



TESTIMONY

**Addressing the Long-Term Solvency
of the Highway Trust Fund**

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United States Senate

Notes

Unless this testimony indicates otherwise, all years referred to are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end.

Dollar amounts are reported in nominal (current-year) dollars unless this testimony specifies otherwise. Where amounts are given in inflation-adjusted dollars, the Congressional Budget Office used the gross domestic product price index from the Bureau of Economic Analysis to convert them.

Numbers in the text may not add up to totals because of rounding.

Chairman Carper, Ranking Member Capito, and Members of the Committee, thank you for inviting me to today's hearing. I will discuss the status of the Highway Trust Fund, options for highway spending, and approaches to paying for that spending.

Summary

Federal spending on highways (or, synonymously, roads) totaled \$47 billion in 2019.¹ Most of those outlays were for grants to state and local governments to support their spending on capital projects. (Those governments typically spend roughly three times as much of their own funds on highways each year, not only on capital projects but also to operate and maintain roads.) That \$47 billion also included spending for federal programs that subsidize state and local governments' borrowing for highway projects; other subsidies for state and local borrowing are provided through the tax code.

Most federal spending for highways is paid for by revenues credited to the highway account of the Highway Trust Fund, largely from excise taxes on gasoline, diesel, and other motor fuels. For more than a decade, those revenues have fallen short of federal spending on highways, prompting transfers from the Treasury's general fund to the trust fund to make up the difference.

The Congressional Budget Office projects that balances in both the highway and transit accounts of the Highway Trust Fund will be exhausted in 2022. If the taxes that are currently credited to the trust fund remained in place and if funding for highway and transit programs increased annually at the rate of inflation, the shortfalls accumulated in the Highway Trust Fund's highway and mass transit accounts from 2022 to 2031 would total \$195 billion, according to CBO's baseline budget projections as of February 2021.²

1. That is the latest year for which detailed data are available about different types of spending for highways by the federal government and about the different types of excise tax revenue credited to the Highway Trust Fund.
2. See Congressional Budget Office, "Details About Baseline Projections for Selected Programs: Highway Trust Fund Accounts" (February 2021), www.cbo.gov/publication/51300. CBO's baseline budget projections incorporate the assumption that current laws generally do not change. Some of the taxes that are credited to the Highway Trust Fund are scheduled to expire on September 30, 2022, including the taxes on tires and all but 4.3 cents of the federal tax on motor fuels. However, under the rules governing baseline projections, these estimates reflect the assumption that all of the expiring taxes credited to the fund will continue to be collected after fiscal year 2022.

The current authorization for federal highway programs expires on September 30, 2021. As they consider reauthorization, policymakers have many decisions to make about federal highway programs, including how much to spend on them, how to direct that spending, and how to pay for those programs.

Federal Spending for Highways

As a share of total economic output, federal spending for highways has been relatively stable for several decades. Almost all of that spending is for capital projects rather than for operation and maintenance and is restricted to federal-aid highways, which consist of the Interstate Highway System and most other roads except for local roads. Federal highway funds are distributed to states on the basis of formulas that depend on how much states received in earlier years, so federal spending does not necessarily go to the projects that would produce the greatest net benefits.

Lawmakers have many options for determining the amount of money spent on highways, including these:

- **Maintain the current conditions and performance of the highway system.** Accomplishing that objective would require the federal government to spend at least \$55 billion per year, on average, CBO estimates using data from the Federal Highway Administration (FHWA)—more than \$3 billion more than the average annual spending in CBO's 10-year baseline projections. State and local governments would also need to increase their spending for federal-aid highways to meet that objective.
- **Fund all projects for which the expected benefits meet or exceed the costs.** In CBO's estimation, that option would require increasing federal spending to an average of at least \$71 billion per year—nearly 40 percent more than projected in CBO's baseline from 2022 to 2031. That estimate is based on analysis from FHWA and would be applicable only if state and local governments increased their spending for federal-aid highways proportionally.

Implementing either option would require identifying sources of funding for the additional spending.

Revenues Credited to the Highway Trust Fund

The Highway Trust Fund has two accounts—one for highways and the other for mass transit—to which certain fuel and other vehicle-related excise tax collections are credited. In CBO's February 2021 baseline

projections, revenues credited to the Highway Trust Fund in 2022 total \$43 billion, and outlays from the fund exceed revenues by about \$13 billion.

Policymakers have a number of options to increase the resources available in the Highway Trust Fund:

- **Increase the existing fuel taxes.** The tax on gasoline has been 18.4 cents per gallon, and the tax on diesel 24.4 cents per gallon, since October 1993. Increasing those taxes by 15 cents or 35 cents per gallon in October 2022 and adjusting them for inflation thereafter would raise \$291 billion or \$627 billion, respectively, more in revenues for the Highway Trust Fund from 2023 to 2031 than projected in CBO's February baseline. Increases of that amount would eliminate the fund's shortfall and provide \$95 billion or \$432 billion, respectively, for additional spending by 2031. However, those increases in fuel taxes would reduce taxable business and individual income, resulting in reductions in income and payroll tax receipts that would partially offset the increase in fuel tax receipts.
- **Institute new taxes.** Policymakers could institute new taxes on vehicle miles traveled (VMT) or on electric vehicles (EVs). One option would be to impose a VMT tax on commercial trucks. CBO has estimated, using data from 2017, that if such a tax was applied to all commercial trucks on all roads and all of the practical steps necessary to implement it were in place, each additional cent of tax would generate \$2.6 billion per year. The federal government's costs of implementing such a tax and ensuring compliance could, however, be substantial. A tax on EVs would probably not have a substantial effect on the trust fund's shortfall because the number of such vehicles remains small.
- **Transfer money from the Treasury's general fund.** Under this option, the federal government would, in effect, pay for a portion of highway spending in the same way that it funds other programs and activities.

Status of the Highway Trust Fund

The federal government's surface transportation programs are financed mostly through the Highway Trust Fund, an accounting mechanism in the federal budget that comprises two separate accounts, one for highways and one for mass transit. The trust fund records specific cash inflows from revenues collected through excise taxes on the sale of motor fuels, trucks and trailers, and truck

tires; taxes on the use of certain kinds of vehicles; and interest credited to the fund. The Highway Trust Fund also records cash outflows for spending on designated highway and mass transit programs, mostly in the form of grants to states and local governments.

In 2019, \$45 billion in revenues and interest were credited to the Highway Trust Fund; of that amount, \$39 billion went to the highway account and the remaining \$6 billion to the transit account. Most of those revenues came from taxes on gasoline and other motor fuels.

