

BACKGROUND

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Driving Investment, Fueling Growth: How Strategic Reforms Can Generate \$1.1 Trillion in Infrastructure Investment

Michael Sargent and Nicolas D. Loris

Abstract

Both President Trump and Members of Congress have voiced interest in investing \$1 trillion in the nation's infrastructure. However, relying on the failed top-down spending programs tried in the past would be misguided and counterproductive. Instead, Congress and the Administration can drive large-scale investment into infrastructure and create jobs through strategic reforms. Without adding to the deficit, policymakers can generate \$1.1 trillion in private and public investment over 10 years by eliminating mandates that drive up the cost of current spending, reforming regulations that hamper infrastructure projects, and refocusing the federal government's role on national priorities. This Background presents these free-market opportunities as an alternative roadmap that will generate needed infrastructure investment without heavy-handed federal intervention.

Infrastructure improvements are perennial fodder for politicians on the stump looking to appeal to voters. However, composing a detailed, effective investment plan that goes beyond rhetoric is a much more daunting task that requires careful consideration. President Trump has made it clear he wants to undertake a “new program of national rebuilding” by investing \$1 trillion in infrastructure.¹ Although the President has stated this funding would be drawn from both public and private sources, he has yet to put forth a detailed plan.

Democrats in Congress have seized on the opportunity to put forward their own proposal on infrastructure. This proposal calls for an additional \$1 trillion spent on infrastructure, paid for by an undisclosed tax increase on corporations and top individual income earners.²

KEY POINTS

- Both the Administration and Congress want to invest \$1 trillion into the nation's infrastructure. They can do so by undertaking strategic reforms instead of repeating unsuccessful stimulus boondoggles.
- An agenda of aggressive policy reforms across a wide variety of infrastructure sectors can drive an estimated \$1.1 trillion in direct investment in infrastructure over 10 years.
- Eliminating burdensome federal mandates that increase the cost of infrastructure will stretch each taxpayer dollar further, increasing investment by \$101 billion without the need to boost spending levels.
- Reducing regulations that hamper both public and private infrastructure production will increase investment in vital infrastructure by \$562 billion while creating immediate and long-term jobs.
- Properly aligning federal investment with truly national priorities while liberating activities better suited to the private sector and states will improve the management, accountability, and outcomes of \$443 billion in major infrastructure investment.

This paper, in its entirety, can be found at <http://report.heritage.org/bg3209>

The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
(202) 546-4400 | heritage.org

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This past presidential election hinged on a change in the status quo. An infrastructure agenda that repeats the mistake-ridden spending plans of the past would be misguided. A top-down, tax-and-spend approach is inefficient, politically driven, and results in poor infrastructure outcomes that are not aligned with real needs. The folly of this approach is well-illustrated by the stimulus plan for “shovel ready” infrastructure, which even President Obama acknowledged “was not as shovel ready as we expected.”³ Doubling down on this approach would only further perpetuate the fundamental problems with infrastructure funding and financing in the U.S.

Instead, the recommendations in this *Backgrounder* serve as an alternative roadmap to large-scale infrastructure spending without adverse impact on the federal budget. They span a wide variety of assets—from airports and harbors to energy infrastructure—and draw on both private and public funding sources. By pursuing an aggressive agenda of structural and regulatory reform and prioritizing infrastructure projects that are truly federal responsibilities (such as cleaning up the nuclear weapons complex remaining from the Cold War era), the Trump Administration and Congress have the capacity to generate an estimated \$1.1 trillion in infrastructure investments over the next 10 years, while creating immediate and long-term jobs in the private sector.⁴

The reforms in this paper are broadly sorted into three categorical agendas (none of which are entirely exclusive):

1. Increase the efficacy of current spending.

Eliminating burdensome federal mandates that

increase the cost of infrastructure will stretch each taxpayer dollar further, increasing investment without the need to boost spending levels.

2. Deregulate infrastructure investment.

Reducing regulations that hamper both public and private infrastructure production will both make project delivery less expensive and investment more effective at prioritizing valuable projects.

3. Refocus federal investment on national priorities.

Properly aligning federal investment with truly national priorities while liberating activities better suited to the private sector and states will improve the management, accountability, and outcomes of major infrastructure investments.

In the President’s fiscal year (FY) 2018 budget request, the Administration emphasized that it is working to form

commonsense regulatory, administrative, organizational, and policy changes to encourage investment and speed project delivery. Through this initiative, the President is committed to making sure that taxpayer dollars are expended for the highest return projects and that all levels of government maximize leverage to get the best deals and exercise vigorous oversight.⁵

This paper addresses those challenges and provides the necessary reforms to stretch public spending further and incentivize more private investment.

1. President Donald Trump, “Joint Address to Congress,” address delivered at the U.S. Capitol, Washington, DC, February 28, 2017, <https://www.whitehouse.gov/the-press-office/2017/02/28/remarks-president-trump-joint-address-congress> (accessed April 5, 2017).

2. Democratic Policy and Communications Committee, “A Blueprint to Rebuild America’s Infrastructure,” U.S. Senate, January 24, 2017, <https://www.dpcc.senate.gov/files/documents/ABlueprinttoRebuildAmericasInfrastructure1.24.17.pdf> (accessed April 5, 2017).

3. “Obama Jokes at Jobs Council: ‘Shovel-Ready Was Not as Shovel-Ready as We Expected,’” Fox News, June 13, 2011, <http://nation.foxnews.com/president-obama/2011/06/13/obama-jokes-jobs-council-shovel-ready-was-not-shovel-ready-we-expected> (accessed April 5, 2017).

4. These investment figures are estimates (many of them rough) of direct investment in infrastructure. They are not intended to be precision forecasts, but instead were determined to reasonably quantify the effects of policy changes. The figures take into account potential infrastructure investment generated for the 10-year period from 2017-2026 and are drawn from independent studies (as cited) and Heritage Foundation calculations, which are explained in the appendices. They do not reflect the total economic benefits generated by the reforms, which are likely to be substantially larger.

5. U.S. Office of Budget and Management, *America First: A Budget Blueprint to Make America Great Again, Fiscal Year 2018* (Washington, DC: U.S. Government Printing Office, 2017), https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/budget/fy2018/2018_blueprint.pdf (accessed April 5, 2017).

TABLE 1

An Alternative Roadmap to Infrastructure Spending

Reform	Investment Potential
Expedite the Permitting and Review Process	\$285,300,000,000
Regulatory Reform for the Energy Sector	\$260,000,000,000
Privatize Top 71 U.S. Airports	\$179,153,995,370
Prioritize Interstate Highway Maintenance	\$132,205,628,139
Repeal Davis–Bacon	\$100,775,844,966
Prioritize Nuclear Weapons Cleanup	\$65,000,000,000
Auction Spectrum for Private Use	\$25,000,000,000
Corporatize Air Traffic Control	\$22,871,000,000
Move Forward with Yucca Mountain	\$19,141,838,910
Repeal the Jones Act and Foreign Dredge Act	\$10,000,000,000
Overturn Net Neutrality Regulations	\$7,000,000,000
Prohibit Project Labor Agreements	\$220,327,130
End “Buy America” Restrictions	n/a
Eliminate Barriers to P3s	n/a
Total	\$1,106,668,634,514

NOTE: Totals are from 2017–2026

SOURCE: Heritage Foundation research, details within paper.

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Increase the Efficacy of Current Spending

Federal funding is laden with mandates that drive up the cost of infrastructure construction for the benefits of special interests. Enacting the reforms laid out in this section would increase investment without any adverse budgetary effects by stretching each taxpayer dollar further.

Prohibit Project Labor Agreements. Project Labor Agreements (PLAs) require the main contractor of government contracts to sign a collective bargaining agreement as a condition of winning a project bid. Collective bargaining agreements require using union compensation rates, union work rules, and hiring all workers on federally contracted projects through union hiring halls. PLAs inflate construction costs by 12 percent to 18 percent on top of increased

costs attributed to the Davis–Bacon Act (DBA) and discriminate against the 87 percent of workers who are not members of a union.⁶ The new Administration should overturn President Obama’s Executive Order 13502 requiring PLAs and instead prohibit states and local governments from requiring or encouraging the use of PLAs on federally funded construction projects.

This reform is projected to increase effective investment by at least \$220 million under current rates of spending for federal construction projects.⁷

Repeal the Davis–Bacon Act. The Davis–Bacon Act, enacted in 1931, effectively requires construction contractors on federal projects to use union wage and benefit scales and follow union work rules. These rules inflate the cost of federal construction by nearly 10 percent on average.⁸

6. David G. Tuerck, Sarah Glassman, and Paul Bachman, “Project Labor Agreements on Federal Construction Projects: A Costly Solution in Search of a Problem,” Beacon Hill Institute, *Policy Study*, August 2009, <http://www.beaconhill.org/BHISudies/PLA2009/PLAFinal090923.pdf> (accessed April 5, 2017).

7. This only includes federal spending for federal contracts and does not include PLAs used for contracts made by states and localities that make use of federal grants. For methodology, see Appendix 1.


8. Sarah Glassman, Michael Head, David G. Tuerck, and Paul Bachman, “The Federal Davis-Bacon Act: The Prevailing Mismeasure of Wages,” Beacon Hill Institute, February 2008, <http://www.beaconhill.org/BHISudies/PrevWage08/DavisBaconPrevWage080207Final.pdf> (accessed April 5, 2017).

