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Surface Transportation Program Reauthorization Issues for Congress

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Summary

The Moving Ahead for Progress in the 21st Century Act (MAP-21; P.L. 112-141), a two-year authorization of federal spending on highway and public transportation programs, surface transportation safety and research, and some rail programs, was set to expire September 30, 2014. The Highway and Transportation Funding Act of 2014 (P.L. 113-159), enacted on August 8, 2014, extended the authorization of the programs and expenditure authority of the highway trust fund through May 31, 2015. The legislation also transfers $10.765 billion to the highway trust fund (HTF), with $9.765 billion from the general fund and $1 billion from the Leaking Underground Storage Tank (LUST) fund.

Nearly all the funding for highways and most of the funding for public transportation is drawn from the HTF. However, the motor fuel taxes that are the main source of HTF revenue no longer raise enough money to support the programs Congress has authorized. Congressional Budget Office projections indicate that the shortfall between revenues and outlays will average roughly $15 billion annually from FY2015 through FY2020. MAP-21 made up most of the difference between motor fuel tax revenue and spending authorization by transferring money from the Treasury general fund to the HTF. As Congress considers surface transportation reauthorization, the funding shortfall is the major issue framing the debate. The alternatives will involve choices among raising motor fuels taxes, cutting spending, finding other revenue sources for the HTF, approving further transfers from the general fund, and seeking to increase private investment in surface transportation infrastructure. MAP-21 made major changes in the program structure for both highways and public transportation. Some of the changes were designed to increase program efficiency by requiring performance measurement and streamlining project development. As these changes are recent, their effectiveness may be difficult to evaluate.

Other issues likely to arise in the reauthorization process include the following:

- whether MAP-21's consolidation and reorganization of highway, public transportation, and surface transportation safety programs are working as intended;
- whether states are maintaining their spending effort to meet highway needs;
- whether the Federal Highway Administration is enforcing federal regulatory requirements;
- whether the greater state control over highway spending decisions enacted in MAP-21 has led to sufficient attention to repairing or replacing deficient bridges;
- whether MAP-21 reductions in the Bus and Bus Facilities Program funding have created difficulties for small transit agencies;
- whether expanding federal credit programs or creating a national infrastructure bank would be useful in meeting transportation infrastructure needs;
- whether the national freight planning process established in MAP-21 should now lead to a major federal initiative related to freight transportation.

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Introduction

Surface transportation authorization acts authorize spending on federal highway and public transportation programs, surface transportation safety and research, and some rail programs. The most recent multiyear authorization for federal surface transportation programs, the Moving Ahead for Progress in the 21st Century Act (MAP-21; P.L. 112-141), reauthorized federal surface transportation programs and activities through September 30, 2014.

MAP-21 authorized roughly $105 billion for FY2013 and FY2014 combined, in addition to $13 billion to be spent during FY2012. It also made a wide variety of changes to federal surface transportation programs.

MAP-21 was extended for eight months on August 8, 2014, by the Highway and Transportation Funding Act of 2014 (P.L. 113-159). The act provided $10.8 billion in transfers to the HTF and extended the policies and funding authorizations of MAP-21 from October 1, 2014, through May 31, 2015. Even so, according to Congressional Budget Office (CBO) estimates, the balance in the highway account of the HTF will approach zero near the end of FY2015, far below the $4 billion level considered prudent.

Surface transportation reauthorization acts typically deal with many programs and activities, from highway safety to grants for transit buses to environmental review of proposed transportation projects. However, funding is likely to be the dominant issue as Congress debates whether to extend MAP-21 or pass a new multiyear bill. There are two reasons this is likely to be the case:

- A large majority of federal surface transportation spending is financed through the highway trust fund (HTF), which is funded mainly by federal taxes on motor fuels. Anticipated revenue from these taxes is projected to be far less than would be required to fund current surface transportation programs. Congress faces the choice of increasing the taxes, reducing the scope of the programs, or identifying other revenue sources to support surface transportation.
- Many of the changes made to surface transportation programs in MAP-21 have been in place for two years or less. Hence, it may be difficult for Congress to determine the effectiveness of those changes and the desirability of making other changes to the programs.

For discussion of the many changes included in MAP-21, see CRS Report R42762, *Surface Transportation Funding and Programs Under MAP-21: Moving Ahead for Progress in the 21st Century Act (P.L. 112-141)*, coordinated by Robert S. Kirk.

Surface transportation reauthorization addresses matters under the jurisdictions of many committees. In the House of Representatives, the Transportation and Infrastructure Committee (T&I) has jurisdiction over the programmatic content of the bill, but the Ways and Means Committee has jurisdiction over the revenue provisions for the HTF and any offsets.[1] In the Senate, the Environment and Public Works Committee (EPW) has jurisdiction over highway programs; the Banking, Housing, and Urban Affairs Committee has jurisdiction over public

[1] In this case, offsets are provisions projected to increase revenue with the intent of keeping general fund transfers to the HTF from increasing the budget deficit.

transportation programs; the Commerce, Science, and Transportation Committee has jurisdiction over the highway safety, truck safety, railroad, and freight provisions; and the Finance Committee has jurisdiction over revenues for the HTF and any needed offsets.[2]

Funding Surface Transportation

Federal surface transportation programs are currently funded primarily through taxes on motor fuels that are deposited in the HTF. The basic fuel tax rates, which are fixed in terms of cents per gallon, have not been increased at the federal level since 1993. Prior to the recession that began in 2007, annual increases in driving, with a concomitant increase in fuel use, were sufficient to keep revenues rising steadily. This is no longer the case. Highway vehicle-miles traveled were lower in 2011 than in any year since 2003, although they have recovered somewhat since then.[3] Future increases in fuel economy standards are expected to suppress motor fuel consumption in the years ahead, even if annual increases in vehicle mileage continue. Congress will confront the mismatch between the desired surface transportation program and the revenues generated by motor fuels taxes as it considers options for reauthorizing the program beyond May 2015. **For more on highway trust fund sufficiency issues, see** CRS Report R42877, *Funding and Financing Highways and Public Transportation*, by Robert S. Kirk and William J. Mallett.

The highway trust fund comprises two separate accounts—highways and mass transit. The primary revenue sources for these accounts are an 18.4-cent-per-gallon federal tax on gasoline and a 24.4-cent-per-gallon federal tax on diesel fuel. Although the HTF has other sources of revenue, fuel taxes provide about 90% of the income to the fund. The transit account receives 2.86 cents per gallon of fuel taxes, with the remainder of the tax revenue flowing into the highway account.[4]

Since the trust fund was created in 1956, Congress has passed legislation to increase motor fuels taxes four times: in 1959 (a 1-cent-per-gallon increase to 4 cents per gallon), 1982 (a 5-cent-per-gallon increase to 9 cents per gallon), 1990 (a 5-cent-per-gallon increase to 14 cents per gallon), and 1993 (a 4.3-cent- per-gallon increase to 18.3 cents per gallon). **For background, see** CRS Report RL30304, *The Federal Excise Tax on Motor Fuels and the Highway Trust Fund: Current Law and Legislative History*, by Sean Lowry.

