



AMERICA ON THE MOVE:

Transportation and Infrastructure
for the 21st Century

National Summit, February 26-27, 2014

AN INITIATIVE TO ADVANCE U.S. COMPETITIVENESS

CATALOGUE OF IDEAS

**ASSOCIATIONS
POLICY GROUPS
GOVERNMENT REPORTS
RESEARCH CENTERS**

Prepared as background for the America on the Move National Summit and used to identify experts, viewpoints, and data sources. Groupings reflect themes of major reports and statements.



ORGANIZATIONS REPRESENTED

Airforwarders Association
Airlines for America
Airports Council International - North America
Alliance for Aviation Across America
American Association of Airport Executives
American Association of Port Authorities
American Association of State Highway and Transportation Officials
American Automobile Association
American Aviation Institute
American Highway Users Alliance
American Public Transportation Association
American Road & Transportation Builders Association
American Short Line and Regional Rail Association
American Society of Civil Engineers
American Society of Transportation and Logistics
American Transportation Research Institute
American Trucking Associations
Aspen Institute
Association of American Railroads
Belfer Center for Science and International Affairs, Harvard Kennedy School of Government
Bipartisan Policy Center, National Transportation Policy Project
Booz Allen Hamilton
Brookings Institution
Building America's Future Educational Fund
California Management Review
Cato Institute
Center for American Progress
Center for Transportation Studies, University of Minnesota
Coalition Against Bigger Trucks
Coalition for America's Gateways and Trade Corridors
Coalition for Clean & Safe Ports
Coalition for Transportation Productivity
Congressional Research Service
Connected Nation
Council of Supply Chain Management Professionals
Council on Foreign Relations
Eno Center for Transportation
Equity Caucus at Transportation for America
Federal Communications Commission
Frost & Sullivan
Government Accountability Office
Harvard Kennedy School of Government
IBM
Information Technology & Innovation Foundation
INRIX
Intelligent Transportation Society of America
Intermodal Association of North America
Itasca Project
Leadership Initiative on Transportation Solvency, Carnegie Endowment for International Peace
McKinsey Global Institute
Midwest High Speed Rail Association
Miller Center for Public Affairs, 2013 David R. Goode National Transportation Policy Conference
MIT Center for Transportation and Logistics
MIT Intelligent Transportation Systems Lab
MIT Media Lab
MIT SENSEable City Lab
National Association of Railroad Passengers
National Center for Freight & Infrastructure Research & Education (CFIRE), University of Wisconsin
National Center for Intermodal Transportation for Economic Competitiveness, Mississippi State University and the University of Denver
National Corridors Initiative
National Customs Brokers & Forwarders Association of America
National Defense Transportation Association
National Industrial Transportation League
National Railroad Construction and Maintenance Association
National Research Council
National Surface Transportation Infrastructure Financing Commission
Reason Foundation
Reconnecting America
Rockefeller Foundation
States for Passenger Rail Coalition
Supply Chain Policy Center, RAND Corporation
Tesla Motor Company
Texas Transportation Institute
Transactions on Internet and Information Systems
Transportation for America
Taxpayers for Common Sense
Reason Foundation
Transportation Research Board
TRIP
U.S. Chamber of Commerce
U.S. High Speed Rail Association
U.S. Public Interest Research Group
University of Michigan Automotive Research Center
University of Michigan Transportation Research Institute
Verizon
World Shipping Council



ORGANIZATION DOCUMENTS AND POSITIONS CONTACT INFORMATION

Airforwarders Association

The AfA is an industry group of airforwarders that provides education on best practices to its member organizations and advocates on behalf of the industry. Its banner issue is cargo security initiatives. In general, it works to limit governmental oversight and regulation; for example, it recently worked hard to restrict FAA authority to regulate the transport of lithium boundaries. It sits on the Aviation Security Advisory Committee and endorses 100% air cargo inspection but works to decrease the cost of regulatory compliance for its members.

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Airlines for America

Benefits of a National Airline Policy and the US Airline Industry

Airlines for America (A4A) is the preeminent trade association of the U.S. airline industry and a strong voice in Washington. The organization advocates for a new National Airline Policy that improves airlines' ability to compete along five main priorities: reducing airline taxes, reforming regulatory compliance costs, modernizing the air traffic system, bolstering global competitiveness, and stabilizing energy prices. Specifically, they argue for a repeal of the jet fuel tax, a freeze on further increases to the passenger security tax, cost-benefit evaluation of existing regulations, performance-based traffic control procedures and implementation of NextGen infrastructure and real-time information sharing, increased Customs & Border Protection staffing to increase domestic airlines' competitiveness, and potential subsidies and energy policy reforms to stabilize and decrease the price of jet fuel.

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Airports Council International - North America

Airport Capital Development Needs, 2013-2017

The Airports Council International - North America (ACI-NA) represents the governing bodies that own and operate commercial airports in the U.S. and Canada. Its members handle 95% of domestic and nearly 100% of international air passenger and cargo traffic in North America. This report, the product of a regular survey of ACI-NA membership, identifies the capital development needs of approximately 3,400 national airports. Between 2013 and 2017, these airports report \$71.3 billion in need, or approximately \$14.3 billion per annum. Of this \$71.3b, 43% of planned outlays are for rehabilitation of existing infrastructure, while another 54% is designated for projects to accommodate growth in passenger and cargo volume, as well as larger planes. Commercial airports account for \$81.3% (\$57.96b) of identified need - 51% to large hubs, and 13.1% and 8.1% to medium and small hubs, respectively. Non-commercial (i.e., general aviation) airports account for the remaining 18.7%, or \$13.4 billion. Currently, the report notes, federal funding sources fall significantly short of capital needs, suggesting the necessity of increasing local Passenger Facility Charges, a form of user fee, to fund development. Despite these needs, the total \$71.3 billion capital requirement represents an 11% decrease from 2011, reflecting recently completed projects, as well as decreased capacity forecasts and delayed projects due to macro stagnation and airline industry consolidation and shakeups.

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Airports Council International - North America	<p><i>The Economic Impact of Commercial Airports in 2010</i></p> <p>The Airports Council International - North America (ACI-NA) represents the governing bodies that own and operate commercial airports in the U.S. and Canada. Its members handle 95% of domestic and nearly 100% of international air passenger and cargo traffic in North America. This report details the economic impact of the 490 U.S. NPIAS (National Plan of Integrated Airport Systems) airports nationwide in an attempt to communicate the importance of healthy airports for local and national economic health and ability to compete. The report analyzes three measures of economic impact: jobs, associated payroll, and economic output - defined as average annual capital improvement expenditures plus annual revenues - generated by airport activity by 1) on-airport activity, 2) capital improvement projects, and 3) visitor spending. On a national level, the report finds that airports directly support 4.87 million jobs, \$140.3 billion in payroll, and \$460.2 billion in total output. The report also calculates "multiplier impacts" that emphasize airports' additional indirect economic influence, bringing the total to 10.5 million jobs, \$365.3 billion in payroll, and \$1.2 trillion in total output.</p>	<p>Kevin Burke, President and CEO</p> <p>Liyng Gu, Managing Director, Finance and Research</p> <p>1615 L Street, NW Suite 300 Washington, D.C. 20036 202-293-8500 www.aci-na.org</p>
Alliance for Aviation Across America	<p>The Alliance for Aviation Across America advocates for general aviation and local airports, particularly in the rural context. It argues for a modern, satellite-based air traffic control system to improve safety and opposes proposed per-flight "user fees" on general aviation. It is also a strong advocate of the Airport Improvement Program and the Essential Air Service, two programs designed to enhance rural communities' access to the rest of the country. The Alliance asserts that general aviation supports 1.26 million jobs and contributes \$150 billion to the economy each year.</p>	<p>Selena Shilad, Executive Director</p> <p>1025 Connecticut Ave, NW Suite 1000 Washington, D.C. 20036 202-223-9523 www.aviationacrossamerica.com</p>
American Association of Airport Executives	<p>The Alliance for Aviation Across America advocates for general aviation and local airports, particularly in the rural context. It argues for a modern, satellite-based air traffic control system to improve safety and opposes proposed per-flight "user fees" on general aviation. It is also a strong advocate of the Airport Improvement Program and the Essential Air Service, two programs designed to enhance rural communities' access to the rest of the country. The Alliance asserts that general aviation supports 1.26 million jobs and contributes \$150 billion to the economy each year.</p>	<p>Charles "Chip" Barclay, CEO</p> <p>601 Madison St., Suite 400 Alexandria, VA 22314 703-824-0500 www.aaae.org</p>
American Association of Port Authorities	<p><i>Surface Transportation Authorization</i></p> <p>The AAPA strongly supports the implementation of a national freight policy that includes dedicated funding for freight projects, particularly intermodal freight connectors, and identifies critical freight gateways and corridors and distributes funds accordingly, based on total volume, value of goods moved, congestion, vehicle miles traveled, delays, and total number of facilities served. The association also urges making port authorities eligible to apply for project funds directly through federal and state freight programs. It advocates continuing "TIGER-style" discretionary grants and devoting at least 25% of them to port-related infrastructure needs as the only general federal funding source for ports. The AAPA also supports implementation of performance measures in planning and funding decision, the development of improved marine</p>	<p>Kurt Nagle, President</p> <p>1010 Duke Street Alexandria, VA 22314-3589 703-706-4705 www.aapa-ports.org</p>



ORGANIZATION DOCUMENTS AND POSITIONS CONTACT INFORMATION

highways that alleviate highway congestion, a cost-share grant program for railroad projects, and a dedicated freight trust fund. In general, the AAPA stresses the critical importance of ports to national economic competitiveness and agitates for increased port funding without additional tax burdens to ports.

American Association of State Highway and Transportation Officials

Unlocking Freight

The AASHTO, as an association of transportation officials, is a fairly authoritative voice on state transportation issues and perspectives. In this report, the association advocates significantly expanding the capacity of highways, establishing new regional freight corridors, improving intermodal freight connectors, and highlights examples of state cooperation in fixing pain points and bottlenecks in their networks - for example, Washington and Oregon's collaboration over the Columbia River Crossing chokepoint with improved interchanges, new bridges, and expanded light rail. The report also highlights other promising projects to expand intermodal exchange capacity, for example the Duluth Intermodal Project in Minnesota, and advocates expanded investment in ports to enable them to service large post-Panamax (and New Panamax) ships.

Mike Hancock, President Secretary, Kentucky Transportation Cabinet

Bud Wright, Executive Director

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American Association of State Highway and Transportation Officials

Waterborne Freight Transportation: Bottom Line Report

This study commissioned by the AASHTO finds that the Marine Transportation System (MTS) has been insufficiently funded and maintained for decades, necessitating major investments over the next several decades. The report further recommends establishing a new Office of Multimodal Freight within the DOT to counteract the current balkanization of the MTS and lead strategic planning of the MTS. The report also suggests securing dedicated funding for MTS projects (for example, money from the Harbor Maintenance Trust Fund that is often reappropriated for other purposes) and spreading planning and project delivery best practices to reduce waste.

Mike Hancock, President Secretary, Kentucky Transportation Cabinet

Bud Wright, Executive Director

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American Automobile Association

Crashes vs. Congestion: What's the Cost to Society?

This report attempts to calculate the cost of crashes on a per-person basis in American metropolitan areas and then compares these costs to similar costs of congestion calculated by the Texas Transportation Institute in its annual Urban Mobility Report. In order to calculate crash costs, the authors look at FHWA costs for 11 crash components, including fatalities (\$6 million) and injury (\$126,000). The study finds that total crash costs in 2009 were nearly \$300 billion, compared to \$97.7 billion in congestion costs. Congestion costs appear to be directly correlated with city size, while crash costs appear to be inversely correlated with city size. Given the high economic cost of crashes, the AAA recommends investment in safety measures (e.g., ignition breathalyzers), aggressive enforcement of traffic laws, performance-based planning for roadways, and increased funding for data collection systems.

