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## **Guiding Principles for Strengthening America's Infrastructure**

**A**merica's economic well-being and physical security depend on safe and reliable public infrastructure. Roads, airports, railways, ports, and other public investments are instrumental in boosting America's productivity and global economic competitiveness. Facilities that manage water, waste, and energy are fundamental in sustaining our quality of life and health. But we are both under-investing in infrastructure and investing in the wrong projects: *new investments are critically needed, but we lack the policy structures to make the correct choices and investments.*

It is time to re-examine priorities for the nation's infrastructure. Based on our experience in the public and private sectors, these are the basic principles we believe should guide policy to strengthen the nation's infrastructure:

### ***Underinvestment in Infrastructure Poses Unacceptable Risks***

Rising demand combined with declining infrastructure threatens the nation's productivity, standard of living, and security. Demand for infrastructure services is growing rapidly. Aviation passenger traffic is projected to grow by more than 39 percent between 2006 and 2016. Freight tonnage is slated to increase by more than 50 percent by 2020. Severe highway bottlenecks have increased by 40 percent during the past five years. Americans spend 3.5 billion hours per year in traffic at a cost of \$63.2 billion in wasted time and fuel. The cost of aviation delays to the U.S. economy is expected to rise from \$9 billion in 2000 to more than \$30 billion annually by 2015. More tragically, some 13,000 fatalities on highways each year result from inadequate maintenance of roadways.

The nation's infrastructure facilities are deteriorating at an alarming rate. For example: half of the 257 locks on the more than 12,000 miles of inland waterways operated by the Army Corps of Engineers are functionally obsolete; three-quarters of the nation's public school buildings fail to meet the basic needs of children; 27 percent of the 590,750 bridges nationwide are structurally deficient or obsolete; \$11 billion annually is needed to replace aging drinking water facilities. The American Society for Civil Engineers (ASCE) estimates a five-year total investment need of \$1.6 trillion, and grades the nation's overall infrastructure as a "D."

### ***Curb Wasteful Spending Habits***

Sound project selection and delivery are compromised by political interference. Infrastructure spending bills are increasingly encumbered with earmarks that benefit local development needs but neglect regional and national priorities. Thus, poor project selection results in poor returns

on public investment.

The infrastructure trust funds are part of the problem. Dedicated financing streams, such as excise taxes on motor fuels, lie outside the competition inherent in the federal budget process. Furthermore, current fees and taxes fail to match actual patterns of use and implied cost. Resources for infrastructure investments should be more closely aligned with the benefits experienced by the users who enjoy them.

### ***Identify New Priorities for America's Infrastructure***

America's infrastructure programs were created to establish and build national networks for commerce and transportation. These fundamental goals have been realized. The challenge now is to maintain, upgrade, and replace infrastructure facilities in a manner that optimizes the return to public dollars. In the face of rising demand and aging facilities across the infrastructure modes—from highways to dams to wastewater systems—the federal government must set national priorities by stressing competition among investments in various infrastructure modes.

Infrastructure policy must do more than simply fund new construction projects. It should promote non-structural solutions for relieving congestion (such as congestion pricing on highways and in the skies). It must also articulate new missions to meet current realities. As a leading example, the federal government should address the deplorable state of the nation's public school buildings. It should also explore new kinds of public investments such as a nationwide broadband structure.

### ***Allocate Costs and Financing More Fairly and Rationally***

Infrastructure policy should require the fair allocation of costs among all levels of government and users. Federal investment in public infrastructure has declined substantially over the last three decades, so that state and local governments now spend nearly three times as much as their federal counterpart on infrastructure. (In the 1960s, federal and non-federal shares of infrastructure spending were nearly equal). The federal government should increase its investments in infrastructure, and do so in a way that addresses truly national priorities. At the same time, the infrastructure policy process should encourage cooperative planning among states for projects of regional value.

The division of infrastructure costs is too often dictated by set formulas that fail to reflect project risk or use. Users should pay a greater portion of infrastructure costs; the extent to which users are prepared to pay for the services they use is ultimately the best test of project viability.

### ***Restructure the Federal Role***

The federal portfolio of infrastructure projects is selected using widely disparate methodologies for calculating costs and benefits. A centralized infrastructure project approval process would force all infrastructure modes to be evaluated using common methods and parameters.

A national infrastructure financing facility is needed to serve as the window through which states and localities may obtain financing or grants for specific projects. A federal investment vehicle of this kind would address many wasteful tendencies in infrastructure provision and redirect policy towards promoting overall returns on investment. Centralizing infrastructure policy would also better allow us to superimpose other national policy objectives across all infrastructure modes, most immediately homeland security.

## ***Make New, Long-Term Investments in Infrastructure***

There is a fundamental difference between borrowing to support current consumption and borrowing to raise the future standard of living. Unlike expenditures for many other federal programs, infrastructure programs leave behind an asset on the federal government's balance sheet. While an entity as large as the federal government must have a cash budget, creating infrastructure assets with long-lived benefits should not be determined by short-term cash availability. Federal deficits sap our economic strength, and must inevitably be paid. But failing to support long-term growth could prove even more vexing.

Special-purpose, long duration bonds – perhaps as long as 50 years – should be issued to finance infrastructure investments. The amortization of such bonds would provide the same information as a capital budget, allowing us to measure the level and trend of the value of infrastructure investments. A new infrastructure financing agency could draw funds from the existing infrastructure trust funds, and could be vested with the power to issue bonds in budgeted amounts. But whatever the means, it is imperative that we make new investments.

## ***Invest in New Technologies***

Technology creates new opportunities for project design, capacity expansion, user cost recovery, and peak-load management. Infrastructure management technologies enable non-structural solutions that increase efficiency and productivity. Variable message signs, real-time adaptable speed limit technology, and real-time parking systems can monitor traffic flow, detect incidents, and interact with users to reduce congestion. For example, advanced video and computer technology support congestion pricing systems that have reduced automobile traffic in London by a third. Bus lines now move twice as fast, carbon dioxide emissions have been reduced by 20 percent, and emissions of harmful particulates and nitrogen oxides have been reduced by 12 percent.

## ***Partner with the Private Sector***

Deeper capital markets and greater experience in infrastructure have dramatically improved the ability of the private sector to play a central role in infrastructure provision. The old public works dichotomy—the public sector buys and manages while the private sector builds—is being replaced by new types of public-private partnerships. Increased private sector activity will continue to improve the efficiency of infrastructure markets. Entrepreneurs should be encouraged to put their capital at risk in order to create infrastructure that meets the needs of users.

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