

MARCH 2005 Volume 30, Number 3

ASCE | *The newspaper for members of the
American Society of Civil Engineers*

news

Nation's Infrastructure Receives a D in ASCE's 2005 'Report Card'

By Mark Fitzgerald

In the four years that have elapsed since ASCE's last assessment of the nation's infrastructure—which conferred an overall grade of D⁺—the nation has failed to heed the call. Indeed, there has been further decline, as witnessed by the overall grade of D meted out in the *2005 Report Card for America's Infrastructure*. Released on March 9 at a press conference held at the National Press Club in Washington, D.C., this latest assessment suggests that the nation's infrastructure—principally its roads, bridges, drinking water systems, mass transit systems, schools, and systems for delivering energy—may soon fail to meet society's needs.

This is the third full report ASCE has issued on the nation's infrastructure. The first was in 1998. Additionally, the *Progress Report for America's Infrastructure*, released in 2003, surveyed developments in the hope of finding improvements.

In part because of the effect of ASCE's first assessment of national infrastructure, the importance of investing in this area has loomed larger in the deliberations of legislators and government officials at the federal, state, and local levels. In 2001 ASCE estimated that it would take \$1.3 trillion and five years to bring the country's infrastructure to a satisfactory level. Two years later, however, the Society's progress report gave scant grounds for optimism.

The advisory council that helped ASCE prepare this latest assessment comprises 24 distinguished civil engineers whose specialties and areas of expertise cover a broad spectrum. The performance and condition of each category of infrastructure were assessed on the basis of federal sources, and these sources also were used in the forecasts.

The capacity of infrastructure and the current and pending levels of state, local, and federal funding were weighed against need.

“Grades were assigned on the basis of condition and capacity, the funding versus the needs, and generally following a traditional grading scale,” said Patrick J. Natale, P.E., ASCE’s executive director, during the press conference. “By that I mean that if seventy-seven percent of our roads were in good condition or better, that would earn a grade of C. Base grades were then reviewed by the advisory council and adjusted—usually with a plus or minus but sometimes by as much as a full letter grade to reflect positive or negative trends or the critical consequences should a catastrophic failure occur.”

In the report, civil engineering professionals maintain that conditions have worsened. Of the 14 infrastructure categories assigned grades—aviation, bridges, dams, drinking water, energy, hazardous waste, navigable waterways, public parks and recreation, rail, roads, schools, solid waste, mass transit, and wastewater—10 receive grades in the D range. Of those 10, 7 represented declines since 2001: hazardous waste, roads, and energy fell from a D⁺ to a D; wastewater and drinking water dropped from a D to a D⁻; mass transit went from a C⁻ to a D⁺; and navigable waterways sank from a D⁺ to a D⁻. ASCE estimates that a total investment of \$1.6 trillion will be needed over the next five years to make the necessary improvements.

According to recent assessments, nearly 50 percent of the navigation locks on the more than 19,000 km of inland waterways operated by the U.S. Army Corps of Engineers are functionally obsolete. By 2020 analysts estimate that the percentage will have risen to 80. Yet despite the importance of U.S. waterways to the global economy—the freight on these waterways amounting to approximately 2.2 billion Mg per year—investment in water resources projects has failed to keep pace with economic and population growth. More than \$125 billion will be needed to replace the current system of locks to accommodate present and future levels of waterborne traffic, experts say.

Given the substantial upsurge in ridership in recent years, public transportation also cries out for improvement. The Federal Transit Administration estimates that more than \$20 billion is required for mass transit systems to adequately meet demands. While America faces an \$11-billion annual shortfall in the amount needed to replace aging drinking water infrastructure so that federal water regulations can be met, the U.S. Environmental Protection Agency (EPA) estimates that the nation will have to invest \$390 billion over the next two decades to build new wastewater management systems and replace old ones. More than \$90 billion will be needed each year to improve roads, the parlous state of which requires Americans to sacrifice 3.5 billion hours each year to traffic delays.

Moreover, according to a report issued by the U.S. Department of Energy the nation’s energy infrastructure “is in urgent need of modernization.” The report acknowledges that the current U.S. energy transmission system “has become congested

because growth in electricity demand and investment in new generation facilities have not been matched by investment in new transmission facilities.” Although investment in transmission lines over the next decade is expected to be at least \$3 billion a year, the miles of transmission lines added will be equivalent to just one-third of the growth in electricity demand, according to the Consumer Energy Council of America.

The infrastructure supporting hazardous waste cleanup is badly in need of federal funding. Even though there are 1,200 toxic waste sites on the EPA’s National Priorities List and more than 10,000 sites could end up in the Superfund program, federal subsidies for cleanup have decreased steadily since 1998, the level today being no higher than in 1986. What is more, the Government Accountability Office (formerly the General Accounting Office) recently estimated that after 20 years and outlays of more than \$14 billion, the Superfund program has still not completed cleanup work on 42 percent of the nation’s most severely contaminated hazardous waste Sites.

While the grades in this year’s assessment for bridges (C), dams (D), and solid waste (C⁺) matched those in 2001, the appraisals for aviation (D to D⁺) and schools (D– to D) increased slightly. Although not assessed in 2001, rail and public parks and recreation both earned a C–. The security of critical facets of our nation’s infrastructure, also a new category, received an I (for incomplete) because the data needed for accurate evaluations are not readily available to engineering professionals. Such information would help engineers design, build, and operate infrastructure that is more secure.

“Just as President Reagan appointed the first national commission on the infrastructure, I call on President Bush and Congress to demonstrate similar leadership through the appointment of a new federal commission to develop America’s infrastructure agenda for the twenty-first century,” said William P. Henry, P.E., ASCE’s president. “With strong national leadership I am confident that our nation’s infrastructure will once again provide the foundation for prosperity and the quality of life that all Americans expect.”