



# PAS MEMO

## Equity-Oriented Performance Measures in Transportation Planning

*By Audrey Wennink and Agustina Krapp*

Transportation conditions have a significant impact on community residents' quality of life. Planners should be aware of how, where, and what types of transportation investments are being planned within their jurisdictions, because transportation is intimately connected to all facets of community planning, including land use, economic development, housing, and the environment.

Economic stability and wealth accrual are highly related to one's ability to access employment and services via transportation. Most of America's communities have been developed so that housing is located a significant distance from jobs, stores, and medical care, meaning that transportation needs to cover long distances and most destinations are accessible only by car. Federal and state policies have prioritized investment in auto-oriented transportation for decades.

As a result, people of color and those with lower incomes, who are less likely to own cars and may not live in areas well served by transit, experience worse transportation outcomes, often having to travel farther and experience more difficult trips to access employment and other critical needs. The National Bureau of Economic Research has shown that long commute times play a significant role in predicting residents' upward mobility (Chetty et al. 2014).

As an example, in the greater Chicago region, communities where black residents are the largest racial group experience the longest commute times. Chicago consistently ranks among America's most segregated regions. As in many U.S. metropolitan areas, historical and ongoing systemic racism has blurred the lines between racial and economic segregation; today, Chicago's poorest residents are disproportionately people of color living in communities of concentrated poverty.

As shown in Figure 1, of the 100 census tracts in the Chicago region with the longest commutes (shown in red), with an average of 44 minutes each way, 95 are majority black or Latinx. The median income for those 95 tracts is \$31,667. By comparison, 53 of the 100 tracts with the shortest commutes

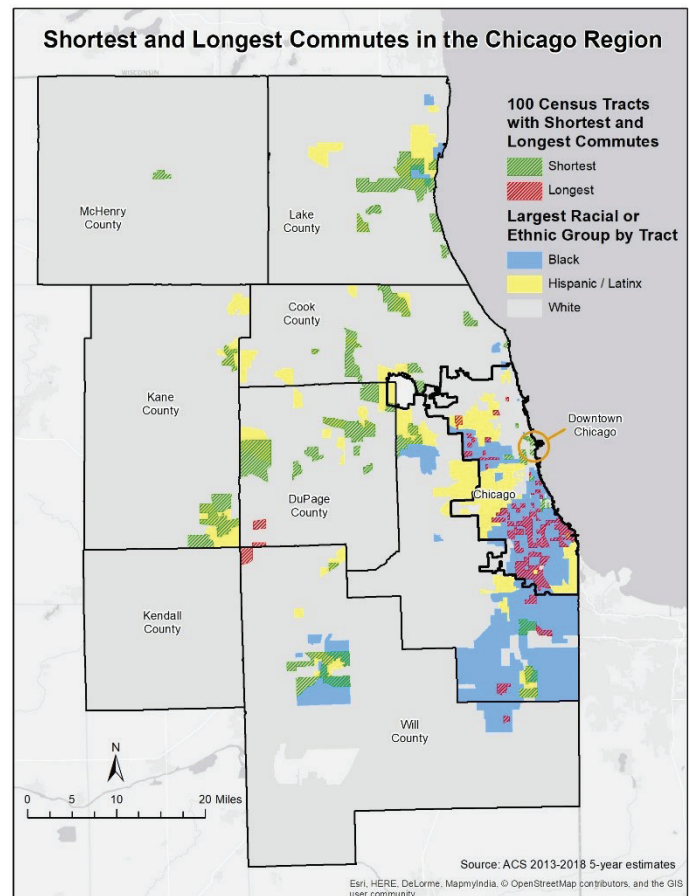


Figure 1. Longest and shortest commutes by census tract in the Chicago region (U.S. Census Bureau 2013–2017, ACS 5-Year Estimates, map by the Chicago Metropolitan Planning Council).

(shown in green), averaging only 23 minutes, are majority white. The median annual household income for those 53 tracts is over \$75,000.

In 2018, Equiticity, a nonprofit mobility justice advocacy organization, received a grant from the Chicago Community Trust for its **Mobility Justice in Chicago** research. This included a partnership with the Metropolitan Planning Council (MPC), a nonprofit planning and policy organization in Chicago, to examine how equity is considered in the prioritization of transportation resources. The objective of this research was to understand how equity—of which racial equity is a significant component—is measured in current planning practice and to identify ways to strengthen current approaches.

In this *PAS Memo* we examine the incorporation of equity considerations into the evaluation of transportation investments. Using this information, planners have an opportunity to modify future performance-based planning investment practices, particularly those of metropolitan planning organizations (MPOs), to increase the consideration of equity in project prioritization.

### **A History of Unequal Investments**

Inferior transportation outcomes are the result of decades of discriminatory land-use and transportation planning and policy decisions. These have left many black and brown residents living in areas that are farther from key destinations, with fewer amenities in their neighborhoods.

Given a history of auto-oriented development patterns, it can be challenging for those without personal vehicles to meet all their transportation needs using transit. In the city of Chicago, 27 percent of households do not have a car, and in the greater Chicago region, 13 percent of households are without a vehicle. Eight percent of the Chicago region's households have one or zero cars and low to moderately low transit access, as measured by the Chicago Metropolitan Agency for Planning's (CMAP) transit availability index. Most of these households are in neighborhoods with no rail service and infrequent bus service (Metropolitan Planning Council 2017).

