

PFAS Statewide Funding Strategy: Four-Year Plan for Prevention, Reduction, and Mitigation in Washington State

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Hazardous Waste and Toxics Reduction Program

Washington State Department of Ecology
Olympia, Washington

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Executive Summary

Per- and polyfluoroalkyl substances (PFAS) are a family of more than 12,000 synthetic organic chemicals. They don't break down in the environment and are known as "forever chemicals." In addition to being toxic, these chemicals accumulate in human and animal tissues. Exposure to some types of PFAS is harmful to human health.

Legislative directive

As part of the 2023–2025 Capital Budget, the Legislature directed the Department of Ecology, in consultation with the Department of Health, "to develop a multiyear statewide funding strategy for reducing perfluoroalkyl and polyfluoroalkyl substances (PFAS) in the environment."

Engrossed Substitute Senate Bill 5200³ directs Ecology to "build upon the recommendations contained in the department's 2022 per- and polyfluoroalkyl substances chemical action plan⁴ and focus on funding for future capital projects related to safe drinking water, managing environmental contamination, and evaluating perfluoroalkyl and polyfluoroalkyl substances waste management options." It also directs Ecology to submit the strategy document by December 1, 2024.

Summary of recommended action items

Building on the <u>PFAS Chemical Action Plan</u>,⁵ this statewide strategy identifies specific reduction, mitigation, and cleanup actions needed over the next four years. The recommended actions prevent, reduce, and mitigate PFAS in the environment and lower exposure and impacts to humans.

The statewide funding strategy is a snapshot of needed actions at this time. It forms a foundation for detailed conversations about how to fund this massive and complex issue moving forward. Although the goal is to report on statewide needs, the effort involved in coordinating among agencies revealed the importance of improved communication. We need more cooperation among federal, state, and local agencies; Tribes; and communities to reduce and mitigate PFAS exposure in Washington.

This document presents a proposed statewide strategic goal and four strategic initiatives to guide and inform Washington's response to PFAS pollution. It also identifies 31 recommended actions: Five overarching strategic actions and 26 recommended action items that build on the PFAS Chemical Action Plan. Each includes a brief description and how it aligns with PFAS reduction goals.

³ https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/Senate/5200-S.sl.pdf#page=113

⁴ Ecology and Health completed the PFAS Chemical Action Plan in November 2021 and made minor revisions in 2022.

⁵ https://apps.ecology.wa.gov/publications/SummaryPages/2104048.html

Successfully reducing and mitigating PFAS requires a coordinated effort. The recommended actions are all connected, and the overarching recommendations are necessary to manage the various actions needed among federal, state, and local agencies; Tribes; and communities.

This document also provides suggestions to prioritize recommended actions' funding. Overall, the two most crucial priorities are:

- Improving collaboration and tracking among agencies and their respective projects related to PFAS.
- Providing dedicated statewide PFAS funding.

Tables containing the recommended action items categorized by high, medium, or low priority are provided in Appendix C.

Funding sources summary

The PFAS statewide funding strategy describes possible funding sources that are available to implement the recommendations presented. Although the strategy does not present specific fiscal line items, the estimated resource needs outlined in this four-year plan amount to several billion dollars.

Conclusion and next steps

Reducing harmful exposures to PFAS in Washington requires immediate efforts to find, mitigate, and clean up current exposures of concern; eliminate the origins of those exposures; halt the influx of contamination from existing uses and sources; and clean up legacy contamination.

Managing PFAS issues in Washington will require more than four years of effort. This multiyear spending strategy contains recommended actions our agencies could take that would remedy current resource gaps, manage ongoing sources and releases of PFAS, and reduce legacy contamination.

Introduction and Background

Legislative directive

As part of the 2023–2025 Capital Budget, the Legislature directed Ecology, in consultation with the Department of Health, "to develop a multiyear statewide funding strategy for reducing perfluoroalkyl and polyfluoroalkyl substances (PFAS) in the environment." Engrossed Substitute Senate Bill 5200⁶ stipulates:

Sec. 3035. FOR THE DEPARTMENT OF ECOLOGY

PFAS Statewide Funding Strategy (91000382)

The appropriation in this section is subject to the following conditions and limitations: The appropriation in this section is provided solely for the department, in consultation with the department of health, to develop a multiyear statewide funding strategy for reducing perfluoroalkyl and polyfluoroalkyl substances (PFAS) in the environment. The strategy must build upon the recommendations contained in the department's 2022 per- and polyfluoroalkyl substances chemical action plan and focus on funding for future capital projects related to safe drinking water, managing environmental contamination, and evaluating perfluoroalkyl and polyfluoroalkyl substances waste management options. The department must submit the strategy in a report to the governor and the appropriate fiscal and policy committees of the legislature by December 1, 2024. It is the intent of the legislature to identify future funding sources for perfluoroalkyl and polyfluoroalkyl substances mitigation, informed by the strategy developed under this section, that do not include the model toxics control capital account.