TABLE 2

Increase Efficacy of Public Investment

Reform	Investment Potential
Repeal Davis-Bacon	\$100,775,844,966
End Project Labor Agreements	\$220,327,130
End “Buy America” Restrictions	n/a
Total	\$100,996,172,096

SOURCE: Heritage Foundation research, details within paper.

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Eliminating the DBA has current support in Congress and would stretch each federal construction dollar further, delivering more infrastructure without the need to increase spending levels.⁹ Barring complete elimination, the Labor Department should shift to using more accurate Bureau of Labor Statistics data to estimate DBA “prevailing wages” so they more closely reflect market pay.¹⁰ We estimate eliminating the DBA would free up the equivalent of \$102.7 billion in additional investment over the next 10 years under current public investment levels.¹¹

End “Buy America” Restrictions. Like with the DBA, most federally funded infrastructure projects must comply with “Buy America” mandates, which require that certain input components must be manufactured in the United States. This protectionist mandate limits selection and price competition among input manufacturers, which often leads to higher costs for projects.¹² Indeed, Buy America requires the use of American-made steel, which in recent years has cost more than steel made in Western Europe or China—a price increase of roughly 30 percent in the case of the latter.¹³ In addition, buses made in the U.S. were found to be twice as expensive as those made in Japan. Overall, Buy America provisions are allowed to increase the cost of an entire project by up to 25 percent before the project agency can apply for a waiver.¹⁴

Furthermore, the mandate’s complex requirements can cause project delays and further increase costs if agencies do not fully comply with relatively arbitrary federal findings. For example, New York’s Second Avenue Subway had to replace its entire fire suppression system—parts of which were produced in Finland—when the federal government ruled that the Finnish components of the system qualified as “end product,” although much of the system was produced in the U.S.¹⁵ Ending this bureaucratic and protectionist mandate would give U.S. infrastructure access to more numerous, better quality, and less expensive components.

American companies do not need to be propped up by harmful protectionist policies. U.S. manufacturers can be made more competitive internationally through reducing burdensome taxation,

9. Press release, “Lee Introduces Bill to Lower Federal Construction Costs,” Office of Senator Mike Lee, January 30, 2017, <http://www.lee.senate.gov/public/index.cfm/press-releases?ID=6C41493A-F6F0-4C63-B404-7FD9A9156A81> (accessed April 5, 2017).
10. James Sherk, “Labor Department Can Create Jobs by Calculating Davis-Bacon Rates More Accurately,” Heritage Foundation *Backgrounder* No. 3185, January 21, 2017, http://www.heritage.org/sites/default/files/2017-01/BG3185_0.pdf.
11. For methodology, see Appendix 2.
12. Michaela D. Platzer and William J. Mallett, “Effects of Buy America on Transportation Infrastructure and U.S. Manufacturing: Policy Options,” Congressional Research Service *Report for Congress* No. 44266, November 10, 2015, <https://fas.org/sgp/crs/misc/R44266.pdf> (accessed April 5, 2017).
13. Ibid.
14. Jeff Davis, “The Trump Infrastructure Agenda—What Would ‘Buy American, Hire American’ Really Entail?” *Eno Transportation Weekly*, The Eno Center for Transportation, January 16, 2016, <https://www.enotrans.org/article/trump-infrastructure-agenda-buy-american-hire-american-really-entail/> (accessed April 5, 2017).
15. Nicole Gelinas, “Here’s Why It Took a Century and \$4.5 Billion to Add Just Three Subway Stops in New York City,” *The Daily Beast*, December 31, 2016, <http://www.thedailybeast.com/articles/2016/12/31/here-s-why-it-took-a-century-and-4-5-billion-to-add-just-three-subway-stops-in-new-york-city.html> (accessed April 5, 2017).

limiting stifling regulation, and incentivizing innovation by opening them up to international competition.¹⁶ Enacting these policies instead of leaning on protectionism would not only benefit infrastructure investment, but also grow the American economy.

However, as both the Congressional Research Services and Government Accountability Office note, no reputable estimates detail by how much Buy America restrictions drive up costs—a glaring lack of information that merits congressionally mandated study. Given that transit capital expenditures total nearly \$20 billion annually and the large cost differentials of between goods such as steel and rolling stock manufactured abroad and in the U.S., savings would likely be substantial.¹⁷

Deregulate Infrastructure Investment

Both private-sector and public-sector investment in infrastructure is hampered by misguided regulations that can drastically increase costs, limit competition, and reduce the incentives to invest. Rolling back or eliminating these barriers to investment would allow billions of additional dollars to flow into U.S. infrastructure.

Specifically, Congress should not ignore the privately funded energy infrastructure investment and job creation that could occur with the right regulatory reforms, such as eliminating government-imposed obstacles that obstruct natural resource extraction, renewable power generation, electricity grid modernizations, and export facility construction, as well as pipeline and transmission line infrastructure expansion and modernization. The Administration and Congress should pursue the policies laid out in this section.

Overturn the Federal Communications Commission’s Net-Neutrality Rules. During the Obama Administration, the Federal Communications Commission (FCC) undertook an unprecedentedly aggressive regulatory approach to the Internet and other broadband technologies. By declaring broadband a “common carrier” and plac-

TABLE 3

Deregulate Infrastructure Investment

FIGURES ARE IN BILLIONS OF DOLLARS

Reform	Investment Potential
Expedite the Permitting and Review Process	\$285.30
Regulatory Reform for the Energy Sector	\$260.00
Repeal the Jones Act and Foreign Dredge Act	\$10.00
Overturn Net Neutrality Regulations	\$7.00
Reduce Barriers to P3s	n/a
Total	\$562.30

SOURCE: Heritage Foundation research, details within paper.

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ing it under Title II regulation, the FCC sought to yoke the Internet to various rules designed for monopoly telephone providers in the twentieth century. These rules have the potential to clamp down on innovative business practices and provide a direct disincentive for telecommunications companies to invest in their vital broadband infrastructure. As FCC Chairman Ajit Pai has pointed out, the implementation of the rules during the Obama Administration has coincided with the first ever year-over-year reduction in infrastructure investment amongst the major Internet service providers outside a recession.¹⁸ Because these firms are among the largest investors in the national economy, net-neutrality rules are bad for consumers, the broadband industry, and the economy as a whole. One estimate projects that these regulations would result in \$4 billion to \$10 billion in decreased

16. Terry Miller and Anthony Kim, *2017 Index of Economic Freedom* (Washington, DC: The Heritage Foundation, 2017), p. 93.

17. National Transit Database, “Capital Expenses,” 2015, <https://www.transit.dot.gov/ntd/data-product/2015-capital-expenses> (accessed April 5, 2017).

18. Ajit Pai, “The FCC and Internet Regulation: A First-Year Report Card,” remarks at The Heritage Foundation, February 26, 2016, https://apps.fcc.gov/edocs_public/attachmatch/DOC-337930A1.pdf (accessed April 5, 2017).

broadband investment.¹⁹ Employing the midpoint estimate, overturning these regulations would thus have the potential to increase private broadband investment by \$7 billion.

Repeal the Jones Act and Foreign Dredge Act for U.S. Ports. The Merchant Marine Act (commonly known as the Jones Act) and the Foreign Dredge Act were both enacted in the early twentieth century to protect American maritime interests from foreign competition. These efforts to bolster the domestic shipbuilding industry have failed. U.S. shipbuilders hold less than 1 percent of the global shipbuilding market (by deadweight tonnage) and produce just 0.2 percent of U.S. gross domestic product (GDP), according to the National Defense University's 2015 and 2016 industry studies.²⁰ Despite America's growing dredging needs, only 2 hopper dredges have been built in the past 10 years.²¹

Aside from failing to stimulate the industry, these laws impede the U.S. from making cost-effective maritime investments. The Foreign Dredge Act of 1906 prohibits any foreign-built or chartered ships from dredging in the U.S. The result is to exclude the world's largest dredging companies that could provide better and cheaper service for dredging projects at the behest of a few politically connected companies. Indeed, Army Corps of Engineers data show that the dredging market is extremely concentrated. From 2014–2016, the average dredging project received just two bids, and three companies accounted for 56 percent of the market share, with the largest accounting for 30 percent of the dredging market.²² The market is further distorted because the Corps of Engineers sets aside a portion of proj-

ects for small and emerging businesses, thus awarding projects to companies that may not provide the best value for service.

This market restriction has had a significant impact on the nation's ports. A lack of maintenance on dredging and increasing ship depth has left U.S. harbors to function at full channel depth and width only 35 percent of the time.²³ Port authorities have complained about a lack of dredging bids to fix this issue because American dredgers are operating at full capacity.

