



## The Future of America's Transportation Infrastructure

**Thomas Fisher**, University of Minnesota

At the height of rush hour on Thursday, August 1, 2007, the bridge crossing the Mississippi on Interstate 35 West in the heart of Minneapolis suddenly collapsed, tossing cars and trucks into the river. Thirteen people died; 145 were injured; and traffic in the city where I work was disrupted for many months to come.

"Transportation infrastructure" is the term experts use for the extensive network of roads, ports, bridges, tunnels, and overpasses that span the American continent and shape movement in and between every town and city. Like the term, the topic itself seems boring – until something like the Minneapolis collapse grabs the nation's attention. Failures of key structures are gaining in frequency, giving new urgency to the authoritative "Report Card for America's Infrastructure" periodically released by the American Society of Civil Engineers. The last release, in 2009, underlined the degree of decay by assigning a grade of "C" to the state of repair of U.S. bridges, and an even more worrisome grade of "D-minus" to the soundness of our roads.

The Society of Engineers set forth broad recommendations for how regular infrastructure repairs and investments should be planned by federal, state, and local governments over the long run – looking for a comprehensive "national vision" to keep America from falling behind in the future. Specific – and highly sensible – recommendations included a call to wrap the ongoing costs of repair and renewal into initial cost estimates for transportation projects; suggestions for creative financing from both private and public sources; and proposals to jointly plan land use and transportation systems.

A short-term recommendation was the most eye-catching. The Society of Engineers called for an estimated \$2.2 TRILLION to be spent over five years to repair the nation's deteriorating infrastructure. That equaled about 15% of the entire U.S. Gross Domestic Product in 2009.

### What We Can and Can't Afford

The \$2.2 trillion bill for upgrading and repairing America's transportation infrastructure may sound excessive, beyond the realm of possibility. But although the amount is large, it pales in comparison to the cost of fixing infrastructure as a percentage of gross domestic product in many other nations. And the United States actually cannot afford *not* to proceed with repairs and renovation. According to the Obama administration, aging infrastructure hurts the economy, costing businesses and families an estimated \$130 billion annually. Repairing our crumbling and outmoded systems of transportation would actually "save money in the long run," as the President explained. The 2009 American Recovery and Reinvestment Act included down payments on the necessary investments, and President Obama has since repeatedly called for further appropriations.

But we also need to challenge the assumptions that went into the Civil Engineers' call for expensive repairs. Do we really need to patch up or replace all that our vast country has already put in place? All too often, transportation models extrapolate from historic trends to predict future needs. In the early twenty-first century, with innovative technologies, global economic shifts, and new social patterns rapidly unfolding, the United States cannot afford just to rebuild and extend past systems. We certainly need to fix vital bridges and roads, but as we plan for the future, we should also dramatically alter where we spend many of our scarce transportation dollars.

### New Principles to Guide Infrastructure Decisions

Wise planning means shifting resources from maintaining outmoded facilities to jumpstarting investments in new ways of moving people, vehicles, goods, and information. Predicting where we can save money and shift investments demands that we take a much more holistic approach to transportation planning, connecting it to what we know about how Americans will live, work, and travel in a new century very different from the last one. The following principles suggest ways the United States might reallocate resources:

- **Remove Many Rural Roads:** Rural roads were built in an era of small farms, but with the consolidation of the agricultural economy local governments struggle to maintain roads that see little traffic. It might make sense to convert the rights-of-way to more productive uses, such as the production of bio-fuels, the cleansing of storm water runoff, and the creation of habitat corridors. This could save taxpayers money and generate new revenues.
- **Move Bits More Than Bodies:** Small business analysts see the ranks of “contingent” workers – the self-employed, free-lancers, and “accidental entrepreneurs” laid off from fulltime positions – growing to 40-45% of the workforce by 2020, perhaps even a majority by 2030. This suggests that planners should no longer presume everyone will drive or ride at rush hours into and out of busy downtowns. More people may do work from home, at offsetting hours. To move bits rather than workers, we may need to shift investments from highways to high-bandwidth digital connections.
- **Seek Healthier Modes of Transportation:** Seeing the world from overly specialized points of view, we often miss important connections – such as the vital links between transportation and human health. Motor vehicle crashes are the leading cause of deaths of Americans from ages 5 to 34, a fact that raises poignant questions about public policies that encourage too much reliance on automobiles. Auto-dependency can also encourage a sedentary lifestyle that furthers obesity and related illnesses such as diabetes, which costs the U.S. healthcare systems \$147 billion annually. Getting people out of their cars, more frequently moving by foot or on bicycles, may be one of the most cost-effective approaches to transportation we could make in many communities.

The United States has the most extended and expensive transportation infrastructure, per capita, among developed countries. In some respects, this creates a competitive disadvantage. We can no longer afford to waste resources on our transportation infrastructure, and the decay of old systems provides an opportunity to plan anew. If we don't take this opportunity to make cost-effective innovations, pressures from global competition may eventually force the issue.

**This brief draws on research being conducted at the University of Minnesota's College of Design and its Center for Transportation Studies.**