The federal government generally does not build roads or transit systems; almost all expenditures from the HTF go to reimburse state governments or transit agencies for work on authorized projects. According to CBO projections, revenue flowing into the HTF through 2020 pursuant to existing law will fall far short of the amount needed to sustain the current level of outlays (see **Table 1**). CBO projects that HTF outlays will exceed revenues by an average of just over $15 billion per year, or $91 billion over a six-year period.[5]

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[2] For more detail on jurisdiction see the Rules of the House (Rule X), http://clerk.house.gov/legislative/house-rules.pdf, and Senate, http://www.rules.senate.gov/public/index.cfm?p=RuleXXV.

[3] Bureau of Transportation Statistics, *National Transportation Statistics*, Table 1-35, http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_01_35.html_mfd. Vehicle miles traveled have risen since then see, http://www.fhwa.dot.gov/pressroom/fhwa1430.cfm.

[4] 0.1 cents per gallon of the fuel tax is credited to the Leaking Underground Storage Tank (LUST) fund and is not part of the transportation program.

[5] Factoring in the transfers included in the August 2014 extension legislation (P.L. 113-159), brings down the needed (continued...)

Table 1. Projected HTF Sufficiency: FY2015-FY2020

Billions of Dollars

Fiscal Year	HTF Revenue	HTF Outlays	Difference
2015	38	53	-15
2016	39	53	-14
2017	39	53	-14
2018	39	55	-16
2019	39	55	-16
2020	39	55	-16
Four-year total	155	214	-59
Four-year annual average	39	54	-15
Six-year total	233	324	-91
Six-year annual average	39	54	-15

Source: CBO, *Projections of Highway Trust Fund Accounts Under CBO's August 2014 Baseline*, August 2014. Figures may not add due to rounding.

Notes: Includes combined figures from both the highway account and the mass transit account. The HTF Revenue column includes interest on the HTF balances. Outlays refer to the spending of budget authority. In this case the spending of funds debited from the HTF.

Although the HTF cannot maintain negative balances under current law, CBO projects a cumulative shortfall in both accounts combined in the second half of FY2015, meaning the HTF would not have the money available to reimburse state governments and local transit agencies in a timely fashion.[6] This is what the House Ways and Means Committee and the Senate Committee on Finance face in terms of raising revenues or finding offsets for Treasury general fund transfers, should Congress choose to fund surface transportation at the current baseline level, adjusted for inflation.

Since the HTF currently provides all but about $2 billion of annual spending authorized in the surface transportation act (the main exception being the Federal Transit Administration's New Starts program), these numbers have implications for the size of the program Congress can approve. Shaping a program that could be supported by revenues that now flow into the HTF implies annual highway and transit outlays of roughly $39 billion through 2020, significantly less than FY2014 outlays of roughly $53 billion. It also implies that the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) would have less contract authority to approve projects on which money would be spent in future years.[7]

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transfers or new revenues needed for a six year bill to roughly $85 billion. A four year bill would require $52 billion.

[6] CBO, *Highway Trust Fund projections: CBO August FY2014*. See also http://www.cbo.gov/sites/default/files/cbofiles/attachments/45132-Transportation.pdf. According to the U.S. Department of Transportation, a "prudent cash balance" of $4 billion in the highway account and $1 billion to $2 billion in the mass transit account are needed to prevent the HTF balances from approaching zero.

[7] Contract authority is a type of budget authority that is available for obligation even without an appropriation (although appropriators must eventually provide liquidating authority to permit the eventual outlays). Contract authority is the type of budget authority used by the HTF.

Addressing the Funding Gap

The projected funding gap is equal to nearly 40% of projected annual HTF revenue. The policy alternatives fall into three categories. One involves reducing spending by narrowing the scope of or eliminating federal surface transportation programs. A second alternative is to transfer money from the Treasury general fund into the HTF, or even eliminate the HTF and fund transportation programs directly from the general fund; Congress approved $18.8 billion of general fund transfers in MAP-21 and additional $10.8 billion in general and LUST fund transfers in extension legislation in 2014. Revenue provisions were included to offset the impact of the transfers on the general fund. A third alternative is to authorize other sources of revenue for the HTF. Among the revenue-raising proposals that have received the most attention are the following:

- raising the existing motor fuels taxes to adjust for the loss of value since the rates were last set in 1993, indexing the future rates to inflation, and including adjustments for future increases in fuel efficiency;
- replacing the existing fuels taxes with a national sales tax on motor fuels or a national tax levied on oil at the refinery level, so that revenues would increase with price increases (although they may also fall if prices decrease);
- imposing a charge based on vehicle miles traveled (VMT) instead of or in addition to motor fuels taxes, in order to tie each vehicle's annual payment more directly to road use;
- imposing a variety of additional federal taxes dedicated to surface transportation, such as a freight container tax, a sales tax on automobiles, a federal vehicle registration fee, or import duties;
- directing revenues from new energy leasing and production offshore and on federal lands to the HTF; and
- directing revenues produced through reform of the tax code to the HTF.

Program Structure

Federal-Aid Highway Programs

The federal government has provided some form of highway funding to the states for over 100 years. The major characteristics of the federal highway program have been constant since the early 1920s. First, most funds are apportioned to the states by formulas established in law, and implementation is left primarily to state departments of transportation (state DOTs). Second, the states are required to provide matching funds for each project. The federal share is now 80% for non-Interstate system road projects and 90% for Interstate system projects. Third, generally, federal money can be spent only on designated federal-aid highways, which make up about a quarter of U.S. public roads.

The Federal-Aid Highway Program (FAHP) is an umbrella term for the separate highway programs administered by FHWA. MAP-21 authorized $40.9 billion for FY2013 and $41.0 billion for FY2014 for FAHP. These programs are almost entirely focused on highway construction and generally do not support operations. Each state is required to have a Statewide Transportation Improvement Program, which sets priorities for the state's use of FAHP funds.

State DOTs largely determine which projects are funded, let the contracts, and oversee project development and construction.

Under MAP-21, 92% of FAHP funding is distributed through five core programs plus some additional funding for Metropolitan Transportation Planning (see **Table 2**). All five are formula programs, meaning that each state's share of each program's total annual authorization is based on a mathematical calculation set out in the law. The remaining programs, generally referred to as discretionary programs, are administered more directly by FHWA. The FAHP does not provide money in advance. Rather, a state receives bills and often pays upfront for work completed, and then submits vouchers for reimbursement to FHWA.[8] **For more on the FAHP, see** CRS Report R42793, *Federal-Aid Highway Program (FAHP): In Brief*, by Robert S. Kirk.

