Congressional Budget Office
Cost Estimate

February 7, 2024

At a Glance

S. 576, Railway Safety Act of 2023

As reported by the Senate Committee on Commerce, Science, and Transportation on December 13, 2023

By Fiscal Year, Millions of Dollars	2024	2024-2028	2024-2033
Direct Spending (Outlays)	0	25	73
Revenues	*	127	326
Increase or Decrease (-) in the Deficit	*	-102	-253
Spending Subject to Appropriation (Outlays)	4	102	not estimated

Increases *net direct spending* in any of the four consecutive 10-year periods beginning in 2034?	< $2.5 billion	Statutory pay-as-you-go procedures apply?	Yes
		Mandate Effects	
		Contains intergovernmental mandate?	Yes, Under Threshold
Increases *on-budget deficits* in any of the four consecutive 10-year periods beginning in 2034?	No	Contains private-sector mandate?	Yes, Under Threshold

* = between -$500,000 and $500,000.

The bill would

- Create a revolving fund to provide federal assistance to local emergency responders after spills of hazardous materials
- Increase mandatory funding for emergency preparedness grants related to the transport of hazardous materials; spending for those grants would be offset by fees collected from carriers
- Increase civil penalties associated with railroad safety violations
- Authorize appropriations for grants for safety research and the installation of railroad safety systems
- Impose intergovernmental and private-sector mandates by requiring railroad owners to install safety systems, phase out older tank cars, and meet other requirements

Estimated budgetary effects would mainly stem from

- Revenues from the increased collections of civil penalties
- Direct spending from the new revolving fund
- Amounts authorized to be appropriated

Areas of significant uncertainty include

- Determining the frequency and severity of emergencies
- Determining the effect of higher civil penalties on deterring safety violations

Detailed estimate begins on the next page.

See also
CBO's Cost Estimates Explained, *CBO Describes Its Cost-Estimating Process*, *Glossary*

Bill Summary

S. 576 would create a revolving fund for the Department of Transportation (DOT) to respond to certain rail carrier and motor carrier accidents involving hazardous materials. The bill also would increase mandatory authorizations for grant programs that fund emergency preparedness for accidents involving hazardous materials. In addition, S. 576 would increase civil penalties for rail carriers that violate federal safety requirements.

The bill would authorize appropriations for the Federal Railroad Administration (FRA), within DOT, to develop new safety systems and to make grants to railroads for research, development, and installation of train defect detectors and other safety features for trains and railroads. (Defect detectors measure a train's speed and the heat caused by friction on the tracks, which can signal a potential derailment.)

S. 576 would impose new restrictions on rail carriers and require the FRA to complete studies, issue regulations, and update its processes for monitoring the safety of rail carriers. Finally, the bill would require various reports and other administrative actions.

Estimated Federal Cost

The estimated budgetary effect of S. 576 is shown in Table 1. The costs of the legislation largely fall within budget function 400 (transportation).

Basis of Estimate

For this estimate, CBO assumes that S. 576 will be enacted near the beginning of calendar year 2024 and that the specified and estimated amounts will be appropriated each year. In addition, CBO expects that DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) would offset the increase in mandatory authorization levels for certain grant programs by increasing fees paid by companies that transport hazardous materials.

Table 1.
Estimated Budgetary Effects of S. 576

	By Fiscal Year, Millions of Dollars					
	2024	2025	2026	2027	2028	2024-2028
			Increases in Direct Spending			
Estimated Budget Authority	3	5	7	12	13	40
Estimated Outlays	0	3	6	8	8	25
			Increases in Revenues			
Estimated Revenues	*	17	38	36	36	127
			Net Decrease in the Deficit From Changes in Direct Spending and Revenues			
Effect on the Deficit	*	-14	-32	-28	-28	-102
			Increases in Spending Subject to Appropriation			
Estimated Authorization	41	25	24	24	4	118
Estimated Outlays	4	19	23	28	28	102

* = between -$500,000 and $500,000.

Direct Spending and Revenues

S. 576 would create a program to provide financial assistance to communities in the event of certain hazardous-materials spills. The bill also would increase mandatory funds available for PHMSA grants. CBO estimates that enacting S. 576 would increase net direct spending by $73 million over the 2024-2033 period.