The history of unequal investments in transportation is complex. After World War II, the planning and development of transportation systems contributed to maintaining the residential segregation established through discriminatory housing policies and practices of prior years. The disproportionate investment in highways compared with other modes, in combination with housing and lending policies, led to a massive migration of residents from central cities to the suburbs between 1945 and 1970. However, exclusionary zoning ordinances and discrimination in housing and mortgage markets prevented people of color from moving to suburban neighborhoods. As businesses also relocated to the suburbs, access to opportunity increased among car-owning and suburban families but decreased for low-income city dwellers without cars, as suburban areas were not well served by public transportation (Chicago Urban League 2016; The Leadership Conference Education Fund 2011; Cytron 2010; Sánchez, Stolz, and Ma 2003).

Also during this period, highways were commonly constructed through black/brown and low-income communities. This practice resulted in the physical division of neighbor-

hoods, erosion of local economies, and disproportionate exposure of residents to noise and air pollutants (Cytron 2010).

The growing recognition that the poor and people of color have been more inequitably exposed to such polluted environments gave rise to the environmental justice movement, started primarily by people of color who sought to address the inequity of environmental protection in their communities (U.S. EPA 2019). Its origins can be linked to the American civil rights movement of the 1960s and Title VI of the Civil Rights Act of 1964. However, protesting communities were not associated with others in similar situations until the early 1980s, when residents of Warren County, North Carolina, protested against the state in 1982 for deciding to locate a hazardous waste landfill in a small, predominately African American community there. Although it was unsuccessful, this protest provided a national start to the environmental justice movement (U.S. Department of Energy 2019), which received serious government attention during the 1990s.

In 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." This order required federal agencies to achieve environmental justice as part of their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority and low-income populations. This led federal transportation agencies to issue **guidance** for incorporating environmental justice principles into existing programs, policies, and activities and brought attention to the issue of transportation equity (Sánchez, Stolz, and Ma 2003).

Planners are now more clearly recognizing the impacts of a half-century of inequitable, auto-oriented planning as well as the outcomes resulting from structural racism. To rectify current inequities, which are a legacy of many years of cumulative decisions, planners must work proactively to improve communities that have historically experienced disinvestment and negative impacts. The question, then, is what methods can transportation planners use to ensure that future investments are strategically targeted to offer greater benefits to marginalized groups, mitigate the effects of past discrimination, and improve residents' quality of life.

### **Performance Management in Transportation Planning**

Starting with the 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21), federal transportation funding authorizations have required a transition to performance-based planning. This is a strategic approach to using data on system performance to inform investment decisions based on the idea that making data-driven decisions and using performance measures to track outcomes can better ensure that projects and investments are delivering the desired results. The 2015 Fixing America's Surface Transportation Act (FAST Act) required that performance measures be established for specific transportation programs.

In 2016, the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) published the final rules on

state and metropolitan transportation planning, which established new requirements for state departments of transportation (DOTs) and metropolitan planning organizations (MPOs) to transition to performance-based programs. Under these rules, state DOTs and MPOs are now federally required to track a set of transportation performance measures and to set targets to guide progress. These performance measures include roadway pavement condition, bridge condition, congestion, non-single-occupant vehicle travel, emissions, traffic safety, and transit asset conditions. As a result of the federal emphasis on performance-based planning, data-driven methods are now being integrated into MPO processes, and agencies are more commonly using performance measures to prioritize transportation projects.

These measures, however, are mostly auto-focused and not connected to broader goals of the transportation system, such as efficiently connecting people to essential opportunities. If equity were considered in a meaningful way as part of this process, transportation investments could be targeted to improve the quality of life for historically marginalized populations who have been experiencing lower quality transportation infrastructure, higher travel times, longer travel distances, and higher exposure to traffic-related risks.

Indeed, many regions are starting to incorporate equity into their project prioritization methods and are defining equity in their own terms. Our research explores how these agencies use equity as a performance measure or criterion to inform investment priorities, evaluates the strengths and weaknesses of current methods, and recommends approaches for improvement.

### Transportation Equity Defined

It is important to have a clear understanding of what is meant by transportation equity. The most common definitions equate transportation equity with the fair distribution of benefits and burdens of transportation projects, plans, policies, and processes (Litman 2019; Rowangould, Karner, and London 2016).

Transportation equity can be classified into three different types based on how fairness is assessed (Bullard 2003):

- **Procedural equity**, which is focused on the degree of involvement of diverse public stakeholders in the processes by which transportation decisions are made
- **Geographic equity**, which is focused on the distribution of impacts across geography and space
- **Social equity**, which is focused on the distribution across population groups that can be equal or differ by income, social class, and mobility ability (Litman 2019)

Transportation benefits include increases in access to essential opportunities and to high-quality transportation options, congestion mitigation, positive environmental and health impacts, and more. Transportation burdens, on the other hand, include restricted access to opportunities and to high-quality transportation, congestion, enforcement inequities, and negative environmental, health, and safety impacts (Table 1).

*Accessibility* is widely acknowledged as the most important benefit of transportation systems and is considered the most relevant concept for transportation equity (Litman 2019; Martens and Golub 2018; Rowangould, Karner, and London 2016). Accessibility refers to the ease with which a person can reach potential

**Table 1. Transportation Benefits and Burdens**

<i>Transportation Benefits</i>	<i>Transportation Burdens</i>
<ul style="list-style-type: none"> <li>• Increased access to social, educational, and economic opportunities</li> <li>• Increased access to high-quality mobility options</li> <li>• Travel time savings</li> <li>• Cost savings</li> <li>• Congestion mitigation</li> <li>• Reduction of pollution</li> <li>• Improved connectivity within communities</li> <li>• Opportunities for physical activity through active transportation modes</li> <li>• Reduction in traffic injuries and fatalities</li> <li>• Local hiring and job training for jobs in construction, maintenance, and operation</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced access to essential opportunities and services</li> <li>• Restricted or no access to high quality transportation</li> <li>• Long/increased travel times</li> <li>• Financial burdens</li> <li>• Traffic congestion</li> <li>• Increased pollution</li> <li>• Physical division of communities</li> <li>• Creation of barriers to bicycling and walking</li> <li>• Exposure to traffic-related safety risks</li> <li>• Vulnerability to climate impacts</li> <li>• Inequitable enforcement</li> </ul>

and desired destinations or opportunities. It depends on the number of opportunities available within a certain distance or travel time, and on *mobility*, which is the ability to move people quickly along a given transportation corridor (Hanson and Giuliano 2017). *Basic or essential accessibility* refers to people's ability to reach activities that society considers essential, such as food, education, employment, health care, emergency and public services, and social and recreational activities (Litman 2019).