Given the greater need to expand U.S. ports to accommodate larger ships following the recent expansion of the Panama Canal, allowing greater access to and increased competition among dredging companies—especially those that have the most experience—would be a boon to U.S. ports and shippers. The Jacksonville Harbor Channel Deepening project shows that foreign dredging companies can accomplish the job an estimated 4 years faster and for 30 percent less than the U.S. dredging cartel, generating \$180 million in savings on the original Army Corps estimate of \$534 million in direct dredging costs.²⁴ Overall, allowing foreign dredging companies access to U.S. projects would generate \$1 billion in taxpayer savings per year according to one estimate, allowing for \$10 billion in effective additional investment over 10 years.²⁵

Expedite Federal Permitting and Review Processes. Before beginning construction, major infrastructure projects must receive approval from the federal government, which administers 59 different permits and reviews through 12 different agencies. Navigating this labyrinth inflicts massive,

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19. Hal Singer, "Three Ways The FCC's Open Internet Order Will Harm Innovation," Progressive Policy Institute, *Policy Memo*, May 2015, <http://www.progressivepolicy.org/publications/policy-memo/three-ways-the-fccs-open-internet-order-will-harm-innovation/> (accessed April 5, 2017).
 20. National Defense University, "Final Report: Shipbuilding," Industry Study, Spring 2015, <http://es.ndu.edu/Portals/75/Documents/industry-study/reports/2015/es-is-report-shipbuilding-2015.pdf> (accessed April 5, 2017), and "Final Report: Shipbuilding," Industry Study, Spring 2016, <http://es.ndu.edu/Portals/75/Documents/industry-study/reports/2016/es-is-report-shipbuilding-2016.pdf> (accessed April 5, 2017).
 21. Government Accountability Office, "Actions Needed to Further Improve Management of Hopper Dredging," GAO-14-290, April 2014, <http://www.gao.gov/assets/670/662453.pdf> (accessed April 5, 2017).
 22. U.S. Army Corps of Engineers, "U.S. Waterway Data, Dredging Information System, Dredging Contracts," November 21, 2016, <http://www.navigationdatacenter.us/data/datadrg.htm> (accessed April 5, 2017).
 23. Kurt J. Nagle, testimony before the Committee on Ways and Means, U.S. House of Representatives, February 1, 2012, https://waysandmeans.house.gov/UploadedFiles/American_Association_of_Port_Authorities_2112.pdf (accessed April 5, 2017).
 24. Data provided by Samuels International Associates, Inc.
 25. Daniel J. Ikenson, "A Ports Policy Barnacled with Bad Law," *The Wall Street Journal*, August 5, 2015, <http://www.wsj.com/articles/a-ports-policy-barnacled-with-bad-law-1438730822> (accessed April 5, 2017).

unjustifiable costs and delays on vital infrastructure projects. Environmental reviews alone take 5 years to complete on average, increasing both direct costs from additional labor and rising material prices and indirect costs by prolonging inefficiencies from extended reliance on outdated infrastructure.²⁶ Many major projects often take a decade or longer to permit.²⁷

Reducing the time and complexity of the permitting process would be a boon to infrastructure projects. One promising piece of legislation is The Build USA Infrastructure Act, which would allow states to be responsible for ensuring federal requirements are met, rather centralizing the decisions in slow-moving bureaucracies in Washington.²⁸ Other improvements that can be made at the federal level include:

- Making concurrent reviews the norm rather than the exception;
- Empowering a lead agency to guide projects through multi-agency reviews;
- Expanding the Permitting Dashboard established in 2015; and
- Requiring agencies to submit data on the length of their permitting decisions to increase transparency and accountability.²⁹

These reforms would cut down on approval times for projects, allowing work to begin much sooner. A study done by the non-partisan Common Good coalition found that reducing permitting times for major projects by six years would amount to \$285.3 billion in reduced rebuilding costs for road, bridge,

rail, inland waterway, drinking water, and wastewater projects.³⁰ These savings would then be available for investment in additional infrastructure projects instead of being squandered while waiting for permitting approval.

Eliminate Federal Barriers to Public Private Partnerships (P3s). Expanding the private sector's role in infrastructure financing and operations provides myriad benefits for improving infrastructure management, procuring projects faster and on-time, increasing economic efficiency, and mitigating taxpayer risk.³¹ Importantly, stakeholders must structure P3s prudently, using them only when advantageous to bring private-sector involvement into areas dominated by government ownership and management, such as transportation infrastructure. They should never be used to foist private-sector risk onto taxpayers.³²

To realize the greater implementation of P3s, political leaders should voice support for the benefits and importance of expanding private ownership and P3s for infrastructure projects. The Trump Administration should embrace this leadership role by working with Congress to eliminate existing federal barriers to P3s while advocating for P3s at the state level. In addition to recommendations made elsewhere in this paper (i.e., permitting and forthcoming airport finance reforms), policy changes that can eliminate or reduce these barriers include the following:

- Ensure adequate access to Private Activity Bonds (PABs)—which puts the financing cost of privately financed infrastructure on a nearly equal level with projects financed by tax-exempt municipal bonds—by expanding the federal cap on PABs to meet demand.

26. Andy Winkler, "Accelerate the Permitting Process," Bipartisan Policy Institute, <http://bipartisanpolicy.org/blog/accelerate-the-permitting-process/> (accessed April 5, 2017).

27. Philip K. Howard, "Two Years, Not Ten Years: Redesigning Infrastructure Approvals," Common Good, 2015, http://commongood.3cdn.net/c613b4cfda258a5fcb_e8m6b5t3x.pdf (accessed April 12, 2017).

28. The Build USA Infrastructure Act, S. 271, 115th Cong., 1st Sess., <https://www.congress.gov/115/bills/s271/BILLS-115s271is.pdf> (accessed April 5, 2017).

29. Winkler, "Accelerate the Permitting Process."

30. Howard, "Two Years, Not Ten Years: Redesigning Infrastructure Approvals." The effect of permitting acceleration for energy projects is discussed and accounted for in the subsequent sections on energy reform.

31. Robert Poole Jr. and Austill Stuart, "Federal Barriers to Private Capital Investment in U.S. Infrastructure," Reason Foundation *Policy Brief* No. 138, January 2017, http://reason.org/files/federal_barriers_to_private_capital_investment.pdf (accessed April 5, 2017).

32. Jack Spencer, "Seven Reasons Loan Guarantees Are Bad Policy," Heritage Foundation *Issue Brief* No. 3882, March 20, 2013, http://thf_media.s3.amazonaws.com/2013/pdf/ib3882.pdf (accessed April 5, 2017).

- Remove the grant repayment requirements mandated by Executive Order 12803 (issued in 1992), which requires the repayment of federal grants in order to lease or sell certain infrastructure assets intent on entering into a P3. This payment amounts to a tax on P3s.
- Lift the ban on tolling existing federal interstate highways.
- Comprehensively audit and amend other regulatory impediments to private infrastructure investment.³³

Although no well-defined estimate exists on how specific federal reforms that enhance P3s would stimulate private investment, two studies project the investment impact of increasing P3 use in the U.S. at as much as \$250 billion.³⁴ However, given the uncertainty of assigning these figures to specific reforms and the need for extensive action at state and local levels of government, this report does not include that estimate in its investment impact total.

Regulatory Reform for the Energy Sector

When Members of Congress speak to the needs of infrastructure spending, they typically mean more money for America's roads and bridges. But Congress should not ignore the privately funded energy infrastructure investment and job creation that could occur with the right policy reforms. Eliminating government-imposed obstacles that obstruct natural resource extraction, renewable power generation, electricity grid modernizations, and export facility construction, as well as pipeline and transmission-line infrastructure expansion and modernization, should be a priority for Congress.

The U.S. has a tremendous wealth of natural resources. Despite the Obama Administration's best efforts to "keep it in the ground," the American energy boom resulted in job creation across the country and, through lower energy bills, put money back into the bank accounts of families. The U.S. could capitalize even more on its abundant natural resources by removing moratoriums and regulations that obstruct and stymie production.³⁵ Opening access to resource exploration and implementing regulatory reform will spur private-sector investment in new infrastructure and spur job creation across the country. In fact, in 2011 the U.S. Chamber of Commerce compiled a list of 351 projects stalled by time-consuming permitting processes, unnecessarily slow environmental reviews, nuisance lawsuits, changes to zoning laws, and Not in My Back Yard (NIMBY) resistance. Although the study is a few years old, it provides an important glimpse into the sheer magnitude of opportunities for investment in energy infrastructure. The authors estimate that the "invest phase" of the projects, which includes planning and construction, would generate \$577 billion in direct investment over a seven-year construction period. While the study is outdated and not all of the projects would be completed, the more than half-trillion-dollar investment number offers a snapshot how much potential there is for energy investment.³⁶

Reforming obstructionist federal laws and regulations that are duplicative, provide little or no environmental benefit, or serve as guide to filing lawsuits will encourage more infrastructure investment. State and local laws and regulations that also contribute to delays in investment and policy reform at all levels of government should follow the same themes. The environmental review and permitting process of infrastructure projects should respect the rule of law, protect property rights, and solicit

33. Poole Jr. and Stuart, "Federal Barriers to Private Capital Investment in U.S. Infrastructure," and Bipartisan Policy Center, *Bridging the Gap Together: A New Model to Modernize U.S. Infrastructure*, May 2016, <http://cdn.bipartisanpolicy.org/wp-content/uploads/2016/05/BPC-New-Infrastructure-Model.pdf> (accessed April 5, 2017).

34. Bipartisan Policy Center, "A Plan to Modernize America's Infrastructure," December 2016, <http://cdn.bipartisanpolicy.org/wp-content/uploads/2016/12/BPC-Transition-Memo-Infrastructure.pdf> (accessed April 5, 2017), and Curtis Arndt, "Regulatory Burdens and the Supply of Infrastructure Projects," American Action Forum, February 27, 2017, <https://www.americanactionforum.org/research/infrastructure-regulatory-burdens/> (accessed April 5, 2017).

35. Kevin Dayaratna, David W. Kreutzer, and Nicolas D. Loris, "Time to Take Advantage of Our Vast Oil and Gas Resources," Heritage Foundation *Backgrounder* No. 3148, September 2016, <http://www.heritage.org/environment/report/time-unlock-americas-vast-oil-and-gas-resources>.