According to CBO's February baseline projections, if the excise taxes are continued at their current rates and current funding for highway and transit programs increases annually at the rate of inflation, the revenues and accumulated balances of the Highway Trust Fund will be insufficient to cover spending from either the highway account or the transit account, starting in 2022 (see Figure 1). In those projections, revenues and interest credited to the Highway Trust Fund in 2022 total \$43 billion, and outlays exceed revenues and interest earnings by about \$13 billion.

To cover the shortfalls recorded in the fund's accounts, lawmakers have enacted legislation that since 2008 has transferred more than \$150 billion—mostly from the Treasury's general fund—to the Highway Trust Fund. This year, lawmakers transferred \$14 billion from the general fund—more than \$10 billion to the highway account and \$3 billion to the transit account. Such intragovernmental transfers have allowed the fund to maintain a positive balance, but they have not changed the amount of receipts collected by the government.

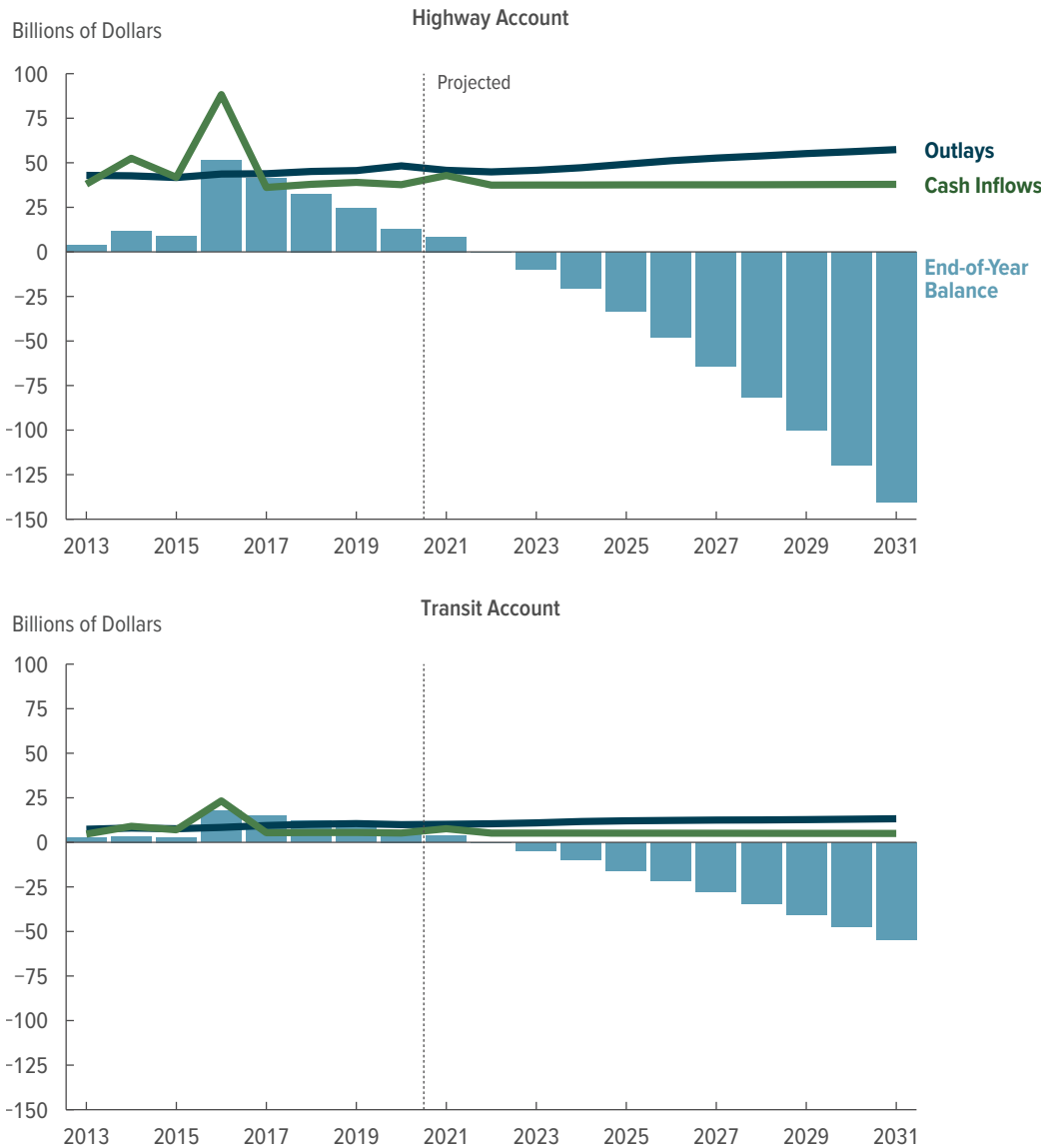
Spending for Highways

Almost all spending on highway infrastructure and transit projects in the United States is funded publicly. Although the private sector participates in building, operating, and maintaining projects, the federal government and state and local governments typically determine which projects to undertake and how much to spend on them.

In 2019, the most recent year for which data about highway spending by all levels of government are available, the federal government spent \$47 billion on highways—an amount equal to 0.23 percent of gross domestic product (GDP). Such spending's share of total economic output has, in general, been stable over the

Figure 1.

Annual Revenues, Outlays, and Balance of the Highway Trust Fund in CBO’s February 2021 Baseline Projections



Outlays from the Highway Trust Fund have long exceeded the revenues credited to it from taxes, but intragovernmental transfers have ensured that the fund’s two accounts maintained a positive balance. In CBO’s projections, the balances of both the highway account and the transit account are exhausted in 2022.

Data source: Congressional Budget Office. See www.cbo.gov/publication/57110#data.

See Congressional Budget Office, “Details About Baseline Projections for Selected Programs: Highway Trust Fund Accounts” (February 2021), www.cbo.gov/publication/51300.

Cash inflows credited to the Highway Trust Fund include tax receipts, interest, and intragovernmental transfers.

