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Tolling U.S. Highways

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Summary

The failure of federal highway user taxes and fees to provide sufficient revenues to support even baseline surface transportation spending levels has encouraged Congress to consider expanded toll financing. Congress has cautiously encouraged increased use of tolling in recent transportation legislation, including the Moving Ahead for Progress in the 21st Century Act (MAP-21; P.L. 112-141). Recent projections of a $15 billion annual gap between revenue anticipated from taxes dedicated to surface transportation and the cost of maintaining the current federal surface transportation program have stimulated interest in changing tolling policy in conjunction with reauthorizing or replacing MAP-21.

Congress could achieve an expansion of tolling in several ways. At one extreme, it could simply encourage additional tolling pilot projects and a further expansion of tolling-supported innovative finance, such as more loans for road and bridge construction through the U.S. Department of Transportation's (DOT's) Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which would be repaid through user tolls. At the other extreme, Congress might authorize states to toll federal-aid highways as they see fit, or even require that Interstate Highway segments be converted to toll roads as they undergo reconstruction in the future, eventually turning all Interstates into toll roads.

The amount of revenue that could be generated by tolling depends heavily on the way in which tolling is implemented. However, broader use of tolling faces a number of constraints. The costs of toll collection may exceed 10% of revenues, even if all tolls are collected electronically, not including the cost of physical infrastructure. This compares unfavorably to the cost of collecting the existing federal motor fuels taxes, estimated to be less than 1% of revenues. Many roads, even in urban areas, may not have sufficient traffic willing to pay a high enough toll to cover construction, maintenance, and toll collection costs. The availability of competing nontolled routes could lead to evasion if motorists consider tolls excessive.

Efforts to make greater use of tolling are likely to draw attention to the federal role in regulating tolls. Under current law, federal approval is needed for initial implementation of tolls on roads and bridges that have received federal aid, but the federal government has no jurisdiction over toll rates. The law requires that bridge tolls "shall be just and reasonable," but provides no mechanism for enforcing that provision. More widespread use of tolls is likely to raise significant questions about differences in states' toll rates, preferential tolls for residents of particular jurisdictions, state attempts to collect tolls at borders rather than at internal locations where more residents would be affected, and the relationship between auto tolls and truck tolls. Congress may consider a more precise definition of the current "just and reasonable" requirement and clarify the role of DOT in enforcing tolling regulations and overseeing toll rates.

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Introduction

The failure of federal highway user taxes and fees to provide sufficient revenues to support even baseline surface transportation spending levels has encouraged Congress to consider expanded toll financing. The highway trust fund (HTF), which has supported the Federal-Aid Highway Program and 80% of the Federal Transit Administration's programs, has been insufficient to support authorized funding since late FY2008. Since then, Congress has authorized transfers from the U.S. Treasury general fund to keep the HTF solvent. According to the most recent Congressional Budget Office (CBO) estimates, HTF revenues are projected to fall $89 billion short of the amount required to fund surface transportation programs at their current levels between September 2014, when the current authorization expires, and 2020. Interest in tolling has revived as Congress has sought ways of filling this gap.[1]

A Brief History of Tolling on Federal Roads

Tolls were widely used to finance highway infrastructure from the late 18th through much of the 19th century. However, many toll facilities went bankrupt, and others came to be regarded as obstacles to the free flow of commerce. When it established the forerunner of today's federal-aid highway program in 1916, Congress emphasized the principle that roads should be free. Section 1 of the Federal Aid Road Act (39 Stat. 355) provided that "all roads constructed under the provision of this Act be free from tolls of all kinds."[2]

The Oldfield Act of 1927 (44 Stat. 1398) opened the door to tolls by permitting the use of federal funds to build toll bridges as long as they were operated by the states or their political subdivisions.[3] However, the federal Bureau of Public Roads continued to oppose the use of federal funds on toll roads. Consequently, when states, especially in the Northeast, undertook expressway construction in the decade after World War II, they built toll roads without federal aid. By January 1, 1955, there were 1,239 miles of completed "arterial toll roads" in the United States, another 1,382 miles were under construction, and 3,314 miles were being planned or studied.[4] Many of these roads were on routes of the planned Interstate system. Although the Bureau of Public Roads supported the building of new Interstate Highways as free roads, it did recommend that existing toll roads that met its engineering standards and followed the routes of proposed Interstate Highways be incorporated into the new network.[5]

[1] Congressional Budget Office, *Projections of Highway Trust Fund Accounts Under CBO's April 2014 Baseline*, April 14, 2014. This shortfall would be $94 billion if reauthorization legislation were to include the $5 billion "prudent balance" in the HTF to assure its ability to pay bills as they are presented. For more detail see CRS Report R42877, *Funding and Financing Highways and Public Transportation*, by (name redacted) and (name redacted).