36. The \$577 billion is not included in our estimate.

public input, but not serve as tool for anti-development and nuisance litigation.³⁷

Importantly, regulatory reform will benefit all energy sources and technologies. Out of the 351 projects identified, 140 of the stalled projects are renewable energy infrastructure, including 89 wind power, 29 biomass, 10 solar power, seven hydro-power, four wave, and a geothermal project. Oil and natural gas transportation and storage expansion presents another opportunity for increased direct investment in infrastructure. Despite the politicization of recent pipeline proposals, such as Keystone XL and Dakota Access, pipelines are the safest mode of transporting oil, natural gas, and other petroleum products. The United States has more than 500,000 miles of crude oil, petroleum, and natural gas pipelines and another 2 million miles of natural gas distribution pipelines.³⁸ Not only do pipelines pose the least threat to accident, injuries, or fatalities, they also pose the smallest environmental risk.³⁹

Oil and gas infrastructure includes more than pipelines, however. Rail and marine vessels are necessary and important modes of transport as is investment in new roads and road maintenance because of high-volume heavy-duty vehicle traffic. The increased oil and gas production as a result of the shale boom in the U.S. consequently increased infrastructure investment. According to a December 2013 analysis from IHS Economic Consulting, U.S. oil and gas infrastructure increased from \$56.3 billion in 2010 to \$89.6 billion in 2013.⁴⁰ The study projects a total of \$890 billion in direct investment for oil and gas infrastructure and storage over the 2014–2025 time frame.⁴¹

The \$890 billion estimate is the business-as-usual case. Policies that open access to energy resources that have been off-limits and reduce regulations that increase production costs would increase production and subsequently increase infrastructure investment. In fact, the IHS analysis projects that a 20 percent increase in oil and gas production from the baseline case would yield a total of \$1.15 trillion in oil and gas infrastructure and storage direct spending, a 29 percent increase, or an additional \$260 billion, over the baseline scenario.⁴² We include this figure in our direct investment total.

A 20 percent increase in resource production is by no means out of reach for American energy companies. Domestic petroleum production in 2015 was about 50 percent higher than the projection the EIA made for 2015 in 2008.⁴³ Natural gas production in 2015 was about 40 percent higher than the EIA's 2008 projection.⁴⁴ The comparative pessimism on the part of the EIA was largely due to not fully appreciating the impacts of smart drilling technology and hydraulic fracturing (fracking) at that time. Even at a time where oil prices are much lower than 2008, reforms that open access to untapped resources and reduce the regulatory burden on oil and gas activities could achieve a 20 percent increase (or higher) in production.

In order to harness an additional \$260 billion of investment in energy infrastructure, the Administration and Congress should:

Limit the Scope of the National Environmental Policy Act. The National Environmental Policy Act (NEPA) requires federal agencies to conduct comprehensive environmental assessments for

37. Steve Pociask and Joseph P. Fuhr Jr., *Progress Denied: A Study on the Potential Economic Impact of Permitting*, U.S. Chamber of Commerce and the Project No Project Initiative, March 10, 2011, http://www.projectnoproject.com/wp-content/uploads/2011/03/PNP_EconomicStudy.pdf (accessed April 5, 2017).

38. Diana Furchtgott-Roth, "Pipelines Are Safest for Transportation of Oil and Gas," Manhattan Institute *Issue Brief* No. 23, June 2013, https://www.manhattan-institute.org/pdf/ib_23.pdf (accessed February 6, 2017).

39. *Ibid.*

40. IHS Global Inc., "Oil and Natural Gas Transportation and Storage Infrastructure: Status, Trends, and Economic Benefits," December 2013, <http://www.api.org/-/media/Files/Policy/SOAE-2014/API-Infrastructure-Investment-Study.pdf> (accessed February 6, 2017).

41. *Ibid.*

42. *Ibid.*

43. U.S. Energy Information Administration, *Annual Energy Outlook 2008*, June 2008, <https://www.eia.gov/oiaf/archive/aeo08/index.html> (accessed June 20, 2016), and U.S. Energy Information Administration, *Annual Energy Outlook 2016*, July 7, 2016, <http://www.eia.gov/forecasts/aeo/> (accessed February 6, 2017).

44. *Ibid.*

a wide range of infrastructure projects. The nearly fifty-year-old statute has evolved to serve more as a tool to delay and obstruct projects unpopular with special interest groups or politicians who ignore scientific and technical logic. For highway projects, the average time to complete an environmental impact statement increased from 2.2 years in the 1970s to 8.1 years in 2011.⁴⁵ At present, 148 energy and transit projects are in NEPA review, tying up nearly \$230 billion in stalled investment.⁴⁶

Major problems contributing to NEPA delays at the federal level include:

- Differing interpretations of NEPA requirements,
- Failed interagency coordination,
- Administrative bottlenecks, and
- Outdated requirements that fail to take into account a dynamic environment.⁴⁷

Furthermore, the Council on Environmental Quality (CEQ) added steps for agencies to follow when conducting environmental impact statements, layering more bureaucracy on an already cumbersome process. For example, the CEQ issued final guidance for how agencies should consider global warming impacts in their NEPA reviews, despite the fact that these impacts are negligible.⁴⁸

Far from compromising environmental stewardship, reforming or repealing NEPA would instead provide an opportunity to remove duplication with state environmental and other federal requirements. The result will be a more effective means to protect public health and safety. With the exception of full repeal, reforms to NEPA should include:

- Eliminating greenhouse gas emissions analysis from the review process,
- Narrowing the review to only major environmental issues,
- Mandating time limits and requiring a lead agency,
- Establishing functional equivalence of a NEPA analysis through federal and state statutes that already require an environmental impact analysis, and
- Requiring NEPA to incorporate previous analyses into similar projects.⁴⁹

Prohibit the Use of the Social Cost of Carbon in Regulatory Proceedings and Eliminate Agencies' Ability to Regulate Greenhouse Gases.

The federal government uses the social cost of carbon (SCC) to calculate the climate benefit of abated carbon dioxide emissions (CO₂) from regulations or the “climate cost” of infrastructure projects. When President Obama first took office, he created an Interagency Working Group to calculate the alleged monetary long-term damage of CO₂ emissions in a given year. In 2013, the working group increased the SCC from \$21 per ton to \$36 per ton.

The use of SCC in regulatory analysis is a waste of time and resources, allowing federal and state regulators to justify stalling or rejecting a worthwhile but politically unpopular infrastructure project. The agency estimates the amount of CO₂ that would be emitted into the atmosphere over the lifetime of a certain project, multiplies that figure by \$36, and generates a “global warming cost” to justify obstructing the project. In fact, a Colorado judge rejected a coal mine expansion because the regula-

45. Regional Plan Association, “Getting Infrastructure Going: Expediting the Environmental Review Process,” June 2012, <http://www.rpa.org/library/pdf/RPA-Getting-Infrastructure-Going.pdf> (accessed April 5, 2017).

46. Arndt, “Regulatory Burdens and the Supply of Infrastructure Projects.”

47. Ibid.

48. The White House, “Fact Sheet: White House Council on Environmental Quality Releases Final Guidance on Considering Climate Change in Environmental Reviews,” August 2, 2016, <https://obamawhitehouse.archives.gov/the-press-office/2016/08/02/fact-sheet-white-house-council-environmental-quality-releases-final> (accessed April 5, 2017).

49. Diane Katz and the Honorable Craig Manson, “The National Environmental Policy Act,” in *Environmental Conservation: Eight Principles of the American Conservation Ethic* (Washington, DC: The Heritage Foundation, 2012), http://thf_media.s3.amazonaws.com/2012/EnvironmentalConservation/Chapter5-The-National-Environmental-Policy-Act.pdf.

tors failed to take the SCC into consideration when proposing to build a road at the mine site.⁵⁰

The Environmental Protection Agency (EPA) uses three statistical models, known as integrated assessment models, to estimate the value of the social cost of carbon, which is the alleged economic damage that one ton of carbon dioxide emitted today will cause over the next 300 years. However, these models are inadequate tools for policy analysis and regulatory rulemaking. Subjecting the models to reasonable inputs for climate sensitivity and discount rates dramatically lowers the figure for the social cost of carbon. Furthermore, attempts to forecast economic damages centuries into the future strain credibility when moving to the real world of policy implementation.

Through executive order (EO), the Trump Administration has ordered a “review” of the social cost of carbon and disbanded the interagency working group. The order states that when monetizing carbon dioxide emissions, agencies should examine domestic and international benefits as well as use appropriate discount rates.⁵¹ The EO is an important step in the right direction and will likely result in a significantly lower SCC—quite possibly zero. However, Congress should clarify that no agency should consider the social cost of carbon in any regulatory analysis and explicitly state that the Clean Air Act should not regulate carbon dioxide and other greenhouse gas emissions.

Reform the Endangered Species Act. Environmental activists have used the Endangered Species Act (ESA) to block infrastructure and economic development across the country. For instance, environmental organizations used the American burying beetle to thwart the construction of the Keystone XL pipeline. The ESA has largely been an ineffective conservation tool, but it has succeeded in blocking

economic development, creating perverse incentives, and engendering unintended consequences.

