



# **BUDGET ESTIMATES FISCAL YEAR 2025**

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## **PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**

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SUBMITTED FOR THE USE OF  
THE COMMITTEE ON APPROPRIATIONS

**U.S. DEPARTMENT OF TRANSPORTATION  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
FY 2025 BUDGET REQUEST  
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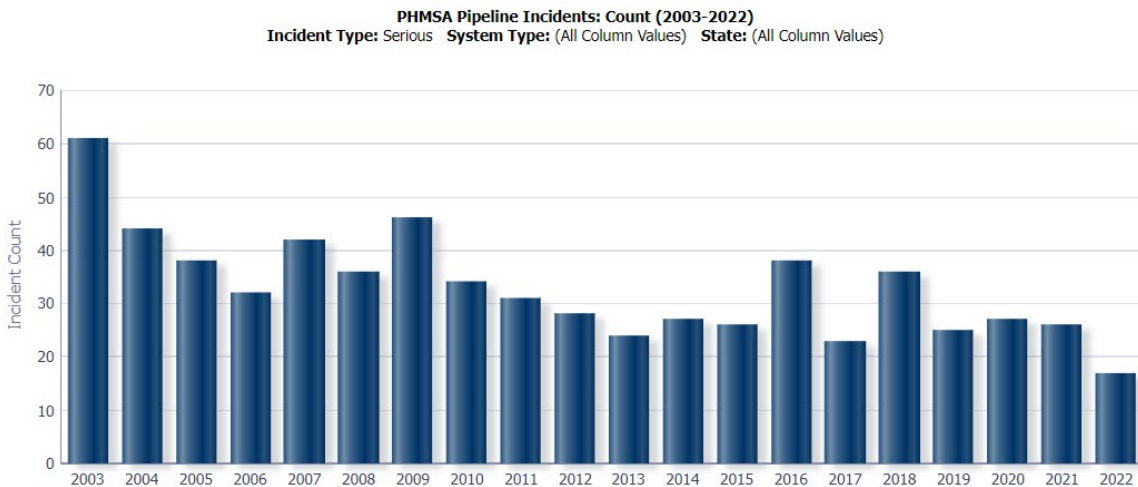
# **I: Overview**

**U.S. DEPARTMENT OF TRANSPORTATION  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
FY 2025 ADMINISTRATOR'S OVERVIEW**

The Pipeline and Hazardous Materials Safety Administration (PHMSA) requests **\$400.6 million**. When combined with the \$200 million in advance appropriations provided in Division J of the Infrastructure Investment and Jobs Act (IIJA), PHMSA's total budgetary resources are **\$600.6 million** in Fiscal Year (FY) 2025, which will continue its critical work improving safety, supporting underserved communities, preserving our environment, and reducing impacts to climate.

**The FY 2025 Request is data driven and closely linked with performance outcomes.** PHMSA has robust performance measurement of pipeline safety and hazardous materials safety incidents and accidents, including root cause analysis. For pipelines, we collect incident data from every operator and report out the incidents by location and cause both to the Department and to the public. PHMSA maintains the National Pipeline Mapping System that identifies where all the infrastructure sits. For hazardous materials, PHMSA collects incident reporting for all significant accidents and reports out to the Department and the public the type, cause, and location. Finally, PHMSA uses accident investigation teams to do forensics on all major accidents and uses the results to craft better safety standards, rules, and regulations.

These investments in data systems help PHMSA allocate its limited resources to produce the most positive outcomes. For example, the FY 2025 request continues the investments in added safety inspection and enforcement staff, that along with investments in our regulatory framework have driven down the count of pipeline accidents and incidents to a twenty-year low (see chart below).



Note: Performance data is collected and can be analyzed by incident, location, or cause.

Using performance data collected, PHMSA will respond to safety risks from increased U.S. oil and gas production and export, and will improve pipeline safety with investments in new safety standards and safety regulations, state safety inspectors to inspect intrastate pipelines and facilities, new investments to attract and retain the best and brightest safety engineers, additional research to keep up with a transition to new forms of energy such as hydrogen and blended fuels

and carbon recapture, and added outreach to ensure the safety of the most vulnerable and transportation-disadvantaged communities.

In the fourth year of the IIJA, the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program will reach underserved communities with repair, rehabilitation, and replacement of natural gas distribution pipelines. PHMSA will measure the impact of the first three years of the program and will issue its fourth Notice of Funding Opportunity (NOFO) in FY 2025, providing critical funding to reduce threats from aged and failing gas pipes, reducing methane emissions from pipelines that threaten our environment, and ensuring safe delivery of energy to homes and businesses in underserved communities. The first round of funding was awarded in April 2023, with \$196 million going to 37 projects in 19 states, often in underserved and transportation-disadvantaged communities.

PHMSA will further improve hazardous materials safety by continuing to register all hazardous materials shippers and set safety standards for more than 40,000 companies transporting regulated hazardous materials, including the packaging and delivery of energy products and other hazardous products, by air, highway, rail, and water. These products annually account for more than 3.3 billion tons of regulated hazardous materials transported with a value of more than \$1.9 trillion. In FY 2025, PHMSA will use newly collected hazardous materials commodity flow data, from a partnership with the US Census Bureau, and respond to an increase in demand for the transport of hazardous materials. As seen in the tragic trail derailment in East Palestine, Ohio, in February 2023, highly trained first responders are critical to protecting and preserving human life and the environment. PHMSA's Emergency Preparedness (EP) programs will ensure that well-trained first responders are on site quickly to manage risk, prevent fatalities and injuries, and help remediate environmental impacts.

Following are highlights of PHMSA's FY 2025 Budget request:

- **\$1.6 million increase for inspector/investigator travel (Pipeline Safety and Hazardous Materials Safety).** To ensure that mission-critical Pipeline Safety and Hazardous Materials Safety inspectors and enforcement staff have sufficient funding to perform inspections and investigations.
- **\$1.0 million increase for cybersecurity investments (All Accounts).** To support Departmental and government-wide cybersecurity initiatives such as multi-factor authentication (MFA) and encryption, which will protect all systems from unauthorized access, secure mission-critical data, and ensure system reliability and access.
- **\$826,000 increase for seven additional Underground Natural Gas Storage (UNGS) inspectors (3.5 FTE) (Pipeline Safety)** for inspecting UNGS wells of states that do not participate in the reimbursable grant program. This is essential for ensuring the safety of UNGS wells and preventing incidents.
- **\$200,000 increase for specialized UNGS training and contract safety (Pipeline Safety)** to be procured from external experts and hosted at the Training and Qualifications center, available to PHMSA and state UNGS inspectors. These training programs will provide UNGS inspectors with the tools and resources to conduct UNGS inspections most

effectively.

- **\$236,000 increase for two additional Equal Employment Opportunity (EEO) Specialists (Operational Expenses)** to promote the Department’s strategic goal of equity, and fully support the Administration’s Executive Orders. This will allow PHMSA to implement its civility, diversity, and inclusion program (CDI) as well as oversee a robust Title VI program for all grantees.

Following is a programmatic summary of PHMSA’s FY 2025 request:

**\$434.6 million for Pipeline Safety** consisting of 254 inspection and enforcement staff and 132 safety professionals. Important Pipeline Safety investments include:

- **\$132.0 million for operations** including five added Underground Natural Gas Storage (UNGS) Inspectors to monitor wells in states that do not participate in the reimbursable grant program and additional resources for contract safety and training both state and federal UNGS inspectors.
- **\$88.6 million for grant programs** that will fund the important state pipeline inspections and damage prevention work. PHMSA provides grants to states to support inspection and enforcement activities of the nation’s vast network of intrastate pipelines, including pipelines that operate in cities and neighborhoods, especially underserved communities. This includes the **State Pipeline Safety Grants (\$82.0 million), Underground Natural Storage Grants (\$4.0 million), State Damage Prevention Grants (\$1.5 million), and State One-Call Grants (\$1.1 million).**
- **\$14.0 million for research** including: the development of the **Liquefied Natural Gas Center of Excellence**; improving safety of underground natural gas storage (UNGS) facilities; detection of pipeline anomalies and leaks; and tools for pipeline threat prevention. Pipeline Safety research will also **focus on incidents caused by corrosion, material failure, and equipment failure**, which cause 61 percent of all pipeline incidents; as well as **focus on containment of greenhouse gases (such as methane); transportation of alternative fuels including hydrogen, hydrogen blends and carbon capture; and improved leak detection.**
- **\$200.0 million in advance appropriations provided in the Bipartisan Infrastructure Law for the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program** that provides a multi-year investment to municipally and community-owned utilities for the repair, rehabilitation or replacement of older gas distribution pipes and infrastructure, particularly in historically disadvantaged areas. The degrading nature of iron alloys, the age of the pipelines, and weak pipe joints design have increased the risk of accidents and climate damaging methane emissions, and this program will accelerate their repair, rehabilitation, or replacement, improving safety and access to energy in these communities.

**\$133.4 million for Hazardous Materials Safety and Emergency Preparedness Grants** including the 82 regional inspectors and outreach staff, and 159 safety professionals. Important Hazardous Materials Safety investments include:

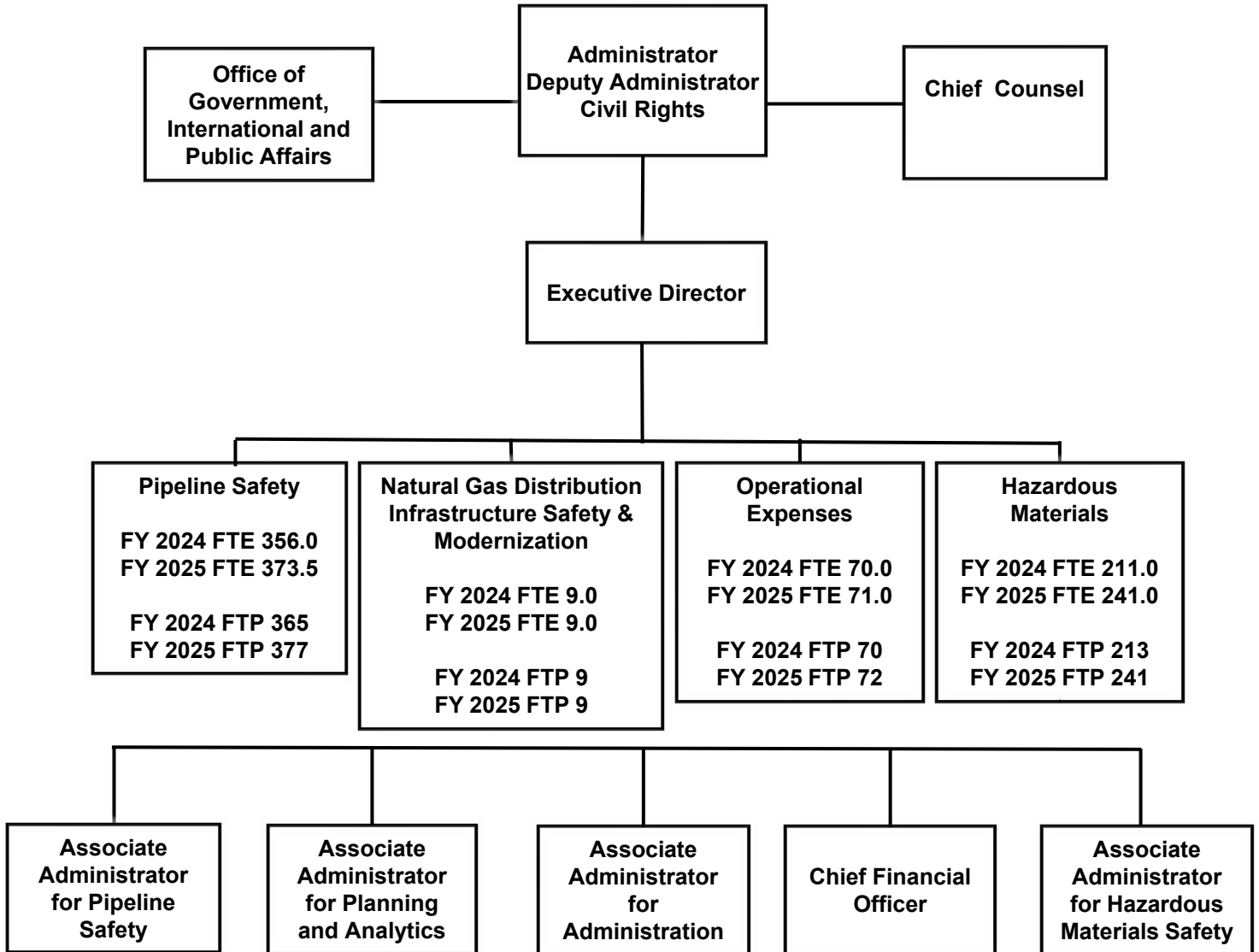
- **\$75.3 million for operations**, including rising costs for regional inspector travel and cybersecurity investments to protect access to secure data.
- **\$50.5 million for grants** to first responders and local governments faced with hazardous materials routes near their homes and businesses. These grants support **training of first responders, train-the-trainer programs, and safety training for incident response**. This funding supports the training of over 100,000 emergency responders annually.
- **\$7.6 million for research**, including work in cooperation with the U.S. Census Bureau to **identify changes in hazardous materials commodity flow** volumes and patterns, supporting innovation in packaging, and enhancing shipping methods. One area of focus is **innovative packaging for lithium-ion batteries**, which will improve their safe transport.

**\$32.6 million for Operational Expenses** including 72 safety professionals working to support a safety management organization that promotes safe deliveries by all modes of transportation including pipeline. Important investments include:

- **Expanded and enhanced Civil Rights function** by adding two equal employment opportunity specialists to promote the Department's strategic goal of equity, and fully support the Administration's Executive Orders.
- **Continuing an investment in leadership development** by building a cadre of safety leaders for PHMSA in FY 2025 and beyond via new and existing agency-wide leadership development programs.
- **Continuing recruitment and retention programs** to ensure that PHMSA can **attract and retain the highest-quality safety professionals**. The increased demand for workers in the U.S. domestic energy industry requires PHMSA to design and implement recruitment and retention incentives such as special pay rates, tuition reimbursement, and student loan repayment. PHMSA will continue to expand these critical programs in FY 2025.
- **Awarding Pipeline Emergency Response Grants (\$2.5 million) and Information Grants to Communities (\$2.0 million)**. These grants help local governments in vulnerable, underserved, and high consequence areas with pipeline facilities prepare for and respond to hazardous materials incidents.



**Exhibit I: Pipeline and Hazardous Materials Safety Administration (PHMSA)  
 Full-Time Equivalents (FTE) and Full-Time Positions (FTP) for  
 FY 2024 CR and FY 2025 Request  
 FTE Totals: FY 2024 CR – 646.0 / FY 2025 Request – 694.5  
 FTP Totals: FY 2024 CR – 657 / FY 2025 Request – 699**



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## **II: Budget Summary Tables**

**EXHIBIT II-1**  
**FY 2025 BUDGET AUTHORITY**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**(\$000)**

ACCOUNT NAME	M / D	(A)	(B)	(C)	(D)	(E)
		FY 2023 ACTUAL	FY 2024 CR	FY 2025 BASELINE ESTIMATES	FY 2025 PROGRAM CHANGES	FY 2025 REQUEST (D+E)
<b>PIPELINE SAFETY</b>		\$ 190,385	\$ 190,385	\$ 201,820	\$ 32,760	\$ 234,580
Pipeline Safety Fund	D	\$ 153,985	\$ 153,985	\$ 165,420	\$ 30,760	\$ 196,180
Underground Natural Gas Storage Fund	D	\$ 7,000	\$ 7,000	\$ 7,000	\$ -	\$ 7,000
Liquefied Natural Gas Siting Fund	D	\$ 400	\$ 400	\$ 400	\$ -	\$ 400
Oil Spill Liability Trust Fund	D	\$ 29,000	\$ 29,000	\$ 29,000	\$ 2,000	\$ 31,000
Rescissions		\$ -	\$ -	\$ -	\$ -	\$ -
Transfers		\$ -	\$ -	\$ -	\$ -	\$ -
Offsets	D	\$ (160,985)	\$ (160,985)	\$ (172,420)	\$ (30,760)	\$ (203,180)
<b>HAZARDOUS MATERIALS SAFETY</b>		\$ 70,743	\$ 70,743	\$ 76,512	\$ 10,074	\$ 86,586
General Fund	D	\$ 70,743	\$ 70,743	\$ 76,512	\$ 10,074	\$ 86,586
Rescissions		\$ -	\$ -	\$ -	\$ -	\$ -
Transfers		\$ -	\$ -	\$ -	\$ -	\$ -
Offsets		\$ -	\$ -	\$ -	\$ -	\$ -
<b>EMERGENCY PREPAREDNESS GRANTS</b>		\$ 28,318	\$ 28,318	\$ 28,318	\$ 18,507	\$ 46,825
Emergency Preparedness Fund (Mandatory)	M	\$ 28,318	\$ 28,318	\$ 28,318	\$ 18,507	\$ 46,825
Rescissions		\$ -	\$ -	\$ -	\$ -	\$ -
Transfers		\$ -	\$ -	\$ -	\$ -	\$ -
Offsets		\$ -	\$ -	\$ -	\$ -	\$ -
<b>OPERATIONAL EXPENSES</b>		\$ 29,936	\$ 29,936	\$ 32,094	\$ 539	\$ 32,633
General Fund	D	\$ 29,936	\$ 29,936	\$ 32,094	\$ 539	\$ 32,633
Rescissions		\$ -	\$ -	\$ -	\$ -	\$ -
Transfers		\$ -	\$ -	\$ -	\$ -	\$ -
Offsets		\$ -	\$ -	\$ -	\$ -	\$ -
<b>Gross New Budget Authority</b>		\$ 319,382	\$ 319,382	\$ 338,744	\$ 61,880	\$ 400,624
<b>Recissions</b>		\$ -	\$ -	\$ -	\$ -	\$ -
<b>Transfers</b>		\$ -	\$ -	\$ -	\$ -	\$ -
<b>Offsets</b>		\$ (160,985)	\$ (160,985)	\$ (172,420)	\$ (30,760)	\$ (203,180)
<b>NET NEW BUDGET AUTHORITY REQUESTED:</b>		<u>\$ 158,397</u>	<u>\$ 158,397</u>	<u>\$ 166,324</u>	<u>\$ 31,120</u>	<u>\$ 197,444</u>
[Mandatory BA]		\$ 28,318	\$ 28,318	\$ 28,318	\$ 18,507	\$ 46,825
[Discretionary BA]		\$ 130,079	\$ 130,079	\$ 138,006	\$ 12,613	\$ 150,619
<b>Supplemental Funding</b>						
IIJA Supplemental (Division J)		\$ 200,000	\$ 200,000	\$ 200,000	\$ -	\$ 200,000
Natural Gas Distribution Infrastructure Safety & Modernization	D	\$ 200,000	\$ 200,000	\$ 200,000	\$ -	\$ 200,000
<b>Grand Total, All Appropriations</b>		<u>\$ 358,397</u>	<u>\$ 358,397</u>	<u>\$ 366,324</u>	<u>\$ 31,120</u>	<u>\$ 397,444</u>

**EXHIBIT II-2**  
**FY 2025 TOTAL BUDGETARY RESOURCES BY APPROPRIATION ACCOUNT**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

ACCOUNT NAME	M / D	(A) FY 2023 ACTUAL	(B) FY 2024 CR	(C) FY 2025 BASELINE ESTIMATES	(D) FY 2025 PROGRAM CHANGES	(E) FY 2025 REQUEST (C+D)
<b>PIPELINE SAFETY</b>		\$ 190,385	\$ 190,385	\$ 201,820	\$ 32,760	\$ 234,580
Pipeline Safety Fund	D	\$ 153,985	\$ 153,985	\$ 165,420	\$ 30,760	\$ 196,180
Underground Natural Gas Storage Fund	D	\$ 7,000	\$ 7,000	\$ 7,000	\$ -	\$ 7,000
Liquefied Natural Gas Siting Fund	D	\$ 400	\$ 400	\$ 400	\$ -	\$ 400
Oil Spill Liability Trust Fund	D	\$ 29,000	\$ 29,000	\$ 29,000	\$ 2,000	\$ 31,000
Rescissions		\$ -	\$ -	\$ -	\$ -	\$ -
Transfers		\$ -	\$ -	\$ -	\$ -	\$ -
Offsets	D	\$ (160,985)	\$ (160,985)	\$ (172,420)	\$ (30,760)	\$ (203,180)
<b>HAZARDOUS MATERIALS SAFETY</b>		\$ 70,743	\$ 70,743	\$ 76,512	\$ 10,074	\$ 86,586
General Fund	D	\$ 70,743	\$ 70,743	\$ 76,512	\$ 10,074	\$ 86,586
Rescissions		\$ -	\$ -	\$ -	\$ -	\$ -
Transfers		\$ -	\$ -	\$ -	\$ -	\$ -
Offsets		\$ -	\$ -	\$ -	\$ -	\$ -
<b>EMERGENCY PREPAREDNESS GRANTS</b>		\$ 28,318	\$ 28,318	\$ 28,318	\$ 18,507	\$ 46,825
Emergency Preparedness Fund	M	\$ 28,318	\$ 28,318	\$ 28,318	\$ 18,507	\$ 46,825
Rescissions		\$ -	\$ -	\$ -	\$ -	\$ -
Transfers		\$ -	\$ -	\$ -	\$ -	\$ -
Offsets		\$ -	\$ -	\$ -	\$ -	\$ -
<b>OPERATIONAL EXPENSES</b>		\$ 29,936	\$ 29,936	\$ 32,094	\$ 539	\$ 32,633
General Fund	D	\$ 29,936	\$ 29,936	\$ 32,094	\$ 539	\$ 32,633
Rescissions		\$ -	\$ -	\$ -	\$ -	\$ -
Transfers		\$ -	\$ -	\$ -	\$ -	\$ -
Offsets		\$ -	\$ -	\$ -	\$ -	\$ -
<b>TOTAL BASE APPROPRIATION</b>		<b>\$ 319,382</b>	<b>\$ 319,382</b>	<b>\$ 338,744</b>	<b>\$ 61,880</b>	<b>\$ 400,624</b>
<b>Gross New Budgetary Resources</b>		\$ 319,382	\$ 319,382	\$ 338,744	\$ 61,880	\$ 400,624
<b>Rescissions</b>		\$ -	\$ -	\$ -	\$ -	\$ -
<b>Transfers</b>		\$ -	\$ -	\$ -	\$ -	\$ -
<b>Offsets</b>		\$ (161,385)	\$ (161,385)	\$ (172,820)	\$ (30,760)	\$ (203,580)
<b>TOTAL BUDGETARY RESOURCES:</b>		<b>\$ 319,382</b>	<b>\$ 319,382</b>	<b>\$ 338,744</b>	<b>\$ 61,880</b>	<b>\$ 400,624</b>
[Mandatory]		\$ 28,318	\$ 28,318	\$ 28,318	\$ 18,507	\$ 46,825
[Discretionary]		\$ 291,064	\$ 291,064	\$ 310,426	\$ 43,373	\$ 353,799
[Obligation Limitation]		\$ 28,318	\$ 28,318	\$ -	\$ -	\$ -
<b>Supplemental Funding</b>						
IIJA Supplemental (Division J)		<b>\$ 200,000</b>	<b>\$ 200,000</b>	<b>\$ 200,000</b>	<b>\$ -</b>	<b>\$ 200,000</b>
Natural Gas Distribution Infrastructure Safety and Modernization	D	\$ 200,000	\$ 200,000	\$ 200,000	\$ -	\$ 200,000
<b>Grand Total, All Appropriations</b>		<b>\$ 519,382</b>	<b>\$ 519,382</b>	<b>\$ 538,744</b>	<b>\$ 61,880</b>	<b>\$ 600,624</b>

**EXHIBIT II-3**  
**FY 2025 BUDGET REQUEST BY DOT STRATEGIC AND ORGANIZATIONAL GOALS**  
**Appropriations, Obligation Limitation, and Exempt Obligations**  
**Pipeline and Hazardous Materials Safety Administration**  
**(\$000)**

	Safety	Economic Strength	Equity	Climate & Sustainability	Transformation	Organizational Excellence	Total
<b>Discretionary Appropriations</b>							
<b>Pipeline Safety</b>	\$ 230,080		\$ 500	\$ 4,000			\$ 234,580
<b>Hazardous Materials Safety</b>	83,576	750	500	1,760			86,586
<b>Emergency Preparedness Grants</b>	46,825						46,825
<b>Operational Expenses</b>	32,633						32,633
<b>IIJA Supplemental (Division J)</b>							
<b>Natural Gas Distribution Infrastructure Safety &amp; Modernization</b>	60,000	40,000	40,000	60,000			200,000
<b>TOTAL</b>	\$ 453,114	\$ 40,750	\$ 41,000	\$ 65,760	\$ -	\$ -	\$ 600,624

<p><b>Safety:</b> Make our transportation system safer for all people. Work toward a future where transportation-related serious injuries and fatalities are eliminated.</p>	<p><b>Economic Strength and Global Competitiveness:</b> Grow an inclusive and sustainable economy. Invest in our transportation system to provide American workers and businesses reliable and efficient access to good-paying jobs, resources, and markets.</p>	<p><b>Equity:</b> Reduce inequities. Support and engage people and communities to promote safe, affordable, accessible, and multimodal access to opportunities and services while reducing transportation-related disparities, adverse community impacts, and health effects.</p>	<p><b>Climate &amp; Sustainability:</b> Tackle the climate crisis by ensuring that transportation plays a central role in the solution. Substantially reduce greenhouse gas emissions and transportation-related pollution and build more resilient and sustainable transportation systems to benefit and protect communities.</p>	<p><b>Transformation:</b> Design for the future. Invest in purpose-driven research and innovation to meet the challenge of the present and modernize a transportation system of the future that serves everyone today and in the decades to come.</p>	<p><b>Organizational Excellence:</b> Strengthen our world class organization. Advance the Department's mission by establishing policies, processes, and an inclusive and innovative culture to effectively serve communities and responsibly steward the public's resources.</p>
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**EXHIBIT II-4**  
**FY 2025 OUTLAYS**  
**Pipeline and Hazardous Materials Safety Administration**  
**(\$000)**

		(A)	(B)	(C)
	M / D	FY 2023 ACTUAL	FY 2024 CR	FY 2025 REQUEST
<b>PIPELINE SAFETY</b>		\$ 187,543	\$ 198,333	\$ 238,350
Pipeline Safety Fund	<i>D</i>	\$ 151,002	\$ 172,988	\$ 202,709
Underground Natural Gas Storage Fu	<i>D</i>	5,011	6,248	6,449
Liquefied Natural Gas Siting Fund	<i>D</i>	-	-	-
Oil Spill Liability Trust Fund	<i>D</i>	31,530	19,096	29,192
<b>HAZARDOUS MATERIALS SAFETY</b>	<i>D</i>	69,260	80,574	82,347
<b>EMERGENCY PREPAREDNESS GRANTS</b>		\$ 28,677	\$ 19,099	\$ 36,140
Mandatory	<i>M</i>	28,677	19,099	36,140
Discretionary	<i>D</i>			
<b>OPERATIONAL EXPENSES</b>	<i>D</i>	\$ 28,078	\$ 37,733	\$ 35,567
<b>TOTAL</b>		<u>\$ 313,558</u>	<u>\$ 335,739</u>	<u>\$ 392,404</u>
Mandatory		28,677	19,099	36,140
Discretionary		284,881	316,640	356,264
<b>IIJA Supplemental (Division J)</b>	<i>D</i>	\$ 2,144	\$ 29,724	\$ 27,523
Natural Gas Distribution				
Infrastructure Safety and		2,144	29,724	27,523
<b>Grand Total, Outlays from all Appropriations</b>		<u>\$ 315,702</u>	<u>\$ 365,463</u>	<u>\$ 419,927</u>

**EXHIBIT II-5**  
**SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE**  
**Pipeline and Hazardous Materials Safety Administration**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