During the past half-century, transportation planning has largely focused on mobility in the context of auto-oriented planning: moving people in personal vehicles quickly over long distances. The sector is now giving greater consideration to accessibility, which considers the land uses and destinations that can be reached by any mode of transportation, including walking, biking, and transit.

A different definition of accessibility is also pertinent to the discussion about transportation equity. In the context of the Americans with Disabilities Act of 1990 (ADA), accessibility refers to ensuring adequate access to the built environment for people with disabilities. Transportation systems should meet the needs of every traveler regardless of their age, size, or disability and, therefore, transportation equity advocates for universal design—that is, transportation facilities that can be accessed, understood, and used to the greatest extent possible by all people regardless of their age, size, or disability. It is important to note, however, that in this *Memo* we use the term accessibility to refer to the previous definition.

The spatial organization of contemporary society demands mobility, but mobility levels are inequitable across any given region. Some population groups experience great constraints in terms of travel costs and modal options, and consequently, have reduced access to opportunities, with resulting deterioration to quality of life. Assessing the equity of a transportation system requires consideration of who gains accessibility and who loses it as a result of how that system is designed and modified (Hanson and Giuliano 2017). As noted previously, in Chicago the commute times for majority-black communities are significantly higher than for majority-white communities.

The United States' history of racial discrimination and spatial segregation puts low-income communities of color in the center of all discussions about transportation equity. The systematic denial of benefits and imposition of burdens to these communities created the current disparities they face today. In 2018, the nation's official overall poverty rate was 13 percent, while 22 percent of blacks and 19 percent of Hispanics were living in poverty (Kaiser Family Foundation 2018). Households in poverty spend a higher proportion of their income on transportation expenses (FHWA 2014), which further impacts the ability of households to accrue wealth.

This present context further requires that decision makers understand the distinction between *equality* and *equity* when making transportation decisions. Equity is not the same as equality. Equality means everyone has access to the same resources. Equity, in contrast, means people receive resources based on their needs and their potential to benefit.

Overcoming current inequities requires an *equity* approach that allocates resources based on communities' needs, with the aim of correcting existing differences and removing the effects of past discrimination (Martens and Golub 2018). An equity approach also requires the provision of meaningful opportunities to disadvantaged communities to participate in transportation decisions and to guarantee that any planned improvements respond to residents' specific needs (Lucas et al. 2019; Greenlining Institute 2018; Rowangould, Karner, and London 2016).

We define transportation equity as an approach:

- Concerned with the distribution of benefits and burdens of transportation projects, plans, and policies among individuals and groups that differ by race, income, and ability.
- That aims to protect and improve outcomes—with an emphasis on accessibility—for marginalized populations, especially low-income communities and communities of color.
- That allocates resources based on communities' needs, with the aim of correcting existing differences and removing the effects of past discrimination.
- That provides efficient opportunities for marginalized populations to participate in the transportation decisions that will affect them.

### Analytical Approaches to Transportation Equity

Consideration of how proposed projects are prioritized is critical in terms of impacting the equity of our transportation systems moving forward. Transportation planners at the state and regional levels commonly use two analytical approaches to address equity concerns in their transportation planning and programming processes: (1) performing Environmental Justice (EJ) assessments to analyze the impacts of the strategies and projects included in statewide and metropolitan long-range transportation plans and transportation improvement programs on different segments of the community, and (2) including an equity criterion in their project selection methodologies to prioritize projects based on their impacts to historically marginalized population groups.

Transportation planning agencies usually prepare EJ analyses to assess the impacts of their plans and determine whether these are shared equitably across all population groups. The traditional approach consists of identifying geographic units with high concentrations of marginalized populations and comparing them with the rest of the region in terms of distribution of investments and assessment of impacts (burdens and benefits) through different performance measures.

Two federal mandates dictate the inclusion of people of color and low-income populations in the agencies' definition of marginalized populations:

- **Title VI of the Civil Rights Act of 1964**, aimed at protecting against discrimination in federally funded programs on the grounds of a person's race, color, or national origin
- **Environmental Justice Executive Order 12898**, aimed at avoiding disproportionately high and adverse effects on minority and low-income populations

“Minority” refers to persons belonging to any of the following groups, as well as “other” categories that are based on the self-identification of individuals in the U.S. Census: African American, Hispanic, Asian/Pacific Islander, and Native American and Alaskan Native. “Low-income” refers to persons whose household income is a certain percentage above, at, or below the federal poverty guidelines of the U.S. Department of Health and Human Services. Each MPO adopts thresholds based on regional costs of living and average household sizes, composition, and income.

In our study, we found that many MPOs also consider people with disabilities and people with limited English proficiency in their definitions. The consideration of these populations is based on two other federal mandates:

- **Americans with Disabilities Act of 1990**, aimed at protecting against discrimination in federally funded programs on the ground of physical or mental disabilities
- **Executive Order 13166**, “Improving Access to Services for Persons with Limited English Proficiency,” aimed at guaranteeing meaningful access to federally funded programs for people who speak limited English

“People with disabilities” includes any noninstitutionalized person with at least one disability that may limit the individual’s ability to care for himself or herself. “Limited English proficiency” refers to any person aged five years or older who does not speak English as their primary language and who reported being able to read, speak, write, or understand English less than “very well” as classified by the U.S. Census Bureau.