Table 2 shows the dollar amounts of the aggregate programmatic split under MAP-21.[9]

Table 2. Apportioned Programs (Contract Authority)

Millions of Dollars

Program	FY2013	FY2014	Total
National Highway Performance Program (NHPP)	21,752	21,936	43,687
Surface Transportation Program (STP)	10,005	10,090	20,095
Highway Safety Improvement Program (HSIP)	2,390	2,411	4,801
Congestion Mitigation & Air Quality Improvement Program (CMAQ)	2,209	2,228	4,437
Metropolitan Transportation Planning	312	314	626
Transportation Alternatives (TA)	809	820	1,629
Total	**37,477**	**37,798**	**75,275**

Source: Federal Highway Administration.

Notes: P.L. 113-159 authorized 243/365 of the funds authorized for FY2014 for the period October 1, 2014, to May 31, 2015.

The Public Transportation Program

Federal assistance to public transportation is provided primarily through the public transportation program administered by FTA. MAP-21 authorized $10.6 billion for the federal public transportation program in FY2013 and $10.7 billion in FY2014. The Highway and Transportation Funding Act of 2014 extends the FY2014 authorized funding level though May 31, 2015.

FTA administers six major programs: (1) Urbanized Area Formula, accounting for 42% of the funding authorized; (2) State of Good Repair, 20%; (3) New Starts, 18%; (4) Rural Area Formula, 6%; (5) Bus and Bus Facilities Formula, 4%; and (6) Enhanced Mobility of Seniors and

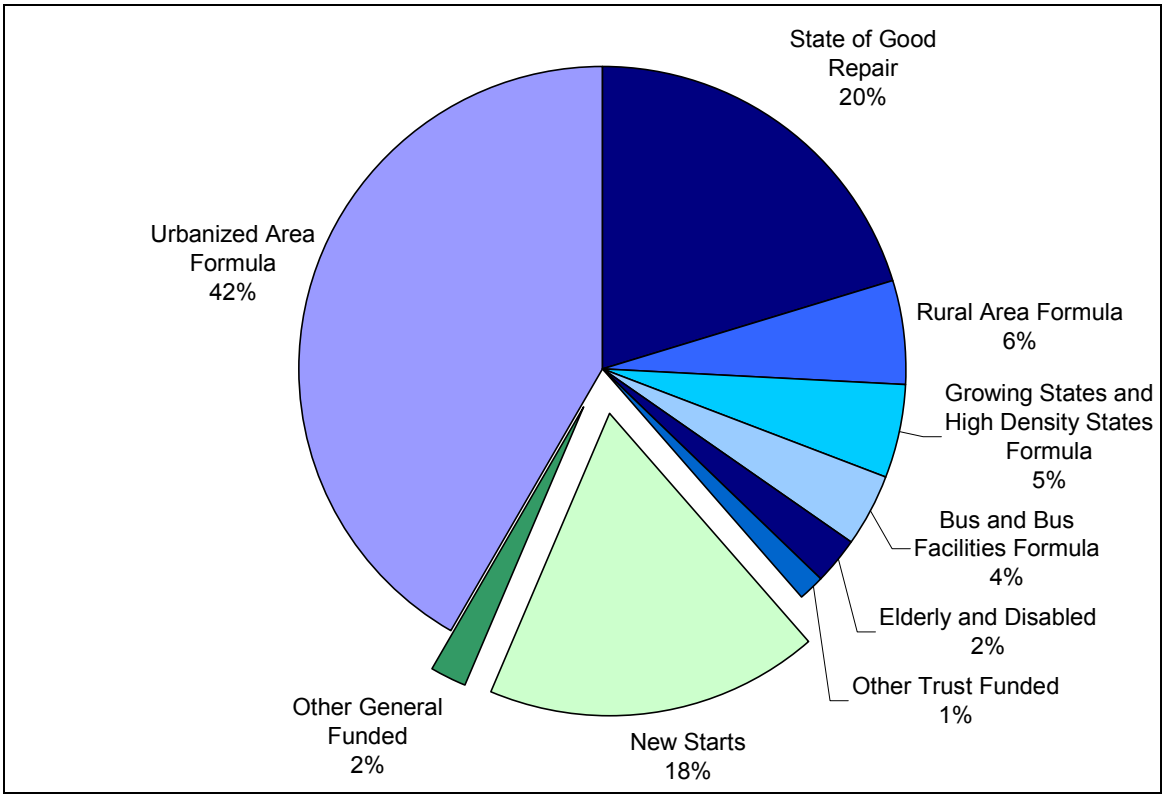
[8] Federal Highway Administration, *Financing Federal-Aid Highways*, FHWA-PL-07-017, Washington, DC, March 2007, pp. 17-18, http://www.fhwa.dot.gov/reports/financingfederalaid/financing_highways.pdf.

[9] Federal Highway Administration, *MAP-21: Federal Highway Administration; Funding Tables*, Washington, DC, 2012, http://www.fhwa.dot.gov/map21/funding.cfm. This site includes tables that set forth the estimated apportionments over the life of MAP-21 on a state-by-state basis.

Individuals with Disabilities, 2%. About 5% of the public transportation program funding, $519 million in FY2013 and $526 million in FY2014, was authorized for the Growing States and High Density States Formula. This is not a program per se, but provides additional money to some places and is distributed through the Urbanized and Rural Area Formula Programs. The remaining share of funding, about 3%, goes for such things as planning, research, and FTA operations (**Figure 1**). **For more on FTA programs, see** CRS Report R42706, *Federal Public Transportation Program: In Brief*, by William J. Mallett.

Figure 1. Federal Public Transportation Program Funding Shares

Funding Authorized, FY2013-FY2014



Source: Federal Transit Administration, *MAP-21 Fact Sheet: Funding Summary*, http://www.fta.dot.gov/documents/FTA_Funding_Summary_Fact_Sheet.pdf.

Other Programs

A number of other U.S. Department of Transportation (DOT) programs are also included in surface transportation authorization acts. These include highway safety, motor carrier safety, transportation research, and some elements of rail transportation. These programs' reauthorization issues are discussed later in this report.

MAP-21's Legacy

MAP-21 made major structural changes in the structure and management of the highway and public transportation programs. Limited experience makes the effects of these changes difficult to judge. Among the open questions are the following:

- Has program elimination and consolidation under MAP-21 met its intended goals of increasing the focus and efficiency of federal spending on the nation's roads, bridges, and public transportation systems?
- Have the MAP-21 changes meant to accelerate the process of project delivery decreased the time it takes to develop and complete highway and public transportation capital projects?
- Has the emphasis in MAP-21 on the use of performance measures at the national, state, and metropolitan levels made a difference in project selection, construction, and maintenance?
- Has the absence of earmarks in MAP-21 had the intended effect of improving state and local governments' abilities to set priorities for use of federal transportation funds?

Highway Issues in Reauthorization

Highway Conditions

The most recent DOT report on the condition of the National Highway System, based on 2010 data, found that the average quality of pavement had improved since 2000. Further, DOT found that annual spending by all levels of government in 2010 was between $14 billion and $35 billion *more* than would be need to be spent annually between 2010 and 2030 to maintain highway conditions and performance.[10] This represents a significant change from DOT's finding in its previous report on highway conditions, published in 2012, that annual spending by all levels of government was $10 billion *less* than needed to maintain highway condition and performance.