PHMSA Summary	FY 2023 Actual	FY 2024 CR	Baseline Changes							FY 2025 Baseline Estimate	Program Increases/ Decreases	FY 2025 Request
			Annualization of Prior Pay Raises	Annualization of new FY 2024 FTE	FY 2025 Pay Raises	Adjustment for Compensable Days (261 days)	GSA Rent	WCF Increase/ Decrease	Inflation and other adjustments to base			
<b>PERSONNEL RESOURCES</b>	<b>578.0</b>	<b>646.0</b>		<b>11.0</b>						<b>657.0</b>	<b>37.5</b>	<b>694.5</b>
Direct FTE	578.0	646.0		11.0						657.0	37.5	694.5
<b>FINANCIAL RESOURCES</b>												
<b>OPERATIONS</b>												
Salaries and Benefits	\$ 115,913	\$ 115,913	\$ 1,507	\$ 1,650	\$ 1,781	\$ 463	\$ -	\$ -	\$ 7,779	\$ 129,093	\$ 5,625	\$ 134,718
Travel	5,973	5,973	-	220	-	-	-	-	178	6,371	2,370	8,741
GSA Rent	5,085	5,085	-	143	-	-	(617)	-	140	4,751	475	5,226
Communications, & Utilities	592	592	-	-	-	-	-	-	19	611	-	611
Other Services:												
-Other	10,103	10,103	-	484	-	-	-	-	2,037	12,624	3,375	15,999
-WCF	5,054	5,054	-	-	-	-	-	696	-	5,750	-	5,750
-WCF IT	12,759	12,759	-	-	-	-	-	1,148	-	13,907	-	13,907
-WCF Rent	2,338	2,338	-	-	-	-	-	987	-	3,325	-	3,325
Supplies	525	525	-	-	-	-	-	-	20	545	-	545
Equipment	863	863	-	99	-	-	-	-	48	1,010	338	1,348
<b>Operations Subtotal</b>	<b>\$ 159,205</b>	<b>\$ 159,205</b>	<b>\$ 1,507</b>	<b>\$ 2,596</b>	<b>\$ 1,781</b>	<b>\$ 463</b>	<b>\$ (617)</b>	<b>\$ 2,831</b>	<b>\$ 10,221</b>	<b>\$ 177,987</b>	<b>\$ 12,183</b>	<b>\$ 190,170</b>
<b>PROGRAMS</b>												
<b>Contract Safety Programs</b>												
Pipeline Safety	\$ 23,963	\$ 23,963	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23,963	\$ 6,203	\$ 30,166
Hazardous Materials Safety	8,561	8,561	-	-	-	-	-	-	-	8,561	2,184	10,745
Emergency Preparedness Grants	727	727	-	-	-	-	-	-	-	727	-	727
Natural Gas Distribution Infrastructure Safety and Modernization Grants	2,238	2,238	-	-	-	-	-	-	(11)	2,227	-	2,227
Operational Expenses	4,572	4,572	-	-	-	-	-	-	592	5,164	303	5,467
<b>Contract Safety Programs Subtotal</b>	<b>\$ 40,061</b>	<b>\$ 40,061</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 581</b>	<b>\$ 40,642</b>	<b>\$ 8,690</b>	<b>\$ 49,332</b>
<b>Research and Development</b>												
Pipeline Safety	\$ 12,500	\$ 12,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,500	\$ 1,500	\$ 14,000
Hazardous Materials Safety	7,570	7,570	-	-	-	-	-	-	-	7,570	-	7,570
<b>Research and Development Subtotal</b>	<b>\$ 20,070</b>	<b>\$ 20,070</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 20,070</b>	<b>\$ 1,500</b>	<b>\$ 21,570</b>
<b>Grants</b>												
Pipeline Safety	\$ 68,058	\$ 68,058	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 68,058	\$ 20,500	\$ 88,558
Hazardous Materials Safety	4,500	4,500	-	-	-	-	-	-	-	4,500	500	5,000
Emergency Preparedness Grants	26,988	26,988	-	-	-	-	-	-	-	26,988	18,507	45,495
Natural Gas Distribution Infrastructure Safety and Modernization Grants	196,000	196,000	-	-	-	-	-	-	-	196,000	-	196,000
Operational Expenses	4,500	4,500	-	-	-	-	-	-	-	4,500	-	4,500
<b>Grants Subtotal</b>	<b>\$ 300,046</b>	<b>\$ 300,046</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 300,046</b>	<b>\$ 39,507</b>	<b>\$ 339,553</b>
<b>Programs Subtotal</b>	<b>\$ 360,177</b>	<b>\$ 360,177</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 581</b>	<b>\$ 360,758</b>	<b>\$ 49,697</b>	<b>\$ 410,455</b>
<b>TOTAL</b>	<b>\$ 519,382</b>	<b>\$ 519,382</b>	<b>\$ 1,507</b>	<b>\$ 2,596</b>	<b>\$ 1,781</b>	<b>\$ 463</b>	<b>\$ (617)</b>	<b>\$ 2,831</b>	<b>\$ 10,802</b>	<b>\$ 538,747</b>	<b>\$ 61,880</b>	<b>\$ 600,624</b>
<b>Total Requested Budget Authority</b>	<b>\$ 519,382</b>	<b>\$ 519,382</b>	<b>\$ 1,507</b>	<b>\$ 2,596</b>	<b>\$ 1,781</b>	<b>\$ 463</b>	<b>\$ (617)</b>	<b>\$ 2,831</b>	<b>\$ 10,802</b>	<b>\$ 538,747</b>	<b>\$ 61,880</b>	<b>\$ 600,624</b>



**EXHIBIT II-5**  
**SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE**  
**Pipeline and Hazardous Materials Safety Administration**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

Pipeline Safety Account	FY 2023 Actual	FY 2024 CR	Baseline Changes							FY 2025 Baseline Estimate	Program Increases/ Decreases	FY 2025 Request	
			Annualization of Prior Pay Raises	Annualization of new FY 2024 FTE	FY 2025 Pay Raises	Adjustment for Compensable Days (261 days)	GSA Rent	WCF Increase/ Decrease	Inflation and other adjustments to base				
<b>PERSONNEL RESOURCES (FTE)</b>	<b>313.0</b>	<b>356.0</b>	-	<b>9.0</b>	-	-	-	-	-	-	<b>365.0</b>	<b>8.5</b>	<b>373.5</b>
Direct FTE	313.0	356.0	-	9.0	-	-	-	-	-	-	365.0	8.5	373.5
<b>FINANCIAL RESOURCES</b>													
<b>OPERATIONS</b>													
Salaries and Benefits	\$ 63,372	\$ 63,372	\$ 824	\$ 1,350	\$ 983	\$ 255	\$ -	\$ -	\$ -	\$ 4,210	\$ 70,994	\$ 1,275	\$ 72,269
Travel	4,299	4,299	-	180	-	-	-	-	-	90	4,569	1,140	5,709
GSA Rent	2,909	2,909	-	117	-	-	-	-	-	61	3,087	111	3,198
Communications, & Utilities	273	273	-	-	-	-	-	-	-	5	278	-	278
Other Services:													
-Other	2,887	2,887	-	396	-	-	-	-	-	1,219	4,502	1,954	6,456
-WCF Other	2,810	2,810	-	-	-	-	-	-	399	-	3,209	-	3,209
-WCF IT	7,094	7,094	-	-	-	-	-	-	667	-	7,761	-	7,761
-WCF Rent	1,300	1,300	-	-	-	-	-	-	556	-	1,856	-	1,856
Supplies	303	303	-	-	-	-	-	-	-	12	315	-	315
Equipment	617	617	-	81	-	-	-	-	-	30	728	77	805
<b>Operations Subtotal</b>	<b>\$ 85,864</b>	<b>\$ 85,864</b>	<b>\$ 824</b>	<b>\$ 2,124</b>	<b>\$ 983</b>	<b>\$ 255</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,622</b>	<b>\$ 5,627</b>	<b>\$ 97,299</b>	<b>\$ 4,557</b>	<b>\$ 101,856</b>
<b>PROGRAMS</b>													
<b>Contract Safety Programs</b>													
Liquefied Natural Gas Siting Fund	\$ 400	\$ 400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 400	\$ -	\$ 400
Compliance/Pipeline Integrity Management/Inspection Support	9,838	9,838	-	-	-	-	-	-	-	-	9,838	4,003	13,841
Training, Information & Community Assistance	8,050	8,050	-	-	-	-	-	-	-	-	8,050	2,200	10,250
National Pipeline and Other Mapping Systems	4,300	4,300	-	-	-	-	-	-	-	-	4,300	-	4,300
Implementing the Oil Pollution Act	1,375	1,375	-	-	-	-	-	-	-	-	1,375	-	1,375
<b>Contract Safety Programs Subtotal</b>	<b>\$ 23,963</b>	<b>\$ 23,963</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 23,963</b>	<b>\$ 6,203</b>	<b>\$ 30,166</b>
<b>Research &amp; Development</b>													
General Research	\$ 4,500	\$ 4,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,500	\$ 2,500	\$ 7,000
LNG Center of Excellence	6,000	6,000	-	-	-	-	-	-	-	-	6,000	(1,000)	5,000
Competitive Academic Agreement Program	2,000	2,000	-	-	-	-	-	-	-	-	2,000	-	2,000
<b>Research &amp; Development Subtotal</b>	<b>\$ 12,500</b>	<b>\$ 12,500</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 12,500</b>	<b>\$ 1,500</b>	<b>\$ 14,000</b>
<b>Grants</b>													
State Pipeline Safety Grants	\$ 60,500	\$ 60,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 60,500	\$ 21,500	\$ 82,000
Underground Natural Gas Storage Grants	5,000	5,000	-	-	-	-	-	-	-	-	5,000	(1,000)	4,000
State One-call Grants	1,058	1,058	-	-	-	-	-	-	-	-	1,058	-	1,058
State Damage Prevention Grants	1,500	1,500	-	-	-	-	-	-	-	-	1,500	-	1,500
<b>Grants Subtotal</b>	<b>\$ 68,058</b>	<b>\$ 68,058</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 68,058</b>	<b>\$ 20,500</b>	<b>\$ 88,558</b>
<b>Programs Subtotal</b>	<b>\$ 104,521</b>	<b>\$ 104,521</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 104,521</b>	<b>\$ 28,203</b>	<b>\$ 132,724</b>
<b>TOTAL</b>	<b>\$ 190,385</b>	<b>\$ 190,385</b>	<b>\$ 824</b>	<b>\$ 2,124</b>	<b>\$ 983</b>	<b>\$ 255</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,622</b>	<b>\$ 5,627</b>	<b>\$ 201,820</b>	<b>\$ 32,760</b>	<b>\$ 234,580</b>

**EXHIBIT II-5**  
**SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE**  
**Pipeline and Hazardous Materials Safety Administration**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

Natural Gas Distribution Infrastructure Safety and Modernization Grants (IIJA Supplemental)	FY 2023 Actual	FY 2024 CR	Baseline Changes							FY 2025 Baseline Estimate	Program Increases/ Decreases	FY 2025 Request	
			Annualization of Prior Pay Raises	Annualization of new FY 2024 FTE	FY 2025 Pay Raises	Adjustment for Compensable Days (261 days)	GSA Rent	WCF Increase/ Decrease	Inflation and other adjustments to base				
<b>PERSONNEL RESOURCES (FTE)</b>	<b>10.0</b>	<b>9.0</b>	-	-	-	-	-	-	-	-	<b>9.0</b>	-	<b>9.0</b>
Direct FTE	10.0	9.0	-	-	-	-	-	-	-	-	9.0	-	9.0
<b>FINANCIAL RESOURCES</b>													
<b>Operations</b>													
Salaries and Benefits	\$ 1,184	\$ 1,184	\$ 15	\$ -	\$ 18	\$ 5	\$ -	\$ -	\$ -	\$ -	\$ 1,222	\$ -	\$ 1,222
Travel	96	96	-	-	-	-	-	-	-	2	98	-	98
GSA Rent	24	24	-	-	-	-	(37)	-	-	-	(13)	-	(13)
Other Services:													
-Other	110	110	-	-	-	-	-	-	-	2	112	-	112
-WCF	69	69	-	-	-	-	-	-	1	-	70	-	70
-WCF IT	175	175	-	-	-	-	-	-	(5)	-	170	-	170
-WCF Rent	32	32	-	-	-	-	-	-	9	-	41	-	41
Supplies	-	-	-	-	-	-	-	-	-	-	-	-	-
Equipment	72	72	-	-	-	-	-	-	-	1	73	-	73
<b>Operations Subtotal</b>	<b>\$ 1,762</b>	<b>\$ 1,762</b>	<b>\$ 15</b>	<b>\$ -</b>	<b>\$ 18</b>	<b>\$ 5</b>	<b>\$ (37)</b>	<b>\$ 5</b>	<b>\$ 5</b>	<b>\$ 5</b>	<b>\$ 1,773</b>	<b>\$ -</b>	<b>\$ 1,773</b>
<b>PROGRAMS</b>													
<b>Contract Safety Programs</b>													
Pipeline Infrastructure Modernization	\$ 2,238	\$ 2,238	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (11)	\$ 2,227	\$ -	\$ 2,227
<b>Contract Safety Programs Subtotal</b>	<b>\$ 2,238</b>	<b>\$ 2,238</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ (11)</b>	<b>\$ 2,227</b>	<b>\$ -</b>	<b>\$ 2,227</b>
<b>Grants</b>													
Natural Gas Distribution Infrastructure Safety and Modernization	\$ 196,000	\$ 196,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 196,000	\$ -	\$ 196,000
<b>Grants Subtotal</b>	<b>\$ 196,000</b>	<b>\$ 196,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 196,000</b>	<b>\$ -</b>	<b>\$ 196,000</b>
<b>Programs Subtotal</b>	<b>\$ 198,238</b>	<b>\$ 198,238</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ (11)</b>	<b>\$ 198,227</b>	<b>\$ -</b>	<b>\$ 198,227</b>
<b>TOTAL</b>	<b>\$ 200,000</b>	<b>\$ 200,000</b>	<b>\$ 15</b>	<b>\$ -</b>	<b>\$ 18</b>	<b>\$ 5</b>	<b>\$ (37)</b>	<b>\$ 5</b>	<b>\$ 5</b>	<b>\$ (6)</b>	<b>\$ 200,000</b>	<b>\$ -</b>	<b>\$ 200,000</b>

**EXHIBIT II-5**  
**SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE**  
**Pipeline and Hazardous Materials Safety Administration**  
**Appropriations, Obligation Limitations, and Exempt Obligations**

Hazardous Materials Safety Account	Baseline Changes										FY 2025 Baseline Estimate	Program Increases/ Decreases	FY 2025 Request
	FY 2023 Actual	FY 2024 CR	Annualization of Prior Pay Raises	Annualization of new FY 2024 FTE	FY 2025 Pay Raises	Adjustment for Compensable Days (261 days)	GSA Rent	WCF Increase/ Decrease	Inflation and other adjustments to base 1/				
<b>PERSONNEL RESOURCES (FTE)</b>	<b>188.0</b>	<b>211.0</b>	-	<b>2.0</b>	-	-	-	-	-	-	<b>213.0</b>	<b>28.0</b>	<b>241.0</b>
Direct FTE	188.0	211.0	-	2.0	-	-	-	-	-	-	213.0	28.0	241.0
<b>FINANCIAL RESOURCES</b>													
<b>Operations</b>													
Salaries and Benefits	\$ 37,143	\$ 37,143	\$ 483	\$ 300	\$ 564	\$ 147	\$ -	\$ -	\$ 2,891	\$ 41,528	\$ 4,200	\$ 45,728	
Travel	1,518	1,518	-	40	-	-	-	-	84	1,642	1,210	2,852	
GSA Rent	1,572	1,572	-	26	-	-	-	-	79	1,677	364	2,041	
Communications, & Utilities	176	176	-	-	-	-	-	-	8	184	-	184	
Other Services:													
-Other	2,921	2,921	-	88	-	-	-	-	145	3,154	1,364	4,518	
-WCF	1,640	1,640	-	-	-	-	-	215	-	1,855	-	1,855	
-WCF IT	4,140	4,140	-	-	-	-	-	347	-	4,487	-	4,487	
-WCF Rent	759	759	-	-	-	-	-	314	-	1,073	-	1,073	
Supplies	110	110	-	-	-	-	-	-	4	114	-	114	
Equipment	133	133	-	18	-	-	-	-	16	167	252	419	
<b>Operations Subtotal</b>	<b>\$ 50,112</b>	<b>\$ 50,112</b>	<b>\$ 483</b>	<b>\$ 472</b>	<b>\$ 564</b>	<b>\$ 147</b>	<b>\$ -</b>	<b>\$ 876</b>	<b>\$ 3,227</b>	<b>\$ 55,881</b>	<b>\$ 7,390</b>	<b>\$ 63,271</b>	
<b>PROGRAMS</b>													
<b>Contract Safety Programs</b>													
Hazmat Information and Analysis	\$ 2,017	\$ 2,017	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,017	\$ 1,000	\$ 3,017	
Investigation and Enforcement	3,307	3,307	-	-	-	-	-	-	-	3,307	-	3,307	
Outreach, Training and Compliance	2,603	2,603	-	-	-	-	-	-	-	2,603	1,184	3,787	
Hazmat Registration Program	634	634	-	-	-	-	-	-	-	634	-	634	
<b>Contract Safety Programs Subtotal</b>	<b>8,561</b>	<b>8,561</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 8,561</b>	<b>\$ 2,184</b>	<b>\$ 10,745</b>	
<b>Research &amp; Development</b>	<b>\$ 7,570</b>	<b>\$ 7,570</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 7,570</b>	<b>\$ -</b>	<b>\$ 7,570</b>	
<b>Research &amp; Development Subtotal</b>	<b>7,570</b>	<b>7,570</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 7,570</b>	<b>\$ -</b>	<b>\$ 7,570</b>	
<b>Grants</b>													
Hazardous Materials State Inspection Grant Program	\$ 2,500	\$ 2,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,500	\$ (1,500)	\$ 1,000	
ALERT Grants	1,000	1,000	-	-	-	-	-	-	-	1,000	(1,000)	-	
Community Safety Grants	1,000	1,000	-	-	-	-	-	-	-	1,000	3,000	4,000	
<b>Grants Subtotal</b>	<b>\$ 4,500</b>	<b>\$ 4,500</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 4,500</b>	<b>\$ 500</b>	<b>\$ 5,000</b>	
<b>Programs Subtotal</b>	<b>20,631</b>	<b>20,631</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 20,631</b>	<b>\$ 2,684</b>	<b>\$ 23,315</b>	
<b>TOTAL</b>	<b>70,743</b>	<b>70,743</b>	<b>\$ 483</b>	<b>\$ 472</b>	<b>\$ 564</b>	<b>\$ 147</b>	<b>\$ -</b>	<b>\$ 876</b>	<b>\$ 3,227</b>	<b>\$ 76,512</b>	<b>\$ 10,074</b>	<b>\$ 86,586</b>	

**EXHIBIT II-5**  
**SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE**  
**Pipeline and Hazardous Materials Safety Administration**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

Operational Expenses Account	Baseline Changes											FY 2025 Baseline Estimate	Program Increases/ Decreases	FY 2025 Request
	FY 2023 Actual	FY 2024 CR	Annualization of Prior Pay Raises	Annualization of new FY 2024 FTE	FY 2025 Pay Raises	Adjustment for Compensable Days (261 days)	GSA Rent	WCF Increase/ Decrease	Inflation and other adjustments to base					
<b>PERSONNEL RESOURCES (FTE)</b>	<b>67.0</b>	<b>70.0</b>	-	-	-	-	-	-	-	-	-	<b>70.0</b>	<b>1.0</b>	<b>71.0</b>
Direct FTE	67.0	70.0	-	-	-	-	-	-	-	-	-	70.0	1.0	71.0
<b>FINANCIAL RESOURCES</b>														
<b>Operations</b>														
Salaries and Benefits	\$ 14,214	\$ 14,214	\$ 185	\$ -	\$ 216	\$ 56	\$ -	\$ -	\$ 678	\$ 15,349	\$ 150	\$ 15,499	\$ -	\$ 15,499
Travel	60	60	-	-	-	-	-	-	2	62	20	82	-	82
GSA Rent	580	580	-	-	-	-	(580)	-	-	-	-	-	-	-
Communications & Utilities	143	143	-	-	-	-	-	-	6	149	-	149	-	149
Other Services:														
-Other	3,582	3,582	-	-	-	-	-	-	671	4,253	57	4,310	-	4,310
-WCF	535	535	-	-	-	-	-	80	-	615	-	615	-	615
-WCF IT	1,350	1,350	-	-	-	-	-	138	-	1,488	-	1,488	-	1,488
-WCF Rent	247	247	-	-	-	-	-	109	-	356	-	356	-	356
Supplies	112	112	-	-	-	-	-	-	4	116	-	116	-	116
Equipment	41	41	-	-	-	-	-	-	1	42	9	51	-	51
<b>Operations Subtotal</b>	<b>\$ 20,864</b>	<b>\$ 20,864</b>	<b>\$ 185</b>	<b>\$ -</b>	<b>\$ 216</b>	<b>\$ 56</b>	<b>\$ (580)</b>	<b>\$ 328</b>	<b>\$ 1,362</b>	<b>\$ 22,430</b>	<b>\$ 236</b>	<b>\$ 22,666</b>	<b>\$ -</b>	<b>\$ 22,666</b>
<b>PROGRAMS</b>														
<b>Contract Safety Programs</b>														
Information Technology amd Modernization	\$ 4,572	\$ 4,572	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 592	\$ 5,164	\$ 303	\$ 5,467	\$ -	\$ 5,467
<b>Contract Safety Programs Subtotal</b>	<b>\$ 4,572</b>	<b>\$ 4,572</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 592</b>	<b>\$ 5,164</b>	<b>\$ 303</b>	<b>\$ 5,467</b>	<b>\$ -</b>	<b>\$ 5,467</b>
<b>Grants</b>														
Information Grants to Communities	\$ 2,000	\$ 2,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,000	\$ -	\$ 2,000	\$ -	\$ 2,000
Emergency Response Grants	2,500	2,500	-	-	-	-	-	-	-	2,500	-	2,500	-	2,500
<b>Grants Subtotal</b>	<b>\$ 4,500</b>	<b>\$ 4,500</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 4,500</b>	<b>\$ -</b>	<b>\$ 4,500</b>	<b>\$ -</b>	<b>\$ 4,500</b>
<b>Programs Subtotal</b>	<b>\$ 9,072</b>	<b>\$ 9,072</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 592</b>	<b>\$ 9,664</b>	<b>\$ 303</b>	<b>\$ 9,967</b>	<b>\$ -</b>	<b>\$ 9,967</b>
<b>TOTAL</b>	<b>\$ 29,936</b>	<b>\$ 29,936</b>	<b>\$ 185</b>	<b>\$ -</b>	<b>\$ 216</b>	<b>\$ 56</b>	<b>\$ (580)</b>	<b>\$ 328</b>	<b>\$ 1,954</b>	<b>\$ 32,094</b>	<b>\$ 539</b>	<b>\$ 32,633</b>	<b>\$ -</b>	<b>\$ 32,633</b>

**EXHIBIT II-5**  
**SUMMARY OF REQUESTED FUNDING CHANGES FROM BASE**  
**Pipeline and Hazardous Materials Safety Administration**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

Emergency Preparedness Account	FY 2023 Actual	FY 2024 CR	Baseline Changes							FY 2025 Baseline Estimate	Program Increases/ Decreases	FY 2025 Request		
			Annualization of Prior Pay Raises	Annualization of new FY 2024 FTE	FY 2025 Pay Raises	Adjustment for Compensable Days (261 days)	GSA Rent	WCF Increase/ Decrease	Inflation and other adjustments to base 1/					
<b>PERSONNEL RESOURCES (FTE)</b>	-	-	-	-	-	-	-	-	-	-	-	-		
Direct FTE	-	-	-	-	-	-	-	-	-	-	-	-		
<b>FINANCIAL RESOURCES</b>														
<b>Operations</b>														
Technical Assistance	\$ 141	\$ 141	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 141	\$ -	\$ 141
Emergency Response Guidebook	586	586	-	-	-	-	-	-	-	-	-	586	-	586
Other	603	603	-	-	-	-	-	-	-	-	-	603	-	603
<b>Operations Subtotal</b>	<b>\$ 1,330</b>	<b>\$ 1,330</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,330</b>	<b>\$ -</b>	<b>\$ 1,330</b>
<b>PROGRAMS</b>														
Hazardous Materials Emergency Preparedness Grants	\$ 21,988	\$ 21,988	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 21,988	\$ 16,507	\$ 38,495
Hazardous Materials Instructor Training (HMIT) Grants	4,000	4,000	-	-	-	-	-	-	-	-	-	4,000	1,000	5,000
Supplemental Public Sector Training Grants	1,000	1,000	-	-	-	-	-	-	-	-	-	1,000	1,000	2,000
Assistance for Local Emergency Response Training (ALERT)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Programs Subtotal</b>	<b>\$ 26,988</b>	<b>\$ 26,988</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 26,988</b>	<b>\$ 18,507</b>	<b>\$ 45,495</b>
<b>TOTAL</b>	<b>\$ 28,318</b>	<b>\$ 28,318</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 28,318</b>	<b>\$ 18,507</b>	<b>\$ 46,825</b>

**EXHIBIT II-6**  
**WORKING CAPITAL FUND**  
**Pipeline and Hazardous Materials Safety Administration**  
**(\$000)**

	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
<b>DIRECT:</b>			
Pipeline Safety All	\$ 11,204	\$ 11,204	\$ 12,826
Pipeline Safety Other	2,810	2,810	3,209
Pipeline Safety IT and IT Commodity Shared Services	7,094	7,094	7,761
Pipeline Safety Rent 1/	1,300	1,300	1,856
Hazardous Materials Safety All	\$ 6,539	\$ 6,539	\$ 7,415
Hazardous Materials Safety Other	1,640	1,640	1,855
Hazardous Materials Safety IT and IT Commodity Shared Services	4,140	4,140	4,487
Hazardous Materials Safety Rent 1/	759	759	1,073
Operational Expenses All	\$ 2,132	\$ 2,132	\$ 2,460
Operational Expenses Other	535	535	615
Operational Expenses IT and IT Commodity Shared Services	1,350	1,350	1,488
Operational Expenses Rent 1/	247	247	356
<b>SUBTOTAL</b>	<b>\$ 19,875</b>	<b>\$ 19,875</b>	<b>\$ 22,701</b>
<b>TOTAL, Base programs</b>	<b>\$ 19,875</b>	<b>\$ 19,875</b>	<b>\$ 22,701</b>
<b>SUPPLEMENTAL FUNDING</b>			
IIJA Supplemental (Division J) Subtotal	\$ 276	\$ 276	\$ 281
Natural Gas Disribution Infrastructure Safety & Modernization All	276	276	281
Natural Gas Disribution Infrastructure Safety & Modernization Other	69	69	70
Natural Gas Disribution Infrastructure Safety & Modernization IT and IT Commodity Shared Services	175	175	170
Natural Gas Disribution Infrastructure Safety & Modernization Rent 1/	32	32	41
<b>Total, All Sources</b>	<b>\$ 20,151</b>	<b>\$ 20,151</b>	<b>\$ 22,982</b>

**EXHIBIT II-7  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
PERSONNEL RESOURCE -- SUMMARY  
TOTAL FULL-TIME EQUIVALENTS**

	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
<b><u>DIRECT FUNDED BY APPROPRIATION</u></b>			
Pipeline Safety	313.0	356.0	373.5
Hazardous Materials Safety	188.0	211.0	241.0
Operational Expenses	67.0	70.0	71.0
<b>SUBTOTAL, DIRECT FUNDED</b>	<b>568.0</b>	<b>637.0</b>	<b>685.5</b>
<b>BASE TOTAL FTEs</b>	<b><u>568.0</u></b>	<b><u>637.0</u></b>	<b><u>685.5</u></b>
<b><u>SUPPLEMENTAL FUNDED FTE's</u></b>			
IIJA Supplemental Funding			
Natural Gas Distribution Infrastructure Safety & Modernization	10.0	9.0	9.0
<b>SUBTOTAL, Supplemental Funded</b>	<b>10.0</b>	<b>9.0</b>	<b>9.0</b>
<b>TOTAL FTEs</b>	<b><u>578.0</u></b>	<b><u>646.0</u></b>	<b><u>694.5</u></b>

**EXHIBIT II-8  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
RESOURCE SUMMARY – STAFFING  
FULL-TIME PERMANENT POSITIONS**

	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
<b><u>DIRECT FUNDED BY APPROPRIATION</u></b>			
Pipeline Safety	365	365	377
Hazardous Materials Safety	213	213	241
Operational Expenses	70	70	72
<b>SUBTOTAL, DIRECT FUNDED</b>	<u>648</u>	<u>648</u>	<u>690</u>
<b>BASE TOTAL POSITIONS</b>	<u><u>648</u></u>	<u><u>648</u></u>	<u><u>690</u></u>
<b><u>SUPPLEMENTAL FUNDED FTP's</u></b>			
IIJA Supplemental Funding			
Natural Gas Distribution Infrastructure Safety & Modernization	9	9	9
<b>SUBTOTAL, Supplemental Funded</b>	<u>9</u>	<u>9</u>	<u>9</u>
<b>TOTAL POSITIONS</b>	<u><u>657</u></u>	<u><u>657</u></u>	<u><u>699</u></u>



EXHIBIT III-1a

All PHMSA ACCOUNTS  
SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025  
Appropriations, Obligations, Limitations, and Exempt Obligations  
(\$000)

	<u>\$000</u>	<u>FTE</u>
<b>FY 2024 CR</b>	\$ 519,382	646.0
<b>ADJUSTMENTS TO BASE:</b>		
Annualization of FY 2024 FTE	2,596	
Annualization of Prior Pay Raise(s)	1,507	11.0
FY 2025 Pay Raise	1,781	
GSA Rent	(617)	
Adjustment for Compensable Days (261 days)	463	
Working Capital Fund	2,831	
Non-Pay Inflation and Other Adjustments to Base	10,802	-
<b>SUBTOTAL, ADJUSTMENTS TO BASE</b>	<b>\$ 19,363</b>	<b>11.0</b>
<b>PROGRAM REDUCTIONS</b>		
<b>Pipeline Safety</b>		
Underground Natural Gas Storage (UNGS) Grants to Operations	(1,000)	
LNG Center of Excellence R&D to Operations	(1,000)	
<b>Pipeline Safety Subtotal</b>	<b>\$ (2,000)</b>	<b>-</b>
<b>Hazardous Materials Safety</b>		
Hazardous Materials State Inspection Grant Program	(1,500)	
ALERT Grants	(1,000)	
<b>Hazardous Materials Safety Subtotal</b>	<b>\$ (2,500)</b>	
<b>SUBTOTAL, PROGRAM REDUCTIONS</b>	<b>\$ (4,500)</b>	<b>-</b>
<b>PROGRAM INCREASES</b>		
<b>Pipeline Safety</b>		
State Pipeline Safety Grants	21,500	
General Research	2,500	
Implementing PIPES Act Mandates	4,003	
Training, Information & Community Assistance	2,000	
Additional Engineering and Research Staff (5 FTE)	1,180	5.0
LNG Center of Excellence Operations from R&D	1,000	
7 Additional Underground Natural Gas Storage (UNGS) Inspectors (3.5 FTE)	826	3.5
Inspector Travel	970	
Cybersecurity Investments	580	
UNGS Training	200	
<b>Pipeline Safety Subtotal</b>	<b>\$ 34,760</b>	<b>8.5</b>
<b>Hazardous Materials Safety</b>		
Community Safety Grants	3,000	
Special Permits - Space Initiative (7 FTE)	2,652	7.0
Outreach, Training and Compliance	1,184	
Outreach Staff (10 FTE)	2,360	10.0
Accident Investigators (8 FTE)	1,888	8.0
Emerging Energy Experts (3 FTE)	708	3.0
Investigator Travel	650	
Cybersecurity Investments	132	
<b>Hazardous Materials Safety Subtotal</b>	<b>\$ 12,574</b>	<b>28.0</b>
<b>Operational Expenses</b>		
Expanded and enhanced Civil Rights function 2 FTP (1 FTE)	236	1.0
Cybersecurity Investments	303	
<b>Operational Expenses Subtotal</b>	<b>\$ 539</b>	<b>1.0</b>
<b>Emergency Preparedness Grants</b>		
Hazardous Materials Emergency Preparedness Grants	16,507	
Hazardous Materials Instructor Training (HMIT) Grants	1,000	
Supplemental Public Sector Training Grants	1,000	
<b>Emergency Preparedness Grants Subtotal</b>	<b>\$ 18,507</b>	<b>-</b>
<b>SUBTOTAL, PROGRAM INCREASES</b>	<b>\$ 66,380</b>	<b>37.5</b>
<b>FY 2025 REQUEST</b>	<b>\$ 600,624</b>	<b>694.5</b>

**III: Budget Request by Appropriation  
Account Exhibits and Narrative  
Justification**

# **Pipeline Safety**

**APPROPRIATIONS LANGUAGE**

**PIPELINE SAFETY**

**(PIPELINE SAFETY FUND)**

**(OIL SPILL LIABILITY TRUST FUND)**

For expenses necessary to carry out a pipeline safety program, as authorized by section 60107 of title 49, United States Code, and to discharge the pipeline program responsibilities of the Oil Pollution Act of 1990 (Public Law 101–380), [~~\$228,228,000~~] *\$234,580,000*, to remain available until September 30, [~~2026~~] *2027*, of which [~~\$30,000,000~~] *\$31,000,000* shall be derived from the Oil Spill Liability Trust Fund; of which [~~\$190,828,000~~] *\$196,180,000* shall be derived from the Pipeline Safety Fund; of which \$400,000 shall be derived from the fees collected under section 60303 of title 49, United States Code, and deposited in the Liquefied Natural Gas Siting Account for compliance reviews of liquefied natural gas facilities; and of which \$7,000,000 shall be derived from fees collected under section 60302 of title 49, United States Code, and deposited in the Underground Natural Gas Storage Facility Safety Account for the purpose of carrying out section 60141 of title 49, United States Code.