In addition, CBO estimates that enacting S. 576 would increase revenues by $326 million over the 2024-2033 period, largely from increases in civil penalty collections (see Table 2).

Emergency Response Assistance Program. Section 204 would create a revolving fund to reimburse communities for the cost of responding to spills of hazardous materials caused by a transportation carrier. The costs would be paid either under an agreement with the responsible party or in the form of federal payments. When the government makes those payments, the bill would require the responsible party to reimburse DOT for the costs of the emergency response. In general, a community could receive the funds from the government if it is unable to come to a reimbursement agreement with the responsible party.

Deposits into the revolving fund would come largely from penalties collected from transportation carriers who violate certain requirements related to hazardous materials. Under current law, those collections are deposited into the Treasury's general fund and are not available to be spent. In 2022, about $5 million was collected in such penalties. The reimbursements received by the government from responsible parties also would be deposited into the fund.

Table 2.
Estimated Changes in Direct Spending and Revenues Under S. 576

	By Fiscal Year, Millions of Dollars											
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2024-2028	2024-2033
Increases or Decreases (-) in Direct Spending												
Emergency Response Assistance Program												
Estimated Budget Authority	3	5	7	12	13	13	13	13	14	14	40	107
Estimated Outlays	0	3	8	9	9	9	9	10	10	10	29	77
Emergency Preparedness Grants[a]												
Estimated Budget Authority	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Outlays	0	0	-2	-1	-1	0	0	0	0	0	-4	-4
Total Direct Spending												
Estimated Budget Authority	3	5	7	12	13	13	13	13	14	14	40	107
Estimated Outlays	0	3	6	8	8	9	9	10	10	10	25	73
Increases in Revenues												
Emergency Response Assistance Program												
Estimated Revenues	0	0	1	4	5	5	5	5	6	6	10	37
Increased Penalties for Safety Violations												
Estimated Revenues	*	17	37	32	31	32	33	34	36	37	117	289
Total Revenues												
Estimated Revenues	*	17	38	36	36	37	38	39	42	43	127	326
Net Decrease in the Deficit From Changes in Direct Spending and Revenues												
Effect on the Deficit	*	-14	-32	-28	-28	-28	-29	-29	-32	-33	-102	-253

PHMSA = Pipeline and Hazardous Materials Safety Administration; * = between -$500,000 and $500,000.

a. Beginning in 2024, S. 576 would increase by $3 million the annual funding for emergency preparedness grants made by PHMSA. CBO expects that, beginning in 2026, the agency would increase fees to offset that additional spending. CBO further expects that PHMSA would not increase mandatory spending on emergency preparedness grants until those fees are collected. Because of the expected lag between when the fees would be collected and the grant spending would occur, CBO estimates that the provision would reduce net direct spending by $4 million over the 2024-2033 period.

Direct Spending. Using information from DOT, CBO anticipates that about 80 incidents will occur each year over the 2024-2033 period and that the average cost to respond to each one will be about $230,000. (The distribution around that average is skewed towards incidents with higher costs, such that the costs of responding to the severest incidents are probably significantly greater. CBO expects that the cost to respond to most incidents would probably be less than $230,000, but for the worst ones, it could be several times more.)

CBO has no basis to predict how likely it would be for carriers to come to reimbursement agreements with the affected communities. Because of that, CBO assumes that for each incident, there would be an equal chance that the carrier and the community would or would not come to an agreement. As a result, CBO estimates that for 40 incidents each year the federal government would make payments to the affected community, and for the other 40 incidents the carrier would compensate the community.

Using information from DOT on the relevant penalties, the expected number of incidents that would lead to federal spending, and the expected reimbursement amount per incident—and accounting for anticipated inflation—CBO estimates that implementing the program would increase direct spending by $77 million over the 2024-2033 period.

Revenues. Because the requirement for carriers to reimburse DOT for the costs of the emergency response is an exercise of the government's sovereign power, those collections would be classified in the budget as revenues. The bill stipulates that responsible parties may challenge in court the final determination of amounts owed to DOT.

