Cities and Their Parts: Is America on the Road to Ruin?

By ROGER L. KEMP

The term "infrastructure" refers to the basic facilities and installations necessary for cities to function in our society. These include transportation and communication systems (e.g., highways, airports, bridges, telephone lines, cellular telephone towers, post offices, etc.); educational and health facilities, water, gas, and electrical systems (e.g., dams, power lines, power plants, aqueducts, etc.); and miscellaneous facilities (e.g., prisons, asylums, national park structures); and other improvements to real property owned by government. In the United States, the infrastructure is divided into private and public sectors. In the latter case, divided again between facilities owned by municipal, county, state, and federal governments, as well as many special district authorities such as the Port Authority of New York and the Los Angeles Department of Water and Power, to name a few.

According to the American Society of Civil Engineers (ASCE), the only professional membership organization in the nation that has graded our nation's public infrastructure, there are fifteen major categories of government infrastructure. These infrastructure categories include:

- **Aviation**
- **Bridges**
- **Dams**
- **Drinking Water**
- **Energy**
- **Hazardous Waste**
- **Navigable Waterways**
- **Parks and Recreation**
- **Rail**
- **Roads**
- **Schools**
- **Security**
- **Solid Waste**
- **Transit**
- **Wastewater**

Fiscal Crisis

All levels of government in the U.S. are facing a new era of capital financing and infrastructure management. Revenues that once were available for capital construction, restoration, and maintenance, have either diminished or evaporated entirely in recent years. Portions of the public infrastructure that were once adequate are now experiencing signs of distress, even decay, with no end in sight to the ongoing deterioration of America's aging infrastructure.

Local and state, as well as the federal government, are now subjected to unprecedented fiscal demands for public services in an environment of limited taxation and dwindling financial resources. Throughout the nation, many state government deficits loom ominously on the horizon. At the same time, the federal deficit is at an all-time high, exacerbated by the fact that our nation is financing an undeclared war in the Middle East. These negative fiscal circumstances, experts believe, are likely to continue for many years to come.

Congested highways, overflowing sewers, and corroding bridges are constant reminders of the pending crisis that jeopardizes our nation's prosperity and the quality of life for our citizens. The recent bridge collapse in Minnesota is only an example of this trend. With new grades for the first time since 2001, the condition of our nation's infrastructure has shown little to no improvement since receiving a collective grade of C- in 1988, with some areas sliding downward toward failing grades. The American Society of Civil Engineers' *2005 Report Card for America's Infrastructure* (See *Note* below) assesses the same categories as it did in its previous survey. The grade comparison of America's infrastructure between the ASCE's most recent 2005 survey and its original survey in 1988 are highlighted below.

- **Aviation** – Received a grade of B- in 1988 and a grade of D+ in 2005.
- **Bridges** – Received a grade of C+ in 1988 and a grade of C in 2005.
- **Dams** – While not graded in 1988, this category received a grade of D in 2005.
- **Drinking Water** – Received a grade of B- in 1988 and a grade of D- in 2005.
- **Energy** – While not graded in 1988, this category received a grade of D in 2005.
- **Hazardous Waste** – This category receive a grade of D in 1988 and again in 2005.
- **Navigable Waterways** – While not graded in 1988, this category received a grade of D- in 2005.
- **Parks & Recreation** – While not graded in 1988, this category received a grade of C- in 2005.
- **Rail** – While not graded in 1988, this category received a grade of C- in 2005.
- **Roads** – Received a grade of C+ in 1988 and a grade of D in 2005.
- **Schools** – While not graded in 1988, this category received a grade of D in 2005.
- **Security** – This category did not exist in 1988, and insufficient data is available to properly evaluate this category, so it received a grade of "I" in 2005.
- **Solid Waste** – Received a grade of C- in 1988 and a grade of C+ in 2005. This is the only infrastructure category to improve during its grade since the original evaluation.
- **Transit** – Received a grade of C- in 1988 and a grade of D+ in 2005.
- **Wastewater** – Received a grade of C in 1988 and a grade of D- in 2005.