## What Is the Goal of the Pipeline Safety Program and What Does the Funding Level Support?

### Key Pipeline Safety Request Highlights (Increases and new initiatives):

- **\$3.0 million Underground Natural Gas Storage (UNGS) Operations (\$1.0 million Increase):** Additional inspectors are needed to adequately maintain and oversee the UNGS program. Only 14 states with UNGS facilities participate in the UNGS safety program. PHMSA is responsible for UNGS inspection, enforcement, and safety in the remaining 17 states that do not participate. This includes inspection of 287 facilities and 130 operators on a five-year cycle, as well as over 700 construction notifications per year. To assure safety, this requires additional inspectors. PHMSA is taking a phased approach towards adding inspectors and is requesting seven of the needed positions in FY 2025. PHMSA will also use funding to provide specialized UNGS courses such as Well Drilling and Workover Operations, Well Design and Engineering, and Wireline Well Integrity Evaluation to both PHMSA and State UNGS inspectors.
- **\$5.7 million Pipeline Safety Operations Travel (\$970 thousand Increase):** Additional funding addresses rapid increases in travel costs for PHMSA inspectors. As pandemic restrictions end and business returns to normal, inspectors are traveling significantly more. The cost to travel has significantly increased due to higher airline cost, gas, hotel, and inflation.
- **\$1.5 million Cybersecurity Investments (\$580 thousand increase):** Information Technology Implementation Memorandum (ITIM)-2002-006 required the Department of Transportation (DOT) and all associated Operating Administrations (OAs) to adopt Multi-Factor Authentication (MFA) for all the information systems by December 31st, 2023. To continue to meet this requirement, PHMSA requires contractor support in the design, development, and integration of Multi-Factor Authentication for PHMSA Portal System (PPS) and all associated applications. Under this effort, PHMSA intends to retire its current Identity Management Suite and adopt a cloud-based authentication method. This initiative serves a dual purpose, so that PHMSA is compliant with the DOT ITIM and PHMSA is on track with its roadmap to adopt cloud-based technologies. After the development and deployment of the MFA solution on PHMSA Systems, PHMSA will require support for the operations and maintenance (O&M) of the implemented solution. This will ensure robust cybersecurity protection from unauthorized access, protect mission-critical data, and ensure 24/7 system reliability and access.

### PHMSA's Oversight of an Expansive Network of U.S. Pipelines

PHMSA's pipeline safety program promotes the safe delivery of energy products to market in a manner that protects people, property, and the environment. Most gas and oil products move via pipeline from their sources to refineries and then to market. Since 2000, the Nation's energy

production has more than doubled, with nearly all energy products transported via pipelines to refineries and from refineries to market without a significant increase in incidents.

The United States operates the most expansive network of energy pipelines in the world.

According to the U.S. Energy Information Administration (EIA), this network safely transports 68 percent of the energy consumed in the country, helping to power nearly every facet of our daily lives, and providing significant economic benefits to the nation.

PHMSA's mission is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives. PHMSA administers a national regulatory safety program for interstate and intrastate pipeline facilities including approximately 3.3 million miles of pipelines, 8,538 breakout tanks, 173 liquefied natural gas plants, and 402 underground natural gas storage facilities. PHMSA oversees the safe operation of 266,780 miles of hazardous liquid pipelines, 300,930 miles of gas transmission pipelines, 2.3 million miles of gas distribution mains and services, and 350,200 miles of gas gathering pipelines. Some of these pipelines are part of an aging infrastructure network, and traverse through cities and neighborhoods, especially those that have been historically underserved. Going forward, modernization of old, less reliable pipeline networks with newer pipes that can pave the way for cleaner fuels, such as hydrogen and bio-blends, will be critical. For example, PHMSA's \$1 billion Natural Gas Distribution Infrastructure Safety and Modernization Grants program, funded through the Infrastructure Investment and Jobs Act of 2021, will repair, rehabilitate, or replace legacy leak-prone pipes, often in disadvantaged areas, enhancing pipeline safety and reducing methane emissions from these pipelines.

PHMSA's pipeline safety program requires that pipeline operators design, construct, operate, and maintain their pipeline facilities in compliance with the federal pipeline safety regulations (PSR). To help ensure that operators comply with these regulations, PHMSA conducts inspections of pipeline facilities for compliance with the PSRs.

### **PHMSA's Center of Excellence for Liquefied Natural Gas Safety (Center)**

Demand for LNG is growing in the United States and worldwide demonstrating that our nation, as the world's leading LNG exporter, is poised to play a critical role in meeting global energy needs. In the FY 2023 Consolidated Appropriations Act, Congress provided funds for PHMSA to establish a Center of Excellence for LNG Safety, which will 1) further federal government expertise in LNG operations, management, and regulatory practices, 2) create a repository of information on best practices for LNG facility operators and all potential stakeholders, and 3) increase LNG sector stakeholder collaboration. PHMSA plans to continue funding LNG safety research, facilitated through the Center, enabling PHMSA to be a centralized, active collaborator with the LNG sector stakeholders, as defined in Section 111 of the Pipeline Act of 2016. This collaboration will result in cooperative research with academic and private-sector partners, as well as national laboratories and nongovernmental organizations to further LNG safety technology development and implementation. The Center will help ensure United States' status as the foremost worldwide expert in LNG facility and improve operational efficiency, safety, and environmental practices within the LNG sector.

Work on establishing the Center is underway, including soliciting input from LNG stakeholders and identifying a suitable site for the Center in Louisiana. PHMSA is also reaching out to other federal agencies with a stake in LNG facility operations and safety, including the Department of Energy, Federal Energy Regulatory Commission, and U.S. Coast Guard, to collaborate with the DOT regarding the Center's establishment, and/or maintaining a continued presence throughout the life of the Center.

### **PHMSA's Oversight of the Safe Underground Storage of Natural Gas**

The PIPES Act of 2016 charged PHMSA with safety oversight of nearly 400 underground natural gas storage facilities in 31 states. Natural gas is an important commodity worldwide, particularly for generating power and for domestic space heat. Underground storage facilities are a critical component of the United States' natural gas supply infrastructure.

Underground natural gas storage facilities are a major part of the U.S. energy supply portfolio and involves the storage of natural gas in depleted natural gas or oil reservoirs, salt caverns, or aquifers. These different types of underground natural gas storage facilities (see Figure 1 below) offer natural gas providers flexibility to manage seasonal variations in demand and provide a buffer for changing production levels. Local distribution companies, for instance, can quickly access large volumes of gas (stored during off-peak times) for end-users amid periods of high demand, such as cold spells in the winter or periods of high electricity demand in the summer. Underground storage also allows natural gas to be stored safely after extraction while awaiting domestic use or export. Without underground natural gas storage facilities, additional pipelines would need to be constructed to meet daily peak demands. Thus, a benefit of underground natural gas storage facilities is a lesser environmental impact due to the need for fewer pipelines to meet energy demand. Fewer pipelines in the ground mean less digging, invasive construction underground, and impact to the environment.

## Types of Underground Storage Facilities

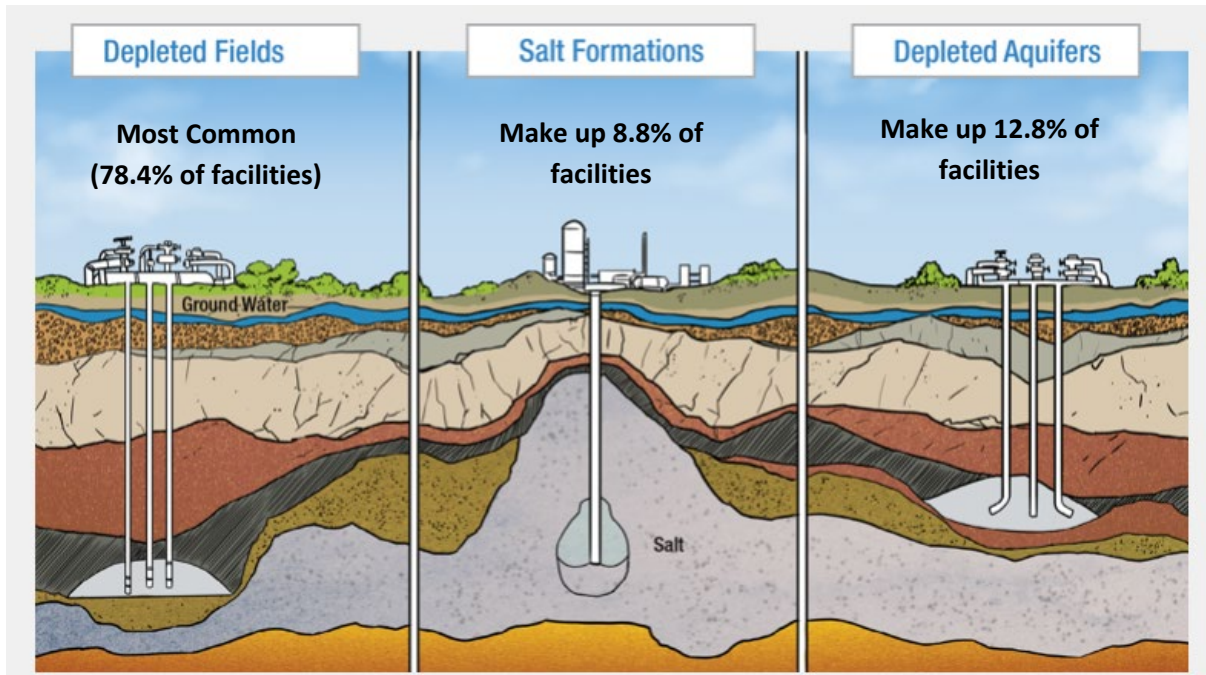
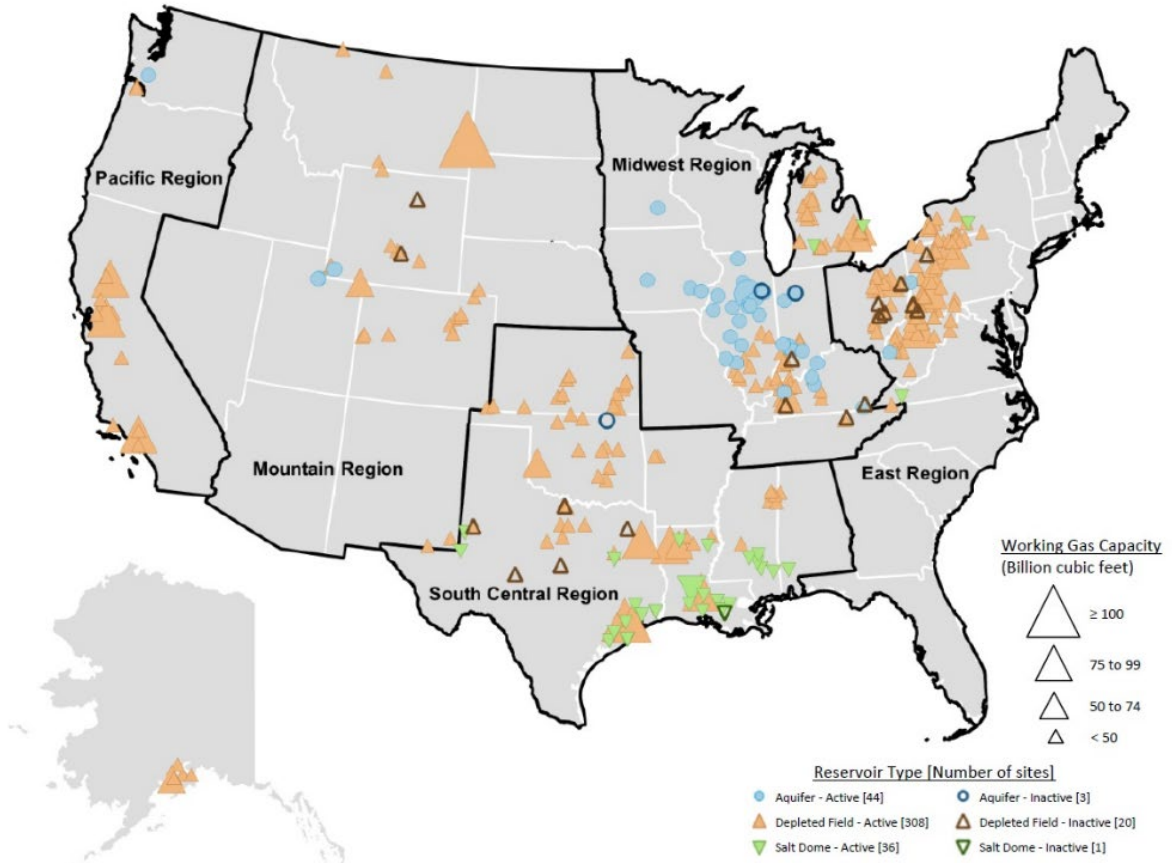


Figure 1: Natural Gas Storage Types (Source: [www.energyinfrastructure.org](http://www.energyinfrastructure.org))

An estimated 78.4 percent of underground natural gas storage facilities in the United States hold natural gas in depleted oil and gas reservoirs, while the rest remain stored in salt caverns and depleted aquifers. PHMSA develops safety standards for containment within these natural formations and conducts periodic inspections.



U.S. Underground Natural Gas Storage Facility, by Type (December 2019)



**EXHIBIT III-1**  
**PIPELINE SAFETY**  
**Summary by Program Activity**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

	<u>FY 2023 ACTUAL</u>	<u>FY 2024 CR</u>	<u>FY 2025 REQUEST</u>
Operations	\$ 109,827	\$ 109,827	\$ 132,022
Research and Development	\$ 12,500	\$ 12,500	\$ 14,000
Grants	\$ 68,058	\$ 68,058	\$ 88,558
<b>TOTAL, Base appropriations</b>	<u>\$ 190,385</u>	<u>\$ 190,385</u>	<u>\$ 234,580</u>
FTEs			
Direct Funded	313.0	356.0	373.5

**Program and Performance Statement**

PHMSA oversees the safe transportation of energy products and hazardous materials through pipelines. PHMSA's pipeline safety program regulates an expansive network of approximately 3.3 million miles of gas and hazardous liquid pipelines within the United States, as well as facilities that liquefy natural gas and store natural gas underground. PHMSA establishes and enforces pipeline safety standards and conducts safety inspections in collaboration with state partners to monitor the construction and operating safety of pipelines. The pipeline safety program is funded by fees collected from pipeline and underground natural gas storage facility operators, as well as by an annual allocation from the Oil Spill Liability Trust Fund.

**EXHIBIT III-1a**  
**PIPELINE SAFETY**  
**SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025**  
**Appropriations, Obligations, Limitations, and Exempt Obligations**  
**(\$000)**

	<u>\$000</u>	<u>FTE</u>
<b>FY 2024 CR</b>	\$ -190,385	- 356.0
<b>ADJUSTMENTS TO BASE:</b>	-	-
Annualization of FY 2024 FTE	2,124	9.0
Annualization of Prior Pay Raise(s)	824	
FY 2025 Pay Raise	983	
GSA Rent	-	
Adjustment for Compensable Days (261 days)	255	
Working Capital Fund	1,622	
Non-Pay Inflation and Other Adjustments to Base	5,627	
<b>SUBTOTAL, ADJUSTMENTS TO BASE</b>	<b>\$ 11,435</b>	<b>9.0</b>
<b>PROGRAM INCREASES</b>		
State Pipeline Safety Grants	21,500	
General Research	2,500	
Implementing PIPES Act Mandates	4,003	
Training, Information & Community Assistance	2,000	
Additional Engineering and Research Staff (5 FTE)	1,180	5.0
LNG Center of Excellence Operations from R&D	1,000	
7 Additional Underground Natural Gas Storage (UNGS) Inspectors (3.5 FTE)	826	3.5
Inspector Travel	970	
Cybersecurity Investments	580	
UNGS Training	200	
<b>SUBTOTAL, PROGRAM INCREASES</b>	<b>\$ 34,760</b>	<b>8.5</b>
<b>PROGRAM DECREASES</b>		
Underground Natural Gas Storage (UNGS) Grants to Operations	(1,000)	
LNG COE R&D to Operations	(1,000)	
<b>SUBTOTAL, PROGRAM DECREASES</b>	<b>\$ (2,000)</b>	<b>-</b>
<b>FY 2025 REQUEST</b>	<b>\$ 234,580</b>	<b>373.5</b>
<b>Supplemental Appropriations</b>	<b>-</b>	<b>-</b>
<b>TOTAL</b>	<b>\$ 234,580</b>	<b>373.5</b>

**Detailed Justification for the Pipeline Safety Program**

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**FY 2025 – Pipeline Safety Program Budget Request  
(\$000)**

<b>Program Activity</b>	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
Operations	\$ 85,864	\$ 85,864	\$ 101,856
Contract Safety Programs	23,963	23,963	30,166
Research and Development	12,500	12,500	14,000
Grants	68,058	68,058	88,558
<b>Total</b>	<b>\$ 190,385</b>	<b>\$ 190,385</b>	<b>\$ 234,580</b>
<b>FTEs</b>	<b>313.0</b>	<b>356.0</b>	<b>373.5</b>

**Grants: \$88.6 million**

PHMSA provides grants to states to support inspection and enforcement activities of the Nation’s vast network of intrastate pipelines, including pipelines that operate in cities and neighborhoods, especially in underserved communities. This partnership allows states to inspect pipeline systems, offer input into the design of community safety programs, and provide more economical oversight of intrastate facilities. The amounts requested for each of the programs are listed below:

**State Pipeline Safety Grants, \$82.0 million:** The State Pipeline Safety Grant program supports state inspections of pipeline facilities within a state, and nine states which act as agents for PHMSA inspecting pipelines crossing state boundaries. States inspect and enforce pipeline safety regulations for over 85 percent of the infrastructure under PHMSA’s safety authority. There are currently 444 state inspectors, and PHMSA encourages states to increase the number of inspectors based on the increase in regulations and pipeline miles required to be inspected. With FY 2022 and FY 2023 enacted funding levels, PHMSA expects reimbursement of state costs to be approximately 55 percent. If a state chooses to not continue in the State Pipeline Safety Grant program, it becomes PHMSA’s responsibility to inspect the pipeline facilities in the state and PHMSA does not have the available resources to take on this task.

PHMSA is authorized to reimburse states for up to 80 percent of the cost of carrying out their pipeline safety programs, including inspection staff and equipment costs. States depend on PHMSA’s funding to support hiring, training, and retaining the state workforce. PHMSA expects the new Gas Gathering Line Rule, which expanded the number of miles of pipelines

under PHMSA's jurisdiction by over 400,000 miles, will increase the amount of state pipeline infrastructure and increase the number of operators that must be inspected by states.

Reimbursement under this grant program is based on the costs incurred by a state and the effectiveness of its pipeline safety program, as determined by PHMSA's evaluation of the state's performance. Each year, PHMSA evaluates the quality of state programs and the safe operation of intrastate pipelines by scoring state programs through the annual Program Evaluation and Progress Report. This evaluation includes an on-site review of the state's records and activities related to inspections, compliance, accident investigations, training, and excavation damage prevention. PHMSA also reviews the states' inspection of new pipeline construction and the implementation of pipeline operator integrity management programs designed to prevent accidents and spills.

The State Pipeline Safety Grant program supports state economies by funding approximately 399 gas and 45 hazardous liquid pipeline safety state inspectors. All states, except Alaska and Hawaii, participate in PHMSA's pipeline safety program. Through PHMSA's support and partnership with states, pipeline incidents involving distribution systems have decreased, while infrastructure has increased. Since 2005, distribution infrastructure has increased by 18 percent while distribution incidents have decreased by 60 percent. Additionally, excavation damages to pipelines measured per one thousand notices of excavation have decreased by 34 percent during the last 13 years. This reduction in incidents and increase in safety oversight also supports reducing greenhouse gas emissions.

**Underground Natural Gas Storage Grants, \$4.0 million:** Underground Natural Gas Storage (UNGS) grants help ensure safety, reduce environmental impacts, and drive economic growth by overseeing the safe and efficient storage and subsequent transportation of natural gas. PHMSA reimburses inspection costs to the 13 out of 14 states participating in the UNGS safety program. States may qualify for reimbursement if they are participating in PHMSA's UNGS grants program through a certification or agreement with PHMSA. As with the long-established State Pipeline Safety Grants program, UNGS grants pay up to 80 percent of the qualifying costs related to inspections, enforcement, personnel, and equipment. The number of total incidents for UNGS has decreased 71 percent over the last six years, also supporting a reduction in greenhouse gas emissions because of increased state and federal oversight. However, a single incident can have significant environmental consequences.

**State Damage Prevention Grants, \$1.5 million:** State Damage Prevention Grants were designed with a two-fold purpose: 1) establish comprehensive state programs to prevent excavation damage to underground pipeline facilities in states that lack these programs, and 2) improve and enhance existing state damage prevention programs. To qualify for this grant, stakeholders engage cooperatively to evaluate and improve their state's damage prevention program and incorporate the nine elements of an effective damage prevention program.

Once the grantees receive their state damage prevention grants funds, it is their responsibility to execute the nine elements below:

1. Enhanced communication between operators and excavators
2. Fostering support and partnership among all stakeholders
3. Operator's use of performance measures for pipe locators  
*(equipment that help to locate pipes and cables underground easier and faster)*
4. Partnership in employee training
5. Partnership in public education
6. Fair and consistent enforcement of the law
7. Use of technology to improve the locating process
8. Working with the enforcement agency to resolve issues
9. Data analysis to continually improve the program effectiveness

See Pipeline Locator Below



**State One-Call Grants, \$1.1 million:** The State One-Call Grant program enhances public safety, protects the environment, minimizes risks to excavators, and prevents disruption of vital public services by reducing the incidence of excavation damage to underground facilities across the nation including those that operate in cities, neighborhoods, and underserved communities. States must demonstrate their compliance and alignment with 49 U.S.C. 6106(a) goals for improving state damage prevention programs.

Goals of the program are to improve:

- Overall quality and effectiveness of One-Call notification systems in the state
- Communications systems linking One-Call notification systems
- Location capabilities, including training personnel and developing and using location technology
- Record retention and recording capabilities for One-Call notification systems.
- Public information and education
- Participation in One-Call notification systems
- Compliance and enforcement under the state One-Call notification program

In FY 2023, PHMSA awarded a total of \$1.1 million in State One-Call Grants. Funding these grants will ensure an effective, efficient, and reliable underground utilities network. Additionally, excavation damages to pipelines measured per one thousand notices of excavation have decreased by 34 percent during the last 13 years, demonstrating the efficacy of the program.

## Operations: \$101.9 million

PHMSA Office of Pipeline Safety's (OPS') FY 2025 budget request funds 377 positions (373.5 FTE) and covers costs of salaries, benefits, travel, training, supplies, and equipment (including personal protective equipment for all inspectors). Of the 377 positions, 254 are inspection and enforcement staff working across the country through a network of regional offices. Funding at this level would enable PHMSA to go beyond the mission-critical inspection and enforcement staff required in the PIPES Act of 2020. The remaining OPS staff include subject matter experts in engineering, research and development, rulemaking, and enforcement as well as administrative support staff.

PHMSA continues to manage a robust regulatory agenda with demonstrated results. Since 2011, PHMSA has completed more than 20 final rules for pipeline safety, including the following rules mandated by the PIPES Act of 2020: Safety of Gas Gathering Pipelines; Requirement of Valve Installation and Minimum Rupture Detection Standards; and Unusually Sensitive Areas for the Great Lakes, Coastal Beaches, and Certain Coastal Waters. PHMSA plans to issue additional regulations pursuant to the PIPES Act of 2020 and the Leonel Rondon Act that will enhance pipeline safety such as: imposing safety requirements for idled natural gas and hazardous liquid pipelines; updating minimum safety standards for permanent, small scale LNG plants; ensuring gas distribution inspection and maintenance plans contribute to public safety, the reduction of leaks and natural gas releases, and protection of the environment; and requiring that state authorities have sufficient qualified inspectors.

In furtherance of its rulemaking efforts and in accordance with the PIPES Act of 2020, PHMSA has completed its hiring of eight full-time employees to help finalize outstanding rulemakings and fulfill Congressional mandates.

PHMSA's Office of Pipeline Safety is headquartered in Washington, D.C., with seven field offices located in West Trenton, New Jersey; Atlanta, Georgia; Kansas City, Missouri; Houston, Texas; Lakewood, Colorado; Ontario, California; and Anchorage, Alaska. PHMSA also operates a national training center and accident investigation office located in Oklahoma City, Oklahoma. OPS staff conducts inspections, investigations, outreach, and enforcement activities. It also works alongside its state partners and participates in spill response drills led by the Environmental Protection Agency, U.S. Coast Guard, Department of Interior's Bureau of Safety and Environmental Enforcement, and petroleum pipeline operators. Important investments in FY 2025 include:

**Hiring and Retention Incentives for Hard-to-Fill Positions:** PHMSA relies on specially trained engineers and other subject matter experts to conduct inspection and enforcement activities, as well as provide training for those conducting inspection and enforcement activities. PHMSA competes with the private sector to attract and retain qualified pipeline inspectors, accident investigators, engineering analysts, and other subject matter experts. In the past, the commercial energy industry and at least one other federal agency has offered candidates higher salaries and provided attractive employment incentives, placing PHMSA at a disadvantage in recruiting and retaining its staff. In recent years, PHMSA has focused significant efforts on recruiting and retaining highly qualified inspectors, engineers, and pipeline subject matter

experts. In recognition of the critical nature of these positions, the PIPES Act of 2020 authorized PHMSA to provide recruitment and retention incentives such as tuition assistance, student loan repayment, and special pay rates.

In FY 2023, special pay rates were implemented for engineer inspectors reporting to localities near PHMSA's regional offices. Also in FY 2024, PHMSA began implementing group recruitment and retention incentives for engineer inspectors. In FY 2025, PHMSA intends to use this incentive for other essential, hard-to-fill positions including, but not limited to, instructors and other pipeline subject matter experts.

**Climate Change Mitigation Staff:** In support of EO 14008 (Tackling Climate Change at Home and Abroad), in FY 2025 these positions will improve PHMSA's research and analysis, leading to better rulemaking and policies to mitigate adverse impacts of climate change. These positions will support ongoing work related to the following:

- The DOT Climate Action Plan Progress Report
- The DOT Transportation Decarbonization Blueprint
- The DOT Low Carbon Procurement Pilot
- The DOT Climate Change Center Methane Emissions Reduction Challenge
- Environmental justice and equity initiatives and policies (Justice40 and PHMSA's 2012 EJ Policy, respectively)
- The White House Permitting Action Plan
- Other environmental rulemakings and reviews

**Liquefied Natural Gas Plants:** PHMSA evaluates proposed LNG plants' siting, design, and construction records as part of its compliance inspections during the construction phase, and operational and maintenance plans and records as part of its safety inspections during facility operation. Currently, 35 operational LNG plants require compliance inspections by PHMSA; PHMSA inspects operational plants an average of once every three years. PHMSA is also conducting ongoing inspections of 15 LNG plants<sup>1</sup> under construction to ensure compliance with regulatory standards and expects nine additional plants to be under construction by the end of calendar year 2024. Successful collaboration between PHMSA, FERC, and the U.S. Coast Guard has resulted in increased safety within U.S. LNG export facilities.

In addition, Section 110 of the PIPES Act of 2020 mandated that PHMSA review the minimum operating and maintenance standards specified in 49 U.S.C. 60103(d) and use results of the review to update the standards applicable to large-scale LNG plants no later than three years after the date of the Act. PHMSA is currently reviewing its operations and maintenance regulations under 49 CFR Part 193 along with other requirements regarding location, design, construction, fire protection, security, and personnel training relative to LNG plants. PHMSA will use the results of the review to update LNG facility regulations, in FY 2024 and beyond.

<sup>1</sup> Currently, PHMSA conducts construction inspections of 11 interstate LNG plants and assists its State Partners with four peak-shaving LNG facility construction inspection.



**National Center of Excellence for Liquefied Natural Gas Safety (Center):** On December 5, 2022, PHMSA completed the report regarding a National Center of Excellence for Liquefied Natural Gas Safety (Center), as requested in Section 111 of the PIPES Act of 2020.<sup>2</sup> The report described the resources necessary to operate the Center and proposed how such a facility could operate to carry out its functions. Section 111 identified the functions of the Center as:

“...enhance the United States as the leader and foremost expert in LNG operations by –

- (1) furthering the expertise of the Federal Government in the operations, management, and regulatory practices of LNG facilities...
- (2) acting as a repository of information on best practices for the operation of LNG facilities; and
- (3) facilitating collaboration among LNG section stakeholders.”

As described in Section 111, the Center shall enhance the United States as the leader and foremost expert in LNG operations by furthering the expertise of the federal government in LNG facilities’ oversight and improve stakeholder engagement, collaboration, and coordination on state-of-the-art LNG operational practices.

On May 17, 2023, PHMSA held an informational webinar that provided an overview of the Center’s mission, purpose, and status. PHMSA anticipates the Center’s location to be in Louisiana, the state with the largest LNG production capacity as authorized by FERC on the date of enactment of the PIPES Act of 2020 (December 21, 2020). The Center must also be near critical LNG transportation infrastructure and connected to the Gulf of Mexico. PHMSA also provided its current priorities for initiating Center operations, how stakeholders could provide input on the establishment of the Center, and the way it could execute the functions required by Section 111, including focused activities on safety, environmental protection, GHG emissions reduction, and regulatory considerations. PHMSA plans to incorporate stakeholder input and feedback to inform the Center’s strategic planning, operations, and management. PHMSA is in the early stages of establishing the Center, and this work will continue into FY 2024 and future fiscal years.