Finally, the following groups are also sometimes included in MPOs’ definitions of disadvantaged populations: seniors/elderly, zero vehicle or carless households, female head of households with child/single-parent families, and people with limited or low educational attainment.

EJ analyses are subjects of several critiques within academic literature, however, mostly because these evaluations rarely find evidence of disparities in funding allocations or in transportation outcomes (Martens and Golub 2018; Rowangould, Karner, and London 2016; Karner and Niemeier 2013). Some reasons for this are the lack of specific analysis requirements and the lack of enforcement, resulting in a situation where the completion of any analysis is considered sufficient for compliance with federal mandates (Martens and Golub 2018; Marcantonio et al. 2017; Rowangould, Karner, and London 2016; Karner and Niemeier 2013). Additionally, EJ analyses usually aim to demonstrate that marginalized communities will benefit from similar levels of investments as nonmarginalized ones. But similar levels of investments do not constitute equitable investments, and EJ analyses do not focus on providing benefits to the groups that need it most.

Transportation equity pursues equal outcomes, which requires allocating resources based on a marginalized population’s needs. But EJ analyses, in the manner they are currently undertaken, do not address the need to proactively improve transportation conditions for those with inferior outcomes.

Therefore, considering equity in the process of prioritizing future investments is necessary to change transportation outcomes for historically marginalized and underserved populations.

### Equity in Transportation Project Prioritization

Our study examined how MPOs in the United States are currently considering transportation equity in their programming of transportation investments and evaluated the alignment of their project selection criteria with our working definition of transportation equity.

MPOs were chosen as the focus of this research because federal rules require consistent processes and plans at this scale, allowing for regional comparison. We focused on the 40 largest MPOs—all serving urbanized areas with populations greater than 1,000,000—because we expected them to address transportation equity with more detailed and complex approaches than smaller MPOs due to their greater capacities in terms of resources and staff.

We reviewed each MPO’s most recently adopted Long Range Transportation Plans, Transportation Improvement Programs, documentation of project prioritization criteria for federal funds, and any other product described as equity or environmental justice analyses. Our goal was to determine (1) whether the MPOs used a performance-based process for allocating transportation resources, and if so, (2) whether they included equity as a criterion.

Nineteen of the 40 (47.5 percent) used performance-based planning methods. Of these, 16 incorporated one specific equity criterion within their methodologies. Some used different types of criteria for different project types. “Environmental Justice” was the most frequent designation, but other terms, such as “Social Equity” and “Transportation Equity,” were also used for these criteria.

### Equity-Based Project Evaluation Criteria

We categorized each equity-based project evaluation criterion as one of five different types, with varying degrees of complexity and potential for impact (Figure 2). Four of these types used a spatial component as a proxy for marginalized users of a potential facility. This means that they assessed the benefits

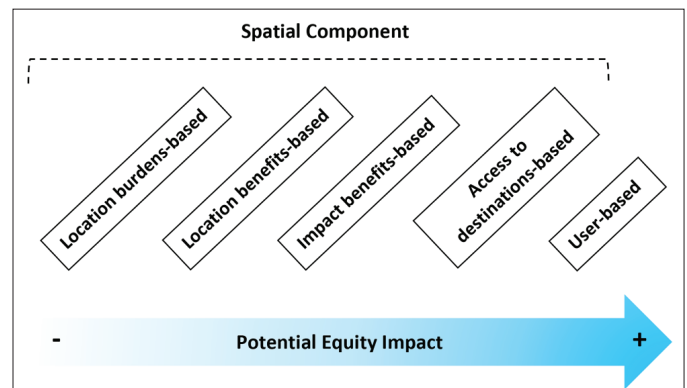


Figure 2. Five categories of MPO equity criteria (Audrey Wennink, Agustina Krapp, Jesus Barajas).



provided by a facility based on an assessment of proximity to potential users versus an actual measure of use by the populations for which benefits are desired. A fifth type was based on projected users of the transportation improvement. The following sections discuss each type in more detail and address the weighting of equity criteria. Table 2 (p. 7) summarizes the benefits and limitations of each type.

### Location Burdens-Based Criteria

*Location burdens-based criteria* consider the location of a project within an area with a high concentration of marginalized populations as *detrimental* for them. These aim to capture potential negative effects, such as those created by highways routed through low-income neighborhoods, and award points if a project is not located within the area or if measures to mitigate harm are integrated. Of the 16 MPOs that incorporated equity criteria within their selection methodologies, two used this type.

This kind of criterion has two main limitations. It assumes burdens are intrinsic features of a project without identifying them, and it fails to acknowledge potential positive impacts.

### Location Benefits-Based Criteria

*Location benefits-based criteria* consider the location of a project within an area with a high concentration of marginalized populations as *beneficial* for them; these criteria award points if a project is located within the area.

Almost all the measures included in this group asked the question: “Does the project serve Environmental Justice communities?” This approach acknowledges the potential positive impacts of transportation projects that are physically accessible to marginalized populations and, therefore, likely to be used by these populations. Of the 16 MPOs, 12 used this type.

The main limitations of location-based benefits measures are the lack of a clear identification of benefits and the failure to acknowledge potential burdens on surrounding populations.

Location-based criteria are the types most widely used by MPOs, possibly because they are easier to calculate in comparison with the other kinds. These measures require only demographic data and mapping, whereas the impact-, access-, and user-based types need more sophisticated tools such as travel demand models.

