Establish a National Freight Investment Program to Improve Trade and Economic Performance

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Summary

Goods trade is highly concentrated and interconnected throughout the United States, relying on a distinct set of markets and freight infrastructure assets to deliver broad-based economic growth. Due to high levels of interstate trade, the federal government has a unique responsibility to support more efficient freight movement. However, the country still does not have an investment vehicle to prioritize key corridors, productive rural areas, and major metropolitan hubs. To address this, the federal government should establish a multimodal freight investment program that includes a combination of formula and competitive grants to drive regional growth. In particular, that program should also foster the development of more geographically-targeted trade data to deliver the greatest return on future freight investments.

Background

The United States is the world's leading trade power, exchanging more than $20 trillion in goods each year. While nearly $3 trillion of these products are exported or imported internationally with burgeoning markets such as China and Mexico, $17 trillion flow domestically between metropolitan areas ranging from Atlanta to Wichita that are crucial to larger value chains.[1] These trade flows drive output across a variety of American goods-producing firms, which provide over 21 million jobs to American workers of varying skills.[2] Meanwhile, every other industry and private household relies on access to consumable goods, whether they are medical devices in our hospitals, computers in our office towers, or food in our homes.[3]

Yet, these trade flows do not move evenly across the country—they concentrate along the busiest corridors and within the largest metropolitan areas.[4] Among thousands of possible trade pairs, the top 10 percent of the country's trade routes carry 79 percent of all goods by value. Likewise, $16.2 trillion (80 percent) of all goods either start or end in the 100 largest metropolitan areas, ranging from industrial hubs like Houston and Pittsburgh to logistics centers like Memphis and Louisville. This creates a hub-and-spoke design to our trade networks, with major metropolitan areas operating at the center of these exchanges.

At the same time, the country's rural areas circulate a wide range of bulk commodities and generate a greater share of their output from goods-producing industries than any other part of the country. Whether energy products from Wyoming, agriculture from Iowa, or textiles from Pennsylvania, rural areas provide essential goods to sustain metropolitan markets and are the foundation of national supply chains. In turn, these same rural areas purchase high-value goods from metropolitan producers, ranging from U.S.-made precision instruments to machinery manufactured in Asia.

Significantly, this extensive trade network depends on particular transportation corridors and port facilities to move products between different markets. Trucks, for instance, consistently carry 70 percent of all goods value annually, and are a key component in every intermodal exchange involving railroads, airports, and waterways.[5] Yet, those long-distance trucks move almost exclusively on specific stretches of the National Highway System in rural and metropolitan areas alike.[6] Similarly, a small group of 17 metropolitan areas handles 75 percent of all international goods passing through American seaports, airports, and land border crossings, with 95 percent of those goods headed for other markets across the country.[7]

The highly concentrated and interconnected nature of these trade flows, in turn, makes the federal government a crucial actor to maximize freight's potential economic impacts.

The federal government is the optimal public authority to make public investments in one region of the country for the benefit of all others. This is especially relevant to freight because $15.6 trillion (77 percent) of the country's goods cross state lines, underscoring how most markets rely on trade corridors and partners outside their local jurisdictions.[8] For example, the federal government directly invested in the Alameda Corridor, a grade-separated rail corridor connecting the ports of Los Angeles and Long Beach to downtown Los Angeles and eventually Riverside's logistics hub.[9] It is difficult to imagine other states and metropolitan areas directly investing in a national port complex.

The federal government also has the ability to catalyze greater local action. Freight assets are owned and operated by a mix of local governments, states, port authorities, and private firms, which complicates efforts aimed at boosting trade through metropolitan export plans.[10] Therefore, a national policy that promotes multimodal projects and requires coordinated planning—to qualify for federal support—can incentivize regional freight stakeholders to come together and advance their shared interests.