Congress appropriated \$8.4 million to PHMSA for the creation of the Center in the FY 2023 Consolidated Appropriations Act. The funding includes \$2.4 million for the establishment of the Center with up to \$6 million available for LNG focused research. For FY 2025, PHMSA requests that \$1 million to be re-purposed from the research funding line item towards operational costs for the Center. This will allow adequate staff and resources to successfully execute the research program as a primary function with the Center.

<sup>2</sup> <https://www.phmsa.dot.gov/news/report-congress-national-center-excellence-lng-safety>.

## **Contract Safety Programs: \$30.2 million**

Contracts for pipeline safety programs support PHMSA’s inspection and compliance activities, helping to ensure the safe movement of hazardous materials through the nation’s pipeline network. PHMSA collects and analyzes data to inform safety standards, and trains both federal and state inspection and enforcement staff. Contract funds also support PHMSA’s efforts to increase communication with those impacted by pipelines, particularly in underserved and vulnerable communities, as well as support excavation damage prevention efforts, and assist PHMSA in the review of special permits and approvals. OPS’ contracted safety programs include:

**Compliance/Pipeline Integrity Management/Inspection Support, \$13.8 million:** PHMSA issues safety standards and regulations that operators must follow to properly design, construct, operate, and maintain their pipelines. PHMSA conducts compliance inspections of more than 560 unique pipeline companies, many of which operate multiple pipeline systems. Additionally, operators must regularly update their pipeline integrity management plans to assess the condition of the pipelines and implement preventative and mitigative actions to ensure safety and prevent incidents that could injure people, harm property, or degrade environmental resources such as drinking water.

**Training, Information, and Community Assistance Services, \$10.3 million:** To improve outreach and engagement on pipeline safety matters, PHMSA funds information-sharing meetings, workshops, training, and community assistance services for internal and external stakeholders. The agency engages with and facilitates communication among myriad pipeline stakeholders, including the public, landowners, operators, government, and elected officials. PHMSA also participates with the Common Ground Alliance and the Pipeline Safety Trust on pipeline damage prevention efforts and maintains representatives in each PHMSA region who inform communities about pipeline safety risks, answers questions, address pipeline safety complaints, educates the public and landowners on how to work and live safely around pipelines, provides technical assistance. In calendar year 2023, PHMSA participated in over 200 outreach and engagement activities, with 25 percent of the activities dedicated to underserved and transportation disadvantaged communities. PHMSA expects to continue this level of engagement going forward with a more focused effort on underserved and transportation disadvantaged communities.

PHMSA continues to use the Pipeline Safety Management System (SMS) as required by Section 205 of the PIPES Act of 2020, which mandated that the Secretary and the relevant State authority promote and assess pipeline SMS frameworks based on guidance and recommendations obtained from a report also mandated by Section 205. In FY 2025, PHMSA will expand national outreach efforts to advance pipeline SMS, emphasizing Administration priorities – safety, economic strength and global competitiveness, equity, climate and sustainability, transformation, and organizational excellence.

PHMSA will continue engaging with stakeholders on effective pipeline safety management systems frameworks and promote a “safety first” culture. PHMSA will also expand how input is received from all stakeholders, including public interest advocacy groups like the Pipeline Safety

Trust, labor unions, and environmental groups. PHMSA will use data to focus inspection efforts to enhance safety in the most socially vulnerable areas and consider how rulemakings and agency decisions affect underrepresented communities and increase community outreach efforts to increase awareness and education in socially vulnerable areas. For example, aging and higher risk infrastructure is found in older parts of cities and towns, which often coincide with disadvantaged and underserved communities. PHMSA has developed several interactive equity tools that will allow the public and states to view incident information in social vulnerability areas relative to pipeline locations and population areas. PHMSA expects these tools will enable PHMSA and states to make data-driven decisions that promote equity in transportation.

**Mapping and Information Systems, \$4.3 million:** PHMSA's National Pipeline Mapping System (NPMS) is designed to assist federal, state, and local government officials as well as pipeline operators with displaying and querying data related to gas transmission and hazardous liquid pipelines, liquefied natural gas plants, and breakout tanks. In the PIPES Act of 2011, Congress mandated PHMSA to provide high consequence area geographic information systems (GIS) data sets to pipeline operators once every two years. This system helps ensure safety of the pipeline network and avoid adverse environmental impacts.

**Implementing the Oil Pollution Act, \$1.4 million:** The 1990 Oil Pollution Act (OPA 90) requires that operators who store, handle, or transport oil maintain spill response plans and have adequate resources to minimize the environmental impact of oil spills to sensitive environments. PHMSA's review and approval of oil spill response plans identifies errors and assists pipeline operators to better plan and implement improvements to response procedures before, during, and after an oil spill. PHMSA reviews response plans submitted by operators of onshore oil pipelines to ensure compliance, maintaining approximately 556 active response plans, and completing reviews on 481 plans annually. PHMSA approves compliant plans and requires operators with deficient plans to make corrections. The agency reviews all corrected plans before issuing an approval. Of the 556 active response plans, PHMSA has approved 470, issued letters of corrections for 11, and have 75 under review. This critical function ensures protection of the onshore environment.

The National Preparedness for Response Program (PREP) establishes a workable exercise program for pipeline operators to meet exercise requirements under OPA 90-mandated federal oil pollution response exercise requirements. PHMSA evaluates operator PREP exercises to ensure requirements for oil pollution response plans are being met and assess compliance with federal regulations. PHMSA engages in PREP exercises to evaluate preparedness and response plans, procedures, and capabilities; identify best practices and opportunities for improvement; and implement improvement plans. PHMSA expects to engage in a minimum of 25 PREP exercises in FY 2025, providing support to other federal, state, local, or tribal partners, or evaluating operator compliance with federal regulations and their capability to prepare, prevent, respond, and recover from oil spills and impacts to the environment.

**Liquefied Natural Gas Facility Siting Reviews, \$400 thousand:** PHMSA determines whether the siting, design, construction, operations, maintenance, personnel qualification and training, fire protection, and security of certain LNG plants are effective and comply with federal safety standards. Recent expansion in the production of natural gas for consumption in the United

States and for export has contributed to the expansion of liquefaction facilities and transportation of liquefied natural gas.

There are 173 LNG plants operating in the United States. PHMSA is responsible for ensuring these and future plants operate safely (Part 193 reviews). Currently, PHMSA is developing a proposed rule to add an authorized cost recovery fees for siting reviews of LNG plants projects where the design and construction costs total \$2.5 billion or more.

### **Research and Development: \$14.0 million**

The Pipeline Safety Research and Development Program (R&D Program) carries out its mission through research awards to improve the safety of the nation's pipeline transportation system and to protect people and the environment. In executing the program strategy, PHMSA forms public-private partnerships with stakeholders, as well as inter-agency partnerships with federal agencies which share PHMSA's safety objectives. PHMSA employs a coordinated and collaborative approach to address pipeline safety challenges, focuses on removing technical and regulatory barriers for given challenges, and measures research results, outputs, and outcomes. The actual research projects and scope of activities may change from year to year to address emerging problems based on data analysis and industry needs, and in response to Congressional mandates and specific pipeline incidents. As discussed above, PHMSA incorporates several components into its R&D Program in accordance with the Evidence Act of 2016.

In FY 2025, PHMSA will expand upon the FY 2023 initial efforts to address the Administration's strategic priorities of safety, economic recovery and rebuilding, climate change, and transportation as an engine for equity. Additionally, included in the FY 2023 appropriations, PHMSA was directed to establish the LNG Center of Excellence, including research initiatives to address LNG safety.

On November 15-16, 2022, the Office of Pipeline Safety hosted an LNG public meeting and forum, which served as an opportunity for stakeholders to discuss research gaps and challenges in the LNG industry. Also, this forum served as a venue for PHMSA, public interest groups, industry, academia, intergovernmental partners, and the public to collaborate on PHMSA's future R&D agenda. The LNG forum included four working groups and identified over 23 research gaps on facility design and construction, facility siting, facility fire protection, and facility operation and maintenance. More than 193 attendees from multiple countries attended, and more than 20 presentations were given during the two-day forum.

On October 31 – November 1, 2023, PHMSA hosted its R&D forum to continue its collaboration and outreach with stakeholders and researchers, discuss current and emerging safety issues and identify research opportunities to address safety gaps for the research agenda in FY 2025 and beyond. The R&D investments in FY 2023 and FY 2024 was considered as PHMSA continued its focus on pipeline safety, alternative energy, climate change solutions, methane mitigation, underground natural gas storage facilities, and LNG plants due to changes in the regulatory landscape and energy supply/demand.

In October of 2023, PHMSA awarded 13 new projects to develop four new technology projects and nine projects to promote new knowledge for decision-makers. The R&D announcement focused on the following seven research areas:

- Threat Prevention
- Underground Natural Gas (UNGS)
- Anomaly Detection/Characterization
- Hazardous Liquid Tanks
- Climate Migration
- Materials
- Liquefied Natural Gas (LNG)

Also in October 2023, PHMSA awarded six new projects through the Competitive Academic Agreement Program (CAAP) addressing knowledge development for decision-makers focused on two research topics, corrosion in pipelines and thermal radiation mitigation measures at liquefied natural gas (LNG) plants.

In July of 2023, PHMSA awarded two new Phase II projects through participation in DOT's Small Business Innovation Research (SBIR) program to conduct proof-of-concept research in the following areas:

- Vibration Sensing System to Monitor for Potential Excavation Damage
- UNGS Advanced Leak Identification and Well Control Solutions

These Phase II projects are continuations of the proof-of-concept research awarded in 2022.

In September and October of 2023 PHMSA awarded two new SBIR Phase IIb contracts, both on the topic of fracture toughness determination of in-service pipe. These projects are extensions of previous research conducted under Phase II projects. Establishing Inter-Agency Agreement (IAAs) with other federal agencies occurs when PHMSA aligns the safety research needs with the expertise and capabilities of federal labs. In August of 2022, PHMSA and the National Institute of Standards and Technology entered an IAA to review current codes and standards for gaps in qualification requirements for welds in pipelines intended for hydrogen transportation. In addition, PHMSA began an IAA with the Department of Energy (DOE) Office of Fossil Energy and Carbon Management in early 2023 that will facilitate two research projects identified at the 2021 R&D Forum related to underground storage: The first will further address the technical challenges of hydrogen underground storage and the second will examine technical challenges associated with underground storage of CO<sub>2</sub>.

PHMSA's research results in scholarly publications and commercially viable products to improve pipeline safety. Since 2002, PHMSA's R&D investments resulted in 34 patent applications 22 of which were patented, 306 journal articles and conference papers, and 35 commercialized technologies. For FY2023 to date, PHMSA's RD&T investments have resulted in 1 patent application, 12 conference papers, and 12 published journal articles.

While PHMSA improves pipeline safety through inspections, investigations, enforcement and

regulations, these efforts do not address the root causes of all pipeline incidents. Many pipeline failure triggers are best identified and corrected through technological innovations, with examples of these being incidents caused by corrosion, material failure, and equipment failure. Together, these three causes were responsible for 61 percent during the last ten years.

Research and development projects are either co-funded with the private sector and academia or 100 percent funded with other federal agencies. Projects develop safety technology related to leak detection, mechanical damage detection, excavation damage prevention, pipeline system control improvements, monitoring and operations, and pipeline material improvements. In selecting R&D proposals, the Office of Pipeline Safety (OPS) gives preference to projects likely to bring a product to market within five years. Since 2002, the R&D program has brought 35 innovative safety technologies to market.

Section 114(d) of PIPES Act of 2020 mandated PHMSA to develop a report outlining best available technologies or practices to minimize the release of natural gas to the environment. The report focuses on three areas:

1. The best available technologies or practices to prevent or minimize, without compromising pipeline safety, the release of natural gas when making planned repairs, replacements, or maintenance to a pipeline facility.
2. The best available technologies or practices to prevent or minimize, without compromising pipeline safety, the release of natural gas when the operator intentionally vents or releases natural gas, including blowdowns.
3. Pipeline facility designs that, without compromising pipeline safety, mitigate the need to intentionally vent natural gas.

PHMSA will use the results of this report to determine follow-on actions.

In response to the Administration's 2030 and 2050 Net Zero goals, industry is considering expanded development and transportation of gaseous hydrogen and supercritical CO<sub>2</sub>. Both are integral to an increased reliance on green hydrogen from renewable fuels and other hydrogen sources, where carbon dioxide may be captured and stored or utilized so that it decreases the climate change impact of the fuel. Due to these potential increases in related transportation and need for either new or converted pipelines, a thorough evaluation of related pipeline safety regulations is necessary. This could involve studies of the current regulatory framework; studies and reports to compile pertinent research on related topics; and studies to support and direct our research program in these areas. Studies will need to consider overall pipeline safety and regulatory perspectives, and a focus on specific technical subject matter. This could include research of:

- Pipeline materials
- Hydrogen gas distribution systems
- Metering of hydrogen gas
- In-line inspection tools
- Integrity management and risk analysis
- Leak detection

- Blending of hydrogen gas with natural gas
- Hydrogen gas storage
- Hydrogen terminals (import and export)
- Liquefaction

Under CAAP, PHMSA fosters partnerships with colleges and universities through awards to conduct innovative research. PHMSA will continue to make CAAP more inclusive by expanding its outreach communication of its funding opportunities and by ensuring all higher education institutions including Minority Serving Institutions, such as Historically Black Colleges and Universities (HBCUs), Hispanic-serving Institutions (HSIs), and Asian American and Pacific Island Serving Institutions are notified of opportunities. In March and April 2023, PHMSA conducted two informational sessions on CAAP with HBCUs and HSIs to encourage proposals for CAAP. Additionally, PHMSA will consider options for allowing up to 100 percent of the costs of research and development with Minority Serving Institutions may be carried out using federal funds.

**Underground Natural Gas Storage and Liquefied Natural Gas Facility Safety:** UNGS and LNG facility safety are also areas of increasing R&D importance because of the rapid growth in LNG use and PHMSA's regulatory responsibilities in UNGS. The Aliso Canyon storage gas leak, for example, gained national attention and prompted new R&D initiatives in design and reliability improvements to UNGS equipment, such as tubing, packers, and subsurface safety valves, as well as knowledge generation on associated maintenance practices for UNGS wells. The incident also resulted in PHMSA initiating a new regulatory oversight program for UNGS. Underground gas storage research will support risk assessments, well-casing integrity, subsurface safety valve testing, and subsurface- and facility-level equipment analysis and monitoring. These advances will improve the safety of UNGS and protect the environment from damaging leaks.

The expansion of the domestic and international LNG transportation industry has highlighted the need to establish and implement the best safety practices. LNG transportation research will examine regulatory requirements and standards incorporated into the Code of Federal Regulations for LNG and performance gap analyses so that they can keep pace with the growing demand to export LNG. Further opportunities in this subprogram area include addressing performance-based risk reduction at every type of LNG facility during site location, design, construction, operations, maintenance, and fire protection activities.

**What benefits will be provided to the American public through this request and why is this program necessary?**

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Pipelines cross through thousands of communities in every state. Congress has entrusted PHMSA to protect the safety of millions of Americans who live and work around pipelines, especially those in underserved communities. It is anticipated that all the changes as detailed will have a positive impact on communities, and increase pipeline safety, environmental protection, and equitable distribution of grant resources nationwide. To that end, the requested funding will provide PHMSA with resources to support the safe delivery of energy and other products via 3.3 million miles of pipelines. This will protect the environment, help reduce greenhouse gas emissions, promote equity through outreach efforts to underserved communities, and promote economic and job growth. The combination of improving existing infrastructure and continuing groundbreaking, evidence-based R&D is anticipated to transform the pipeline industry and modernize delivery systems. The goal of this transformation is to spur the pipeline industry to pursue operational excellence that will enhance safety, environmental and climate change management, and reduce the potential for community impact due to pipeline incidents and accidents.



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# **Oil Spill Liability Trust Fund**

## **APPROPRIATIONS EXPLANATION**

### **TRUST FUND SHARE OF PIPELINE SAFETY**

#### **(OIL SPILL LIABILITY TRUST FUND)**

Background: The Oil Spill Liability Trust Fund was created by the United States Congress to help fund efforts designed to minimize oil spills into the water and environmentally sensitive areas. The OSLTF has five sources of revenue – per barrel tax, collected from the oil industry on petroleum produced or imported to the United States; transfers from other existing pollution funds; interest; cost recoveries from those responsible for oil incidents; fines and penalties from responsible parties related to oil incidents. Funding from the Oil Spill Liability Trust Fund pays for Hazardous Liquid costs of the Office of Pipeline Safety program including all oil spill response activities.

## What is this program and why is it necessary?

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The Oil Spill Liability Trust Fund (OSLTF) was created by Congress to finance efforts to prevent, remove, and mitigate damage from oil spills into the water and environmentally sensitive areas. Funding from the OSLTF is used to cover PHMSA's responsibilities in overseeing operators of hazardous liquid pipelines – including pipeline integrity management; pipeline compliance inspection and enforcement; emergency preparedness related to pipeline spills and incidents; training, competency standards, and qualifications for inspection, enforcement, and operation of pipelines; state pipeline safety grants for intrastate oil pipelines; and pipeline research and development. The OSLTF contribution amount is based on a reasonable share of the cost of these activities for pipelines in and around inland waterways.

The OSLTF is a source of funding for the Pipeline Safety program. The OSLTF specifically funds costs related to PHMSA's hazardous liquid program including inspections, safety operations, regulations development, adjudication of violations and fines, grant programs that fund state inspections, and any responsibilities under the Oil Pollution Act.

In FY 2025, the OSLTF will contribute \$31 million to the overall Pipeline Safety Program. The amount funds any cost PHMSA incurs to set safety standards and check safe operation of hazardous liquids pipeline operators as well as funding grants to state partners' inspection programs, and research. The FY 2025 Budget request proposes to increase the OSLTF share by \$2 million, reducing the pipeline operators' user fees by the same amount. This will better align trust fund contributions with the increase in operators' costs. Disbursements from the OSLTF are restricted to costs associated with hazardous liquid pipelines. As such, the share of disbursements from the fund have shifted towards operational costs over time as R&D and grant needs applicable to the trust fund have decreased.

**EXHIBIT III-1**  
**OIL SPILL LIABILITY TRUST FUND**  
**Summary by Program Activity**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

	<b>FY 2023</b> <b>ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025</b> <b>REQUEST</b>
Operations	\$ 13,000	\$ 13,000	\$ 18,000
Research and Development	\$ 3,000	\$ 3,000	\$ 2,000
Grants	\$ 13,000	\$ 13,000	\$ 11,000
<b>TOTAL, Base appropriations</b>	<b>\$ 29,000</b>	<b>\$ 29,000</b>	<b>\$ 31,000</b>

**Program and Performance Statement**

PHMSA has multiple responsibilities to inspect, investigate failures, regulate, and research hazardous liquid pipelines. In addition, PHMSA collects, and reviews oil spill response plans prepared under the Oil Pollution Act of 1990. Operators that store, handle, or transport oil are required to develop response plans to minimize the environmental impact of oil spills and improve incident response. PHMSA reviews these plans to make sure that they are submitted on time, updated regularly, and that they comply with regulations. PHMSA improves oil spill preparedness and incident response through data analysis, inspections, exercises, spill monitoring, pipeline mapping in areas unusually sensitive to environmental damage, and by advancing technologies to detect and prevent leaks from hazardous liquid pipelines. These activities are funded in part by the Oil Spill Liability Trust Fund.

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**Natural Gas Distribution Infrastructure  
Safety and Modernization Grants**

## **APPROPRIATIONS LANGUAGE**

### **NATURAL GAS DISTRIBUTION INFRASTRUCTURE SAFETY AND MODERNIZATION GRANT PROGRAM (INCLUDING TRANSFER OF FUNDS)**

Background: The Natural Gas Distribution Infrastructure Safety and Modernization Grant Program was authorized and appropriated by the Infrastructure Investment and Jobs Act (P.L. 117-58) to help fund efforts by municipality or community owned utility (not including for-profit entities) to repair, rehabilitate, or replace its natural gas distribution pipeline systems or to acquire equipment to (1) reduce incidents and fatalities and (2) to avoid economic losses.



**EXHIBIT III-1**  
**NATURAL GAS DISTRIBUTION INFRASTRUCTURE SAFETY AND**  
**MODERNIZATION GRANT**  
**Summary by Program Activity**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

	<u>FY 2023 ACTUAL</u>	<u>FY 2024 CR</u>	<u>FY 2025 REQUEST</u>
<b>IIJA Supplemental (Division J)</b>			
Operations	\$ 4,000	\$ 4,000	\$ 4,000
Research and Development	\$ -	\$ -	\$ -
Grants	\$ 196,000	\$ 196,000	\$ 196,000
<b>TOTAL, Base appropriations</b>	<u>\$ 200,000</u>	<u>\$ 200,000</u>	<u>\$ 200,000</u>
FTEs			
Direct Funded	10.0	9.0	9.0

**Program and Performance Statement**

The Infrastructure Investment and Jobs Act of 2021 (IIJA) provided funding for the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program. Grant funds are made available to municipally or community-owned utility operators (not including for-profit entities) to repair, rehabilitate, or replace its natural gas distribution pipeline system or portions thereof or to acquire equipment to (1) reduce incidents and fatalities and (2) avoid economic losses. With the repair, rehabilitation, or replacement of legacy gas distribution pipelines, these systems will operate more safely, reduce methane emissions, and will serve as the building blocks of the infrastructure to transport fuels of the future.

**EXHIBIT III-1a**

**Natural Gas Distribution Infrastructure Safety and Modernization Grant Program  
SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025  
Appropriations, Obligations, Limitations, and Exempt Obligations  
(\$000)**

	<u><b>\$000</b></u>	<u><b>FTE</b></u>
<b>FY 2024 CR</b>	\$ 200,000	9.0
<b>ADJUSTMENTS TO BASE:</b>		
Annualization of FY 2024 FTE	15	-
Annualization of Prior Pay Raise(s)	-	-
FY 2025 Pay Raise	18	-
GSA Rent	5	-
Adjustment for Compensable Days (261 days)	(37)	-
Working Capital Fund	5	-
Non-Pay Inflation and Other Adjustments to Base	(6)	-
<b>SUBTOTAL, ADJUSTMENTS TO BASE</b>	\$ -	-
<b>PROGRAM REDUCTIONS</b>		-
<b>SUBTOTAL, PROGRAM REDUCTIONS</b>	\$ -	-
<b>PROGRAM INCREASES</b>		
<b>SUBTOTAL, PROGRAM INCREASES</b>	-	-
<b>FY 2025 REQUEST</b>	\$ 200,000	9.0

**Detailed Justification for the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program**

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**FY 2025 – Program Budget Request  
(\$000)**

<b>Program Activity</b>	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
Operations	\$ 1,762	\$ 1,762	\$ 1,773
	2,238	2,238	2,227
Contract Safety Programs	196,000	196,000	196,000
Grants			
<b>Total</b>	<b>\$ 200,000</b>	<b>\$ 200,000</b>	<b>\$ 200,000</b>
<b>FTEs</b>	<b>10.0</b>	<b>9.0</b>	<b>9.0</b>

**What Is This Program and What Does the Funding Level Support?**

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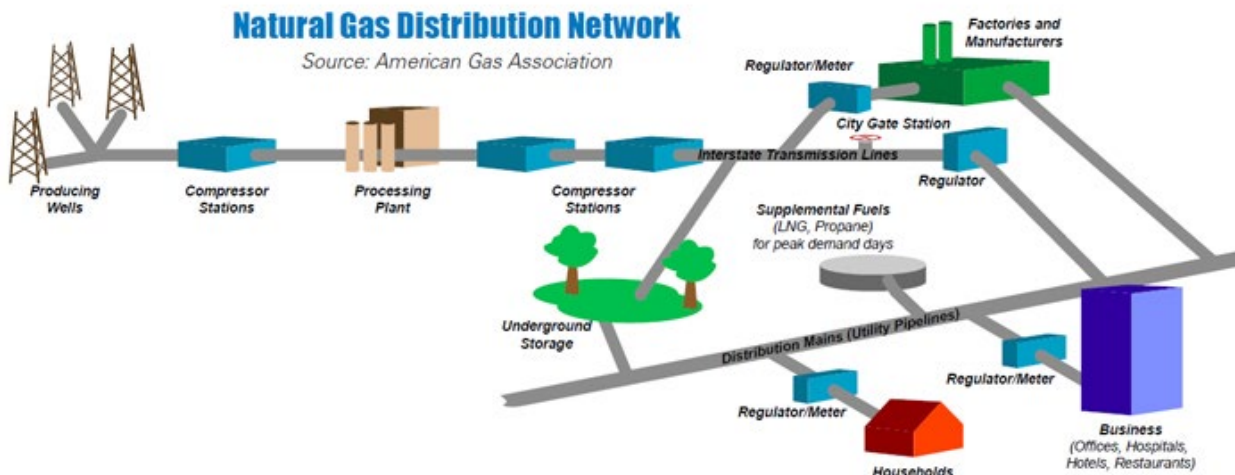
**Key Request Highlights:** Continued funding to support the repair, replacement, or rehabilitation of aging natural gas distribution pipeline infrastructure. This funding will result in the modernization of over 200 miles of pipe and the reduction of over 200 metric tons of methane, annually. Methane emissions are responsible for more than 25 percent of climate change and are more than 80 times greater than that of carbon dioxide.

**PHMSA’s Oversight of an Expansive Network of U.S. Pipelines**

The United States operates the most expansive network of energy pipelines in the world. PHMSA administers a national regulatory safety program for approximately 3.3 million miles of interstate and intrastate pipelines in the United States. Cast and wrought iron pipelines are among the oldest energy pipelines constructed in the country. Many of these pipelines were installed more than 60 years ago and still deliver natural gas to homes and businesses today. However, the degrading nature of iron alloys, the age of the pipelines, and pipe joints design have greatly increased the risk involved with continued use of such pipelines, as well as similarly risky legacy pipes such as those made of bare steel or legacy plastic.

A significant portion of municipally and community-owned operators have aging infrastructure consisting of legacy cast iron, bare steel, and legacy plastic pipelines. These pipelines are associated with higher incidents of fatalities and injuries as well as leaks that contribute to global climate change. Many municipal and community-owned pipelines travel through urban and rural cities, towns, and neighborhoods, especially those that have been considered underserved. Going forward, modernization of old, leak-prone, less reliable pipeline networks will improve safety, reduce methane emission, and pave the way for transporting cleaner fuels, such as hydrogen and biofuels to provide significant public benefits.

PHMSA’s \$1 billion program under the IIJA to repair, rehabilitate, or replace legacy leak-prone pipes will enhance pipeline safety and reduce methane emissions from these pipelines, especially in economically disadvantaged areas.



**Program Evaluation:** The program will have longstanding impacts on safety, with the modernization of aged lines; equity, with the addition of better service to often underserved communities; and climate change solutions, with upgraded lines that better contain methane emissions. PHMSA is committed to using program evaluation to ensure that we use the funding in the most efficient and effective manner. In FY 2023 and 2024, PHMSA is refining its performance metrics, developing systems to capture data, and will be collecting results to track progress and validate measures. In FY 2025, PHMSA will continue to conduct a program evaluation, looking at the initial program awards made in FY 2023. The projects will likely be in process and the evaluation will generally consider to what extent the program is meeting its key performance metrics and goals.

PHMSA will consider the following in its FY 2025 Evaluation:

1. How many miles of pipeline have been replaced, repaired, and rehabilitated?
2. By how much was methane reduced based on replaced, repaired, and rehabilitated pipeline?
3. How much was spent on equipment? Breakdown of types of equipment?
4. How much funding was awarded to replace, repair, and rehabilitate pipelines that serve disadvantaged communities?
5. How many jobs were created or retained as a result of this grant program?

**Grants: \$196.0 million**

**Natural Gas Distribution Infrastructure Safety and Modernization Grant Program:**

PHMSA provides grants to support modernization of the nation’s network of natural gas pipelines, owned and operated by municipalities and communities that provide gas service in

cities, towns, and neighborhoods, especially underserved communities. This program funds competitive grants to municipally or community-owned utilities (not including for-profit entities) to repair, rehabilitate, or replace its natural gas distribution pipeline system or to acquire equipment needed to reduce incidents, fatalities, and economic losses.

PHMSA uses a series of factors in determining the distribution of grant awards, such as the risk profile of the project, potential job creation, benefits to disadvantaged communities, and impact on economic growth. In FY 2025, PHMSA intends to issue its fourth round of annual Notice of Funding Opportunity (NOFO), while continuing to monitor grantee performance on the previously awarded grants. By the end of FY 2024, PHMSA expects to have awarded \$588 million to support projects throughout the country, with another almost \$200 million to be awarded in FY 2025.

The Natural Gas Distribution Infrastructure Safety and Modernization Grant Program consists of the following two strategic goals:

1. To repair, rehabilitate or replace 1,000 miles of high-risk, leak-prone, community-owned legacy gas distribution pipeline infrastructure.
2. To create an estimated reduction of 1,000 metric tons of methane emissions and a reduction in fatalities/serious injuries.

On average, PHMSA expects each round of grant award recipients to repair or replace approximately 200 miles of leak-prone pipeline and reduce approximately 200 metric tons of methane emissions. In FY 2025, PHMSA expects its grant awards will be supporting the process of repairing or replacing approximately 600 miles of leak-prone pipeline and reducing approximately 600 metric tons of methane emissions.

### **Operations: \$1.8 million**

In FY 2025, PHMSA will address the Administration's strategic priorities of safety, economic recovery, and rebuilding, addressing climate change, and using transportation as an engine for equity. PHMSA staff will develop program management tools and techniques including construction progress reporting and performance measurement systems to assess (1) impacts on safety, (2) disadvantaged communities, and (3) the impact of methane leak reduction projects on climate change and the economy.

PHMSA will continue to conduct outreach events to assist applicants in designing the best and most impactful applications. During FY 2025, PHMSA will issue a fourth NOFO and work with the initial grantees to ensure grantee performance and results.

### **Contract Safety Programs: \$2.2 million**

PHMSA's request includes professional support services necessary to meet organizational goals and adhere to Congressional timelines for administering the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program. PHMSA requires analytic support to

ensure compliance with the National Environmental Protection Act (NEPA) at the national, program level and to provide sufficient oversight in conducting NEPA reviews at the project-level, as well as support to ensure proper grantee oversight and management.