[2] The provision was added without opposition. See House debate, *Congressional Record*, vol. 53, part 2 (January 19, 1916), p. 1284. Also, Senate debate, *Congressional Record*, vol. 53, part 2 (January 25, 1916), p. 1518.

[3] The authors of the legislation were concerned about private bridge monopolies. For a detailed legislative history of federal toll road policy, see U.S. Congressional Budget Office, *Toll Roads: a Review of Recent Experience; Appendix*, 1997, pp. 22-28.

[4] Federal Highway Administration, *America's Highways* (Washington: GPO, 1977), pp. 166-170.

[5] Bureau of Public Roads, "*Toll Roads Included in Interstate System*," press release, August 21, 1957.

The tolling prohibition was reiterated in the Federal-Aid Highway Act and Highway Revenue Act of 1956 (P.L. 84-621; 70 Stat. 374), which authorized 13 years of funding for construction of the Interstate Highway system, created the highway trust fund, and raised tax rates on motor fuels to help fund it. The fuel and other highway taxes that were now dedicated to the HTF were seen as a close proxy for a user-payer system of financing federal-aid roads. The increased flow of federal funds, heavily weighted toward the Interstate Highways, effectively stopped the development of new toll roads by the states.[6]

Thirty-five years later, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA; P.L. 102-240) opened non-Interstate federal-aid highways to tolling, but only under certain conditions. The most notable limitation was a requirement that reconstruction of an existing route or bridge had to be completed before a facility could be tolled, effectively linking tolling to capacity additions or road improvements. Both the 1998 Transportation Equity Act for the 21st Century (TEA-21; P.L. 105-178, as amended by P.L. 105-206) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (P.L. 109-59; SAFETEA) allowed tolling on high-occupancy vehicle (HOV) lanes, established pilot projects for tolling of a limited number of Interstate system routes, and allowed limited use of tolls that vary according to the level of traffic, known as congestion pricing.

The Moving Ahead for Progress in the 21st Century Act (MAP-21; P.L. 112-141), enacted in 2012, made relatively modest changes to the tolling provisions that reinforce the encouragement of HOT lanes and congestion pricing. New Interstate system routes or route extensions may be built as toll roads. On the other hand, most existing Interstate Highway toll-free lane capacity remains protected. Current law also retains two pilot programs, one that encourages the use of pricing to control congestion and another that allows Interstate route segments in three states to be converted to tolling as part of their reconstruction.[7]

[6] President Franklin D. Roosevelt envisioned a network of interstate toll roads, in part as a jobs program, in the late 1930s. President Dwight D. Eisenhower supported the findings of the President's Advisory Committee on a National Highway Program, chaired by former General Lucius C. Clay, which recommended creation of a Federal Highway Corporation that would issue bonds to be paid off by existing gas taxes. This financing method was not well received by the chairs of the Senate Finance and House Ways and Means Committees, primarily because of the long-term dedication of the gas tax to service the bonds. Eventually, Congress settled on a gas tax increase and the pay-as-you go funding of the 1956 act. See Federal Highway Administration, *America's Highways: 1776-1976,* pp. 172-173.

[7] On April 29, 2014, the U.S. Department of Transportation (DOT) released a draft of the Obama Administration's surface transportation reauthorization proposal, the GROW America Act. The proposal would allow conversion of all existing toll-free highway, bridge, or tunnel lanes, including Interstate Highways, to toll roads, with DOT approval, for the purpose of managing high levels of congestion; would permit spending of toll revenues for public transportation operations in the corridor; and would require that all new toll facilities use only noncash electronic technology for toll collection.

Current Law

Table 1, below, briefly describes active federal tolling programs.

Table 1. Active Federal Tolling Programs in Title 23, *U.S. Code*

Program	Intent
Section 129 Exceptions to the Freedom from Tolls Provision (non-Interstate Highway system)	Authorizes federal participation in: initial construction of a new toll road (or its extension), bridge, or tunnel; initial construction of capacity-increasing improvements and conversion of the facility to a toll facility if the ultimate number of toll-free lanes is not less than the number before the construction; reconstruction of an existing toll facility; reconstruction of a toll-free federal-aid highway and conversion to a toll facility; and preliminary studies to determine toll facility feasibility. Facility must be publicly owned or, if privately owned, under contract to a public authority.
Section 129 Exceptions to the Freedom from Tolls Provision (Interstate Highway system)	Authorizes federal participation in construction of a new toll highway, bridge, or tunnel on the Interstate system; initial construction of tolled lanes to increase the capacity of an Interstate system highway, bridge, or tunnel so long as at least the number of previously toll-free lanes on the facility remains toll-free; reconstruction, restoration, or rehabilitation of a highway on the Interstate system if the number of toll-free non-HOV lanes after construction remains not less than the number before construction; and reconstruction of a toll-free bridge or tunnel and its conversion to a toll facility.
Section 166 requirements for High Occupancy Vehicle (HOV) Facilities	Allows states to charge tolls on vehicles that do not meet the occupancy requirements for HOV use (including HOV lanes on the Interstate system).
Interstate System Reconstruction and Rehabilitation Toll Pilot Program	Allows three pilot projects in three different states for the reconstruction and conversion to a toll facility of an existing Interstate system highway. Originally passed in TEA-21.
Value Pricing Pilot Program	Provides funds for local transportation programs to use pricing, including variable tolling, to manage congestion. MAP-21 provides no funding for the program.

