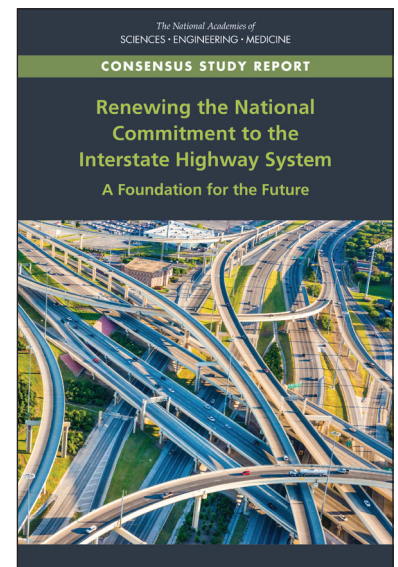




December 2018

Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future

The Interstate Highway System has conferred broad and deep benefits and has been pivotal in shaping and supporting demographic, spatial, economic, and social development in the United States for more than 50 years. The Interstate Highway System provides the main corridors for passenger and freight movement within rural and urban areas. Interstate highways must be preserved, rehabilitated, and modernized to adapt to the country's changing demographic, economic, climatic, and technological landscape.



The Interstate Highway System's future, despite its crucial role in the economy and society, is threatened by a persistent and growing backlog of physical and operational deficiencies and by a number of large and looming challenges. Many Interstate highway segments are more than 50 years old, subject to much heavier traffic than anticipated, and operating well beyond their design life without having undergone major upgrades or reconstruction. These aging and heavily used segments are poorly equipped to accommodate even modest projections of future traffic growth, much less the magnitude of growth experienced over the past 50 years.

Congress asked the Transportation Research Board (TRB), a program unit of the National Academies of Sciences, Engineering, and Medicine, to form a special committee to conduct a study to inform pending and future federal investment and policy decisions concerning the Interstates. Congress asked the committee to make recommendations on the "features, standards, capacity needs, application of technologies, and intergovernmental roles to upgrade the Interstate System" and to advise on any changes in law and resources required to further the recommended actions. The report of the study committee suggests a path forward to meet the growing and shifting demands of the 21st century in the report: *Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future.*

LOOMING CHALLENGES

The prospect of an aging and worn Interstate System that operates unreliably is concerning in the face of a vehicle fleet that continues to transform as the 21st century progresses and the vulnerabilities due to climate change place new demands on the country's transportation infrastructure. Unless a commitment is made to remedy the system's deficiencies and prepare for the challenges that lie ahead, the system risks becoming increasingly congested; far more costly to operate, maintain, and repair; and vulnerable to the effects of a changing climate and extreme weather. Looming challenges that will necessitate this commitment include the following.

AGING ASSETS IN NEED OF REBUILDING

Many of the Interstate pavements built in the 1950s and 1960s were designed for 20-year service lives but have now gone more than 50 years without reconstruction of their foundations, despite much higher traffic loadings than projected. While these foundations are being rebuilt, sufficient resources will be needed to preserve, restore, and rehabilitate the system's thousands of aging bridges and other assets.

ESCALATING URBAN TRAFFIC LEVELS

Large portions of the Interstate Highway System, especially in metropolitan areas, are chronically congested and have difficulty accommodating the demands of both local and longer distance travelers. As most of the country's population and economic growth is forecast to occur in large metropolitan areas, the potential grows for worsening congestion unless capacity is added and more actively managed.

DEMANDS FOR MORE SYSTEM COVERAGE

Although thousands of miles of high-quality highways other than Interstates connect the country's population centers, lack of access to the Interstate Highway System may be viewed by some smaller communities and emerging cities as detrimental to their growth and development, particularly given that the Interstate System includes the country's main trucking corridors and links to other modes.