This report fulfills this directive.

Introduction to PFAS

What are PFAS and why are they a problem?

PFAS are a family of more than 12,000⁷ synthetic organic chemicals. They're in many products, including waterproof clothing, furniture, food packaging, and firefighting foam. These chemicals contain at least one fully fluorinated carbon atom attached to a carbon atom.⁸ When fluorine binds with carbon, it forms a bond that's extremely difficult to break—this is why they're called

⁶ https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/Senate/5200-S.sl.pdf#page=113

⁷ https://nap.nationalacademies.org/resource/26156/PFAS%20Guidance%20Highlights.pdf

⁸ RCW 70A.350.010: https://app.leg.wa.gov/RCW/default.aspx?cite=70A.350.010

"forever chemicals." That strong bond gives the molecule many features that make PFAS useful chemicals, such as resistance to water and oil.

Unfortunately, that usefulness comes at a cost. The strong bond means these toxic chemicals don't break down in the environment and can accumulate in human, animal, and plant tissues. <u>Human exposure to some PFAS</u>⁹ is associated with a wide range of adverse health impacts, including:

- Increased cholesterol levels.
- Suppressed response to vaccines.
- Lower birthweights.
- Reproductive problems.
- Liver and thyroid problems.
- Higher risk of some cancers including testicular and kidney cancers.

PFAS Chemical Action Plan

In accordance with WAC 173-333-410, Ecology completes Chemical Action Plans for chemicals and metals of concern as part of our work to reduce the use and risk of toxic chemicals.¹⁰ These comprehensive plans:

- Identify, characterize, and evaluate all known uses and releases of a specific chemical of concern.
- Provide recommendations for actions to protect human health and the environment.

While these plans don't ban or regulate chemicals, their recommendations can lead to legislative or regulatory action. Ecology and Health developed the recommendations with input from local government, industry stakeholders, and environmental advocates.

We completed the <u>PFAS Chemical Action Plan</u>¹¹ in November 2021. Since publishing the plan, the work to reduce these chemicals has become more complex. As research continues, we keep uncovering more information, science, and policy. However, we don't intend to update the plan at this time. Instead, this strategy document builds on the plan's recommendations and provides a guide to the state's future response to PFAS.

PFAS Statewide Funding Strategy

We believe this statewide funding strategy can serve as the blueprint for a new coordinated approach to reducing PFAS in our environment. Building on the recommendations in the PFAS Chemical Action Plan, we recommend significant new strategic actions and describe additional overarching activities that support those actions. Subject matter experts developed these

⁹ https://nap.nationalacademies.org/resource/26156/PFAS%20Guidance%20Highlights.pdf

¹⁰ https://app.leg.wa.gov/WAC/default.aspx?cite=173-333-410

¹¹ https://apps.ecology.wa.gov/publications/summarypages/2104048.html

recommendations with input from legislative and policy staff, program managers, and fiscal staff.

Unlike the Chemical Action Plan, this strategy focuses on actions to take in the next two biennia (Fiscal Years 2025–2027 and 2027–2029) but recognizes these problems can't be solved in that time. PFAS contamination is a long-term problem that will likely take decades to fully address. However, our knowledge about PFAS and related technologies are changing so rapidly that focusing on the short-term is prudent.

Federal, state, and local agencies; Tribes; and communities will need to work together to identify recommended actions to reduce and mitigate exposure. This strategy document is a current snapshot of needed actions; through it, we intend to provide an overarching vision for addressing PFAS contamination in Washington as the science and information changes almost on a daily basis.

PFAS Statewide Funding Strategy major objectives

The underlying budget proviso identified three categories from the PFAS Chemical Action Plan to be addressed in this statewide strategy:

- Ensure drinking water is safe. PFAS from firefighting foam and other sources have
 contaminated dozens of public drinking water wells and hundreds of private wells across
 our state. This strategy document outlines nine action items needed to reduce human
 exposure and harm in communities impacted by contaminated drinking water and fund
 testing and treatment of drinking water.
- Manage environmental PFAS contamination. State agencies require more resources to be able to comprehensively manage PFAS contamination and oversee cleanup. This strategy identifies nine action items to expand the state's current ability to identify and remediate this statewide contamination.
- Understand and manage PFAS in waste. The products people use in their homes and businesses can release PFAS into landfills, leachate, wastewater, and biosolids. This strategy identifies six action items to address this objective, including source identification and sampling as well as testing from industrial sites around the state.

In addition, the PFAS Chemical Action Plan addressed a fourth category that was not called out in the budget proviso:

 Reduce PFAS in products. Releases of PFAS into the environment from consumer products are significant contributors to contamination. Prevention is considered the optimal strategy to combat exposure. This strategy document contains one recommended action related to consumer products.

Finally, this strategy document identifies an additional recommended action item related to agricultural impacts from PFAS. This line item did not correspond to any of the categories in the Chemical Action Plan.