Source: 23 U.S.C. §§129, 166, and 301.

An important attribute of the federal tolling policy is that virtually all conversions of existing toll-free federal-aid highways, bridges, or tunnels to toll facilities require that the facility be reconstructed, restored, rehabilitated, or replaced. The only option for converting all lanes of an existing toll-free federal-aid highway without reconstructing or replacing it is through the Value Pricing Pilot Program (VPPP). The decision to convert a free facility to a tolled facility must be made prior to completion of the qualifying reconstruction project. According to the Federal Highway Administration (FHWA), once physical construction is completed it is too late to make the decision to toll, unless another qualifying reconstruction or rehabilitation project is undertaken.

Financial Realities of Toll Roads

Tolls could be used to finance surface transportation in two different ways. One involves using tolls to pay for a specific highway, bridge, or tunnel, such that users of the facility pay the cost of construction (and, in some cases, provide a surplus that can be used for other purposes such as public transportation). Almost all toll facilities in the United States currently operate in this fashion.

The viability of building a new toll facility or converting an existing road or bridge to a toll facility depends on the attributes of the specific proposal. The causes of toll road failures illuminate these attributes. Historically, toll roads have failed due to overly optimistic toll revenue expectations; inability to attract sufficient investment to pay for improvements; competing capacity; and toll avoidance and the related cost of enforcement.[8]

All of those issues remain relevant today. To be financially successful, a toll road must have sufficient traffic willing to pay a high enough toll to cover construction, maintenance, and toll collection costs. Most roads on the federal-aid system are not likely to pass that test. Even in urban areas, tolls can be insufficient. The Pocahontas Parkway, an 8.8-mile-long toll road near Richmond, VA, that opened in 2002, has persistently been unable to service debt due to low traffic volumes; in June 2012, its private owner wrote off the entire value of its investment, and is seeking to transfer the highway to its lenders.[9] SH-130, a 90-mile, four-lane toll road near Austin, TX, has had much lower traffic volumes than forecast when it opened in 2012, and the Texas Department of Transportation ended up subsidizing truck tolls in an effort to help make the privately owned project viable.[10]

Alternatively, tolling could be done on a national scale by tolling the entire Interstate system or imposing a Vehicle Miles Traveled (VMT) charge, which would be analogous to a national toll. Widespread tolling might result in tolls being used as a supplemental revenue source for surface transportation in general. Tolls on a particular facility might not be committed to maintain that facility or to service the service specific bonds or loans used to construct it, as is usually required under current law; instead, the revenue could flow to a local or state department of transportation for use at its discretion. In such a case, the tolls would not be a user fee intended to cover the cost of the particular facility being used.

[8] Joseph Austin Durrenberger, *Turnpikes: A Study of the Toll Road Movement in the Middle Atlantic States and Maryland* (Valdosta, GA: Southern Stationery and Printing Co., 1931), pp. 156-158. See also George Rodgers Taylor, *Transportation Revolution* (New York: Rinehart and Co., 1951), pp. 3-31.

[9] Transurban, "Transurban Distribution for the Six Months Ending 30 June 2012 and Pocahontas Impairment Charge," http://www.transurban.com/3A374702.pdf.

[10] CRS Report R43410, *Highway and Public Transportation Infrastructure Provision Using Public-Private Partnerships (P3s)*, by (name redacted), p. 8.

Billing and Operating Costs

Using tolls to support transportation expenditures may be a comparatively inefficient form of funding because of high administrative costs. Collecting federal motor fuels taxes is estimated to cost about 1% of the amount collected.[11] The process is administratively simple, because nearly all the federal fuels taxes are collected at the terminal "rack" from only 850 registered taxpayers nationwide, rather than at a large number of retail gasoline stations. The small number of collection points also facilitates enforcement.

The administrative costs of toll collection appear to be significantly higher than the cost of fuel-tax collection. Although many toll facilities continue to employ toll collectors to receive cash tolls, most toll facilities collect a majority of their tolls from customer accounts that are debited when an electronic tolling system detects a transponder in a vehicle passing beneath a gantry. If the facility has no provision for collecting cash tolls, drivers without transponders are normally billed by mail at the address associated with the license plate on the vehicle, often at a higher rate to cover the cost of mailing the bill.