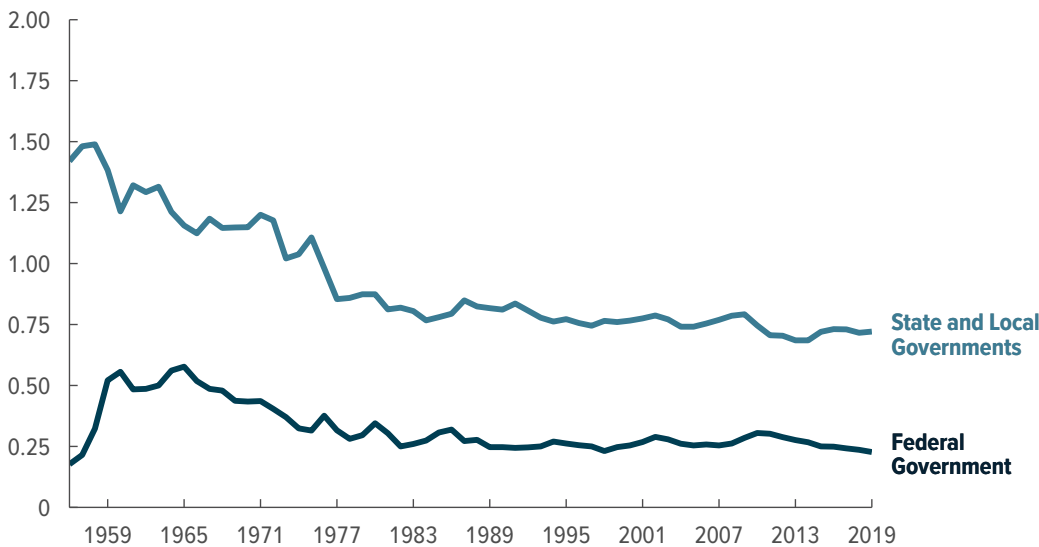
Some of the taxes that are credited to the Highway Trust Fund are scheduled to expire on September 30, 2022, including the excise taxes on tires for heavy trucks and all but 4.3 cents of the per-gallon federal tax on motor fuels (currently 24.4 cents per gallon on diesel fuel and 18.4 cents per gallon on gasoline and other fuels). However, in accordance with the rules governing baseline projections specified in the Balanced Budget and Emergency Deficit Control Act of 1985, the estimates shown here reflect the assumption that all the expiring taxes credited to the fund will continue to be collected after fiscal year 2022.

Under current law, the Highway Trust Fund cannot incur negative balances. However, to accord with the rules governing such projections, CBO’s baseline projections for surface transportation spending reflect the assumption that obligations incurred by programs funded by the Highway Trust Fund will be paid in full.

Figure 2.

Public Spending for Highways as a Share of GDP

Percentage of GDP



State and local governments spend nearly three times as much as the federal government on highways. Measured as a percentage of total economic output, such spending by those levels of government has been relatively stable for the past 30 years.

Data source: Congressional Budget Office, using data from the Bureau of Economic Analysis, the Census Bureau, and the Office of Management and Budget. See www.cbo.gov/publication/57110#data.

GDP = gross domestic product.

past 30 years, though it is only half as large as it was in the 1960s, when construction of the Interstate highway system expanded (see Figure 2).

State and local governments spent more than three times as much as the federal government on highways in 2019—\$150 billion, or 0.72 percent of GDP. Like federal spending on highways, state and local governments' spending as a share of GDP peaked in the 1950s and 1960s, when it accounted for about twice the share it has in recent years.

Characteristics of Federal Funding for Highways

Two characteristics of the ways that the federal government typically spends on highways stand out. First, most federal highway funding takes the form of grants to state and local governments, which own most public roads in the United States and have broad discretion, with some constraints, to spend those federal funds. Second, federal spending on highways is almost entirely dedicated to capital projects that are intended to expand or rehabilitate eligible federal-aid highways.

In 2019, most of the \$47 billion that the federal government spent on highways took the form of grants to state and local governments. State and local governments own

almost all highways; federal agencies own less than 1 percent of public roads (typically, those in national parks and forests, on Indian reservations, or on other federally owned land).

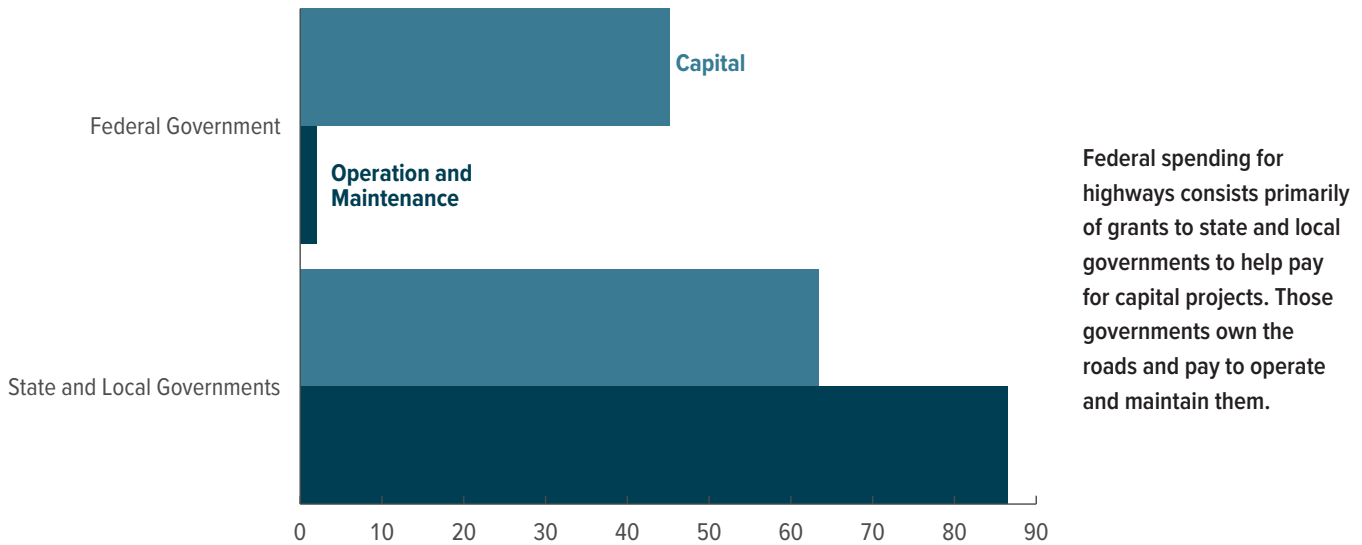
In general, state and local governments decide which projects to undertake and, as construction proceeds, receive reimbursements from the federal government for projects that meet federal eligibility criteria for various programs. Most federal highway programs set a cap on the portion of a project's total costs that a federal grant may cover—typically 80 percent. State and local governments must cover the remaining costs with nonfederal funds, such as tax revenues or proceeds from issuing municipal bonds.

Federal highway programs are dedicated almost entirely to capital projects rather than to the operation and maintenance of roads. In 2019, \$45 billion (or 96 percent) of federal spending for highways went to capital investment (see Figure 3). That spending includes outlays for the purchase of structures (such as new highways and bridges) and equipment as well as expenditures that improve or rehabilitate structures and equipment already in place. Such an allocation between capital and

Figure 3.