DOT now estimates that implementing all highway investments justified by cost/benefit analysis over a 20-year period would require total local, state, and federal spending of $24 billion to $46 billion above the 2010 level. By comparison, its 2012 report estimated that it would cost an additional $79 billion annually to implement all projects justified by cost/benefit analysis. Some of the change is attributable to the $11.9 billion of capital highway spending in 2010 from the American Recovery and Reinvestment Act (ARRA: P.L. 111-5), passed in 2009. Including the ARRA funds, total highway capital spending in 2010 was $100.2 billion. The projections also are lower in part because of an 18% drop in highway construction prices from 2008 to 2010.[11]

[10] A range is calculated based on differing estimates of vehicle miles of traveled (VMT), average annual growth of 1.36% for the lower estimate and 1.85% for the higher estimate.

[11] Federal Highway Administration and Federal Transit Administration, *2013 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, 2014, p. ES-1, http://www.fhwa.dot.gov/policy/2013cpr/pdfs/es.pdf. See also *2010 Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance*,
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Highway Bridge Improvement

Although the number of deficient bridges has been gradually declining since the first federal bridge program was established in 1970, as of 2013 there were still 64,000 structurally deficient bridges in the United States. MAP-21 eliminated the free-standing Highway Bridge Program, which distributed federal money specifically for bridge improvements. Instead, states may now use funds received under the National Highway Performance Program and the Surface Transportation Program for bridges, and each state may decide how much of its funding to devote to bridges rather than roadways. MAP-21 (§1111) also required FHWA to develop a system to classify bridges according to "serviceability, safety, and essentiality for public use." States are to use the system to assign each bridge a risk-based priority for "systematic preventative maintenance, replacement or rehabilitation." However, MAP-21 made no connection between the rating system and eligibility for funding, so states may or may not use the classification criteria to set spending priorities. **For more on bridges, see** CRS Report R43103, *Highway Bridge Conditions: Issues for Congress*, by Robert S. Kirk and William J. Mallett, and CRS video WVB00009, "Are America's Bridges Falling Down?," by Robert S. Kirk and Marc Levinson.

Tolling Issues

Tolling of non-Interstate federal-aid highways has been allowed since 1992. MAP-21 provided for a modest broadening of tolling of currently toll-free Interstate Highways. Totally new Interstate routes or extensions of existing routes may be built as toll roads. Toll lanes may be added to an existing Interstate route as long as the number of "free" lanes is maintained.

One issue in reauthorization is whether states should be allowed to convert non-tolled segments of the existing Interstate system to toll facilities. This could provide an additional source of revenue for highway construction, but it would impose additional costs on drivers who already paid for the construction of these highways through motor fuels taxes. The federal government has no authority to regulate toll rates, but this could become an issue if tolling is significantly expanded or if the tolling of interstate travelers more than local users becomes commonplace. **For more information, see** CRS Report R43575, *Tolling U.S. Highways*, by Robert S. Kirk.

Donor Status

When motor fuels taxes were the source of nearly all federal spending on highways, some states' highway users paid more in taxes to the HTF's highway account than those states received in federal highway assistance. Members of Congress from these "donor states" often objected to the allocation of funds. The large transfers of Treasury general fund monies to the HTF since FY2008 have meant that since then all states have been "donee states," receiving more from the HTF than their motorists contribute. If Congress acts to tie the HTF more closely to highway use, by eliminating general fund transfers, raising motor fuel tax rates, or imposing new use-based highway charges (such as a charge based on vehicle miles traveled), some states will again become donor states and the donor-donee issue could reemerge.

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http://www.fhwa.dot.gov/policy/2010cpr/.

The Federal-State Partnership Issues

Maintenance of Effort

Since the recession that began in 2007, many states have faced constrained revenues. This put pressure on their legislatures to reduce spending, including spending on surface transportation. This raises the question of whether increased federal spending on highways and public transportation in a new surface transportation act would lead some states and local governments to cut back on their own spending.

There is some evidence that substitution of federal spending for state and local spending has occurred in the past. A 2003 report by the General Accounting Office (now the Government Accountability Office, GAO) found that after Congress increased federal spending on roads for FY1999 to FY2001, some states scaled back their own highway spending.[12] More recent data from the Bureau of Economic Analysis show that the quantity of state and local investment in transportation has declined approximately 11% since 2004,[13] indicating that some states and local governments are cutting back on their own spending on highway and transit projects. Federal expenditures were growing at or above the rate of inflation during much of this period.

FHWA Oversight

In 2012, GAO raised concerns about the close relationships between FHWA's district offices, which are mainly located in state capitals, and state departments of transportation. While GAO found that FHWA benefited from using recognized partnership practices to advance the federal highway program, it also found cases in which the district offices were lax in oversight and reluctant to take corrective action to bring states into compliance with federal requirements.[14] MAP-21 reduced the oversight role of FHWA by allowing states to assume responsibility for large Interstate Highway construction and reconstruction projects unless FHWA determines that a project poses unusual risks. This is part of an effort to focus FHWA oversight on areas of higher risk and opportunity. The implementation of these changes and the effectiveness of FHWA oversight under the new system could be of interest to Congress.

Emergency Relief Program

The Emergency Relief program provides federal assistance to state DOTs for emergency repairs and restoration of federal-aid highway facilities following a natural disaster or catastrophic failure. Congress has long authorized $100 million per year to be spent from the HTF for emergency relief, but has frequently appropriated additional funds following major disasters. The question of whether to increase the annual authorization with the goal of limiting future special appropriations is likely to emerge during the reauthorization debate.

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[12] U.S. General Accounting Office, *Trends in Federal and State Capital Investment in Highways*, GAO-03-744R, June 18, 2003, pp. 4-7, 17, 40-43, http://www.gao.gov/assets/100/91955.pdf. This was a change from the longer-term pattern of 1981-2001, during which increases in state funding on roads outpaced federal increases.

[13] Bureau of Economic Analysis, National Income and Product Accounts, Tables 3.15.3 and 3.15.6, http://www.bea.gov/national/index.htm. Calculated for the years 2004 through 2013.

[14] Government Accountability Office, *Highway Infrastructure: Federal-State Partnership Produces Benefits and Poses Oversight Risks*, GAO-12-474, April 2012, pp. 1-49, http://www.gao.gov/products/GAO-12-474.

States seeking Emergency Relief funds now must consider resilience to climate change in designing and constructing highway and bridge repairs. Resilience is broadly defined as "the capability to anticipate, prepare for, respond to and recover from significant multi-hazard threats with minimum damage to social well-being, the economy and the environment." Using risk-based analyses, this approach is designed to reduce the potential for future losses. However, this policy change could encourage some states to try to use Emergency Relief funding not just to rebuild damaged facilities, but to make improvements that might otherwise have been made with federal formula funds. The same issue has emerged with respect to the Public Transportation Emergency Relief Program created in MAP-21. **For more details, see** CRS Report R43384, *Emergency Relief for Disaster Damaged Roads and Transit Systems: In Brief*, by Robert S. Kirk.