Determining the true cost of toll collection is difficult because, as noted in a 2007 report for the Transportation Research Board, some costs not readily identified in agencies' financial reports, such as a portion of general administrative costs and pension expenses attributable to tolling. Published figures thus likely understate true collection costs. Even so, at the seven agencies examined, the study estimated that toll collection cost from 16.5% to 92.6% of the amount collected.[12]

In principle, the cost of operating an electronic tolling system should be much lower than the cost of manual collection, due to obvious personnel savings. However, recent financial reports from public agencies indicate that even with extensive use of electronic tolling, collecting highway tolls costs between 8% and 12% of the amount collected (see **Table 2**). The annual report of the New Hampshire turnpike system breaks out some of the costs of electronic tolling in detail, including bank and credit card fees (2.7% of revenue collected from the electronic system), fees paid to process electronic transactions (6.5%), and the in-vehicle transponders furnished to drivers (0.7%). The agency's total operating costs for electronic tolling in 2013, not including enforcement costs and depreciation of the electronic tolling infrastructure, were 9.8% of revenues collected electronically.[13]

[11] This 1% cost of collection figure has recently been challenged; see Daryl S. Fleming, *Dispelling the Myths: Toll and Fuel Tax Collection Costs in the 21st Century*, Reason Foundation, Culver City, CA, November 2012, http://reason.org/files/dispelling_toll_and_gas_tax_collection_myths.pdf.

[12] Transportation Research Board: National Cooperative Highway Research Program, *Costs of Alternative Revenue-generation Systems*, NCHRP Report 689, Washington, DC, 2011, pp. 70-74, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_689.pdf.

[13] State of New Hampshire Department of Transportation Turnpike System, *Annual Financial Report For the Fiscal Year Ended June 30, 2013*. http://www.nh.gov/dot/org/operations/turnpikes/documents/TPK2013AnnualReport.pdf, p. 12.

Table 2. Percent of Revenues Used for Toll Collection

Facility	Costs	Revenues	Cost as % of Toll Revenues
407 International, Inc. Toronto (all electronic) C$=Canadian $	C$ 89,900,000	C$753,600,000	11.9%
New Hampshire Turnpike	$7,623,000	$77,180,000	9.8%
New Jersey Turnpike Authority (80.6% E-ZPass usage rate, 2013)	$131,723,718	$1,413,763,310	9.3%
Kansas Turnpike Authority	$10,983,235	$94,347,743	11.6%
Oklahoma Turnpike Authority	$19,746,016	$233,496,841	8.4%
Maine Turnpike Authority	$11,812,531	$121,817,365	9.6%

Source: *407 International, Inc. Consolidated Financial Statements,* December 31, 2013; New Hampshire Turnpike System, *Annual Report*, *fiscal year ending June 30, 2013, p. 12; New Jersey Turnpike Authority Financial Statements*, December 31, 2013, pp. 10-12; Kansas Turnpike Authority, *Annual Report 2013*. p. 16; Oklahoma Turnpike Authority, *Comprehensive Annual Financial Report, December 31, 2012, p. 49;* Maine Turnpike Authority, *Maine Turnpike Authority Financial Report,* December 2013, p. 2.

Notes: New Hampshire Turnpike revenue figure does not include cash revenue and cost figure includes only bank and credit card fees, E-ZPass processing fees and transponder expense. The electronic tolling share of personnel benefits (such as pension contributions), enforcement, and equipment and repair costs are not separated in the accounting and have not been counted as toll collection costs. Oklahoma Turnpike Authority also incurred $16,572,888 in PIKEPASS customer service costs that are not reflected in **Table 2**.

The German Example: Nationwide Truck Tolling

Several European countries impose nationwide tolls on trucks using high-speed roads. The German system is the most far reaching, covering all trucks weighing more than 12 metric tons (26,456 pounds) using 12,174 kilometers (7,565 miles) of expressways and 1,135 kilometers (705 miles) of four-lane road linked to expressways. From next year, the system will be extended to an additional 1,000 kilometers of road, and trucks weighing between 7.5 and 12 metric tons will also be subject to toll.[14]

The toll-collection system is complex, in part because European Union law prohibits Germany from requiring foreign truckers to install on-board units that allow a truck's movements to be tracked by the Global Positioning System (GPS). Drivers of trucks without on-board units must pay the toll by credit card or direct debit either on the Internet or at kiosks installed at gas stations and highway rest stops. Because the toll varies with the number of axles and engine emissions, the German system requires an extensive surveillance effort, including overhead cameras, roadside measurement stations, and random checks of trucking companies to ensure that each vehicle has paid the correct toll.[15]

