of such reform is the performance measures that were mandated by Congress in the federal transportation law enacted in 2012.

Second, planners should insist on avoiding the common practice of mingling the language of mobility with accessibility. When accessibility is defined properly, it subsumes mobility. Including mobility metrics in equity analysis, even when paired with accessibility metrics, reinforces the mistaken notion that mobility

itself ought to be an independent goal and undermines the transformative power of the accessibility concept in equity analysis.

Third, for equity planners to overcome the built-in bias in equity analysis that perpetuates the status quo, the planners should place priority on addressing preexisting disadvantages by strategically redirecting transportation benefits to people in the greatest need. Mobility metrics are incapable of identifying need. Accessibility-based tools are essential for equity planners to target resources toward underserved people and areas because they directly assess the current distribution of transportation benefits and who experiences them.

Fourth, planners can advance transportation equity by reforming not just transportation but land-use policy as well. Making progress toward accessibility-based planning holds promise in such cases because the reform can occur at the municipal and community-based levels on a project-by-project basis. Planners should oppose the damaging effects of LOS standards that cause local authorities to reject accessibility-enhancing land-use developments. The main problem with LOS standards in evaluating the merits of a proposed land-use development is that they only count the *costs* and fail to recognize the *benefits* of land-use developments. A more legitimate approach would be to use an accessibility-based evaluation to weigh the costs against the concomitant access benefits. In this way, if local planners were to forecast the effect of a proposed development on accessibility rather than on LOS alone—requiring only one more step beyond current traffic impact analysis—they could simultaneously assess the costs (in the form of worsened nearby traffic congestion) with the benefits (in the form of people's ability to live in close proximity to jobs and important destinations).

Fifth, the tasks of equity planning—advocating for redistributive plans and policies to favor those who are disadvantaged—are increasingly carried out not by government planners but by planners from advocacy organizations, community development corporations, and other community-based organizations. The accessibility framework holds promise for constructively challenging government plans by providing a more rigorous and convincing basis for identifying and prioritizing the particular people and places that face the greatest need. However, despite the many advantages that an accessibility framework brings, several barriers have prevented the concept from making the leap from scholarship to practice. Compared to mobility-based planning, accessibility-based planning is harder to do, because it requires more data. Also, the metrics are technically more demanding to carry out, the concept is more difficult to explain to both the public and public officials alike, and the dominance of the mobility framework in current regulations makes it risky for government planners to adopt accessibility planning (Levine and Grengs 2011). Community-based equity planners can confront these barriers with steps such as developing and sharing online tools to assist with public reviews of pro-

posed plans (Golub, Robinson, and Nee 2013) and generating data from easy-to-use online tools that promote accessibility-enhancing land-use projects at local levels of decision making (Levine, Merlin, and Grengs 2017).

Finally, equity planners are entering a turbulent era in the field of transportation. They should adopt an accessibility framework to help guide the choices they make in the face of extreme uncertainty. Driverless cars and shared-mobility services are emerging rapidly with potential for substantially altering the built environment. As of early 2017, an extremist presidential administration promises extensive new investments in infrastructure. This same administration is signaling that it will dramatically cut public transit spending, embrace public-private partnerships in delivering infrastructure, and severely weaken environmental standards. These developments will surely have implications for social justice, with the result likely causing severe harm. Equity planners do not have the option of waiting for clarity among these unknowns. The mobility of travelers is likely to change dramatically and soon. But the ability to reach destinations will remain an outcome that travelers will want from their transportation system. Accessibility provides a basis for transportation policy evaluation and reform even in the face of uncertainty. While mobility-based metrics leave uncertainty about whether social groups experience disadvantage relative to others, accessibility metrics are clear: more is better than less.

By elevating accessibility as the central consideration of equity analysis, equity planners will be positioned to take a more explicitly normative stance in their practice. Although carrying out equity analysis has become standard in the field thanks to recent, forward-thinking regulations, it remains incomplete by relying on evaluations that fail to account for any preexisting disadvantages and that preserve the status quo. The accessibility-based framework not only offers a more realistic reflection of current disadvantages than the mobility-based framework; it also provides a sound basis for identifying the people and places in greatest need. This provides equity planners with a solid foundation for going forth by taking the political action of redirecting resources to the people who are most disadvantaged by current transportation plans and policies.

Acknowledgments

Thanks to Joel Batterman for comments that helped me improve this chapter.