Strategy development

Five state agencies developed this strategy:

- Washington State Department of Ecology
 - Environmental Assessment Program
 - o Hazardous Waste & Toxics Reduction Program
 - Nuclear Waste Program
 - Office of Equity and Environmental Justice
 - Solid Waste Management Program
 - o Toxics Cleanup Program
 - Water Quality Program
- Washington State Department of Health
 - Office of Drinking Water
 - Office of Environmental Public Health Sciences, Site Assessment and Toxicology
 - o Office of Public Affairs and Equity, Center for Health Promotion and Education
- Washington State Department of Fish & Wildlife
 - Toxics Biological Observation System
- Washington State Department of Agriculture
- Washington State Department of Commerce

To develop the specific recommended action items in the strategy, Departments of Ecology, Health, and Fish and Wildlife identified subject matter experts who were familiar with efforts to implement the PFAS Chemical Action Plan recommendations. These experts worked in teams that corresponded to sections of the Chemical Action Plan: safe drinking water, managing environmental contamination, and evaluating PFAS in waste management. The resulting work product was the basis for the recommended action items in this strategy document. Each team worked to draft a complete description of the needed actions and identify corresponding resource needs. When there was overlap between sections, team members coordinated to determine resource needs. Other agencies, such as Department of Agriculture, were asked to participate if they were identified as having a subject matter experts.

Higher level strategic initiatives were initially developed by Ecology policy staff with input from Departments of Health and Commerce. The strategic initiatives were based in part on actions taken in other states and the recommended action items developed by the subject matter teams. The strategic initiatives were reviewed by subject matter experts, other agency program staff, program managers, and executive-level policy and fiscal managers.

Although there was no public comment period during the development of the strategy, we did make changes to early drafts of the strategy document in response to public input. In March

2024, Ecology received a comment letter from a coalition of environmental advocates, including Toxic-Free Future, Zero Waste Washington, and Puget Soundkeeper Alliance, among others. In June 2024, Ecology representatives met with Washington residents affected by PFAS in drinking water. In both cases, the strategy was modified to account for information received.

Resource Estimates

When available, this strategy identifies projected resources needed to implement actions related to the PFAS Chemical Action Plan's recommendations. It also identifies projected resource needs for:

- Actions that became a priority since the PFAS Chemical Action Plan was developed.
- Actions related to reducing PFAS in consumer products.

As previously mentioned, some recommendations can't be fully implemented in the strategy's four-year timeframe. We noted when most recommended actions would take more than four years.

Environmental justice and equity considerations

When developing this funding strategy, we specifically considered issues related to environmental justice and equity. Staff members from Ecology's Office of Equity and Environmental Justice helped develop the project plan and timeline. We included environmental justice as an overarching strategy because the goal is to integrate it into each recommended action.

Environmental justice is about equal protection for all under environmental laws, eliminating health disparities, and meaningfully involving those impacted by environmental laws. The <u>Washington State Environmental Justice Act</u>¹² (commonly referred to as the Healthy Environment for All or HEAL Act) specifically defines environmental justice as:

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies with environmental impacts by prioritizing vulnerable populations and overburdened communities, the equitable distribution of resources and benefits, and eliminating harm.

Input from impacted communities is essential to inform our decisions about managing PFAS contamination.

PFAS work in Washington to date

Current approach: Limited coordination—working our way out of silos

Several state and federal agencies are currently either involved in addressing PFAS or have some responsibility for PFAS-related regulation or oversight. For some key state issues, the

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¹² https://apps.leg.wa.gov/RCW/default.aspx?Cite=70A.02

various agencies have been coordinating response efforts; however, in the day-to-day efforts, many state employees work in silos and need to identify and work with other experts to the best of their knowledge and ability. Much of this work could be improved by improving and better managing cooperation between agencies and programs.

Washington State agencies and their purview

Department of Ecology is responsible for overseeing cleanup of PFAS-contaminated sites; adopting and enforcing state laws and regulations limiting these chemicals in consumer products; assisting local fire departments with replacing PFAS-containing firefighting foam; monitoring the environment and freshwater fish; incorporating PFAS in water quality standards and regulation; regulating industrial discharges into air and water; and regulating disposal of solid waste, wastewater, and biosolids.

Department of Health is responsible for regulating large (also known as "Group A") public water systems; regulating on-site sewage systems; supporting State Board of Health rulemaking for drinking water standards; monitoring shellfish and food safety; monitoring water recreation and on-site sewage systems; administering grant and loan programs to support drinking water system compliance; regulating reclaimed water in collaboration with Ecology; developing and communicating public health advice responsive to evolving risks; supporting local health jurisdictions' response to communities impacted by PFAS-contaminated drinking water; helping residents take action to protect their health when these chemicals are in their drinking water, fish or other foods, and consumer products; evaluating and issuing fish consumption advisories; monitoring shellfish, both commercially and recreationally; and supporting Ecology in restricting PFAS in consumer and commercial products.