Spending for Highways, by Level of Government and Type of Spending, 2019

Billions of 2019 Dollars



Federal spending for highways consists primarily of grants to state and local governments to help pay for capital projects. Those governments own the roads and pay to operate and maintain them.

Data source: Congressional Budget Office. See www.cbo.gov/publication/57110#data.

operation and maintenance has been typical of federal spending for highways since the 1950s.

Because the federal government does not generally own highways, the responsibility to operate and maintain them falls to state and local governments. Spending patterns reflect that: Operation and maintenance accounted for 58 percent of state and local governments' spending on highways, net of federal grants, in 2019. Operation and maintenance costs include the costs of providing necessary operating services (such as snow removal) and maintaining and repairing existing capital (such as filling potholes) as well as the costs of funding other highway-related programs (such as education about highway safety).

Unless additional funds are provided to the Highway Trust Fund (either through an increase in revenues credited to the fund or through additional transfers from general revenues), the disparity between the receipts credited to the fund and outlays from the fund will require the Department of Transportation (DOT) to delay its reimbursements to states for the costs of construction. CBO estimates that, starting in the first half of 2022, balances in the highway account of the trust fund will fall below the amount needed to reimburse states in a timely fashion for the bills presented to the fund. The

possibility of delays in payments from the federal government increases uncertainty among states when they plan transportation projects.

Distribution of Federal Funds to States

Under the most recent authorization for highway spending—the Fixing America's Surface Transportation (FAST) Act, which became law in 2015—more than 90 percent of federal highway assistance each year was designated for apportionment to states based on formulas. Formulas have long been used to distribute funds to states under various federal highway programs.³ In the past, those formulas accounted for a number of different factors, including the state's population, share of national highway lane miles, share of vehicle miles traveled, land area, rates of diesel fuel use, and tax payments to the Highway Trust Fund. Some formulas also included program-specific factors, such as air quality measures (for air congestion and air pollution programs) and fatalities (for safety programs).

3. For a historical overview of the use of formulas to apportion federal highway funding, see Robert S. Kirk, *The Highway Funding Formula: History and Current Status*, Report R45727, version 3 (Congressional Research Service, May 20, 2019), <https://go.usa.gov/xdhVvk>.

Starting in the 1980s, surface transportation authorization acts also included provisions that guaranteed that the amount of federal highway funding apportioned to each state would, at a minimum, equal a certain percentage of the federal highway taxes collected in that state. Most states received additional funds even if their apportionment would have been sufficient to meet the guarantee without them. Such provisions have made the formula factors less important in determining a state's share of funding.⁴

The two most recent federal highway authorization acts further departed from the factors included in earlier apportionment formulas. Enacted in 2012, the Moving Ahead for Progress in the 21st Century Act, or MAP-21, based each state's apportionment primarily on its share of total federal highway funding in 2012. Today, under the FAST Act, formula funds are apportioned among the states largely on the basis of each state's share of the apportioned funding in 2015, but if necessary, the apportioned amount is adjusted to ensure that each state receives at least 95 percent of the tax payments that are collected in that state for the highway account of the Highway Trust Fund.

Once a state's total apportionment has been set, that amount is divided (on the basis of the amounts and formulas set out in the FAST Act) among six different federal programs—the National Highway Performance Program, the Surface Transportation Block Grant Program, the Highway Safety Improvement Program, the Congestion Mitigation and Air Quality Improvement Program, the Metropolitan Planning Program, and the National Highway Freight Program. For many of those programs, after that initial apportionment, states have the flexibility to transfer up to half the funds apportioned to one program to the other programs.

4. Surface transportation authorization acts provide budget authority in the form of contract authority, which is the authority to obligate funds in advance of an appropriation act. States and other grantees are allocated that authority by DOT, which may legally obligate those federal funds for construction projects before an appropriation act is signed into law. The appropriations committees typically control the amount of contract authority that DOT can obligate in any one year because, in each year's appropriation bill, they include an obligation limitation—a limit on the obligations that can be made from contract authority that was previously provided in an authorization act. See Congressional Budget Office, *The Highway Trust Fund and the Treatment of Surface Transportation Programs in the Federal Budget* (June 2014), p. 10, www.cbo.gov/publication/45416.

Programs whose funding is not apportioned to states on the basis of a formula account for less than 10 percent of federal highway spending authorized by the FAST Act. A number of those programs nevertheless support highway spending by state and local governments. Some, such as the Nationally Significant Freight and Highway Projects program, provide grants to state and local governments, and others, such as the Transportation Infrastructure Finance and Innovation Act credit program, make loans to those governments to help finance transportation projects. In addition, a small share of federal highway spending pays for highway projects on federal lands.

Options for Determining Total Annual Spending Amounts

To construct its baseline projections for spending on highways from the Highway Trust Fund, CBO starts with the funding provided in the most recent appropriation law and adjusts that amount to reflect a combination of the projected changes in the GDP price index and in the employment cost index. However, lawmakers could choose to set annual spending levels for highway programs according to a number of different criteria. CBO analyzed two options that the Congress could pursue.

Set Spending to Maintain Current Highway

Conditions and Performance. On the basis of analysis from FHWA that examined the 2015–2034 period, CBO estimates that an annual average of \$98 billion in total federal and state spending would be needed over the 2022–2031 period to maintain highway conditions and performance on federal-aid highways—namely, pavement quality, bridge conditions, and travel delays—at their 2014 levels.⁵ If the federal government's share

5. See Federal Highway Administration and Federal Transit Administration, *Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, 23rd ed. (November 2019), www.fhwa.dot.gov/policy/23cpr/. The \$98 billion estimate is based on the sum of the \$59.5 billion reported in Exhibit 10-2 of the agencies' report for investments modeled in FHWA's Highway Economic Requirements System (HERS) and the \$10.4 billion reported in Exhibit 10-16 for investments modeled in the National Bridge Investment Analysis System (NBIAS). The resulting \$69.9 billion sum was adjusted upward to \$78.4 billion to account for the components and capital improvements not included in those models. That adjustment was based on an FHWA scenario in which highway conditions and performance would be improved; the HERS and NBIAS estimates account for 89 percent of the total investment in that scenario. CBO then used the GDP price index to adjust that \$78.4 billion in 2014 dollars to nominal dollars.

of capital spending on federal-aid highways remained 56 percent (the average share from 2004 to 2014), average annual federal spending from 2022 to 2031 would be \$55 billion, 22 percent more than capital spending in 2019.