EXPECTATIONS FOR CONTINUAL SAFETY GAINS

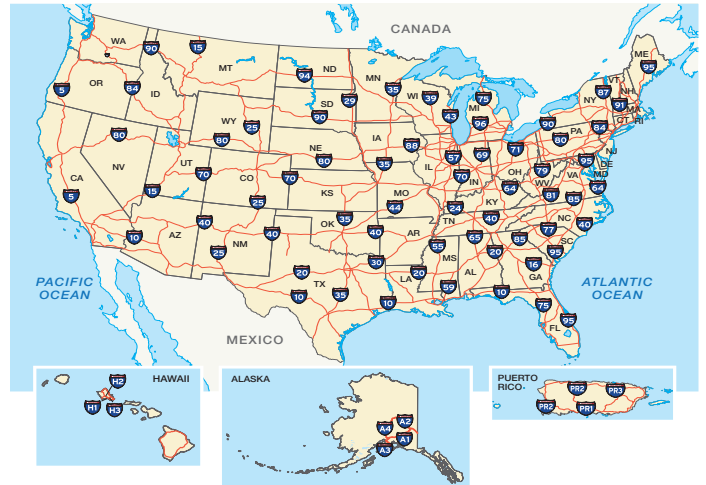
The Interstates are the nation's safest highways, but they still account for more than 5,000 traffic deaths annually. As new highway and vehicle technologies are introduced, reconstruction work increases, and physical and operational measures are taken to accommodate growing traffic demand, an emphasis on ensuring safety performance will be critical.

TRANSFORMATIONS TO THE VEHICLE FLEET

New vehicle technologies have the potential to alter the operations and safety performance of the highway system, including the Interstates. The system will need to be made adaptable to changing vehicle capabilities while avoiding premature investments in assets and the introduction of standards that would hinder useful development pathways.

CHANGING CLIMATE CONDITIONS

When much of the Interstate Highway System was being built during the 1960s and 1970s, little was known about the threat of climate change. Transportation agencies across the country will need to make changes to how they plan, design, construct, operate, and maintain the Interstates to make them more resilient and less vulnerable to adverse effects of climate change.



Map of Interstate Highway System: 2018

ERODING REVENUES FOR SYSTEM FUNDING

Increasing vehicle fuel economy and electric vehicles threaten a funding base that relies heavily on revenues from fuel taxes that have lagged spending needs. New funding mechanisms that are equitable and efficient and do not divert resources from other highways and transportation modes will be needed to pay for system reinvestments.

AN INVESTMENT IMPERATIVE

Only limited planning and budgetary preparations have been made to fix the deterioration to the Interstate System that has already occurred, and much less for addressing the challenges that lie ahead. Recent combined state and federal capital spending on the Interstates has been about \$20–\$25 billion per year. The estimates in this study suggest this level of spending is too low and that \$45–\$70 billion annually over the next 20 years will be needed to undertake the long-deferred rebuilding of pavements and bridges and to accommodate and manage growing user demand. This estimated investment is incomplete because it omits the spending that will be required to meet other challenges such as boosting the system's resilience and expanding its geographic coverage. While these investment needs could not be estimated even roughly for this study, they are certain to require billions, and perhaps tens of billions, in additional annual spending.

...what makes today's investment choices so critical is that much of the Interstate System is already past due for major reconstruction and modernization...

Committee for a Study of the Future Interstate Highway System

A BLUEPRINT FOR ACTION

The original Interstate Highway Construction Program was underpinned by a long-term, collaborative commitment among the states and the federal government. A comparable partnership is needed to renew and modernize the system and ensure that it is resilient and responsive to the changing demands of users.