The Problem

It is impossible to separate freight performance from macroeconomic health. Manufacturers increasingly rely on exports, imports, and long domestic supply chains to remain economically competitive. New energy discoveries and expanded refinery activity demand environmentally safe and well-connected infrastructure. Millions of good-paying American jobs are in industries related to the production, movement, and consumption of goods. The federal government must be more actively involved in freight investment decisions and has a constitutional duty to support interstate commerce.

However, federal transportation policies are obsolete. Existing funding programs often use arbitrary criteria, lack project accountability, distribute resources thinly across different regions, and focus almost exclusively on improving highways.[11] Federal freight investments also suffer from inadequate funding, blurred governance, and limited stakeholder engagement.[12] Ultimately, rather than equipping states and municipalities with flexible resources to tackle their freight challenges, federal programs can delay transformative investments vital to the nation's global connectivity and future job growth.[13]

Without a coordinated federal approach, public and private stakeholders struggle to forge partnerships, execute plans, and a chart a clear path forward for nationally and regionally significant freight improvements.[14] Local transportation decisions naturally do not capture freight's full economic impacts, making it difficult for them to allocate limited public financial resources in support of larger national goals.[15].

Compounding this problem is the lack of national freight performance data. The federal government does not track trade flows moving in and out of all metropolitan regions, nor does it produce accessible and accurate performance data along transportation corridors across all modes.[16] Without such rigorous data, it becomes difficult to conduct reliable cost-benefit analyses and create accurate projection

models.[17] As a result, policymakers simply cannot quantify freight's enormous economic impact and tailor strategies across multiple geographies.[18]

This disproportionately hurts metropolitan hubs and gateways, which continue to operate without national recognition of their significant role and are unable to strengthen potential network connections.[19] Growing levels of congestion in urban corridors hinder local flows of freight and passenger traffic, generate higher costs for national consumers, and result in net employment losses.[20] For example, truck bottlenecks are estimated to cause over 226 million hours of delay per year, almost 90 percent of which occur on dense urban freight corridors.[21] Prolonged delays and "first-and-last mile" concerns can also reverberate throughout the national network, forcing manufacturers and retailers to ramp down production and cut jobs elsewhere, as evident in recent West Coast port disputes.[22] In this way, local commerce often interferes with interstate commerce.

Federal policymakers need to recognize how past investments have achieved *connectivity* among all markets, but now is the time to boost *reliability* and *efficiency* at key hubs and along major corridors. The United States Department of Transportation's (USDOT) Projects of National and Regional Significance (PNRS) program offers some precedent in this respect, but a more freight-based, place-specific, and consistently funded program should build on this effort.[23] By taking a comprehensive view of how different modes work together and expanding financial support through grants and other alternative mechanisms, such as new loans, federal policymakers can create opportunities for greater system wide capabilities.[24]

The Moving Ahead for Progress in the 21st Century Act (MAP-21) began this process by developing a national freight strategy and calling for the creation of state freight plans, but establishing a formal investment program and settling on specific selection criteria remain key sticking points.[25] For example, MAP-21 only assisted with multimodal freight projects via existing federal programs, such as Transportation Investment Generating Economic Recovery (TIGER) grants and Transportation Infrastructure Finance and Innovation Act (TIFIA) loans.[26] The law also did not articulate particular types of eligible freight projects, focusing primarily on trucking while instituting an arbitrary and burdensome mileage cap to designate national roadways. Ongoing shortfalls in freight data investment have further exacerbated these challenges.

Proposal

Given the urgency of the country's freight infrastructure needs, it is an ideal time to improve national freight policy. Congress is actively debating three pieces of transportation legislation, and MAP-21 already laid a foundation for many key freight policy components. Economically, low borrowing costs and continued slack in the labor market create a favorable climate for construction projects. To ensure the country supports a multimodal freight network, maximizes trade efficiencies, and expands regional economic potential, **the Brookings Institution's Metropolitan Policy Program recommends that the federal government establish a national freight investment program**. Assuming five-year authorizing legislation for all programs, the total cost is just over $11.1 billion.