Robert Darbelnet, President & CEO

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<p>American Automobile Association</p>	<p><i>Making America Stronger</i></p> <p>In this report, the AAA calls for modernization of the U.S. transportation system, including capacity expansion, technology overlays, and better intermodal connections. The report also urges an enhanced federal planning role, performance standards tied to project funding, and enhanced data gathering to improve safety and efficiency. Finally, the AAA urges increasing revenues for infrastructure investment and to study the costs and benefits of PPPs, congesting pricing, fuel tax increases, and VMT fees.</p>	<p>Robert Darbelnet, President & CEO</p> <p>607 14th St., NW #200 Washington, D.C. 20005 202-942-2050 www.newsroom.aaa.com</p>
<p>American Aviation Institute</p>	<p><i>Consumer Regulation and Taxation of the U.S. Airline Industry: Estimating the Burden for Airlines and the Local Impact</i></p> <p>The American Aviation Institute is an independent think tank that looks at issues affecting commercial aviation. In this report, the AAI examines the impact of post-9/11 taxes and regulations on airlines' ability to compete. The authors argue that by 2014, approximately \$59 for every round-trip ticket in the U.S. will be collected in taxes, dampening demand for air travel and crippling airlines' competitiveness with ad hoc, uncoordinated, and poorly planned regulatory burdens. AAI's analysis indicates that proposed tax increases will lead to a 17.7 million passenger decrease over the next ten years and a resultant real decrease of nearly \$500 million in tax revenue versus projections based on current taxes and fees. The study also suggests that these proposals would cost the economy \$5.5 billion per year in lost tourism and business travel. The report urges the creation of a National Aviation Policy and a moratorium on new aviation consumer regulations until such a policy goes into effect.</p>	<p>Darryl Jenkins, Chairman</p> <p>Joshua Marks, Executive Director</p> <p>4833 Rugby Avenue, Suite 301 Bethesda, MD 20814 703-608-2071 www.aviationinstitute.org</p>
<p>American Highway Users Alliance</p>	<p><i>President & CEO Gregory Cohen's testimony to Senate Environment & Public Works Committee, September 25, 2013</i></p> <p>The American Highway Users Alliance calls itself "the voice of highway users" and strongly supports user fees for highway funding - a departure from its past stances. The AHUA supports raising the fuel tax, maintaining HTF solvency, maintaining a broad taxation base for infrastructure, and increasing the stability and predictability of HTF revenue by indexing the gas tax to inflation.</p>	<p>Gregory Cohen, President & CEO</p> <p>1101 14th Street, NW Suite 750 Washington, DC 20005 202-857-1200 www.highways.org</p>
<p>American Public Transportation Association</p>	<p><i>The Business Case for Investment in Public Transportation</i></p> <p>The American Public Transportation Association performs research and lobbies on behalf of public transportation to federal policymakers. In this report, the APTA encourages private sector investment in public transportation, particularly in public-private partnerships and by buying bonds, and notes that investment in public transit is safe and can yield a four-fold economic return. Specifically, the report analyzes the potential of transit to transform communities and spur development; it also attempts to demonstrate pent-up demand for high-speed rail.</p>	<p>Michael P. Melaniphy, President & CEO</p> <p>1666 K St., NW 11th Floor Washington, D.C. 20006 202-496-4820 www.apta.com</p>



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
<p>American Road & Transportation Builders Association</p>	<p><i>U.S. Transportation Construction Industry Profile</i></p> <p>ARTBA bills itself as the "consensus voice" of the transportation design and construction industry to policymakers. As a coalition of many interests, ARTBA advocates for transportation investment generally but does not promote specific agendas that favor one mode over another. However, the association does publish a U.S. Transportation Construction Industry Profile (linked) that demonstrates the sheer size and economic impact of the construction industry. It also lobbies for smart transportation overlays to receive federal funds.</p>	<p>Steve Wright, Chairman</p> <p>Peter Ruane, President & CEO</p> <p>1219 28th St., NW Washington, D.C. 20007 202-289-4434 www.arbta.org</p>
<p>American Short Line and Regional Rail Association</p>	<p><i>Short Line Tax Credit Extension</i></p> <p>The ASLRRRA is made up of 450 short line & regional rail networks and advocates for their interests. According to the ASLRRRA, its members operate 30% of the American rail network by mileage, employ 12% of rail industry workers, and receive 9% of industry revenues. Its primary policy objective is the extension of the Short Line Railroad Tax Credit, which makes these railroads - typically serving fairly rural areas - more attractive investment opportunities.</p>	<p>Richard Timmons, President & Treasurer</p> <p>ASLRRRA 50 F Street, NW, Suite 7020 Washington, D.C. 20001 202-585-3442 www.aslrrra.org</p>
<p>American Society of Civil Engineers</p>	<p><i>2013 Report Card on America's Infrastructure</i></p> <p>The ASCE's quadrennial Report Card on America's Infrastructure reviews the status and needs of U.S. infrastructure by category and state and assigns the U.S. an overall "GPA" of D+ (between at-risk and mediocre). Although the grades themselves are fairly sensational and have no comparative value besides previous ASCE report cards, they provide a useful overview of the challenges across major infrastructure systems . In transportation, Aviation, Bridges, Inland Waterways, Ports, Rail, Roads, and Transit each received separate grades. Citing hours each day in unscheduled delays to the "hidden backbone of our freight network," Inland Waterways received the lowest grade, D-; road and airport congestion, as well as limited transit investment, led to grades of D for these categories. However, citing downward trends in structural deficiency for bridges and a resurgence in rail, the ASCE gave both categories a C+. Ports received a C. Despite grading American infrastructure, ASCE offers only a general suggestion for improvement: increased investment.</p>	<p>Patrick J. Natale, Executive Director</p> <p>Brian Pallasch, Managing Director, Government Relations and Infrastructure Initiatives</p> <p>1801 Alexander Bell Drive Reston, VA 20191 703-295-6104 www.infrastructurereportcard.org www.asce.org</p>
<p>American Society of Transportation and Logistics</p>	<p>The American Society of Transportation & Logistics (ASTL) is another prominent supply chain management organization. It offers certification programs, conferences, and publishes the Transportation Journal.</p>	<p>Laurie Denham, President</p> <p>P.O. Box 3363 Warrenton, VA 20188-3363 202-580-7270 www.astl.org</p>
<p>American Transportation Research Institute</p>	<p><i>Freight Performance Measures: Analysis of Freight-Significant Highway Locations 2013</i></p> <p>ATRI, the American Trucking Association's affiliated research group, issues an annual report on the time lost due to highway congestion. The report identifies the top 100 bottlenecks for freight trucking, reporting on average speed during peak and off-peak hours and assigning a "total freight congestion value"</p>	<p>Steve Williams, Chairman</p> <p>950 N. Glebe Road Arlington, VA 22203 703-838-1966 www.atri-online.org</p>



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
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based on the difference between free-flow speeds and these averages. The report, though light on economic analysis, is hoped to help trucking companies pick and time routes to minimize wasted time and fuel at these bottlenecks. The embarrassment of scoring high on the list of bottlenecks can also spur government action to improve infrastructure, as in 2012 when Chicago cited the report as a major reason for improving the I-290 Circle Interchange.

American Trucking Associations

Strategies for Reducing the Trucking Industry's Carbon Footprint

Bill Graves, President & CEO,
Former Governor of Kansas

The American Trucking Association represents large trucking concerns and lobbies on their behalf. In this paper, the ATA recommends six measures for reducing the industry's carbon footprint: limiting truck speeds to 65 mph, reducing idling, spreading the use of fuel-efficient motors, reducing congestion through highway expansions and fuel tax increases, establishing fuel economy standards for trucks, and allowing the use of "more productive truck combinations" - i.e. larger trucks. This last point has been a banner issue for the ATA, which seeks to raise truck weight limits from 80,000 to 97,000 pounds (and in some cases more). Currently, 13 western states permit LCVs (longer combination vehicles, with two or three trailers behind each truck) on their highways. The ATA would like to harmonize these standards and permit LCVs nationwide.

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Aspen Institute

A Framework for a National Broadband Policy

Walter Isaacson, President & CEO

This report is an analysis of challenges to expanding broadband access in the U.S. following two 2007 conferences led by the Aspen Institute. The report analyzes three main challenges that were raised in the conference: access, affordability, and adoption. Access outlines how to build-out affordable broadband infrastructure to increase speeds for current users and add access for those without. Discusses maintaining the competition-based approach to providing broadband access and how to allocate spectrum more efficiently. Finally, Adoption outlines whether and how the government should promote user adoption of broadband.

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Aspen Institute

Rethinking Communications Regulation

Walter Isaacson, President & CEO

This report summarizes various industry and civil society views on how the U.S. Government can reform communications regulation to promote innovation and lower the costs of communication.

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Aspen Institute

Scenarios for a National Broadband Policy

Walter Isaacson, President & CEO

Among the Aspen reports, this could potentially be the most useful for our purposes. The paper describes four possible future scenarios for broadband access: low demand and low supply, high demand and low supply, high demand and high supply (ideal situation), and low demand and high supply. In each scenario, various industry and academic views are quoted on how government should address the situation. These views are summarized in part III's lessons from the broadband scenarios which outline a list of recommendations for the

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National Telecommunications and Information Administration (NTIA).

Aspen Institute

Spectrum as a Resource for Enabling Innovation Policy

Walter Isaacson, President & CEO

This paper outlines a set of policy initiatives to enable a “staircase” access approach to spectrum that promotes innovation in the economy. The approach allows start-ups with limited resources to initially test their ideas using an experimental license. They can then transition to early commercial service using free unlicensed access, perhaps in TV white space. Next, as business grows, they can move to shared licensed access to federal spectrum for a moderate fee. Finally, as the full potential of the business becomes clear, they can acquire spectrum at auction in a conventional manner. (Similar proposal outlined in the President’s “Realizing the Full Potential of Government-Held Spectrum to Spur Economic Growth” report.)

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Aspen Institute

Spectrum for the Next Generation of Wireless

Walter Isaacson, President & CEO

Similar to the Reallocation Imperative report, this is an earlier analysis of making spectrum allocation more efficient through sharing measures and incentive auctions.

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Aspen Institute

The Reallocation Imperative: A New Vision for Spectrum Policy

Walter Isaacson, President & CEO

This paper focuses on new ways to more efficiently allocate spectrum, especially the FCC’s incentive auctions and alternative ways of sharing spectrum. This report goes into some detail about spectrum policy reforms, but does not discuss alternative ways of providing broadband access aside from spectrum allocation.

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Association of American Railroads

"Bottleneck" Policy: Don't Fix What Isn't Broken

Edward R. Hamberger, President & CEO

The Association of American Railroads is comprised of the major freight carriers and Amtrak and serves as their unified voice in Washington. It also seeks to share best practices around safety and productivity. One of the AAR's flagship campaigns, "Freight Rail Works" (www.freightrailworks.org), encourages freight investment and highlights innovations like satellite technology, as well as the system's safety and efficiency.

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On the policy side, the AAR argues against changing current "bottleneck" policies because a change would put too much power in the hands of shippers to decide how freight is routed, undermining efficient operation and potentially cutting away several billion dollars in revenue that are needed for continued reinvestment in infrastructure. The Association also advocates for public-private partnerships to expand rail networks and their capacity.