Our nation received a grade of point average (GPA) of

"C" in the 1988 infrastructure survey. Nearly two decades later, in 2005, the condition of America's capital assets was rated with a GPA of "D". Looking at these results, we cannot ignore this issue for another two decades, or our national scorecard will reflect a GPA of "F" for our *failure* to address these issues. This rating system pretty much reflects the academic rating criteria, with "A" standing for "Exceptional", "B" reflecting "Good", "C" indicating "Mediocre", "D" signifying "Poor" and, lastly, "F" denoting the lowest grade, or "Failure". The letter "I" stands for "Incomplete," since evaluative criteria have not yet been developed for assessment categories receiving this rating.

In short, our country's roads, bridges, sewers, and dams are crumbling and need a $1.6 trillion overhaul, but the political and fiscal prospects for improvement are grim. This is the amount of money necessary over the next five years to restore and rebuild major components of our nation's public infrastructure. The nation's drinking water system alone needs a public investment of $11 billion a year to replace facilities, as well as to comply with regulations, to meet our nation's future drinking water needs. Federal grant funding in 2005 was only 10% of this amount. As a result, aging wastewater treatment systems are discharging billions of gallons of untreated sewage directly into our surface waters each year, according to the ASCE's report.

And the overt signs of our deteriorating infrastructure go on! Poor roads cost motorists $54 billion a year in repairs and operating costs, while Americans spent 3.5 billion hours a year stuck in traffic jams. The country's power transmission system also needs to be modernized, the report indicated. While demand continues to rise, transmission capacity failed to keep pace and actually fell by 2 percent in 2001. As of 2003, 27 percent of the nation's bridges were structurally deficient or obsolete, a slight improvement from the 28.5 percent in 2000. It is alarming to note, but since 1998, the number of unsafe dams in the country rose by 33 percent to more than 3,500.

A dozen national professional associations have officially endorsed the ASCE's *2005 Report Card for America's Infrastructure*. Some of these organizations include the American Public Works Association; the National Stone, Sand and Gravel Association; The U. S. Conference of Mayors; the National Heavy and Highway Alliance; the American Road and Transportation Builders Association; Association of State Dam Safety Officials; and the National Association of Clean Water Agencies. For a complete listing of these *endorsing organizations* please refer to ASCE's website.

Economic Development

It should be emphasized that the improvement and maintenance of our nation's public infrastructure, at all levels of government, is critically linked to economic development in all regions of the country. Economic development programs, as most people are aware, bring in additional private-sector investment, add much-needed jobs to the local economy, as well as provide additional tax revenues to fund future public services for all levels of government. An adequate infrastructure makes a city, county, state, and nation more desirable from an economic development perspective. Without an adequate infrastructure, the financial plight of all levels of government is likely to deteriorate even further in the future. Hence, finding solutions to the country's infrastructure problems is an important issue facing public officials, and citizens, at every level of government.

If public officials continue to let these critical infrastructure issues remain unresolved, the next generation of political leaders at each level of government will either have to raise massive taxes to repair and maintain their government's respective portion of the infrastructure, or be forced to close many public facilities due to their disrepair, deterioration, or decay. In short, major portions of our public infrastructure will become unsafe for the public to use. Economic development programs will also diminish if these infrastructure issues are not properly addressed and resolved, creating lost opportunities for private sector investment, the jobs they would bring, as well as the much-needed revenues that could be used to maintain essential public services at all levels of government.

National Leadership is Needed

While the views expressed by many experts who research and write on infrastructure issues throughout the nation point to a general agreement on the magnitude and complexity of this problem, little agreement exists on a consensus on how to achieve a comprehensive nationwide solution to restoring and maintaining America's public infrastructure. Although there is disagreement as to an acceptable solution, one point seems obviously clear: *The necessary leadership and policy direction required to properly address this national issue must come from the highest level of government.* It is only within a national policy framework that states, counties and cities can work together to improve the current condition of our public works facilities. Local and state governments alone, because of their many diverse policies, multiple budget demands, and varied fiscal constraints, cannot be relied upon to achieve the comprehensive solution required to solve this national problem.