Department of Agriculture is responsible for overseeing various crop and food-focused grant programs and connecting others to U.S. Department of Agriculture rural development loan and grant programs that they could potentially use to respond to contamination. The agency is starting to include PFAS response in planning, but it isn't included in current efforts.

Department of Fish and Wildlife is responsible for monitoring contaminants in migrating and marine indicator species as part of their Toxics Biological Observation System. Data from this work guides efforts to protect fish and shellfish health, ensure seafood safety, and promote ecosystem recovery.

Department of Commerce is responsible for handling issues related to Defense Community Compatibility Account administration, Community Development Block Grants, Public Works Board loan and grant funding for public water systems, grants for emergency rapid response, and grants for drinking water emergencies in overburdened communities.

Other departments with PFAS responsibilities in Washington include:

• **Department of Transportation** is responsible for issues related to PFAS firefighting foam used in highway tunnels and at airports. This agency is also on the Technical Advisory Committee for a Stormwater Action Monitoring study that will sample emerging contaminants of concern, which includes PFAS. They will provide possible sample sites and personnel to collect stormwater samples.

- **State Patrol** is responsible for issues related to the Fire Training Academy in Issaquah and the use of firefighting foam.
- **Utilities and Transportation Commission** is responsible for issues related to privately-owned for-profit water systems.

Federal agencies and their purview

U.S. Environmental Protection Agency (EPA) is at the forefront of federal response to PFAS. As part of their <u>PFAS Strategic Roadmap</u>, ¹³ EPA's strategic approach focuses on three central directives:

- Research. Invest in research, development, and innovation to increase understanding of PFAS exposures and toxicities, human health and ecological effects, and effective interventions that incorporate the best available science.
- Restrict. Pursue a comprehensive approach to proactively prevent PFAS from entering air, land, and water at levels that can adversely impact human health and the environment.
- Remediate. Broaden and accelerate PFAS-contamination cleanup to protect human health and ecological systems.

To fulfill these directives, EPA focuses on preventing PFAS from entering the environment, holding responsible parties accountable for their actions, and prioritizing protection of disadvantaged communities. In April 2024, as part of their work under the roadmap, EPA adopted maximum contaminant levels¹⁴ to protect the public from contamination of six PFAS chemicals in drinking water supplies.

- **U.S. Food and Drug Administration** regulates ingredients in food packaging, surveys foods in the market for the presence of PFAS and could develop national safety standards for the presence of these chemicals in commercial foods and bottled water.
- **U.S. Department of Agriculture** surveys meats and raw eggs in the market for PFAS and could establish national standards for commercial livestock. They provide rural development loan and grant programs that Washington's Department of Agriculture could potentially use to respond to PFAS contamination.
- **U.S. Department of Defense** leads cleanup at multiple Washington sites. In July 2019, the Secretary of Defense set up a task force to ensure a coordinated approach on agencywide efforts to address PFAS use and contamination. The Department of Defense's <u>PFAS Task Force</u> is codified at 10 U.S.C. §2714 and identifies its members and goals. Additionally, the Federal Aviation Administration uses Department of Defense's performance standards for firefighting foam to establish which of these foams may be used at airports.

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¹³ https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024

¹⁴ https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas

¹⁵ https://www.acg.osd.mil/eie/eer/ecc/pfas/tf/index.html

¹⁶ Commonly referred to as MILSPEC.

U.S. Department of Energy owns the Hanford Site and multiple sites across the country where PFAS were used. In 2022, they published a PFAS Strategic Roadmap with actions outlined for 2022–2025. In this roadmap, they commit to:

- Research use and potential releases.
- Investigate PFAS in Department of Energy—supplied drinking water and the environment.
- Clean up contamination to protect human health and ecological systems at its sites.
- Enhance PFAS research at Department of Energy national laboratories.
- Support interagency collaboration to identify and employ promising technologies.

U.S. Department of Health and Human Services is responsible for the Agency for Toxic Substances and Disease Registry, which is responsible for:

- Evaluating chemical toxicity and exposure at contaminated sites.
- Developing federal health guidance and educate about how to prevent exposure and harms.

U.S. Department of Transportation is responsible for the Federal Aviation Administration, which sets the rules regarding airport operations, such as the type of firefighting foam to use, training requirements, and testing of firefighting foam. They are responsible for overseeing business operations at the nation's airports.

A variety of other federal agencies receive federal funding to conduct studies on some aspect of PFAS use, alternatives, or impact on human health or the environment.¹⁷ They include:

- National Science Foundation
- National Center for Environmental Health
- National Institute for Occupational Safety and Health
- U.S. Geological Survey
- National Aeronautics and Space Administration

Other agencies and jurisdictions

Tribal governments are sovereign nations that aren't subject to state regulatory oversight; however, some Tribal entities elect to participate in public health partnerships in Washington. Tribes have varying levels of water, wastewater, and solid waste management participation and oversight. While they are subject to federal jurisdiction, some may have delegated authority from EPA, just like state government does. State agencies work with Tribes to manage technical advice and funding options.