Public Transportation Issues

Program Funding

As with the HTF highway account, the revenue flowing into the mass transit account is not enough to support the current level of expenditures. This has led to a debate about the federal role in public transportation, and specifically whether a greater share of government spending on public transportation should be borne at the state and local levels.

Public transit ridership has been growing in recent years, rising from 9.6 billion trips in 2002 to 10.6 billion trips in 2012. A number of infrastructure needs assessments have estimated a substantial gap between current levels of public transportation capital spending and the amount required to prevent an overall deterioration in the condition of public transportation assets and ultimately operational performance.[15] Although such assessments do not necessarily assume greater federal spending will close the gap, they are sometimes used to support that option.[16]

The most recent DOT report on the condition of highways and transit systems, based on 2010 data, estimated that local, state, and federal spending on transit systems would need to rise $2 billion annually (in 2010 dollars) to achieve a state of good repair. To expand as well as achieve a state of good repair, spending would need to be between $5.5 billion and $8 billion higher, depending on the future rate of growth in transit ridership. DOT estimated that $16.5 billion was spent on public transportation infrastructure in 2010, including $14.2 billion of regular federal, state, and local funds and $2.4 billion from ARRA.[17] Its estimates thus imply annual spending needs in the range of $22 billion to $24.5 billion to maintain transit systems in a state of good repair and provide for expansion as passenger loads increase.

Taking into consideration the backlog of repairs and investment for increased capacity, improved safety, and protection from extreme weather, the American Public Transportation Association (APTA) proposes average annual spending from all sourcing over the FY2015-FY2020 period of

[15] See, for example, National Surface Transportation Policy and Revenue Study Commission, *Transportation for Tomorrow*, Washington, DC, 2007, http://transportationfortomorrow.com/final_report/index.htm.

[16] See, for example, American Public Transportation Association, *APTA Recommendations on Federal Public Transportation Authorizing Law*, Washington, DC, December 2013, http://www.apta.com/gap/legissues/authorization/Documents/APTA%20Authorizing%20Law%20Recommendations_FINAL_adopted%206Dec2013.pdf.

[17] *2013 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, p. ES-1.

$41 billion, unadjusted for inflation. APTA also proposes federal spending average about $17 billion per year over this period, based on its calculation of the federal share since 2000.[18] This is far above authorized spending in FY2014 of $10.7 billion.

Mass Transit Account of the Highway Trust Fund

Linked to the issue of the size of the federal public transportation program is the status of the mass transit account of the highway trust fund. Traditionally, about 80% of the funding for the federal public transportation program has come from the mass transit account and about 20% from the general fund. Outlays from the mass transit account have outpaced tax receipts and interest credited to the fund over the past few years, an imbalance CBO projects will continue in the future under current law.[19] Three times, Congress has chosen to transfer general fund monies into the mass transit account to maintain the balance above a minimum prudent level. In FY2010 $4.8 billion was transferred, and twice in FY2014 money was transferred, both $2.0 billion the first time and $2.0 billion the second time.

According to CBO, outlays from the mass transit account were about $8 billion in FY2014 and are projected to grow to over $9 billion in FY2018. The revenue from the fuels tax for the mass transit account, on the other hand, is about $5 billion a year, an amount that is not expected to change very much at the current tax rate. Revenue from the fuels tax and funds flexed from the highway account—highway program monies states are allowed by law to shift to public transportation uses—together amount to about $6 billion per year in total receipts, excluding transfers from the general fund.

Based on these estimates of receipts and outlays, the balance in the mass transit account will approach zero near the end of FY2015. Any balance below $1 billion would create cash flow problems in the account and may require some kind of administrative action before the end of the fiscal year, such as slowing payments to local transit agencies, or legislative action, such as a general fund transfer. Because of the imbalance between receipts and outlays, a more sustainable solution would have to involve a cut in program spending, an increase in revenues paid in to the account, a combination of the two, or a commitment to ongoing general fund transfers. **For more detail, see** CRS Report R42966, *Public Transportation Program and Funding Issues*, by William J. Mallett.

New Starts Program

New Starts, which supports construction of public transportation systems, is the only major highway or public transportation program not funded through the HTF. A common criticism of the New Starts program is the length of time required to develop and deliver projects, a criticism that several changes in MAP-21 sought to address. An issue in reauthorization, therefore, will likely be whether the changes in MAP-21 do actually speed the project process, and what other effects this may have had on projects. Information, if it exists at all, is likely to be anecdotal given the relatively short period since enactment of MAP-21.

[18] American Public Transportation Association, December 2013, p. 28.

[19] Congressional Budget Office, *Projections of Highway Trust Fund Accounts Under CBO's August 2014 Baseline*.

In addition, MAP-21 changed the types of projects funded. New Starts previously funded only projects to build new systems and extend existing systems. MAP-21 added eligibility for "core capacity projects," investments in *existing* fixed-guideway systems that increase the capacity of a corridor by at least 10%. FTA reserved $120 million in FY2014 for core capacity projects and proposed to reserve another $275 million in FY2015. Core capacity projects are likely to be very large and expensive projects in major urban areas. The first such project proposed for New Starts funding is the Chicago Transit Authority's (CTA) Red and Purple Line modernization project. The estimated cost of the project is $4.7 billion, of which CTA expects to seek $1.5 billion from the core capacity program. Although it is too soon to tell, streetcar and bus rapid transit projects may also become more prominent because of changes in project evaluation criteria under MAP-21. The net result may be to reduce federal funding available for traditional light rail, commuter rail, and heavy rail projects, particularly those in smaller urban areas. **For more from CRS, see** CRS Report R42921, *Public Transportation New Starts Program: Background*, by William J. Mallett.

Bus and Bus Facilities Program

There is concern, particularly among bus-only transit agencies in small urbanized and rural areas, that the Bus and Bus Facilities Program does not provide sufficient help for bus acquisition and bus-related investment needs, such as construction of bus garages. Two changes made in MAP-21 contribute to the concern. First, funding directed specifically to buses was reduced by more than half, from $984 million in FY2012 to $421 million in FY2013 and $428 million in FY2014, although funding for other programs, which can be used for bus investment, was increased. Second, prior to MAP-21, the Bus and Bus Facilities Program was a heavily earmarked discretionary program that provided substantial sums of money to transit agencies at irregular intervals for large capital expenses. MAP-21 directs smaller amounts to be distributed by formula annually. For small urban and rural areas these annual allocations may be too small to provide the resources necessary for substantial bus investments. To deal with these issues, the American Public Transportation Association has suggested "the restoration of funding to the bus and bus facilities program and the return of a transparent and efficient discretionary element of the program."[20]

Financing Issues in Surface Transportation

The lack of growth in highway trust fund revenue has stimulated interest in other means of financing surface transportation infrastructure. The federal government supports infrastructure financing by providing a tax exclusion for owners of municipal bonds, or "munis," issued by state and local governments. Additionally, the federal government supports project finance through loan programs, such as the Transportation Infrastructure Finance and Innovation Act (TIFIA) program, which can help leverage private investment via public-private partnerships (P3s), and through federally authorized state infrastructure banks (SIBs). **For more information, see** CRS Report R43308, *Infrastructure Banks and Debt Finance to Support Surface Transportation Investment*, by William J. Mallett and Steven Maguire.