NOTES

1. The point was forcefully made following the urban uprisings of the 1960s through the Kerner Commission report: “What white Americans have never fully understood—but what the Negro can never forget—is that white society is deeply implicated in the

ghetto. White institutions created it, white institutions maintain it, and white society condones it" (Kerner et al. 1968, 2).

2. Technically, the requirement applies only to "major service changes" only, and a problem not addressed here is that the transit agency decides what constitutes a major change (FTA 2012).

3. To illustrate, based on reviewing the most recent equity analyses of twelve MPOs, three used the definition from the U.S. Department of Health and Human Services poverty guidelines, while nine used a definition of their own making. For instance, the Metropolitan Council of Minneapolis/St. Paul uses: "Contiguous areas where at least 40% of residents live in households with incomes below 185% of the federal poverty line." The Southeast Michigan Council of Governments in the Detroit region uses: "All households that are in the lowest income quartile."

4. Transportation equity can be evaluated across a wide range of dimensions, including exposure to negative consequences like noise and air pollution, cost, tax and subsidy incidence, and so forth. Broader overviews of conceptual issues are available elsewhere (Deka 2004, Forkenbrock and Schweitzer 1999, Hay 1993, Hodge 1995, Schweitzer and Valenzuela 2004, Taylor and Tassillo Norton 2009).

5. Transportation scholars responded with a flurry of studies seeking to better understand how transportation policy contributes to problems like poverty and social isolation (American Academy of Arts and Sciences 1968; Kain and Meyer 1968, 1970; Myers 1970; Notess 1972; Ornati 1969). The most notable of these studies came from Wachs and Kumagai (1973) in an important article that advanced several innovative improvements for transportation policy.

REFERENCES

- American Academy of Arts and Sciences. 1968. *Conference on Poverty and Transportation*. Edited transcript, June 7. Brookline, MA: American Academy of Art and Sciences.
- Blumenberg, Evelyn. 2004. "En-gendering Effective Planning: Spatial Mismatch, Low-Income Women, and Transportation Policy," *Journal of the American Planning Association* 70 (3): 269–81.
- Blumenberg, Evelyn, and Michael Manville. 2004. "Beyond the Spatial Mismatch: Welfare Recipients and Transportation Policy," *Journal of Planning Literature* 19 (2): 182–205.
- Boston Region Metropolitan Planning Organization. 2015. *Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization*. Boston, MA: Boston Region Metropolitan Planning Organization.
- Bullard, Robert D., Angel O. Torres, and Glenn S. Johnson, eds. 2000. *Sprawl City: Race, Politics, and Planning in Atlanta*. Washington, DC: Island Press.
- Cairns, Shannon, Jessica Greig, and Martin Wachs. 2003. *Environmental Justice and Transportation: A Citizen's Handbook*. Berkeley: University of California.
- Cambridge Systematics. 2002. *Technical Methods to Support Analysis of Environmental Justice Issues*. Cambridge, MA: National Cooperative Highway Research Program.
- Cheng, Jianquan, Luca Bertolini, and Frank le Clercq. 2007. "Measuring Sustainable Accessibility," *Transportation Research Record: Journal of the Transportation Research Board* 2017: 16–25.
- Deakin, Elizabeth. 2007. "Equity and Environmental Justice in Sustainable Transportation: Toward a Research Agenda." In *Institutions and Sustainable Transport: Regulatory Reform in Advanced Economies*, edited by P. Rietveld and R. R. Stough, 51–69. Cheltenham, UK: Edward Elgar.