Any program of this scale involves multiple moving parts. It not only requires a combination of geographically equitable and place-specific grant programs, but it also depends on better data and sound eligibility criteria. Together, these components have the power to focus investments along specific trade corridors and in specific places delivering shared national growth in the process. Appendix A outlines major policy components in tabular form, and Appendix B justifies funding levels.

Freight Investment Program Categories

- A new **National Freight Corridor Program** would support long-distance freight movements via a $5 billion formula grant program to states. The formulas would fund projects across any mode and prioritize states with the most interstate trade based on economic criteria: value and tonnage of interstate goods, and total international value and tonnage moved at statewide ports. All projects must demonstrate a 20 percent match of any non-federal funds, connect to state freight plans, and justify spending in terms of interstate trade conducted at project sites. Multiple states should be permitted to submit a common justification if projects are along a shared corridor. The program should apportion $1 billion in funding per year.

- A new **Metropolitan Freight Program (MFP)** would support investment in high-volume and congested metropolitan freight hubs, using a $5 billion competitive grant-making process. This program specifically uses performance criteria to target investments in the busiest markets, which create new efficiencies for the entire country and improve freight's environmental record by specifically addressing congestion.

  MFP is a new kind of collaborative, economically-driven, and transparent program. States would be the lead applicant, but all applications would require partnership with at least one metropolitan planning organization (MPO), city, county, or port authority to promote regional consensus and bound projects' geography. Congress would require applicants to include key performance criteria, including: share of national trade value and tonnage, based on both domestic and international volumes; congestion and freight bottlenecks on roadways, ports, and intermodal facilities within the geographic area; and economic output and employment in goods-intensive industries. The secretary of transportation would award grants in consultation with the secretary of commerce, with Commerce staff specifically providing expertise when judging applicants' economic criteria. USDOT would publish selection guidelines within one year to standardize applications and promote transparency. All selections should include a published report to justify awards.

  In addition to supporting projects across all levels of government, MFP offers tremendous flexibility. The program would allow applicants to include multiple projects within a single funding application, and operate within a $150 to $500 million range per award recipient. All projects must be included within a state freight plan. This approach would encourage more holistic regional freight planning, while still assisting with single megaprojects where appropriate. These grants should require at least a 20 percent match of non-federal funds, but reward those applications with higher matching rates. This will help focus awards on those regions willing to invest in themselves. MFP should start with $1 billion in total awards for years 2 and 3, using the experience to make application adjustments for $1.5 billion in awards for years 4 and 5.

- A new **Rural Freight Program (RFP)** would offer a $1 billion competitive program to less-populated freight centers, following similar criteria to MFP. The only differences would be location (not inside a metropolitan statistical area as defined by the Office of Management and Budget) and award range ($25 million to $100 million) per recipient. Annual awards would be $250 million for years 2, 3, 4, and 5.

- A new **Freight Innovation Program** would support specific policy innovations via a one-time $100 million competitive program. This program would focus on cutting-edge freight policy interventions that can be replicated across the country and that may be too great in scale for single localities and could inform future freight legislation.

This collaborative program would require Congress to determine the applicable project categories and the secretary of transportation to select specific proposals. We recommend starting with the following project categories: first- and last-mile connectors; planning for legacy rail realignments; intelligent transportation systems, like sensored parking; and a trucking VMT fee pilot. Innovation grants would be open to any public entity, and multijurisdictional and federalist collaborations would be permitted. Grants would be capped at $25 million per recipient, and do not require a local match.

Freight Investment Selection Criteria

- Congress must reform the **national freight network (NFN) designation**, including a fundamental re-examination of the network's purpose. The United States is fortunate to already have a well-connected multimodal network. A chief goal of the designation process should be to minimize the federal regulatory burden when selecting appropriate network segments, instead using eligibility criteria to focus federal spending in priority corridors and places.

