

## PERSPECTIVES FROM THE FIELD

### Complete Streets and Sustainability

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When it comes to transportation and sustainability, the conversation almost inevitably veers toward low-emission or zero-emission vehicles—and surmounting the technological challenge of creating cars that will run on something other than fossil fuels and the batteries to store the power. While this is a worthy goal, the technology is not there yet. Replacing our cars won't be enough: we need to replace our roads.

This means we need to replace the practice of building high-speed urban arterials that feature six, seven, eight lanes of vehicle traffic—without so much as a 4-foot sidewalk. These roads generally lack any infrastructure that would encourage a more sustainable trip, such as bike lanes, comfortable bus stops, or safe pedestrian crossings. In fact, these roads make such trips downright dangerous: 56% of pedestrian fatalities take place on such roads (Ernst and Shoup, 2009).

These roads are commonplace across the United States (US) and represent a serious impediment to shifting trips to more sustainable forms of transportation. A national survey found that bike lanes were available for less than 5% of bicycle trips, and more than one quarter of pedestrian trips were taking place on roads with neither sidewalks nor shoulders (Bureau of Transportation Statistics, 2008). Other surveys have found that a lack of sidewalks and safe places to bike are a primary reason people give when asked why they don't walk or bicycle more. For example, almost 40% of Americans over the age of 50 say

their neighborhoods lack adequate sidewalks, 55% report inadequate bike lanes or paths, and 48% have no comfortable place to wait for the bus. More than half (54%) of these residents of inhospitable neighborhoods said they would walk, bicycle, and take transit more if those problems were addressed (Lynott et al., 2009).

But fixing those problems is about more than coming up with extra money to go back and install a traffic light or pour a sidewalk. This project-by-project approach has been tried by communities that want a different outcome, and experience shows it requires sustained advocacy. Even if the money is found, a battle often ensues with transportation agencies. While the latest editions of the most-referenced “official” guide to street design, published by the American Association of State Highway and Transportation Officials (AASHTO), now encourages including nonmotorized travelers in street design (AASHTO, 2004), many transportation agencies still maintain standards that prioritize high-volume, high-speed automobile travel. They still require onerous variance procedures for anything considered out of the ordinary.

What is needed is a new standard for what is ordinary. Street design should routinely take into account the needs of everyone who will be using the transportation corridor, whether they are driving, walking, bicycling, or catching the bus. Attention should also be paid to the needs of older adults, children, and people with disabilities. The expression of this new standard is a Complete Streets policy. In the last few years, states, counties, and cities across the US have been adopting Complete Streets policies in order to redirect their transportation investments toward creating streets that are safe and inviting everyone. To date, more than 204 jurisdictions have adopted Complete Streets policies, including new state laws in Minnesota, Hawaii, Connecticut, Illinois, and California (National Complete Streets Coalition, 2005–10). These

policies direct transportation planners and engineers to come up with a new way of doing business.

Some places have been explicit in adopting Complete Streets policies in order to shift more trips to nonmotorized or lower-emission modes as part of a goal to reduce greenhouse gas emissions, including the California Complete Streets Act (Assembly Bill 1358, 2008) and New York City's Sustainable Streets Plan (New York City Department of Transportation, 2008). Many more policies make general references to environmental benefits. But just as often, Complete Streets policies are being adopted because of pressure from public health advocates who want people to have more places to be physically active, or by those who want a safer environment for nonmotorized travelers or low-income people who don't have the choice to drive. And insiders are involved, as well—progressive transportation professionals have been on the forefront, spurred by a desire to upend traditions that date back to the building of the interstate system.

Some communities are combining Complete Streets Initiatives with “Green Streets” plans that aim to reduce storm-water runoff and lessen the impact of pavement on the natural environment (National Complete Streets Coalition, 2010). Landscaping elements that help curb storm-water runoff—bioswales, planters, rain gardens, and street trees—are mutually beneficial for mobility and ecology, and work well with elements that serve people on foot and bicycle.

But the greatest environmental benefits of Complete Streets is in tapping the potential for shifting automobile trips to more sustainable modes. The 2009 US National Household Transportation Survey found that 41% of all trips are 3 miles or less. These distances are easily traversed by foot or bicycle or shuttle bus, yet 67% of them are now made by private automobile (Lit-

man, 2010). Walking and bicycling for the shortest trips (less than 1 mile), rather than taking a car, could reduce carbon dioxide emissions—a major greenhouse gas—by 12–22 million tons per year in the US (Gotschi and Mills, 2008). Replace the car with walking and biking for longer trips (1–3 miles), and the carbon dioxide savings are calculated to come in at 9–23 million tons annually. Add in the benefits of access to public transportation ridership and the environmental benefits of Complete Streets are significant (Bailey, Mokhtarian, and Little, 2008).

Under a broader definition of the term *sustainability*, a Complete Streets approach is essential to creating new road infrastructure. As mentioned earlier, a project-by-project attempt to change road infrastructure runs into institutional barriers and inertia. And an immediate retrofit of all of the “incomplete” streets in the US is certainly a daunting task. Complete Streets policies address these issues through an incremental and opportunistic approach. They direct that all future transportation projects take into account the needs of all users. A Complete Streets policy institutionalizes what had been special projects, sparking changes inside agencies to transportation planning procedures, design manuals, training opportunities, and performance measures. That means that during regular roadwork, such as rehabilitation of an older corridor, planners and engineers look for every opportunity to improve the travel environment.

In Colorado Springs, Colorado, this has meant installing road diets when it comes time for repaving. A *road diet* typically narrows an undivided four-lane road into a three automobile lanes—one is a center turn lane—leaving room for bicycle lanes and pedestrian refuge islands. With 7%–10% of its road network coming up for repaving every year, Colorado Springs can

move toward Complete Streets in a way that can be sustained without special funding or extraordinary effort (McCann and Rynne, 2010).

Right now the Chevy Volt and the Nissan Leaf may be the sustainable transportation innovations that are getting the most attention. But roads are changing, too, and the innovations brought about by Complete Streets may in the end prove to deliver the bigger sustainability bonanza.

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