The toll rates vary from €0.141 per kilometer ($0.31 per mile) for a truck with a low-emissions engine and three or fewer axles to €0.288 per kilometer ($0.63 per mile) for a truck with four or

[14] "Bund will Lkw-Maut ausweiten," *Wirtschaftswoche*, March 25, 2014,

[15] Descriptions of the tolling system and the enforcement procedures are available at the website of Toll Collect, the private consortium that runs the system, at http://www.toll-collect.de/en. Toll Collect does not publish a financial statement.

more axles and an engine with the highest allowable emissions level.[16] Weight-based taxes and emissions-based taxes on trucks have been reduced, as these taxes cannot be collected from trucks registered in other countries, whereas a sizeable share of the €4.4 billion ($6 billion) raised by truck tolls in 2013 was paid by foreigners.[17] All revenues beyond the amount needed to cover collection costs must be spent on highway construction and maintenance.

The private operator of the German system has not disclosed operating costs. However, the U.S. Government Accountability Office (GAO) determined that the German government paid the system operator roughly $664 million per year to manage the system from 2007 through 2011, or about 13% of the $5 billion in average annual revenues. In addition, about $740 million of revenues are spent annually to assist German trucking firms in complying with the system. The German government does not consider this to be part of the cost of operating the system, but it does reduce by roughly 15% the revenues available to be used for other purposes.[18]

Tolling and the Highway Trust Fund Shortfall

Highway toll revenues nationwide came to $13.53 billion in FY2012, according to FHWA. While the amount of toll revenues has grown significantly in recent years, toll revenue as a share of total spending on highways has been relatively steady for more than half a century, in the range of roughly 5% to 6%. On average, facility owners collected $2.35 million per mile of toll road or bridge in FY2012.[19]

There are three possible means of increasing revenue from tolling:

- **Increase the extent of toll roads.** FHWA statistics identify 5,745 tolled miles of roads, bridges, and tunnels in 2013,[20] a net increase of 1,024 miles, or 22%, over 1990.[21] These figures indicate that the extent of toll roads has been growing by 45 miles per year, adjusting for the fact that some previously tolled roads have become toll-free. Even so, 15 states have no toll roads or bridges.[22] A major expansion of tolling assumes public acceptance, but there have been recent signs of resistance. For example, North Carolina's House of Representatives voted

[16] The toll rates are set in law; see http://www.gesetze-im-internet.de/bfstrmg/anlage_1_18.html.

[17] Bundesministerium der Finanzen, *Monatsbericht*, January 2014, p. 18.

[18] U.S. Government Accountability Office, *Highway Trust Fund: Pilot Program Could Help Determine the Viability of Mileage Fees for Certain Vehicles*, December 2012, pp. 22-27.

[19] Federal Highway Administration, *Highway Statistics: Summary to 1975*, Table HF-211, 1977, pp. 107-136. Also *Highway Statistics: Summary to 1995*, Table SF-210 and *Highway Statistics*, various years, Tables SF-21, HF-10 and HF-10a. Also "Figure 6-6: Toll Facility Revenue: 1993-2008," *Our Nation's Highways: 2010*, http://www.fhwa.dot.gov/policyinformation/pubs/pl10023/fig6_6.cfm. Toll revenues grew during FY1993-FY2008 at an average annual rate approaching 8%.

[20] Federal Highway Administration, *Toll Facilities of the United States: Toll Mileage Trends 2003-2013*, "FHWA-PL-11-032," July 2013, http://www.fhwa.dot.gov/policyinformation/tollpage/miletrends.cfm. The 5,745 miles of toll roads, bridges, and tunnels compare with the total federal-aid highway eligible road length of 1,001,874 miles (0.57%) and total National Highway System mileage of 222,946 or (2.5%).

[21] Federal Highway Administration, *Toll Facilities in the United States: Bridges-Roads-Tunnels-Ferries*, "Publication No: FHWA-PL-91-009," 1991, p. v.

[22] 29 states have toll roads, 21 have toll bridges and 15 have no toll facilities. Federal Highway Administration, *Table T-1, parts 1-4*, as of January 1, 2013.

unanimously in 2013 to bar the tolling of any Interstate Highway unless the same number of free lanes as existed prior to tolling is maintained.[23] Virginia's legislature prohibited any expenditure to implement tolling on Interstate 95 south of Fredericksburg, which had been proposed under the Interstate System Reconstruction and Rehabilitation Toll Pilot Program.[24]

- **Increase the amount of traffic.** The number of vehicle miles traveled in the United States peaked in 2007. Although miles traveled has increased over the past two years, in 2013 it was still an estimated 1.6% below the 2007 level.[25] Demographic trends and social changes, such as the increased popularity of center-city living among young people, suggest that personal motor vehicle use may grow more slowly in future years than it did prior to 2007. If that proves to be the case, higher traffic volume may contribute little to increased toll revenues.
- **Increase the average toll per mile.** Toll roads have some scope to increase revenues by raising tolls, but face obstacles in doing so. Toll hikes can be politically sensitive, and where roads are operated by private concessionaires, the operators' contracts with state governments typically specify the maximum rate at which tolls can rise. Additionally, large increases can encourage motorists to use competing nontolled routes.