  For roadways, we recommend building on MAP-21's process by including the entire National Highway System (NHS), which includes all interstates, U.S. roadways, and many key intermodal connectors that already permit common trucking vehicles.[27] Regulations should also permit states and their local partners to add non-NHS roadways based on key connections, like to sites of energy extraction or key manufacturing facilities, but include caps on total non-NHS mileage.

  For all other modes, we recommend starting with the following: any airport, seaport, or land border crossing handling foreign tonnage; any intermodal terminal property within the National Transportation Atlas; and any fuel-taxed inland or connecting deep-draft waterway. States and local partners should also have the ability to apply for inclusion of additional railway and inland waterway segments, like a shortline railroad, if they connect to key manufacturing and natural resource locations. Finally, this should include multimodal projects within a specific property, such as on-dock rail at seaports.

- Defining **eligible freight projects** must recognize a more expansive multimodal freight network and use clear performance criteria to steer federal investments to sites of national importance. Unfortunately, the quality of existing public data greatly limits the role of such criteria. These specifications will improve with better data in the future and underscore the importance to upgrade data programs as explained below.

  In the interim, regulations can use the following criteria to qualify eligibility. All NHS roadways projects must include a set amount of average daily long-distance trucking according to the Freight Analysis Framework. Congress should apply additional funding for off-the-shelf private data, like INRIX's freight congestion measures, to flag congested segments and bottlenecks. Airports, seaports, land border crossings, waterway locks, and intermodal terminals should each handle a minimum of tonnage, also to be determined by Congress. All projects along state-added NFN segments—whether roads, rails, or waterways—should automatically qualify since they're already vetted.

- To better understand the role of regional economies in the national trade network, the federal government must invest in more **geographically-accurate and commodity-specific trade data**. The Commodity Flow Survey (CFS) and Freight Analysis Framework (FAF) form a solid foundation of trade flows between origins, destinations, and ports where appropriate. However,

metropolitan areas are missing or inconsistent, industries and commodity data is lacking, and some flow data do not reflect actual sites of production and consumption.

Data program investments could address these shortcomings. Expanded surveying under the CFS, already the backbone of public trade data, would improve geographic and commodity detail. More funding for FAF and similar datasets could then leverage those survey results to better map flows between markets, assign transportation modes, and explain regions' place in supply chains. Federal data investments carry huge benefits for freight planning efforts at the state and regional level.

- The federal government must initiate investment in a **freight fluidity data system**. The rise of global value chains means production processes have stratified functionally across the country and world. Following a model developed by Transport Canada, a freight fluidity dataset would use geopositioning technology within vehicles and containers to track exactly which components of the national freight network slow movements along supply chains.[28] Such a system would provide more accurate tracking of where vehicles travel between markets, which pinch points cause the greatest national expense, and help create more efficient use of the freight infrastructure already built.

Budget Implications

The new freight investment program represents a major addition to the federal transportation portfolio. The program, as outlined, would cost just over $11.1 billion across a five-year bill, including additional costs for data improvements and administrative expenses. The total cost includes $5 billion for the National Freight Corridor Program (spread evenly over five years), $6 billion for the MFP and RFP Programs (spread over the final four years), and a one-time cost of $100 million for the Freight Innovation Program. It's also important to recognize that no amount could satisfy the country's entire freight need; instead, the country needs a sustained program to make continued investments in the coming decades.

Beyond cost, the new freight program's revenue and funding sources are an especially important consideration.[29] While those questions are beyond the scope of this proposal, we fully support general fund or user fee revenues dedicated solely to freight projects. Much like current transportation programs with dedicated trust funds, a federal investment program can only meet full expectations with funding certainty. Policymakers and private sector interests must recognize this truth, and begin the public debates to reach revenue and funding compromise.

State of Play

There is broad, bipartisan support for a national freight strategy and a federal freight investment program.