The unintended consequences and perverse incentives created by the ESA are well-documented. Plenty of anecdotal evidence exists where landowners have managed their land and destroyed habitats to avoid dealing with endangered species. Michael Bean of the Environmental Defense Fund identified this problem in a speech more than two decades ago, saying that landowners’ actions are “fairly rational decisions, motivated by a desire to avoid potentially significant economic constraints.”⁵² Several studies have examined landowners’ preemptive habitat destruction. For instance, Dean Lueck of the Indiana University Maurer School of Law and Jeffrey A. Michael of Towson University and North Carolina State University examined individual forest plots occupied by red-cockaded woodpeckers. They found that private landowners logged timber that was close to colonies of the woodpeckers well before the timber matured so the birds could not nest, reducing the available habitat.⁵³

Congress and the Trump Administration should implement wholesale reforms to the ESA. Structural reforms such as fixing the consultation process and ensuring compliance with relevant information-quality guidelines would reduce some of the bureaucratic obstacles. Congress should ultimately shift reliance and authority to the states, which have their own conservation programs. States will be more effective because they are more accountable to the people who will directly benefit from wise management decisions or marginalized by poor ones.⁵⁴ Furthermore, Congress should incentivize conservation by properly compensating private individuals for regulatory takings, which would yield better economic and environmental results.⁵⁵

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50. Phil Taylor, “BLM Crafting Guidance on Social Cost of Carbon—Internal Memo,” Greenwire, April 15, 2015, <http://www.eenews.net/stories/1060016810> (accessed April 5, 2017).
 51. The White House, Office of the Press Secretary, “Presidential Executive Order on Promoting Energy Independence and Economic Growth,” March 28, 2017, <https://www.whitehouse.gov/the-press-office/2017/03/28/presidential-executive-order-promoting-energy-independence-and-economy-1> (accessed April 7, 2017).
 52. Brian Seasholes, “Frequently Asked Questions on Endangered Species Act Reform,” The Reason Foundation, October 28, 2014, <http://reason.org/studies/show/frequently-asked-questions-on-endan> (accessed April 5, 2017).
 53. Dean Lueck and Jeffrey A. Michael, “Preemptive Habitat Destruction Under the Endangered Species Act,” *Journal of Law and Economics*, Vol. 46 (April 2003), http://www.masonlec.org/site/rte_uploads/files/Manne/2014.12.06/LueckMicheal_Class%208.pdf (accessed April 5, 2017).
 54. Jack Spencer, Romina Boccia, and Robert Gordon, “Environmental Conservation Based on Individual Liberty and Economic Freedom,” Heritage Foundation *Backgrounder* No. 2758, January 8, 2013, http://thf_media.s3.amazonaws.com/2013/pdf/bg2758.pdf.
 55. Randy T. Simmons, “Property Rights and The Endangered Species Act,” Institute for Research on the Economics of Taxation Studies in Social Cost, Regulation, and the Environment No. 9 (April 2002), <http://iret.org/pub/SCRE-9.PDF> (accessed April 5, 2017).

Withdraw the EPA's 2015 Ozone Standard. In October 2015, the EPA set a new standard for ground-level ozone (one of six major air pollutants regulated by the EPA) to nearing background levels. States are currently contesting the standard in court.

The EPA's more stringent ozone standard is a threat to infrastructure development because it is expensive to meet tighter standards with smaller margins of tangible benefits. The new standards would have a direct, adverse impact on the construction of new industries, roads, and other infrastructure. Requirements for non-attaining regions to offset ozone-creating emissions from new or expanded industry with cuts in emissions elsewhere are especially oppressive. Offsets turn economic growth into a zero-sum game and force investment away from non-attaining areas by making it harder to attract or expand new business.⁵⁶

Counties forced into non-attainment could lose federal transportation funding, while penalties could adversely affect privately funded projects that require federal permit approvals.⁵⁷ Even if the federal government does not implement automatic sanctions, conformity lapses also result in withdrawn funding or delay federal and non-federal infrastructure spending. A conformity lapse occurs when the Federal Highway Administration deems a transportation improvement plan (TIP) submitted by the metropolitan planning organization (MPO) to be insufficient in meeting the upward threshold of emissions.⁵⁸ As required by the Clean Air Act, MPOs must demonstrate their transportation plans conform to State Implementation Plans, which means

activities will not cause or contribute to any new violations of the National Ambient Air Quality

Standards (NAAQS); increase the frequency or severity of NAAQS violations; or delay timely attainment of the NAAQS or any required interim milestone.⁵⁹

Although certain projects are exempt from conformity and the EPA has implemented a grace period, standards that are more stringent present difficult compliance challenges and would likely increase conformity lapses. Resolving conformity lapses are costly, time-consuming, and divert infrastructure investment from where it may be most needed. For instance, Atlanta had to divert nearly \$700 million away from highway projects toward transit and bicycles to meet the emissions limits.⁶⁰

National average ozone levels have fallen 32 percent since 1980 and are on track to continue decreasing.⁶¹ Withdrawing the 2015 standard would unlock economic activity at the state and local level even as states continue to meet attainments of the 1997 and 2008 standards. The federal government should not move the goalposts on states and counties attempting to comply with previous standards.

Curb Nuisance Litigation. Another major hurdle to infrastructure deployment is nuisance litigation that takes advantage of citizen suit provisions in many of the major environmental laws. Citizen suit provisions allow groups to sue government agencies and other sponsors in cases in which laws like the Endangered Species Act and Clean Water Act may not have been followed in the project permitting process. These groups frequently abuse these provisions because the consequences of suing are relatively small for plaintiffs compared to the outsized costs to companies and taxpayers for the resources diverted to excessive litigation and lost economic activity

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56. According to Michael Walls, Vice President of Regulatory and Technical Affairs for the American Chemistry Council, "Nonattainment areas are very difficult places to expand or improve business of any size, due to more expensive and restrictive regulations. It's likely that facilities would expand only if they shut down some part of their operation or they came up with some significant additional investment, or if they were required to buy increasingly expensive offsets." Frank DiCesare, "Lawmakers Tackled EPA Ozone Proposal," *American Press*, August 23, 2014, <http://www.americanpress.com/news/local/Lawmakers-tackled-EPA-ozone-proposal> (accessed April 5, 2017).
57. U.S. Chamber of Commerce, "Grinding to a Halt: Examining the Impacts of the New Ozone Regulations on Key Transportation Projects," <http://www.energyxxi.org/sites/default/files/Grinding-to-a-halt-9-18.compressed.pdf> (accessed April 5, 2017).
58. James E. McCarthy, "Transportation Conformity Under the Clean Air Act," Congressional Research Service *Report for Congress* No. 44050, May 21, 2015, https://digital.library.unt.edu/ark:/67531/metadc689256/m1/1/high_res_d/R44050_2015May21.pdf (accessed April 5, 2017).
59. U.S. Department of Transportation, Federal Highway Administration, "Transportation Conformity Brochure," https://www.fhwa.dot.gov/environment/air_quality/conformity/con_broc.cfm (accessed April 5, 2017).
60. United States Chamber of Commerce, "Grinding to a Halt: Examining the Impacts of the New Ozone Regulations on Key Transportation Projects."
61. U.S. Environmental Protection Agency, "Air Trends: Ozone Trends," <https://www.epa.gov/air-trends/ozone-trends> (accessed April 5, 2017).

from legitimate projects that are objectionable to a small group of people. Extreme environmental organizations often use the courtroom as a “defeat by delay” strategy to make infrastructure projects so expensive and time-consuming as to discourage investment or block legitimate activity altogether.

Ironically, nuisance litigation has also had costly environmental impacts in addition to unnecessarily complicating other activities. For example, the National Park Service (NPS) published a plan to manage flooding in the Yosemite Valley in 2000 after years of debate, only for two small environmentalist groups to sue in an attempt to prevent these management plans. After seven years of litigation, the courts finally permitted the NPS to proceed with a small portion of the plan that dealt with road repair and sewer pipes leaking into wetlands—work which was prevented up to that point because of the ongoing lawsuits.⁶²

Citizen suit provisions are an important piece of environmental laws. However, reform is necessary to prevent their abuse. Congress should clarify requirements for legal standing (such as requiring proof of a connection to and harm from the challenged action), and require bonds be posted by plaintiffs seeking to block activities in order to reduce abuse and curb defeat by delay tactics.⁶³

Open Access to Domestic Resource Production. A critical component to increasing domestic energy production is to open access to onshore and offshore resources restricted by the federal government. The Trump Administration should open all federal waters and federal lands that are not part of the national park system or congressionally designated areas to exploration and production for all of America’s natural resources.

Rather than abiding by antiquated and inflexible five-year leasing programs, Congress should require the Department of the Interior to conduct lease sales if the private sector can safely pursue energy exploration and production. In addition to stream-

lining permitting and environmental assessments and limiting judicial review, the most appropriate reform for both energy production and environmental stewardship is the transition of management authority of resource development on federal lands to the states.⁶⁴

Heritage Foundation analysis shows that lifting unnecessary restrictions on energy production will increase employment by an average of 700,000 jobs through 2035 and provide an additional \$3.7 trillion in GDP. This growth translates to an additional \$40,000 of income per family of four by 2035.⁶⁵

Streamline Pipeline Infrastructure Permitting. The Trump Administration’s easiest decision to date has been to approve the Keystone XL pipeline. Keystone XL is environmentally responsible, will boost the economy, increase the supply of oil to America’s Gulf Coast refineries, and provide much needed energy infrastructure. Congress and the Trump Administration should implement reform so that future projects are not held up for years in regulatory paralysis or through litigation.

The recent growth in domestic oil and gas production—sometimes in nontraditional areas, such as North Dakota—has resulted in transportation delays. Expanding natural gas distribution and exporting more natural gas, whether to Mexico, Canada, or elsewhere will also necessitate additional pipeline infrastructure.⁶⁶

As discussed, streamlining the environmental review and permitting processes for new pipelines will ensure timely and environmentally responsible infrastructure investment. However, taxpayers should not subsidize those investments. Congress should eliminate any federally imposed cost-socialization requirements through which regulatory agencies support expensive, uneconomic projects by spreading the costs to citizens. Congress also should be mindful of protecting private property rights and respect the state authority to control local and regional needs.