**What benefits will be provided to the American public through this request and why is this program necessary?**

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Legacy natural gas distribution pipes pose a risk to life, severe injury, and the environment—throughout the country. The benefits of this program to the American public will be the repair, rehabilitation, or replacement of portions of the natural gas distribution pipeline system or to acquire equipment to (1) reduce incidents and fatalities, (2) reduce the presence of pipes prone to leakage, (3) the sustainment and creation of infrastructure related jobs, (4) increased benefit to disadvantaged rural and urban communities, and (5) positive economic impact or growth.

Congress recognized the need for this infrastructure investment and included the program requirement in Section 1015 of the Infrastructure Investment and Jobs Act of 2021.

These pipeline improvements will not only reduce incidents and fatalities from potential pipeline failures but also reduce fugitive emissions of greenhouse gases. The goals of this grant are to also ensure the awards support projects for creating jobs, as well as projects that benefit disadvantaged rural and urban communities, and spur positive economic impact or growth.

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# **Hazardous Materials Safety**



## APPROPRIATIONS LANGUAGE

### HAZARDOUS MATERIALS SAFETY

For expenses necessary to discharge the hazardous materials safety functions of the Pipeline and Hazardous Materials Safety Administration, [\$80,554,000] \$86,586,000, [of which \$12,070,000 shall] to remain available until September 30, [2026] 2027 [of which \$1,000,000 shall be made available for carrying out section 5107(i) of title 49, United States Code]: *Provided*, That up to \$800,000 in fees collected under section 5108(g) of title 49, United States Code, shall be deposited in the general fund of the Treasury as offsetting receipts: *Provided further*, That there may be credited to this appropriation, to be available until expended, funds received from States, counties, municipalities, other public authorities, and private sources for expenses incurred for training, for reports publication and dissemination, and for travel expenses incurred in performance of hazardous materials exemptions and approvals functions..

## **What is this program and what does this funding level support?**

PHMSA's mission is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives. These materials, commonly found in homes, gardens, farms, vehicles, and industrial settings, can pose significant dangers if improperly packaged or handled during transit. The Hazardous Materials Safety program is a cornerstone of PHMSA's mission, providing robust guidelines for the classification, packaging, hazard communication, handling, training, and transportation requirements of hazardous materials. These guidelines apply across all modes of transportation—air, highway, rail, and vessel—and are integral to supporting the safety priorities of the Department of Transportation.

In our complex, interconnected transportation network, hazardous materials move in all forms, ranging from bulk raw materials to small consumer shipments of finished products. A single package might journey through multiple transportation modes from its origin to its destination. Every year, over 3.3 billion tons of hazardous materials, valued at more than \$1.9 trillion, are transported across the United States through various modes of transportation. On average, more than 1.2 million hazardous materials shipments occur daily. However, the transportation of hazardous materials is inherently dangerous.

Approximately 25,000 transportation incidents involving hazardous materials occur annually. In Fiscal Year 2021, seven of these incidents led to one fatality and eight hospitalizations. More recently, the train derailment in East Palestine, Ohio, resulted in the spill of hazardous materials which were burned in a controlled release of chemicals to avoid a potential explosion. While there were fortunately no fatalities, several thousand residents had to be evacuated and clean-up costs are estimated to be nearly \$400 million.

With the rising domestic demand for lithium-ion battery-powered electronics and electric vehicle batteries, as well as international demand for American energy products and chemicals, we anticipate a continuous increase in the volume, number of shipments, and value of hazardous materials shipments.

PHMSA's guidance forms a crucial link that ensures safety, consistency, and interoperability throughout this transportation system. Our workforce is dedicated to prioritizing transportation safety while facilitating economic growth and minimizing regulatory burden. We strive to ensure that products reach their intended destination efficiently and safely. PHMSA is committed to safeguarding those who interact with hazardous materials, and to ensuring a reliable system for packaging and shipping such materials without incident. This goal is achieved through a blend of safety standards for packaging and transportation, regular safety checks, and ongoing outreach to the packaging and shipping industries. Examples of shipped hazardous materials include flammable liquids such as oil, gasoline, and liquefied hydrogen; explosives such as fireworks, flammable solids, oxidizing substances and organic peroxides; lithium-ion batteries; corrosive substances; and radioactive materials

Following is a summary of key programmatic changes:

- **An increase of \$132 thousand for cybersecurity investments.** Information Technology Implementation Memorandum (ITIM)-2002-006 required the Department of Transportation (DOT) and all associated Operating Administrations (OAs) to adopt Multi-Factor Authentication (MFA) for all the information systems by December 31st, 2023. To continue

to meet this requirement, PHMSA requires contractor support in the design, development and integration of Multi-Factor Authentication for PHMSA Portal System (PPS) and all associated applications. Under this effort, PHMSA intends to retire its current Identity Management Suite and adopt a cloud-based authentication method. This initiative serves a dual purpose, so that PHMSA is compliant with the DOT ITIM and PHMSA is on track with its roadmap to adopt cloud-based technologies. After the development and deployment of the MFA solution on PHMSA Systems, PHMSA will require support for the operations and maintenance (O&M) of the implemented solution. This will ensure robust cybersecurity protection from unauthorized access, protect mission-critical data, and ensure 24/7 system reliability and access.

- **\$650 thousand additional funding Post-COVID Investigator Travel.** Due to inflation and the rise in travel costs (cars, fuel, air travel), PHMSA requests an increase in travel funding to carry out critical functions to include hazardous materials inspections, accident investigations and investigator training and development.



Picture 1 - Clear labeling with placards and graphics is central to reducing hazardous materials risk.

PHMSA regulates the safe transport of lithium-ion batteries that have become integral to almost everything we do, but also pose risks during transportation. PHMSA convened a Federal Advisory Committee to examine the issues surrounding the safe transport of lithium-ion batteries and will consider the committee's recommendations, while also tracking new developments in battery technology, including emerging sodium-ion batteries. Through PHMSA's oversight, we help ensure the safety of everyone who comes in contact with lithium-ion batteries and promote economic growth throughout the nation by the efficient transport of these products.

As the nation's use of hazardous materials grows, so do the risks that come with transporting these materials. PHMSA is constantly challenged to develop new strategies for ensuring hazardous materials safety. The continuous rise of e-commerce has increased hazardous materials transportation that traditionally occurred in large, bulk shipments that occupied whole trucks, train cars, or intermodal containers to include individual shipments that are being delivered directly to a consumer's home. These changes in buying, shipping, and transportation require new and innovative strategies to ensure the safety of the transportation system and the public.

PHMSA relies on two primary strategies to address safety. The first is to keep the hazardous materials in their packages by ensuring the material is properly classified and that packages for hazardous materials are constructed to rigorous safety standards and, where appropriate, are periodically tested to ensure continued viability. Second, PHMSA works to ensure that

communities are aware and can plan for changes, and first responders are adequately prepared to mitigate the consequences of any incidents through proper information and training. This is especially important as many hazardous materials shipments originate in, terminate in, or are transported through underserved communities. Meeting safety objectives requires that PHMSA continue to support safe packaging, train first responders, and invest in promising research and development that solves complex packaging and transportation safety challenges.

**PHMSA’s Hazardous Materials Research, Development (RD&T) Program** conducts research to inform regulations and support safe hazardous materials transportation. Research in this program includes development of new packaging for hazardous materials to improve safety and sustainability, better classification of the most dangerous goods, understanding risks of hazardous materials transport to increase safety, and identifying the equity impacts of the hazardous materials transportation system. The RD&T program seeks to better understand hazmat incidents related to nurse tanks carrying anhydrous ammonia (NH<sub>3</sub>). Anhydrous ammonia is critical for the US agriculture industry and farmers. The RD&T program is working with stakeholders to comprehend better the risk associated with the nurse tanks. The research was driven by a significant event on April 25, 2019, in Beach Park, Illinois, when a tractor towing two two-ton containers released approximately 650 gallons of (NH<sub>3</sub>). The incident produced a toxic cloud that lingered over Beach Park for several hours, leading to 31 hospitalizations (including 11 firefighters and three police officers), significant environmental impact, and evacuations. Currently, the program is looking to understand these risks to better inform our regulations to reduce major incidents like the one in Beach Park, IL.

Currently in the USA there are approximately 100 transportation battery related incidents per year with that number growing in recent years. With this information, the RD&T program has looked to enhance the safety of transporting lithium-ion batteries and promote the green economy. One of our first projects was the Phase one of our Battery Logistics Integrated Safety System (BLISS) SBIR project. This project is looking at developing new “smart Packaging” that will help give drivers and first responders a first warning alert when battery failure is happening within the packaging. This project is moving into a phase II that is working towards full scale testing and manufacturing design.

PHMSA continues to review and communicate hazards tied to lithium-ion batteries in both cargo and passenger aircraft, as that mode of transportation poses the greatest threat to the public. Significant emphasis is placed on finding innovative ways to enhance safety and improve commerce, which is especially important given the continued and expanding presence of lithium-ion batteries in many everyday products.

Research for FY 2025 will focus on the following strategic areas:

- Risk management and mitigation
- Package integrity
- Emerging technologies
- Technical analysis to aid risk assessments

Within these strategic areas, the program will have multiple focal points in FY 2025. Some of the highlights will include research on emerging battery safety issues with lithium-ion and sodium-ion batteries, examining the safety of “nurse” tanks that transport anhydrous ammonia to

America's farmers, continuing to look into safer methods for transporting energy products such as hydrogen and LNG, and continuing to refine best practices for responding to hazardous materials incidents by updating the *Emergency Response Guidebook*, which PHMSA writes, publishes, and distributes. Much of PHMSA's hazardous materials research is done cooperatively between government and industry entities with a focus on near-term solutions for evolving hazardous materials-related transportation challenges.

**EXHIBIT III-1**  
**HAZARDOUS MATERIALS SAFETY**  
**Summary by Program Activity**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
Operations	\$ 58,673	\$ 58,673	\$ 74,016
Research and Development	\$ 7,570	\$ 7,570	\$ 7,570
Grants	\$ 4,500	\$ 4,500	\$ 5,000
<b>TOTAL, Base appropriations</b>	<b>\$ 70,743</b>	<b>\$ 70,743</b>	<b>\$ 86,586</b>
FTEs			
Direct Funded	188.0	211.0	241.0

**Program and Performance Statement**

PHMSA’s Hazardous Materials Safety program is responsible for the oversight of the safe transportation of hazardous materials. The program relies on comprehensive risk management to establish policy, standards and regulations for classifying, packaging, hazard communication, handling, training and transporting hazardous materials via air, highway, rail and vessel. The program uses inspection, enforcement, outreach and incident analysis in efforts to reduce incidents, minimize fatalities and injuries, mitigate the consequences of incidents that occur, train and prepare first responders, and enhance safety.

**EXHIBIT III-1a**

**HAZARDOUS MATERIALS SAFETY  
SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025  
Appropriations, Obligations, Limitations, and Exempt Obligations  
(\$000)**

	<u><b>\$000</b></u>	<u><b>FTE</b></u>
<b>FY 2024 CR</b>	\$ 70,743	211.0
<b>ADJUSTMENTS TO BASE:</b>		
Annualization of FY 2024 FTE	472	2.0
Annualization of Prior Pay Raise(s)	483	
FY 2025 Pay Raise	564	
GSA Rent	-	
Adjustment for Compensable Days (261 days)	147	
Working Capital Fund	876	
Non-Pay Inflation and Other Adjustments to Base	3,227	-
<b>SUBTOTAL, ADJUSTMENTS TO BASE</b>	<b>\$ 5,769</b>	<b>2.0</b>
<b>PROGRAM REDUCTIONS</b>		
State Hazardous Materials Safety Training	(1,500)	
ALERT Grants	(1,000)	
<b>SUBTOTAL, PROGRAM REDUCTIONS</b>	<b>(2,500)</b>	<b>-</b>
<b>PROGRAM INCREASES</b>		
Community Safety Grants	3,000	
Special Permits - Space Initiative (7 FTE)	2,652	7.0
Outreach, Training and Compliance	1,184	
Outreach Staff (10 FTE)	2,360	10.0
Accident Investigators (8 FTE)	1,888	8.0
Emerging Energy Experts (3 FTE)	708	3.0
Investigator Travel	650	
Cybersecurity Investments	132	
<b>SUBTOTAL, PROGRAM INCREASES</b>	<b>\$ 12,574</b>	<b>28.0</b>
<b>FY 2025 REQUEST</b>	<b>\$ 86,586</b>	<b>241.0</b>
<b>Supplemental Appropriations</b>	<b>-</b>	<b>-</b>
<b>TOTAL</b>	<b>\$ 86,586</b>	<b>241.0</b>

**Detailed Justification for Hazardous Materials Safety**

**FY 2025 – Hazardous Materials Safety Budget Request  
(\$000)**

<b>Program Activity</b>	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
Operations	\$ 50,112	\$ 50,112	\$ 63,271
Contract Safety Programs	8,561	8,561	10,745
Research and Development	7,570	7,570	7,570
Grants	4,500	4,500	5,000
<b>Total</b>	<b>\$ 70,743</b>	<b>\$ 70,743</b>	<b>\$ 86,586</b>
<b>FTEs</b>	<b>188.0</b>	<b>211.0</b>	<b>241.0</b>

**Operating Expenses: \$63.3 million**

PHMSA’s FY 2025 request includes \$63.3 million for hazardous materials safety-related operating expenses to support the cost of 241 positions (241 FTE): 82 inspectors and 159 safety program, scientific, safety standard development, and support staff. These staff work with the energy industry on the safe movement of energy products, and hazardous materials packagers and shippers of such products as lithium-ion batteries, electric vehicle batteries, fireworks, hand sanitizers, and dangerous goods such as chlorine and other toxic chemicals, radioactive, infectious substances, and explosives. Operating expenses cover salaries and benefits, travel, training, supplies, equipment, and uniforms for all inspectors. The request also includes investments in PHMSA’s core business areas of Inspection, Investigation, Compliance, Safety Management, and Outreach and Engagement programs to educate the public, the industry, and emergency responders on hazardous materials safety.

**\$650 thousand additional funding Post-COVID Investigator Travel.** Due to inflation and the rise in travel costs (cars, fuel, air travel), PHMSA requests an increase in travel funding to carry out hazardous materials inspections, accident investigations and investigator training and development. Post-pandemic, investigator travel has significantly increased to perform these critical functions. PHMSA investigators often travel on a moment’s notice to hazardous material incidents/accidents nationwide to collect vital information, support on-scene coordinators and investigate root-cause. An increase in travel funding enables investigator staff to receive critical training to safely and effectively perform investigative duties.

**Space Initiative Program Support.** This program helps expedite the review and issuance of special permits to support U.S. global competitiveness in the space launch market.



Transportation of spacecraft to the launch site involves hazardous materials including lithium-ion batteries, hydrazine, and compressed oxygen in unique, non-traditional packaging that are part of the spacecraft or that support launch operations. PHMSA engineers evaluate the packaging for these materials to ensure these unique solutions demonstrate an equivalent level of safety to traditional hazardous materials packages while the payload is moved via highway, rail, barge, or aircraft to the launch site. In the last few years, PHMSA has received an increasing number of expedited requests for review of complex applications. Expedited application reviews are necessary, especially when launch windows are narrow. These permits are critical step in ensuring safe and on-time launches, thereby helping the U.S. to maintain its leading position in the global space market.

**Field Operations Uniform Expenses.** PHMSA uniforms provide a consistent professional appearance amongst field staff nationwide. Like many other agencies within DOT, the Federal government, or industry, it is imperative to have those who represent the agency on daily basis be outfitted in a professional looking uniform. PHMSA uniforms are appropriately logged to allow for easy identification. This is particularly important for hazardous materials incident response to assist in identification, access, and information sharing to Federal, state and/or local on-scene coordinators. Lastly, PHMSA uniforms are constructed as a first line of defense and fulfill professional protective equipment (PPE) requirements. The uniform items are designed to be anti-static, flame resistant, and reflective to provide protection in all working environments. This would not require additional funding, rather a change to program eligibilities to allow this as an eligible cost.

### **Contract Safety Programs: \$10.7 million**

PHMSA's Contract Safety programs include the cost of contracted support as follows:

**The Investigation and Enforcement** program supports the PHMSA inspection and investigative staff, located mostly in the PHMSA regional offices. These contracts provide for package testing, technical support, uniforms, and equipment needed to test hazardous materials such as radioactive substances.

**The Hazardous Materials Information and Analysis** program informs policy and decision-making by collecting and analyzing data from each of the approximately 20,000 hazardous materials transportation incident filings that are submitted to PHMSA every year. Upon receipt, these filings are reviewed in an ISO 9001:2015-compliant quality control workstream and subsequently augmented by data mining of public sources for unreported incidents. Data forensics are then performed to determine the root cause of the incident. This data is used to make data-driven decisions regarding enforcement and outreach activities, determining the efficacy of rulemakings, pushing innovation toward high-impact areas, and to evaluate programmatic success through PHMSA's key priority areas.

**The Outreach, Training and Compliance** program provides outreach, education, and training to communities and first responders on hazardous materials safety while also enhancing compliance by hazardous materials packagers and shippers with safety standards and regulations. In FY 2025, PHMSA will continue to build on its enhanced outreach, training, and compliance program by placing an emphasis on targeted outreach and engagement to underserved

communities and economically disadvantaged areas to ensure a full and equitable opportunity to be involved in hazardous materials transportation safety. This includes providing community outreach and engagement to help ensure the safe transport of hazardous materials and emergency preparedness and response.

PHMSA's efforts will include developing and distributing outreach material and resources that enhance general understanding of the hazardous material regulations or function-specific guidelines. Additionally, PHMSA attends stakeholder events and provides training workshops and webinars throughout the year. These provide opportunities for engagement with the regulated community who offer or transport hazardous materials in commerce. The hazardous materials transportation workshops and webinars provide an overview of the regulatory requirements—what they are, how they apply, and how to comply with them—for shipping and transporting hazardous materials.

### **Undeclared Hazardous Materials Shipments**

**Outreach Initiative.** The FY 2025 request continues the Check the Box program to educate the regulated industry and the public on what is considered hazardous materials, and to improve their understanding on how to ship everyday items, safely. Specific focus will be on educating small businesses in disadvantaged and minority communities. Annually, around 1,500 undeclared shipments are reported to the Department for all modes of transportation. Unfortunately, the total number of undeclared shipments entering the transportation system is unknown, but with the transition to eMarketplaces both PHMSA and the U.S. Postal Service believe the number of undeclared shipments continues to increase substantially. The Check the Box campaign aims to increase awareness for shippers on what are considered hazardous materials, the risks present in the transportation system, and provide resources to assist in complying with hazardous materials regulations.



Click to view the ["Check the Box" Video](#)

The FY 2025 funding will enable PHMSA to continue to produce outreach materials such as videos, public service announcements, news articles, and programmatic display promotions. This also includes purchasing and distributing items to increase awareness of the Check the Box initiative.

These efforts will be informed by incident data and other situational conditions like commodity, location, demographics, and time of year. Emphasis in FY 2025 will be engaging non-traditional partners and underserved communities. PHMSA is also exploring opportunities for increased educational awareness through modal and industry partners, as well as other federal agencies. Further information and outreach materials can be found at: <https://checkthebox.dot.gov/>

**The Hazardous Materials Registration** program collects annual registration statements and fees from over 23,000 hazardous materials shippers and carriers. These fees provide essential funding for grants to first responders.

The programs described above advance PHMSA's mission for the safe transportation of energy

and hazardous materials through monitoring special permit and approval applications; the development and dissemination of educational tools for outreach; engagement with industry stakeholders and the emergency response community; and ensuring a data-driven approach to managing hazardous materials risks with its one-stop, multi-modal PHMSA Portal. These programs also support PHMSA's ability to verify and analyze incident reports submitted through the Hazardous Materials Information Communication System and the ability to obtain emergency notifications when a hazardous material incident occurs.

### **Research, Development and Technology: \$7.6 million**

Hazardous Materials Research, Development and Technology (RD&T) Program finds solutions to complex problems in the packaging and movement of hazardous materials. RD&T funds multi-modal programs that support the safe, efficient and equitable transport of hazardous materials. Such work includes innovation in hazardous materials packaging and equipment designs by all modes of transport, annual commodity flow data, and enhanced hazardous material shipping methods. For example, previously low-volume products that are now routinely transported in large packages will undergo shock and vibration testing. Some important projects include:

- **Safe packaging practices for lithium-ion batteries.** Lithium-ion batteries pose special risks during transportation since they can short circuit, overheat, and sometimes cause a fire when misused, mishandled, improperly packaged, improperly stored, overcharged or subject to failure due to latent or evolving internal defects. Lithium-ion batteries present both chemical (e.g., flammable electrolyte) and electrical hazards. This research will evaluate the current packaging practices for lithium-ion cells and batteries in the air transport environment and make recommendations, as appropriate, for packaging improvements.
- **Working with the U.S. Census Bureau** to develop an annual commodity flow and collect data on the types of packaging used in shipping hazardous materials. This data will help PHMSA quickly and precisely calculate the changing risks associated with transport of hazardous materials. In FY 2025, data collected in FY 2024 and FY 2023 will be tabulated and released to the public as a supplement to the U.S. Census Bureau's flagship Commodity Flow Survey.
- **Finite Element Modeling of Nurse Tanks** to safely move hazardous liquids in rural areas and in farming applications. PHMSA's research will develop a criteria and performance model to assess and define service life for nurse tanks that transport anhydrous ammonia delivered to farms for use as fertilizer. Recently, there have been several incidents involving nurse tanks that demonstrate the need for better metrics and/or regulations to help ensure the safe use of these tanks as they age.

PHMSA works cooperatively with shippers, carriers, emergency responders, state and local officials, other federal agencies that oversee transportation systems, and academic institutions in its hazardous materials research. It accomplishes this through shared development of proposals and joint funding of the most promising research.

## Grant Programs: \$5.0 million

**Community Safety Grants.** PHMSA's request in FY 2025 includes \$4.0 million for Community Safety Grants (CSG). The grant, authorized by the Infrastructure Investment and Jobs Act of 2021 (IIJA), is a competitive hazardous materials transportation training grant program that funds nonprofit organizations' development of best practice guidance for outreach regarding hazardous materials transportation issues. Intended audiences for outreach include the public; state and local emergency responders; and federal, state, local, and tribal government organizations. The program also provides funding for nonprofit outreach and training programs to train state and local personnel responsible for enforcing the safe transportation of hazardous materials.

Additionally, PHMSA's FY 2025 CSG funding priority is directed towards ensuring that underserved communities are prepared and trained to respond to hazardous materials transportation emergencies, which is consistent with Executive Order 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (86 FR 7009). This includes hazardous materials emergency response outreach and training for fire, law enforcement, local officials, and public safety access point personnel.

**State Hazardous Materials Safety Inspection** program provides states with the resources to conduct safety inspections of hazardous materials shippers. In FY 2022, PHMSA completed the framework and information collection systems to support the program, and these initiatives continued in FY 2024. For FY 2025, PHMSA intends to continue funding inspections in the two states currently enrolled in the program and bring on an additional one to three states. Funding will provide reimbursement of shipper inspection costs, develop a certification for state hazardous materials packaging and shipping inspection programs, and develop and maintain information technology systems to support data collection and analysis of state hazardous materials inspection programs.

## **What benefits will be provided to the American public through this request and why is this program necessary?**

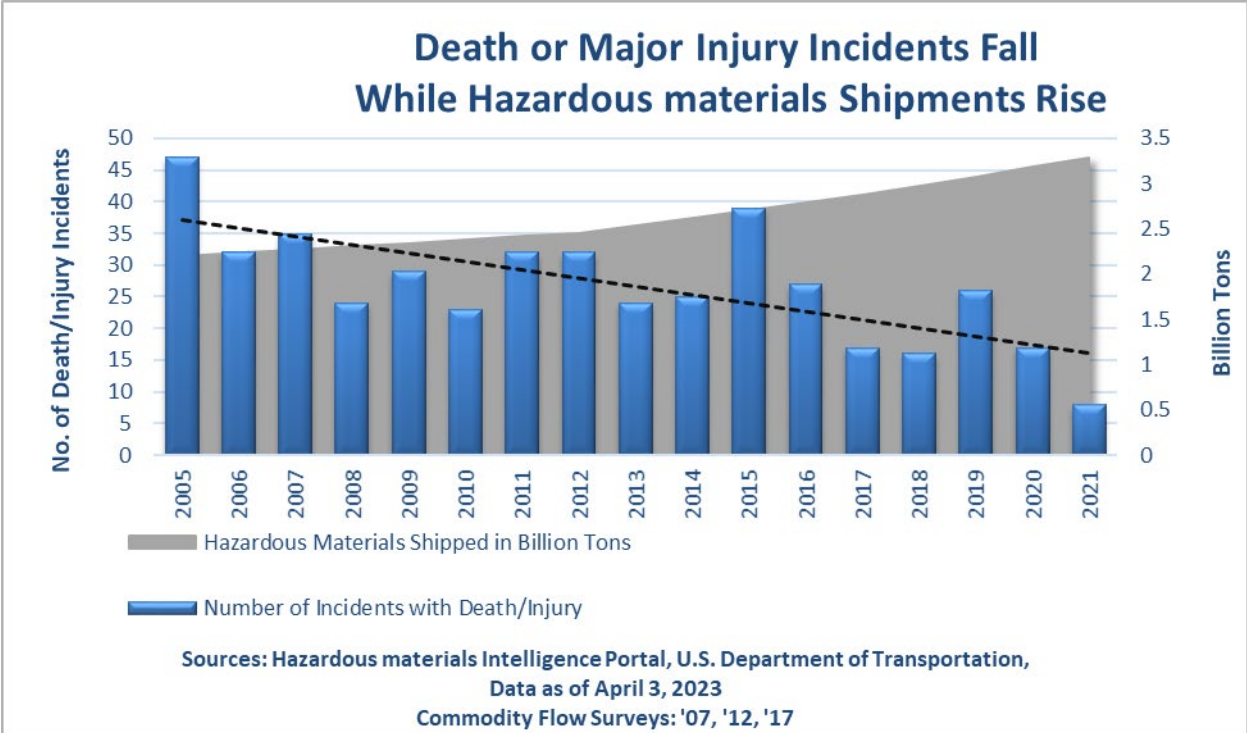
The Office of Hazardous Materials Safety provides benefits to the American public by improving safety in the packaging and shipping of hazardous materials, promoting economic growth and global competitiveness, and helping to protect economically distressed and underserved communities. Our Systems Integrity Safety Program helps companies that have systemic noncompliance; a substantially high percentage of incidents leading to deaths, injuries, and environmental releases; or present a high level of risk to the public. The program enables these companies to develop sustainable solutions by investing in safety that will avoid costly incidents and ongoing compliance challenges. This voluntary action, an alternative to traditional enforcement actions, has improved compliance, achieved a higher level of safety than possible with standard processes, and leveraged limited inspector resources.

The Office of Hazardous Materials Safety inspectors have also established liaisons with senior company officials at organizations including major hazardous materials distributors and manufacturers of chemicals and packaging to correct widespread systemic problems through innovative, non-punitive methods. PHMSA does this by working with affected companies to make them aware of the problems they are experiencing, propose solutions, and periodically tracks progress. In one instance, a company reported that it recouped investments through operational cost savings and improved safety processes within three years.

PHMSA's Hazardous Materials Safety program also supports the economy through safe transport of products to market while simultaneously making communities, especially economically distressed and underserved ones, safer and more livable. An effective transportation safety program requires continuous evaluation, revitalization, and updating to address modern risks. As commerce grows, PHMSA's investment in safety also has to increase to continue upholding high safety standards. To achieve our goal of zero incidents, additional investment is needed.

Lastly, PHMSA is the global leader in the establishment of international hazardous materials and dangerous goods standards. This ensures U.S. global competitiveness by reducing barriers for export and import of hazardous materials that are essential to the U.S. economy and our everyday lives.

**Performance and Program Management:** PHMSA collects accident and incident data nationwide. PHMSA carefully tracks the root causes of incidents and uses the information collected to inform the public and to inform our rulemaking and safety standards. As shown on the following graph, total death and major injury incidents have generally declined since 2005.



These ongoing successes cannot occur without a continuous commitment to excellence in safety. New inventions/products packaged in cutting edge/advanced packaging solutions/technologies being transported through unfamiliar ports of origin raise the stakes for safety precautions and preventative measures in the transportation of hazardous materials. PHMSA’s request facilitates its ability to identify the highest risks in moving energy to domestic and international markets, technology changes, and new shipping methods. PHMSA requests \$86.6 million in funding to manage the evolving challenges of packaging and shipping hazardous materials, with a commitment in research and development to continue gathering information, solving problems and moving the U.S. hazardous materials industry forward, protecting the American people, property, and ensuring the safe advancement of our energy economy.

# **Emergency Preparedness Grants**

**APPROPRIATIONS LANGUAGE**  
**[EMERGENCY PREPAREDNESS GRANTS**  
**(LIMITATION ON OBLIGATIONS)**  
**(EMERGENCY PREPAREDNESS FUND)]**

The FY 2025 Request continues the proposal made in FY 2024 to remove the appropriations language that provides an obligation limitation.

**Administrative Provision**

Sec. 180: Notwithstanding section 5116(h)(4) of title 49, United States Code, not more than 4 percent of the amounts made available from the account established under section 5116 of such title shall be available to pay the administrative costs of carrying out sections 5116, 5107(e), and 5108(g)(2) of such title.



## **What is this program and what does this funding level support?**

Over the past decade, there has been tremendous growth in the shipment of hazardous materials throughout the nation. Today, more than 3.3 billion tons of hazardous materials valued at more than \$1.90 trillion are transported annually by air, highway, rail, and vessel. On average, more than 1.2 million hazardous materials shipments occur every day. Fueled by domestic demand for lithium-ion battery powered electronics and international demand for American energy products and chemicals, the total volume, number of shipments, and value of hazardous materials shipments is expected to continue increasing—particularly with an influx of new electric vehicles in the marketplace. Thus, carrier movement of hazardous materials has increased dramatically on roads and waterways, and by rail, within the United States.

Communities impacted by hazardous materials shipments need to train and prepare first responders to control and contain accidents and incidents involving hazardous materials. Moreover, impacted communities are often economically distressed and historically underserved as exemplified by the February 2023, East Palestine, Ohio train derailment. As quoted in testimony from Fire Chief David Comstock of the Western Reserve Joint District, in Poland Ohio, who responded to the incident:

*“The East Palestine incident has emphasized the need to better train and equip firefighters to respond to hazardous materials incidents. For many firefighters, hazmat training is difficult to access, especially for volunteers who may need to take time off from their paying jobs. Progress has been made in making hazardous materials training more available through PHMSA’s Hazardous Materials Grants. Thanks to the PHMSA grants, the NVFC and other first responder organizations have been able to train tens of thousands of firefighters.”*

Congress, through the Infrastructure Investment and Jobs Act of 2021 (IIJA), recognized the need to support communities and first responders most affected by this growth. Funding for the program comes from approximately 23,000 hazardous materials shippers’ and carriers (truckers, rail companies, and airlines) registration fees. The monies collected aid community planning for unique risks of hazardous material accidents/incidents and for first responders training for the increased risk of incidents from hazardous materials freight transported through their communities. The program funds local firefighters’ and other first responders’ training, across all 50 states and territories, and on the response and remediation of difficult hazardous materials fires and incidents. This program will also promote racial justice and equity by better preparing and equipping first responders in economically distressed and underserved communities, which are often hardest hit by hazardous materials incidents.

