

Fixing U.S. Infrastructure’s Ills Requires an Accurate Diagnosis

To hear many politicians and pundits tell it, infrastructure in the United States—including highways, roads, bridges, public transit, and water resources, such as drinking water and wastewater facilities—is in an embarrassing state of disrepair. Unfortunately, the hyperbole obscures real needs in some—but not all—locales, as well as the value of a targeted approach to fixing what actually is broken in the nation’s policies on funding and financing of transportation and water infrastructure.

A new report by researchers in RAND’s Infrastructure Resilience and Environmental Policy Program finds that funding levels and the overall physical conditions of transportation and water infrastructure are far from dire. But changes in funding, finance, and policy should be made with national and regional priorities in mind—not only to renew and modernize infrastructure to meet 21st century needs and to fix what is broken, but also to recognize that some aging infrastructure may have outlived its usefulness. The report offers policy prescriptions intended to help the federal government, in tandem with state and local governments and the private sector, renew and modernize the nation’s infrastructure.

Need for Federal Leadership

To promote national economic development, the federal government has historically supported capital spending on transportation and water infrastructure, though, as the figure shows, funding for operations and maintenance (O&M) has traditionally come mainly from state and local governments. The federal government also has played a vital role in supporting research to spur innovation in design, construction methods and materials, and O&M.

But, for decades now, the federal government has lacked a vision and priorities for renewing and advancing infrastructure most vital to the nation’s economy. For example, the Highway Trust Fund is not sustainable unless the revenue model is updated to account for changes in fuel efficiency and automotive technologies. State and local governments have been shouldering an ever-growing share of the O&M burden, accounting for 62 percent of capital expenditures and 88 percent of O&M spending for transportation and water infrastructure in 2014.

Key messages:

- U.S. transportation and water infrastructure funding and finance are not nearly as broken as some believe, but a national consensus on infrastructure priorities is needed, accompanied by select policy changes in funding and financing.
- Annual spending increases by transportation and water infrastructure owners of 2.5 to 3 percent would largely eliminate existing maintenance backlogs by 2030.
- The federal government should focus on maintaining and modernizing vital federal infrastructure and on targeting nationally significant projects that are beyond the capacity of individual states and cities.

State and local governments are still in the best position to make decisions about infrastructure maintenance and new initiatives within their jurisdictions. Annual spending increases by transportation and water infrastructure owners of 2.5 to 3 percent would largely eliminate existing maintenance backlogs by 2030. So, while the RAND researchers see no need for large-scale changes in the primary roles played by the federal, state, and local governments in governance of infrastructure upkeep, the federal government needs to update policies, step up funding, and set new national and regional priorities for the 21st century.

Sustaining and Modernizing U.S. Infrastructure Through a Targeted Approach

Congress can take steps—in conjunction with states, local entities, and the private sector—to improve the condition of the nation’s infrastructure to meet 21st century needs. To that end, the RAND team offers ten recommendations:

TAX-EXEMPT BONDS: Preserve the federal tax exemption on interest earned from municipal bonds for at least the next decade. Tax-exempt municipal bonds are needed to give state and local governments continued stable access to capital while alternative financing mechanisms are developed.

TAXABLE BONDS: Reinstate Build America Bonds (BABs) with taxable interest for a ten-year period and experiment with other financing alternatives. Draw as much capital into infrastructure as the market demands without the distortion of tax policies that favor one class of investors over another.

SUSTAINABLE REVENUES FOR TRANSPORTATION: Congress should support further state experimentation with approaches to mileage-based fee collection, with an eye toward transitioning to a new federal system that links revenue collection to highway use more effectively.

LONG-TERM PRIORITIES: Target longer-term projects likely to produce significant national benefits. Fund transportation and water improvements that will increase productivity and resilience over merely “shovel-ready” projects.

CAPITAL: Focus on capital investment, including major investments in renewal of aging infrastructure and new infrastructure incorporating advanced technologies. To achieve this goal, Congress should make life-cycle cost analysis and sustainability of investments through appropriate pricing and cost recovery a condition of future federal transportation and water funding for state and local governments.