### Impact Benefits-Based Criteria

*Impact benefits-based criteria* consider the potential benefits a proposed project will have on marginalized populations and award more points to projects that will have positive effects. This criterion type includes a range of subjective or quantitative methods for defining benefits. It may include a spatial component but goes beyond that to assess how the project will provide meaningful benefits.

The important difference between this and the location benefit-based type is that it does not assume a project will have positive impacts on marginalized populations just because it is in proximity to them. Instead, it requires a thoughtful evaluation of impacts to determine how beneficial a project will be. One way to do this is to clearly define what positive

effects qualify for points (e.g., improving safety or accessibility, reducing noise or air pollution)—though this approach might not capture context-specific positive impacts. A contrasting approach that leaves the definition of benefits open-ended potentially allows for a nuanced and context-specific evaluation of benefits, but could also result in evaluations that are unclear, subjective, and susceptible to distortion.

Of the 16 MPOs, five used this type. However, none of them penalized projects by subtracting points if a project caused negative impacts on marginalized populations.

### Access to Destinations-Based Criteria

*Access to destinations-based criteria* are a type of impact benefit-based criterion that consider how projects improve access to key destinations (i.e., food, recreation, medical, employment) for marginalized populations. Often this measure is used in combination with some sort of travel time threshold, so that the number of destinations accessible within, for example, 30–60 minutes via the transportation network as a result of the project are calculated. This category is called out separately due to the improved specificity of this analysis and the importance of transportation’s essential function of providing access to basic needs and economic opportunity. One MPO used this criterion type.

The main limitation of this approach is the disregard for other potential benefits and burdens. Another limitation is that those who actually use the project to access the destinations may differ from those potential users of the project identified by the spatial analysis.

### User-Based Criteria

Finally, *user-based criteria* consider the number of users of the proposed project that belong to the population defined as marginalized and award more points to projects with more marginalized users.

Three MPOs used this type, implemented through either absolute or relative measurement. Measuring the number of marginalized population users in absolute terms might favor projects sponsored by larger communities in a metropolitan area over those of smaller municipalities. In contrast, measuring the percentage of marginalized population users might disadvantage projects sponsored by larger municipalities (with a high number of marginalized users that might account for a small percentage) over those of smaller communities (with a smaller number of marginalized users that might account for a bigger fraction of the users of the facility).

A disadvantage of user-based criteria is that they require sophisticated tools such as travel demand models. Even when agencies have access to these tools, models can be imprecise and limited by the assumptions built into the designs.

### Criteria Weighting

Our research found that among our sample of MPOs, maximum weights for the equity criteria varied from a minimum of two percent to a maximum of 15 percent. For most agencies, the weighting of the equity criteria was less than 10 percent

<b>Table 2. Equity Criteria Employed by MPOs in Project Prioritization</b>			
<i>Type</i>	<i>Definition</i>	<i>Contributions</i>	<i>Limitations</i>
<b>Location burdens-based</b>	Considers the location of the proposed project in relation to predefined areas with high concentrations of marginalized populations and awards points if the project is not located within them.	Acknowledges potential negative impacts of transportation projects, especially in areas with a high marginalized population.	Assumes burdens for marginalized populations based on project location, but does not specifically identify them.  Assumes the project causes only burdens and no benefits.
<b>Location benefits-based</b>	Considers the location of the proposed project in relation to predefined areas with high concentrations of marginalized populations and awards points if the project is located within them.	Acknowledges potential benefits of transportation projects physically accessible to marginalized populations.	Assumes that a project located within a marginalized population area will benefit and serve the surrounding population, when the opposite might be true.  Limited and unclear definition of benefits.  Sometimes mistakenly used as a proxy for accessibility.  Does not consider burdens.
<b>Impact benefits-based</b>	Considers the potential positive impacts the proposed project will have on predefined areas with high concentrations of marginalized populations, which may include—but goes beyond—an assessment of only spatial proximity.	Assesses the positive effects of a project instead of assuming them based on proximity. Methods may be subjective or quantitative and more than one method may be used.	If benefits are not clearly defined in the evaluation methodology, the result of the evaluation can be unclear, very subjective, and susceptible to distortion.
<b>Access to destinations-based</b>	Considers accessibility improvements that projects will provide to areas with high concentrations of marginalized populations. This is called out separately due to the higher specificity of this analysis and the value in focusing on transportation's essential function of providing access to basic needs and economic opportunity.	Acknowledges access to key destinations as the most important benefit of transportation systems.	Usually does not consider burdens.  Does not consider other benefits.
<b>User-based</b>	Considers the number of users of the proposed project that will belong to the population defined as marginalized and awards more points to projects with more marginalized users.	Considers the marginalized population directly served by the facility.	Requires sophisticated tools such as a travel demand model to calculate.  Assumptions of the travel demand model determine outcomes.  Does not identify other benefits.  Does not consider burdens.

of the overall score and was sometimes much less. It is crucial to recognize that a single equity criterion with relatively low weighting is likely to have minimal effect on the overall regional allocation of resources toward addressing often significant transportation inequities. If the weighting of equity in current prioritization processes remains so low, we are likely to see continued transportation inequities.

*Transportation Equity Implications*

The ultimate goal of evaluating projects for equity is to influence future investment decisions and increase transportation benefits to historically marginalized populations. Our research, however, identified a number of shortcomings in the criteria currently used by MPOs in their project prioritization methodologies to assess the impacts of proposed investments on

traditionally underserved populations. These are listed below, accompanied by recommendations for improvement.