In FY 2025, PHMSA requests budget authority of \$46.8 million for the Emergency Preparedness Grants program. This allows PHMSA to continue important emergency preparedness planning and training grants; technical assistance to grant recipients; and the publication, printing, and distribution of the *Emergency Response Guidebook*. Additionally, PHMSA’s FY 2025 priority is directed towards ensuring that underserved communities are prepared and trained to respond to hazardous materials transportation emergencies, which is consistent with Executive Order 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (86 FR 7009). Furthermore, PHMSA will emphasize that communities are prepared and trained to respond to hazardous materials incidents by rail. This includes community response planning and training for firefighters, law enforcement, community leaders, and response organizations nationwide.

**Obligation Limitation:** Included in the request is a proposal to remove the obligation limitation to allow the use of all registration fees collected. The obligation limitation sets a maximum amount that can be used each year and limits PHMSA’s ability to direct all collected funds toward critical hazard materials response needs. With the obligation limitation in place, if collections exceed the obligation limitation, PHMSA cannot award those funds. Moreover, given PHMSA’s recent progress on a rulemaking action (208J) to raise fee collections, this is anticipated to be an issue in FY 2025. PHMSA wants to ensure the award of all available resources to train and prepare first responders for hazardous materials accidents and incidents.

Importantly, the obligation limitation creates a disconnect with the Bipartisan Infrastructure Law in amount and uses of the Emergency Preparedness Grants account. Unlike other DOT accounts that require an obligation limitation for purposes of outlay control, the construct with the special fund here does not require an obligation limitation as only amounts collected are available for use. Removing the obligation limitation would streamline the program to operate as authorized and ensure that communities across the Nation are better prepared to respond to dangerous and life-threatening hazardous materials accidents and incidents.

**EXHIBIT III-1**  
**EMERGENCY PREPAREDNESS GRANTS**  
**Summary by Program Activity**  
**Appropriations, Obligation Limitations, and Exempt Obligations**  
**(\$000)**

	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
Operations	\$ 1,330	\$ 1,330	\$ 1,330
Grants	\$ 26,988	\$ 26,988	\$ 45,495
<b>TOTAL, Base appropriations</b>	<b>\$ 28,318</b>	<b>\$ 28,318</b>	<b>\$ 46,825</b>
FTEs			
Direct Funded	0	0	0

**Program and Performance Statement**

PHMSA operates a national registration program for shippers and carriers of hazardous materials and collects a fee from each registrant. The fees collected are used for emergency preparedness planning and training grants; publication and distribution of the *Emergency Response Guidebook*; development of training curriculum guidelines for emergency responders and technical assistance to States, political subdivisions, and federally recognized tribes; and administrative costs for these programs.

**EXHIBIT III-1a**

**EMERGENCY PREPAREDNESS GRANTS  
SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025  
Appropriations, Obligations, Limitations, and Exempt Obligations  
(\$000)**

	<u><b>\$000</b></u>	<u><b>FTE</b></u>
<b>FY 2024 CR</b>	\$ 28,318	-
<b>ADJUSTMENTS TO BASE:</b>	-	-
Annualization of FY 2024 FTE	-	
Annualization of Prior Pay Raise(s)	-	
FY 2025 Pay Raise	-	
GSA Rent	-	
Adjustment for Compensable Days (261 days)	-	
Working Capital Fund	-	
Non-Pay Inflation and Other Adjustments to Base	-	
<b>SUBTOTAL, ADJUSTMENTS TO BASE</b>	\$ -	-
<b>PROGRAM INCREASES</b>		
Hazardous Materials Emergency Preparedness Grants	16,507	
Hazardous Materials Instructor Training (HMIT) Grants	1,000	
Supplemental Public Sector Training Grants	1,000	
<b>SUBTOTAL, PROGRAM INCREASES</b>	\$ 18,507	-
<b>FY 2025 REQUEST</b>	\$ 46,825	-
<b>Supplemental Appropriations</b>	-	-
<b>TOTAL</b>	\$ 46,825	-

## Detailed Justification for Hazardous Materials Emergency Preparedness Grants

### FY 2025 – Hazardous Materials Emergency Preparedness Grants Budget Request (\$000)

Program Activity	FY 2023 ACTUAL	FY 2024 CR	FY 2025 REQUEST
Operations	\$ 1,330	\$ 1,330	\$ 1,330
Grants	26,988	26,988	45,495
<b>Total</b>	<b>\$ 28,318</b>	<b>\$ 28,318</b>	<b>\$ 46,825</b>

#### **Operations: \$1.3 million**

Operations includes the costs to publish the *Emergency Response Guidebook* and for oversight and technical assistance, such as creating training modules for grantees and first responders, and support for the review of State plans for improving local response to hazardous materials shipments, routes, and incidents.

#### **Emergency Response Guidebook, \$586 thousand**

PHMSA develops, publishes, and distributes an updated version of its *Emergency Response Guidebook (ERG)* every four years—in both paperback and electronic versions. The *ERG* is developed jointly by the U.S. Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico for use by first responders. The guidebook is for initial actions to be taken to protect first responders and the public during hazardous materials incidents (see: <http://www.phmsa.dot.gov/hazardousmaterials/library/erg>). It is widely used by the transportation industry and is internationally recognized.

Since 1993, 18 million copies of the *Emergency Response Guidebook* have been published and distributed in addition to 2.25 million downloads of the *ERG* mobile application for iOS and Android devices. This guide is the primary resource for the nation’s first responders, and is the globally recognized authority in hazardous materials containment, having been translated into more than a dozen languages. The *Emergency Response Guidebook* is present in almost every emergency response vehicle in the United States.

#### **Oversight and Technical Assistance, \$141 thousand**

The Infrastructure Investment and Jobs Act of 2021 (IIJA) requires the Department to provide technical assistance to a State, its political subdivisions, or federally recognized tribes for carrying out emergency response training and planning for incidents involving hazardous materials. PHMSA does this through on-site, technical assistance visits and outreach including web-based and media engagements.

In addition, these funds support state, local and tribal hazardous materials training initiatives through the publication of *Guidelines for Response, Planning and Prevention Training for*

## **Grants Program: \$45.5 million**

Emergency Preparedness Grants provide federal financial and technical assistance to states, territories, and federally recognized tribes to develop, improve, and carry out emergency plans.

Grants include the following programs:

- **Hazardous Materials Emergency Preparedness (HMEP) Grants**, \$38.5 million
- **Hazardous Materials Instructor Training (HMIT) Grants**, \$5.0 million
- **Supplemental Public-Sector Training Grants (SPST)**, \$2.0 million
- **Assistance for Local Emergency Response Training (ALERT)** (Amount based on unused amounts from other programs)

### **HMEP Grants, \$38.5 million**

The training and planning grants are distributed among states through a formula that factors in population density; the frequency and costs associated with serious and non-serious incidents; and mode(s) of transportation involved in previous hazardous materials accidents/incidents. These grants are awarded to states that provide funding to localities and first responders most in need of planning and training. The funding provides allocations for states to focus on underserved and low-income areas to ensure these communities are informed, prepared, and trained to effectively respond to hazardous materials transportation incidents. Annually, HMEP grants fund training for over 80,000 emergency responders nationwide. Additionally, it enables states and local communities to carry out preparedness activities to include development of emergency response plans, hazardous materials exercises, and commodity flow studies.

For instance, the Ohio Emergency Management Agency has received approximately \$745 thousand in HMEP grant funding each year since 2016. This has trained 4,100 first responders throughout the state. Similarly, The Center for Rural Development, in partnership with the University of Findlay Training Center in Ohio has received ALERT Grant funding from PHMSA which has allowed the Center to train over 2,500 first responders in 137 locations throughout the state, including in the East Palestine area. These sources of funding have a direct and measurable impact on hazardous materials transport safety, which keeps people safe and protects the environment.

Lastly, PHMSA seeks to expand the existing HMEP eligible cost to allow states and local departments to purchase operational equipment. Currently, eligible expenses under the HMEP program are strictly tied to planning and training activities. This change stems from grantee feedback suggesting response units nationwide are in critical need of operational expenses such as personal protective equipment (PPE), decontamination kits, and air monitoring equipment to respond to hazardous material incidents safely and effectively. For example, we have received direct feedback from emergency responders and firefighters that they are sometimes without PPE while it is being cleaned following an incident, leaving them potentially unable to respond to a subsequent incident.

### **HMIT Grants, \$5.0 million**

The HMIT grant provides funding to train hazardous materials safety employees to become instructors and develops tools to extend the reach of hazardous materials training. These grants are awarded to nonprofit organizations with expertise in training hazardous materials safety employees. Annually, the HMIT program trains over 2,000 hazardous materials employees and instructors nationwide.

### **SPST Grants, \$2.0 million**

The SPST grant is used to train instructors to conduct hazardous materials response training programs for individuals with statutory responsibility to respond to hazardous materials accidents and incidents. These grants are made to national, nonprofit fire service organizations. Annually, this grant trains approximately 1,000 firefighters through instructor training or direct delivery. This program ensures that hazardous materials training is available in the most convenient, cost-effective locations by allowing graduating instructors to train new, local instructors and responders, while also guaranteeing continuity and efficiency.

### **ALERT Grants, funded via recoveries**

The ALERT grant is funded out of recoveries from prior unused awards that are no longer available for obligation and are not otherwise appropriated for use. These grants fund training public-sector emergency response personnel to respond to incidents involving hazardous materials by all modes of transportation. Nonprofit organizations, representing regional public-private partnerships, provide in-person or web-based training to ensure first responders can safely and efficiently respond to hazardous materials incidents. PHMSA also aims to train responders in communities on or near rail lines, which transport a significant volume of high-risk energy commodities or toxic inhalation hazards. These are often economically distressed and underserved communities which are the least able to absorb the negative impact of hazardous materials incidents.

### **What benefits will be provided to the American public through this request and why is this program necessary?**

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Well-trained first responders, with an ability to identify hazardous materials at the scene of an incident, knowledge on how to secure a site, and extinguish hazardous material fires are important for keeping the public safe.

Hazardous materials employees and emergency responders also benefit from qualified training instructors. These grants help ensure workplace safety and compliance when transporting hazardous materials and provide training to firefighters across the nation to ensure a safe and efficient response to hazardous material incidents. Every year grantees instruct thousands of trainers and hazardous materials employees on the rules, regulations, and best practices on the containment of hazardous materials accidents/incidents. Emergency preparedness and response training are vital components to the nation's first responders and the American public's safety. Effective preparation for emergencies helps prevent and/or contain the impact(s) of hazardous materials incidents/accidents, saving lives and reducing environmental damage every year.

**Performance and Program Management:** PHMSA collects statistics on training provided to first responders and community response plans developed because of the Emergency Preparedness Grants programs nationwide. This results in volunteer and career first responders, oftentimes in underserved communities, being properly trained in the response to

accidents and incidents involving hazardous materials. Based on updated final performance reports capturing outputs from FY 2016 – 2018, the program has aided the following response activities nationwide:

- Training of more than 242,000 emergency responders
- Development of 159 new emergency plans
- Update of 344 emergency response plans
- Performance of 228 emergency response exercises
- Completion of 120 commodity flow studies
- Completion of 75 hazard analyses and capability assessments
- Completion of over 380 other hazardous materials planning activities



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# **Operational Expenses**

## **APPROPRIATIONS LANGUAGE**

### **OPERATIONAL EXPENSES**

For necessary operational expenses of the Pipeline and Hazardous Materials Safety Administration, [\$29,936,000] *\$32,633,000* of which \$4,500,000 shall remain available until September 30, [2026] *2027*.

## **What is this program and what does this funding level support?**

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PHMSA ensures the safe transportation of hazardous materials across all modes of transportation and the safe operation of pipelines and pipeline facilities (including underground storage and certain liquified natural gas facilities). The Operational Expenses account provides resources that support a world-class safety organization—regulatory and enforcement support, information technology systems, human resources, financial management, grants administration and acquisition services, among others.

**EXHIBIT III-1  
OPERATIONAL EXPENSES  
Summary by Program Activity  
Appropriations, Obligation Limitations, and Exempt Obligations  
(\$000)**

	<u>FY 2023 ACTUAL</u>	<u>FY 2024 CR</u>	<u>FY 2025 REQUEST</u>
Operations	\$ 25,436	\$ 25,436	\$ 28,133
Grants	\$ 4,500	\$ 4,500	\$ 4,500
<b>TOTAL, Base appropriations</b>	<u>\$ 29,936</u>	<u>\$ 29,936</u>	<u>\$ 32,633</u>
FTEs			
Direct Funded	67.0	70.0	71.0

**Program and Performance Statement**

The success of the PHMSA safety programs is dependent on effective support organizations that hire staff, acquire goods and services, develop and sustain information technology, write complex regulations, and support enforcement actions, among others. PHMSA provides support through the Offices of the Administrator and Deputy Administrator; Executive Director/Chief Safety Officer; Planning and Analytics; Chief Counsel; Governmental, International and Public Affairs; Chief Financial Officer, Budget and Finance, Acquisition, and Information Technology Services; Associate Administrator for Administration, Administrative Services, Human Resources; and Civil Rights.

**EXHIBIT III-1a**  
**OPERATIONAL EXPENSES**  
**SUMMARY ANALYSIS OF CHANGE FROM FY 2024 TO FY 2025**  
**Appropriations, Obligations, Limitations, and Exempt Obligations**  
**(\$000)**

	<u><b>\$000</b></u>	<u><b>FTE</b></u>
<b>FY 2024 CR</b>	\$ 29,936	70.0
<b>ADJUSTMENTS TO BASE:</b>		
Annualization of FY 2024 FTE	-	-
Annualization of Prior Pay Raise(s)	185	-
FY 2025 Pay Raise	216	-
GSA Rent	(580)	-
Adjustment for Compensable Days (261 days)	56	-
Working Capital Fund	328	-
Non-Pay Inflation and Other Adjustments to Base	1,954	-
<b>SUBTOTAL, ADJUSTMENTS TO BASE</b>	<b>\$ 2,159</b>	<b>-</b>
<b>PROGRAM REDUCTIONS</b>		
<b>SUBTOTAL, PROGRAM REDUCTIONS</b>	<b>\$ -</b>	<b>-</b>
<b>PROGRAM INCREASES</b>		
Expanded and enhanced Civil Rights function 2 FTP (1 FTE)	236	1.0
Cybersecurity Investments	303	-
<b>SUBTOTAL, PROGRAM INCREASES</b>	<b>\$ 539</b>	<b>1.0</b>
<b>FY 2025 REQUEST</b>	<b>\$ 32,633</b>	<b>71.0</b>
<b>Supplemental Appropriations</b>	<b>-</b>	<b>-</b>
<b>TOTAL</b>	<b>\$ 32,633</b>	<b>71.0</b>

**Detailed Justification for the Operational Expenses Program**

**FY 2025 Operational Expenses Budget Request  
(\$000)**

<b>Program Activity</b>	<b>FY 2023 ACTUAL</b>	<b>FY 2024 CR</b>	<b>FY 2025 REQUEST</b>
Operations	\$ 20,864	\$ 20,864	\$ 22,666
Contract Safety Programs	4,572	4,572	5,467
Grants	4,500	4,500	4,500
<b>Total</b>	<b>\$ 29,936</b>	<b>\$ 29,936</b>	<b>\$ 32,633</b>
<b>FTEs</b>	<b>67.0</b>	<b>70.0</b>	<b>71.0</b>

**Operations: \$22.7 million**

PHMSA’s FY 2025 operations request of \$22.7 million supports the safety organization by recruiting and hiring safety professionals; funding the Department of Transportation’s shared costs through the Working Capital Fund; acquiring safety equipment and services; administering research and grant awards; assessing and collecting operator fees; providing the public, Congress and the Administration with needed safety leadership and information; and equipping our safety staff with the tools and technology necessary to operate a first-rate safety organization. These funds specifically cover salaries and benefits, equipment, rent, travel, training, supplies and other essential commitments needed for the organization to implement the Administration’s critical goals and priorities.

In FY 2025, PHMSA will continue the following key agency priorities:

**Expanded Civil Rights function.** PHMSA requests an additional two positions (1.0 FTE) in FY 2025 to promote the Department’s strategic goal of equity, and fully support the Administration’s Executive Orders. The PHMSA Office of Civil Rights ensures PHMSA’s safety management organization and programs protect and promote equity, diversity, inclusion, accessibility, and fairness (DEIA). One position will address internal DEIA commitments, such as establishing partnerships with minority serving institutions for internships and research solicitations and integrating DEIA principles and best practices into leadership training for employees. Additionally, the other requested position will focus on Title VI requirements for PHMSA’s grantees, such as conducting training, providing technical assistance, and discussing equity with recipients to encourage their compliance with equity principles.

PHMSA operates a growing and complex Equal Employment Opportunity (EEO) Program across a network of regional offices throughout the United States. The program focuses on

diversity, inclusion, and accessibility in all aspects of employment from hiring through retirement. Analysis of workforce demographics and trends in the EEO Discrimination Complaint Program provides the agency information to improve the representation of those groups under-represented in PHMSA's workforce while addressing issues arising as complaints.

PHMSA continues to work on recommendations for improving civility, diversity and inclusion across the agency. Improvement focuses on training on the importance of civility, diversity, and inclusion for employees and management; a safe space to discuss issues of racial justice, equity, and civility; and opportunities for employees to assist the Office of Civil Rights in its mission. Improving these areas will help PHMSA operate as a Model EEO Program.

PHMSA will continue to conduct data-driven equity programs with a climate survey and training sessions on equity and inclusion, increasing awareness of equity in all aspects of PHMSA's operations. PHMSA is focused on improving oversight of the financial assistance programs to ensure they operate in a fair, nondiscriminatory manner consistent with Title VI and other antidiscrimination statutes. Requirements for recipients include signing and posting Nondiscrimination Statements, developing and publishing Title VI complaints procedures, institutionalizing community participation plans, and ensuring information on programs and procedures are published in other languages for the use of those that are limited English proficient. The Office of Civil Rights is working with the grants managers to conduct Title VI reviews of all applicants for PHMSA grants. Ensuring compliance by all recipients of federal financial assistance is key to ensuring the money is spent in an equitable manner, especially for underserved communities.

**Continued investment in leadership development** by building a cadre of safety leaders for PHMSA with its agency-wide leadership development programs. The agency has already successfully delivered advanced, intermediate and basic leadership development programs and intends to expand upon these programs in FY 2025 to develop and retain the best and brightest safety professionals.

**Continued environmental sustainability** by transitioning the Federal motor vehicle fleet to clean and zero emission vehicles.

**Improved recruitment and retention programs for mission critical positions** attracting and retaining the highest-quality safety professionals including:

- Using the Direct Hiring Authority for pipeline safety positions that qualify as science, technology, engineering, and math positions.
- Investing in science, technology, engineering, and math education programs, promoting pipeline safety engineering positions.
- Reviewing PHMSA Mission Critical Occupations and developing targeted recruitment and hiring strategies for each.
- Continuing outreach partnerships with state disability agencies to highlight PHMSA career opportunities to disabled veterans and people with disabilities that those agencies provide services to.



- Expanding digital marketing activities to highlight PHMSA’s career opportunities on the job centers of several diverse affinity groups and professional associations.
- Extending our outreach to Universities, Colleges, and Affinity Groups utilizing social media (LinkedIn, Twitter, Handshake, Glassdoor, and others), and ensuring Minority Serving Institutions were represented in all University outreach activities.
- Participating in special hiring events; and updated recruitment materials for PHMSA employee “ambassadors” to use at these events to attract diverse talent to the agency.
- Continuing tracking processes to identify and quantify the number of outreach events PHMSA participates in that target minority serving institutions, affinity groups, or other external stakeholders that represent underrepresented populations in PHMSA’s workforce.
- Developing a student pipeline utilizing the Pathways Program, which offers federal internship and employment opportunities for current students, recent graduates, and those with an advanced degree.

PHMSA has made efforts to identify and implement cost saving measures to operate more efficiently and ensure that the agency has sufficient resources to support its mission critical activity.

For example, the agency was able to transition to a virtual office in the Midwest, closing its physical Chicago, Illinois office, thereby saving the agency over \$200 thousand annually.

PHMSA’s IT team, in conjunction with the agency’s HR office, leveraged existing resources and technology to automate all staffing actions. Normally, this would have required a new contract and additional resources to achieve. Instead, the upgrade occurred without additional resources and costs, saving the agency approximately \$400 thousand.

In total, PHMSA has achieved operation cost savings of approximately \$1.3 million in the past year and will continue to look for other cost savings to ensure that there is sufficient funding to support its mission critical needs.

### **Contract Safety Programs: \$5.5 million**

PHMSA requests \$5.5 million for contract safety programs including an additional \$303 thousand in Information Technology (IT) investments in Cybersecurity. This increase will provide the organization with resources to transition to a Multifactor Authentication system (MFA), strengthening encryption, and reinforcing its Information System Security Officers (ISSOs) to improve cybersecurity in all mission systems. Other investments include modernizing safety management and operations, transitioning from costly, traditional server-based solutions to a cloud network infrastructure to help PHMSA adapt to the changing work environment to support all staff regardless of where in the nation they perform their duties. This is especially critical as the agency moves to a more geographically dispersed workforce.

This includes data systems that quantify incidents and accidents, associate causality, and predict future trends and events— in other words, the backbone of PHMSA’s safety oversight. The

systems ensure the timely processing of hazardous materials special permits and approvals. PHMSA is focused on providing increased automation and functionality to its field inspection staff enabling them to more seamlessly and effectively perform essential safety oversight functions.

The funding also supports all IT used at headquarters and some of the regional support. This includes support for key Departmental priorities such as multi-factor authentication and encryption of all data. These investments will not only ensure the security of PHMSA's systems and information, but also promote better systems operation.

## **Grants: \$4.5 million**

PHMSA's request for Grants programs is \$4.5 million to continue funding the Emergency Response and Information Grants to Communities programs.

### **Emergency Response Grants - \$2.5 million**

Each year PHMSA awards grants to state, county, and local governments in high consequence areas, as defined by the Secretary, for pipeline emergency response management, training, and technical assistance. Local emergency responders are the first to show up when it comes to protecting people, property and the environment from the harmful effects of hazardous pipeline accidents or incidents, much like the first responders to the train derailment in East Palestine, Ohio, in February 2023.

Underserved communities are most often impacted by pipelines running close to homes and businesses. First responders need help to manage highly volatile and dangerous incidents when they occur and to identify and prevent dangerous conditions that cause incidents. Grants to train emergency responders will ensure the safety of people in these communities.

### **Information Grants to Communities - \$2.0 million**

The funding supports Pipeline Safety Information Grants to Communities for technical assistance related to communities impacted by pipeline projects and facilities. The awards have funded a broad range of activities, including:

- Improvement of local pipeline emergency response capabilities
- Improvement of safe digging programs
- Development of pipeline safety information resources
- Implementation of local land use practices that enhance pipeline safety
- Community and pipeline awareness campaigns, such as "811 Call Before You Dig"
- Enhancements in public participation in official proceedings pertaining to pipelines

These funds are vital to the safety of the communities near or on top of pipeline imbedded land. However, the funding may *not* be used for lobbying, in direct support of litigation, or for activities associated with regulatory compliance or typical operations and maintenance of pipeline facilities.

**What benefits will be provided to the American public through this request and why is this program necessary?**

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The request will allow PHMSA to carry out an effective staffing plan, support innovative modern information technology, expand upon its existing equity and civil rights programs, improve internal management processes for the safety organization, develop the next generation of agency leaders, and enhance responsiveness to Congressional and regulatory requirements.

PHMSA's request supports the safe movement of hazardous materials through all modes of transportation and pipelines. Through this primary safety goal, PHMSA advocates for a clean environment with enhanced safety standards, improvements, and commitment to innovation.

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## **IV: Research, Development and Technology**

**Exhibit IV-1: Research, Development, and Technology (RD&T) Budget Authority  
Pipeline and Hazardous Materials Safety Administration  
FY 2025 Research, Development, & Technology Budget Authority  
(\$000)**

<b>Budget Account</b>	<b>FY 2023 Actual</b>	<b>FY 2024 CR</b>	<b>FY 2025 Request</b>	<b>Applied</b>	<b>Tech Transfer</b>	<b>Facilities</b>	<b>Experimental Development</b>	<b>Major Equipment, R&amp;D Equipment</b>
<b>Pipeline Safety</b>	<b>\$ 12,500</b>	<b>\$ 12,500</b>	<b>\$ 14,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Safety</b>								
Liquefied Natural Gas (LNG)	6,000	6,000	5,000					
Underground Natural Gas Safety Research Storage (UGS)	1,500	1,500	1,500					
Pipeline Anomaly Detection/Characterization	1,000	1,000	1,000					
Pipeline Leak Detection	1,000	1,000	1,500					
Pipeline Threat Prevention	1,000	1,000	1,500					
Repair/Rehabilitation	1,000	1,000	1,500					
Climate Change Solutions/Hydrogen	1,000	1,000	2,000					
<b>Hazardous Materials Safety</b>	<b>\$ 7,570</b>	<b>\$ 7,570</b>	<b>\$ 7,570</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Safety</b>								
Risk Management	1,500	1,500	1,500					
Technical Analysis	1,000	1,000	1,000					
Package Integrity	2,500	2,500	2,500					
<b>Innovation</b>								
Emerging Technologies	2,570	2,570	2,570					
<b>Administrative Expenses</b>	<b>\$ 2,209</b>	<b>\$ 2,209</b>	<b>\$ 2,324</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Pipeline Safety	1,363	1,363	1,434					
Hazardous Materials Safety	846	846	890					
<b>Total</b>	<b>\$ 22,279</b>	<b>\$ 22,279</b>	<b>\$ 23,894</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Exhibit IV-2 FY 2025 Budget Request – RD&T Program Funding by DOT Strategic Goal**  
**Pipeline and Hazardous Materials Safety Administration**  
**FY 2025 Research, Development, & Technology Budget**  
(\$000)  
**DOT STRATEGIC GOALS**

ACCOUNT/PROGRAM	FY 2025 Request	SAFETY	ECONOMIC STRENGTH	EQUITY	CLIMATE & SUSTAINABILITY	TRANSFORMATION	ORGANIZATIONAL EXCELLENCE
<b>Pipeline Safety</b>	<b>\$ 14,000</b>	<b>\$ 9,500</b>	<b>\$ -</b>	<b>\$ 500</b>	<b>\$ 4,000</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Safety</b>							
Liquefied Natural Gas (LNG)	5,000	4,500			500		
Underground Natural Gas Safety Research Storage (UGS)	1,500	1,000			500		
Pipeline Anomaly Detection/Characterization	1,000	500			500		
Pipeline Leak Detection	1,500	1,000			500		
Pipeline Threat Prevention	1,500	1,000			500		
Repair/Rehabilitation	1,500	500		500	500		
Climate Change Solutions/Hydrogen	2,000	1,000			1,000		
<b>Hazardous Materials Safety</b>	<b>\$ 7,570</b>	<b>\$ 4,560</b>	<b>\$ 750</b>	<b>\$ 500</b>	<b>\$ 1,760</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Safety</b>							
Risk Management	1,500	1,000		500			
Technical Analysis	1,000	525			475		
Package Integrity	2,500	1,750	750				
<b>Innovation</b>							
Emerging Technologies	2,570	1,285			1,285		
<b>Administrative Expenses</b>	<b>\$ 2,324</b>	<b>\$ 2,324</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Pipeline Safety	1,434	1,434					
Hazardous Materials Safety	890	890					
<b>TOTAL</b>	<b>\$ 23,894</b>	<b>\$ 16,384</b>	<b>\$ 750</b>	<b>\$ 1,000</b>	<b>\$ 5,760</b>	<b>\$ -</b>	<b>\$ -</b>

# Pipeline and Hazardous Materials Safety Administration (PHMSA)

## Research Summary

The Pipeline and Hazardous Materials Safety Administration's (PHMSA) mission is to protect people, property, and the environment by advancing the safe transportation of energy products and the safe packaging and shipment of hazardous materials that are essential to our daily lives.

PHMSA operates in a dynamic and challenging environment wherein changes in technology, manufacturing, and energy production affect transportation safety. PHMSA anticipates that the scope and complexity of our safety mission will continue to grow to protect people and the environment, serve environmental justice, and support climate and sustainability efforts. PHMSA will fund research that improves safety to reduce potential human and environmental impacts. This kind of research will enhance the security of our infrastructure, our people, and our environment.

America's pipeline infrastructure spans more than 3.3 million miles and is used to transport nearly all the natural gas and about two-thirds of the liquid petroleum energy products consumed domestically. According to the U.S. Energy Information Administration, oil furnishes 36 percent of our energy, natural gas 33 percent, coal 10 percent, nuclear 8 percent, and renewables make up the remaining 13 percent.<sup>1</sup> Adaptation of the existing pipeline structure to support alternative energy sources and the ability to serve underserved communities will drive the need for innovation in the coming decade. PHMSA also confronts safety challenges posed by the increased transportation of hazardous materials across all modes—more than 1.6 billion tons annually and more than 1.2 million shipments per day.<sup>2</sup> The routes taken by these shipments must be chosen in an equitable and environmentally sustainable manner. As unexpected circumstances continue to arise, PHMSA must prepare for any emerging issues. Research and development (R&D) activities provide critical solutions to these ongoing challenges.

Due to the significant contribution of energy and hazardous materials to our economy and standard of living, as well as their associated environmental impacts, research projects promoting safety, resilience, and improved performance of our transportation system are essential. PHMSA will fund research that improves safety to reduce potential human and environmental impacts. This kind of research will enhance the security of our infrastructure, our people, and our environment.