MAINTENANCE: Prioritize maintenance of federal assets, such as mission-critical military bases, dams, levees, locks, national parks, and other vital federal infrastructure.

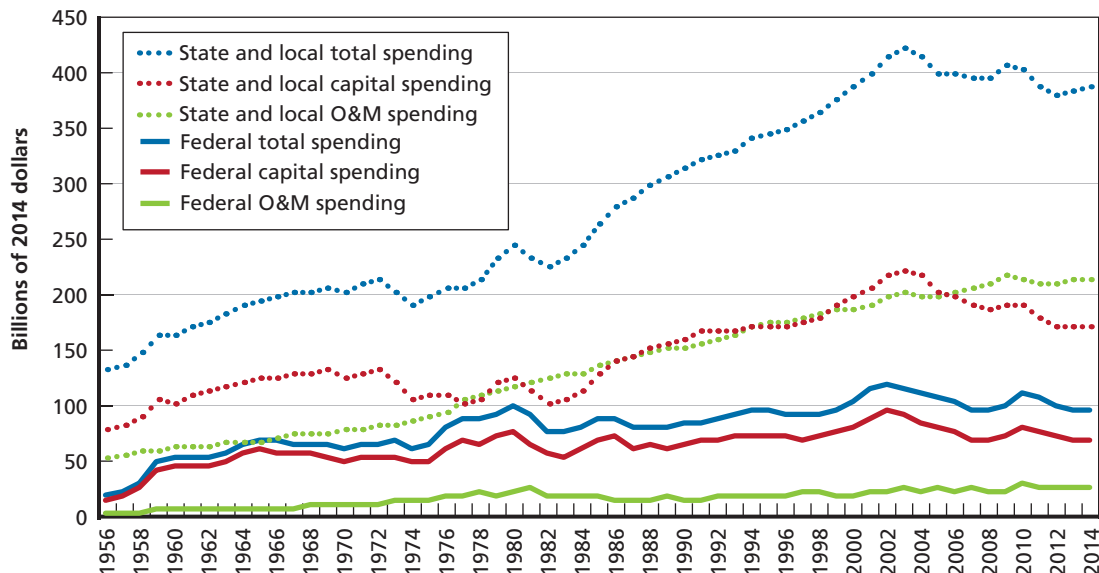
RESILIENCE: Make resilience to natural disasters and adaptation to rising seas, increasing flood frequency, and other changing climate impacts a condition for capital spending to reduce future federal spending on disaster assistance.

EFFICIENCY: Streamline the regulatory review process among multiple federal agencies. Efficiencies can be gained while honoring environmental and safety standards.

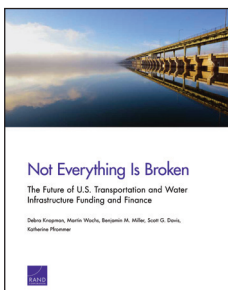
MORE EFFICIENCY: Consolidate the U.S. Army Corps of Engineers and the U.S. Bureau of Reclamation into an integrated national water resource agency.

INNOVATION: Fund competitive grants for research, development, and deployment of new technologies. Expand existing grant programs to stimulate innovation in engineering, construction, maintenance, and operations of transportation and water systems.

Federal, State, and Local Spending on Infrastructure, 1956–2014



SOURCE: Data from Congressional Budget Office, *Public Spending on Transportation and Water Infrastructure, 1956 to 2014*, Washington, D.C., 2015.



This brief describes work done in RAND Justice, Infrastructure and Environment and documented in *Not Everything Is Broken: The Future of U.S. Transportation and Water Infrastructure Funding and Finance*, by Debra Knopman, Martin Wachs, Benjamin M. Miller, Scott G. Davis, and Katherine Pfrommer, RR-1739-RC, 2017 (www.rand.org/t/RR1739). To view this brief online, visit www.rand.org/t/RB9997. The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. RAND’s publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark. © RAND 2017

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