- The measures implemented by most MPOs do not clearly identify the concrete benefits that projects will confer to marginalized populations. Their criteria either assume projects will provide benefits simply by being in proximity to marginalized populations (location-based benefits criteria), or they delegate the decision to the evaluator without delineating potential benefits to be examined. **Agencies are encouraged to carefully define how benefits will be calculated, specify which benefits are a priority, and provide clear guidance to sponsors and project evaluators on those methods.**
- Very few MPOs are explicit about providing improved accessibility for historically underserved populations as the overall goal and main benefit. Some agencies mistakenly define criteria as accessibility-based but in fact refer to improved access to transportation facilities without making the link to the number of available opportunities that marginalized populations could access with the transportation improvement. **Agencies should focus on how investments will provide access to key destinations, particularly employment, for marginalized populations.**
- Most MPOs do not acknowledge burdens to marginalized populations in their project prioritization criteria. In the few times where this is the case, they do not provide a clear definition of negative effects. More importantly, most MPOs do not emphasize the protection of historically harmed population groups; burdens are handled generally by not awarding any points to projects with negative impacts, instead of penalizing them with point subtraction. **Agencies should evaluate burdens separately so that projects with potential negative effects are clearly flagged and this facet is accounted for in scoring. Therefore, agencies should use at least two equity criteria—one for benefits and one for burdens.**
- The scoring processes reviewed had no indication whether projects addressed needs identified by the communities they were intended to serve, whether communities had a role in generating the project concepts, or whether residents supported or opposed the projects under consideration. Marginalized populations too often are disconnected from the planning process, and most of the time community members are involved after a project has been defined and are only asked for input on design. More emphasis should be placed on addressing needs defined by community members themselves and development of projects driven by the communities they are intended to benefit. **Agencies' evaluation criteria frameworks should consider the extent of community support or opposition and whether a project addresses needs defined by community members.**
- Finally, the weights MPOs assign to equity criteria are not high enough to influence project evaluation significantly. A project that does not advance equity—and that

even harms marginalized populations—may be able to rank highly just by obtaining good results on other criteria. Related to this point is the lack of explanation of the rationales behind criteria weights. **Agencies should ensure that equity criteria weights are high enough to meaningfully influence the allocation of resources and substantially improve transportation and life outcomes for communities with greater needs.**

The previous points illustrate how important it is for planners to fully understand the meaning of transportation equity and its implications when prioritizing investments. Transportation equity is a multifaceted concept and, as such, its incorporation in planning and programming processes requires rigorous attention and placement in a central role to deliberately influence the allocation of transportation dollars.

### Recommendations for Enhancing Equity Considerations in Project Prioritization

The establishment of clear, data-driven, and transparent processes structured to incorporate equity as a central factor for the allocation of funding is essential to ensure improved transportation equity in future investments. Therefore, it is critical that all entities with responsibility for allocating transportation resources—not only MPOs but also state, county, and city departments of transportation—develop such processes for prioritizing how federal, state, and locally generated transportation revenues are invested. A range of recommendations to achieve this goal is presented below, aligned with the important factors in our transportation equity definition.

**Identification of marginalized populations.** Project selection methodologies should:

- Consider impacts on a range of marginalized population groups in addition to low-income and communities of color, such as people with disabilities and older adults.
- Avoid aggregating all marginalized populations into one group. Communities of color should not be aggregated either, because experiences differ by ethnic and racial identity.
- Award points directly based on the overall economic condition of the sponsor community, to prioritize projects in communities with greater needs and fewer resources.

### Identification of transportation benefits and burdens.

Project selection methodologies should:

- Clearly identify and prioritize both benefits and burdens separately, for disaggregated marginalized populations.
- Appropriately assess projects' contribution to increase accessibility to jobs and other opportunities by socio-economic status, and prioritize (award more points to) those projects that improve accessibility for marginalized populations.
- Penalize projects (subtract points) that create burdens



for marginalized populations, and reduce the amount of points subtracted due to burdens if projects incorporate measures to reduce, minimize, or avoid adverse effects on marginalized populations.

- Not award points based on equity to neutral projects that neither provide benefits nor generate burdens to marginalized populations.

**Adoption of an equity approach that responds to communities' specific needs.** Project selection methodologies should:

- Use multiple equity-oriented criteria. A single equity criterion in a holistic and multidimensional assessment of projects cannot address multiple aspects relevant to transportation equity. There should be separate criteria to address benefits, burdens, and specific needs for disaggregated marginalized populations.
- Apply equity-related criteria to all project types. In other words, all transportation projects should be required to contribute to advancing equity.
- Assign higher weights to equity criteria than current approaches to exert a significant influence in project prioritization. Project selection processes must place more emphasis on funding more projects where there are more needs. Instead of pursuing equal investments, selection methodologies should pursue equal transportation outcomes.
- Identify and prioritize projects that are community driven, based on stated community needs, or have high levels of community support.

Other observations and recommendations:

- Project sponsors should submit their own assessments of how their projects would impact marginalized communities. This could allow the assessment of additional equity implications that might not be captured by any scoring category, which could also be considered for awarding or subtracting points.
- Federal regulations should more explicitly define equity standards for the assessment of transportation projects and plans, something that academic literature has been calling for (see, for example, Martens and Golub 2018; Marcantonio et al. 2017; Lowe 2014)
- Beyond the adoption of specific equity criteria, the equity implications of all other evaluation criteria (e.g., safety, complete streets, environment, air quality) should be assessed. A good approach is defining and analyzing the benefits and burdens for general versus marginalized populations within other criteria. Doing this contributes to a more equitable evaluation overall.
- Transportation planning should fully transition from the traditional mobility-based paradigm to an accessibility-based paradigm, which presents a more holistic, multimodal, and equitable framework that focuses more

explicitly on how transportation helps people meet their needs.

- Agencies should aid communities with limited resources by helping to develop project proposals for communities that are not able to do it themselves. A good example is the Chicago Metropolitan Agency for Planning's [Local Technical Assistance Program](#), which prioritizes planning support to communities with fewer resources.