In Fiscal Year (FY) 2025, PHMSA will pursue RD&T goals through projects carried out by its Office of Pipeline Safety and Office of Hazardous Materials Safety. PHMSA will continue to seek stakeholder input, review accident trends and causes, and evaluate the progress on its current projects and completed research. This will identify any additional research gaps and research topics to be funded in FY 2025 and identify any follow-on research based on the research outputs from prior years. Based upon this analysis, PHMSA will continue to support the Department of Transportation's (Department or DOT) strategic goals through research investments to develop a comprehensive research portfolio in FY 2025, while remaining focused on safety solutions. The Office of Pipeline Safety will also support research to address PHMSA's

<sup>1</sup> <https://www.eia.gov/energyexplained/us-energy-facts/>

<sup>2</sup> <https://www.phmsa.dot.gov/>



priorities identified in the U.S. DOT Strategic Plan FY 2022-2026 on pipeline safety, infrastructure development for climate change mitigation, environmental justice, and equity.

The Office of Pipeline Safety RD&T objectives for FY 2025 will address a comprehensive review of the research portfolio that was awarded in FY 2022-2024, focused on safety, alternative energy, and climate change solutions. PHMSA hosted a liquefied natural gas (LNG) public meeting and forum on November 15-16, 2022, which served as an opportunity for stakeholders to discuss research gaps and challenges in the LNG industry. Furthermore, this forum served as a venue for PHMSA, public interest groups, industry, academia, intergovernmental partners, and the public to collaborate on PHMSA's future RD&T agenda. Approximately 156 participants from governmental, international, and non-governmental organizations attended the virtual forum, and over 20 presentations were given. The public meeting and forum identified 23 priority research gaps related to LNG facilities, specifically in design and construction, siting, fire protection system design, and operation and maintenance. These gaps were incorporated into the FY 2023 R&D solicitations for the Competitive Academic Agreement Program (CAAP) and the Core Research Programs.

PHMSA held an R&D Forum and Public Meeting from October 31 through November 1, 2023. Approximately 175 stakeholders attended in person, and an additional 406 attended virtually. Over the 2 days, there were 47 speakers between the main session and 6 specialized breakout working group sessions. The forum and public meeting allowed stakeholders to discuss research gaps and challenges in the industry. Furthermore, the forum also served as a venue for PHMSA, public interest groups, industry, academia, intergovernmental partners, and the public to inform PHMSA's Pipeline Safety Research Program (PSRP) FY 2024 and 2025 funding strategy.

In FY 2025, the PSRP will continue to advance its focus in the following seven topic areas to address important new research: LNG, UNGS, and pipeline anomaly detection/characterization, leak detection, threat prevention, repair/rehabilitation and climate change solutions. In addition, PHMSA's National Center of Excellence for LNG Safety (Center), established under Section 111 of the Protecting our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act of 2020 (Pub. L. 116-260), will administer all LNG-related research in FY 2025, playing a pivotal role by assuming responsibility for LNG research activities and in collaboration with LNG sector stakeholders. This collaboration will result in cooperative research with academic and private-sector partners, as well as national laboratories and nongovernmental organizations to further LNG safety technology development and implementation. Thus, the Center will stay at the forefront of innovation and drive research efforts that address critical challenges.

### **Anticipated Outcomes**

PHMSA will pursue pipeline safety research activities of new or improved tools and technology to aid in the prevention and reduction of pipeline failures and incidents. Research investments also assist with the early identification of pipeline defects (before they lead to catastrophic ruptures), and the identification of issues related to the transportation of alternative fuels which may be used to reduce GHG emissions to support climate solutions. Investments in these areas are aimed at preventing or lessening the release of hazardous materials into the environment. These research focus areas may also come increasingly to the forefront as FY 2024 research identifies ways to connect research efforts to emerging safety risks and climate change

objectives. PHMSA will publish research solicitations, review research proposals, and select prospective research projects to support the Department's and PHMSA's goals.

The Office of Pipeline Safety will continue strengthening its research partnerships with universities, industry, and safety organizations, and continue implementation of its Minority Serving Institutions (MSIs) outreach and engagement initiatives to address the equity and diversity challenges in the pipeline workforce. PHMSA reached out to over 200 MSIs and conducted two CAAP information sessions with the invited MSIs in 2023. These outreach efforts will help advance the strategic goal for *Equity*, as well as diversity and inclusion, while encouraging a diverse group of young students, including those from under-represented communities, to consider careers in the pipeline workforce. Increased collaboration with stakeholders and interagency partners will also continue to ensure that research outcomes result in technology transfer and adoption of innovative concepts and methods which will enhance the safety and performance for pipeline-, LNG-, and UNGS-related facilities.

PHMSA's hazardous materials-related research furthers the goal of transportation safety by reducing the likelihood of personal injury and environmental damage resulting from hazardous materials releases. The Office of Hazardous Materials Safety projects fall under four core areas: improved risk management and mitigation, fostering emerging technologies, promoting packaging integrity, and conducting technical analysis to aid in risk assessments.

Anticipated outcomes include:

- Improved hazardous materials commodity flow data
- Enhanced risk modeling and risk analysis
- Improved safety standards
- Improved performance of packages used to transport hazardous materials
- Improved non-destructive inspection techniques
- Improved pipeline safety and reliability through patented and commercialized technologies and equipment<sup>3</sup>

### **New Research Areas/Projects for FY 2025**

PHMSA recognizes the importance of addressing the President's Executive Orders on Climate Change (Executive Order 14008) and Environmental Justice (Executive Order 13895) in the upcoming program plans. Accordingly, in FY 2025, the Office of Pipeline Safety will remain focused on improving pipeline safety through research that provides engineering solutions, applications, and recommendations. PHMSA's Pipeline Safety Research Program (PSRP) achieves its goals through Core program demonstrations, deployments, and commercialization; research partnerships with universities through the CAAP; small business-focused innovation through the Department's Small Business Innovative Research Program (SBIR); and expertise from federal agencies and national labs through Inter-Agency Agreements (IAAs). The PSRP's main objectives are to:

<sup>3</sup> [https://primis.phmsa.dot.gov/rd/performance\\_technology.htm](https://primis.phmsa.dot.gov/rd/performance_technology.htm)

- Help advance a safe and reliable pipeline transportation system for the American public by providing the scientific and engineering basis for improved industry standards and rulemaking
- Promote emerging technologies for pipeline industry implementation
- Identify and address pipeline safety challenges and research gaps, and invest in research projects that address the Department’s FYs 2022-2026 strategic goals

PHMSA’s pipeline research is supported through a combination of federal funding and industry co-funding with a variety of partnering organizations. For PHMSA’s pipeline research program, approximately 30 percent of funding for a given project is from non-federal entities—20 percent in the case of CAAP partnerships with universities—although PHMSA may fund up to 100 percent of the cost of RD&T for purely governmental purposes. The Office of Hazardous Materials research programs are entirely federally-funded. RD&T appropriations have a three-year period of availability.

Pipeline Safety Research Program Focus Areas:

- LNG Safety
- Underground Natural Gas Storage (UNGS) Facilities Safety
- Pipeline Anomaly Detection/Characterization
- Pipeline Leak Detection
- Pipeline Threat Prevention
- Repair/Rehabilitation
- Climate Change Solutions/Hydrogen/Carbon Capture

Hazardous Materials Safety Research Program Focus Areas:

- Hazardous Materials Risk Management and Mitigation
- Hazardous Materials Package Integrity
- Hazardous Materials Emerging Technologies
- Hazardous Materials Technical Analysis to Aid Risk Assessments

**Performance Measures**

PHMSA supports evaluation and performance measurement efforts related to the Foundations for Evidence-Based Policymaking Act of 2018 (Pub. L. 115-435). In support of DOT’s strategic objectives, PHMSA’s performance goals will be monitored for trends, reported DOT-wide, and serve as a guide for both RD&T and operational performance.

PHMSA avoids unnecessary research duplication through extensive public outreach, working closely with interagency partners from federal agencies, private research consortiums, academia, public advocacy groups, and other pipeline stakeholders. Together, these efforts aim to fund and share the cost of critical research to develop new technologies, products, and knowledge to

advance safety and address climate challenges while promoting stakeholder engagement and transparency.

Research investments into pipeline-, LNG-, or UNGS-related challenges may result in published analytical outcomes, small-scale tests, and in some cases, full-scale demonstration projects that lead to new technology and scientific methods which improve pipeline safety. The results from each completed project are provided in final reports shared publicly on the PHMSA website and/or the National Transportation Library. Researchers are required to disseminate their findings through presentations and publications at conferences or in peer-reviewed journals. Completed technology development projects may result in new patents or products for commercialized adoption. PHMSA plans to continue tracking each project's performance using metrics to monitor the progress of the research and the readiness of the technology for commercialization or potential application in the field.

PHMSA maintains close relationships with research partners throughout a project to ensure that it remains on track and is achieving its intended results. Program outcomes are tracked for each project based on the following performance metrics:

- New technology demonstrations
- Patent applications
- Commercialized technologies
- Technology transfer (T2) success rate (i.e., the frequency of each completed research project resulting in commercialization)
- Research reports, journal papers, and website visits

New technology demonstrations are tracked because of the potential for new U.S. patent applications, and ultimately, U.S. patents that are needed to drive the technology to the market. The number of publicly available final reports, along with published conference and journal papers, website visits, and downloaded files are each tracked to measure the level of stakeholder interaction and interest in the program. The number of stakeholders reached via public events is also tracked.

### **Potential Progress Made Toward Achieving Strategic Goals**

PHMSA will continue to advance the safe transportation of energy and other hazardous materials essential to our daily lives by conducting research that aligns with the Department's strategic goals. Results of the research findings will continue to address both national and local challenges in urban and rural communities. The PSRP remains focused on systemic, performance-based approaches to ensure pipeline transportation safety, protect the environment, and ensure the cost effectiveness of alternative energy transportation.

PHMSA's safety mission is paramount, and its programs provide tangible safety and operational benefits to the American public. PHMSA has three primary means of improving pipeline safety: a regulatory program, which establishes a set of minimum safety regulations while allowing for the use of new and proven technology through a special permit process; an inspection and investigation program to determine compliance with the minimum regulations; and a research program that provides financial support to advance technology and knowledge transfer. By conducting research to reduce the frequency of pipeline failures and minimize releases, the RD&T program supports the safety mission and addresses climate and sustainability strategic

goals. The risks from pipeline failures and releases are disproportionately among older, legacy pipeline systems (concentrated in urban areas) or in previously unregulated rural areas where gathering lines are prevalent. Improvement of the performance and safety of these systems thus also supports equity goals in reducing risk in these areas.

Research results and outputs provide scientific and engineering support for PHMSA's safety activities and regulatory rulemaking efforts. Additionally, these results and outputs increase PHMSA's knowledge for support in inspections, enforcement, decision-making, regulatory reform, and policies to improve pipeline safety and reduce greenhouse gas (GHG) emissions from pipelines. Specifically, PHMSA's research investments provided support in developing rulemaking criteria to address anomaly detection and characterization (corrosion, seam cracking and pipe body cracking, denting, and fatigue) and integrity management on pipe assessment/reassessment inspection intervals.

The research outputs, outcomes, and impacts from PHMSA's investments are not always directly quantifiable; however, RD&T plays a foundational role in addressing pipeline transportation challenges facing the U.S. by developing innovative solutions and ensuring that the best available science and technology are the basis for PHMSA's safety regulatory actions, enforcement, and programs. PHMSA's research investments have resulted in safety impacts through industry utilization and adoption of technology, and, specifically, 35 technology transfers have been commercialized. PHMSA is increasing its stakeholder engagement initiatives to increase technology transfer and commercialization even further.

Additionally, PHMSA is making significant progress in supporting the Administration's efforts to minimize methane emissions from pipelines by updating and expanding federal pipeline safety regulation. Research results in the focus areas of LNG safety and pipeline leak detection are being used to inform PHMSA in its rulemaking initiatives in these areas. Specifically, PHMSA expects that the LNG Facilities Rule will strengthen standards for LNG facilities, helping prevent large-scale incidents and releases from storage tanks. It also will reduce the risk of low-probability/high-consequence incidents, such as an LNG storage tank failure. Such tanks can contain as much as 69,000 metric tons of methane. Additionally, the Notice of Proposed Rulemaking (NPRM) for Gas Pipeline Leak Detection, published in May 2023, establishes standards for usage of leak detection technologies and practices and requires repair of leaks on gas pipeline facilities. PHMSA estimates that these proposed amendments could reduce methane emissions by as much as 500,000 to 1 million metric tons of methane each year.

An example of PHMSA-funded research that supported the Department's strategic goal of *Safety* includes five research projects, totaling \$4.8 million from 2005 to present in the area of anomaly characterization (dent evaluation criteria). The research projects included Mechanical Damage at Welds, Structural Significance of Mechanical Damage, Dent Fatigue Life Assessment, Full Scale Testing of Interactive Features, and Improving Models to Consider Complex Loadings, Operational Considerations, and Interactive Threats. These projects were used to help form PHMSA's technical basis for dent assessments in its pipeline safety rules, as well as for American Petroleum Institute's (API) Recommended Practice (RP) 1183 – Assessment and Management of Dents in Pipelines, published in November 2020. Several PHMSA rulemaking and advisory initiatives underway in the area of Leak Detection, Geohazards and Class Location are supported by RD&T investments in those topic areas.

RD&T investments were used in the development of updated rupture detection requirements. PHMSA expects this rule will significantly reduce the impact of natural gas, carbon dioxide, and hazardous liquid pipeline incidents. In addressing the Department's *Climate and Sustainability* strategic goal, PHMSA estimates the faster response times can reduce emissions up to 40 percent or more for pipelines up to 30-inches in diameter, when compared to historical incidents where rupture isolation may have taken more than 90 minutes.

In sum, PHMSA expects the enhancements included in these rules to improve public safety, reduce threats to the environment, and promote environmental justice for underserved and disadvantaged communities. PHMSA's rulemaking initiatives support the strategic goals of *Climate and Sustainability* and *Equity*. Continued pipeline safety research is necessary to support the safe operation of new and aging pipelines across the U.S. PHMSA plans to continue research investments focused on corrosion, material failure, and equipment failure, which caused 59 percent of all PHMSA jurisdictional pipeline incidents within the last ten years. These efforts and others to consider operational releases will also focus on containment of GHGs (such as methane, the primary component of natural gas) and pipeline transportation of alternative energy sources, including hydrogen and carbon dioxide, and improved leak detection and quantification.

## **FY 2025 Program Description**

### **Pipeline Safety Research**

**FY 2025 Funding Request: \$14,000,000**

#### **Program Description/Activities**

In FY 2025, PHMSA will continue to seek stakeholder input, review accident trends, and evaluate the progress on its current projects and completed research. In addition, PHMSA plans to bolster its stakeholder engagement program through in person and virtual meetings to present results from the previously funded projects with resulting technologies produced from the research. PHMSA will continue to identify additional research gaps and research topics to be funded in FY 2025 and identify any follow-on research based on the research outputs from prior years. Based upon this analysis, PHMSA will continue to support the Department's strategic goals through research investments to develop a comprehensive research portfolio in FY 2025 while remaining focused on pipeline safety solutions.

Research initiatives lead to the development of new or improved tools, technologies, and knowledge to aid in the prevention and reduction of damage to pipelines. Research also assists with the early identification of leaks and ensures the safe transportation of energy products, including new alternative energy sources, to reduce greenhouse gas emissions. These investments in hydrogen, carbon dioxide, and biofuels will ensure safe and effective regulation of the transport of new energy products— particularly as volumes scale up. Research funding is derived from pipeline operators through user fee assessments and from an Oil Spill Liability Trust Fund contribution.

The Pipeline Safety Research Program (PSRP) is collaborative by design. A comprehensive research strategy is developed systematically through research and development forums, research gap ideas submitted by the public, PHMSA's initiatives, and collaborative partnerships with government and non-government organizations. The Office of Pipeline Safety holds its Pipeline RD&T Forums biennially, and uses the recommendations from the forum, as well as internal pipeline safety data, to establish future fiscal year research funding agendas and solicitations.

The PSRP's objectives for FY 2025 will address a comprehensive review of the research portfolio that was awarded in FY 2022-2024, focused on safety, transportation of alternative energy sources, and climate change solutions. PHMSA hosted an RD&T forum in FY 2023 that will build on the momentum from the FY 2021 RD&T forum and the FY 2023 LNG RD&T forum to determine strategic research needs and priorities for FY 2024 and FY 2025 through collaboration with stakeholders, including academia, public advocacy groups, other DOT modes, federal agencies, and the pipeline industry. Research proposals will then be awarded to support addressing any safety gaps.

FY 2025 funding for the PSRP will support research that addresses PHMSA's priorities on pipeline safety, infrastructure development for transporting alternative energy sources, climate change mitigation, and environmental justice and equity.

In FY 2025, the Office of Pipeline Safety's PSRP will continue to pursue its RD&T goals through four sub-programs/mechanisms: the CAAP, the Core program, SBIR, and IAAs. The PSRP is executed through competitive awards, cost-sharing agreements, grants, and IAAs. The sub-programs/mechanisms address different research requirements and are designed to develop concepts from their initial stages to industry or government adoption.

## **Collaboration Partners**

The PSRP RD&T collaboration efforts include both federal and non-federal partners. Historically, the Office of Pipeline Safety has reached IAAs with the Departments of Energy, Interior, and Commerce to conduct materials research. The Office of Pipeline Safety partners with academic institutions through its CAAP. Under CAAP, PHMSA funds 80 percent of basic RD&T costs, leaving 20 percent to be funded by university partners. PHMSA may fund up to 100 percent of RD&T costs related to regulatory analysis or other purely governmental purposes. These levels are specified in and mandated by Section 22 of the PIPES Act of 2020.

In FY 2022 and FY 2023, PHMSA participated in the following interagency hydrogen and carbon dioxide pipeline initiatives:

- U.S. Dept of Energy (DOE)
  - Hydrogen and Fuel Cell Technologies Office
    - DOE's Hydrogen Program Annual Merit Review and Peer Evaluation Meeting
    - Regional Clean Hydrogen Hubs - Technology Special Purpose Review Team
  - Fossil Energy & Carbon Management
    - Workshop on Applied Research for Carbon Dioxide Transport
    - CCUS Interagency Field Training
    - Carbon Management Project Review Meeting
    - Carbon Management Collegiate Competition Review Team
- U.S. EPA CCS Safety Summit
- Global CCS Institute D.C. Forum on Carbon Capture and Storage

Collaboration efforts with DOE's Advanced Research Projects Agency–Energy (ARPA-E) have provided opportunities for PHMSA staff to participate in the pre-award merit review of submitted proposals. PHMSA has assisted ARPA-E in the pre-award activities on two Funding Opportunity Announcements focusing on mitigating methane releases through improved detection, and on cast iron rehabilitation and repair through advanced internal liners. PHMSA staff have also participated in the post award activities once the research is executed and demonstrated. These initiatives deliver better outputs to drive research success, facilitate data sharing, and prevent duplication.

PHMSA will continue building research partnerships with universities, industry, and safety organizations that specialize in bringing safety technology to the market. One important programmatic component is that PHMSA funds cooperative research through the CAAP with colleges and universities, which spurs innovation by enabling academic research. The CAAP is focused on theoretical and high-risk projects that have high promise of success to a wide range of pipeline safety challenges. Promising CAAP theoretical research results may be handed-off to



the Core program for further development. The program also exposes students to both the pipeline industry and common pipeline safety challenges to show them how highly valued and needed their engineering and technical disciplines are in the pipeline field.

PHMSA will ensure CAAP becomes more inclusive by expanding outreach communication of funding opportunities and by ensuring all higher education institutions, including Minority Serving Institutions (MSIs), such as Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Asian-American, Native American, and Pacific Island-Serving Institutions (AANAPISIs) are notified of opportunities.

PHMSA strongly encourages universities to partner with MSIs in their grant proposals. PHMSA will continue to plan, assess, and execute strategies to increase research partnerships and collaboration with MSIs; increase awareness, capacity, and interest in pipeline safety research and careers; and introduce science, technology, engineering, and math (STEM) curriculum and learning through CAAP research partnerships.

## **External Partners**

PHMSA's research program partners with a wide range of external entities who share the same objectives in developing technology or generating and promoting new knowledge among decision makers to advance pipeline and hazardous materials safety. Collaborative forums with academia, departmental, and federal partners help identify pertinent technology and knowledge gaps.

In March 2019, PHMSA's Office of Pipeline Safety released a *Special Notice for "Identifying Pipeline Safety Research Ideas"* on the beta.SAM.gov webpage. The ongoing *Special Notice* invites any interested stakeholder to submit ideas for future research. This notice is open year-round and is revised as needed to reflect initiatives coming from PHMSA or the Department. PHMSA launched this measure to widen the participation in formulating its future research strategy. A web-based portal was created to support and manage this action which can be found here: <https://primis.phmsa.dot.gov/rd/gapsuggestions.htm>.

Partnerships with government organizations (GOs) and non-government organizations (NGOs) provide clear opportunities to leverage ongoing successes, cost-share on mutual safety challenges, and remove duplication. Throughout the year, PHMSA briefs the pipeline industry and public interest groups on the research programs and consults with them on individual projects that are within their sphere of expertise. Research collaboration partners— both GOs and NGOs— who cost-share research with PHMSA include federal agencies, associations, regulatory entities, and industry.

## **Anticipated Program Activities**

For 2025, PHMSA plans to continue investing in new research in the following pipeline safety focus areas:

### **Liquefied Natural Gas Center of Excellence (Center) (\$5.0 million)**

The recent growth in the production and export of LNG has required PHMSA to provide clear regulatory guidance within the changing energy landscape and update its regulations for LNG facilities to address the mandates in the PIPES Acts of 2016 and 2020 (Pub. L. 114-183 and Pub. L. 116-260, Division R). PHMSA hosted an LNG RD&T Public Meeting and Forum on November 15 and 16, 2022, with interactive working groups to assist in developing upcoming research topics for funding consideration. Upcoming research topics – based on inputs during the 2022 LNG Forum – will address safeguards, process hazard management, hazard modeling, and emerging technologies. The close coordination with LNG sector stakeholders will seek research solutions to address performance-based risk reduction at every type of LNG facility during site location, design, construction, operations, maintenance, and fire protection activities.

In addition, in the FY 2023 appropriations, Congress allocated up to \$8.4 million to PHMSA for the creation of an LNG Center of Excellence (Center) aimed at positioning the U.S. as the leader and foremost expert in LNG operations. The Center offers a unique value proposition for all LNG stakeholders and will enable PHMSA to be a centralized active collaborator with the LNG sector stakeholders, as defined in Section 111 of the PIPES Act of 2020. This collaboration will result in cooperative research with academic and private-sector partners, as well as national laboratories and nongovernmental organizations to further LNG safety technology development and implementation. As required by the Act, the Center will also create an electronic repository for sharing information on best practices for LNG facility operators and all stakeholders.

PHMSA has begun establishment of the Center and intends to allocate \$5 million of FY 2025 funding for the Center's LNG safety research projects.

### **Underground Natural Gas Storage (UNGS) Facilities Safety (\$1.5 million)**

In FY 2025, PHMSA will pursue research to improve the safety of UNGS facilities over their full life cycle with a focus on design and reliability improvements to storage well equipment and maintenance practices. Research outputs from UNGS projects will provide reliability-based methodologies focused on well integrity management and corrosion protection practices while evaluating the effectiveness of real-time, continuous pressure monitoring systems for well surveillance and leak monitoring. PHMSA will encourage incorporating research project outcomes into industry standards or best practices as minimum requirements and/or guidance for storage well casing integrity management. Furthermore, the research outcomes will provide operators with improved efficiency in managing casing corrosion, thereby potentially reducing delayed maintenance-driven well casing incidents. The impacts from UNGS research results will support new policy development on the safe operation of these facilities and reduce uncontrolled releases of gas into the atmosphere. Furthermore, PHMSA will use lessons learned from facility

inspections and investigations conducted over the past few years to identify research gaps in UNGS.

### **Pipeline Anomaly Detection/Characterization (\$1.0 million)**

Detecting and characterizing anomalies in pipeline systems requires advanced solutions that integrate people, processes, and technology into a comprehensive program. Detection capability must progress past simple corrosion to complex anomalies such as a mixture of dents, gouges, and corrosion. Incident data for calendar year 2022 show corrosion as cause of 20 percent of significant pipeline incidents. Therefore, corrosion as a threat will remain a focus of pipeline safety research investments. Ongoing research includes such topics as improved detection tools to identify critical anomalies. For example, alternative methods for protecting hazardous liquid tanks from corrosion, and advanced methods like Bayesian modeling, which is a statistical modeling method well suited for predicting and classifying pipeline anomalies, and artificial intelligence (AI), will be used to more accurately predict, characterize and prioritize anomalies. The PSRP has five active projects using either AI or Bayesian modeling for risk assessment, including a project awarded in FY 2022 for the development of AI-enabled pipeline risk management tools utilizing machine learning, Bayesian Neural Network, and an innovative Reinforcement Learning approach.<sup>4</sup> Future research will further support improvement of detection and characterization of defects and develop technology that will more effectively manage pipeline integrity.

### **Pipeline Leak Detection (\$1.5 million)**

Leaks and fugitive emissions continue to present a challenge. Based on data from the 2023 Environmental Protection Agency (EPA) Inventory of U.S. Greenhouse Gas and Sinks (GHGI), natural gas transmission, storage, and distribution systems accounted for 28 percent of all GHG (methane, carbon dioxide, and nitrous oxide) emissions from natural gas systems.<sup>5</sup>

The PSRP recently funded research focused on operational and maintenance functions that cause the release of GHGs, including:

- Development of new and improved tools and technology to prevent or reduce damage to pipelines, thereby preventing or mitigating releases into the environment, including advanced pipeline right-of-way monitoring and artificial intelligence tools to predict leaks.
- Further development and prove-out of continuous leak detection monitoring and identification systems for both gas and hazardous liquid pipelines.
- Development of new technologies and methods that will allow for the detection of smaller leaks and/or less time to reliably detect larger leaks than can currently be performed with existing leak detection systems, resulting in less product lost from the pipeline and improving safety and reducing environmental impacts.

<sup>4</sup> <https://primis.phmsa.dot.gov/matrix/PrjHome.rdm?prj=954>

<sup>5</sup> US EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2021, published April 13, 2023, Table 3-65. <https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Main-Text.pdf>

- Improvement of leak detection for pipelines carrying hydrogen and natural gas/hydrogen blends by gathering information on required sensing specifications and detection procedures for integration into next-generation leak detection equipment.
- Field validation of an advanced leak detection system to accurately identify, without false positives, spontaneous pipeline leaks in real time with accurate Global Positioning System (GPS) locations, which will advance leak detection beyond current capabilities, allowing for the detection of smaller leaks faster and, in turn, reducing fugitive emissions.

PSRP is planning further research on such topics as preventing fugitive emissions from UNGS wells and recapture of fugitive emissions from pipeline equipment.

### **Pipeline Threat Prevention (\$1.5 million)**

Excavation, natural force, and other outside force damage to pipelines continue to be the cause of serious, environmentally damaging, and injury causing pipeline incidents.<sup>6</sup> Preventing or reducing this damage would greatly increase pipeline safety and reduce damage to the environment and GHG emissions. PSRP recently funded projects, including equipment assisting in detection of unsafe excavation and tools to locate strain in buried pipe caused by earth movement.

In addition, the PSRP recently funded research focused on pipeline threat prevention, including development of a scalable, cloud-based, GIS-enabled recommendation tool for identifying and assessing the impact of geohazards on cast iron and non-cast iron pipelines by utilizing industry standards and best practices, and incorporation of satellite-based radar geohazard detection and monitoring.

### **Repair/Rehabilitation (\$1.5 million)**

Damaged coatings, corrosion, and other pipeline damage or defects are major risks to pipeline safety. Improving existing repair methods and creating new, reliable repair methods are critical to the safe operation of pipelines. The PSRP will focus on enhancing repair materials, techniques, processes, tools, and/or technology to support this objective. Ongoing and upcoming projects include a tool to internally repair pipe defects, advanced polymers and adhesives for use in repair, and development of a risk-based approach to remediating gas distribution pipes. Research priorities may be identified to further support PHMSA efforts to help repair or replace 1,000 miles of aging, leak-prone, municipality- and community-owned natural gas infrastructure, supported by the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program.<sup>7</sup> The degrading nature of iron alloys, the age of the pipelines, and weak pipe joint designs will receive higher focus since these areas increase the risk of accidents and climate damaging methane emissions. In FY 2021 and FY 2022, PHMSA funded three research projects related to rehabilitation and repair of aging pipelines including the development of a cured-in-place pipe structural liner for natural gas pipelines with trenchless technology and integrated AI

<sup>6</sup> <https://www.phmsa.dot.gov/data-and-statistics/pipeline/national-pipeline-performance-measures>

<sup>7</sup> [Natural Gas Distribution Infrastructure Safety and Modernization Grants | PHMSA \(dot.gov\)](#)

risk assessment.<sup>8</sup> Funding has also been awarded in FY 2022 for research into welding performance and requirements for pipelines carrying emerging fuels such as CO<sub>2</sub>.<sup>9</sup>

### **Climate Change Solutions/Hydrogen/Carbon Capture and Underground Storage (CCUS) (\$2.0 million)**

The 2023 EPA GHGI data reports that natural gas systems accounted for 22.9 percent of total U.S. methane emissions in 2021; a reduction from 25.4 percent in 2020.<sup>10</sup> Transmission and storage (e.g., LNG and UNGS) facilities accounted for 24.5 percent of methane emissions from natural gas systems, gathering and boosting accounted for 23.9 percent, while distribution accounted for 8.5 percent.<sup>11</sup>

PHMSA will address climate solutions by funding research projects that identify methods to reduce methane emissions on its regulated infrastructure, which will be done in coordination with its stakeholders and interagency partners. Significant research investments at the federal and international level have been conducted on alternative renewable fuels, such as hydrogen and/or hydrogen blends and carbon capture and underground storage (CCUS). PHMSA continues to identify research gaps for hydrogen gas and/or various hydrogen blends in natural gas pipeline facilities and carbon dioxide transport and storage. Furthermore, PHMSA will continue to prioritize RD&T topic areas based on future usage projections and need.

In addition, the PSRP recently funded research focused on hydrogen and carbon dioxide, including:

- Determination of the potential impact radius for carbon dioxide pipelines, using a computational fluid dynamics model for use in risk estimation and emergency response planning in the event of a carbon dioxide pipeline rupture; and
- Development of innovative tools to accelerate the conversion of the existing pipeline structure to hydrogen service, including artificial intelligence-powered software and data analytics-based compatibility assessment models.

