

Investing in Cycling Infrastructure Can Promote Social Justice while Tackling Climate Change

July 16, 2019

Public Administration Review - special symposium on the Green New Deal

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In 1973, *Scientific American* published an [article](#) by S. S. Wilson demonstrating that a human riding a bicycle “ranks first in efficiency among traveling animals and machines” in the energy required to move weight along a given distance. Cycling is more energy efficient than the mode of transportation employed by hummingbirds and helicopters, salmon and jet fighters – and produces zero carbon emissions.

A quarter century later, the humble bicycle – along with other forms of “active transportation” such as walking and skateboarding – holds significant promise for reducing greenhouse gas emissions while promoting public health. As Congress considers [bold action](#) to address climate change, investments in local cycling infrastructure – such as protected bike lanes, safety improvements to streets and intersections, and bike parking facilities at hubs of transit and commerce – will also help underserved communities who lack access to personal automobiles and depend on alternative modes of transport. These same communities are often underrepresented in local decision-making processes regarding transportation, land use planning, and infrastructure. To promote the transition to low-carbon forms of transportation, federal funding should be paired with requirements for meaningful citizen participation in local planning processes.

Reducing Carbon Emissions

While the United States has made significant strides in reducing emissions from buildings and power-generating plants, the transportation sector has [grown worse](#), largely due to a proliferation of light trucks (SUVs, pickups, and vans) and other passenger vehicles. By 2017, the transportation sector was the leading source of emissions, accounting for 29 percent of US greenhouse gases, most of which (57 percent) are from passenger vehicles.

Over a third of US passenger [vehicle trips](#) are less than 3 miles – about 20 minutes at a leisurely rate of cycling – suggesting there is significant potential for increasing cycling’s share of transportation. To realize this potential, however, will require infrastructure improvements to ensure the safety of cyclists. Perceived safety risks are a well-documented barrier to the adoption of bicycling in the United States. The United States ranks among the world’s lowest [rates of cycling](#) (1% of trips) and highest [rates of accidents](#). In 2015, [818 cyclists](#) were killed, and an estimated 45,000 cyclists were injured, by automobiles.

Infrastructure improvements have been shown to [increase safety](#), to enhance the perception of safety, and to increase ridership. In an [analysis](#) of 90 US cities, Buehler and Pucher found that bike paths are associated with significant increases in cycling. An [estimated](#) 3,500 lives were saved in Florida from 1975 to 2013 as a result of a statewide [Complete Streets law](#) that specifies “bicycle and pedestrian ways shall be established in conjunction with the construction, reconstruction, or other change of any state transportation facility.” Cities with the highest rates of cycling and walking have the [lowest percentage](#) of car-related accidents per trip. This “safety in numbers” pattern shows up consistently both in the US and abroad.

Building on the efforts of early pioneers like Davis, California and Portland, Oregon, [dozens of American cities](#) have made major investments with associated improvements in cycling rates. The potential for rapid increases in ridership is demonstrated by cities like Washington DC, where ridership as a percent of commuter trips (currently 5%) increased 326% from 2000 to 2017. Ridership more than doubled during this period in Minneapolis, New Orleans, and Philadelphia.

These urban transformations have been catalyzed by state and federal funding. The change in Portland, where cycling increased almost sevenfold between 1991 and 2012, was made possible by [Oregon state law](#) 366.514, which specifies that at least one percent of highway dollars must be devoted to facilities for bikes and pedestrians.

These changes also require comprehensive urban planning. The key to creating a bicycle-friendly city is to establish a well-connected system rather than a disparate patchwork of projects. When parents are deciding whether to allow their children to [bike to school](#), they need to know that the risk of death or injury from cars is minimized along the entire route – not merely along a few intermittent blocks with state-of-the art bike lanes.

Increasing Transportation Equity

Beyond the benefits for the global climate, investment in active transportation infrastructure benefits social groups whose mobility needs are inadequately served by car-dominated transportation systems. This includes people who cannot afford a car; those whose age or ability prevents them from driving, most notably children and the elderly; and communities that lack opportunities for physical recreation.

Low-income communities and Latinos and African Americans are disproportionately affected by obesity and other health problems stemming from inadequate physical activity. Part of the explanation can be found in the built environment. The absence of recreation facilities in many neighborhoods is a [significant contributor](#) to disparities in health between white and non-white communities and across education levels. Moreover, low-income groups [depend more on cycling](#) for meeting basic mobility needs; 39% of bicycle commuters are from the lowest income quartile. African-Americans and Latinos also experience a disproportionately high percentage of [bicycle fatalities](#).

Many of these constituencies are underrepresented in local planning processes, giving rise to the term “invisible cyclists.” This [democratic deficit](#) is significant because even in states with substantial funding opportunities and supportive policies, there is wide variation in the level of commitment to active transportation from one city to the next, and citizen participation and advocacy are a major determinant of local outcomes.

In their sweeping [study of urban democracy](#), Jeffrey Berry and colleagues discovered that cities with the most extensive citizen involvement in local planning processes were often inspired by President Johnson’s requirement that local governments receiving federal block grants enhance opportunities for participation. This is a model that lawmakers should consider when tackling climate change. For practitioners and scholars of public administration, the challenge presented by global warming is not merely the need for quick action – we need institutional arrangements that last. Investing in active transportation while strengthening local democracy may offer the robust response required by an issue affecting so many over such long-time horizons.

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