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¹⁷ https://www.whitehouse.gov/wp-content/uploads/2023/03/OSTP-March-2023-PFAS-Report.pdf

Local health jurisdictions are partners in public health most closely interacting with their local communities. They:

- Complete permitting and oversight of small on-site septic systems primarily used by individual households.
- Provide oversight of individual wells varies based on county building and planning regulations.
- Are often the center of focus for communication in the discovery of local contamination issues.
- Are the regulatory authority for solid waste handling facilities, such as landfills.

In addition, many local health jurisdictions have programs related to Group B water systems. 18

Local water, sewer, and public utility districts are governmental entities in charge of many water and sewer facilities across the state. They are regulated by Health for water and Ecology for sewer and must comply with state and federal requirements.

Local fire districts protect life and property across the state. Many of these departments have trained with PFAS foam and used it according to manufacturers' recommendations. These districts may now become potentially liable parties in the unintended consequences of PFAS contamination. They may also have stockpiles of unused foam concentrate, which is subject to management as Washington State Dangerous Waste.

Current approach to PFAS funding

Current and recent PFAS work budget line items

The Legislature has funded many actions to address PFAS contamination, cleanup, and prevention. Recent capital and operating budgets have included these line items when addressing PFAS.

They've mostly appropriated funds from the Model Toxics Control Act (MTCA) Operating Account, MTCA Capital Account, or the State Building Construction Account. The Legislature has also used the Public Works Assistance Account, Emergency Rapid Response Account, and General Fund-State for individual line-item expenditures.

Table 1: Fund appropriations used to address PFAS since 2019.

Budget	Appropriation	Account	Agency	Description
2019–2021 Capital	\$400,000	State Building Construction	Ecology	Characterization of PFAS contamination in Issaquah Valley aquifer and pilot study of cleanup technologies

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¹⁸ https://doh.wa.gov/community-and-environment/drinking-water/water-system-assistance/group-b

Budget	Appropriation	Account	Agency	Description
2019–2021 Capital	\$5,569,000	State Building Construction	Health	Lakewood Water District PFAS treatment facility
2019–2021 Capital	\$8,000,000 (from the 2020 funding cycle)	Public Works Assistance Account	Commerce Public Works Board	City of Spokane West Plains area storage near Spokane International Airport— increase general capacity and provide water through intertie with Airway Heights
2019–2021 Operating	\$3,482,000	MTCA Operating	Ecology	Chemical action plan
2021–2023 Capital	\$5,950,000	State Building Construction	Commerce	City of DuPont water wells
2021–2023 Capital	\$1,150,000	State Building Construction	Ecology	Continuation of Lower Issaquah Valley study and pilot project
2021–2023 Operating	\$135,000	MTCA Operating	Ecology	Food packaging alternatives assessment
2022 Supplemental Operating	\$100,000	General Fund—State	Health	Stakeholder forum
2022 Supplemental Operating	\$355,000	MTCA Operating	Ecology	Chemicals in consumer products
2023–2025 Capital	\$400,000	MTCA Capital	Ecology	Statewide funding strategy
2023–2025 Capital	\$7,857,000	MTCA Capital	Ecology	Sammamish Plateau and Sewer District water treatment plant
2023–2025 Capital	\$5,569,000	State Building Construction	Health	Lakewood Water District PFAS treatment facility
2023–2025 Capital	\$1,500,000	State Building Construction	Ecology	Continuation of Lower Issaquah Valley drinking water investigation
2023–2025 Operating	\$53,000	MTCA Operating	Ecology	Chemicals in consumer products

Budget	Appropriation	Account	Agency	Description
2023–2025 Capital	\$10,000,000 (from the 2024 funding cycle)	Public Works Assistance Account	Commerce Public Works Board	Lakewood Water District— two projects for PFAS mitigation
2023–2025 Operating	\$6,000,000	Emergency Rapid Response Program ¹⁹	Commerce	Provide funding for rapid response to declared emergencies, including drinking water emergencies
2023–2025 Supplemental Operating	\$1,000,000	MTCA Operating	Commerce	Funding for drinking water emergencies in overburdened communities
2024 Supplemental Capital	\$2,000,000	MTCA Capital	Ecology	Eastside Fire and Rescue PFAS cleanup
2024 Supplemental	\$2,200,000	MTCA Capital	Health	Hannah Heights PFAS contaminated well and water supply
2024 Supplemental Operating	\$375,000	MTCA Operating	Ecology	PFAS in consumer products

PFAS work funded by the Defense Community Compatibility Account

In 2019, the Legislature created the Defense Community Compatibility Account to address incompatible development connected to military installations in Washington. Administered by the Department of Commerce, the account provides state funds for capital projects that impact the economy, environment, or quality-of-life opportunities for local communities around military operations. The <u>Department of Commerce's Defense Community Compatibility Account 2022 Legislative Report²⁰ shows funding for four projects that mitigate PFAS exposure.</u>

¹⁹ The Commerce Emergency Rapid Response program is funded through General Fund—State.