Fund All Highway Projects for Which Benefits Exceed Costs. Funding all projects for which benefits are expected to equal or exceed costs would require increasing annual spending well above recent amounts and the amounts in CBO's baseline projections. In its modeling of benefits, FHWA includes those for highway users, such as reductions in travel time, crashes, and vehicle operating costs; for government agencies, through lower maintenance costs and longer service lives for roadways; and for society as a whole, including reduced vehicle emissions. On the basis of analysis from FHWA that examined the 2015–2034 period, CBO estimates that the federal portion of the total average annual investment from 2022 to 2031 that would be required to implement all highway and bridge projects on federal-aid highways for which benefits are expected to meet or exceed costs is \$71 billion.⁶ That amount would represent an increase of more than 58 percent over the \$45 billion in outlays that the federal government made for highway capital in 2019. State and local governments would also have to increase spending on federal-aid highways to achieve the total level of investment modeled in the FHWA analysis. If those funds were spent only on projects whose benefits were estimated by FHWA to meet or exceed costs, the share of total vehicle miles traveled on federal-aid highways whose pavement was rated good or fair (as opposed to poor) would increase from 83 percent to 89 percent, and annual average travel delays per vehicle would be cut by about 9 hours.⁷

6. Ibid. The \$71 billion estimate is based on the \$102.7 billion (in 2014 dollars) in total annual spending on federal-aid highways such a scenario would require, as reported in Exhibit 7-7 of that report. CBO estimates that the federal government contributed 56 percent of capital spending on federal-aid highways from 2004 to 2014. It arrived at that estimate by comparing the federal government's share of capital spending on federal-aid highways for the years reported in Exhibit 2-8 of that report with total capital outlays for federal-aid highways reported for those years in Exhibit 2-15. To adjust that federal share (in 2014 dollars) to nominal dollars over the 2022–2031 period, CBO used the GDP price index as reported in Congressional Budget Office, "Budget and Economic Data: Historical Data and Economic Projections" (February 2021), www.cbo.gov/about/products/budget-economic-data.

7. FHWA valued travelers' time savings at \$12.30 per person-hour for personal travel and between \$27 and \$30 per person-hour

Estimates of net benefits that arise from benefit-cost analysis are uncertain, however. They rely on judgments about a variety of factors, including the value of benefits that are difficult to measure (such as the value of travelers' time and of vehicle maintenance costs avoided), the appropriate interest rate to use to discount future costs and benefits to present values, and how highways will be used in the future (for example, the number of vehicle miles traveled by passenger vehicles and trucks).

Options for Distributing Federal Highway Spending

For any given amount of spending for highways, the federal government can decide to spend or distribute those funds in different ways. Under the current system, in which federal funds are apportioned to states largely according to how those funds were distributed several years earlier, federal highway spending is not necessarily distributed in a way that reflects the use or condition of the highway system. Nor does such spending necessarily fund the highway projects that are expected to generate the largest net benefits.

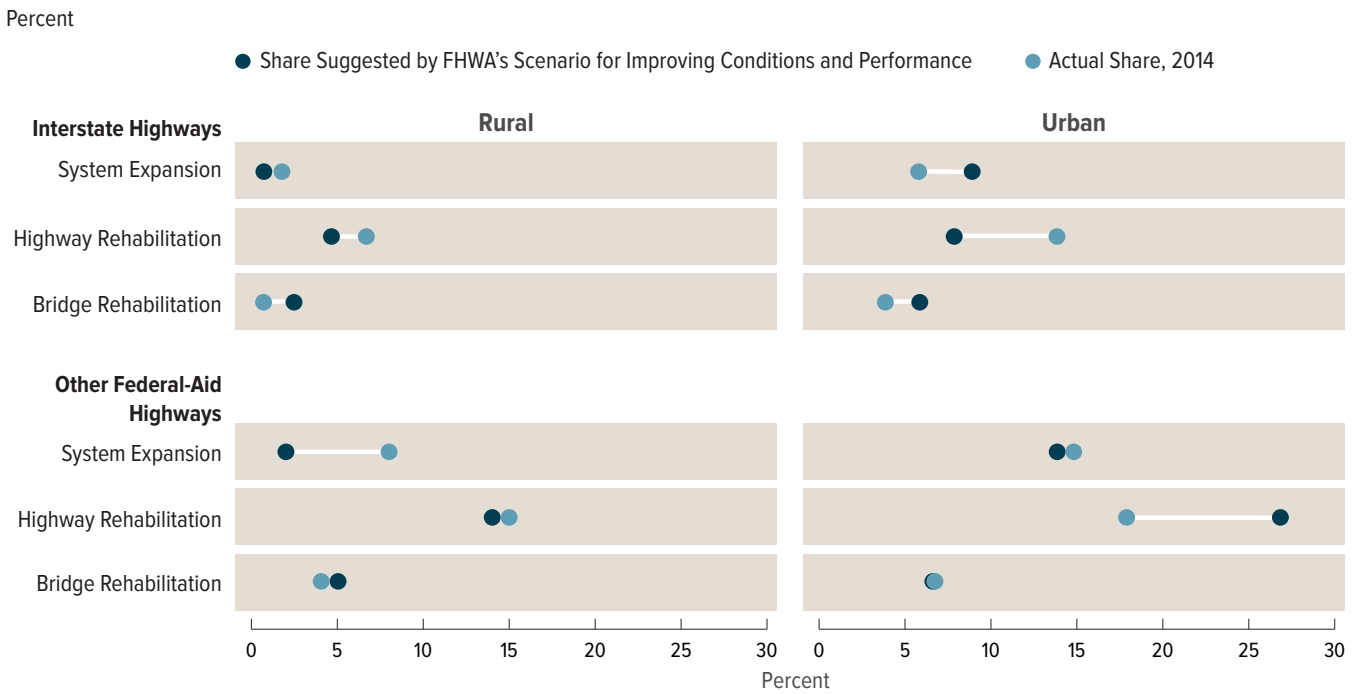
If more federal funds for highways were allocated to programs or projects whose benefits were expected to outweigh their costs, policymakers could boost the impact of highway spending on the economy. FHWA examined how spending on federal-aid highways in 2014 was allocated in both rural and urban areas among projects that either expanded the highway system or rehabilitated highways or bridges.⁸ The shares devoted to those two types of areas and types of projects were different from the shares that would be provided under the scenario modeled by FHWA in which all highway projects whose benefits equaled or exceeded their costs would be funded. In particular, a smaller share of spending would go to expanding the federal-aid highway system in rural areas under that scenario than actually went to such projects in 2014; in urban areas, a smaller share would be spent on rehabilitating Interstates, and a larger share would go to rehabilitating other federal-aid highways. In both rural

for business travel. See Federal Highway Administration and Federal Transit Administration, *Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, 23rd ed. (November 2019), p. 9-3, www.fhwa.dot.gov/policy/23cpr/.

