

LANDWR I

U.S. Infrastructure Spending: How Much Is Enough?

SARAH JO PETERSON

Although the private sector does invest in infrastructure, much, if not most, of the billions in spending comes from taxpayers. How much is enough? The guidance of engineers, economists, and environmental innovators shows that the answer depends on what people want out of infrastructure.

THE DOLLAR AMOUNTS can be staggering: \$6.4 billion to rebuild the 50-year-old Tappan Zee Bridge over the Hudson River in New York, \$4 billion to replace a crumbling elevated freeway in Seattle with a tunnel—and these are just examples of replacing the old. Putting rail across that new Tappan Zee Bridge, for example, will add \$6.7 billion to the cost. Building a pipeline to bring water to thirsty Las Vegas runs \$3 billion. A high-speed train that can whisk travelers from San Francisco to Los Angeles in less than three hours comes to roughly \$45 billion.

Americans already spend significant amounts of money on infrastructure. In 2004, federal, state, and local governments in the United States spent \$312 billion on just water and transportation infrastructure, according to the Congressional Budget Office. That is more than \$1,000 for every American man, woman, and child. It is also 2.4 percent of gross domestic product (GDP), a percentage that has remained relatively constant since the mid-1980s. Yet, many maintain it has not been enough. The American Society of Civil Engineers (ASCE), whose definition of infrastructure also includes energy, waste, parks, and schools, estimates that in the United States it would take \$2.2 trillion over five years to meet current needs; \$1.1 trillion of that would be new spending.

While the private sector does invest in infrastructure, many, if not most, of these billions will come from taxpayers. How much is enough? The guidance of engineers, economists, and environmental innovators shows that the answer depends on what people want out of infrastructure.

What do the engineers want? The answer can be summed up in a letter grade: B. ASCE produces a report card for America's infrastructure. In this year's report, American infrastructure received an overall grade of D. The highest grade—a C-plus—went to solid waste. Sitting at the bottom of the class were drinking water, inland waterways, levees, roads, and wastewater, each earning a D-minus. ASCE has developed specific measures that describe the state of America's infrastructure; the report card grades are anchored to real numbers that track infrastructure quality.

Bridges, for instance, earned a C. Andrew Herrmann, chair of the ASCE 2009 report card, explains that 26 percent of America's bridges are either deficient or obsolete. Flipping that number around, 74 percent meet standards—that is, a C on a typical school grade scale. (In the ASCE's grade scale, a C is "mediocre," not average.) To get a B—defined as "good"—would require maintaining and improving bridges so that only 10 to 15 percent are deficient or obsolete. This example, while simplified, captures the gist of ASCE's method. In addition to condition and capacity, ASCE also includes factors such as funding gaps, future needs, and safety.

Lifting roads from their current D-minus would mean addressing potholes and congestion. Today, 45 percent of major urban highways



On a typical school grade scale, bridges received a C in this year's report card for America's infrastructure, produced by the American Society of Civil Engineers (ASCE). In the ASCE's grade scale, a C is "mediocre," not average.

TES

are periodically clogged. If, in five years, 80 percent had free-flowing traffic, the grade for roads would be well on its way to a B. Herrmann emphasizes that there are many ways to reduce congestion. "It's not all about building new lanes," he says. "Improving mass transit, working from home, and encouraging flexible travel schedules can all boost the roads' grade."

Following the engineers' advice, and spending—wisely—\$2.2 trillion over five years, the United States would rise from a nation bogged down by poor and mediocre infrastructure to one that possesses good, though not exceptional, infrastructure, the ASCE asserts.

Where civil engineers provide specificity, economists provide argument—mostly with each other. Ideally, they could get together and come up with a simple rule—such as "the optimum level of annual government spending on infrastructure is x percent of GDP"—but that is highly unlikely. Within the arguments, however, economists hint that too much could be spent, while warning of the consequences of spending too little.

Economists generally agree that growing economies create increased demands for infrastructure. It is the reverse—when does investment in infrastructure expand economies, and by how much?—where the disagreements begin to get heated. Economists are especially worried about government spending on infrastructure. Even though the government-funded projects produce benefits, the spending may crowd out private investment that could produce higher returns.

Economists do agree that some level of government investment in infrastructure is vital to healthy economies. They endorse spending on infrastructure to the extent that it reduces the cost of other activities in the private sector: for example, a clean, reliable source of water provides certainty to land development proj-



ects, and reducing the in-transit time for freight shipments drops the cost of delivering perishable products. This is different from government spending on infrastructure to stimulate an economy in recession, in which the government temporarily picks up the slack from flagging consumer demand.

Economists are also quick to point out that not all infrastructure projects are created equal. Some produce more benefits than others, and some are just bridges to nowhere. Here, economists emphasize the need for tools—typically, types of comparative cost/benefit analysis—that can distinguish between the winners and the duds. Such tools range from quick and crude to sophisticated and time consuming, and—good or bad—they only work if they actually inform decisions.