[20] American Public Transportation Association, December 2013, p. 12.

There are many legislative options that Congress might consider in modifying the federal role in surface transportation financing. Among those that might be considered in the reauthorization of MAP-21 include the following:

- Changes to the TIFIA program, including its level of funding, which was $1 billion in FY2014. This level of funding was continued on a pro-rated basis for 8 months in extension legislation. Demand for credit assistance from TIFIA has been very strong.
- Creation of a national infrastructure bank, a federal agency with financing and project expertise that would provide low-cost, long-term loans on flexible terms. An infrastructure bank might have more independence than TIFIA, which is controlled by the U.S. Department of Transportation, and as a separate organization might be able to build a more specialized staff. Most infrastructure bank proposals provide authority to finance other types of infrastructure systems as well as transportation.
- Enhancement of state infrastructure banks, which already exist in many states. One of the biggest hurdles for state infrastructure banks has been capitalization; thus there have been proposals for dedicated federal funding. Reauthorization might also extend the authority to use federal highway, transit, and rail funds to capitalize state infrastructure banks, authority that MAP-21 failed to provide.[21]
- Greater federal encouragement of public-private partnerships (P3s), including creation of a federal office that could provide technical advice and consulting services and help develop the P3 market. **For more on P3s, see** CRS Report R43410, *Highway and Public Transportation Infrastructure Provision Using Public-Private Partnerships (P3s)*, by William J. Mallett.
- Creation of a new type of tax credit bond, such as the American Fast Forward (AFF) Bonds proposed in the Obama Administration's FY2015 budget. The AFF Bond would be similar to the now expired Build America Bonds (BABs), but would offer a 28% direct payment to issuers, significantly less than the 35% offered by BABs.
- Raising the volume cap on tax-exempt, qualified private activity bonds (PABs) for qualified highway or surface freight transfer facilities. Under current law, the use of PABs for transportation projects is limited to $15 billion for the life of the program. The $15 billion is allocated to specific projects by the Secretary of Transportation based on applications from project sponsors. With several projects in the pipeline, the cap may be reached by the end of calendar year 2015.[22] The inability to issue PABs may affect the creation of transportation infrastructure public-private partnerships. The Obama Administration has proposed increasing the PAB limit to $19 billion.

[21] H.R. 3872/S. 1553 have proposed extending this authority.

[22] *Public Works Financing*, "A Second Warning on PABs Shortage," December 2013, p. 1; *Public Works Financing,* "TIFIA is a Ravenous Beast," March 2014, p.1.

Intercity Passenger Rail Transportation

Historically, intercity passenger rail transportation programs have been dealt with largely outside of surface transportation authorization legislation. The authorization of Amtrak, a passenger railroad company created and owned by the federal government, expired at the end of FY2013, which creates an opportunity to include its authorization in the next surface transportation reauthorization legislation. The attraction of this idea to supporters of rail is the related possibility of providing funding from the highway trust fund for rail programs. Their argument reflects that made by highway and transit supporters: that the predictable funding stream provided by multiyear authorizations from the HTF would enable more efficient planning and project delivery, compared to the year-to-year uncertainty of discretionary funding.

Opponents of funding Amtrak through the HTF typically argue for limiting trust fund spending to highways whose users fund it through their motor fuels taxes. The fact that large amounts of Treasury general fund revenues have been transferred to the HTF in recent years weakens the link between motor fuel tax payments and spending from the trust fund. Nonetheless, given that the funds now flowing into the HTF are inadequate to support the current highway and transit programs, it may not be realistic to expect the HTF to support intercity passenger rail as well without additional sources of revenue.

Federal spending for intercity passenger rail transportation expanded greatly with the Passenger Rail Investment and Improvement Act of 2008 (P.L. 110-432), which authorized increased funding for Amtrak and for states wishing to develop intercity passenger rail service. In 2009, ARRA provided $8 billion for grants to states to develop intercity passenger rail service, and another $2.5 billion for this purpose was included in the FY2010 DOT appropriations act. Since FY2010, however, Congress has provided no additional funding for intercity passenger rail development and rescinded $400 million of the previously authorized funds. Since FY2010, virtually the only passenger rail funding Congress has provided has been grants to Amtrak.

In a sign of its intention to keep intercity passenger rail authorization separate from highway and transit reauthorization, the House, Transportation and Infrastructure Committee reported an Amtrak reauthorization bill (H.R. 5449) in September 2014. The bill would authorize funding for Amtrak through FY2018 at levels similar to its current funding, would authorize $300 million annually for grants to states to support passenger rail improvements, and would encourage improvements to the Northeast Corridor, the most heavily used passenger rail route in the nation. **For more details, see** CRS Report R42889, *Issues in the Reauthorization of Amtrak*, by David Randall Peterman and John Frittelli, and CRS Report R42584, *The Development of High Speed Rail in the United States: Issues and Recent Events*, coordinated by David Randall Peterman.

Freight Issues

Truck Size and Weight

No major changes to current truck size and weight provisions were included in MAP-21, but a new study and inventory of current state laws was required.[23] The DOT study, expected to be issued by the November 2014 deadline set by Congress, is to evaluate the costs and benefits of several heavier or larger truck configurations. Among these are increasing the weight limit on five-axle trucks (commonly known as "18-wheelers") from 80,000 to 88,000 lbs., adding a sixth axle and increasing allowable weight to 91,000 or 97,000 lbs., and increasing the maximum length of double 28-foot trailers ("pup" trailers) to 33 feet.[24] Large trucking firms generally support either weight or size increases (depending on the type of freight they carry). Smaller trucking firms, which generally have less financial means to reconfigure their equipment, have generally opposed larger trucks, as have railroads and highway safety groups. The safety implications of truck size and weight are discussed further in the "Motor Carrier Safety Issues" section of this report.

Identifying Highway Segments Critical to Freight Movement

MAP-21 enacted planning provisions to assist states in identifying infrastructure components most critical to freight transport. This includes designation of a "primary freight network" (PFN) consisting of 27,000 centerline miles of existing roadways, based primarily on freight volume. States can designate "critical rural freight corridors" based on the density of truck traffic if they connect the PFN or Interstate system with sufficiently busy freight terminals. There is no specific federal funding associated with these designations.

FWHA has released a draft version of its proposed PFN.[25] It found that, based on volume criteria, the primary freight network may more appropriately consist of 41,000 centerline miles, more than Congress directed, and should encompass critical urban freight corridors in addition to rural highways. FHWA has pointed out that designation of particular highways based on freight volume does not allow for inclusion of nearby parallel highways or routes that, if included, could better encompass the busiest origin and destination pairs.[26] **For more, see** CRS Report R42764, *Federal Freight Policy: In Brief*, by John Frittelli.