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
<p>Belfer Center for Science and International Affairs, Harvard Kennedy School of Government</p>	<p><i>Transportation Policy Revenue Options: Infrastructure, Emissions, and Congestion</i></p> <p>Given the decline in fuel tax revenues, U.S. motorists will have to pay higher taxes and fees in order to maintain adequate levels of infrastructure investment. This Kennedy School workshop report explores the issues surrounding three of the most likely revenue options: fuel tax increases, mileage-based (VMT) fees, and congestion pricing. While VMT and congestion pricing schemes hold promise, the paper cautions against overly optimistic expectations of their potential, noting consumer privacy concerns, equity concerns, technological limitations, and the potential for fraud. While increased fuel taxes remain the most feasible revenue option in the short term, the authors note that "it takes decades - not years - to switch from one method of transportation funding to another" and that alternative revenue options are likely to follow a similar pattern. In order to facilitate the adoption of VMT fees and congestion charges, the authors recommend federal support for alternative revenue pilots and state support for Pay-As-You-Drive insurance that would familiarize motorists with mileage-based fees. The report also notes complex federal and state regulatory challenges to local congestion pricing schemes and recommends a streamlined system of rules.</p>	<p>Edward Huang, Harvard Kennedy School</p> <p>Henry Lee, Harvard Kennedy School</p> <p>Grant Lovelette, Harvard Kennedy School</p> <p>Jose Gomez-Ibanez, Harvard Kennedy School</p> <p>79 JFK Street Cambridge, MA 02138 617-495-1400 www.belfercenter.ksg.harvard.edu</p>
<p>Bipartisan Policy Center, National Transportation Policy Project</p>	<p><i>Performance Metrics for the Evaluation of Transportation Projects</i></p> <p>The National Transportation Policy Project is an initiative of the Bipartisan Policy Center that aims to rethink federal transportation policy and promote a more integrated, strategic vision for project planning and evaluation. In this report, the NTPP proposes policy measures that measurably support the goals of economic growth, national connectivity, metropolitan accessibility, energy and environmental security, and safety. Specifically, the report recommends establishing transparent, objective performance measures - CO2 emissions, network utility, corridor congestion, access to jobs and labor, fatalities per mile, and the like - and directing federal project funding based on these criteria. In order to rationalize and articulate the federal role in transportation, the authors suggest consolidating the 108 existing federal funding programs into six. Four formula-based programs, including a Performance Bonus Program rewarding accountability, would allocate money to system preservation programs, while two new capacity expansion programs would allocate 25% of transportation funding to national and metropolitan network improvements on a competitive basis.</p>	<p>Emil Frankel, Visiting Scholar Former Director of Transportation Policy</p> <p>1225 I Street, NW, Suite 1000 Washington, D.C. 20005 202-204-2400 www.bipartisanpolicy.org</p>
<p>Booz Allen Hamilton</p>	<p><i>Rethinking Mega-Region Air Travel</i></p> <p>BAH operates a large transportation practice and publishes many thought pieces on the topic of infrastructure reform. Although the majority of these pieces are advertising documents, a number of interesting ideas - e.g. high-speed express rail between airports to alleviate congestion at busy hubs (linked) - have emerged. The firm also advocates a "megaregion" approach to infrastructure that emphasizes intermodal links and interregional cooperation in development.</p>	<p>Mark Gerencser, Executive Vice President</p> <p>Hamilton Building 8283 Greensboro Drive McLean, VA 22102 703-902-5000 www.bah.com</p>



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
<p>Brookings Institution</p>	<p><i>A Bridge to Somewhere: Rethinking American Transportation for the 21st Century</i></p> <p>This report by Brookings' Metropolitan Policy Program argues for a new approach to transportation investment that prioritizes rigorous cost-benefit analysis, outcome-based decision-making, and "modality neutrality" that matches investments to real needs and movement trends - for example, the rising importance of suburban areas as economic engines and the revitalization of inner city cores. To this end, the authors advocate a three-pronged federal approach to transportation issues. First, they suggest new Strategic Transportation Investment Commission to develop a national, competitive vision and prioritize investments in projects that serve that vision. The second approach is a new Metropolitan Empowerment Program that directs funding to local projects and helps states and localities embrace market mechanisms such as road pricing as well as planning best practices. Finally, the authors urge the stringent application of evidence-based decision-making and tying funding to outcomes. Under this scheme, an intervention mechanism could exist for low performers, and states could also have the option to opt out of these requirements and forgo federal money. The report argues that only after the implementation of performance measures should funding issues – infrastructure banks, fuel tax revamps, adoption of market mechanisms like congestion pricing, or user fees – be addressed.</p>	<p>Robert Puentes, Senior Fellow Director, Brookings Metropolitan Policy Center</p> <p>1175 Massachusetts Avenue, NW Washington, D.C. 20036 202-797-6000 www.brookings.edu</p>
<p>Brookings Institution</p>	<p><i>Banking on Infrastructure: Enhancing State Revolving Funds for Transportation</i></p> <p>This paper from the Brookings-Rockefeller Project on State and Metropolitan Innovation explores state revolving funds for infrastructure investment, particularly state infrastructure banks (SIBs). Reviewing the largest and most successful SIBs, like in Florida, South Carolina, and Virginia, the authors recommend enhancing SIB capabilities by streamlining federal regulatory requirements, improving funds' ability to leverage their capitalization while maintaining liquidity, and improving their focus on projects with local/regional economic benefits. The authors make a point to note the difference between SIBs, which serve primarily local and state interests, with the need for a national infrastructure bank (NIB), which would finance nationally significant, multi-jurisdictional projects and provide technical assistance to state and municipal governments that need it.</p>	<p>Robert Puentes, Senior Fellow Director, Brookings Metropolitan Policy Center</p> <p>1175 Massachusetts Avenue, NW Washington, D.C. 20036 202-797-6000 www.brookings.edu</p>
<p>Brookings Institution</p>	<p><i>Smart Policy: Building an Innovation-Based Economy</i></p> <p>The authors list strengthening digital infrastructure as one of the eight sets of policies to encourage an innovation-based economy. Specifically, they call for investing in broadband, data centers, and mobile cell towers, and improving access to spectrum for wireless applications.</p>	<p>Darrell West, Vice President and Director, Government Studies</p> <p>1175 Massachusetts Avenue, NW Washington, D.C. 20036 202-797-6000 www.brookings.edu</p>
<p>Brookings Institution</p>	<p><i>The Need for Speed: A New Framework for Telecommunications Policy for the 21st Century</i></p> <p>Robert Litan and Hal Singer argue that the FCC's outdated policies are inhibiting investment in the telecom industry, specifically in fast broadband networks. Their</p>	<p>Robert Litan, Director of Research, Bloomberg Government</p> <p>Hal Singer, Managing Director, Navigant Economics</p>



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
	<p>recommendations include allowing broadband providers to charge for premium delivery services; embracing a rule-of-reason approach to all matters involving vertical arrangements; stripping the FCC of its merger review authority (because both the FTC and the Justice Department already have such authority); eliminating the FCC's ability to condition spectrum purchases on the identity, business plans, or spectrum holdings of a bidder; and freeing telephone companies from outdated regulations that require them to maintain both a legacy copper network and a modern IP network.</p>	<p>1175 Massachusetts Avenue, NW Washington, D.C. 20036 202-797-6000 www.brookings.edu</p>
<p>Brookings Institution</p>	<p><i>The Technical Basis for Spectrum Rights: Policies to Enhance Market Efficiency</i></p> <p>This is a technical report on the legalese of spectrum usage rights and licensing. The authors lay out recommendations for the FCC which can be ultimately summarized as injecting more flexibility in the spectrum allocation framework.</p>	<p>Adele Morris, Policy Director, Brookings Climate and Energy Economics Project</p> <p>1175 Massachusetts Avenue, NW Washington, D.C. 20036 202-797-6000 www.brookings.edu</p>
<p>Building America's Future Educational Fund</p>	<p><i>Building America's Future: Falling Apart and Falling Behind: Transportation Infrastructure Report 2012</i></p> <p>Building America's Future, an initiative led by Michael Bloomberg, Arnold Schwarzenegger, and former Pennsylvania Governor Edward Rendell, argues in this report for a 10-year national infrastructure strategy and \$200 billion per year in new investments that mirrors the scale of investments in "competitor nations" of Europe and East Asia. Specifically, the report advocates applying benefit-cost analysis to maximize economic returns, establishing a National Infrastructure Bank (NIB), and other innovative project finance and revenue-raising options.</p>	<p>Marcia L. Hale, President</p> <p>1301 Pennsylvania Avenue, NW Suite 350 Washington, D.C. 20004 202-624-5924 mlhale@bafuture.org</p>
<p>California Management Review</p>	<p><i>Towards a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development</i></p> <p>This report attempts to codify and consolidate scholarly work and previous experiences with public private partnerships (PPPs/P3s), which it defines as cooperative arrangements between public and private sector actors that involve "the sharing of resources, risks, responsibilities, and rewards with others for the achievement of joint objectives," with an eye to enhancing understanding of their capabilities and limits for infrastructure development. The authors list five types of P3, in increasing order of private sector involvement: operation-maintenance (OM); design-build-operate (DBO); design-build-finance-operate (DBFO); build-operate-transfer (BOT); and build-own-operate (BOO). The article describes P3 benefits and drawbacks only in general terms (e.g., the possibility of improving infrastructure services' quality and efficiency, or the possibility of P3s resulting in monopoly situations with excessive costs to users) due to the vast differences between these different types of partnerships. The authors note that adopting effective P3 schemes is not easy due to their complexity, and government credibility and competence is vital to safeguard the public interest - as is the selection of a competent, well-managed, and financially sound concessionaire. The importance of effective financial planning - identification and allocation of risks to public and private partners, guarantees of stable revenue streams, and early involvement with financial institutions - is also emphasized.</p>	<p>Young Hoon Kwak Associate Professor of Project Management, GWU School of Business</p> <p>YingYi Chih Lecturer in Project Management, Australian National University</p> <p>C. William Ibbs Professor of Construction Management, UC Berkeley President, Ibbs Consulting Group</p>



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The authors urge caution (in the form of pilot projects and feasibility studies) from the public sector in entering into P3s and the development of tools for sharing knowledge and best practices in P3 management.

Cato Institute

Downsizing the Federal Government: Infrastructure Investment

Chris Edwards, Director of Tax Policy Studies

In this report, the Cato Institute decries the wastefulness of federal transportation programs. The report categorizes waste into five categories: misallocated investment, inefficient infrastructure utilization, mismanagement of projects, replicating bad ideas, and burdensome regulations that impose one-size-fits-all requirements on states with disparate needs. Cato recommends cutting federal transportation subsidies and devolving control over infrastructure to state and local governments. In order to meet new capacity, states should explore privatization and P3 opportunities whenever possible and trust in the market to determine what investments and innovations are necessary.

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www.cato.org

Center for American Progress

Creating a National Infrastructure Bank and Infrastructure Planning Council

Donna Cooper, Senior Policy Fellow

In this report, the Center for American Progress argues that U.S. infrastructure planning and funding practices are balkanized and falling behind global best practices. The authors urge the adoption of a European-style infrastructure bank and strategic planning council that can attract private investment, issue bonds, and coordinate complementary, strategic planning to maximize the efficiency of infrastructure investment - for example, by issuing loans for both harbor dredging and port terminal expansion. However, the report is non-specific about issues like the bank's operating model or the size of the bank's initial capitalization. Given the difficulty of marshaling political will to create a bank, the authors recommend establishing a federal "infrastructure bundling entity," essentially an intermediary between large projects and private capital, as a first step. This entity would work with projects to pair them with private investors while also, the authors hope, demonstrating to lawmakers the benefit of a full-fledged infrastructure bank.

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Center for American Progress

Infrastructure Partnerships: Labor's Evolving Experience

Bill Barnhart, former financial editor & columnist, *Chicago Tribune*
Former president, Society of American Business Writers and Editors

In this report, the Center for American Progress attempts to address the reputation of P3s for ignoring labor and community interests in deference to private profit-seeking. Despite a history of tension between P3 partners and labor, the author argues that private greenfield investments can benefit unions and workers as P3 best practices evolve. The author cites the examples of the Port of Miami Tunnel, Presidio Parkway in California, and the Iliana Corridor in Indiana and Illinois - all cases in which capital and labor successfully collaborated in building new infrastructure. In order to encourage future positive labor relations, the author suggests including prevailing wage requirements (the Davis-Bacon mandate) in federally disseminated best practices, as well as urging pension funds (particularly public funds) to mandate responsible-contractor policies (RCPs) to P3 operators.