Beyond the prioritization of individual projects using equity criteria, it is important to take a holistic view of how a region is performing on transportation equity. Agencies should conduct periodic regional or community-level evaluation of transportation outcomes disaggregated by marginalized group to see if regional transportation outcomes are improving for these transportation users.

The EJ analyses that some agencies conduct for their transportation plans and improvement programs could also be used to benchmark and track overall regional transportation outcomes over time versus being used only to evaluate future transportation investment scenarios.

Ideally, agencies would conduct an EJ-style analysis regularly to track trends in how the system is performing overall in terms of equity. Such an analysis could track key performance measures for the overall population and marginalized populations, such as access to high-capacity transit and commute time, to evaluate whether outcomes for marginalized populations are improving and approaching the levels for the general population. This would reveal whether investment methodologies are effective at improving transportation outcomes for historically marginalized populations. Such an exercise will be highly informative in terms of whether the equity criteria are working to deliver more equitable outcomes. If not, or if change is progressing too slowly, the agency should revise its measures and weights to increase the focus on equity.

### Action Steps for Planners

Planners should pay attention to which transportation investments are being planned and how they will benefit marginalized residents. This is critical given the major impact transportation has on people's ability to meet daily needs. All planners should recognize that the success of various transportation improvements is highly related to other facets of community planning.

As a first step, planners in all types of agencies are encouraged to get up to speed on how their DOTs, MPOs, and local communities prioritize transportation projects and to understand how equity is addressed in this process. The questions below highlight the main factors planners should consider when determining how well their communities or agencies assess equity.

- Does your community or region prioritize transportation projects using data-driven methods that are transparent?
- Does your community or region clearly define marginalized populations? Determine if you think the current

definition is appropriate or merits further review and adjustment, and advocate for any needed changes.

- Does the project prioritization method clearly identify both benefits and burdens of proposed investments, separately?
- Does the process consider benefits and burdens on different marginalized populations (e.g., black, Latinx, Asian, elderly, disabled) separately?
- Does the process subtract points for any investment forecasted to increase burdens on marginalized populations?
- Does the process give extra points to projects in economically disadvantaged communities?
- Does the process consider equity as a criterion for all project types?
- Does the process consider whether proposed projects are addressing community-defined needs and supported by community members?
- Does the process place significant weight on criteria that measure the extent to which transportation investments provide improved access to key destinations (e.g., workplaces, schools, healthcare services)?
- Does the process include multiple equity-oriented criteria and weight them highly enough that they have a meaningful influence on how transportation resources are allocated?
- Do evaluators consider the equity implications of the other criteria used for project prioritization? (For instance, if an increase in freight movement is deemed positive in one category, how does the location of increased truck or train traffic affect marginalized populations? What are the consequences in terms of safety, noise, and air quality?) Doing this for every factor contributes to a more equitable evaluation overall.
- Does the region or community provide technical assistance to aid communities or populations with limited or no resources in developing projects themselves?
- Does the region or community assess transportation outcomes disaggregated by marginalized groups periodically to see if investment practices are resulting in more equitable outcomes for the region or community?

Planners should also become advocates for improving how their regions or communities consider equity in making future transportation investments. Besides reframing project prioritization processes, planners should engage and empower local leaders within marginalized communities to help define the barriers to accessibility that their community members face and incorporate them as priorities for transportation planning and policy.

## Conclusion

People of color and other marginalized populations have suffered significant negative transportation and community outcomes based on unfair investment practices over the past decades. Equity entails increased investment benefiting historically marginalized populations, so that their transportation outcomes improve and approach the levels of the general population.

The development and implementation of transparent prioritization methods for future transportation projects that include strong equity performance measures will be critical for improving transportation outcomes. Communities and regions should track transportation results over time to ensure that investment policies result in measurable improvements for historically marginalized populations and make ongoing adjustments if that is not the case.

To see a meaningful improvement in transportation outcomes for marginalized groups, equity measures will need to be given more weight. Additionally, improved methods of engaging marginalized populations in defining and communicating their transportation needs are needed. Finally, improvements to other aspects of planning will play a role, such as development incentives to bring key destinations closer to residential locations of marginalized populations and construction of affordable housing near key economic centers.

Only by equitably distributing resources to increase transportation investments in communities with higher needs and providing them with more options will it be possible to remove existing inequities and undo the harmful effects of both historical and contemporary racism. We hope that the findings of our research and our recommendations are a useful starting point for planners to promote a wider range of choices for those who often have few.

## About the Authors

**Audrey Wennink** is the director of transportation at the Metropolitan Planning Council in Chicago. She leads MPC's transportation efforts and coordinates transportation initiatives with other facets of planning including affordable housing, land use, equity, and the environment. She leads transportation research and advocacy efforts including pursuing sustainable funding for transportation in Illinois, integrating performance-based planning methods into transportation practice, and developing efforts to boost transportation equity.

**Agustina Krapp** is a civil engineer completing her master's degree in urban planning at the University of Illinois at Urbana-Champaign, as a Fulbright and Argentine Ministry of Education Scholar. She is a native of Argentina, where she practiced roadway engineering prior to pursuing her master's degree in the United States.

The authors wish to thank the following individuals for their input and guidance on the research and this *Memo*:

- **Jesus Barajas**, Assistant Professor of Urban and Regional Planning, University of Illinois at Urbana-Champaign
- **Dan Cooper**, Director of Research, Metropolitan Planning Council
- **Jeremy Glover**, Associate, Metropolitan Planning Council
- **Kate Lowe**, Associate Professor and Director of Undergraduate Studies, Urban Planning and Policy, University of Illinois at Chicago
- **Olatunji Oboi Reed**, President and CEO, Equiticity

This research was partially funded by the Chicago Community Trust. The full results of our study can be found at [www.equiticity.org](http://www.equiticity.org) and [www.metroplanning.org](http://www.metroplanning.org) after April 2020.