²⁰ https://deptofcommerce.app.box.com/s/hxpz6w16gci473bwdbjx3bmh8ygl1xew

Table 2: Defense Community Compatibility Account expenditures that address PFAS.

Application and Project Name	DCAA Funding Request	Description
Lakewood Water District, Water Well (K-3, G-4)	\$3.72 million	Drilling two new wells into deeper, uncontaminated aquifers. The new wells are expected to deliver about 1,500 gallons per minute of uncontaminated water, partially offsetting supply lost due to PFAS contamination.
Lakewood Water District, Water Well (Hipkins)	\$2.84 million	PFAS contamination exceeds the State Action Level and is shut down. This project will drill a new replacement well into deeper, uncontaminated aquifer.
Lakewood Water District, Water Well (Oakbrook 0-2)	\$2.84 million	PFAS contamination exceeds the State Action Level and is shut down. This project will drill a new replacement well into a deep, uncontaminated aquifer.
Lakewood Water District, Water Well (0-3)	\$2.84 million	PFAS contamination exceeds the State Action Level and is shut down. This project will drill a new replacement well into a deeper, uncontaminated aquifer.

Additional PFAS work funded by the state

In addition to specific provisos in the operating and capital budgets, state agencies perform work addressing PFAS as part of their regular agency work, covered by their carryforward budgets. While it may not be itemized, this work accounts for state monies spent on PFAS response.

Actions taken by other states

In some ways, other states are ahead of Washington in developing their statewide response; we looked to some of them for coordination and funding ideas. The below highlights some key strategies adopted in other states. See a more complete summary of their work in <u>Appendix B</u>.

California

- Uses general fund dollars for PFAS response.
- Several primary state agencies are responsible for various aspects of PFAS oversight and response. These agencies include:
 - California State Water Board Division of Drinking Water
 - California State Water Board Division of Water Quality

- California Environmental Protection Agency's Office of Environmental Health Hazard Assessment
- o Regional Water Quality Control Boards
- At the time of this report, California's <u>SB 903</u>²¹ is currently an active bill under consideration that would create a PFAS oversight fund, prohibit PFAS in consumer products unless declared an "unavoidable use," and institute a fee paid to the new fund. It is unclear whether this bill has sufficient momentum to pass as currently drafted.

Maine

- Adopted a ban (38 MRS §1614) on PFAS in all consumer products effective January 1, 2030, unless the Maine Department of Environmental Protection determines the specific use is unavoidable. This is in addition to existing bans on PFAS in specified consumer products, such as carpets, rugs, and fabric treatments.²²
- Requires bottled water sold from Maine source to be tested for PFAS.
- Created <u>PFAS response fund</u>²³ in 2022; uses both state and federal monies for PFAS response.
- Three primary state agencies responsible for PFAS oversight and response.
- Has statewide Plan for Administration of the Fund to Address PFAS Contamination.²⁴

Minnesota

- Funds from lawsuit against manufacturers pay for PFAS response.
- Three main state agencies responsible for oversight.
- Minnesota's <u>PFAS Blueprint</u>²⁵ is a statewide strategy that identifies both short- and long-term opportunities to manage PFAS in the environment and protect families and communities.

New Jersey

- Three main state agencies oversee PFAS response, along with the multi-state Delaware River Basin Commission.
- Response focuses on testing, adopting new drinking water standards, and studying PFAS
 in drinking water.

²¹ https://leginfo.legislature.ca.gov/faces/billStatusClient.xhtml?bill id=202320240SB903

²² https://legislature.maine.gov/statutes/38/title38sec1614.html

²³ https://www.maine.gov/dacf/ag/pfas/pfas-fund.shtml

²⁴ https://www.maine.gov/dacf/ag/pfas/docs/pfasfund/admin-plan-pfas-fund-final.pdf

²⁵ https://www.pca.state.mn.us/air-water-land-climate/minnesotas-pfas-blueprint

North Carolina

- Has comprehensive state <u>Action Strategy for PFAS</u>²⁶ to address contamination in a proactive, systemic way.
- Department of Environmental Quality leads response efforts.
- Launching pilot program under the <u>Bernard Allen Emergency Drinking Water Fund</u>²⁷ to support North Carolina residents that have PFAS contamination in their private drinking water wells.
- Primary expenditures are operating funds spent from the general fund with additional federal dollars for grants covering projects related to emerging contaminants such as PFAS.

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²⁶ https://www.deq.nc.gov/genx/nc-deq-action-strategy-pfas/open

²⁷ https://www.deq.nc.gov/pfas-treatment-system-assistance-program

Statewide PFAS Strategic Initiatives

The Legislature's directive to Ecology was to develop a statewide funding strategy. We first address the strategic elements of this document, followed by recommended action items to support those strategic initiatives and the associated funding requirements for each.