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<p>Center for American Progress</p>	<p><i>Using Pension Funds to Build Infrastructure and Put Americans to Work</i></p> <p>This report describes various strategies to decrease barriers to pension fund investment in infrastructure projects. The report urges policymakers to close the "information gap" between project managers and institutional investors through an infrastructure bank, an industry group to standardize ROI metrics in infrastructure, and DOT and Department of Labor outreach to educate transportation officials and pension funds on how to work with each other. The authors also discuss ways to make infrastructure investments more attractive, arguing for federally guaranteed and subsidized, revenue-neutral bonds that eliminate demand risk for these investors, as well as permitting pension funds to purchase equity in projects and take advantage of the tax-exempt municipal bond market. The authors laud Australian policies that encourage pension funds to invest in infrastructure.</p>	<p>Donna Cooper, Senior Policy Fellow</p> <p>1333 H Street, NW Washington, D.C. 20005 202-682-1611 www.americanprogress.org</p>
<p>Center for Transportation Studies, University of Minnesota</p>	<p><i>Maximizing the Benefits of Transitway Investment</i></p> <p>The authors take a look at the Minneapolis-St. Paul region's planned transit expansions, wherein fourteen transitways will serve the downtown by 2030. This study finds that employers can help to maximize the competitive impact of this investment by locating near transitways in "competitive clusters" of industries and that centralizing jobs along transit in this way is a better way to increase competitiveness than centralizing housing. The study also recommends policies that encourage the development of both jobs and housing along transitways.</p>	<p>Yingling Fan, Assistant Professor Humphrey School of Public Affairs University of Minnesota</p> <p>Humphrey School of Public Affairs University of Minnesota 301 19th Avenue South Minneapolis, MN 55455 612-626-2930 www.cts.umn.edu</p>
<p>Center for Transportation Studies, University of Minnesota</p>	<p><i>Potential Benefits of Mileage-Based User Fees to the Freight Industry and Industry Concerns</i></p> <p>In this study, the authors argue that a mileage-based fee system is a more fair and sustainable alternative to the fuel tax that could help to restore funding shortfalls for the Highway Trust Fund. The study notes that Oregon and New York have already undertaken pilot programs to test the feasibility of charging vehicle miles traveled (VMT) fees both at the pump and through GPS. The authors also report the reactions of a focus group of Minnesota trucking executives, who opposed mileage-based user fees and feared that additional taxes would damage the industry's ability to compete with rail.</p>	<p>Ferrol Robinson, Principal Investigator</p> <p>280 Humphrey Center University of Minnesota 301 19th Avenue South Minneapolis, MN 55455 612-626-4647 www.cts.umn.edu</p>
<p>Coalition Against Bigger Trucks</p>	<p>CABT advocates against allowing longer combination vehicles (LCVs - essentially triple-length tractor trailers) on public roads on the grounds that they will cause irreparable damage to already crumbling infrastructure, pose significant safety problems other highway users, and amount to billions of dollars in trucking subsidies by increasing highway maintenance costs at a greater rate than their increase in payments. It is worth noting that CABT counts many rail interests among its members.</p>	<p>1001 North Fairfax Street Suite 515 Alexandria, VA 22314 (703) 535-3131 www.cabt.org</p>
<p>Coalition for America's Gateways and Trade Corridors</p>	<p><i>America's Freight is America's Future: Succeeding Through Borders and Corridors</i></p> <p>The CAGTC is a coalition of many freight advocacy organizations that lobbies for increased investment in</p>	<p>Mortimer Downey, Chairman</p> <p>Leslie Blakey, Executive Director</p> <p>CAGTC</p>



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
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intermodal freight infrastructure. Specifically, CAGTC advocates increasing funding for the National Corridor Planning and Development Program and the Coordinated Border Infrastructure Program established in TEA-21 (Transportation and Equity Act for the 21st Century). In this report, the CAGTC recommends setting aside at least \$2 billion (and wants \$17 billion) for these programs. The report then highlights successful intermodal projects such as the Alameda Corridor and Oakland Joint Intermodal Terminal, documents "shelf ready" projects that need funding, and breaks down the components of its recommended funding levels.

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Coalition for Clean & Safe Ports

Longer Hours, Lower Wages & Little Hope: A Snapshot of U.S. Port Truck Drivers' Livelihoods Since Industry Lobbies Crippled Clean Truck Programs

Patricia Castellanos, Chair
Commissioner, Port of Los Angeles

The Coalition for Clean & Safe Ports seeks to end the classification of port truck drivers as independent owner-operators (IOO) and instead to require drayage companies to treat them as employees. This treatment would require companies to assume responsibility for truck upkeep and emissions; port trucks are generally in poor condition and heavily polluting because owners cannot afford upkeep or new equipment. The Coalition reports that industry groups such as the American Trucking Associations (ATA) have crippled attempts at the Ports of LA, Long Beach, and Oakland to require employee classification and argues that such a system will dramatically improve ports' environmental footprint.

c/o Port of Los Angeles
425 South Palos Verdes Street
San Pedro, CA 90731
323-246-5615
www.cleanandsafeports.org

Coalition for Transportation Productivity

Why Raise the Vehicle Weight Limit?

John Runyan, Executive Director

The Coalition for Transport Productivity is an association of shippers that seeks passage of the Safe and Efficient Transportation Act (SETA), which would allow states to raise truck weight limits from 80,000 to 97,000 pounds while requiring an additional sixth axle to distribute weight. CTP notes that this requirement would maintain the load per wheel on roadways and argues that damage from increased weight limits would thus be mitigated. The Coalition also points out that heavier six-axle trucks achieve 17% more ton-miles per gallon than 5-axle trucks and asserts that shippers' ability to pack trucks with more will allow them to reduce the number of trucks on the road, improving safety and saving shippers money. It estimates that increased weight limits would help International Paper, for example, save \$70 million/year in transportation costs. CTP notes that U.S. weight limits trail those of major trading partners like Mexico and Canada and suggest that these limits impede our ability to compete.

8 E Street, SE
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www.transportationproductivity.org

Congressional Research Service

Broadband Internet Access and the Digital Divide: Federal Assistance Programs

Lennard Kruger, Specialist in Science and Technology Policy

This report reviews the two main government funding mechanisms most suitable to expanding broadband access following the conclusion of the American Recovery and Reinvestment Act of 2009. One is the Rural Utilities Service (RUS) of the Dept. of Agriculture; the other is the Universal Service Fund (USF) of the FCC. CRS evaluates some other policy instruments such as tax incentives for broadband providers, spectrum policy, demand-side incentives (subsidizing household computers), and deregulation. CRS

Angele Gilroy, Specialist in Science and Technology Policy

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ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
<p>Connected Nation</p>	<p>recommends that Congress select a package of policies that promotes both short and long term job creation.</p> <p><i>The Economic Impact of Stimulating Broadband Nationally</i></p> <p>This is a case study of Kentucky's successful efforts to expand broadband service across the state through an initiative called ConnectKentucky. From 2004 to 2007, ConnectKentucky helped to increase household broadband coverage from 60% to 95%, a much higher rate than the national average over that period. The study concludes with some estimates of economic benefits for the United States if country-wide initiatives like ConnectKentucky were implemented (i.e., job creation, healthcare savings, carbon credits, hours saved, etc.).</p>	<p>Tom Ferree, President and COO</p> <p>P.O. Box 43586 Washington, DC 20010 877-846-7710 www.connectednation.org</p>
<p>Council of Supply Chain Management Professionals</p>	<p><i>Big Data in the Supply Chain</i></p> <p>The Council of Supply Chain Management Professionals (CSCMP) is a leading professional organization for supply chain managers and sponsors education programs, conferences, networking and career help, and research. Currently, it is undertaking two projects that address the implications of big data analytics for supply chain management. The CSCMP will present its findings in 2014.</p>	<p>Rick Blasgen, President & CEO</p> <p>333 East Butterfield Road, Suite 140 Lombard, IL 60148 630-645-3458 www.cscmp.org</p>
<p>Council on Foreign Relations</p>	<p><i>U.S. Broadband Policy and Competitiveness</i></p> <p>This is a short background paper on making the U.S. more competitive by increasing broadband access. CFR calls for expanding fiber infrastructure and investing in broadband access for rural communities. The article links to several other useful resources.</p>	<p>Steven Markovich, Contributing Editor</p> <p>1777 F Street, NW Washington, D.C. 20006 202-509-8400 www.cfr.org</p>
<p>Eno Center for Transportation</p>	<p><i>Better Use of Public Dollars: Economic Analysis in Transportation Decision Making</i></p> <p>This report encourages states and the federal government to build out their economic analysis capabilities in evaluating their infrastructure investment options. Although the recommendations stop short of the TCO (total cost of ownership) approached favored by McKinsey, the Eno Center uses case studies from the Kansas, Indiana, Michigan, and North Carolina DOTs to demonstrate the value of long-term, transparent, and data-driven economic analysis in infrastructure planning.</p>	<p>Joshua L. Shank, President & CEO</p> <p>1250 I Street, NW, Suite 750 Washington, D.C. 20005 202-879-4711 www.enotrans.org</p>
<p>Eno Center for Transportation</p>	<p><i>Lessons Learned from the TIGER Discretionary Grant Program</i></p> <p>This report analyzes the successes and shortcomings of the Transportation Investments Generating Economic Recovery (TIGER) transportation grant programs introduced as part of the economic stimulus. TIGER is significant, Eno notes, in that it is the first federal discretionary grant program that required grant applicants to perform benefit-cost analysis (BCA) as part of the application process. Although the program ran into problems due to DOT and applicant inexperience performing and evaluating BCAs, the report lauds the inclusion of these preliminary performance measures to transportation planning. The authors recommend the inclusion of BCA requirements in</p>	<p>Joshua L. Shank, President & CEO</p> <p>Amy Cavaretta, Policy Fellow</p> <p>1250 I Street, NW, Suite 750 Washington, D.C. 20005 202-879-4711 www.enotrans.org</p>



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DOCUMENTS AND POSITIONS

CONTACT INFORMATION

future discretionary programs, as well as other features of the TIGER programs including broad modal (including multimodal) eligibility, cost-sharing requirements to better leverage federal capital, broad agency eligibility, and rural investment requirements to ensure program support from inordinately powerful rural legislators. However, in the design of future programs Eno suggests a greater level of congressional involvement in grant allocation in order to limit criticisms of "executive earmarking," as well as more transparent criteria for project selection, a dedicated DOT office (previous TIGER programs have been managed out of the Office of the Secretary, creating a political perception problem), and explicit requirements for cost sharing.

Equity Caucus at Transportation for America

Guiding Principles for the Transportation Authorization

Anita Hairston, Co-Chair
Associate Director for Transportation, PolicyLink

The Equity Caucus at Transportation for America is a coalition of leading civil rights, community, economic/racial/environmental/social justice, women's, tribal, public interest, and transportation groups, seeks to influence the next surface transportation authorization in ways that advance U.S. economic and social equity. The caucus endorses four fundamental principles. The first, creating affordable transportation options for all, includes increased funding for transit, bikes, and sidewalks, with a focus on disadvantaged communities. The second principle is to ensure fair access to jobs, workforce development, and contracting opportunities in the transportation industry - including protection of prevailing wages and benefits, contracting goals for disadvantaged business enterprises, and job training for disadvantaged people. The caucus also seeks to promote healthy, safe, and inclusive communities by introducing a pilot health impact assessment for transportation projects, requiring greener freight technologies, supporting "complete streets" and affordable public housing near transit, and supporting an integrative approach. The final pillar of the Equity Caucus is equitable investment and a focus on results: establishing performance criteria to guide investment, such as improved mobility, transit ridership, health/safety, carbon emissions, and VMT; ensuring equitable access to the benefits of transportation, without disproportionately burdening low-income people; and improving planning, both through reform of metropolitan planning departments and creating transportation planning organizations in rural areas.

PolicyLink
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Federal Communications Commission

Broadband 706 Progress Report

445 12th Street SW
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888-225-5322
www.fcc.gov

Congress mandates the FCC to report on progress of broadband expansion across the country through the 706 report. In the most recent (8th) report, the FCC reports progress but says that 19 million Americans (6% of population) are still without access to fixed broadband infrastructure and that more work needs to be done to reach 100% coverage. Following the report's publication, ITIF issued this press release critiquing the FCC's negative review of broadband access in rural areas and arguing that alternative forms of high-speed access (satellite) are more commercially viable than fixed-line infrastructure. The FCC also reports state and local level access to fixed line infrastructure with some useful maps illustrating coverage, and their data goes into detail about



ORGANIZATION

DOCUMENTS AND POSITIONS

CONTACT INFORMATION

which communities are without access.

Frost & Sullivan

Mastering Information for Competitive Advantage: Smarter Computing in the Travel and Transportation Industry

Brian Cotton, Vice President, Information and Communications Technologies

"The travel and transportation industry remains a key component of the global economy. Traditional IT infrastructures often cannot cope with the volume and velocity of data generated across the industry, which leaves some companies at a competitive disadvantage. By applying Smarter Computing principles, a number of service providers are becoming more effective, efficient, and agile, and are realizing significant business value from transforming their IT infrastructures."

331 E. Evelyn Ave., Suite 100
Mountain View, CA 94041
650-475-4500
www.frost.com

Government Accountability Office

Intelligent Transportation Systems: Improved DOT Collaboration and Communication Could Enhance the Use of Technology to Manage Congestion

David Wise, Director, Physical Infrastructure Issues

This March 2012 GAO report on the Dept. of Transportation recommends to the Sec of Trans to more clearly define the roles of DOT's Research and Innovative Technology Administration (RITA) and the Federal Highway Administration (FHWA) in supporting the use of intelligent transportation systems (ITS) in the US. GAO notes that use of ITS has been successful at local and state levels in reducing traffic congestion, but DOT has not been sufficiently communicative about its ITS-related activities. GAO says that there are opportunities for DOT to "facilitate the sharing of ITS information among state and local officials."

