

In Search of Transportation Equity

Testimony to the Subcommittee on Transportation and Infrastructure of the Senate Committee on Environment and Public Works, hearing on “Equity in Transportation Infrastructure: Connecting Communities, Removing Barriers, and Repairing Networks across America.”

May 11, 2021

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I appreciate the opportunity to share my thoughts on this important topic with you.

Transportation has long had multiple goals and the list of goals has grown as more has been learned about transportation and its influences on the built and human environment. Currently, equity has risen to occupy a top spot in discussions of transportation. When we wear our social responsibility hats, we want transportation to be equitable both in the mobility it provides and in the incidence of the externalities it produces.

I know how to have perfect transportation equality.

Perfect transportation equality is a teleportation device attached to everyone's wrist that they can use for free and instant travel to any place, at any time, with zero travel time. Everyone would have one at no cost and it is attached so even the most absentminded among us would not misplace it. It could not be sold, lost, gambled, pawned, repossessed, or otherwise disappear.

No noise or emissions, no crashes, nor land consumed for parking or terminals or travel ways. No big factories or scrap yards, no properties or neighborhoods disrupted by its infrastructure. Garages can be used for lawnmowers, bicycles and work benches and driveways for basketball or hopscotch. No check-in lines, overpriced airport food or lost luggage. Persons who cannot physically, mentally, or legally operate a vehicle or tolerate the stress of vehicle travel can teleport. The ability to travel would not differ across persons regardless of sociodemographic characteristics, geographic location, financial resources, physical or mental capabilities or other traits. And neither the travel itself nor supportive facilities would impact other individuals. That offers perfect transportation equality.

But we do not have teleportation.

Every other mode introduces inequities. Each incurs various time costs, money costs, and impacts on the travelers and on the persons affected by the presence of the supportive facilities such as roads and the vehicles using them. They offer different degrees of comfort, safety, security, emissions, fuel consumption, noise, personal exertion, social interaction, and other traits. No real mode is ubiquitously available.



Both the transportation planning communities, decision-makers and the traveling and taxpaying public have regularly paid attention to elements of the equity issue. These concerns range from equity in access to modes and access to destinations via the modes, equity in the collection and distribution of transportation funds, and equity in the incidence of the consequences of the deployment of transportation facilities and services. Are heavy trucks paying their fair share of roadway costs? Are rural or urban areas getting their fair share of revenues? Are transit riders and pedestrians getting their fair share of investment? Are disadvantaged or local businesses getting a fair share of contracts? To what extent are the various externalities such as noise, pollution, and construction disruption fairly distributed or mitigated? Nobody just discovered transportation equity as a policy issue.

Academics have been obsessed with studying equity particularly for private company transportation network companies and shared mobility services such as e-scooters. Interestingly, access to publicly provided services such as airports, freeway entrances, and bus stations have gotten less attention. More recently, the disparate impact of COVID-19 on employment opportunities and travel choices of persons with economic or mobility disadvantages has increased sensitivity to the role that transportation plays in influencing economic and quality of life success.

The interest in equity raises a host of planning and analysis issues as well as a host of policy issues as the profession tackles defining and quantifying concepts such as equality and equity in the context of transportation. This is not easy. Researchers and policy analysts have spent years trying to define accessibility and mobility. Defining equity is far harder. For example, some think equity means that government should spend the same amount on transit as roadways while others think that equity occurs when funds raised through user fees are returned to the benefit of those from whom the funds were collected. Some people think it is prudent to incur debt to build assets such as roads and rail lines that will provide benefits for years to come while they believe that it is inequitable to future generations to burden them with debt for spending on operations of rail and transit services that only subsidize today's travelers.