Congress publicly supports the creation of a national freight program, ranging from overall strategy documents to targeted investments. MAP-21 marked the first time federal surface legislation created national freight strategies and network building components. The House Transportation and Infrastructure Committee organized a special committee on freight and delivered a framework for greater federal involvement and investment. Transportation committee leaders have all publicly voiced support for a federal freight program, including Representative Bill Shuster (R-Pa.), Representative Peter DeFazio (D-Ore.), Senator Jim Inhofe (R-Ok.), and Senator Barbara Boxer (D-Calif.). Likewise, Congressional members like Representative Janice Hahn (D- Calif.), Representative Alan Lowenthal (D-Calif.), and Senator Cory Booker (D-N.J.) introduced bills in the 113th Congress to boost federal freight investment.

Freight also attracts support across all levels of government. Several executive leaders and federal agencies produced plans calling for more targeted freight investment, including President Barack Obama's FY 2016 budget proposal. From California to Massachusetts, many states have drafted their own individual freight plans, following the lead of MAP-21. Finally, metropolitan areas, stretching from New York to Portland, are currently drafting regional freight plans and could use federal support to accelerate the completion of projects with national impact.

Private sector leaders are also eager to see expanded federal freight investment. Industry associations, including the National Association of Manufacturers and the Freight Stakeholders Coalition, all publicly support new grant-making programs. The United States Government Accountability Office and independent policy organizations like RAND issued reports that recommend a targeted federal role. Federal commissions composed primarily of private sector participants—including the Department of Commerce's Advisory Committee on Supply Chain Competitiveness and USDOT's National Freight Advisory Committee—also recommend a targeted federal investment program.

Implementation Requirements

Initiating a federal freight investment program would require legislative action, most likely as part of a surface transportation reauthorization.

Appendix A. Components of a Proposed Federal Freight Investment Program

Program Type	National Freight Corridor Program	Metropolitan Freight Program (MFP)	Rural Freight Program (RFP)	Freight Innovation Program
Funding Details	- Formula Program - $5 billion in total funding - Divided equally across five years	- Competitive Program - $5 billion in total funding - Distributions: Year 1 = $0; Years 2 and 3 = $1 billion; Years 4 and 5 = $1.5 billion	- Competitive Program - $1 billion in total funding - Distributions: Year 1 = $0; Years 2 through 5 = $250 million	- Competitive Program - $100 million in total funding - Distributed in Year 1 or 2
Eligible Applicants	- States	- Requires at least one state and one local entity as a co-applicant - Other co-applicants can include cities, counties, other public authorities, and private firms	- Requires at least one state and one local entity as a co-applicant - Other co-applicants can include cities, counties, other public authorities, and private firms	- Any public entity
Eligible Projects	- States retain flexibility to spread resources among as many qualifying projects as possible	- Applicants must specify the specific project or projects the program will fund	- Applicants must specify the specific project or projects the program will fund	- Any freight project listed in the application and related to the category
Selection Criteria	- Total interstate value and tonnage - International value and tonnage at statewide port facilities, including seaports, airports, and land border crossings	- USDOT to publish selection criteria within one year - Must include: share of U.S. domestic and international goods trade (value and tonnage); congestion and freight bottlenecks on roadways, ports, and intermodal facilities within the geographic area; and output and employment in goods-intensive industries	- USDOT to publish selection criteria within one year - Must include: share of U.S. domestic and international goods trade (value and tonnage); congestion and freight bottlenecks on roadways, ports, and intermodal facilities within the geographic area; and output and employment in goods-intensive industries	- Secretary of Transportation retains sole discretion for awards - Congress to select conceptual categories
Award Range Per Applicant	N/A	$150 - $500 million	$25 - $100 million	$25 million
Required Local Match	20 percent	20 percent, but favorability for applicants with higher rates	20 percent, but favorability for applicants with higher rates	N/A

Appendix B. Determining Freight Investment Levels

The freight investment proposal includes a collection of three major grant programs, all meant to support projects in nationally significant places and corridors. This appendix explains the process by which we determined the award ranges for those grant programs.