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Harvard Kennedy School of Government

Triumph of the City

Edward Glaeser, Fred and Eleanor Glimp Professor of Economics, Harvard University
Director, Rappaport Institute for Greater Boston, Harvard Kennedy School

In his analysis of cities' ability to spur innovation, urbanist Edward Glaeser stresses the importance of intelligent transportation decision-making and different modes' impact on urban development. Citing historical examples from the development of the stirrup to the omnibus and later highway investments, Glaeser analyzes the impact of transportation systems on urban development and population patterns; ability to connect people, communities, and enterprises; and sustainability. In this far-reaching book, he cautions against the "edifice error," the notion that "if you build it, they will come," with examples like the wasteful People Mover project in Detroit. Glaeser favors a benefit-cost approach to transportation decision-making that right-sizes networks for cities' needs and cheaply meets the needs of consumers. Though Glaeser's focus in the book is not on transportation, he imbues a sense of its critical role in ensuring urban prosperity and growth, as well as its impact on such basic elements as a city's look and feel.

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IBM

Foundations for Smarter Cities

Colin Harrison, Barbara Eckman, Rick Hamilton, Perry Hartswick, Jayant Kalagnanam, Jurij Paraszczak, Peter Williams

"This paper describes the information technology (IT) foundation and principles for Smarter Cities." The approaches adopted by the Smarter Cities concept "enables the adaptation



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	<p>of city services to the behavior of the inhabitants," a key aspect that has direct implications for transportation systems.</p>	<p>IBM Corporation 1 New Orchard Road Armonk, NY 10504-1722 914-499-1900 www.ibm.com</p>
<p>IBM</p>	<p><i>Smarter Cities Series: A Foundation for Understanding IBM Smarter Cities</i></p> <p>IBM defines a smarter city as "one that makes optimal use of all the interconnected information available today to better understand and control its operations and optimize the use of limited resources." The IBM Smarter Cities Series is a collection of guidebooks that explains the premise of a smarter city and the smarter city approach was is to make a city "instrumented, interconnected, and intelligent." This document is the first of the series and outlines the fundamentals of the smarter city concept. Other guidebooks in the series are sector specific (water management, public safety, traffic, buildings, and energy).</p>	<p>Michael Kehoe, Smarter Cities Product Manager</p> <p>Michael Cosgrove, Steven De Gennaro, Colin Harrison, Wim Harthoorn, John Hogan, John Meegan, Pam Nesbitt, Christina Peters</p> <p>IBM Corporation 1 New Orchard Road Armonk, NY 10504-1722 914-499-1900 www.ibm.com</p>
<p>IBM</p>	<p><i>Smooth Operations: Smarter Transportation Systems</i></p> <p>This report includes several useful examples of IBM clients that improved transportation infrastructure or systems through IBM products and services and by making transportation "smarter." US-based cases include the US Postal Service, an unnamed US airline, an unnamed US freight railroad, and an unnamed US airport hub. A useful statistic from this report: "In the US alone, people lose 4.2 billion hours sitting in traffic every year, and 2.8 billion gallons of fuel burn needlessly at a cost of \$87.2 billion per year to the economy."</p>	<p>IBM Corporation 1 New Orchard Road Armonk, NY 10504-1722 914-499-1900 www.ibm.com</p>
<p>IBM</p>	<p><i>The Case for Smarter Transportation</i></p> <p>This is a more detailed version of IBM's Smooth Operations report. The Case for Smarter Transportation goes into more detail about how data analytics can be used to make transportation more efficient and to optimize usage of infrastructure while minimizing costs and maximizing revenue. Several international examples of IBM clients are referenced.</p>	<p>IBM Corporation 1 New Orchard Road Armonk, NY 10504-1722 914-499-1900 www.ibm.com</p>
<p>IBM</p>	<p><i>Using Standards to Enable the Transformation to Smarter Cities</i></p> <p>"This paper explores how standards will play a critical role in facilitating the creation of smarter cities with systems that are optimized by using a comprehensive information view from pervasive instrumentation. The underlying premise is that the combination of standards, models, and a new suite of design tools and techniques will be needed to address various challenges and make significant progress toward the creation of smarter cities." Though the focus of this paper is not on transportation, standards are a key theme in the smarter cities initiative, of which transportation is a key pillar.</p>	<p>John Hogan, John Meegan, Rashik Parmar, Vish Narayan, Robert J. Schloss</p> <p>IBM Corporation 1 New Orchard Road Armonk, NY 10504-1722 914-499-1900 www.ibm.com</p>
<p>Information Technology & Innovation Foundation</p>	<p><i>The Whole Picture: Where America's Broadband Networks Really Stand</i></p> <p>This report is a scorecard of the state of broadband networks and access in the United States. ITIF provides some very</p>	<p>Robert Atkinson, President Richard Bennett, Visiting Fellow Luke Stewart, Economic Analyst</p> <p>1101 K Street, NW</p>



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
	<p>positive data points on U.S. broadband networks vis-à-vis other countries, coming to the conclusion that the competitive nature of broadband in the U.S. means that the role of policy should focus on encouraging more residents to come online rather than intervening on the supply-side.</p>	<p>Suite 610 Washington, D.C. 20005 202-449-1351 www.itif.org</p>
<p>INRIX</p>	<p><i>INRIX Traffic Scorecard</i></p> <p>Includes comparative U.S. and global congestion data by country as well as by metropolitan area. LA is the U.S.'s most congested metro area, followed by Honolulu, San Francisco, Austin, and New York. However, Brussels and Antwerp are both more congested than LA, and Milan, London, and Paris have worse traffic than Honolulu. Overall, U.S. congestion is significantly better than most European countries and Canada, and ranks as the fourth-best "mover" after Luxembourg, Switzerland, and Ireland.</p>	<p>Bryan Mistele, President & CEO</p> <p>10210 NE Points Dr., Suite 300 Kirkland, WA 98033 425-284-3800 www.inrix.com</p>
<p>Intelligent Transportation Society of America</p>	<p><i>Smart Parking and the Connected Consumer</i></p> <p>Nearly 30% of urban congestion is caused by drivers looking for parking - searching for on-street spaces, comparing facility costs, and looking for garages. This report advocates the adoption of smart parking technologies by municipalities and facility owners, including mobile phone payment options and real-time information on open spots, to help optimize drivers' search for parking and get these cars off the roads. Examples like San Francisco, which is piloting smart parking meters that report whether a space is occupied, are highlighted.</p>	<p>Steven Bayless, Director of Telecommunications and Telematics</p> <p>1100 17th Street, NW, Suite 1200 Washington, D.C. 20036 202-721-4229 www.itsa.org</p>
<p>Intelligent Transportation Society of America</p>	<p><i>Trends in Computer Vision</i></p> <p>In this paper, ITS America explains the potential of computer vision systems to identify potential transportation safety risks and detect hindrances to road network efficiency. The report notes that vision systems themselves - cameras and sensors - are quite sophisticated and non-intrusive, but turning the data they collect into useful information has in many cases proved challenging due to unsophisticated computer algorithms, stovepiped sensing data, high computer processing demands, and inexperience with the technology. The report advocates what it terms "sensor fusion" - centralizing data from many types of roadway sensors, including vision systems, so that their inputs can complement each other. The report also notes the promise of computer vision systems for further vehicle and infrastructure innovation due to their non-intrusiveness and flexibility, and highlights the potential value of "crowdsourced" visual data to identify unsafe driving, traffic snarls, and numerous other impediments to safe and efficient network utilization.</p>	<p>Steven Bayless, Director of Telecommunications and Telematics</p> <p>1100 17th Street, NW, Suite 1200 Washington, D.C. 20036 202-721-4229 www.itsa.org</p>
<p>Intelligent Transportation Society of America</p>	<p><i>Trends in Machine-to-Machine Communications</i></p> <p>This "technology scan" from the Intelligent Transportation Society of America reviews the promise of machine-to-machine (M2M) technologies in transportation applications and some of the challenges of implementation. Overall, the paper is optimistic about the potential of M2M technologies to improve safety through systems like cooperate automobile collision avoidance, as well as improving vehicle maintenance through automatic communication with service providers. The report</p>	<p>Steven Bayless, Director of Telecommunications and Telematics</p> <p>1100 17th Street, NW, Suite 1200 Washington, D.C. 20036 202-721-4229 www.itsa.org</p>



ORGANIZATION

DOCUMENTS AND POSITIONS

CONTACT INFORMATION

notes challenges, including depressed consumer willingness-to-pay for in-car data services, and highlights the promise of integrating cellular data packages into transportation applications.

Intelligent Transportation Society of America

Trends in Roadway Domain Active Sensing

This report highlights developments in active sensing transportation technologies, meaning technologies that emit energy to collect information such as radar and laser-based sensing. New in-vehicle safety applications, such as car-mounted radar, have the potential to significantly improve safety and prevent collisions, especially as the technology grows more sophisticated. The value of these technologies in semi-autonomous and even autonomous applications is also reviewed. The report also investigates the potential of infrastructure-based active sensing technologies, for example "left turn assist" technologies that use radar to notify drivers when traffic gaps are large enough for a safe left turn. These technologies could also detect vehicle speeds and aid in optimizing traffic flow. However, limitations to this technology exist with the most significant being cost. Sensing equipment of this nature is extremely expensive - for example, the LIDAR suite for Google's autonomous vehicle fleet costs at least \$70,000. Until costs decrease, it is unlikely that active sensing technologies will be practical for wide-scale deployment in transportation networks and vehicles.

Steven Bayless, Director of Telecommunications and Telematics

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Intermodal Association of North America

IANA Policy Issue Briefings

The Intermodal Association of North America advocates for policies that benefit intermodal carriers and shippers and generally tries to coordinate its actions with the American Trucking Associations (ATA) and Association of American Railroads (AAR). It opposes the railroad re-regulation proposed by the National Industrial Transportation League (NITL) as well as any increased ocean carrier regulation. IANA also opposes changes to trucking Hours of Service rules, opposes employee driver mandates in the port drayage industry due to likely higher drayage costs, and strongly supports securing dedicated federal funding for intermodal freight connectors, establishment of a Multimodal Freight Office within the DOT, and other means of securing freight infrastructure investment like railroad investment tax credits, fuel tax increases, and expanded use of public-private partnerships.

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Itasca Project

Regional Transit System Return on Investment Assessment

The Itasca Project is a "civic alliance" of business and community leaders in the Minneapolis-St. Paul area committed to enhancing the region's competitiveness. One key initiative is expanded investment in transportation infrastructure, and the linked report offers Itasca's analysis of the value this infrastructure would add. Assuming future growth along transit corridors, the report concludes a probable 13-21% IRR on a \$4.6 billion investment over 15 years, which its authors consider a conservative estimate. Although the majority of benefits the study cites are in travel time and vehicle operation cost savings, they also find that this plan would save \$185 to \$270 million in logistics costs.

Mary Brainerd, Chairwoman
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<p>Leadership Initiative on Transportation Solvency, Carnegie Endowment for International Peace</p>	<p><i>The Road to Recovery: Transforming America's Transportation</i></p> <p>The authors suggest several gas & oil taxes to restore solvency to the U.S. transportation fund, including a 5% upstream ad valorem tax on oil during price increases and downstream taxes during price declines. They argue that this approach will allow the U.S. to adopt a pay-as-you-go transportation funding mechanism, tax the externalities of fossil fuel use currently borne by other government agencies, and stabilize oil prices to protect against future price shocks while also making other transportation options comparatively more attractive. The authors also stress the need for a more accountable, transparent, and strategic project selection and funding mechanism, decrying the fact that over 80% of federal transportation funds are allocated to states by formula with no oversight. The report also includes extensive analysis of the United States' transportation issues and makes a strong argument for transportation pricing policies in general.</p>	<p>Bill Bradley, former Senator from New Jersey</p> <p>Tom Ridge, former Secretary of Homeland Security & Governor of Pennsylvania</p> <p>David Walker, former U.S. Comptroller General</p> <p>1779 Massachusetts Ave, NW Washington, D.C. 20036-2103 202-483-7600 transportation@ceip.org</p>
<p>McKinsey Global Institute</p>	<p><i>Infrastructure Productivity: How to Save \$1 Trillion a Year</i></p> <p>McKinsey argues in this report that simple improvements in infrastructure management, undertaken systematically on a global scale, can increase infrastructure productivity by 60% and save the world economy \$1 trillion per year through 2030. The authors identify three major categories of productivity optimization: improving project selection, streamlining delivery, and making the most of existing infrastructure. To improve project selection, McKinsey suggests the use of a systems approach, with rigorous project selection criteria, careful planning and consideration of alternate approaches, and cost-benefit calculations such as a social discount rate. The second category the authors identify, streamlined delivery, is simply a matter of spreading industry best practices to reduce waste, incentivizing performance in contracts, and cutting red tape. Finally, to get the most out of infrastructure already in place, MGI suggests improved maintenance planning through a TCO (total cost of ownership) approach, adding "smart" technology overlays to improve flows, and using demand management systems like congestion pricing.</p>	<p>Richard Dobbs, Director Herbert Pohl, Director Nicklas Garemo, Director Jimmy Hexter, Director Robert Palter, Director Stefan Matzinger, Director Diaan-Yi Lin, Principal Jan Mischke, Senior Fellow Rushad Nanavatty</p> <p>1200 19th St, NW, Ste 1000 Washington, D.C. 20036 202-662-3100 www.mckinsey.com/insights/mgi</p>
<p>Midwest High Speed Rail Association</p>	<p><i>The Economic Impacts of High Speed Rail: Transforming the Midwest</i></p> <p>The Midwest High Speed Rail Association pushes for HSR investment in the Midwest megaregion, favoring a phased development approach that will ultimately link all the region's major metro areas with bullet trains. This study analyzes the potential economic impact of its plan in the Chicagoland area and concludes that HSR investment will provide \$13.8 billion and 104,000 new jobs for the Chicago Metro area. The study recommends building dedicated passenger tracks - and even corridors - that will improve scheduling and free up much-needed capacity for freight.</p>	<p>Richard Harnish, Executive Director</p> <p>4765 N. Lincoln Avenue Chicago, IL 60625 773-334-6758 www.midwestHSR.org</p>
<p>Miller Center for Public Affairs, 2013 David R. Goode National Transportation Policy Conference</p>	<p><i>A Blueprint for Presidential Leadership</i></p> <p>The Goode National Transportation Policy Conference focused on the necessity of presidential leadership on transportation reform during its 2013 session. Although the conference broke no new ground on innovations or identifying problems, it was</p>	<p>Norman Mineta, former Secretary of Transportation and Conference Co-Chair</p> <p>Samuel Skinner, former Secretary of Transportation and Conference Co-Chair</p>