8. See Federal Highway Administration and Federal Transit Administration, *Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, 23rd ed. (November 2019), www.fhwa.dot.gov/policy/23cpr/.

Figure 4.

Shares of Total Federal-Aid Highway Spending Used for Various Purposes



Data source: Congressional Budget Office, using data from the Federal Highway Administration. See www.cbo.gov/publication/57110#data.

The shares suggested by FHWA's scenario in which highway conditions and performance would be improved are based on investment over the 2015–2034 period. Under that scenario, the share of spending going to system enhancements (safety enhancements, traffic control facilities, and environmental enhancements) would remain constant at the 2014 level, so that spending is excluded from this figure. For details on that scenario, see Federal Highway Administration and Federal Transit Administration, *Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, 23rd ed. (November 2019), www.fhwa.dot.gov/policy/23cpr/.

FHWA = Federal Highway Administration.

and urban areas, a larger share of funding would go to rehabilitating bridges on Interstates (see Figure 4).

Another option lawmakers could choose is to provide more funding to programs that use benefit-cost analysis in selecting projects, such as the Better Utilizing Investments to Leverage Development (BUILD) program.⁹ Funding projects with the highest net economic benefits could realize most of the benefits of current highway spending at a lower cost or allow the same amount of spending to have a greater economic payoff.¹⁰ Another approach is to promote the use of benefit-cost analysis at the state and local levels, where most of the spending decisions are made.

9. The BUILD program replaced the Transportation Investment Generating Economic Recovery (TIGER) grant program in 2018.

10. See Congressional Budget Office, *Approaches to Making Federal Highway Spending More Productive* (February 2016), p. 29, www.cbo.gov/publication/50150.

Benefit-cost analyses have some limitations, however. It is difficult to capture all of the benefits to the economy, and lawmakers may want to fund highway projects to achieve various objectives that are not accounted for in such analyses—increasing employment, increasing rural access to transportation networks, or addressing the impacts of highway infrastructure on different communities, for example. In addition, benefit-cost analysis on a project-by-project basis may miss important ways in which distinct components of the highway network affect one another. Also, implementing policies that emphasized such analysis would reduce state and local governments' discretion in how they use their federal funds.

Revenues Credited to the Highway Trust Fund

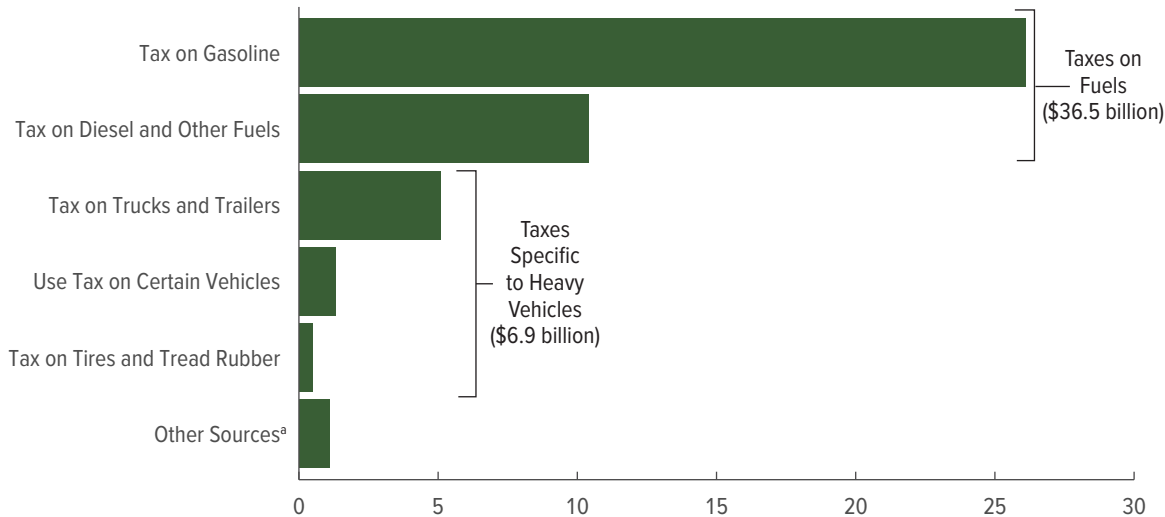
The federal government collects revenues for the Highway Trust Fund primarily from taxes on motor



Figure 5.

Sources of Revenues Credited to the Highway Trust Fund, 2019

Billions of Dollars



Data source: Congressional Budget Office, using data from the Federal Highway Administration and the Internal Revenue Service. See www.cbo.gov/publication/57110#data.

a. Consists of \$0.8 billion in interest income, \$0.1 billion in civil penalties and fines, and \$0.1 billion in other income, primarily intragovernmental transfers—that is, funds transferred from other budgetary accounts to the Highway Trust Fund.

fuels. Lawmakers could increase revenues by raising those taxes or by instituting new ones.

Sources of Revenues

Of the revenues credited to the Highway Trust Fund in 2019, \$36 billion (or 82 percent) stemmed from excise taxes on gasoline, diesel, and other motor fuels (see Figure 5). Receipts from the tax of 18.4 cents per gallon on gasoline and ethanol-blended fuel contributed the largest amount—\$26 billion, or nearly 60 percent of the fund's revenues. Receipts from the tax of 24.4 cents per gallon on diesel and other fuels totaled \$10 billion, or about one-quarter of the fund's revenues. The taxes on gasoline and diesel fuel have been in place since 1993, and the rates have not been adjusted since then. All but 4.3 cents of the per-gallon federal tax on motor fuels are scheduled to expire on September 30, 2022.¹¹

If those taxes were extended at their current rates, revenues from gasoline and diesel taxes would decline at a rate of about 1 percent per year over the next 10 years,

CBO projects. Factors contributing to that projected decline include the rising fuel economy of vehicles and the slow rate of growth of the total number of miles traveled by vehicles.

Not all of the receipts from the excise taxes on motor fuels are dedicated to highway spending. A portion of those receipts—2.86 cents per gallon, which amounted to about \$6 billion in 2019—goes to the transit account of the Highway Trust Fund. In addition, 0.1 cent per gallon goes to the Environmental Protection Agency's Leaking Underground Storage Tank Trust Fund, which supports programs run by state and local governments that prevent and clean up leaks from underground petroleum storage tanks.