- Deka, Devajyoti. 2004. "Social and Environmental Justice Issues in Urban Transportation." In *The Geography of Urban Transportation*, 3rd ed., edited by S. Hanson and G. Giuliano, 332–55. New York: Guilford Press.
- Dodson, Jago et al. 2010. "Travel Behavior Patterns of Different Socially Disadvantaged Groups: Analysis of Household Travel Survey Data for a Dispersed Metropolitan Area," *Transportation Research Record: Journal of the Transportation Research Board* 2163: 24–31.
- Dreier, Peter, John H. Mollenkopf, and Todd Swanstrom. 2004. *Place Matters: Metropolitcs for the Twenty-first Century*. 2nd ed. Lawrence: University Press of Kansas.
- Dumbaugh, Eric, Jeffrey Tumlin, and Wesley E. Marshall. 2014. "Decisions, Values, and Data: Understanding Bias in Transportation Performance Measures," *ITE Journal* (August): 20–25.
- Ewing, Reid. 1995. "Measuring Transportation Performance," *Transportation Quarterly* 49 (1): 91–104.
- Executive Order No. 12898 of February 11, 1994. "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." <https://www.gpo.gov/fdsys/pkg/WCPD-1994-02-14/pdf/WCPD-1994-02-14-Pg276.pdf>.
- Federal Transit Administration (FTA). 2007. "Title VI and Title VI-Dependent Guidelines for Federal Transit Administration Recipients," FTA Circular 4702.1A. Washington, DC: U.S. Department of Transportation.
- . 2012. FTA Circular 4702.1B: Title VI Requirements and Guidelines for Federal Transit Administration Recipients. Washington, DC: U.S. Department of Transportation.
- Forkenbrock, David J., and Lisa A. Schweitzer. 1999. "Environmental Justice in Transportation Planning," *Journal of the American Planning Association* 65 (1): 96–111.
- Forkenbrock, David J., and Glen E. Weisbrod. 2001. *Guidebook for Estimating the Social and Economic Effects of Transportation Projects*. NCHRP Report #456. Washington, DC: National Academy Press.
- Foth, Nicole, Kevin Manaugh, and Ahmed M. El-Geneidy. 2013. "Towards equitable transit: examining transit accessibility and social need in Toronto, Canada, 1996–2006," *Journal of Transport Geography* 29 (May): 1–10.
- Frug, Gerald E. 1999. *City Making: Building Communities without Building Walls*. Princeton: Princeton University Press.
- Giuliano, Genevieve. 2003. "Travel, Location and Race/Ethnicity," *Transportation Research Part A: Policy and Practice* 37 (4): 351–72.
- Goldsmith, William W., and Edward J. Blakely. 2010. *Separate Societies: Poverty and Inequality in U.S. Cities*. 2nd ed. Philadelphia: Temple University Press.
- Golub, Aaron, Glenn Robinson, and Brendan Nee. 2013. "Making Accessibility Analyses Accessible: A Tool to Facilitate the Public Review of the Effects of Regional Transportation Plans on Accessibility," *Journal of Transport and Land Use* 6 (3): 17–28.
- Governor's Commission on the Los Angeles Riots (the McCone Commission). 1965. *Violence in the City—An End or a Beginning?* Los Angeles: State of California.
- Grengs, Joe. 2010. "Job Accessibility and the Modal Mismatch in Detroit," *Journal of Transport Geography* 18 (1): 42–54.
- . 2012. "Equity and the Social Distribution of Job Accessibility in Detroit," *Environment and Planning B: Planning and Design* 39 (5): 785–800.
- . 2015. "Nonwork Accessibility as a Social Equity Indicator," *International Journal of Sustainable Transportation* 9 (1): 1–14.
- Hansen, Walter G. 1959. "How Accessibility Shapes Land Use." *Journal of the American Institute of Planners* 25 (2): 73–76.