ORGANIZATION DOCUMENTS AND POSITIONS CONTACT INFORMATION

significant in that it convened six former Secretaries of Transportation - including former Secretary Slater - to form an authoritative voice. Past conferences have recommended more specific initiatives, including the need to fund investment with a long-term fee structure that does not depend on fossil fuel consumption - for example, a VMT (vehicle-miles travelled) fee. The conference has also emphasized the need for better, more positive public communication about infrastructure reform; intermodal planning; a federal accounting system that takes into account the ROI from infrastructure spending; expanded PPPs; and coordinating transportation strategy at the federal level.

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MIT Center for Transportation and Logistics

Freight Transportation Infrastructure Survey: Causes and Solutions to the Current Capacity Crisis

In this report, the Center for Transportation and Logistics analyzes the results of its survey of shippers, carriers, and government transportation officials, finding that capacity and congestion issues have driven carriers and shippers into deeper communication and collaboration, but that communication between government and private sector transportation interests was almost nonexistent. Among issues identified (growth in imports, highway congestion near cities, and West Coast port chokepoints), government respondents tended to blame insufficient infrastructure investment, while private actors tended to chalk problems up to logistical and operations issues. In the short term, the CTL urges shippers and carriers to work together to find "hidden capacity" while urging greater business-government interaction to drive improvements in the long term.

Chris Caplice, Director

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MIT Intelligent Transportation Systems Lab

DynaMIT 2.0: The Next Generation Real-Time Dynamic Traffic Assignment System

Real-time transportation models are proven to be highly useful for traffic management and generation of traveler guidance information. The current state of the practice in real-time transportation modeling is represented by DynaMIT, which generates consistent anticipatory information about the future state of the transportation network based on current real-time data. DynaMIT has been effectively applied across a variety of locations and sensor configurations. The next generation of real-time models will be multi-modal and include representation of dynamic pricing and commercial vehicles. To support this, these models will be based on activity-based demand and will make use of the latest software design strategies, enhanced data availability and personal/vehicle connectivity.

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MIT Intelligent Transportation Systems Lab

The Case for Smart Highways

In 1987, the Federal Highway Administration spearheaded a joint effort of government, industry, and academia that led in 1990 to a seminal document describing a vision for the intelligent vehicle highway system (IVHS), and to the formation of an organization called the Intelligent Vehicle Highway Society of America. In the summer of 1992, this group is expected to deliver to the US Department of Transportation a strategic plan for putting intelligent highway technologies into place nationwide. The primary means for

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federal involvement in IVHS is the Intermodal Surface Transportation Efficiency Act. Signed by President Bush in December 1991, the Act authorizes \$660 million over the next 6 years for IVHS, including research and development, operational tests and deployment. With IVHS, a network of sensors would monitor the volume of traffic throughout the highway network. Computer control systems would respond rapidly to changing traffic conditions and provide timely information to travelers.

MIT Intelligent Transportation Systems Lab

Travel Demand Model System for the Information Era

Moshe Ben-Akiva, Director

The emergence of new information technologies and recent advances in existing technologies have provided new dimensions for travel demand decisions. This paper proposes a comprehensive travel demand modeling framework to identify and model the urban development decisions of firms and developers and the mobility, activity and travel decisions of individuals and households, and to develop a system of models that can be used by decision-makers and planners to evaluate the effects of changes in the transportation system and development of information technologies.

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MIT Media Lab

Reducing Driver Task Load and Promoting Sociability through an Affective Intelligent Driving Agent (AIDA)

Cynthia Breazeal, Director of Personal Robots Group

This work outlines the development of an Affective Intelligent Driving Agent (AIDA), a social robot that sits in a vehicle's dashboard and behaves as a friendly assistant. This highly expressive robot uses an Android smartphone as its face, which serves as the main computational unit for the system. AIDA determines what information may be relevant to the driver, delivers it at the most appropriate time, and resolves which expressions should be used when doing so. An evaluation was performed in which participants completed mock driving tasks with the aid of 1) a smartphone with apps, 2) AIDA as a static, expressive agent, or 3) AIDA as a mobile robot. Results showed that the AIDA robot helped reduce user task load and promoted more sociability with users better than the smartphone or AIDA as a static agent.

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MIT SENSEable City Lab

Are Smart Cities Smart Enough?

Carlo Ratti, Director

In our contemporary societal context, reconfigured by wide spread impact of Geolocalization and wikification on urban population's everyday work and life, two related concepts, "spatially enabled society" and "smart city", have emerged from two different but related fields: the Global Spatial Data Infrastructure community drives the former while practitioners and researchers in urban planning, urban studies and urban design are more concerned with the latter. The SENSEable City Lab believes that technology enhanced, ICT-driven solutions that spatially enable the members of urban populations, contribute to smart operation of cities, and suggests that a dialogue between the communities that foster these two notions needs to be established. It seeks to provide an ontology of categorically different, but still related, spatial enablement scenarios along with speculations on how each category can enhance the Smart City agenda by empowering the urban population, using recent projects by the MIT SENSEable City Lab to illustrate its

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points.

MIT SENSEable City Lab

Live Urbanism – Towards SENSEable Cities and Beyond

Carlo Ratti, Director

In the context of ubiquitous information services, the city shall not only be seen as a place of social interactions, financial transactions, a network of technology nodes, a geographical agglomeration area or as a political landscape, but more as an actuated multidimensional conglomerate of heterogeneous processes, in which the citizens are the central component. In other words, the city can be regarded as a complex near real-time control system, creating a feedback loop between the city itself, the city management and the citizens, which is achieved by pervasive sensing.

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MIT SENSEable City Lab

Taxi-Aware Map: Identifying and Predicting Vacant Taxis in the City

Carlo Ratti, Director

Knowing where vacant taxis are and will be at a given time and location helps the users in daily planning and scheduling, as well as the taxi service providers in dispatching. In this paper, we present a predictive model for the number of vacant taxis in a given area based on time of the day, day of the week, and weather condition. The history is used to build the prior probability distributions for our inference engine, which is based on the native Bayesian classifier with developed error-based learning algorithm and method for detecting adequacy of historical data using mutual information. Based on 150 taxis in Lisbon, Portugal, we are able to predict for each hour with the overall error rate of 0.8 taxis per 1x1 km² area.

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National Association of Railroad Passengers

Long Distance Trains: A Foundation for National Mobility

Ross B. Capon, President & CEO

The National Association of Railroad Passengers, an advocate for passenger rail since 1966 and frequent non-profit partner to Amtrak, argues in this white paper for expanded national, long-distance train service. The report focuses primarily on the need to increase funding and service for Amtrak, listing track maintenance and expansion only in a secondary context. However, NARP mounts a compelling case for rail as an artery connecting rural and small-town areas to metropolises (for example, the Los Angeles-Chicago Corridor); most surprising is that, of trips taken in the corridor, a full two thirds are longer than 500 miles.

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National Center for Freight & Infrastructure Research & Education (CFIRE), University of Wisconsin

Mid-America Freight Coalition Regional Freight Study

Dr. Teresa Adams, Executive Director
Ernie Perry, MAFC Program Manager

The Mid-America Freight Coalition's Regional Freight Study, based at the University of Wisconsin, is focused on economic analysis of regional transportation issues. Particular areas of focus are the effect of bottlenecks, particularly in intermodal connections, and their consequences and possible solutions. The study also seeks to identify unused freight capacity and looks at the possible development of new multi-modal and intermodal freight corridors.

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ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
<p>National Center for Intermodal Transportation for Economic Competitiveness, Mississippi State University and the University of Denver</p>	<p><i>NCITEC Program Progress Report</i></p> <p>The National Center for Intermodal Transportation for Economic Competitiveness (NCITEC) was founded in January 2012 as a DOT University Transportation Center (UTC) consisting of Mississippi State University, University of Denver, University of Mississippi, Louisiana State University, and Hampton University. NCITEC works to improve intermodal transportation options for both freight and passenger mobility. The center funds a wide variety of research, totaling 31 projects in 2013. Some completed 2012 projects included new models for introducing K-12 students to intermodal concepts, as well as research into the use of dynamic social network analysis to mitigate congestion in transportation networks.</p>	<p>Dr. Patrick Sherry, Executive Director</p> <p>2450 S. Vine Street Denver, CO 80208 303-871-2495 www.ncitec.msstate.edu</p>
<p>National Corridors Initiative</p>	<p>Advocates the expansion of integrated intercity freight and passenger rail corridors, with an emphasis on efficiency, economic inclusion, and environmental responsibility. Also promotes investment in high-speed rail. Speaks to national issues but most active in New England.</p>	<p>James P. RePass, Chairman</p> <p>59 Gates St. Boston, MA 02127 617-269-5478 www.nationalcorridors.org</p>
<p>National Customs Brokers & Forwarders Association of America</p>	<p>The NCBFAA represents 940 member companies that comprise the major U.S. freight forwarders, customs brokers, ocean transportation intermediaries, and other supply chain experts. It is active in monitoring regulatory issues that affect its membership, primarily customs compliance regulation and port drayage regulation for environmental reasons. The NCBFAA does not publish any scholarly work, but it is an outspoken advocate of ensuring the competitiveness of U.S. imports and exports.</p>	<p>barbara reilly, Executive Vice President</p> <p>NCBFAA 1200 18th Street, NW #901 Washington, D.C. 20036 202-466-0222 www.ncbfaa.org</p>
<p>National Defense Transportation Association</p>	<p>The National Defense Transportation Association seeks to be "the world's leading professional association for individuals working in the global transportation/distribution system and related industries so [it] may maximize [its] contribution to the national security and economic growth of the United States." The NDTA does not publish issue papers, but its membership is a valuable repository of expertise and awareness of logistics issues.</p>	<p>LTG Kenneth Wykle, President</p> <p>50 South Pickett Street, Suite 220 Alexandria, VA 22304 703-751-5011 www.ndtahq.com</p>
<p>National Industrial Transportation League</p>	<p><i>Annual Report</i></p> <p>Calling itself the "Shippers' Voice," NITL is a vocal advocate for shippers' issues, with its positions on issues being determined by polls of its membership. Although it lobbies on many different transportation issues, its advocacy centers on policies that will decrease logistics costs and give more power to shippers in negotiations with carriers. To this end it advocates ending antitrust exemptions for rail and ocean carriers, opposes new trucking hours of service regulations and tolling on existing highways, and strongly supports increasing truck size & weight limitations, including longer combination vehicles (LCVs) in some cases. NITL also supports increasing funding for the Automated Commercial Environment (ACE) and International Trade Data System (ITDS) as well as developing a robust national freight policy.</p>	<p>Bruce Carlton, President & CEO</p> <p>1700 North Moore Street, Suite 1900 Arlington, VA 22209 703-524-5011 www.nitl.org</p>