62. Allan K. Fitzsimmons, *Reforming Federal Land Management: Cutting the Gordian Knot* (Lanham, MD: Roman & Littlefield Publishers, Inc., 2012), p. 4.

63. Gordon and Katz, eds., *Environmental Policy Guide: 167 Recommendations for Environmental Policy Reform*.

64. Katie Tubb and Nicolas D. Loris, “The Federal Lands Freedom Act: Empowering States to Control Their Own Energy Futures,” Heritage Foundation *Backgrounder* No. 2992, February 18, 2015, <http://www.heritage.org/environment/report/the-federal-lands-freedom-act-empowering-states-control-their-own-energy-futures>.

65. David Kreutzer, Nicolas D. Loris, and Kevin Dayaratna, “Time to Unlock America’s Vast Oil and Gas Resources,” Heritage Foundation *Backgrounder* No. 3148, September 1, 2016, <http://www.heritage.org/environment/report/time-unlock-americas-vast-oil-and-gas-resources>.

66. U.S. Energy Information Administration, “Natural Gas Explained: Natural Gas Pipelines,” U.S. Department of Energy, November 30, 2015, http://www.eia.gov/energyexplained/index.cfm?page=natural_gas_pipelines (accessed April 5, 2017).

Refocus Federal Spending on National Priorities

Although its role in infrastructure should be limited to issues that are truly national in scope, the federal government has become increasingly involved in an array of activities that would be better handled by state governments or the private sector. This expansion has resulted in lackluster management of many valuable infrastructure assets, with little accountability or proper incentives in place. Refocusing the federal government’s role on national projects would redirect scarce federal dollars to vital national infrastructure while rooting out parochial interests. This reevaluation would also re-designate functions to the private sector and state management, increasing much-needed accountability and generate private investment in long-neglected infrastructure. To realize these benefits, the Administration and Congress should:

Move Forward with Yucca Mountain. Nuclear power provides 20 percent of the nation’s electricity, sustains thousands of jobs, and generates billions of dollars in economic activity, including exports. However, political mishandling of nuclear waste management is a major barrier to the current and future nuclear industry.⁶⁷ The federal government has devoted significant resources to a long-term repository at Yucca Mountain, which the Obama Administration tried to close for political reasons rather than safety or technological objections.

The Trump Administration should fund and extend the key license support contracts to complete its review of the Yucca Mountain facility. Funds for this purpose are available in the Nuclear Waste Fund, which currently has \$37.4 billion available to be appropriated for nuclear waste management.⁶⁸ In 2008 the Department of Energy (DOE)


TABLE 4

Refocus Federal Investment on National Priorities

FIGURES ARE IN BILLIONS OF DOLLARS

Reform	Investment Potential
Privatize Top 71 U.S. Airports	\$179.15
Prioritize Interstate Highway Maintenance	\$132.21
Prioritize Nuclear Weapons Cleanup	\$65.00
Auction Spectrum for Private Use	\$25.00
Corporatize Air Traffic Control	\$22.87
Move Forward with Yucca Mountain	\$19.14
Total	\$443.37

SOURCE: Heritage Foundation research, details within paper.

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projected that the total investment required for Yucca—including the full lifecycle cost of building the repository, transporting waste, and permanent disposal—would be \$82.64 billion (or nearly \$97 billion in 2017 dollars) over 125 years.⁶⁹ Over the first 10 years of establishment (following the completion of the licensing process), the DOE estimates that Yucca will require \$19.1 billion of investment (in 2017 dollars).⁷⁰

67. Katie Tubb and Jack Spencer, “Real Consent for Nuclear Waste Management Starts with a Free Market,” Heritage Foundation *Backgrounder* No. 3107, March 22, 2016, <http://www.heritage.org/research/reports/2016/03/real-consent-for-nuclear-waste-management-starts-with-a-free-market>.

68. Office of Inspector General, “Department of Energy Nuclear Waste Fund’s Fiscal Year 2016 Financial Statement Audit,” U.S. Department of Energy, Audit Report OAI-FS-17-04, December 2016, p. 10, <https://energy.gov/sites/prod/files/2016/12/f34/OAI-FS-17-04.pdf> (accessed April 5, 2017).

69. Office of Civilian Radioactive Waste Management, “Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program, Fiscal Year 2007,” U.S. Department of Energy, July 2008, <https://www.nrc.gov/docs/ML0927/ML092710177.pdf> (accessed April 5, 2017).

70. This estimate uses the DOE figures for 2010–2020 and adjusts them for inflation using the Office of Management and Budget (OMB) deflators for 2017. Office of Civilian Radioactive Waste Management, “Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program, Fiscal Year 2007,” pp. 6, B-2, and B-3, <https://www.nrc.gov/docs/ML0927/ML092710177.pdf> (accessed April 5, 2017).

The scientific community and global experience have supported deep geologic storage as critical to any waste management plan.⁷¹ Congress and the Trump Administration should then address fundamental problems with the current approach to management, including the establishment of industry responsibility for managing waste, competitive pricing, and giving Nevadans more control over any nuclear waste facility in their state.⁷²

Corporatize the Air Traffic Control System.

Unlike most other developed countries, the U.S. still houses the Air Traffic Organization (ATO)—its provider of air traffic control (ATC)—within its aviation regulatory agency, the Federal Aviation Administration (FAA). This structure is problematic for investing in modern air traffic control infrastructure and attracting first-rate talent to its workforce. Because the ATO is enmeshed in a large federal bureaucracy, it is slow to adapt to change and is micromanaged by politicians. Thus, the ATO:

- Fails to generate the efficiencies that should be produced by a technologically advanced entity of this scale;
- Cannot finance improvements through issuing bonds backed by user fees; and
- Relies on Congress to appropriate funds generated by various aviation taxes in the uncertain federal budget process.

The combination of these structural problems has resulted in the chronic mismanagement of implementing NextGen—a modern ATC system that will bring huge benefits to the nation’s congested airways and broader economy.⁷³

Moving ATC services into a non-governmental entity would allow modernization efforts to be funded by customer-based user fees and financed up-front by private capital through bond issuances—eschewing the reliance on taxes and uncertain federal appropriations. While the impact that private-sector efficiency, procurement, and other changes could have on benefiting capital improvements is not clear, assuming that the budgetary needs for facilities and equipment for ATC remain constant, the relocation of the ATC into a private entity would place nearly \$23 billion in investment in more efficient private-sector management from 2020 to 2026.⁷⁴

Auction Spectrum for Private Use. Spectrum (specific electromagnetic frequencies used to transmit data, such as radio and telephone signals) is an integral part of mobile broadband infrastructure. The allocation of spectrum for commercial use is determined by the FCC, which segments the spectrum into bands of radio frequencies and issues licenses on a geographic basis.⁷⁵ Since the 1990s, the FCC has allotted spectrum based on “a system of allocated bidding”—an auction, in other words—which aims to ensure that the spectrum is distributed on a market basis for the most valuable use. Given the vast improvements in mobile technology and the corresponding demand for more and better mobile broadband, spectrum is an increasingly important asset for mobile providers who strive to meet consumers’ demand for streaming media and other data-intensive services.

The FCC should undertake a large-scale auction of desirable spectrum to meet industry demand. Although the value of spectrum varies widely depending on the quantity and quality of the offering, previous FCC auctions for broadband spectrum have fetched anywhere from \$2 billion to \$40

71. Jack Spencer and Nicolas Loris, “Yucca Mountain Remains Critical to Spent Nuclear Fuel Management,” Heritage Foundation *Backgrounder* No. 2131, May 1, 2008, http://www.heritage.org/research/reports/2008/05/yucca-mountain-remains-critical-to-spent-nuclear-fuel-management?_ga=1.263318668.1261244218.1479835039.

72. Jack Spencer, “Nuclear Waste Management: Minimum Requirements for Reforms and Legislation,” Heritage Foundation *Issue Brief* No. 3888, March 28, 2013, <http://www.heritage.org/environment/report/nuclear-waste-management-minimum-requirements-reforms-and-legislation>.

73. Robert Poole Jr. “Air Traffic Control Newsletter #138,” Reason Foundation, December 5, 2016, <http://reason.org/news/show/air-traffic-control-newsletter-138#a> (accessed April 5, 2017).

74. This estimate begins in 2020 to account for the multi-year transition of ATC services from the FAA to a private entity. Congressional Budget Office, “Spending Projections, by Budget Account,” January 2017, <https://www.cbo.gov/about/products/budget-economic-data#9> (accessed April 12, 2017).

75. Linda K. Moore, “Framing Spectrum Policy: Legislative Initiatives,” Congressional Research Service *Report for Congress* No. 44433, October 26, 2016, <http://www.cq.com/pdf/crsreports-4984699> (accessed April 5, 2017).

billion.⁷⁶ The Congressional Budget Office (CBO) scored a recent auction proposal as generating anywhere from \$10 billion to \$40 billion, settling on the midpoint of \$25 billion.⁷⁷ Using these estimates, this report conservatively includes \$25 billion of direct private investment in its projection, although the potential for larger investment (and corresponding federal revenues that can be used to reduce the deficit) is much greater should the FCC pursue an even more aggressive auction schedule for more flexible licenses in the next decade.