- Hay, Alan. 1993. "Equity and Welfare in the Geography of Public Transport Provision," *Journal of Transport Geography* 1 (2): 95–101.
- Henderson, Jason. 2011. "Level of service: the politics of reconfiguring urban streets in San Francisco, CA," *Journal of Transport Geography* 19 (6): 1138–44.
- Hess, Daniel Baldwin. 2005. "Access to Employment for Adults in Poverty in the Buffalo-Niagara Region," *Urban Studies* 42 (7): 1177–1200.
- Hodge, David C. 1995. "My Fair Share: Equity Issues in Urban Transportation." In *The Geography of Urban Transportation*, 2nd ed., edited by S. Hanson, 359–75. New York: Guilford Press.
- Johnston-Anumonwo, Ibipo. 1995. "Racial Differences in the Commuting Behavior of Women in Buffalo, 1980–1990," *Urban Geography* 16 (1): 23–45.
- Kain, John F., and John R. Meyer. 1970. "Transportation and Poverty." In *The Urban Economy*, edited by H.M. Hochman, 180–94. New York: W.W. Norton.
- Kain, John F., and John R. Meyer, eds. 1968. *Interrelationships of Transportation and Poverty: Summary of Conference on Transportation and Poverty*. Discussion Paper No. 39, Program on Regional and Urban Economics. Cambridge, MA: Harvard University.
- Karner, Alex. 2016. "Planning for Transportation Equity in Small Regions: Towards Meaningful Performance Assessment," *Transport Policy* 52 (November): 46–54.
- Karner, Alex, and Deb Niemeier. 2013. "Civil rights guidance and equity analysis methods for regional transportation plans: a critical review of literature and practice," *Journal of Transport Geography* 33 (December): 126–34.
- Kerner, Otto, et al. 1968. *Report of the National Advisory Commission on Civil Disorders*. New York: Bantam Books.
- Krumholz, Norman. 1982. "A Retrospective View of Equity Planning: Cleveland 1969–1979," *Journal of the American Planning Association* 48 (2): 163–74.
- Krumholz, Norman, and Pierre Clavel, eds. 1994. *Reinventing Cities: Equity Planners Tell Their Stories*. Philadelphia: Temple University Press.
- Krumholz, Norman, and John Forester. 1990. *Making Equity Planning Work*. Philadelphia: Temple University Press.
- Laitner, Bill. 2015. "Heart and Sole: Detroiters Walks 21 Miles in Work Commute," *Detroit Free Press*, January 31.
- Levine, Jonathan, and Joe Grengs. 2011. "Getting There: Putting Accessibility Into Practice for Progressive Transportation Planning," *Progressive Planning* 189: 8–11.
- Levine, Jonathan, et al. 2012. "Does Accessibility Require Density or Speed? A Comparison of Fast Versus Close in Getting Where You Want to Go in U.S. Metropolitan Regions," *Journal of the American Planning Association* 78 (2): 157–72.
- Levine, Jonathan, Louis Merlin, and Joe Grengs. 2017. "Project-Level Accessibility Analysis for Land-Use Planning," *Transport Policy* 53: 107–19.
- Manaugh, Kevin, Madhav G. Badami, and Ahmed M. El-Geneidy. 2015. "Integrating Social Equity into Urban Transportation Planning: A Critical Evaluation of Equity Objectives and Measures in Transportation Plans in North America," *Transport Policy* 37 (January): 167–76.
- Marcuse, Peter. 1997. "The Enclave, The Citadel, and the Ghetto: What Has Changed in The Post-Fordist U.S. City," *Urban Affairs Review* 33 (2): 228–64.
- Martens, Karel. 2012. "Justice in Transport as Justice in Accessibility: Applying Walzer's 'Spheres of Justice' to the Transport Sector," *Transportation* 39 (6): 1–19.
- Martens, Karel, Aaron Golub, and Glenn Robinson. 2012. "A justice-theoretic approach to the distribution of transportation benefits: Implications for transportation

- planning practice in the United States," *Transportation Research Part A: Policy and Practice* 46 (4): 684–95.
- Massey, Douglas S., and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge: Harvard University Press.
- Metropolitan Transportation Commission. 2009. *Transportation 2035 Plan for the San Francisco Bay Area: Equity Analysis Report*. Oakland, CA.
- Meyer, Michael D., and Eric J. Miller. 2001. *Urban Transportation Planning: A Decision Oriented Approach*. 2nd ed. New York: McGraw-Hill.
- Mid-Ohio Regional Planning Commission. 2012. "Appendix D: Environmental Justice Technical Analysis." In *2012–2035 Metropolitan Transportation Plan*. Columbus, OH: Mid-Ohio Regional Planning Commission.
- Mills, G. Scott, and K. Sieglinde Neuhauser. 2000. "Quantitative Methods for Environmental Justice Assessment of Transportation," *Risk Analysis* 20 (3): 377–84.
- Mozingo, Joe, and Angel Jennings. 2015. "50 Years After Watts: 'There is Still a Crisis in the Black Community,'" *Los Angeles Times*, August 13.
- Murray, Alan T., and Rex Davis. 2001. "Equity in Regional Service Provision," *Journal of Regional Science* 41 (4): 577–600.
- Myers, Sumner. 1970. "Personal Transportation for the Poor," *Traffic Quarterly* 24 (2): 191–206.
- Notess, Charles B. 1972. "Travel in the Black Ghetto," *Highway Research Record* 403: 49–50.
- Nussbaum, Martha C. 2000. *Women and Human Development: The Capabilities Approach*. New York: Cambridge University Press.
- . 2003. "Capabilities as Fundamental Entitlements: Sen and Social Justice," *Feminist Economics* 9 (2–3): 33–59.
- Ornati, Oscar A. 1969. *Transportation Needs of the Poor: A Case Study of New York City*. New York: Praeger.
- Pendall, Rolf. 1999. "Do Land Use Controls Cause Sprawl?" *Environment and Planning B* 26 (4): 555–71.
- Pfeffer, Nancy, et al. 2002. "Environmental Justice in the Transportation Planning Process: Southern California Perspective," *Transportation Research Record: Journal of the Transportation Research Board* 1792: 36–43.
- Pirie, G. H. 1983. "On Spatial Justice," *Environment and Planning A* 14 (4): 465–73.
- Pratt, Geraldine, and Susan Hanson. 1988. "Gender, Class, and Space," *Environment and Planning D: Society and Space* 6: 15–35.
- Pucher, John, and John L. Renne. 2003. "Socioeconomics of Urban Travel: Evidence from the 2001 NHTS," *Transportation Quarterly* 57 (3): 49–77.
- Purvis, Charles. 2001. "Data and Analysis Methods for Metropolitan-Level Environmental Justice Assessment," *Transportation Research Record: Journal of the Transportation Research Board* 1756: 15–21.
- Reddy, Alla, Thomas Chennadu, and Alex Lu. 2010. "Safeguarding Minority Civil Rights and Environmental Justice in Service Delivery and Reductions: Case Study of New York City Transit Authority Title VI Program," *Transportation Research Record: Journal of the Transportation Research Board* 2163: 45–56.
- Robeyns, Ingrid. 2005. "The Capability Approach: A Theoretical Survey," *Journal of Human Development* 6 (1): 93–117.
- Rowangould, Dana, Alex Karner, and Jonathan London. 2016. "Identifying Environmental Justice Communities for Transportation Analysis," *Transportation Research Part A: Policy and Practice* 88: 151–62.
- Sanchez, Thomas W., and Marc Brenman. 2007. *The Right to Transportation: Moving to Equity*. Chicago: American Planning Association.