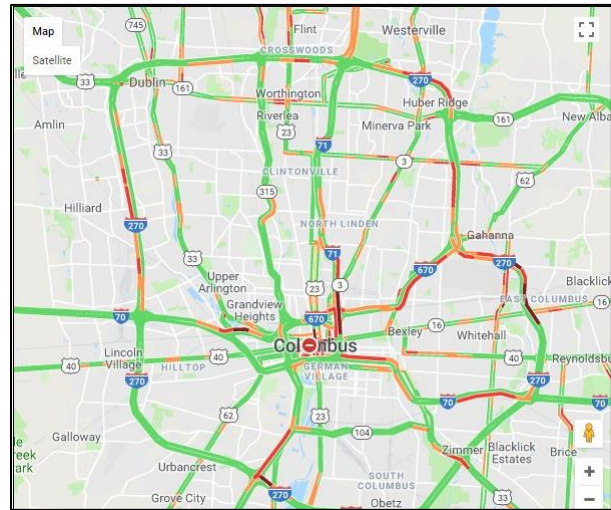
Beyond defining equity, one would expect policy makers to want to discern the relevance of improving transportation equity as a factor in mitigating broader societal inequities. One might want to understand the benefits of more equitable transportation as reaching greater transportation equity will incur a multitude of costs. Efforts to minimize transportation inequities, for example providing high service levels even in weak markets, might not be the most effective strategy to attain broader equity aspirations. While equity has an implicit connotation of being virtuous or perhaps to some, a moral obligation, as is the case with many things, transportation equity is not so easily accomplished and not without significant tradeoffs. In the absence of teleportation, transportation cannot be equitable to everyone across the multiple dimensions by which one might measure equity. What increases equity for one group often increases inequity from the perspective of other groups.

Geography and Equity

Real modes are dramatically influenced by geography and its influence on the network of transportation facilities. Geography influences access to travel options, accessibility via those options, and the incidence of the externalities of the modes (such as noise, emissions, and community disruption). By virtue of the time and cost elements of traversing geography, travel between different locations cannot all be equal. Decisions people make such as where to live and where to work, shop, worship, recreate, etc., fundamentally impact the time and cost and other attributes of accessing a travel means and using that means to reach a desired destination.

People living in small rural communities do not have access to international airports and are often tens of miles from the interstate system. People living in suburban and rural areas do not have bus routes with ten-minute frequencies. People living in mountain valleys do not have highly interconnected roadway systems. People in one small town or neighborhood have good transit service by virtue of being on a route between major destinations. People in an otherwise identical community are not so fortunate as they do not lie on the path between major destinations. It is not equitable. Geography and topography influence accessibility.

Within urban areas the roadway system is typically some derivative of a hub and spoke system. As one approaches the hub, typically the downtown, the network gets denser, and the facilities tend to get larger to accommodate the higher travel levels historically associated with proximity to the central business district. When the interstate system was conceived, it was the urban areas that advocated for links penetrating to the urban core so that they could gain the benefits of being connected to the interstate system. Most urban core residents are within a mile or two of an entrance to the interstate system – a level of accessibility that many small non-metropolitan communities would pine for. By being closer to the center of activity these locations are within easy access of a far larger share of destinations than are suburban or exurban areas.



Hub and Spoke roadway System Typical of American Cities

But as their geography has given them great access to the interstate or highway system it has also subjected them to the externalities of transportation infrastructure. The noise, emissions, and disruption, including occasional disruptions to the local roadway system, are influenced by the geography of location.

All externalities of transportation cannot be mitigated and there is no way to distribute the externalities equally across all people. Thus, just as access to various modes is impacted by geography so is the incidence of some of the externalities. This has implications for planning and decision making going forward and requires tradeoffs.

Thoughts on Addressing Transportation Inequity

1. Over the past decades the planning and engineering communities in conjunction with decision makers have shown greater sensitivity to mitigation of the externalities of transportation infrastructure. Inclusive planning and community engagement practices, careful alignment decisions and community sensitive designs, sound walls, innovative designs to minimize facility footprints, judicious use of elevated, depressed and underground roadway sections, creative reuse of surplus parcels of roadway rights-of-way, use of landscaping, and other tactics have helped. The anticipated evolution to electric vehicles will help in mitigating emissions and noise impacts. These trends are well underway and being accommodated in existing planning processes and programs.