Using information from DOT on final settlement amounts for other penalties on rail carriers and the estimate of total federal spending that would occur under section 204, CBO estimates that section 204 would increase gross revenues by $52 million over the 2024-2033 period. Because such repayments would reduce the base for income and payroll taxes, CBO estimates that the increase in revenues from repayments would be partially offset by lower income and payroll taxes. Accordingly, CBO estimates that enacting section 204 would increase net revenues by $37 million over that period.

Emergency Preparedness Grants. Beginning in 2024, section 203 would increase by $3 million the amount of funds available each year for grants to improve preparedness for and emergency responses to hazardous-materials incidents. (Under current law, $2 million is available each year for those purposes.) Those funds are subject to sequestration, which would reduce the available amounts each year by 5.7 percent through 2031. Using information from PHMSA, CBO expects that starting in 2026, the agency would use its statutory authority to increase the fees it assesses on companies that transport hazardous materials to offset that specified increase in funding. Those fees are classified as offsetting receipts in the budget, which serves to reduce direct spending. CBO further expects that PHMSA would not increase mandatory spending on emergency preparedness grants until 2026 when those fees are collected. Because of the expected lag between the collections and the disbursement of the grants, CBO estimates that enacting section 203 would reduce net direct spending by $4 million over the 2024-2033 period.

Increased Penalties for Safety Violations. Section 109 would increase civil penalties levied for violations of specific requirements for railroad and railcar safety. Civil penalties are recorded in the budget as revenues. Under current law, railroad operators must comply with regulations related to their operations, including signal system safety, the transportation and storage of hazardous materials, maintaining equipment, and personnel operating practices. S. 576 would increase the minimum penalty amount for some violations of those regulations from $500 to $5,000 and the maximum penalty from $25,000 to $1,000,000. For certain violations resulting in death, the substantial destruction of property, or other severe outcomes, the maximum penalty would be increased from $100,000 to $5,000,000. For those types of violations, civil penalty collections have totaled about $10 million per year. Using information from the FRA, CBO estimates that enacting section 109 would reduce the number of violations, but would increase collections from civil penalties, on net, by $289 million over the 2024-2033 period because of the significant increase in the penalty amount for those violations.

Spending Subject to Appropriation

S. 576 would authorize appropriations for research and development conducted by DOT. The bill also would require DOT to provide formula grants for train defect detectors on commuter railroads, conduct research related to improving those detectors and for other safety measures, prepare several reports, and issue certain regulations. Assuming appropriation of the specified and estimated amounts, and using historical spending patterns for similar activities, CBO estimates that implementing the bill would cost $102 million over the 2024-2028 period (see Table 3).

Table 3.
Estimated Increases in Spending Subject to Appropriation Under S. 576

	By Fiscal Year, Millions of Dollars					
	2024	2025	2026	2027	2028	2024-2028
Defect Detector Formula Grants						
Estimated Authorization	5	20	20	20	0	65
Estimated Outlays	0	3	10	17	20	50
Defect Detector Research and Development						
Estimated Authorization	5	5	4	4	4	22
Estimated Outlays	2	7	4	4	4	21
Specified Authorizations						
Authorization	29	0	0	0	0	29
Estimated Outlays	1	8	9	7	4	29
Other Administrative Expenses						
Estimated Authorization	2	0	0	0	0	2
Estimated Outlays	1	1	0	0	0	2
Total Changes						
Estimated Authorization	41	25	24	24	4	118
Estimated Outlays	4	19	23	28	28	102

Defect Detector Formula Grants. Section 107 would authorize the appropriation of whatever amounts are necessary for a formula grant program to install defect detectors on certain commuter rail tracks that also are used by freight rail carriers for transporting hazardous materials. Using information from commuter railroads on the share of such tracks that would require the detectors, CBO estimates that about 150 detectors would be needed, at an average cost of $400,000 per installation. On that basis, and accounting for the time needed to install the devices, CBO estimates that implementing this section would cost $50 million over the 2024-2028 period.

Defect Detector Research and Development. Section 107 also would require the FRA to create a program to research, develop, test, and evaluate defect detector systems. The agency would use that information to create performance standards for defect detectors. The FRA also would collect and approve plans from rail carriers outlining the carriers' plans to mitigate the risk of train derailments, deploy defect detectors that comply with the new FRA standards, and train employees on the proper use and maintenance of the detectors.