Emphasizing the importance of project-level analysis is all well and good, but it does not help answer the original question about spending levels. Government infrastructure budgets are typically made in the aggregate. Should spending be \$40 billion or \$50 billion for roads? What happens if spending on sewer treatment is reduced by \$20 billion?

Roads earned a D-minus under the ASCE grade scale. Lifting roads from that grade would mean addressing potholes and congestion; congestion would be helped by improving mass transit, having people work from home, and pushing for flexible travel schedules—not by adding extra lanes, noted ASCE.

The economists' attempt at an answer hinges on understanding that timing affects the gains from infrastructure investment.

Much has been written about the significant amounts that emerging economies, such as China and India, are spending on infrastructure. Such trends are, in part, evidence that fast-growing economies create fast-growing demands on and for infrastructure. But the more important observation is that their infrastructure is also emerging. Economists have discovered that infrastructure in its early stages produces bigger gains for the economy.

This happened when the United States built the interstate highway system. The level of government investment that built the system in the 1950s and 1960s led to productivity gains in the economy. Government spending on interstates after 1973, after the original

network was completed, does not show such robust results.

Investment in infrastructure, especially on a mature network, is subject to the law of diminishing returns. At a certain point, additional spending produces less and less economic gain. In an economy with an established infrastructure, even one suffering from the indignities of aging, the gains from additional spending can be difficult for economists to detect. The benefits are also unlikely to wow the average person on the street, especially when trapped in construction-stalled traffic.

So, economists want the country to spend enough on infrastructure to keep the economy healthy, but not so much that the country is distracted from more productive investments. When asked how much that is, economists argue with each other, then mutter something about analyzing projects.

The concept of *emerging* can also help in the understanding of why the third group—the environmental innovators—currently generates so much excitement. This group worries about climate change, oil dependence, and water shortages, but they are no Cassandras. They promote green infrastructure solutions: windmills, high-speed trains, electric cars, green roofs, etc.—the list of innovations continually grows. The excitement bubbles because somewhere in all these innovations there is a sense that something new is emerging—and this something could produce the same gains for tomorrow that the advent of electricity or the interstate highways gave to the past.

This excitement also comes with a good case of the jitters. No longer is infrastructure spending just about fixing the old or making incremental changes to established technologies. It means attaching these billions of dollars to real risks to make bets on the future.

The engineers persuade everyone that the problem is real. The economists say to go ahead and invest, but carefully and deliberately. The environmental innovators try to sell ideas, promising future prosperity. The last word on how much is spent on infrastructure, however, belongs to political processes—politicians and bureaucrats, held accountable by voters.

What do people want? **UL**

SARAH JO PETERSON is a senior research associate with ULI's infrastructure initiative.

Emerging Trends Europe 2009

CHUCK DIROCCO

Central city office space is ranked as the top property sector in which to invest, with hotels offering the best development opportunities.

But even with interest in these two areas, a hold strategy for all property types might be the right move this year.



AS THE GLOBAL FINANCIAL CRISIS continues to deteriorate many countries' economies, 2009 will be a year in which investment portfolios hunker down, according to the sixth edition of *Emerging Trends in Real Estate® Europe*, jointly produced by PricewaterhouseCoopers and the Urban Land Institute. Survey and interview participants understand that debt deals are done, there is a decline in real estate values, and equity players are just waiting to make a move. In addition, they are aware that repairing the financial market will take longer than initially thought. One interviewee found it ironic that "last time, it was the property sector that brought the banks down; this time, it is banks bringing the property sector down." Another says, "We've seen a century of history rewritten in two months."

Even under current European market conditions, optimistic survey participants believe that 2009 real estate firm profits will fall between fair and modestly good, not far from the 2008 results. For this to hold true, many believe that experienced professionals should tighten operations and prepare for the difficult coming year. An international investor agrees, saying, "The winners in this cycle will be the people who get out of denial the quickest and make sacrifices."

The economic impact has placed a large cloud over western Europe, as central and eastern regions face slower growth. An institutional executive recognizes that "the impact of the financial crisis is just starting to flow into the real economy." European governments continue joint discussions in an attempt to develop a plan to limit or stop the breakdown of their markets. These attempts have included bank rate cuts, depositor guarantees, financial bailouts, and construction of a €200 billion (\$262 billion) credit crisis rescue package. Many *Emerging Trends* participants expressed an increased need for more government regulations to strengthen the market. A few executives agree, stating, "We need to put up some kind of crash barrier," and "Financial products on the market need to be examined in terms of their systematic risk."

Real estate financing will be difficult in 2009, as the debt markets are nonexistent. Almost 80 percent of survey respondents forecast an undersupply of debt in the market, also ranking the commercial mortgage-backed se-