Transportation Impacts of Domestic Energy Production

The rapid increase of U.S. oil and natural gas production due to new drilling techniques (namely horizontal drilling and hydraulic fracturing) has raised safety concerns about roads near the

[23] Federal truck weight limits apply only to Interstate Highways. Federal truck size regulations apply to the "National Network," a system of approximately 209,000 miles, which includes the Interstate Highway system plus principal arterial highways designated by the states and incorporated in federal regulations (23 C.F.R. §658).

[24] For further information on the study, see http://ops.fhwa.dot.gov/freight/sw/map21tswstudy/index.htm.

[25] For the draft PFN and public comments filed, see http://www.regulations.gov, docket no. FHWA-2013-0050.

[26] Presentation of FHWA on Draft PFN, *Talking Freight Seminar,* November 20, 2013; http://www.fhwa.dot.gov/planning/freight_planning/talking_freight/index.cfm#archives.

drilling sites and about oil tanker cars in trains travelling through populated areas. A Pipelines and Hazardous Materials Safety Administration (PHMSA) grant program for training local responders was included in MAP-21.[27] In reauthorizing this grant program, Congress may review PHMSA's progress in addressing the DOT Inspector General's criticisms of how PHMSA was administering the program. Congress may also revisit the hazardous materials transportation requirements and rural road safety programs in MAP-21.[28]

Also in Title III of MAP-21, Congress authorized PHMSA to conduct pilot projects on paperless hazmat information sharing among transportation carriers and first responders.[29] Particularly when trains are carrying a variety of different products, it is important to first responders that they have an accurate list of which cars contain what commodities (the train "consist"). Often the sequencing of cars changes en route, so the train consist prepared at the start of the trip may no longer be accurate at the time of an accident. Congress requested that PHMSA issue a report on the pilot program by July 2014 with a recommendation as to whether paperless hazmat information systems should become a requirement.

A natural gas or oil drilling site may require 1,500 or more truck trips per well to supply drilling materials and remove wastewater.[30] In the Bakken region of North Dakota, there are currently about 10,000 wells; over the next 30 years, 40,000 to 70,000 additional wells are projected.[31] Trucks servicing well sites are relatively heavy and many require overweight or oversize vehicle permits. Roads used to access the sites typically were not built for heavy truck traffic, raising concerns about road damage and increases in traffic deaths. However, state and local governments may be reluctant to invest in permanent road improvements because individual well sites may be productive for less than five years. In MAP-21, Congress identified and defined "high risk rural roads" as eligible for funding under the Highway Safety Improvement Program, and FHWA mandates that states spend specified amounts on these roads if their fatality rates increase.[32] The condition of roads in oil drilling areas and the extent to which drilling companies contribute to the costs of maintaining the roads they utilize may emerge as issues in reauthorization.[33]

The safety of trains carrying crude oil and ethanol from production areas to refineries has emerged as a major concern in the wake of numerous accidents in the United States and Canada. U.S. and Canadian regulators have implemented various changes in railroad operations, and have paid particular attention to the ability of railroad tank cars to withstand derailments and other

[27] http://www.phmsa.dot.gov/hazmat/grants.

[28] DOT IG, *PHMSA's Inadequate Management and Oversight of Hazardous Materials Emergency Preparedness Grants Limited The Program's Effectiveness*, report no. AV-2012-040, January 12, 2012.

[29] P.L. 112-141, §33005.

[30] For oil wells, this number of truck trips does not include trips for hauling crude oil from the drill site.

[31] Denver Tolliver, Upper Great Plains Transportation Institute, "Transportation Systems for Oil and Gas Development: Case Study of the Bakken Shale," presentation to the 93rd Annual Meeting of the Transportation Research Board, January 2014. For the experience of well sites in Texas and Pennsylvania, see FHWA, *Talking Freight Seminar,* "The Transportation Needs and Impacts of Fracking-Based Energy Extraction," September 18, 2013; http://www.fhwa.dot.gov/planning/freight_planning/talking_freight/september_2013/index.cfm.

[32] 23 C.F.R. §924.

[33] The Transportation Research Board recently surveyed state DOTs to synthesize issues and practices associated with the impact of energy development on roads and bridges. See http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=3587.

accidents, but there have been calls for additional legislation.[34] Separately, some railroads have indicated they will be unable to install a congressionally mandated safety system, positive train control, by the December 31, 2015, deadline.[35] In the past, Congress has generally addressed rail safety in separate legislation, but provisions on these issues could be incorporated into surface transportation reauthorization.

The availability of natural gas from domestic sources has increased interest in liquefied natural gas (LNG) as fuel for trucks and locomotives. While LNG is widely used for fleets of trucks that return daily to the same depot, its use in long-haul trucks is a new development. In MAP-21, Congress amended the Congestion Management and Air Quality (CMAQ) program to allow funds to be used to construct natural gas fueling stations for trucks. Increased use of LPG as fuel may create new training needs for local responders to truck or rail accidents.

Highway Safety

Highway safety in the United States has improved in recent years, but it is not clear how much of the decline in fatalities is due to highway safety efforts as opposed to reductions in the amount of driving or to improvements in vehicle safety technologies.

Measures to improve the safety of roadways are funded primarily through the FHWA Highway Safety Improvement Program. Measures related to vehicles and to driver behavior are handled by the National Highway Traffic Safety Administration (NHTSA) and, in the case of commercial vehicles and drivers, the Federal Motor Carrier Safety Administration (FMCSA). Both NHTSA and FMCSA conduct research and make grants to states to promote safety. **For more on highway and motor carrier safety programs, see** CRS Report R43026, *Federal Traffic Safety Programs: In Brief*, by David Randall Peterman.

Driver behavior is the primary factor in the vast majority of fatal crashes. The driver behaviors which are most significantly related to traffic fatalities are driving while impaired, speeding, not wearing a seat belt, driver distraction, and in the case of motorcyclists, not wearing a helmet. Driver behavior is a state matter, not under federal control. Consequently, when Congress wishes to change driver behavior, it typically does so by providing grants to states.

In MAP-21, Congress renewed several existing state grant programs and created new grant programs dealing with distracted driving and graduated driver licensing for teens. Congress also consolidated the application process for the various safety grants and prohibited the use of federal highway safety funds to purchase, operate, or maintain automated speed or red light enforcement cameras.

Motor Carrier Safety Issues

MAP-21 included provisions requiring commercial drivers to use electronic data logs to record hours of service, establishing minimum entry-level training standards, and establishing a national

[34] CRS Report R43390, *U.S. Rail Transportation of Crude Oil: Background and Issues for Congress*, by John Frittelli et al.

[35] CRS Report R42637, *Positive Train Control (PTC): Overview and Policy Issues*, by John Frittelli.

clearinghouse for drug and alcohol test results. It also imposed new safety requirements for motorcoaches. Due to the number of new initiatives and the requirements of the federal rule-making process, many of these initiatives have not yet been implemented.