Using information about similar research and regulatory activities, CBO expects that the FRA would need to create an office devoted to those activities with about 25 full-time employees at a cost of about $4 million annually. As the agency establishes initial regulations, the additional contracting costs would amount to about $1 million annually for 2024 and 2025. Using historical spending patterns for similar activities, CBO estimates that implementing this requirement would cost $21 million over the 2024-2028 period.

Specified Authorizations. Three sections in S. 576 would authorize the appropriation of specific amounts for different purposes. Some of those authorizations do not specify the year for which the appropriation is authorized. In those cases, CBO is showing the full amount in 2024. As described below, those authorizations would total $29 million:

- Section 111 would authorize $22 million for the FRA to award grants to certain railroads for research and development on defect detectors and on ways to prevent derailments of trains transporting hazardous materials,
- Section 112 would authorize $5 million for PHMSA for research and development on safer tank cars, and
- Section 104 would authorize $2 million in 2024 for the FRA to contract with the National Academies of Sciences to study the most frequently blocked railroad grade crossings in the United States.

Using historical spending patterns for similar activities, CBO estimates that implementing those activities would cost $29 million over the 2024-2028 period.

Other Administrative Expenses. S. 576 would require DOT to revise regulations related to tank cars that carry hazardous materials and for freight car inspections. DOT's inspector general would need to review and report on the FRA's culture and workforce management, the Office of Personnel Management would review the personnel requirements for the FRA's safety employees, and the Government Accountability Office would need to complete three reports.

Using information on the costs of similar activities, CBO estimates that implementing those requirements would cost $2 million over the 2024-2028 period; that spending would be subject to the availability of appropriated amounts.

Uncertainty

The estimated costs and revenue effects of S. 576 are subject to considerable uncertainty. In particular, CBO's estimate of spending for the emergency response assistance program depends largely on estimates of the frequency and severity of certain hazardous-materials spills, which cannot be predicted. Federal spending to reimburse the costs of responding to such spills could be higher or lower than CBO estimates, especially if higher-cost events occur more frequently than expected.

In addition, it is difficult to determine the effect that higher civil penalties may have on deterring safety violations on railroads. The amount of additional revenue collected under the bill could be larger or smaller than CBO estimates if larger penalties led to more or fewer violations than CBO expects.

Finally, the estimated costs of the defect detector formula grants for commuter railroads would depend on the cost of procuring and installing the equipment. If increased demand—driven by the bill's requirements for railroads to install detectors—leads to higher prices for that equipment, the costs of implementing that program could be higher than CBO estimates.

Pay-As-You-Go Considerations

The Statutory Pay-As-You-Go Act of 2010 establishes budget-reporting and enforcement procedures for legislation affecting direct spending or revenues. The net changes in outlays and revenues that are subject to those pay-as-you-go procedures are shown in Table 4.

Table 4.
CBO's Estimate of the Statutory Pay-As-You-Go Effects of S. 576, the Railway Safety Act of 2023, as Reported by the Senate Committee on Commerce, Science, and Transportation on December 13, 2023

	By Fiscal Year, Millions of Dollars											
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2024-2028	2024-2033
	Net Decrease (-) in the Deficit											
Pay-As-You-Go Effect	0	-14	-32	-28	-28	-28	-29	-29	-32	-33	-102	-253
Memorandum:												
Changes in Outlays	0	3	6	8	8	9	9	10	10	10	25	73
Changes in Revenues	0	17	38	36	36	37	38	39	42	43	127	326

Increase in Long-Term Net Direct Spending and Deficits

CBO estimates that enacting S. 576 would not increase net direct spending by more than $2.5 billion in any of the four consecutive 10-year periods beginning in 2034.

CBO estimates that enacting S. 576 would not increase on-budget deficits in any of the four consecutive 10-year periods beginning in 2034.

Mandates

S. 576 would impose intergovernmental and private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA). CBO estimates that the cost of those mandates would fall below the annual thresholds established in UMRA for intergovernmental and private-sector mandates each year that the mandates are in effect ($99 million and $198 million in 2023, respectively, adjusted annually for inflation).