## References and Resources

- Boisjoly, Geneviève, and Ahmed El-Geneidy. 2017. **Measuring Performance: Accessibility Metrics in Metropolitan Regions around the World**. Brookings Institution, Moving to Access. August.
- Bullard, Robert D. 2003. "Addressing Urban Transportation Equity in the United States." *Fordham Urban Law Journal* 31(5).
- Chetty, Raj, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. 2014. "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States." National Bureau of Economic Research Working Paper No. 19843.
- Chicago Urban League. 2016. "The Impact of Chicago's Racial Residential Segregation on Residence, Housing and Transportation." Part 1 in *100 Years and Counting: The Enduring Legacy of Racial Residential Segregation in Chicago in the Post-Civil Rights Era: CULTivate Series 1*.
- Creger, Hana, Joel Espino, and Alvaro S. Sanchez. 2018. **Mobility Equity Framework: How to Make Transportation Work for People**. The Greenlining Institute, March.
- Cytron, Naomi. 2010. "The Role of Transportation Planning and Policy in Shaping Communities." Federal Reserve Bank of San Francisco. *Community Investments* 22(2): 2–6, 44.
- Equiticity. 2019. "Racial Equity Statement of Principle." Draft Version, Revised August 13.
- Federal Highway Administration. 2014. "Mobility Challenges for Households in Poverty." *FHWA National Household Travel Survey Brief*.
- Federal Transit Administration. n.d. "Performance-Based Planning."
- Greenlining Institute. 2018. **Mobility Equity Framework: How to Make Transportation Work for People**.
- Gutman, Jeffrey, Adie Tomer, Joseph W. Kane, Nirav Patel, and Ranjitha Shivaram. 2017. **Delivering Inclusive Access**. Brookings Institution.
- Hanson, Susan, and Genevieve Giuliano. 2017. *The Geography of Urban Transportation*. The Guilford Press.
- Kaiser Family Foundation. 2018. "Poverty Rate by Race/Ethnicity." State Health Facts: Demographics and the Economy—People in Poverty.
- 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): 126–34.
- Leadership Conference Education Fund. 2011. **Where We Need to Go: A Civil Rights Roadmap for Transportation Equity**.
- Litman, Todd. 2019. **Evaluating Transportation Equity: Guidance For Incorporating Distributional Impacts in Transportation Planning**. Victoria Transportation Policy Institute.
- Lowe, Kate. 2014. "Bypassing Equity? Transit Investment and Regional Transportation Planning." *Journal of Planning Education and Research* 30(1): 30–44.
- Lucas, Karen, Karel Martens, Florida Di Ciommo, and Ariane Dupont-Kieffer. 2019. *Measuring Transport Equity*. Elsevier.
- Marcantonio, Richard A., Aaron Golub, Alex Karner, and Louise Nelson. 2017. "Confronting Inequality in Metropolitan Regions: Realizing the Promise of Civil Rights and Environmental Justice in Metropolitan Transportation Planning." *Fordham Urban Law Journal* 44:4.
- Martens, Karel, and Aaron Golub. 2018. "A Fair Distribution of Accessibility: Interpreting Civil Rights Regulations for Regional Transportation Plans." *Journal of Planning Education and Research*, September 18.
- Metropolitan Planning Council. 2017. **The Cost of Segregation**. November.
- . 2018. **Transit Means Business**.
- . 2019. **Toward Universal Mobility: Charting a Path to Improve Transportation Accessibility**. December.
- Metropolitan Transportation Commission. 2017. **Plan Bay Area 2040: Equity Analysis Report**. July.
- Oregon Metro. 2018. **Transportation Equity Evaluation**. Appendix E in *2018 Regional Transportation Plan*. December 6.
- Race Forward. 2009. **Racial Equity Impact Assessment Toolkit**.
- 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.

Sánchez, Thomas W., Rich Stolz, and Jacinta S. Ma. 2003. **Moving to Equity: Addressing Inequitable Effects of Transportation Policies on Minorities.** Cambridge, Mass.: The Civil Rights Project at Harvard University.

Transportation for America. 2016. **Planning For a Healthier Future: Incorporating Health, Equity and Environmental Performance Measures in Regional Transportation Plans.**

Twaddell, Hannah, Beth Zgoda, David Aimen, and Anne Morris. 2019. **Environmental Justice Analysis in Transportation Planning and Programming: State of the Practice.** U.S. Department of Transportation, Federal Highway Administration.

Untokening Collective. 2017. **"Untokening 1.0 – Principles of Mobility Justice."** November 11.

U.S. Department of Energy. 2019. **"Environmental Justice History."** Office of Legacy Management.

U.S. Department of Transportation, Bureau of Transportation Statistics. 2017. **"National Household Travel Survey, Daily Travel Quick Facts."**

U.S. Environmental Protection Agency. 2019. **"Environmental Justice."**

---

*PAS Memo is a bimonthly online publication of APA's Planning Advisory Service. Joel Albizo, FASAE, CAE, Chief Executive Officer; Petra Hurtado, PHD, Research Director; Ann F. Dillemath, AICP, PAS Editor. Learn more at [planning.org/pas](https://planning.org/pas).*

*©2020 American Planning Association. All Rights Reserved. No part of this publication may be reproduced or utilized in any form or by any means without permission in writing from APA. PAS Memo (ISSN 2169-1908) is published by the American Planning Association, which has offices at 205 N. Michigan Ave., Suite 1200, Chicago, IL 60601-5927, and 1030 15th St. NW, Suite 750 West, Washington, DC 20005-1503; [planning.org](https://planning.org).*