An expansion of tolling could be achieved in several ways. At one extreme, Congress could simply encourage additional tolling pilot projects and a further expansion of tolling-supported innovative finance, such as more loans for road and bridge construction through DOT's Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which would be repaid through user tolls. At the other extreme, Congress might authorize states to toll federal-aid highways as they see fit, or even require that Interstate Highway segments be converted to toll roads as they undergo reconstruction in the future, eventually turning all Interstates into toll roads.

Tolling the Interstate Highway System

In recent years, federal funds obligated for projects on the 47,432-mile-long Interstate system have been 27% to 29% of total annual federal-aid highway obligations, or about $11-$12 billion in 2014 dollars.[26] If all the Interstate Highways could be instantly converted to tolling, and costs were covered by tolls rather than expenditures from the HTF, the reduction in federal outlays over the next six years would come to around $72 billion, enough to fill a large part of the approximately $89 billion shortfall projected over that period by CBO.[27]

One option for expanding tolling on the Interstates would be for Congress to require tolling only as Interstate system roads and bridges are rebuilt with federal assistance. As many of these roads

[23] "N.C. House Passes Bill Addressing 1-95 Tolls," Associated Press, May 17, 2013, http://hamptonroads.com/2013/05/nc-house-passes-bill-addressing-i95-tolls.

[24] Virginia, 2013 Session, HB2313, April 3, 2013, http://lis.virginia.gov/cgi-bin/legp604.exe?131+sum+HB2313.

[25] Federal Highway Administration data obtained from Federal Reserve Bank of St. Louis, https://research.stlouisfed.org/fred2/series/TRFVOLUSM227NFWA.

[26] Federal Highway Administration, *Highway Statistics: Table FA-4c*, Washington, DC, various years. http://www.fhwa.dot.gov/policyinformation/statistics.cfm. The FY2010 figure included some stimulus funding.

[27] CBO, *Projections of Highway Trust Fund Accounts Under CBO's April 2014 Baseline.*

are not in need of near-term reconstruction, tolls would generate much lower amounts of revenue than full Interstate Highway tolling until the entire Interstate system is rebuilt and converted to tolls, far in the future, unless users of newly rebuilt Interstate segments were assessed very high tolls to make up for the fact that users of other segments would not be paying tolls. To avoid toll road users having to pay high tolls to rebuild currently toll-free Interstate routes or bridges, bonds might be issued to fund construction costs up-front, with toll revenues from the newly rebuilt facilities then used to pay for the interest and bond retirement costs.

An alternative way of estimating the revenue that could be raised by tolling the Interstate Highways is to assume that the public would pay the same average annual amount per mile, $2.35 million, as on existing U.S. toll roads and bridges. In this case, total annual toll revenue would be roughly $111 billion.[28] Of this, approximately $8 billion is already captured by existing Interstate Highway toll facilities, leaving around $103 billion of new revenue. This sum far exceeds all federal spending on surface transportation and is about nine times annual federal spending on the Interstate system. However, a large proportion of current toll revenue is collected on heavily traveled roads and bridges in urban areas. Many rural Interstates carry far less traffic and may be unable to produce so much revenue per mile, as excessively high tolls could lead users to seek alternative routes. In cases where an Interstate carries little traffic, the costs of building and maintaining the toll collection system might be large relative to the revenue that could be realized.

A less ambitious alternative would be to convert only the urban Interstates. Approximately 7% of the roughly 17,000 miles of urban Interstate Highways are tolled, already, leaving nearly 16,000 miles of road available for conversion to toll roads. Assuming tolls would be imposed at rates that generate the current average of $2.35 million per mile, tolling the currently free urban Interstates might produce $37 billion in annual revenue, nearly as much as the highway account of the HTF now receives from motor fuel taxes. Again, though, there could be concerns about cross-subsidization if tolls paid on urban roads were used to build and maintain toll-free roads elsewhere.

Costs of establishing tolling across the Interstate system are likely to be great. States would need to construct gantries above roads and entrance and exit ramps at thousands of locations to hold toll-collection equipment and cameras to identify toll violators, in addition to building communications infrastructure. If tolling were introduced in conjunction with reconstruction of Interstate Highway segments, estimates of the road building costs involved range from $1 trillion to $3 trillion.[29] The use of bond financing would add interest expense.