Prioritize the Nuclear Weapons Complex Cleanup. The federal government has a moral and legal responsibility to clean up the nuclear weapons complex that supported the manufacturing and testing of nuclear weapons during WWII and the Cold War, as managed under the DOE's Office of Environmental Management. While significant work has been accomplished, some of the most complicated, costly, and time-consuming projects remain. Environmental cleanup and disposal liabilities from nuclear research and stockpile total \$339.8 billion.⁷⁸ Reprioritizing budgets and right-sizing regulation would not only make good on a core federal function, but would also create jobs and save taxpayers money.

The Trump Administration should refocus the DOE budget on this essential function. It should also rescind policies that require expensive project labor agreements and heavily favor fixed-price contracts.⁷⁹ These policies have restricted the flexibility of contractors, stretched budgets at no additional value to the taxpayer, discriminated against non-union workers, and contributed to delayed results.

Instead, the Trump Administration should return to the incentive-based contracting that proved successful in projects that came in under budget and ahead of schedule by orders of magnitude.⁸⁰ Current environmental management (EM) contracts total more than \$90 billion.⁸¹ The Trump Administration should quickly install reforms to EM management, as \$60 billion–\$70 billion worth of contracts are expiring and up for new bids in the next two years.⁸² This report thus includes \$65 billion in its investment estimate.

Reestablish Vital Highway Maintenance as the Primary Function of the Highway Trust Fund. The federal Highway Trust Fund was established in 1956 as a temporary mechanism to fund the construction of the Interstate Highway System. It was intended to fund the project through the gas tax and other transportation-related levies, which would be paid by the users of the system. This “user-pays” principle was meant to be the bedrock of highway funding: The more someone uses the highways, the more they inflict wear and tear on the system, and thus should proportionately cover the cost of maintenance. However, this user-pays principle has been gravely diluted by the continuous diversion of trust fund dollars away from the interstate system—a vital asset of national importance—to parochial and local projects that have nothing to do with an interstate transportation system. Indeed, the Government Accountability Office (GAO) has found that less than 50 percent of trust fund expenditures go towards actual highway construction, and just 6 percent goes towards major construction, reconstruction, and rehabili-

76. Federal Communications Commission, “Auctions Summary,” August 6, 2015, http://wireless.fcc.gov/auctions/default.htm?job=auctions_all#completed (accessed April 5, 2017).

77. Keith Hall, Director, Congressional Budget Office, “Re: Proceeds From Auctions Held by the Federal Communications Commission,” letter to the Honorable Dean Heller, April 21, 2015, <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/HellerLtrProceedsFromAuctions.pdf> (accessed April 5, 2017).

78. U.S. Department of Energy, “Fiscal Year 2016 Agency Financial Report,” November 15, 2016, p. 72, <https://www.energy.gov/cfo/downloads/fy-2016-doe-agency-financial-report> (accessed April 5, 2017).

79. For example, Executive Order 13502. See James Sherk, “Opportunity, Parity, Choice: A Labor Agenda for the 112th Congress,” Heritage Foundation *Special Report* No. 96, July 14, 2011, <http://www.heritage.org/research/reports/2011/07/opportunity-parity-choice-a-labor-agenda-for-the-112th-congress>.

80. Energy Communities Alliance, “Changing Course: The Case for Sensible DOE Acquisition Reform,” June 2015, <https://www.energy.gov/cfo/downloads/fy-2016-doe-agency-financial-report> (accessed April 5, 2017).

81. Office of Environmental Management, “Acquisition,” U.S. Department of Energy, <https://energy.gov/em/services/program-management/acquisition> (accessed April 5, 2017).

82. Energy Communities Alliance, “Changing Course,” p.1.

TABLE 5

Diversions to Non-Highway Programs in the FAST Act

Program	Amount (FY 2017)	Diversion (%)
Mass Transit	\$9,733,706,043	18.1%
Congestion Mitigation and Air Quality	\$2,360,308,101	4.4%
Transportation Alternatives Program	\$835,000,000	1.6%
Tribal Transportation Program	\$475,000,000	0.9%
FHWA Administrative Expenses	\$459,795,000	0.9%
Research and Education	\$417,500,000	0.8%
Federal Lands Transportation Program	\$345,000,000	0.6%
Metropolitan Transportation Planning	\$335,938,378	0.6%
Federal Lands Access Program	\$255,000,000	0.5%
Emergency Relief	\$100,000,000	0.2%
Ferry Boats and Ferry Terminals	\$80,000,000	0.1%
Total	\$15,397,247,522	28.7%
Highway Trust Fund Total	\$53,738,806,043	

SOURCES: U.S. Department of Transportation, Federal Highway Administration, “Federal-Aid Highway Program Authorizations Under the Fixing America’s Surface Transportation (FAST) Act,” 2015, <https://www.fhwa.dot.gov/fastact/estfy20162020auth.pdf> (accessed April 20, 2017), and U.S. Department of Transportation, Federal Transit Administration, “FAST Act Estimated Program Totals,” December 1, 2015, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FAST_ACT_FTA_Program_Totals.pdf (accessed April 20, 2017).

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tation projects.⁸³ This reflects a deep structural failure within the Highway Trust Fund.

Under the current authorization, the programmatic structure of the Highway Trust Fund diverts 29 percent of spending away from highway projects. Instead, almost all of these diversions fund projects that are strictly local or parochial in nature—many of which are downright wasteful—and have no justification for federal involvement. Although a small portion of these non-highway programs can be considered federal in nature—such as the collection of statistics and administrative expenses—they are not appropriately funded by the user-generated gas tax (which should be reserved for actual highway projects) and should instead rely on general appropriations.

To end spending on wasteful activities in favor of meeting real national infrastructure needs, the programs laid out in Table 5 should be eliminated and funding redirected to the maintenance costs of the interstate system.

Over the next 10 years, redirecting the 29 percent of gas tax funds improperly spent would generate

\$132 billion in investment that can repair the aging interstate system without increasing expenditures. This figure accounts for the current authorization through 2020 under the Fixing America’s Surface Transportation (FAST) Act, and subsequently limits trust fund expenditures to the CBO’s projected trust fund revenues, totaling about \$40 billion annually.

Although much federal roadway funding would be better handled under the jurisdiction of the states, refocusing federal spending on maintaining the Interstate Highway System is far more worthwhile than the current programmatic structure.

Overhaul Airport Funding and Privatize the Major U.S. Airports. When it comes to customer satisfaction and efficiency, U.S. airports lag behind those of other developed nations. One major reason for this deficiency is that nearly all of the nation’s airports are owned by local government bureaucracies, whereas the European airports that service nearly 75 percent of its passengers are privately owned, partially or entirely. These private airports enjoy much better incentives to provide fliers with superior services

83. Robert Poole, “Rethinking the Highway Trust Fund,” testimony before the Committee on Ways and Means, U.S. House of Representatives, June 17, 2015, <https://waysandmeans.house.gov/wp-content/uploads/2015/06/Poole-Testimony.pdf> (accessed April 5, 2017).

through more efficient and innovative business practices than their government-owned counterparts.⁸⁴

Although major U.S. airports are owned by local governments, not the federal government (with the exception of two Washington, DC, area airports), federal laws and regulations pose significant barriers to privatization. Hence, airports remain owned by local government and are largely unable to function like effective businesses.⁸⁵

To address these harmful policies, the Trump Administration should promote reforms that redefine how airports are allowed to generate revenues and operate. These reforms are laid out in the Heritage Foundation *Backgrounder* “End of the Runway: Rethinking the Airport Improvement Program and the Federal Role in Airport Funding,” and include:

- Eliminating burdensome regulations that restrict how airports can raise and spend revenues;
- Reducing costly federal taxes and eliminating inefficient federal grants; and
- Allowing self-sufficiency and privatization to move U.S. airports towards a modernized, free-market funding system.⁸⁶

Short of comprehensive airport reform, a sound approach would be to expand the use of properly structured local airport user fees, such that the fees are determined to reflect the market price of the services conveyed and are not simply taxes by another name. An easy fix would be to increase the federal price cap on the locally levied Passenger Facility Charge (PFC)

while simultaneously reducing the federal passenger taxes and spending proportionally. Together with making more attractive the little-used Airport Privatization Pilot Program (APPP), authorized by Congress in 1996, these reforms would also provide a much more effectual path forward for airport privatization. A good package of reforms to the APPP includes:

- Lowering the current burdensome threshold that requires the approval of 65 percent of the airlines serving the prospective airport (plus the airlines representing 65 percent of the airport’s annual landed weight) to a simple majority interest;
- Allowing partial airport privatization;
- Eliminating the overall cap on airport privatizations allowed under the pilot program, currently set at 10; and
- Allowing the use of tax-exempt bonds at private airports, thus putting their financing costs on a near even basis with existing publicly owned airports (which can make use of tax-exempt revenue bonds).⁸⁷

These reforms would vastly improve U.S. airports and encourage their privatization. Comparing U.S. airports to those that were recently privatized abroad can provide a rough estimate as to the value that would be derived from privatizing U.S. airports.⁸⁸ This report estimates that privatizing the 71 largest airports in the U.S. (those that serve more than 1.5 million passengers per year) would generate

84. John Tierney, “Making New York’s Airports Great Again,” *City Journal* (Winter 2017), <https://www.city-journal.org/html/making-new-yorks-airports-great-again-14946.html> (accessed April 5, 2017).