<sup>8</sup> <https://primis.phmsa.dot.gov/matrix/PrjHome.rdm?prj=990>

<sup>9</sup> <https://primis.phmsa.dot.gov/matrix/PrjHome.rdm?prj=996>

<sup>10</sup> US EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2021, published April 13, 2023, Page 47. <https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Main-Text.pdf>

<sup>11</sup> US EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2021, published April 13, 2023, Table 3-67. <https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Main-Text.pdf>

## **Expected Outputs/Products**

Research investments into pipeline-, LNG-, or UNGS-related challenges may result in published analytical outcomes, small-scale tests, and, in some cases, full-scale demonstration projects that lead to new technology and scientific methods which improve pipeline safety. The results from each completed project are provided in final reports shared publicly on the PHMSA web site and/or the National Transportation Library. Researchers are required to disseminate their findings through presentations and publications at conferences or in peer-reviewed journals. Completed technology development projects may result in new patents or new products for commercialized adoption. PHMSA plans to continue tracking each project's performance using metrics to monitor the progress of the research and the readiness of the technology for commercialization or potential application in the field.

The PSRP has specific annual performance goals to support the priorities and objectives of the Department and PHMSA. These performance goals demonstrate the program's outputs, outcomes, and impacts across multiple research areas, as described below, in support of PHMSA's safety mission and the Department's strategic goals.

PHMSA will continue building research and innovation partnerships with universities, industry, and research organizations that specialize in advancing pipeline safety and bringing technology to the market. An important programmatic component is PHMSA's funding of cooperative research projects through the CAAP with colleges and universities, which spurs innovation by enabling and supporting academic research. The CAAP is focused on theoretical and high-risk projects that have high promise of success to a wide range of pipeline safety challenges. Promising CAAP theoretical research results may be handed-off to the Core program for further development. The CAAP also exposes students to both the pipeline industry and common pipeline safety challenges to show them how highly valued and needed their engineering and technical disciplines are in the pipeline field. The 2020 Protecting our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act requires a 20 percent cost share from non-federal sources for university research projects. Historically, PHMSA has awarded \$2 million of CAAP projects annually; in FY 2023 PHMSA awarded \$4.3 million for six CAAP projects to further research in corrosion in pipelines and thermal radiation mitigation measures at LNG facilities. .

PHMSA ensures that the CAAP is more inclusive through outreach communication of funding opportunities to all higher education institutions, including MSIs, such as Historically Black Colleges and Universities, Hispanic-Serving Institutions, and Asian-American, Native American, and Pacific Island-Serving Institutions. PHMSA strongly encourages universities to partner with MSIs in their grant proposals. In late March and early April 2023, PHMSA conducted two informational sessions with MSIs on the CAAP. PHMSA will continue to plan, assess, and execute strategies to increase research partnerships and collaboration with MSIs; increase awareness, engagement, interest in pipeline safety research and careers; and learning through CAAP research partnerships.

In addition, PHMSA awarded \$6.7M from its FY 2023 Safety Research Announcement No. 9 (RA9) for 13 research projects. Awards support further research for LNG, hydrogen, methane

emission and mitigation, underground storage, threat prevention, hazardous liquid tanks, and materials.

Collaboration with other government agencies continues to be a priority for PHMSA as demonstrated through ongoing IAAs totaling approximately \$2 million for FY 2023. Areas of research under these agreements support the transition to a low-carbon economy. The research includes examining steel weld qualifications and performance of pipelines in the presence of hydrogen, and a recently awarded project stemming from the 2021 R&D Forum investigating the safe conversion of existing natural gas storage reservoirs to hydrogen service. Additional research within these cooperative agreements includes the investigation of vintage pipe materials, impacts of geomagnetic disturbance events on pipeline safety, and detection of difficult to locate plastic pipes. PHMSA looks forward to new partnerships with other federal agencies in the support of the Administration’s climate solution initiatives and PHMSA’s pipeline safety mission.

PHMSA continues to support small businesses via the SBIR Program, which will award over \$4 million in fully funded research projects in FY 2023. SBIR projects focus on bringing developing technology to commercialization through American-owned and operated businesses of 500 employees or fewer. Projects awarded in FY 2023 include a fiber-optic system to provide real-time detection of excavation activities near pipelines, smart particles to repair leaks in underground natural gas storage wells, and tools to non-destructively measure fracture toughness of in-service pipelines. These technologies will directly benefit pipeline safety by helping pipeline operators detect safety issues and respond to them more effectively.

PHMSA’s research results in scholarly publications and commercially viable products to improve pipeline safety. To date in FY2023, PHMSA's RD&T investments have resulted in 1 patent application, 3 published papers, and no commercialized technologies.

The following are the latest technology transfers which were registered in FY 2022:



*Pipeline Threat Prevention.* PHMSA registered a technology transfer for the project entitled “Improved Tools to Locate Buried Pipelines in a Congested Underground.”<sup>12</sup> The installation of underground utilities, such as electrical, natural gas, water, cable,

and sewer lines are a common practice that provide protection from surface activities, vehicles, and the weather. In accordance with state and federal laws, before

*3D Mapping Probe and Field Deployment*

<sup>12</sup> <https://primis.phmsa.dot.gov/matrix/PrjHome.rdm?prj=734>.

excavating in close proximity to these underground facilities, notification of the excavation must be provided, by calling 811, to the operators of those facilities so they can locate and mark those facilities for safe excavation. There are older plastic pipelines that are not easily located or are unlocatable due to lack of tracer wire and accurate records. The purpose of this project was to develop and commercialize a geospatial probe to locate and map existing buried pipelines that are not locatable through insertion into live gas pipelines. The developed probe can accurately map underground pipeline locations to help safe excavation around these facilities. The probe can enter 2-inch and larger diameter pipe to provide information about their location. The system achieved a total insertion of 600 feet in length with successful live demonstrations with four natural gas utility operators.



Picture courtesy: Baker Hughes/Qi2 Element

Anomaly Detection and Characterization.

PHMSA registered a technology transfer for the project entitled “Electro Magnetic Acoustic Transducer (EMAT) Sensor for Small Diameter Unpiggable Pipes; Prototype and Testing.”<sup>13</sup> The project’s main objective was to build a field-ready EMAT

sensor prototype and perform controlled field tests to assess its performance requirements and capabilities in identifying and characterizing pipe defects. The field-ready prototype was designed for 8-inch pipes. The project developed and then demonstrated the ability of the EMAT crack tool to detect tight/closed cracks down to 2 millimeter deep for 8-inch diameter pipes in traditionally difficult to inspect pipelines.



Pull testing performed by Q-Inline at testing facilities in Texas. Picture courtesy: Operations Technology Development

The intellectual property from this research and from the prior research project under PHMSA contract #DTPH56-13-T-000007 evolved into a free-swimming tool that operates at 2 meters per second, navigates 1.5 diameter bends, and can be pressurized to 2,200 pounds per square inch. The EMAT Crack In-Line Inspection Tool is now being offered by Baker Hughes/Qi2 Elements.

<sup>13</sup> <https://primis.phmsa.dot.gov/matrix/PrjHome.rdm?prj=653>



## **Liquefied Natural Gas (LNG) Safety**

PHMSA will continue to invest in LNG safety research to address the safety risks and operational challenges from LNG facilities, as well as foster development of new technologies and alternative designs for LNG storage and piping systems. For example, hydrogen could be introduced into LNG facilities in the future as part of the feed gas supply for liquefaction. There are currently no industry standards that identify the design, installation, construction, operation, maintenance, and fire protection requirements for LNG facilities that process and store hydrogen-enriched natural gas. Future research projects will study the impact of hydrogen-enriched natural gas on existing LNG facilities. Research outputs will yield recommendations for safely processing and storing hydrogen-enriched natural gas. Outcomes from upcoming research projects may lead to changes to federal regulations or industry standards in terms of design, construction, operation, maintenance, and fire protection to reduce operational safety risks to employees and the public.

## **Underground Natural Gas Storage (UNGS) Facilities Safety**

PHMSA will continue research to improve the safety of UNGS facilities over their full life cycle with a focus on design and reliability improvements to storage well equipment and maintenance practices. Research outputs from UNGS projects will provide reliability-based methodologies focused on well integrity management and corrosion protection practices while evaluating the effectiveness of real-time, continuous pressure monitoring systems for well surveillance and leak monitoring. PHMSA will encourage incorporating research project outcomes into industry standards or best practices as minimum requirements and/or guidance for storage well casing integrity management. Furthermore, the research outcomes will provide operators with improved efficiency in managing casing corrosion, thereby potentially reducing delayed maintenance-driven well casing incidents. The impacts from UNGS research results will support new policy development on the safe operation of these facilities and reduce uncontrolled releases of gas into the atmosphere.

## **Pipeline Anomaly Detection/Characterization**

PHMSA will continue to fund research to improve pipeline anomaly detection, characterization, prediction, and prioritization in steel and non-metallic pipes. Research outputs are designed to more consistently and accurately identify critical defects within pipelines, and provide PHMSA and pipeline operators with effective instrumentation, methodologies, and processes to locate, evaluate, and predict manufacturing defects and in-service anomalies in pipe. Research outcomes will better inform PHMSA and pipeline operators to make integrity management decisions on steel and composite pipe systems to support safer operations and aid in determining a pipeline's fitness for service. Impacts from the research results will increase stakeholder confidence in pipeline technologies and the accuracy of improved decision-making tools for integrity management. Furthermore, the research impacts will provide pipeline operators with effective instrumentation for detection, allowing for accurate remediation measures that reduce the likelihood of pipeline failures harming the public or environment.

## **Pipeline Leak Detection**

PHMSA will continue investing in research projects to develop new or improved tools and technology solutions to locate, quantify, and repair hazardous liquid or natural gas pipeline leaks. Project outputs will develop processes to more accurately predict leaks, and develop, test, and deploy advanced leak detection platforms (ground-based, aerial, and satellite) and protocols under real-time field conditions to provide pipeline operators with critical knowledge on gas behavior and real-time data to help locate and quantify natural gas leaks. Research outcomes will provide the ability to quantify leaks by utilizing real-time data, which can reduce the risk of an incident caused by migrating gas to a residence or a prolonged release of methane into the environment or predict where leaks are likely to occur before they happen. Impacts from the research findings will lead to further development of advanced leak detection monitoring, identification, and measurement systems for gas and hazardous liquid pipelines. This research will enable operators to expeditiously repair leaks, thereby limiting the duration of methane emissions. Ultimately, this safety improvement will also help to advance the Administration's strategic goal to tackle climate change by lowering the U.S.' cumulative methane emissions.

## **Pipeline Threat Prevention**

Excavation, natural force, and other outside force damage to pipelines continue to be the cause of serious, environmentally damaging, and injury causing pipeline incidents. PHMSA will continue to invest in research to prevent pipeline threats and damage. Research outputs in this focus area will refine tools to identify and predict geohazards and other natural threats, develop sensing platforms to help operators map existing pipelines, make existing unlocatable plastic pipes locatable in advance of planned excavations, develop markers to locate new plastic pipes without the need for a separate tracer wire, or alert operators of possible excavation damage to pipelines. Research outcomes will allow operators to use technologies to mitigate excavation pipeline damage and allow operators to quickly detect and respond to damages and leaks to the pipeline system. Impacts from the research findings will help improve safety by developing better methods to detect underground pipelines, helping to prevent excavation damage to buried pipelines, and improving detection of hard to identify geological hazards. This will ensure an effective, efficient, and reliable underground utility network and reduce GHG emissions caused by natural force, other outside force, and excavation damage.

## **Repair/Rehabilitation**

PHMSA will continue to invest in improving anomaly repair and pipe remediation and rehabilitation. Research outputs will provide reliable methods to repair damaged pipe or coatings, manufacturing defects, and corrosion damage, as well as develop testing protocols needed when using composite repair materials. Research outcomes will provide the pipeline industry with validated and safe solutions to rapidly repair and return pipelines to service, reducing economic losses and customer inconvenience, and more effectively make preemptive repairs to prevent accidents or shutdowns from occurring. Impacts from these research investments would advance technological solutions and have longstanding impacts on: 1) safety, with the repair of aging pipelines; 2) equity, with the provision of better service to often

underserved communities; and 3) climate change solutions, with pipeline rehabilitation, replacement, or new pipeline installation that will minimize methane emissions.

### **Climate Change Solutions/Hydrogen/Carbon Capture and Underground Storage (CCUS)**

PHMSA will continue to invest in research initiatives to promote the Administration's strategic goals related to climate change solutions and decarbonization. Hydrogen can serve as a sustainable power-generating fuel and could reduce GHG emissions by blending hydrogen into natural gas pipelines. Research outcomes in this focus area will work to remove technical and safety barriers to expand the development of safe transportation by pipeline of emerging fuels, such as hydrogen and other commodities critical to decarbonization, like carbon dioxide. Hydrogen and carbon dioxide are integral to increase the production of green hydrogen, which is developed from renewable fuels, and blue hydrogen, where the climate impact is decreased through carbon dioxide capture and storage or utilization.

Specific research related to climate change will identify solutions to safely store hydrogen gas and/or hydrogen gas blended with natural gas in underground storage facilities and convert existing natural gas reservoirs to hydrogen or carbon dioxide storage. Additional research within this focus area would provide knowledge on the impact of hydrogen and hydrogen-blend concentrations and carbon dioxide on inline inspection tools to characterize the integrity of an operator's pipeline system. Further research investments will improve leak detection, advance materials used in pipeline and storage infrastructure to be more durable and reduce leakage, and optimize operations at pipeline facilities to reduce fugitive emissions.

## **FY 2025 Program Description Hazardous Materials Safety Research**

**FY 2025 Funding Request: \$7,570,000**

### **Program Description/Activities**

PHMSA's mission is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials essential to our daily lives. The Office of Hazardous Materials Safety is responsible for allowing the 1.2 million daily shipments of hazardous material to arrive safely at their destination. The Hazardous Materials Research & Development, Analysis & Technical Assessment Program (HMR-DATA) conducts hazardous materials safety research to reduce the risks associated with the transportation of hazardous materials and to identify and evaluate new technologies that facilitate the safe, secure, and efficient transportation of hazardous materials. As described below, HMR-DATA conducts research through small business partnerships, subject matter expert topics, and interagency agreements.

#### *Small Business Innovative Research (SBIR)*

The SBIR program is a proven conduit to bring innovative ideas to market. SBIR encourages small businesses to engage in federal research programs with the goal of commercialization of their technology. SBIR allows HMR-DATA to engage with small businesses, resulting in the development of new technologies for hazardous materials safety. In FY 2025, HMR-DATA will continue to leverage the SBIR program to seek out potential emerging technologies to enhance safe hazardous materials transportation and address climate change issues.

#### *Subject Matter Expert-driven Research*

HMR-DATA continues to leverage the expertise of subject matter experts (SMEs) within the program and PHMSA. SMEs use their expertise to inform new projects based on knowledge gaps they identify.

#### *Inter/intra-agency Agreements (IAAs)*

HMR-DATA collaborates with other government research organizations through IAAs to conduct research and leverage expertise and unique capabilities. PHMSA currently has IAAs with the U.S. DOT Volpe National Transportation Systems Center, U.S. Naval Research Laboratory, Argonne National Laboratory, and several modal partners.

### **Activities**

HMR-DATA has four core activity areas of research: risk management and mitigation, package integrity, emerging technologies, and technical analysis to aid risk assessments. Each core area is described below.

1. Risk Management and Mitigation (\$1.5 million). HMR-DATA conducts research in risk management and mitigation to reduce the number of injuries and fatalities-related incidents involving hazardous material transportation. Hazardous material transportation incidents can damage transportation infrastructure as well as disproportionately impact disadvantaged communities adjacent to major transportation routes. To minimize such impacts and to

address inequities from incidents, HMR-DATA studies safety gaps on high-consequence materials and rapidly developing industries such as zero emissions transportation (i.e., through energy storage research).

HMR-DATA continues to research the safe transportation of energy storage devices as a key focus area. Such research includes safety of novel battery chemistries, early failure detection, and ways to de-energize end-of-life batteries. The number, size, and potential energy of lithium batteries in transportation continues to grow, driven by accelerated adoption of electric vehicles and consumer devices. Given this growth, HMR-DATA's battery research is critical to safely creating a sustainable economy and meeting the Administration's climate goals.

2. Package Integrity (\$2.5 million). Package integrity research informs standards that ensure hazardous materials remain contained within original packaging during transportation. Additionally, this research area studies new materials such as fiber-reinforced plastic and recycled plastic for hazardous materials packaging. An example of an ongoing project is a smart packaging technology for energy storage devices (e.g., lithium-ion batteries). The project is HMR-DATA's first-ever successfully funded Phase II SBIR project and aims to predict, contain, and mitigate the hazards of thermal runaway in energy storage devices. This project is in the prototyping stage and is making progress towards commercialization.
3. Emerging Technologies (\$2.6 million). DOT FY 2022-2026 strategic goals task PHMSA to "invest in purpose-driven research and innovation to meet the challenges of the present and modernize a transportation system of the future that serves everyone today and, in the decades, to come." To support this goal, HMR-DATA researches emerging technologies including innovative packaging and novel technology for transportation operations. Current and future projects support green infrastructure, safe hazardous materials transportation, economic strength, and global competitiveness.
4. Technical Analysis to Aid Risk Assessments (\$1.0 million). HMR-DATA research evaluation methods for hazardous material transportation activities, events, and incidents to aid in understanding packaging failures and hazardous materials anomalies. Research projects in FY2025 will use DOT 5800.1 incident data to understand root causes and patterns of hazardous material transportation incidents. This knowledge can drive inspection and test methods that directly mitigate identified root causes, reducing injuries and fatalities. Ongoing and future projects in this focus area include collaboration with the U.S. Census Bureau on a yearly hazardous materials commodity flow survey, a risk optimization addition to Volpe's Freight and Fuel Transportation Optimization Tool and assessing novel methods of hazardous materials commodity flow tracking.

## **Expected Outputs/Products**

HMR-DATA supports the Department's strategic goals, with Safety as the highest priority. HMR-DATA also supports goals to improve equity, address the climate crisis through sustainability, and maintain economic strength and innovation. To further these goals, HMR-DATA conducts research that improves public safety, informs data-driven policy, and develops or improves hazardous materials transportation technologies.

### *Outcomes in Public Safety*

HMR-DATA research enhances public safety in a variety of ways: reducing disproportionate impact of hazardous materials transportation on disadvantaged and underserved communities; understanding and mitigating risks of hazardous materials transportation; and increased understanding of hazardous materials commodity flows.

Disadvantaged and underserved communities can be disproportionately impacted by hazardous material transportation incidents because of their proximity to major transportation routes and lower relative response resources. Therefore, through the research efforts that reduce the number and consequences of hazardous material transportation incidents, HMR-DATA seeks to reduce the inequities facing these communities.

Risk management and mitigation research allows HMR-DATA to understand and address key risks of hazardous materials transportation. The outcomes of such research can reduce the risks of battery incidents through safer, intelligent, packaging; provide insight on delays and costs of derailments and collisions; optimize hazardous materials routing by incorporating risk; and manage risks of high-consequence hazardous materials such as thermites.

Research on hazardous materials commodity flow tracking would allow for timely data on the current shipping landscape of hazardous materials. This work would inform state governments of the quantity and type of hazardous materials moving through their communities. The impact of these new tracking methods would be potential for systematic change in tracking hazardous materials commodities and better risk communication to the public and better collection and management of commodity data.

### *Data-driven Policy Outcomes*

PHMSA's mission is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials essential to our daily lives. HMR-DATA assists with the development of new regulatory standards by providing robust research data. HMR-DATA research on package integrity will allow new packaging materials such as fiber-reinforced plastic and recycled plastic to be evaluated and integrated into regulations, making hazardous materials transportation more efficient, safe, and sustainable.

### *Developing and Improving Technology for Hazardous Materials Transportation*

HMR-DATA consistently seeks innovative and emerging technology research when engaging with its diverse stakeholders through SBIR. HMR-DATA has participated in the SBIR program for three years. SBIR allows the program to seek technologies outside of typical solicitations while supporting innovation and small business. In FY 2021, the program awarded its first Phase II project. In FY 2023, the program solicited four new SBIR topics: Bioremediation for

Hazardous Material Spills, Integrated Radio Frequency Identification (RFID) Trackers and Sensors for Hazardous Material Communication in Transportation, Portable State-of-Charge Sensor for Lithium Batteries, and Wearable PPE-integrated Sensors for First Responders. These topics further multiple Departmental Strategic Goals. In FY 2024 and FY 2025, the program will continue to engage with its stakeholders to assist in forming SBIR topics. Through the SBIR program, HMR-DATA will continue to support new technologies to meet the challenges of an ever-changing transportation system.

## **V: Information Technology Expenditure**



<b>FY 2025 IT BUDGET REQUEST</b>			
<b>INFORMATION TECHNOLOGY</b>			
<b>DEPARTMENT OF TRANSPORTATION</b>			
<b>PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION</b>			
<b>BUDGET AUTHORITY</b>			
<b>Budget Account</b>	<b>FY 2023 Actual</b>	<b>FY 2024 CR</b>	<b>FY 2025 Request</b>
<b>Pipeline Safety</b>	<b>\$ 27,793</b>	<b>\$ 27,793</b>	<b>\$ 29,080</b>
<i>Commodity IT SS WCF</i>	7,094	7,094	7,761
<i>Programmatic IT SS WCF</i>	-	-	-
<i>Modal IT</i>	20,699	20,699	21,319
<b>Hazardous Materials Safety</b>	<b>\$ 11,922</b>	<b>\$ 11,922</b>	<b>\$ 12,805</b>
<i>Commodity IT SS WCF</i>	4,140	4,140	4,487
<i>Programmatic IT SS WCF</i>	-	-	-
<i>Modal IT</i>	7,782	7,782	8,318
<b>Operational Expenses</b>	<b>\$ 5,922</b>	<b>\$ 5,922</b>	<b>\$ 6,955</b>
<i>Commodity IT SS WCF</i>	1,350	1,350	1,488
<i>Programmatic IT SS WCF</i>	-	-	-
<i>Modal IT</i>	4,572	4,572	5,467
<b>Total</b>	<b>\$ 45,637</b>	<b>\$ 45,637</b>	<b>\$ 48,840</b>

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is requesting **\$48.8 million** in FY 2025 for information technologies (IT) that support PHMSA safety programs as well as the Department’s initiative to transform and consolidate the management of certain IT solutions centrally by the Office of the Chief Information Officer (OCIO).

The Department will continue providing Commodity IT Shared Services for PHMSA in FY 2025 to achieve economies-of-scale-savings for taxpayers and increase consistency of cybersecurity protections across the Department. Commodity IT Shared Services include functions and activities dedicated to basic support services, including network operations, end-user computing, telecommunications services, and server operations.

PHMSA has made efforts to identify and implement cost saving measures to operate more efficiently and stretch the agency’s scarce IT dollars further. For example, PHMSA consolidated several applications into one Work Management System (WMS), which optimized workflow and improved the efficiency of inspectors. This allowed PHMSA to retire a legacy system, saving over \$160 thousand annually. Furthermore, PHMSA was able to re-provision approximately 20 virtual servers to support agency-wide mission critical needs, which prevented the agency from having to procure physical servers or additional virtual ones – resulting in a cost savings to the agency of \$200 thousand.

## **PHMSA Working Capital Fund Investments**

- **Investment in Department Shared Services** – PHMSA requests **\$13.9 million** for the purchase of IT services for Department-run systems through the working capital fund (WCF). This includes all desktop service, servers and most capital assets for the network switches and file/print servers in field offices, as well as data center and disaster recovery site servers.

## **PHMSA Pipeline Safety modal IT investments include:**

- **PHMSA Datamart** – PHMSA requests **\$4.6 million** to collect and report pipeline incidents, associate causality, and attach data elements that allow for use in inspection planning and safety standards design.
- **National Pipeline Mapping System (NPMS)** – PHMSA requests **\$4.3 million** for operation and maintenance of this mission-critical pipeline location and mapping system and anticipates an expansion of the NPMS system going forward. NPMS is used to display the location of the nation’s pipelines overlaid with highly populated areas, environmentally sensitive areas, and drinking water sources. It provides aerial photography, topographic data, and road overlays to inform safety and new pipeline construction inspections. With the continued expansion of the national pipeline network, this is an even more critical tool going forward.
- **Pipeline Inspection, Investigation, and Enforcement (PIIE)** – PHMSA requests **\$3.9 million** for its primary mission system that services and supports the Office of Pipeline Safety (OPS) lines of business for incident and annual reporting, inspection and enforcement, and Safety Related Conditions.
- **Pipeline Risk Management Information System (PRIMIS)** – PHMSA requests **\$3.4 million** for a system that disseminates safety and regulatory information to the public, State partners and industry. In addition, PRIMIS provides simple applications used by PHMSA’s State partners to collect information on specific types of inspections (Inspection Assistant).
- **Information technology support** – PHMSA requests **\$3.2 million** for expertise and safety mission support for PHMSA regional offices, operations and maintenance for other safety systems, and application technical assistance for the investments above.
- **Cybersecurity** – PHMSA requests **\$1.5 million** for security activities to safeguard PHMSA’s mission systems and data, as well as to support compliance with Cybersecurity Standards (FISMA and NIST). This funding will also support critical Departmental initiatives such as multi-factor authentication (MFA) and encryption.

**PHMSA Hazardous Materials Safety modal IT investments include:**

- **PHMSA Datamart** – PHMSA requests **\$3.0 million** to collect and report hazardous material incident data, associate causality, and attach data elements that allow for use in inspection planning and safety standards design.
- **PHMSA Portal System** – PHMSA requests **\$2.7 million** for the data system that collects information on packagers and shippers, generating a risk rating for each regulated entity, and retains the inspection history for each entity we regulate.
- **Information Technology Support** – PHMSA requests **\$2.0 million** for expertise and safety mission support for PHMSA regional offices, operations and maintenance for Hazardous Materials Safety specific safety information systems, and application technical assistance.
- **Cybersecurity** – PHMSA requests **\$588.6 thousand** for security activities to safeguard PHMSA’s mission systems and data, as well as to support compliance with Cybersecurity Standards (FISMA and NIST). This funding will also support critical Departmental initiatives such as multi-factor authentication (MFA) and encryption.

**PHMSA Operational Expenses modal IT investments include:**

- **Information technology support** – PHMSA requests **\$4.2 million** for expertise and safety mission support for PHMSA regional offices, operations and maintenance for other safety systems and application modernization and assistance for the investments above.
- **Cybersecurity** – PHMSA requests **\$1.2 million** for security activities to safeguard PHMSA’s mission systems and data, as well as to support compliance with Cybersecurity Standards (FISMA and NIST). This funding will also support critical Departmental initiatives such as multi-factor authentication (MFA) and encryption.

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## **VI: 10-Year Funding History Tables**

**EXHIBIT VI**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**HISTORY OF APPROPRIATIONS**  
**Pipeline Safety**

<u>YEAR</u>	<u>REQUEST</u>	<u>ENACTED</u>
2014	\$133,000,000	\$100,014,000
2015	\$140,000,000	\$126,000,000
2016	\$155,604,000	\$124,500,000
2017	\$156,943,000	\$154,580,000
2018	\$132,263,326	\$139,000,000
2019	\$127,200,000	\$142,000,000
2020	\$127,000,000	\$145,000,000
2021	\$141,000,000	\$145,000,000
2022	\$155,000,000	\$155,000,000
2023	\$158,800,000	\$161,385,000
2024	\$198,228,000	
2025	\$203,580,000	

**EXHIBIT VI**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**HISTORY OF APPROPRIATIONS**  
**Trust Fund Share of Pipeline Safety**  
**(Oil Spill Liability Trust Fund)**

<u>YEAR</u>	<u>REQUEST</u>	<u>ENACTED</u>
2014	\$18,573,000	\$18,573,000
2015	\$19,500,000	\$19,500,000
2016	\$19,500,000	\$22,123,000
2017	\$19,500,000	\$20,288,000
2018	\$22,080,944	\$23,000,000
2019	\$23,000,000	\$23,000,000
2020	\$22,000,000	\$23,000,000
2021	\$22,000,000	\$23,000,000
2022	\$23,000,000	\$27,650,000
2023	\$29,000,000	\$29,000,000
2024	\$30,000,000	
2025	\$31,000,000	

**EXHIBIT VI**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**HISTORY OF APPROPRIATIONS**  
**Natural Gas Distribution Infrastructure Safety and Modernization Grants (IIJA Supplemental)**

<u>YEAR</u>	<u>REQUEST</u>	<u>ENACTED</u>
2022		\$200,000,000
2023		\$200,000,000
2024		\$200,000,000
2025		\$200,000,000



**EXHIBIT VI**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**HISTORY OF APPROPRIATIONS**  
**Hazardous Materials Safety**

<u>YEAR</u>	<u>REQUEST</u>	<u>ENACTED</u>
2014	\$51,801,000	\$45,000,000
2015	\$52,000,000	\$52,000,000
2016	\$64,254,000	\$55,619,000
2017	\$68,249,000	\$57,000,000
2018	\$55,513,268	\$59,000,000
2019	\$52,070,000	\$58,000,000
2020	\$53,000,000	\$61,000,000
2021	\$61,000,000	\$62,000,000
2022	\$62,000,000	\$66,829,000
2023	\$74,211,000	\$70,743,000
2024	\$80,554,000	
2025	\$86,586,000	

**EXHIBIT VI**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**HISTORY OF APPROPRIATIONS**  
**Emergency Preparedness Grants**  
**(Obligation Limitation)**

<u>YEAR</u>	<u>REQUEST</u>	<u>ENACTED</u>
2014	\$28,318,000	\$26,293,000
2015	\$28,318,000	\$26,265,000
2016	\$28,318,000	\$26,405,000
2017	\$28,318,000	\$26,364,058
2018	\$28,318,000	\$26,449,012
2019	\$28,318,000	\$26,562,000
2020	\$28,318,000	\$26,704,000
2021	\$28,318,000	\$29,318,000
2022	\$29,318,000	\$28,318,000
2023	\$46,825,000	\$28,318,000
2024	\$46,825,000	
2025	\$46,825,000	

**EXHIBIT VI**  
**PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**  
**HISTORY OF APPROPRIATIONS**  
**Operational Expenses**

<u>YEAR</u>	<u>REQUEST</u>	<u>ENACTED</u>
2014	\$20,154,000	\$20,154,000
2015	\$20,725,000	\$20,725,000
2016	\$21,000,000	\$21,000,000
2017	\$22,188,000	\$22,500,000
2018	\$20,960,079	\$23,000,000
2019	\$23,710,000	\$23,710,000
2020	\$24,215,000	\$24,215,000
2021	\$24,215,000	\$28,715,000
2022	\$28,715,000	\$29,100,000
2023	\$30,150,000	\$29,936,000
2024	\$31,681,000	
2025	\$32,633,000	