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
National Railroad Construction and Maintenance Association	The NRC is a trade association representing the interests of railroad contractors and suppliers. Its policy objectives are generally centered around promoting a healthy business climate for the industry, but this includes advocacy of rail more generally, including high speed rail.	Terry Benton, Chairman 500 New Jersey Ave NW, Suite 400 Washington, DC 20001 202-715-1264 www.nrcma.org
National Research Council	<i>Transitions to Alternative Vehicles and Fuels</i> This report by the National Academies' Division on Engineering and Physical Sciences finds that by 2050, the U.S. could reduce petroleum consumption and greenhouse gas emissions by 80% for light duty vehicles through increases in vehicle efficiency, increased alternative fuel (e.g. biofuels, hydrogen, & electricity) use, and a heavy government thumb to direct consumer behavior. In order to incentivize purchases of efficient cars, the authors suggest a "feebate" policy to reward these purchases as a complementary policy to gas guzzler taxes as well as increased petroleum taxes, and possibly a petroleum price floor. The study also proposes other policies to raise the marginal cost of driving and thereby drive down vehicle miles traveled. In order to coordinate these policy options, the study recommends an adaptive, Congressionally mandated national policy that establishes goals, quantifies performance against targets, and adapts policy as necessary.	Alan T. Crane, Senior Scientist & Study Director James J. Zucchetto, Director, Board on Energy and Environmental Systems, Division on Engineering & Physical Sciences, NAS Board on Energy and Environmental Systems 500 Fifth Street, NW, W917 Washington, D.C. 20001 202-334-3302 www.nas.edu
National Surface Transportation Infrastructure Financing Commission	<i>Paying Our Way: A New Framework for Transportation Finance</i> In this significant report from the National Surface Transportation Infrastructure Financing Commission, the authors find that the gas tax's purchasing power has declined 33% since its last update in 1993 and warns that without a major financing overhaul, the transportation funding gap will grow from an estimated \$400 billion through 2015 to about \$2.3 trillion through 2030. Although the commission admits that there are no "silver bullet" solutions to the funding crisis - particularly not short-term stimulus packages - it does offer some specific policy recommendations to improve the situation and narrow the funding gap. In the near term, the commission recommends an immediate \$0.10 increase in the federal gas tax and a \$0.15 increase in the diesel tax, both indexed to inflation, due to the difficulty of quickly implementing other funding channels. In the long term, the report urges Congressional commitment to establishing a comprehensive, interoperable VMT fee system by 2020 that can replace the gas tax. Once established, fees should be set to meet the designated federal share of surface transportation investment needs and indexed to inflation. The commission also recommends doubling the Heavy Vehicle Use Tax (HVUT) and indexing it, as well as the truck tire excise tax, to inflation. Moreover, to aid necessary state and local investment, the commission argues for allowing states to toll the Interstate system for both congestion management and reconstruction funding, as well as for federal recapitalization of State Infrastructure Banks (SIBs). It also recommends expanding the highway/intermodal Private Activity Bond program to incentivize private sector participation and authorizing tax credit bonds to finance large capital investments with clear national benefits. Overall, the commission's focus is on transitioning to a system more directly reliant on user fees and	Robert D. Atkinson, Chairman President, Information Technology & Innovation Foundation Information Technology & Innovation Foundation 1101 K Street N.W., Suite 610 Washington, DC 20005 202-449-1351 www.itif.org www.financecommission.dot.gov



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DOCUMENTS AND POSITIONS

CONTACT INFORMATION

smart, performance-based investment.

Reason Foundation

Interstate 2.0: Modernizing the Interstate System via Toll Finance

This policy paper reviews the challenges facing the Interstate highway system and proposes rebuilding and expanding the system through the use of toll finance. Noting the economic importance of the system and its 50-year design life, author Robert Poole proposes mileage-based user fees collected using all-electronic tolling (AET) as a replacement for the decreasingly effective fuel tax. In order to increase political viability, Poole proposes implementing "value-added tolling," meaning tolling only after highway reconstruction and possible lane expansion is complete and at a higher level of service, as well as issuing gas tax refunds that prevent double taxation of motorists. Under this scheme and with an estimated 3.5¢/mile toll for cars and 14¢/mile truck toll, given current FHWA cost and traffic projections, the 35-year NPV of tolling revenues is estimated to equal 99% of the 35-year NPV of projected construction and expansion costs, suggesting that this is a highly realistic financing model. Poole also notes that VMT-based tolling increases fairness, charging users rather than general populations; will be tailored to individual projects; will guarantee via revenue bonds that tolls pay for the projects for which they are intended and that projects are maintained; and will ease implementation of variable pricing to manage congestion, as well as novel systems like heavy duty truck-only lanes or bus-only expressways. The study makes quantitative estimates for the cost of reconstructing and expanding the Interstates in each state as well as estimating state-by-state Interstate tolling revenues. Poole stresses that the idea is sound and the technology exists; the major obstacle is that federal law currently prohibits states from tolling the Interstates.

Robert Poole, Searle Freedom Trust
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Director of Transportation Policy

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Reconnecting America

Are We There Yet? Creating Complete Communities for 21st Century America

This report evaluates the state of American communities across many different categories, including living, working, thriving, and most importantly for AOTM, moving. It highlights changing demographics, including aging baby boomers, millennials' decreasing driving, and increasing re-urbanization across America. The report ranks metropolitan areas across the country by number of fixed-guideway transit stations, pedestrian safety, percent of commuters who take transit, walk, or bike, walkability of blocks, average driving per household, rural access to transportation options, and underserved urban access to transit. The report concludes by grading regions by livability, work opportunities, transportation, and quality of life. New York and San Francisco are the only areas to receive an A in transportation; Boston receives a B.

Allison Brooks, President & CEO

Gloria Ohland, Lead Author

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<p>Rockefeller Foundation</p>	<p><i>Rockefeller Foundation Infrastructure Survey</i></p> <p>The survey finds that Americans find common ground on the need for improved infrastructure more than on any other issue. 80% of respondents agreed that federal transportation spending would boost local economies and create jobs; 79% agreed that infrastructure modernization was necessary for the U.S. to maintain superpower status. Expanded private investment and an infrastructure bank both received high support; however, sizable majorities opposed increases in the gas tax, mileage charges, and other user fees.</p>	<p>Rob Garris, Managing Director for Bellagio Programs</p> <p>1724 Connecticut Avenue, N.W. Washington, D.C. 20009 202-234-5570 www.rockefellerfoundation.org</p>
<p>States for Passenger Rail Coalition</p>	<p>The SPRC is a coalition of 34 state departments of transportation that advocates for expanded intercity passenger rail service and tighter integration between states in rail infrastructure planning.</p>	<p>Patricia Quinn, Chairwoman Executive Director, Northern New England Passenger Rail Authority</p> <p>States for Passenger Rail Coalition, c/o Northern New England Passenger Rail Authority 75 W. Commercial St., Suite 104 Portland, ME 04101 207-780-1000 www.s4prc.org</p>
<p>Supply Chain Policy Center, RAND Corporation</p>	<p><i>A Federal Role in Freight Planning and Finance</i></p> <p>In this report, RAND's Supply Chain Policy Center describe the need for a federal freight policy that uses data to break down transportation costs among stakeholders and localities to ensure that federal funding yields national benefits. The authors find that the major objectives of federal involvement in freight planning should be: improving planning capabilities at all levels of government; proportionately funding projects based on sustainable revenue sources; basing investment decisions on quantifiable performance criteria; and baking in substantial user-pay requirements. The report also recommends reforming regulations that limit or distort competition between modes, developing a more sophisticated, data-driven approach to new freight system ideas like VMT fees or commercial motor vehicle (CMV)-only lanes on highways, and providing incentives for collecting more and higher-quality freight data that can be used to inform these decisions.</p>	<p>Sandra Rosenbloom Director, Innovation in Infrastructure Program, Urban Institute Former Chair, TRB Executive Committee 2100 M Street, NW Washington, D.C. 20037 202-261-5709</p> <p>Martin Wachs Senior Principal Researcher, RAND Professor, Pardee RAND Graduate School 1776 Main Street P.O. Box 2138 Santa Monica, CA 90401-2138 310-393-0411, x7720 martin_wachs@rand.org</p>
<p>Tesla Motor Company</p>	<p><i>Hyperloop Alpha</i></p> <p>In this report, Tesla Motors and SpaceX founder Elon Musk introduces his idea for a "fifth mode" of transit, dubbed the Hyperloop, as a faster, cheaper, and safer alternative to California's current high-speed rail project. The Hyperloop is a system of low-pressure, elevated tubes on pylons through which passenger pods travel at high subsonic speeds. These pods ride on a cushion of air powered by a compressor and are propelled by a linear induction motor. Musk claims that the Hyperloop would cost a tenth (\$6b) of California's current high speed rail project and would minimize right-of-way acquisition expenses - the primary cost driver of many infrastructure projects - by placing the majority of the system in the I-5 corridor. As designed, with a top speed of about 800 mph, the system would promise to shuttle passengers between Los Angeles and San Francisco in about half an hour and would generate enough power through tube-mounted solar panels to</p>	<p>Elon Musk Founder & CEO, Tesla and SpaceX</p> <p>hyperloop@teslamotors.com</p>



ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
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operate self-sufficiently. However, transportation experts and stakeholders have expressed doubt as to the accuracy of the cost projections and have pointed out that while feasible, the Hyperloop would be unable to include multiple stations along the route without significant complications and likely slower service.

Texas Transportation Institute

Urban Mobility Report 2012

Dennis Christiansen, Director

In its annual Urban Mobility Report, compiled using traffic data from 875,000 miles of U.S. roads, the Texas Transportation Institute (TTI) finds that 2011 congestion cost the American economy \$121 billion, wasted 2.9 billion gallons of fuel, released 56 billion pounds of additional CO2, and forced drivers to waste 5.5 billion hours sitting in traffic. Of this delay, 22% (\$27 billion) was the cost of congestion on trucking operations and does not account for the value of delayed goods. Although these figures are below their 2005 peak, the TTI notes that capacity issues remain, and the improvement is due primarily to the economic slowdown. On a per-person basis, the TTI reports peak-hour commuters wasted an estimated 38 hours in congestion, though that figure rises to 52 hours in very large (>3 million) metropolitan areas. In total, costs to commuters average \$818 per person. Furthermore, the TTI estimates that congestion costs will grow to \$199 billion by 2020. The authors stress that there is no one-size-fits-all solution to congestion problems and recommend local solutions to local problems.

TTI Headquarters and Research Building,
Room 319
Texas A&M Transportation Institute
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Transactions on Internet and Information Systems

Machine-to-Machine (M2M) Communication in Vehicular Networks

Marthinus Booysen, Ph.D. Candidate
John Gilmore, Ph.D. Candidate
Sheraly Zeadally, Associate Professor
Gert-Jan van Rooyen, Senior Lecturer

This is an academic paper arguing that "the M2M paradigm enhances vehicular networking by supporting large-scale deployment of devices, cross-platform networking, autonomous monitoring and control, visualization of the system and measurements, and security." The authors state that component standardization and data security are key challenges in deployment of vehicular networking.

MIH Media Lab
Stellenbosch University
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Transportation for America

Measuring Performance in the Federal Transportation Program: A Path to Progress and Accountability

James Corless, Director

Citing the federal transportation program's slide into political opportunism and pork-barrel spending, Transportation for America advocates establishing performance-based transportation planning and funding in this report. The report suggests first establishing planning objectives to guide investment and suggests nine possibilities. In this scheme, DOT would then fund states and regions to build out planning models and establish baseline conditions for relevant benchmarks (e.g., per capita delay) and targets for improving them. States would work cooperatively to develop regional targets. States and regions would then implement scenario planning tools to develop 5- and 20-year strategic investment plans that would improve baseline conditions for objective. DOT would provide flexible multimodal funding for plan implementation. Finally, transportation agencies would report progress toward their targets midway through their plans and then again upon completion. High performers would continue to receive flexible funding and preference for discretionary

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CONTACT INFORMATION

grant programs; states and regions that failed to make progress would receive restrictive funding and increase federal involvement in planning and execution. The report acknowledges the current scarcity of relevant data on which to base performance measures and suggests sophisticated modeling until useful data starts to be identified and collected. Over time, they suggest that performance-based funding decisions will incentivize states to collect the data required for real-time performance evaluation.