Major objectives of the PFAS Statewide Funding Strategy

The objective of this funding strategy is to clearly identify what actions are needed to respond to PFAS contamination and the problems that contamination creates in Washington's communities. This document is intended to provide a roadmap for tackling PFAS in all areas of the state over the next two biennia. It's intended to provide the Legislature with a clear list from the state's subject matter experts about what actions are needed and the reasoning behind those recommendations.

Strategic goal: Create a new unified PFAS response system

Washington's strategic goal is to create a unified system to address PFAS prevention, mitigation, and cleanup efforts. This systemic approach should include coordinated efforts to address PFAS remediation and cleanups among various state and local agencies; use integrated efforts to prevent future exposures and pollution; and establish a dedicated statewide funding mechanism for most PFAS activities. Achieving this goal will require a significant cooperation between the Legislature, various state agencies, local governments, environmental advocates, business and industry representatives, and the public.

Strategic initiatives: Support and implement a unified response

These primary strategic initiatives will support other action items' implementation:

- Coordinated response: Create a new PFAS oversight body.
- Unified funding: Establish a new dedicated statewide PFAS funding mechanism, which includes expedited funds for PFAS contamination that threatens human health.
- Engagement: Increase public outreach and involvement across the state.
- Multi-state effort: Request federal action and funding.

Coordinated statewide response: Establish a PFAS response oversight body

At present, responsibility for Washington's PFAS contamination response is divided among multiple agencies. There is no overarching authority responsible for organizing response efforts; working with other jurisdictions; or coordinating planning, research, testing, or budgeting activities between agencies.

To improve the state's response to PFAS contamination, a dedicated statewide oversight body should be established. This new body could take any of a number of forms, such as:

- A new standalone Office of PFAS Response, similar to the Human Rights Commission or State Conservation Commission.
- A smaller office located within the Governor's office, Department of Health, or Department of Ecology, similar to the Office of Equity or Office of Columbia River.
- A coordinating council, similar to the Salmon Recovery Council.
- Designated employees at the Governor's office, Ecology, or Health, such as a Senior Policy Advisor or a Special Assistant to the Director.
- A program-level assignment of new or existing employees, similar to Ecology's Toxics Cleanup Program or Health's Office of Drinking Water.

This new oversight body should have the authority to unify the efforts of all agencies and jurisdictions involved in managing PFAS issues in Washington. Staff members would provide expert advice on complex decisions, scenarios, and policy development. By centralizing coordination, the office would streamline information sharing and ensure that efforts are aligned, and resources are utilized efficiently.

In addition to the new oversight entity, an advisory committee of subject matter experts and interested parties could be formed to offer connections to community partnerships, provide insights on complex projects, and provide additional scientific expertise.

Coordinated statewide funding: Establish a dedicated statewide PFAS funding mechanism, which includes expedited funds for PFAS contamination that threatens human health

The state currently funds PFAS-related activities through four sources: General Fund-State, MTCA Operating and Capital accounts, and the State Building Construction Account. Additional work may be included in an agency's carryforward budget and not detailed in a specific line item in a budget bill. An example of this carryforward work would be Ecology employees overseeing cleanup efforts at PFAS contaminated sites.

This piecemeal funding approach complicates efforts to accurately assess the full extent and cost of PFAS response work—the true scope of work needed to respond to the problem and the corresponding cost to the state. Without a dedicated fund, agencies struggle to swiftly address contamination, especially in urgent situations that threaten human health or the environment. The lack of a designated fund may increase the risk of funds being redirected to other needs during financial stress.

A solution to this problem is to create a dedicated statewide PFAS funding mechanism, which includes a designated reserve for sites that require immediate action. Coordinated through the new statewide oversight body, using a single fund would allow for easier budgeting, improved transparency, and reduced duplication of efforts among agencies.

A review of Washington's Office of Financial Management Fund Reference Manual shows approximately 30 state funds with purposes that are possibly relevant to PFAS projects. While some of these funds (such as MTCA Capital, MTCA Operating, and the State Building Construction accounts) have been used to fund specific provisos in previous budgets, others may have only an indirect relationship to possible PFAS response. See the list of funds in Appendix D.

The initial unified fund endowment would likely need to come from a variety of sources. Appropriations for work currently allocated from other state funds could be reappropriated to the new fund. New tasks covered by the unified fund will need to be covered by other resources. Some of those activities may be appropriately covered by existing state funds identified in Appendix D; however, we believe new funding sources will need to be identified and approved by the Legislature. We identified a number of options for new funding sources, but each has potential implementation problems such as lack of predictability, administrative difficulties, or political feasibility challenges. Possible funding sources that should be considered include:

- Federal funds from specified legislation, such as 2023's Infrastructure Investment and Jobs Act.²⁸
- Federal funds distributed through existing State Revolving Fund programs or Water Infrastructure Improvement for the Nation grants.
- Federal grants from the EPA, Department of Commerce, Department of Agriculture, Department of Defense, Department of Health and Human Services, and Department of Transportation.²⁹
- Grants from non-federal sources, such as private foundations.
- Settlement funds received from lawsuits against PFAS manufacturers or other similar entities.
- Expanded Hazardous Substance Tax covering PFAS and products containing PFAS.
- New tax or fee on each product sold in Washington that contains PFAS.
- New Business and Operating (B&O) tax on manufacturers of PFAS and products containing these chemicals.
- New B&O tax on distributors and sellers of PFAS and products containing these chemicals.
- New state bonds issuances.