One issue likely to arise in reauthorization concerns FMCSA's new Compliance, Safety, Accountability (CSA) program, which uses violation data from audits and roadside inspections to focus compliance reviews on operators who appear to pose greater safety risks. CSA is intended to be more effective than random audits in identifying potential safety problems, but there have been industry complaints about this new approach. In February 2014, GAO issued a report with recommendations for improving the system.[36]

In 2005, Congress limited the ability of FMCSA and state officials to pull motorcoaches off the road for safety inspections. En-route inspections are now allowed to be performed only at locations where there are facilities for passengers, such as rest stops, except in an emergency. Safety officials, citing several motorcoach crashes due to defective brakes, would like to expand roadside inspections, but the motorcoach industry supports the current restriction, noting that stopping a bus at the side of a road can create a safety risk and disrupt schedules.

Recall Policy Issues

Interest in revising federal motor vehicle safety regulation has increased in light of a surge in vehicle recalls in 2014 and congressional hearings about General Motors's recall of more than 25 million vehicles, many for ignition switch problems that led to fatalities. Legislation has been introduced to change the way in which recalls are conducted, expand public access to NHTSA motor vehicle databases and defective vehicle inspections, and increase fines if automakers were found to be hiding defects. Other legislation would ensure that rental and used cars subject to a recall would be repaired before they were rented, leased or sold. There is also interest in raising civil and criminal penalties for violations of federal safety regulations, and possibly transferring authority to seek such legal penalties from the Department of Justice to NHTSA.

Environmental Issues

Streamlining Environmental Reviews

FHWA and FTA are prohibited from approving a project for funding until the project sponsor demonstrates that the proposed project will comply with all applicable federal, tribal, and state requirements. To the extent possible, compliance with applicable environmental requirements must be identified and documented during the environmental review stage of project development.

Broadly, environmental review involves two separate, but related processes—identifying and evaluating the environmental impacts of a project, as required under the National Environmental Policy Act (NEPA, 42 U.S.C. §4321 et seq.), and identifying and demonstrating compliance with

[36] GAO, Federal Motor Carrier Safety: *Modifying the Compliance, Safety, Accountability Program Would Improve the Ability to Identify High Risk Carriers*, GAO-14-114, February 2014.

any additional state, tribal, or federal environmental requirements applicable to that project. **For more detail, see** CRS Report R42479, *The Role of the Environmental Review Process in Federally Funded Highway Projects: Background and Issues for Congress*, by Linda Luther.

Previous legislative efforts to streamline project delivery have focused almost entirely on activities related to the environmental review process, particularly requirements necessary to demonstrate compliance with NEPA. Changes to procedures necessary to document compliance with NEPA were included in MAP-21. DOT has just begun to implement those directives[37] and their effectiveness in expediting project delivery is therefore unclear.

The CMAQ Program

The Congestion Mitigation and Air Quality Improvement (CMAQ) program was created to fund projects that help states meet certain air quality standards established under the Clean Air Act.[38] Program funds taken from the HTF are apportioned to a state based on its population and pollution reduction needs. In MAP-21, Congress authorized $2.2 billion in FY2013 and $2.23 billion in FY2014 to be apportioned to the program. Program requirements also specify the types of projects eligible to receive CMAQ funds. Generally, program funds may be used for projects likely to achieve air quality standards by reducing certain vehicle emissions.[39] Congress has explicitly authorized certain projects to receive CMAQ funds, such as

- traffic monitoring facilities and idle reduction projects, including advanced truck stop electrification systems;
- alternative fuel projects, such as vehicle refueling infrastructure that would support the development, production, and use of emerging technologies to reduce emissions of air pollutants;
- the purchase of diesel retrofits for motor vehicles or non-road engines; and
- bicycle infrastructure and pedestrian walkways that are not exclusively recreational.[40]

FHWA, in July 2014, released revised interim guidance on its CMAQ program implementation to reflect changes to the program required in MAP-21.[41]

[37] The status of DOT implementation of the various NEPA-related requirements is available on the agency's MAP-21 website, http://www.fhwa.dot.gov/map21/crossref.cfm; also see FHWA's Report to Congress, "MAP-21 Accelerated Decisionmaking, Expedient Decisions and Reviews, October 1 – December 14, 2012," March 13, 2013, http://www.fhwa.dot.gov/map21/reports/sec1306report.cfm.

[38] Program requirements are codified at 23 U.S.C. §149. Information on various requirements related to Clean Air Act compliance, including information about the CMAQ program, is provided by FHWA's Office of Planning, Environment, and Realty on its "Air Quality" web page at http://www.fhwa.dot.gov/environment/air_quality/.

[39] See criteria codified at 23 U.S.C. §149(b).

[40] See 23 U.S.C. §§149(b)(4)-(5) and (7)-(8) and §217(a) and (i).

[41] See FHWA's CMAQ "Policy and Guidance" web page at http://www.fhwa.dot.gov/environment/air_quality/cmaq/policy_and_guidance/.

Research and Technology

Advanced technology vehicles are supported through federal research and development programs, including NHTSA's work on vehicle-to-vehicle (V to V) communication and automated safety features such as assisted braking, lane departure warnings, and adaptive cruise control. Such changes should shift the emphasis of vehicle design from protecting occupants in the event of a crash to avoiding crashes altogether. It has been estimated that vehicle-to-vehicle communications could prevent up to 80% of accidents that do not involve drunken drivers or mechanical failure.[42] The technology also has the potential to smooth traffic flow and reduce congestion. DOT is participating with the motor vehicle industry on research into connected vehicles (vehicles that are able to communicate with each other at short distances, alerting drivers to the possibility of a crash), while the industry is also pursuing research into crash-avoidance technologies such as in-car sensors that would not require V to V communication. NHTSA is considering whether some of these technologies should be required on all future vehicles.

Current law includes incentives to promote the use of alternative fuel and advanced technology vehicles, some of which pose issues for the highway trust fund. For example, car buyers can take a federal income tax credit of up to $7,500 for purchase of plug-in electric drive vehicles. In 2013, over 96,000 plug-in electric vehicles were sold in the United States, up from about 10,000 in 2011.[43] Plug-in electric vehicles do not use gasoline and do not contribute to the highway trust fund even though they use the same roads as conventional vehicles.

Previous law included tax credits (now expired) for retail stations to install refueling infrastructure for alternative fuels. As part of the surface transportation reauthorization debate, there may be interest in providing incentives for tax-exempt entities (such as transit agencies) to install additional refueling infrastructure, especially if those stations are accessible to the public. The effectiveness of FTA programs that support transit agencies' purchases of alternative fuel and advanced technology buses, including buses with advanced diesel engines, may also be debated.

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[42] Joan Lowy, "Car-to-Car Talk offers Warning on Collisions," *Associated Press*, February 4, 2014.

[43] Electric Drive Transportation Association, "Electric Drive Sales Dashboard," http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952. In 2013, 15.5 million vehicles were sold domestically; in 2011, 12.7 million were sold.