However Congress chooses to proceed, the conversion of a significant portion of the Interstate Highway system from free roads to toll roads would take a number of years. Studies would need to be conducted to identify the best locations to collect tolls, equipment would have to be ordered, and physical infrastructure such as road-spanning gantries and communications structures would

[28] FHWA, Table HF-10 toll revenues from all units of government and "Toll Mileage Trends: 2003-2013" in *Toll Facilities of the United States.* In 2013, 3,413 miles of Interstate Highways and bridges were tolled.

[29] Alan E. Pisarski and Kevin E. Heanue, *Future Options for the National System of Interstate and Defense Highways: Task 10 Final Report*, Transportation Research Board (Washington, DC), NCHRP Project 20-24 (52), p. 13, 21. http://onlinepubs.trb.org/onlinepubs/trbnet/acl/NCHRP_20-24_52task10_NCHRPFinal.pdf; Edward Regan and Steven Brown, "Building the case for Tolling the Interstates," *Tollways*, spring 2011, http://ibtta.org/sites/default/files/documents/Advocacy/Key%20Studies/Regan—ase%20for%20Interstate%20Tolling.pdf.

need to be designed and constructed. Increased use of tolling would therefore be unlikely to have a significant impact on the need for taxpayer funding over a five- or ten-year time frame.

Increased Use of Tolling to Encourage Innovative Finance

The revenue stream provided by tolling can be used to support highway projects that rely on debt finance and private equity investment. These financing methods were strongly encouraged in MAP-21.

- Toll revenues can be used to service municipal bonds, or "munis," that state and local agencies have issued to pay for highway projects. The federal government supports this spending by providing a tax exclusion of the interest paid on the bonds. Of course, the tax exclusion results in a loss of revenue to the federal government. This revenue loss would be a policy issue if Congress were to consider encouraging the expanded use of municipal bonds for highway construction.
- MAP-21 greatly expanded the Transportation Infrastructure Finance and Innovation Act (TIFIA). TIFIA provides federal credit assistance to leverage nonfederal funding, which may include investment from the private sector. MAP-21 authorized $750 million for FY2013 and $1 billion for FY2014, which provided DOT with the capacity to lend about $16 billion. TIFIA requires that each proposed project identify a revenue stream. For highway projects, toll revenues are the most commonly proposed revenue source. A major expansion of TIFIA in the pending surface transportation reauthorization would likely lead to an increase in the number of toll facilities, even without change in federal policy regarding tolling of Interstate Highways.
- Toll revenues could also support loans for highways and bridges provided from a National Infrastructure Bank, should one be established. The creation of a well-funded National Infrastructure Bank could lead to an expansion of toll roads.[30]

Any expansion of tolling due to increased use of innovative financing for highway construction, maintenance, and operation would occur over an extended period of time. In any event, toll-supported innovative financing is likely to provide only a small proportion of highway spending needs unless Congress directs its use in large-scale reconstruction of Interstate Highways. [31]

[30] CRS Report R43308, *Infrastructure Banks and Debt Finance to Support Surface Transportation Investment*, by (name redacted) and (name redacted).

[31] CRS Report R43410, *Highway and Public Transportation Infrastructure Provision Using Public-Private Partnerships (P3s)*, by (name redacted), p. 15.

Tolling Policy Issues

Increased reliance on tolling as a source of revenue to fund surface transportation is likely to raise a number of issues related to the details of implementation as well as to transportation policy more broadly.

How Could an Interstate System Toll Conversion Be Accomplished?

The current federal-aid highway program is essentially a state-run federal grant program, and states have ownership of the federal-aid highways within their borders. Any immediate conversion of highways to toll roads would necessarily be at individual states' discretion, with federal participation limited to technical assistance and a suggested conversion schedule. This would likely lead to a piecemeal outcome, as some states would convert quickly, some slowly and some not at all.[32]

If Congress were to mandate conversion of Interstates or other roads to tolling upon reconstruction, a much stronger federal role would be possible. FHWA might then take the lead in determining the sequence of reconstruction and conversion of the Interstate Highways. This paradigm would have the advantage of assuring that all states would begin imposing tolls at roughly the same time and would prevent the outbreak of "toll wars" among the states. Under federal oversight, the operation of the converted highways might still be under the auspices of the states, which could operate them directly, through a toll authority, or perhaps under contract to a private operator. This state-run model, however, might complicate the administration of the completed Interstate Highway toll system.

Whether or not implementation of tolls were linked to reconstruction of existing roads, creation of tolling systems would require up-front investments in gantries, equipment to read transponders in vehicles, communications infrastructure, software to process toll payments, and enforcement. This would have to be done before the tolls are collected.

How Would Tolls Be Regulated?

Under current law, FHWA approval is needed for initial implementation of tolls on roads and bridges that have received federal aid, but the federal government has no jurisdiction over toll rates. The Surface Transportation and Uniform Relocation Assistance act of 1987 (P.L. 11-17; H. Rept. 100-27) requires only that bridge tolls "shall be just and reasonable."