Defect Detection Systems

Section 107 would require public and private railroad owners to install and maintain defect detection systems on tracks where hazardous materials are likely to be transported. The cost of the mandate would depend on regulations issued by DOT but could include rules for minimum distances between devices; schedules for testing and maintenance; and requirements for alerts, data recording, and reporting.

The number of devices required would depend on whether lines traverse rural or urban areas and on the type of equipment installed. CBO expects that in rural areas, entities could spend tens of millions of dollars annually to install the hardware and systems required by the bill. Track owners already have installed thousands of detectors and have announced plans to install hundreds of new systems. Those efforts could meet or significantly reduce the number of systems necessary to meet minimum distances required between devices. Track owners also would incur ongoing maintenance, training, and reporting costs.

In urban areas, rules that require more defect detectors on tracks would impose an intergovernmental mandate on commuter railroads owned by public entities. Grants authorized in the bill would offset the cost to install defect detectors. Based on industry data, CBO expects that commuter railroads also would spend several million dollars annually to test and maintain the devices; those amounts would not be reimbursable under the bill.

Tank Cars

Under current law, after May 1, 2029, rail carriers will be prohibited from transporting flammable materials in tank cars that do not meet or exceed the most recent set of standards. Section 110 would change that deadline to December 31, 2027, with the option for the Secretary of Transportation to delay implementation for one year. Shortening the phaseout schedule for tank cars that do not meet the standards would impose a private-sector mandate on rail carriers. Although the overall cost of the transition would not differ substantially, the bill would still require carriers to retrofit and replace tank cars sooner than they might under current law. Based on agency data, CBO estimates that rail carriers would incur tens of millions of dollars in additional costs, on average, in each year before the prohibition takes effect, although the greatest annual expense is expected to occur in the final year, when cars that are not retrofitted would be retired and replaced.

Emergency Response Plans and Reimbursements

The bill would impose a private-sector mandate on certain carriers that transport hazardous materials by requiring the development of emergency plans to respond to releases, or potential releases, of hazardous materials. Those plans would include a process to reimburse local communities for response costs. Carriers that do not reimburse communities would be required to reimburse DOT, as discussed above. Although the frequency and severity of incidents may fluctuate from year to year, based on data from DOT, CBO estimates that the combined cost to carriers to reimburse claims for 80 cases per year would total $15 million to $20 million, on average, while the requirement is in effect.

The bill also would expand an existing private-sector mandate on certain carriers to make real-time, accurate data available to state authorities by requiring detailed data on the frequency, volume, and types of hazardous-materials shipments. The bill also would require state authorities to send information submitted by carriers to local governments upon request, which would constitute an intergovernmental mandate on those entities. CBO expects that the cost to comply with that mandate would be small.

Safety and Administrative Requirements

The bill would impose other private-sector mandates with small costs. It would modify an existing mandate on rail carriers by requiring more safety inspections of railcars and locomotives and modify qualifications of safety inspectors. Certain rail carriers also would be required to staff freight trains with at least two crew members.

Finally, as a result of the review in section 103, the FRA may revise regulations for transporting goods and passengers by rail, including a requirement that rail carriers account for the safety effects of train length and weight. The cost of the mandate would depend on regulations to be issued by DOT.

Fees

If PHSMA increases fees to implement the bill, S. 576 would increase the cost of an existing private-sector mandate on companies that are required to pay those fees by $3 million annually, starting in 2026.

Estimate Prepared By

Federal Costs:

Aaron Krupkin (Pipeline and Hazardous Materials Safety Administration)
Robert Reese (Federal Railroad Administration)

Revenues: Nathaniel Frentz

Mandates: Brandon Lever

Estimate Reviewed By

Ann E. Futrell
Senior Adviser, Budget Analysis Division

Joshua Shakin
Chief, Revenue Estimating Unit

Kathleen FitzGerald
Chief, Public and Private Mandates Unit

H. Samuel Papenfuss
Deputy Director of Budget Analysis

Estimate Approved By

Phillip L. Swagel
Director, Congressional Budget Office