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Another Jam in Our Infrastructure

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Whenever a bridge or dam collapses, a pipeline or water main fails, or the power grid "cascades," people ask, "How can this have happened?" Investigations are conducted, hearings held, people are fired or even criminally charged, while the survivors vow, "It will never happen again."

But inevitably, it will happen again. Soon the power failure of Aug. 14 will be largely forgotten. Most Americans will go back to ignoring our physical infrastructure, as we have for a quarter century.

And unfortunately, the problems go beyond disasters to failures on some key missions. We suffer the consequences daily: traffic congestion, energy shortages, water pollution, and a less productive and competitive economy.

In its 2001 infrastructure report card, the American Society of Civil Engineers found:

One-third of major roads in poor or mediocre shape;

Some 29 percent of bridges deficient or functionally obsolete;

Some 75 percent of school buildings inadequate;

Annual investment shortfalls of \$11 billion for drinking water and \$12 billion for wastewater;

Some 2,100 unsafe dams;

A \$38-billion navigable waterway-project backlog;

More than 10,000 megawatts of new electric capacity needed annually until 2008, compared to the 7,000 added per year in the 1990s;

And a total five-year infrastructure investment need of \$1.3 trillion.

It also reported, chillingly, "The nation's energy transmission infrastructure relies on older technology, raising questions of long-term reliability."

How has the most powerful nation on Earth allowed the physical facilities on which it depends to come to such a sorry state? The sad answer: Too many Americans don't know or care about infrastructure. We simply don't understand or appreciate the essential enabling roles that roads, bridges, transit lines, railroads, airports, water and sewer systems, dams and waterways, and energy systems play in our economy and quality of life.

Plus, our ever-shortening political horizon - often not even the next election but the next poll - makes the long-range vision necessary for making needed investment almost unobtainable. The controversy over proposed wind-farming off Cape Cod dramatizes that NIMBYism (Not In My Backyard) is morphing into BANANAism (Build Almost Nothing Anywhere Near Anyone), which will ultimately head toward NOPEism (Not On Planet Earth). Overly complicated environmental reviews and other paperwork have killed projects, strained budgets and schedules of those that survive, and fueled litigiousness, further driving up costs and delays.

In effect, we've handed veto power over vital improvements - for roads, pipelines, power generating plants, transmission



lines, airport expansions and others - to small minorities of opponents who can afford to hire enough lawyers long enough.

We in the business deserve blame, too. We didn't fairly mitigate the negative impacts of some projects, or adequately compensate those unavoidably impacted. We've been slow to adopt new technologies. With the rest of society, we haven't been able to halt or even slow suburban sprawl, which increased the demand for all infrastructure, while making building it more difficult. And we've failed to convince elected leaders and the public of the urgent need for more resources and more backbone to make needed investments. But if we draw the right lessons from Aug. 14 and other infrastructure failures, we can turn this dire situation around. Here's a Top 10 list of things we can do:

No. 10: Teach kids and ourselves about infrastructure's history and importance. Educate infrastructure professionals to effectively use technologies of accelerating complexity.

No. 9: Mitigate unavoidable negative impacts.

No. 8: Use sustainable approaches where feasible.

No. 7: Develop and deploy more innovative technologies.

No. 6: Reach out beyond engineers to employ experts in finance, environment, urban planning, public relations, political science, management and law for powerful transdisciplinary teams.

No. 5: Draw other interests into project development beside just NIMBYs.

No. 4: Plan infrastructure, realistically assessing needs, identifying projects and priorities, and sticking with them during the next budget crisis.

No. 3: Streamline environmental and other reviews while preserving oversight and environmental protection.

No. 2: Slow or halt sprawl, developing land in more infrastructure-efficient ways.

No. 1: Dig deep to find the political will and the resources to build things again, not just replacing what we have but expanding to accommodate the growing economy and population.

In his "Path between the Seas: The Creation of the Panama Canal, 1870-1914," David McCullough called the Panama Canal "a work of civilization." Infrastructure - public and private - is the most visible evidence of civilization, indispensable to its prosperity, essential to its very survival. Americans have always defined ourselves by infrastructure triumphs - plank roads, canals, railroads, elevated trains and subways, telephones and electricity, highways, interstates and airports. By restoring infrastructure vision and capacities, we can, as President Theodore Roosevelt exhorted the Panama Canal- builders, "Make the dirt fly!" once again. And hopefully keep the lights on.

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