Revenues from three other taxes, which are specific to heavy vehicles, are also credited to the Highway Trust Fund. The excise tax on trucks and trailers—equal to 12 percent of the sales price of tractors, trucks, and trailers that exceed certain weights—accounted for 12 percent of the trust fund's revenues in 2019. A tax on the use of heavy vehicles (a \$100 to \$550 annual tax on trucks over 55,000 pounds) and an excise tax on certain tires for heavy trucks contributed smaller amounts to the

11. In accordance with the rules governing baseline projections specified in the Balanced Budget and Emergency Deficit Control Act of 1985, CBO's baseline revenue estimates reflect the assumption that all the expiring taxes credited to the fund will continue to be collected after fiscal year 2022.

fund. (That excise tax on tires is scheduled to expire on September 30, 2022.)

In addition to those taxes, various fees and interest on invested balances, totaling about \$1 billion per year, are credited to the trust fund.

Options

Lawmakers have several options for increasing resources in the Highway Trust Fund. One option is to increase existing taxes on gasoline and diesel fuels. Alternatively, lawmakers could impose new taxes on vehicle miles traveled, on freight movement, or on electric vehicles. Finally, the Congress could make additional transfers from the Treasury's general fund to the Highway Trust Fund.

Increase Existing Fuel Taxes. CBO analyzed two options that would increase federal excise tax rates on gasoline and diesel fuel by 15 cents or 35 cents per gallon and adjust them to grow with inflation thereafter.

According to estimates by the staff of the Joint Committee on Taxation (JCT), increasing the tax rates on fuel by 15 cents in October 2022 and indexing them to the consumer price index thereafter would increase revenues to the Highway Trust Fund by \$26 billion in 2023. Over the 2023–2031 period, cumulative fuel-tax receipts credited to the Highway Trust Fund would exceed the amount in CBO's February baseline projections by \$291 billion. An increase of that amount would eliminate the projected cumulative shortfall in the Highway Trust Fund and provide an additional \$95 billion in revenues to the fund by 2031. Interest payments on any accumulated balances would further increase the resources available in the trust fund.

Increasing the tax rates on fuel by 35 cents in October 2022 and indexing them to the consumer price index thereafter would increase revenues to the Highway Trust Fund by \$60 billion in 2023. The cumulative fuel-tax receipts credited to the Highway Trust Fund over the 2023–2031 period would total an estimated \$627 billion more than the amount in CBO's February baseline projections.

However, those increases in fuel taxes would reduce other federal income and payroll tax receipts by decreasing taxable business and individual income. As a result, the net budgetary effects through 2031 would be smaller: deficit reductions of \$224 billion and \$485 billion, respectively.

Institute New Taxes. Another option is to impose new taxes that better align the taxes paid for using roads with the cost of building those roads. The most recent national study of how different types of vehicles contribute to the highway costs that federal programs pay for was published by FHWA in 2000. Passenger vehicles constituted the largest group of vehicles in use and were estimated to account for about 60 percent of federal highway costs in 2000, even though their estimated cost per mile of highway use was the lowest at 0.8 cents.

Costs attributed to trucks accounted for the remaining 40 percent of federal highway costs, but trucks provided about one-third of the Highway Trust Fund's revenues. For each mile they traveled in 2000, combination trucks (that is, tractors pulling one or more trailers) were estimated to impose a cost of 8.4 cents. For all trucks, the estimated cost per mile traveled ranged from 2.2 cents for the trucks carrying the lightest loads to 20.3 cents for those with the heaviest loads.¹²

More recently, some states have calculated cost shares for different types of vehicles that are similar to the estimates in the FHWA study. In 2019, Oregon estimated that light vehicles (mainly cars and other passenger vehicles) would account for about two-thirds of state highway costs in 2020 and heavy vehicles for about one-third.¹³ As the Oregon report noted, however, highway spending by state governments includes maintenance costs, such as snow removal and pothole patching, whereas federal spending does not.

In recent years, revenues credited to the Highway Trust Fund have declined. Because of improvements in fuel efficiency, drivers use less fuel and therefore pay less in fuel taxes to travel the same distance. Policymakers would have to make a number of decisions about how to design and implement new taxes in order to reach intended revenue targets and address highway users' equity and privacy concerns in the administration of those taxes.

12. See Federal Highway Administration, *Addendum to the 1997 Federal Highway Cost Allocation Study Final Report* (May 2000), Tables 4 and 6, www.fhwa.dot.gov/policy/hcas/addendum.cfm.

13. See Oregon Department of Administrative Services, Office of Economic Analysis, *Highway Cost Allocation Study, 2019–2021 Biennium* (prepared by ECONorthwest, 2019), www.oregon.gov/das/OEA/Pages/hcas.aspx.

Table 1.

Estimated Annual Revenues From a VMT Tax of 5 Cents per Mile If One Had Been in Place in 2017

Billions of 2017 Dollars

	All Trucks	Combination Trucks ^a
All Roads	12.8	8.0
Interstates and Arterial Roads	10.1	7.0
Interstates	5.3	4.2

Data source: Congressional Budget Office. See www.cbo.gov/publication/57110#data.

VMT = vehicle miles traveled.

a. Tractors pulling one or more trailers.

Impose a VMT Tax. Instituting a tax on vehicle miles traveled would charge all vehicles for their highway use regardless of the vehicle's fuel efficiency or energy source, but doing so would present several challenges. A VMT tax would be more costly to administer than the current excise taxes on fuels. In addition, such a tax would raise privacy concerns if calculating and collecting the tax required the government to track people's movement and use of vehicles. Apart from those challenges, a VMT tax has implications for equity that are similar to those of fuel taxes—namely, the burden, relative to income, is greatest for lower-income households because the money paid in taxes for highway use would constitute a larger share of their total income than of higher-income households' total income.

Limiting a VMT tax to only commercial trucks would raise fewer of those concerns. Because many trucking companies already track their vehicles, implementing a VMT tax on only commercial trucks would require overcoming fewer administrative and privacy hurdles than implementing such a tax on all vehicles would.

To establish a truck VMT tax, lawmakers would have to consider three sets of questions:

- Which types of trucks would be subject to the tax, and travel on which roads would be subject to the tax?
- What would the rates be for different trucks and for different roads?
- How would the tax be assessed, and how would payments be made?