Demonstrated freight megaprojects provide an ideal guidepost for the award ceiling on competitive grants, and help approximate a level for which formula funding can support the busiest trading states. For example, the proposed New International Trade Crossing between Michigan and Canada and renovations to the Bayonne Bridge in New Jersey each cost upwards of $1 billion.[30] By providing a maximum award of $500 million per place—and assuming a matching rate of over 20 percent—a competitive grant can reasonably assure project completion. Likewise, a $1 billion annual formula program can assure $75 to $100 million in the busiest states and provide similar guaranteed funding for megaprojects across multiple years.

A federal investment program also has the potential to support and coordinate freight spending across nationally significant places. Chicago's CREATE Program offers a useful model. The program includes 70 projects spread across multiple modes, and functions as a public-private partnership among multiple levels of government and railroad firms. Aggregate costs now amount to over $3 billion, with 22 projects already completed.[31] At a national level, awards ranging from $150 to $500 million for suites of projects in several different metro areas can spark more innovative regional planning and investment efforts like CREATE.

Finally, a formula and competitive rural program can provide ample funding for a variety of projects in key locations. The TIGER Grant Program—which has a strong legacy of funding freight projects nationally—provides excellent precedent. For example, over the course of six years, TIGER-funded freight awards ranged from less than $5 million (bridge replacement in Stinesville, Ind.) to over $100 million (Crescent Intermodal Rail Corridor, multiple states).[32] Just as importantly, many of the projects receive only $5 million to $15 million awards—like the Prichard Intermodal Facility in Prichard, W.V.—and get constructed with significant local support. This justifies a competitive award range of $25 million to $100 million in the Rural Freight Program, and large variability in state formula funding.