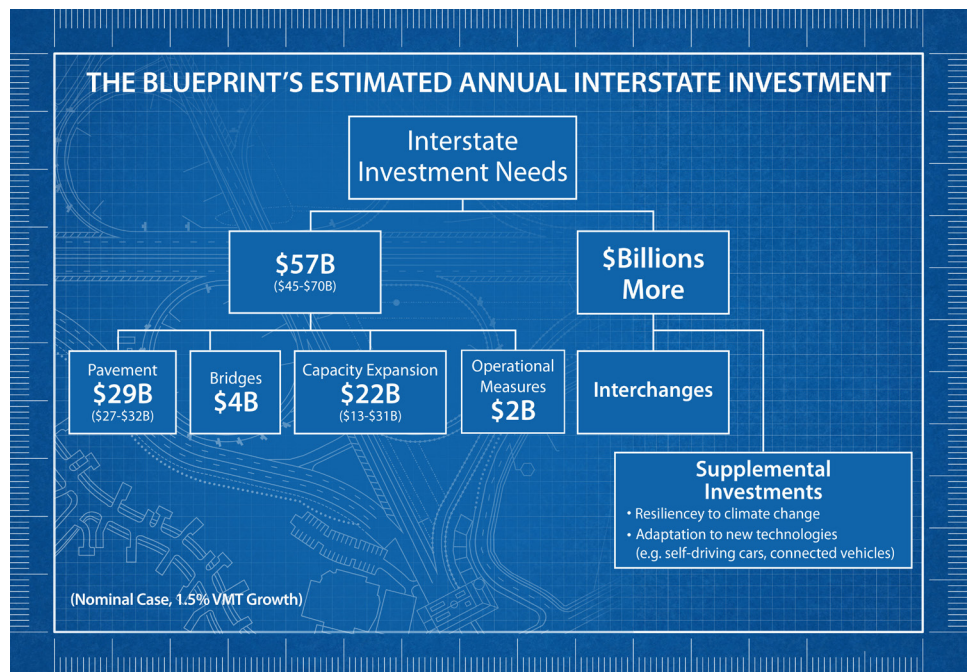
KEY RECOMMENDATIONS

Congress should legislate an Interstate Highway System Renewal and Modernization Program (RAMP). This program should focus on reconstructing deteriorated pavements, including their foundations, and bridge infrastructure; adding physical capacity and operations and demand management capabilities (e.g., tolling) where needed; and increasing the system's resilience.

The RAMP should be modeled after the original Interstate Highway System Construction Program by reinforcing the traditional program partnership in which the federal government provides leadership in establishing the national vision for the overall system, the bulk of the needed funding, and overall standards, while states prioritize and execute projects in their continued role as owners, builders, operators, and maintainers of the system. The federal share of project in spending should be comparable to the 90 percent share of the original Interstate Highway System Construction Program

Congress should, as a near-term step, (1) increase the federal fuel tax to a level commensurate with the federal share of the required RAMP investment, and (2) adjust the tax as needed to account for inflation and changes in vehicle fuel economy.

To ensure that the federal government's long-term commitment to RAMP is not threatened by declining fuel tax revenues as the vehicle fleet and its energy sources evolve, **Congress should prepare for the need to employ new federal and state funding mechanisms, such as the imposition of tolls or per-mile charges on users of the Interstate Highway System.**



To provide states and metropolitan areas with more options for raising revenue for their share of RAMP investments and for managing the traffic demand on and operations of Interstate segments that offer limited opportunity for physical expansion, **Congress should lift the ban on tolling of existing general-purpose Interstate highways.** As a condition for imposing those tolls, states should be required to assess their impact on current users and offer alternative mobility options for those users significantly and disproportionately harmed by the tolls.

A “rightsizing” component of RAMP should address current and emerging demands to extend the Interstate System's length and scope of coverage and to remediate economic, social, and environmental disruptions caused by highway segments that communities find overly intrusive and are not deemed vital to network traffic. **Congress should direct the U.S. Department of Transportation and the Federal Highway Administration to develop criteria for such system rightsizing using a consultative process that involves states, local jurisdictions, highway users, and the general public.**

A TRIED AND TRUE APPROACH

Implementation of the above recommendations, together with several other complementary recommendations called for in the report, would represent a fundamental shift away from a federal policy that has lost focus on the Interstate Highway System and the commitment to funding it adequately. These actions would restore the system's premier status within the nation's highway program in a manner that is aggressive and ambitious, although by no means novel. Taking these actions would (1) rekindle a tried-and-true federal–state partnership; (2) reinforce the system's long-standing reliance on user fees to provide a fair, adequate, and reliable source of funding; and (3) reassert the forward-looking vision

that was instrumental to the genesis of this crucial national asset more than a half-century ago. At that time, the nation's leaders endorsed a modern highway system that would confer large and lasting social and economic benefits, a vision whose realization required a strong and continuing national commitment. Today, the nation is experiencing, and can anticipate, new expectations for system performance, condition, and use. Meeting those expectations will require the same forward-looking outlook and commitment that informed the system's creation—a rededication to that original vision that reshapes and re-equips the system to serve generations to come.

COMMITTEE FOR A STUDY OF THE FUTURE INTERSTATE HIGHWAY SYSTEM

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For More Information . . . This Consensus Study Report Highlights was prepared by the Transportation Research Board based on the Consensus Study Report *Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future* (2018). The study was sponsored by the Federal Highway Administration, U.S. Department of Transportation. Any opinions, findings, conclusions, or recommendations expressed in this publication do not necessarily reflect the views of any organization or agency that provided support for the project. Copies of the Consensus Study Report are available from the National Academies Press, (800) 624-6242; <http://www.nap.edu> or via the Transportation Research Board at <http://interstate.trb.org>.

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