85. Michael Sargent “End of the Runway: Rethinking the Airport Improvement Program and the Federal Role in Airport Funding,” Heritage Foundation *Backgrounder* No. 3170, November 23, 2016, <http://www.heritage.org/research/reports/2016/11/end-of-the-runway-rethinking-the-airport-improvement-program-and-the-federal-role-in-airport-funding>.

86. *Ibid.*

87. Robert Poole, “Airport Policy and Security News #109,” Reason Foundation, January 4, 2016, <http://reason.org/news/show/1014424.html#b> (accessed April 5, 2017).

88. As a rule of thumb, the number of annual passengers an airport serves can be used as a rough proxy for the airport’s value because these passengers provide the airport’s revenues through landings and fees paid by airlines; retail sales; parking fees; car rentals; airport user charges; ticket taxes (returned to airports through grants); and any other service sold to its passengers. A more accurate metric that could be used to assess the market value of an airport is its EBITDA (earnings before interest expense, taxes, depreciation, and amortization). However, this metric is not accessible for many airports. See Robert Poole, “Reinventing the Port Authority of New York & New Jersey,” The Manhattan Institute, January 26, 2017, <https://www.manhattan-institute.org/html/reinventing-port-authority-new-york-new-jersey-9953.html> (accessed April 5, 2017), and Ronald D. Utt, “FAA Reauthorization: Time to Chart A Course for Privatizing Airports,” Heritage Foundation *Backgrounder* No. 1289, June 4, 1999, <http://www.heritage.org/research/reports/1999/06/faa-reauthorization-time-to-chart-a-course-for-privatizing-airports>.

roughly \$180 billion in sales.⁸⁹ These privatizations would result in direct private investment in public-use infrastructure (leading to better long-term management and investment practices), as well as provide local governments with revenues to shore up their finances and address much-needed maintenance of local infrastructure assets.

Conclusion

The Trump Administration and Congress have an opportunity to address two much-discussed issues during the election cycle: job creation and infrastructure development. They can spur both of these goals without spending an additional trillion dollars in taxpayer money.

- **Reforming or repealing government-imposed obstacles** will stretch public money on infrastructure further and unshackle private investment tied up by burdensome regulations.
- **Rolling back burdensome regulations** will make infrastructure investment more effective and attractive.
- **Refocusing the federal government's involvement** on projects that are truly national in scope will prioritize these projects while allowing the private sector and states to more deftly handle those areas that are bungled by federal mismanagement.

The market-based reforms listed here, not more federal involvement, are the means to driving economic growth, creating long-term jobs, and meeting America's infrastructure needs.

—*Michael Sargent is Policy Analyst in the Thomas A. Roe Institute for Economic Policy Studies, of the Institute for Economic Freedom, at The Heritage Foundation. Nicolas D. Loris is Herbert and Joyce Morgan Research Fellow in Energy and Environmental Policy in the Center for Free Markets and Regulatory Reform, of the Institute for Economic Freedom at The Heritage Foundation.*

89. See Appendix 3 for methodology.

Appendix I: Methodology for Project Labor Agreement Cost Savings

Heritage Foundation calculations were modeled on a 2009 study by the Beacon Hill Institute and were determined as follows.⁹⁰

Census bureau data on total federal construction spending data in 2016 was used as the baseline for 2017–2026, assuming an annual increase of 2 percent, the average annual public construction spending growth rate since 2002 and the average annual increase in federal discretionary spending as projected by the CBO from 2017 to 2026.

Data from usaspending.gov show that the federal government spent \$28.6 billion on construction contracts in FY 2016, of which \$7.7 billion—or 27 percent—was allocated towards contracts of \$25 million or more, the threshold for PLA requirements. According to the Associated Builders and Contractors, Inc., 2 percent of federal contracts exceeding \$25 million were subject to PLA mandates or preferences from 2009–2016.⁹¹

The conservative assumption was made that 27 percent of all federal contracts from 2017–2026 exceed \$25 million, and that 2 percent of those contracts fall under PLA requirements. Also assuming that, on average, PLAs increase costs by 15 percent (the midpoint in the 12 percent to 18 percent range found by the Beacon Hill Institute), ending PLAs would increase effective investment by \$220.3 million from 2017–2026.⁹²

This figure only includes direct federal contracts and does not include federal-aid projects at the state and local level that entered PLAs, thus likely understating the effect of repealing the federal requirement for PLAs.

90. Ibid.

91. David G. Tuerck, Sarah Glassman, and Paul Bachman, “Project Labor Agreements on Federal Construction Projects: A Costly Solution in Search of a Problem,” Beacon Hill Institute, Policy Study, August 2009, <http://www.beaconhill.org/BHISudies/PLA2009/PLAFinal090923.pdf> (accessed April 5, 2017).

92. Tuerck, Glassman, and Bachman, “Project Labor Agreements on Federal Construction Projects: A Costly Solution in Search of a Problem.”

Appendix 2: Methodology for Davis–Bacon Estimates

Heritage Foundation calculations were determined as follows.⁹³

Census bureau data on total public (federal, state, and local) construction spending data in 2016 was used as the baseline for 2017–2026, assuming an annual increase of 2 percent, the average annual public construction spending growth rate since 2002.

The Congressional Budget Office estimated in 2001 that 32 percent of public construction spending was covered by DBA restrictions.⁹⁴ The conservative assumption was made that the expansions of the DBA since then have not increased this percentage. This yields an estimated \$92.9 billion (2017) to \$111 billion (2026) in total annual construction spending covered by DBA restrictions.

Assuming the DBA increases costs by 9.91 percent on average, as found by the Beacon Hill Institute, eliminating DBA represents cost reductions of \$101.9 billion over the 2017–2026 period.⁹⁵

93. See James Sherk, “Repealing the Davis-Bacon Act Would Save Taxpayers \$10.9 Billion,” Heritage Foundation *WebMemo* No. 3145, February 14, 2011, [http://www.heritage.org/research/reports/2011/02/repealing-the-davis-bacon-act-would-save-taxpayers-\\$10-9-billion#_ftn6](http://www.heritage.org/research/reports/2011/02/repealing-the-davis-bacon-act-would-save-taxpayers-$10-9-billion#_ftn6).

94. Glassman, Head, Tuerck, and Bachman, “The Federal Davis-Bacon Act: The Prevailing Mismeasure of Wages.”

95. *Ibid.*

Appendix 3: Methodology for Estimating Investment in Airport Privatization

Heritage Foundation calculations were determined as follows.

The Reason Foundation publishes an annual report on airport privatizations around the world.⁹⁶ Its 2016 report detailed the privatization of airport operators holding a total of 65 airports, covering privatizations in 2014 and 2015. These included:

- AENA (Spain; state-owned aviation company, holding 46 airports);
- Toulouse-Blagnac Airport (France);
- Fraport Greece (Greece; 14 airports);
- London City Airport (U.K.);
- Kansai and Osaka Airports (Japan); and
- Vietnam Ho Chi Minh Airport (Vietnam; planned).

If the report did not include an exact price paid or market value, outside sources were consulted to determine the market value of the airport, which included some estimates. In the case of some airports, the price paid for a stake below 100 percent was adjusted to determine the total market value of the airports in question. The annual number of passengers served by the airports, measured in enplanements, during the year prior to its privatization (or if not available, the year of the privatization) were then determined through the airport's statistics or

third-party sources.⁹⁷ A price per annual passenger could then be determined for each airport privatization deal. These ranged from \$56.50 per annual passenger to \$651 per passenger, with an average of \$248.50 per passenger.

This average falls directly in line with the figure determined by a 1999 Heritage Foundation study assessing airport privatization (when adjusted for inflation), and is comparable to the real figure paid per annual passenger (\$305) to privatize the Luis Munoz airport in San Juan, Puerto Rico—the only major U.S. airport to successfully undergo privatization.⁹⁸

The average figure of \$248.50 was then multiplied by the annual number of passengers served by each of the top 71 airports in the United States, as determined by the Federal Aviation Administration for 2015 (the latest available) to estimate the airports' market value.⁹⁹ The resulting values compare favorably to other estimates of the market value of major U.S. airports, and if anything, likely understate their value.¹⁰⁰

96. Robert Poole "Annual Privatization Report 2016: Air Transportation," Reason Foundation, August, 2016, <http://reason.org/files/apr-2016-air-transportation.pdf> (accessed April 5, 2017).

97. The World Bank, "Air Transport Passengers Carried Data, 1970 to 2014," http://data.worldbank.org/indicator/IS.AIR.PSGR?end=2014&start=1970&year_high_desc=true (accessed April 5, 2017); Reuters, "UPDATE 1-France Sells Minority Stake in Toulouse Airport," December 4, 2014, <http://www.reuters.com/article/france-airports-toulouse-idUSL6N0TO4OS20141204> (accessed April 5, 2017); Toulouse-Blagnac Airport, "Airport Overview," 2015, <http://www.toulouse.aeroport.fr/en/corporate/company/airport-overview> (accessed April 5, 2017); and Niki Kitsantonis, "14 Airports in Greece to Be Privatized in \$1.3 Billion Deal," *The New York Times*, December 14, 2015, http://www.nytimes.com/2015/12/15/business/international/14-airports-in-greece-to-be-privatized-in-1-3-billion-deal.html?_r=0 (accessed April 5, 2017).

98. Utt, "FAA Reauthorization: Time to Chart a Course for Privatizing Airports."

99. Federal Aviation Administration, "Passenger and All Cargo Statistics, Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports, CY 2015," U.S. Department of Transportation, https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/ (accessed April 5, 2017).

100. Poole, "Reinventing the Port Authority of New York & New Jersey."