The current philosophy of our national government has been to let the lower levels of government (states, counties and cities) solve their own problems, regardless of the nature of their complexity or the magnitude of funds needed. The political posture of our national government needs to become more positive and proactive if a solution is to be forthcoming. For these reasons, it is obvious that assertive leadership is needed from the federal government to make the difficult policy decisions — as well as to approve the funding requirements — necessary to solve our country's infrastructure problems. Fundamental changes are needed to redirect national political priorities about how public capital investments are made. Public officials, at all levels of government, can no longer merely build public facilities without adequately maintaining them over the years.

The Future

As the severity of this issue escalates, and citizens become more aware of the increased costs of postponing a decision on this pressing issue, taxpayers may be more

willing to become politically involved in solving this issue in the future. Taxpayers cannot be expected, however, to foot the entire bill for a solution, since the majority of our country's capital assets have been constructed over the past several decades, some over a century ago, and frequently with the assistance of grant funds from our federal government. This bullet is "too big to bite" by other lower levels of government alone.

Also, cities, counties and states have relative degrees of wealth based on their taxing capacity, bonding levels and ratings, and budgetary reserves. Because of this, many levels of government do not have the financial capability, even with increased taxation, to adequately address the issues related to restoring and maintaining America's infrastructure. It is safe to say that most citizens throughout the country already feel overtaxed by all levels of government. Even though citizens may be willing to assist financially, a major *redirection* of federal government funds will be required for a truly comprehensive and coordinated nationwide response to solving our country's outstanding infrastructure problems and issues.

Even with some additional taxes and user fees, funding will be limited at all levels of government. For this reason, argue those who deal with infrastructure issues, national priorities must be reestablished for the replacement and restoration of capital facilities at all levels of government, starting with those projects that are necessary to ensure the public's security, health and safety. Funds from the national government must be targeted for infrastructure projects from less important operational programs with limited — or only special interest — constituencies. Within the framework of national policies, existing federal grant programs must be redirected to provide the funds to assist in the financing of those capital projects necessary to restore America's public works infrastructure. This action will help ensure the security, as well as the health and safety, of all citizens throughout the country.

Our nation is not "on the road to ruin," as some experts explain, but merely going through the transition period required to properly sort out and arrive at a politically acceptable long-term solution to this critical and complex policy issue that plagues all levels of government – federal, state, county and city alike. If our nation's infrastructure is allowed to deteriorate even further in the future, possibly to the point of decay, the cost of resolving this issue will escalate significantly in future years for all taxpayers. If this happens, economic development programs will also continue to suffer, and the revenues they could generate will not be available to assist in restoring our public capital assets.

This lack of investment in America's infrastructure will also restrict urban growth as well as compound urban problems such as roadway traffic, mass-transit facilities, the provision of drinking water, and the proper disposal of sewage in towns and cities throughout the country. New residential developments are being located adjacent to public transit facilities. The new phrase for these types of residential projects is Transit Oriented Development (TOD). This type of development promotes a lifestyle for those folks who do not want cars, but would like to be close to and have access to public mass-transit. If a public investment is not made in public transit facilities, urban sprawl will continue as more new housing developments are placed adjacent to our urban, suburban, and rural highways. This phenomenon will further exacerbate our nation's urban transportation and traffic problems.

Our national political leaders — the President, Senators, and Representatives — must address these important infrastructure issues soon, or America's physical plant will continue to deteriorate to that of a third-world country. The quality of a nation's infrastructure is a critical index of its economic vitality. Reliable transportation, clean water, and the safe disposal of wastes are basic elements of a civilized society and a productive economy. This is the challenge facing our country's political leaders as our nation enters the 21st century. ■

Note:
To develop the Report Card, ASCE assembled a panel of 24 of the nation's leading civil engineers; analyzed hundreds of studies, reports and other sources; and surveyed more than 2,000 engineers throughout the nation to determine the condition of America's infrastructure. Base grades were then reviewed by ASCE's Advisory Council. For more details about this process refer to ASCE's website (http://www.asce.org).

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