- Sanchez, Thomas W., Rich Stolz, and Jacinta S. Ma. 2003. *Moving to Equity: Addressing Inequitable Effects of Transportation Policies on Minorities*. Cambridge: Civil Rights Project at Harvard University.
- Schweitzer, Lisa, and Abel Valenzuela Jr. 2004. "Environmental Injustice and Transportation: The Claims and the Evidence," *Journal of Planning Literature* 18 (4): 383–98.
- Sen, Amartya. 1981. *Poverty and famines: an essay on entitlement and deprivation*. Oxford: Clarendon Press.
- . 1985. "Well-Being, Agency and Freedom: The Dewey Lectures 1984," *Journal of Philosophy* 82 (4): 169–221.
- . 1988. "The Concept of Development." In *Handbook of Development Economics*, Vol. 1, edited by H. Chenery and T. N. Srinivasen, 10–26. London: Elsevier.
- . 1992. *Inequality Reexamined*. Cambridge: Harvard University Press.
- . 1999. *Development as Freedom*. 1st. ed. New York: Knopf.
- Solin, Les. 1997. *Professional Practice Manual*. Chicago: American Planning Association.
- Squires, Gregory D., and Charis E. Kubrin. 2005. "Privileged Places: Race, Uneven Development and the Geography of Opportunity in Urban America," *Urban Studies* 42 (1): 47–68.
- Steinberg, Michael W. 2000. "Making sense of environmental justice," *Forum for Applied Research and Public Policy* 15 (3): 82–89.
- Taylor, Brian D., and Paul M. Ong. 1995. "Spatial Mismatch or Automobile Mismatch? An Examination of Race, Residence, and Commuting in U.S. Metropolitan Areas," *Urban Studies* 32 (9): 1537–57.
- Taylor, Brian D., and Alexandra Tassiello Norton. 2009. "Paying for Transportation: What's a Fair Price?" *Journal of Planning Literature* 24 (1): 22–36.
- Transportation Research Board. 1995. *Expanding Metropolitan Highways: Implications for Air Quality and Energy Use*. Special Report 245. Washington, DC: National Academy Press.
- van Wee, Bert, and Karst Geurs. 2011. "Discussing Equity and Social Exclusion in Accessibility Evaluations," *European Journal of Transport and Infrastructure Research* 11 (4): 350–67.
- Wachs, Martin, and T. Gordon Kumagai. 1973. "Physical Accessibility as a Social Indicator," *Socio-Economic Planning Science* 7: 437–56.
- Wacquant, Loïc J. D. 1997. "Three Pernicious Premises in the Study of the American Ghetto," *International Journal of Urban and Regional Research* 21 (2): 341–53.