Endnotes

[1] Adie Tomer, Robert Puentes, and Joseph Kane, "Metro-to-Metro: Global and Domestic Goods Trade in Metropolitan America" (Washington: Brookings Institution, 2013).
[2] Brookings Institution analysis of Moodys Economy.com data.
[3] Adie Tomer, Robert Puentes, and Joseph Kane, "Metro Freight: The Global Goods Trade that Moves Metro Economies"(Washington: Brookings Institution, 2013).
[4] Adie Tomer and Joseph Kane, "Mapping Freight: The Highly Concentrated Nature of Goods Trade in the United States" (Washington: Brookings Institution, 2014).
[5] Based on forthcoming Brookings Metro Freight research.
[6] Federal Highway Administration
[7] Based on forthcoming Brookings Metro Freight research.
[8] Tomer and Kane, "Mapping Freight: The Highly Concentrated Nature of Goods Trade in the United States."
[9] For more information on the Alameda Corridor, see the Alameda Corridor Transportation Authority's web page at: http://www.acta.org/ [accessed February 2015].
[10] For more information on metropolitan export plans, see the Brookings Institution's Metropolitan Export Initiative resource page at: http://www.brookings.edu/about/projects/state-metro-innovation/mei [accessed February 2015].
[11] For additional examples of funding inefficiencies in federal surface transportation, see: Government Accountability Office, "Opportunities to Reduce Duplication, Overlap and Fragmentation, Achieve Savings, and Enhance Revenue," GAO-12-342SP (Washington, 2012).
[12]John Frittelli and William J. Mallett, "Freight Issues in Surface Transportation Reauthorization" (Washington: Congressional Research Service, 2009).
[13] For specific examples of innovative freight efforts underway at the state level, see: Darren Springer and Greg Dierkers, "An Infrastructure Vision for the 21st Century – Strengthening Our Infrastructure for a Sustainable Future" (Washington: National Governors Association, 2008).
[14] Sandra Rosenbloom and Martin Wachs, "A Federal Role in Freight Planning and Finance" (Santa Monica: RAND Supply Chain Policy Center, 2012).
[15] Government Accountability Office, "Freight Transportation: Strategies Needed to Address Planning and Financing Limitations," GAO-04-165(Washington, 2003).
[16] Government Accountability Office, "Developing National Strategy Would Benefit from Added Focus on Community Congestion Impacts," GAO-14-740 (Washington, 2014).
[17] Government Accountability Office, "A Comparison of the Costs of Road, Rail, and Waterways Freight Shipments That Are Not Passed on to Consumers," GAO-11-134 (Washington, 2011); and Government Accountability Office, "Better Data and Communication of Uncertainties Can Help Decision Makers Understand Benefits and Trade-offs of Programs and Policies," GAO-11-290 (Washington, 2011).
[18] Government Accountability Office, "National Policy and Strategies Can Help Improve Freight Mobility" GAO-08-287 (Washington, 2008).
[19] Selective freight investments, for instance, have the potential to allocate resources more effectively across different parts of the country, as described in: Richard Hillestad, Ben D. Van Roo, et al, "Key Issues in Modernizing the U.S. Freight-Transportation System for Future Economic Growth" (Santa Monica: RAND Supply Chain Policy Center, 2009).
[20] Bipartisan Policy Center, "Performance Driven: A New Vision for U.S. Transportation Policy" (Washington, 2009); and Justin Taylor, "The Economic Impact of Increased Congestion for Freight Dependent Businesses in Washington State – Technical Report" (Pullman, WA: Freight Policy Transportation Institute, Washington State University, 2012).
[21] United States Department of Transportation, Federal Highway Administration, "Estimated Cost of Freight Involved in Highway Bottlenecks" available at: http://www.fhwa.dot.gov/policy/otps/freight.cfm [accessed February 2015].
[22] Joseph Kane and Adie Tomer, "How the West Coast Port Strike Is Hurting Metro Trade" (Washington: Brookings, 2015).
[23] For information on limitations of the PNRS program, see: Government Accountability Office, "Clear Federal Role and Criteria-Based Selection Process Could Improve Three National and Regional Infrastructure Programs" GAO-09-219 (Washington, 2009).
[24] For information on how freight rail and other modes could work more seamlessly together, see: Congressional Budget Office, "Freight Rail Transportation Long-Term Issues" (Washington. 2006).
[25] Marc Levinson, "Surface Transportation Reauthorization in the 112th Congress: Summary and Sources" (Washington: Congressional Research Service, 2012).
[26] Georgia Gann et al, "Making the Most of MAP-21" (Washington: Transportation for America, 2012).
[27] For more information on trucking regulations for the National Highway System, see Part 658, Title 23, U.S. Code of Federal Regulations. The "Truck Size and Weight" web page by the Federal Highway Administration also contains valuable information, at: http://www.ops.fhwa.dot.gov/freight/sw/index.htm [accessed February 2015].
[28] To view a presentation of the Canadian fluidity system, visit the website: http://onlinepubs.trb.org/online-pubs/conferences/2014/FreightFluidity2014/I.%20 Deck%20%20Fluidity_TRB%20May%2021%202014.pdf [accessed July 2014].
[29] Joshua Schank, "The Challenge of National Freight Policy: How to Pay For It?" (Washington: ENO Center for Transportation, 2014).

[30] Detroit River International Crossing costs according to the United States Department of State, available at: http://www.state.gov/documents/organization/194997.pdf [accessed February 2015]. Bayonne Bridge costs according to the Port Authority of New York and New Jersey, available at: http://www.panynj.gov/bayonnebridge/ [accessed February 2015].
[31] To view more information on the CREATE Project and specific investments, visit the website: http://www.cmap.illinois.gov/mobility/explore#/topic/freight/create-projects [accessed February 2015].
[32] The complete list of TIGER Discretionary Grant awards can be found on the USDOT website: http://www.dot.gov/tiger [accessed February 2015].

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