[32] Although one could argue that legislation requiring the conversion of Interstate highways to toll facilities could be justified as an exercise of Congress's interstate commerce power, such legislation may give rise to other legal concerns. For example, if the legislation required occupation of or building on state land, the Takings Clause of the Fifth Amendment may be implicated. Additionally, if legislation directed the states to collect federal tolls, a legal challenge based on the Tenth Amendment could arise. In any case, such legislation would need to be carefully drafted to minimize legal challenges. Analysis of these potential legal concerns may change greatly based upon a proposal's specific text and is outside the scope of this report.

More widespread use of tolls is likely to raise significant questions about equity. These might arise in a variety of contexts. Motorists from states with comparatively low tolls might find it unfair that other states charge comparatively high tolls. Some existing facilities offer preferential toll rates to residents of particular jurisdictions; if that practice were to become widespread, it could burden interstate travel and commerce. States may be tempted to collect tolls at state borders rather than at internal locations where more residents would be affected, effectively taxing interstate travel at higher rates than in-state travel and in some cases putting out-of-state companies at a competitive disadvantage against local companies. The eruption of "toll wars" between states is not unimaginable.

Truck tolls are invariably higher than auto tolls, sometimes much higher: crossing the George Washington Bridge from New Jersey to New York at an off-peak hour costs $9.00 for a car with an electronic transponder, but $65.00 for a standard tractor-trailer rig. Trucking interests generally oppose additional tolling, largely out of concern that political considerations will make it easier to raise tolls on trucks than on cars; they generally prefer higher fuel taxes whose revenues are dedicated to highway improvement.[33] One reason for the preference for fuel taxes is that studies have concluded that funding highways with motor fuels taxes provide trucks a cross-subsidy from automobile users' gas tax payments.[34]

Proposals for a major expansion of tolling of federal-aid highways are likely to lead to discussion of a federal role in rate-setting. This could include a federal framework of regulatory standards or a more precise definition of the requirement in current law that tolls be "just and reasonable," along with provision for the enforcement of that requirement. Under a nationwide VMT system, rates would likely have to be set at the federal level. Under any of these scenarios, Congress would need to clarify the role of the Department of Transportation in enforcing tolling regulations and overseeing toll rates.

Will Tolling Increase Transportation Spending?

Proponents often advocate tolling as a means of increasing total spending on surface transportation infrastructure. It is possible, however, that any increase in toll revenue could be offset by declining spending on surface transportation at the local, state, and federal levels. Congress has at times sought to condition federal support for states' highway spending on "maintenance of effort" by state governments. Proposals for a large increase in the use of tolling may lead to calls for similar requirements.

Vehicle Miles Traveled Charge: A Toll by Another Name?

A VMT charge would be a toll-like charge on each mile driven on all roads and could eliminate the need for the fuels taxes that now support the HTF. Most existing toll road charges are based on weight and distance, and VMT charges could be structured in a similar manner. Both

[33] Owner-Operator Independent Drivers Association, "Truckers urge rejection of Ohio House Bill 533 on tolling," May 8, 2014, http://www.ooida.com/MediaCenter/PressReleases/pressrelease.asp?prid=348.

[34] For the relative costs to the road network of use by different classes of vehicles, see Federal Highway Administration, Addendum to the 1997 Federal Highway Cost Allocation Study: Final Report, May 2000 (Washington, 2000), http://www.fhwa.dot.gov/policy/hcas/addendum.htm.

electronic tolls and VMT charges can be used to implement congestion pricing, in which drivers are charged more for using a road at a busy time.[35]

Various methods of collecting VMT charges have been proposed, such as the use of special readers to periodically check each vehicle's odometer or the use of the Global Positioning System to gather information on each vehicle's travel. Almost all VMT charge collection methods would use a different infrastructure than would be required for a broad expansion of tolling on the Interstate Highways. Expansion of tolling as an intermediate step towards implementation of a VMT charge could therefore require investments that would soon be made obsolete.

Toll Credits

An existing federal program, the toll credit program, for many years has allowed states to use toll revenues spent on capital investments serving interstate travel to provide the required state matching shares for federal formula grants.[36] Although the statute states that the credit "shall not reduce nor replace State funds required to match Federal funds for any program under this title," some states have come to rely heavily on toll credits to meet their matching share requirements. A major expansion of Interstate Highway tolling could also expand the use of toll credits nationwide. This raises the possibility that states could provide less taxpayer funding for their matching shares of federal formula grants, unless other changes are made in the law.

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[35] For more on VMTs, see CRS Report R42877, *Funding and Financing Highways and Public Transportation*, by (name redacted) and (name redacted).

[36] See 23 U.S.C. §120 (A).