2. Roadways are interconnected and function as networks and are part of a transportation system. The value of a roadway segment is associated with its role in the system. The Interstate system was explicitly created with the intention of furthering interstate commerce and travel. It supports everything from military preparedness, economic competitiveness, emergency evacuations, commuting, and occasionally short urban trips as well. The beneficiaries of the Interstate system and, hence, appropriate stakeholders in decisions that impact it, include not just the communities impacted by its presence but the broader public that depends on it. What is best for an individual community might not be what is best for the broader community, the region, the state, or the nation. Tradeoffs are required and all the stakeholders should be part of the decision-making process.
3. Urban communities were not the only communities impacted by major transportation facilities. Many rural towns and communities that were bypassed by the interstate were dramatically impacted as travelers shifted their lodging, retail and restaurant business to interstate interchanges or metro areas. The retail and service options for these community and the jobs associated with them could no longer survive. Can or should this community disruption be mitigated, and if so, how?
4. Facility alignment decisions have historically been driven by the need to connect major travel origins and destinations subject to the geography, topography, and cost considerations. In some instances, alignment decisions were envisioned as an opportunity for redevelopment. The impacted communities often had different demographic characteristics than those that occupy that same geography today. Cautions should be exercised in implying the motives and intentions or sensitivities of those that made prior plans and decisions.
5. Historically economists' expectations of infrastructure investments producing economic returns were premised on their ability to enhance economic activity, expand the workforce and customer base accessible to businesses, enable the efficient transportation of inputs to and outputs of manufacturing, and provide safe and convenient transportation of personal and commercial vehicles. The magnitude of these benefit multipliers are undermined if higher costs to mitigate impacts detract from the resources available to make systems work more efficiently and more safely. While mitigating impacts is meritorious, there are tradeoffs and opportunity costs associated with undisciplined pursuit of mitigating impacts inherent in transportation infrastructure.
6. To the extent that efforts to mitigate the impacts of roadways on communities results in those roadways being removed or their capacity diminished, it is likely to result in that diverted traffic having impacts on other geographies. To the extent that traffic shifts to more circuitous routes or arterial or local roadway facilities it risks causing greater congestion, greater safety risks, and increased direct exposure to emissions and noise. Additional investments may be required to accommodate traffic shifted to other facilities and/or mitigate its impacts. It may not be perceived as equitable to the new communities burdened by greater traffic.
7. Cautions should be used in presuming how social and commercial interactions in communities might change because of changes in local circulation opportunities. More social and economic interactions are now based on digital and virtual relationships. The scale of viable retail establishments and service establishments is now larger and of a less neighborhood centric

scale. Improving local circulation is meritorious but unlikely to restore communities to the nostalgic visions of their characteristics in the 1960s.

8. Cautions should be used in understanding stakeholder interests in transportation decisions. It is common for the benefits of better transportation to be widely spread over time and space (a new facility saves tens of thousands of travelers and businesses several minutes of travel time and provides safer travel every day for years) while the negative externalities are concentrated in time (construction disruption) and in space (noise, emissions, community circulation, etc.) resulting in different levels of motivation for stakeholders to participate in decision making. It is important for decision makers to reflect the totality of impacts and not be overly influenced by the loudest voices at the podium.
9. Impacts on communities associated with transportation facilities extends well beyond urban communities. Rural areas suffer when bridges are posted with weight limits or closed or when rail grade crossings are closed or blocked. Other communities suffer when inadequate investment leaves roadway conditions impacting traffic safety and commerce. Increased rail traffic, especially higher speed passenger trains disrupt communities with noise, road closings and crossing safety risks. A comprehensive planning and evaluation approach is best at assessing the various impacts and associated inequities and evaluating the merits of mitigation.

Addressing transportation impacts and equity are widely ingrained in transportation planning and decision-making processes. The sensitivity to equity across the broader society has only heightened that attention. Defining, measuring, and integrating measures of equity into decision making will be challenging as the topic is extremely complex and multifaceted. Tradeoffs and opportunity costs need to be considered. Local, regional, and state forums are addressing these challenges and federal support in areas such as provision of data and documentation and education on best practices is helpful. It is critical that the decision-making forums embrace the full spectrum of stakeholders and that the foundational purposes of the interstate system - interstate commerce, be understood and constituents for such be party to decision-making that involves these facilities.

In my opinion, we are well served to let the research, planning and decision-making forums for transportation planning and programming integrate this greater sensitivity to equity into their decision frameworks.