Establishing and operating a program to collect a VMT tax on commercial trucks would entail not only costs to set up the program, including capital costs for new equipment, but also ongoing administrative and enforcement costs that are likely to be higher than the costs to administer fuel taxes. Whereas gasoline and diesel taxes can be administered at low cost because they are collected from a small number of firms (the taxes are assessed at roughly 1,300 fuel distribution terminals nationwide, and the number of distinct firms is smaller), a VMT tax would be collected from truck owners and thus would have a larger share of its gross revenues offset by implementation costs.¹⁴

In a 2019 analysis, CBO considered the effects on revenues of several possible formulations of a VMT tax on commercial vehicles.¹⁵ One example suggested that if a 5 cent tax per mile traveled by trucks had been in place in 2017, it would have generated between \$4 billion and \$13 billion in revenues that year, depending on the types of trucks and roads that the tax applied to. If a per-mile tax was applied to all commercial trucks on all roads, each additional cent of tax would generate \$2.6 billion. Taxing all trucks, including box and large pickup trucks, would raise more revenues than taxing only combination trucks. Similarly, revenues would be greater if the tax applied to travel on all public roads than they would be if it applied only to travel on Interstates or on Interstates and arterial roads (see Table 1).

Those estimated revenues do not include any offset to account for reduced revenues from income and payroll taxes. Such an offset, which CBO and JCT employ when estimating the effects of legislative proposals that would raise excise tax revenues, would vary over time, depending on tax rates and economic projections. In calendar year 2021, the offset is 21 percent.¹⁶

More recently, JCT has estimated the change in federal revenues that would result from imposing a new excise

14. Internal Revenue Service, "Terminal Control Number (TCN)/ Terminal Locations Directory" (accessed September 10, 2019), <https://go.usa.gov/xV5PB>.

15. See Congressional Budget Office, *Issues and Options for a Tax on Vehicle Miles Traveled by Commercial Trucks* (October 2019), www.cbo.gov/publication/55688.

16. Joint Committee on Taxation, *Updated Income and Payroll Tax Offsets to Changes in Excise Tax Revenues for 2021–2031*, JCX-11-21 (February 23, 2021), www.jct.gov/publications/2021/jcx-11-21/.

tax of 30 cents per mile on freight transport by heavy trucks, starting January 1, 2022. Such a tax, applied only to certain heavy trucks while carrying freight, would increase net revenues to the federal government by \$33 billion in 2023, the first full year it would be in place. From 2022 through 2031, federal revenues would increase by \$337 billion.

Those estimates, which are net of reductions in income and payroll tax receipts that would partially offset the increase in excise taxes, reflect an assumption that an effective administrative framework is in place when the tax goes into effect. That would be challenging, however. Such a framework would require that an electronic device that was either acquired by taxpayers or built into vehicles by manufacturers be used to track miles. Furthermore, the information logged by the device would need to be securely and accurately transmitted to the Internal Revenue Service (IRS), and an independent verification system would be required for successful collection of the tax. If the IRS did not have an effective and automated way to match individual trucks and railcars to particular taxpayers and verify that the miles reported were accurate, some taxpayers might underreport their mileage or fail to report any mileage at all. If effective electronic data matching was not implemented, discrepancies would only be caught by auditing, which requires significant resources. At present, those systems do not exist, and their development would take both time and government resources.

Furthermore, the number of taxpayers and vehicles subject to the tax would be substantial. Many of those taxpayers would have no prior excise tax filing requirement and no experience with the excise tax system. As a result, the IRS would need to undertake significant outreach to educate them about the new tax and the recordkeeping it would require. The amount of revenues collected from a tax on vehicle miles depends greatly on the extent of compliance, and JCT's estimate should be viewed as entirely conceptual, because it does not take into account those factors.

Institute a Fee on Electric Vehicles. Under current law, drivers of EVs pay little or no federal or state fuel taxes. (EVs include plug-in hybrid vehicles, which combine a gasoline engine with a battery-powered electric motor that can be recharged by plugging it into an external electricity source, as well as all-electric vehicles, which run solely on battery power.) In 2019, more than

1.5 million plug-in electric cars and light trucks were on the road—a number that represents 0.6 percent of the stock of light-duty vehicles.¹⁷

Many states have begun charging owners of EVs an annual fee, typically in the range of \$50 to \$200. If in 2019 the federal government had charged an annual EV fee of \$100—comparable to the average amount that drivers of light-duty vehicles would have paid in federal fuel taxes in 2017—it would have raised about \$150 million, CBO estimates, using data from the U.S. Energy Information Administration.¹⁸

Transfer General Revenues. Since 2008, lawmakers have transferred more than \$150 billion from general revenues to the Highway Trust Fund. Most recently, in October 2020, the Continuing Appropriations Act, 2021 and Other Extensions Act (Public Law 116-159) authorized a transfer of \$10 billion to the highway account and \$3 billion to the transit account. Further transfers could supplement the revenues collected from the excise taxes dedicated to highway and transit programs. In CBO's 10-year baseline projections, outlays from the highway account exceed accumulated balances and annual cash inflows in 2022, and so do outlays from the transit account. In the highway account, the cumulative shortfall over the 2022–2031 period is projected to be \$141 billion; the cumulative shortfall in the transit account over the 2022–2031 period is projected to be \$55 billion.

Using general revenues to fund federal highway spending on an ongoing basis would have the effect of decoupling spending from the user charges that pay for that spending, but that approach has two advantages. First, if taxes were increased to pay for highway programs, the incremental costs of collection would be negligible because income taxes and other broad-based taxes are already in place. In addition, compared with several of the other options for increasing the amounts credited to the Highway Trust Fund, funding highways through broad-based taxes would have the advantage of not imposing a larger burden, relative to income, on lower-income households.

17. U.S. Energy Information Administration, *Annual Energy Outlook 2020* (January 2020), Table 39, www.eia.gov/outlooks/archive/aeo20/.

18. U.S. Energy Information Administration, *Monthly Energy Review* (September 2019), Table 1.8, www.eia.gov/totalenergy/data/monthly/previous.php.

Funding highway programs with general revenues instead of taxes on highway users would also have some disadvantages. If spending on other programs was reduced to pay for highway programs, the benefits of highway investments would be at least partially offset by a reduction in the benefits that would have been provided by that other spending. If, instead, lawmakers chose to pay for highway programs by taking on additional debt, such a policy would tend to slow the economy in the long term by reducing the amount of money available for private investment.¹⁹ Finally, if highway spending was less connected to highway-use taxes, users would have a reduced incentive to drive less or to conserve fuel, and any gains in fairness and efficiency from a system in which users pay for the benefits they receive would be reduced or eliminated.

19. See Congressional Budget Office, *The Macroeconomic and Budgetary Effects of Federal Investment* (June 2016), www.cbo.gov/publication/51628.

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