

REBUILDING AMERICA'S INFRASTRUCTURE

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The road not taken

American transportation infrastructure in the 21st century

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This transportation corridor design accommodates users of all ages and abilities, including a roadway, two-way bike lane, and sidewalk.

Transportation engineers and public officials likely have heard of several grassroots initiatives focusing on how our roadway corridors should be designed. “Walkable” and “pedestrian-friendly” are the two most common descriptors of these initiatives.

As states and municipalities attempt to reinvent themselves, economic development and planning directors have made a direct correlation between their efforts and the physical appearance of the community's roadway corridors. This correlation taps into the New Urbanism movement of the early 1990s, and is advanced by urban advocates such as Richard Florida in his books about the so-called "creative class."

As the popularity of this theory grows, the fundamental purpose of our roadway corridors is being questioned. Transportation planning in the last century focused on improving mobility and increasing roadway capacity to match vehicular demands. In most cases, providing access for pedestrians and bicyclists was a secondary concern.

However, with more than 20 states and 200 jurisdictions in the United States adopting Complete Streets policies — or with written commitments to do so — the future of America's transportation infrastructure is poised to be radically different from its past. Similar to the turn of the 20th century, the new millennium is a time for America's engineers to adapt to changing circumstances and pave the way for another economic boom. The question is, then, which road will we choose?

A road by any other name

With several different movements, terminology can be confusing. Here's a quick primer:

- **Complete Streets** refers to those that are designed and operated for all users, regardless of age and ability. Roadways, therefore, should accommodate vehicles, transit, bicyclists, and pedestrians.
- **Universal accessibility** encompasses the idea that good design must take into account the age and ability of all users from the beginning, even if it means exceeding minimum standards to allow for a better use of space.
- **Green Streets** encourages sustainability in the design and construction of roadways by using the latest best management practices, such as rain gardens for improving stormwater quality.
- **Living Streets** goes beyond simply adding sidewalks to include active use of the corridor, such as outdoor dining and sales, and neighborhood festivals.

How do we, as planners and designers, choose the movement to follow? Indeed, the future American roadway incorporates all of these goals, and results in the following definition of a **Supreme Street**: "Roadways are designed and operated to promote safe use and access for vehicles, transit, bicyclists, and pedestrians of all ages and physical abilities through the application of universal design practices. These designs account for alternate uses of the corridor, realizing that roadways are a significant portion of public space and therefore have a large impact on local culture and overall quality of life. Furthermore, roads are designed to minimize the negative impacts to the environment by striving to improve air and water quality at all times."

I shall be telling this with a sigh somewhere ages and ages hence: two roads diverged in a wood, and I — I took the one less traveled by, and that has made all the difference

—*Robert Frost*

Note that this is framed solely for use in discussing surface roadways and is not intended for application on interstate expressways. Mobility is still a valuable goal for certain travel needs, and limited-access interstates are a vital part of the transportation toolbox.

Consider what happens if Supreme Streets are incorporated into the transportation infrastructure for the 21st century. Perhaps the most profound repercussions will involve our collective thinking as it relates to transportation infrastructure. This paradigm has long favored mobility and the ensuing expansion of roadways to accommodate increasing vehicular demands at the expense of others.

Repercussion 1 — The vehicular capacity of some roadways may be reduced. Particularly in older communities, on-street bike lanes or wider sidewalks likely will be achieved through the elimination of traffic lanes. Implementing road diets will require that transportation engineers proactively influence how traffic patterns will change.

Repercussion 2 — Some vehicles likely will slow down, possibly resulting in a wider speed variance. This will require transportation engineers to rethink their approach to traffic controls, the setting of speed limits, and signal timing to influence vehicle speed rather than react to it.



Accommodating users of all ages and abilities may require unique solutions for each roadway, such as a one-way bike lane on each side of the roadway.

Transportation engineers must not be biased by old paradigms into thinking that a reduction in roadway capacity or a decrease in vehicle speeds always is a negative thing. Dedicated bike lanes will remove bicycle traffic from sidewalks and significantly improve both pedestrian and

cyclist safety. Depending on adjacent land use and community wishes, these trends also may be beneficial to local businesses by increasing access to the area.



On-street bike lanes in an urban area allow for parking while protecting bicyclists from traffic.

Planning paradigms

So why worry about any of this? Many people feel roads are designed simply to carry vehicles. They may suggest that the cost to implement these philosophies simply outweighs the potential gains. This likely is true when measuring ROI with the same yardstick we have been using for the last 60 years. But why use a slide rule when a calculator is on your desk?

For the last half century, transportation planners rarely interacted with land planners or economic development directors in any meaningful way. In fact, most transportation master plans used the community's future land use plan to guide modeling to determine how much wider roads would need to be. In general, the expectation going into the study was that we would expand our roads to meet projected vehicle demands with little thought to other users.

To be fair, land planners did not actively solicit input from transportation planners, either. A comprehensive land use master plan often included brief descriptions of proposed transportation issues, but never to a significant level of detail.

This approach simply is not good enough anymore. A community's goals related to economic development, land use, and transportation must be aligned. Consider how the construction of several five-story mixed-use buildings will impact traffic demands on a two-lane road, or how the expansion of that two-lane road to five lanes will impact the viability of constructing a single-family residential development. Only with a proper balance can communities fully leverage their transportation dollars to boost the local economy and improve overall quality of life.

So where do we go from here? Which road will we choose for the future of America's transportation infrastructure? Is it a roadway that accommodates multiple users or just one?

Transportation engineers and officials can say "no" to the idea of Supreme Streets by clinging to the models of the 20th century. However, much of the public we are intended to serve will be ignored, and a major opportunity will be missed.

This is a singular occasion to dismantle outdated paradigms and demonstrate how proper engineering can protect public safety and spur economic development while improving overall quality of life. It is what engineers are supposed to do, and it is the promise of Supreme Streets.

We need to choose between the way we've gone before and the road less traveled. I chose the latter, and hope you do too. It may just make all the difference.

More Complete Streets information

- To see all of the U.S. jurisdictions that have formally committed to the Complete Streets

approach, check out the National Complete Streets Coalition's interactive atlas at.

- Re:Streets — Streets Reconsidered — is a multi-disciplinary collaboration focused on the planning, design, and construction of streets as a method for improving our built environment. The non-profit effort seeks to develop a wide range of solutions by gathering cutting-edge research on street design, combined with a design charrette featuring experts and innovators in professions related to the design of streets. According to the group, the most effective solutions, which also will reflect the Complete Streets laws that are being adopted throughout the United States, will be published in a manual and online as an eBook. A Re:Streets working conference and design charrette is planned for July 21-23, 2011, at the University of California, Berkeley, in Berkeley, Calif. More information is available at www.restreets.org

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