Transportation for America

Smart Mobility for a 21st Century America: Strategies for Maximizing Technology to Minimize Congestion, Reduce Emissions, and Increase Efficiency

This report highlights the benefits of ITS (intelligent transportation systems) overlays in improving system efficiency, providing more travel options, increasing informational transparency to consumers, establishing convenient and efficient pricing and payment systems, and reducing unneeded trips. Arguing that demographic changes like an aging population and young, tech-savvy urbanites will create new demand for alternatives to driving, the report notes the promise of simple solutions like traffic signal optimization, which can return \$40 to consumers in time and fuel savings for every \$1 invested; the GAO estimates that the benefit-to-cost ration of a nationwide real-time traffic information system would be 25 to 1. The authors note that while some technology solutions can be deployed locally, the true benefit of ITS lies in the network effect and operation at a large scale. To this end they urge federal policy that incentivizes states and regions to adopt and integrate ITS, such as a demonstration grant program for model programs, dedicated funding for ITS improvements, and a coordinating mechanism to encourage effective intergovernmental and private-sector cooperation and deployment of effective and unified technology. The report concludes with a review of numerous U.S. case studies in effective applications of ITS programs.

James Corless, Director

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Transportation for America

Thinking Outside the Farebox: Creative Approaches to Financing Transit Projects

This comprehensive guidebook is meant to serve as a resource for local leaders on their options for planning and financing transit projects. It encourages a scenario planning approach and explores the relative merits of different transit systems and explains the numerous financing tools available: general obligation bonds, revenue bonds, tax increment bonds, private equity financing, state infrastructure banks, and numerous federal programs. The guidebook also discusses various project revenue options such as tolling, the promises and pitfalls of public-private partnerships, and numerous case studies of successful metropolitan transit projects.

Kevin DeGood, Director of Infrastructure Policy, Center for American Progress
Former Deputy Policy Director, Transportation for America

James Corless
Director, Transportation for America

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Transportation for America

The Most for Our Money: Taxpayer Friendly Solutions for the Nation's Transportation Challenges

Taxpayers for Common Sense

This report, a collaboration of Transportation for America, the Reason Foundation, and Taxpayers for Common Sense, presents seven cost-effective strategies for improving transportation networks and reducing congestion. These are: transportation scenario planning (to maximize the "bang for the

Erich Zimmerman, Taxpayers for Common Sense
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Reason Foundation

Samuel Staley, Reason Foundation
Shirley Ybarra, Reason Foundation



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	<p>buck"), high occupancy toll (HOT) lanes; bus rapid transit (BRT), intelligent transportation systems with dynamic traffic control, intercity buses (cheap, fast, and effective in serving rural areas), telework (to decrease the number of commuters), and investing in local connector streets to keep local traffic off of highways. The authors stress the relative cheapness and flexibility of all these options and argue that their lower cost and increased flexibility make them preferable to traditional congestion-relief solutions like building new highway lanes or expensive rail lines. For each proposed solution, the report includes successful case studies of their implementation in American communities.</p>	<p>5737 Mesmer Ave. Los Angeles, CA 90230 310-391-2245 sam.staley@reason.org shirley.ybarra@reason.org</p> <p>Nick Donohue, Transportation for America 1707 L Stret, NW, Suite 250 Washington, D.C. 20036 202-955-5543 x203 nick.donohue@t4america.org</p>
<p>Transportation Research Board</p>	<p><i>Informing Transportation Policy Choices</i></p> <p>The Transportation Research Board is a sub-unit of the National Academies and conducts a great deal of research (generally conducting about 200 projects at any given time), both in-house and through grants. The majority of these projects are tightly focused - for example, "Application of Analytic Hierarchy Process for Logistics Centers in Laos" - and as a research center the TRB does not directly involve itself in policy debates. However, it is a good source for current thinking on transportation and logistics issues.</p> <p>In 2007, the TRB released the linked report to celebrate its 20th year of research. The report summarizes a number of large-scale studies. Some key findings and recommendations: regulation of transport sectors (especially commercial air) improves efficient allocation of resources; user fees and technology overlays (up to and including full automation) are desirable for the highway system; high speed rail is limited in its potential due to inadequate institutional structure to promote - or even assess - its value; and innovative technologies like the Small Aircraft Transportation System merit further investigation. The report also advocates devoting at least a quarter of the federal transportation research budget to long-term research/strategy and improving management and competition in the planning process. Finally, the report recommends pricing externalities in trucking and advocates measures to increase the level of competition in freight transportation.</p>	<p>Robert E. Skinner, Jr., Executive Director</p> <p>Transportation Research Board National Academies 500 Fifth Street, NW Washington, D.C. 20001 www.trb.org</p>
<p>Transportation Research Board</p>	<p><i>Scenario Planning for Freight Transportation Infrastructure Investment</i></p> <p>This report explores the factors, trends, and uncertainties that could affect the freight transportation system over the next 30 years and introduces scenario planning as a tool for state DOTs to improve the quality of long-range planning and investment in infrastructure. In contrast to attempts to forecast future needs, scenario planning is a methodology that embraces uncertainty and explores the implications of multiple possible future scenarios. For example, this report includes four different visions of the world in 2030 - a strong system of international trade, a dominant North American trading bloc, a fragmented, localized economic system, and one world government. The goal of introducing scenarios like this is to plan for uncertainty and challenge organizations' conventional wisdom: for example, how would re-domestication of</p>	<p>Chris Caplice, Author Director, MIT Center for Transportation and Logistics</p> <p>Robert E. Skinner, Jr., Executive Director</p> <p>Transportation Research Board National Academies 500 Fifth Street, NW Washington, D.C. 20001 www.trb.org</p>



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manufacturing, rising sea levels, or unexpected advancements in robotics affect freight patterns and infrastructure needs? Once the likely implications of multiple scenarios have been identified, organizations can then plan for common needs and develop the flexibility to ready gateways, connectors, and corridors. In the past, scenario planning has been primarily a tool of think tanks and business: the report cites the UPS Centennial and Horizon scenarios, Cisco's Evolving Internet scenarios, Shell's Global 2025 scenarios, and numerous others as good examples of scenario planning.

<p>TRIP</p>	<p><i>America's Top Five Transportation Headaches - and Their Remedies</i></p> <p>In this report, TRIP, a nonprofit highway research group, identifies five general transportation problems the U.S. is facing: decaying infrastructure, congestion, safety, capacity issues, and rising costs that outpace growth in Highway Trust Fund revenues. The report then identifies five solutions: funding and initiating "ready-to-go" projects; increasing surface transportation funding (with the added benefit of increasing employment in the short- and medium-term); working to change public opinion about the value of infrastructure investments; employing technological advances to "future-proof" projects and perform preventative maintenance; and implementing a federally guided long-term program for project planning and funding.</p>	<p>William Wilkins, Executive Director, TRIP</p> <p>3000 Connecticut Ave, NW, Suite 208 Washington, D.C. 20008 202-466-6706 www.tripnet.org</p>
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<p>U.S. Chamber of Commerce</p>	<p><i>Transportation Performance Index</i></p> <p>The Chamber of Commerce attempts to quantify the effect of infrastructure on economic performance across four sectors: transportation, power, water, and broadband. The authors assign index values - meaningful only in comparison to each other - to rank individual state systems and derive a national average. The study concludes that a national improvement to the average index values of the top 5 states could unlock an additional \$1 trillion in wasted GDP. The report also urges support of the Chamber's legislative agenda: the SAFETEA-LU reauthorization, Water Resources Development Act, and the Freight Rail Infrastructure Capacity Expansion Act.</p> <p>LRA (Let's Rebuild America) more broadly advocates increased infrastructure user fees (including a higher gas tax), expanded PPPs, investing in technology overlays, and management/planning overhaul.</p>	<p>Tom Donohue, President & CEO Chair of Let's Rebuild America</p> <p>1615 H Street, NW Washington, DC 20062-2000 202-659-6000 www.uschamber.com/lets-rebuild-america-1</p>
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<p>U.S. High Speed Rail Association</p>	<p>The U.S. High Speed Rail Association lobbies for a national HSR network and specifically promotes a local-to-national process that would result in a completed system, with 17,000 additional miles of track, by 2030. Despite its strong advocacy of HSR, the Association does not itself have any formally published reports and is more of a cheerleader than a thought leader.</p>	<p>Andy Kunz, President & CEO</p> <p>10 G Street, NE, Suite 710 Washington, D.C. 20002 202-248-5001 www.ushsr.com</p>
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<p>U.S. Public Interest Research Group</p>	<p><i>High-Speed Rail: Public, Private or Both?</i></p> <p>In this report, the U.S. PIRG argues for a cautious approach to PPPs in high speed rail investment. The authors warn that PPPs are "not a panacea" and stress the importance of incentivizing private investment to promote public goals and</p>	<p>Tony Dutzik, Author Senior Policy Analyst, Frontier Group</p> <p>44 Winter Street, 4th Floor Boston, MA 02108 617-747-4370</p>
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ORGANIZATION	DOCUMENTS AND POSITIONS	CONTACT INFORMATION
	<p>add value. Thus, they conclude, PPPs should only be pursued by "well-prepared" governments that will maintain control over major decisions, vigorously negotiate contracts, and promote competition for these contracts with complete transparency.</p>	<p>www.uspirg.org</p>
<p>University of Michigan Automotive Research Center</p>	<p><i>Reliability, Maintenance, and Optimal Operation of Repairable Systems with Applications to a Smart Charging Microgrid</i></p> <p>The Automotive Research Center at the University of Michigan develops simulation and modeling environments to research new ground vehicle technologies. It has five major focus areas: dynamics & control of vehicles, human centered modeling and simulation, high performance structures and materials, advanced and hybrid powertrains, and vehicle system integration, optimization, and robustness. This research in progress, exploring potential advances in smart charging and optimized grid technology, is typical of the specific, technical focus of the majority of ARC's research.</p>	<p>Prof. Anna Stefanopoulou, Director</p> <p>The University of Michigan Rm. 2044, W.E. Lay Automotive Laboratory 1231 Beal Ave., Ann Arbor, MI 48109 734.615.8461 www.arc.engin.umich.edu</p>
<p>University of Michigan Transportation Research Institute</p>	<p><i>Safety Pilot Model Deployment</i></p> <p>The Michigan Transportation Research Institute (UMTRI) performs a wide variety of research tasks in new transportation technologies. One highlight of its current research is a "connected vehicle" pilot program in the Ann Arbor area that explores possible uses of machine-to-machine and machine-to-system communication. The ongoing 30-month, 3,000-car study focuses on safety applications of this technology and is meant to serve as a test for large-scale, real-world rollouts of connected vehicle technology.</p>	<p>Dr. Peter Sweatman, Director</p> <p>University of Michigan Transportation Research Institute 2901 Baxter Rd. Ann Arbor, MI 48109-2150 734.936.2070 www.umtri.umich.edu</p>
<p>Verizon</p>	<p><i>Next Generation Platform Innovation in M2M</i></p> <p>This report is the outcome of research conducted by Harbor Research for Verizon over 30 product OEMs, integrators, partners, and customers operating in the adoption and delivery of "smart" (aka M2M) services. The report provides some information about the basis of nPhase, Verizon's joint-venture with Qualcomm to provide M2M cloud platform services to wireless operators, and its challenges.</p>	<p>Harbor Research 1942 Broadway St. Suite 201 Boulder, CO 80302 303-786-9000 www.harborresearch.com www.verizonenterprise.com</p>
<p>World Shipping Council</p>	<p><i>Remarks of Christopher Koch before the Coalition of New England Companies for Trade, March 27, 2008</i></p> <p>In this speech, WSC President Christopher Koch highlights many of the issues facing ocean carriers and makes explicit the impact of U.S. infrastructure issues on sea trade. He espouses strong support for protecting Harbor Maintenance Trust Fund revenues from diversion to other projects and exasperation with permitting delays that prevent ports from making timely and necessary upgrades to their infrastructure. The WSC's primary concern, however, is in fending off proposals to pay for highway investments with taxes on the international containerized cargo that accounts for a bulk of ocean carriers' business. Koch argues that this proposal is unfair and illogical, given that less than 5% of goods transported on the highway system is non-NAFTA, international maritime cargo. Koch also expresses support for new standards on ship ballast water treatment to prevent the transfer of invasive species as well as new standards for vessel pollutant emissions.</p>	<p>Christopher Koch, President & CEO</p> <p>1156 15th Street, NW Suite 300 Washington, D.C. 20005 202-589-1230 www.worldshipping.org</p>





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