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²⁸ This legislation alone provided \$5 billion for states to help communities. Of these funds, \$2 billion was made available initially with the total amount to be distributed over five years.

²⁹ Working to ensure future grant funds are made available to states could be one of the priorities for a new oversight entity.

 Revenue generated from fines and penalties, although this is unlikely to be a significant amount.

In addition, businesses and landowners responsible for cleaning up PFAS contamination are also responsible for the associated costs. However, this money doesn't come to the state, so we haven't included in possible resources.

Although there may be funds in the future arising from lawsuits against PFAS manufacturers, those funds are not guaranteed and should not be the basis for the state's response.

We also note that the creation of a dedicated PFAS fund provides a clear destination for any funds received from legal proceedings.

Coordinated statewide engagement: Increase public outreach and involvement

Whether it's warnings about contaminated drinking water wells or giving advice about finding PFAS-free consumer products, engagement with the public is crucial to the state's success in addressing PFAS contamination. A new coordinated statewide engagement strategy is needed to both:

- Communicate information to the public.
- Encourage and receive public input, especially from overburdened communities and vulnerable populations.

This effort should give significant attention to understanding affected communities through community engagement and what is most important to them. Solutions should be co-designed with impacted communities and consider their lived experience, values, and needs.

With community support and engagement, a variety of communication techniques need to be integrated into a single communications plan that is dedicated to understanding what is most important to affected communities. Depending on the form the new statewide response entity takes, that office could be responsible for this work.

Coordinated multi-state effort: Request federal action and funding

Ultimately, PFAS use and contamination is so common that federal action is needed to fully address the problem. The new statewide coordinating body can work with other states and with Washington's federal delegation to encourage Congressional action to:

- Provide funding to states for PFAS response.
- Use existing federal regulations (including maximum contaminant levels) to oversee cleanup and remediation, removing the burden for federal facilities and Superfund sites from states.
- Pass legislation restricting the use of PFAS in consumer products and industrial processes.
- Provide funding to states to assist businesses transitioning away from PFAS.

Other national entities—such as the Environmental Council of States, National Governor's Association, and the Association of State and Territorial Solid Waste Management Officials—are potential partners to help advocate to allocate federal resources towards PFAS contamination. The Association of State and Territorial Health Officials, Association of State Drinking Water Administrators, and Washington's System Improvement Team are potential partners to help advocate for the allocation of federal resources to address human health effects and safe drinking water.

These efforts will be a lengthy commitment and will extend beyond the four-year scope of this report.

What success looks like

Over the next two biennia, successful implementation of this statewide strategy requires a coordinated statewide response, funding, public engagement plan, and cooperation with federal entities, which would have the following outcomes:

- More Washington residents will understand risk and actions to protect themselves from PFAS in drinking water.
- We will collectively work towards ready access to safe drinking water from public water systems that meet state and federal requirements.
- Public water systems will receive support and oversight to provide drinking water that meets drinking water standards.
- People and the environment will have reduced exposure to PFAS contamination in water, air, and soil.
- Agencies will share vision, goals, and a pathway for improved cooperation.
- Appropriate funding sources will streamline funding for PFAS-related activities and support.
- The funded public health response will improve health equity and environmental justice in impacted communities.
- Agencies will expand their knowledge of the extent of contamination and ongoing monitoring.
- People will be provided improved access to up-to-date information about PFAS risks and how they're affected, especially those directly affected by this contamination.
- There will be more opportunities for communities to participate in decisions that affect them, especially those in overburdened communities and vulnerable populations.
- The amount of these chemicals entering landfills, leachate, and wastewater will be reduced by reducing the number of PFAS-containing products sold in Washington.

³⁰ https://www.commerce.wa.gov/pwb/sync/

Looking ahead: 2030 and beyond

As public awareness and scientific knowledge about these forever chemicals continues to expand, so does business motivation to find solutions and safer alternatives. It will be important to remain responsive to new information and technologies related. As our understanding evolves, we will adjust our planned action items and budget needs accordingly. Updating the state's approach will be an important task for a new statewide coordinating entity.

Many of the action items in this report will need to continue beyond the 2027–2029 Biennium. Identifying and remediating contaminated sites, conducting environmental testing and monitoring, and engaging the public are long-term tasks that require ongoing funding.

PFAS-contaminated sites are complex and regularly impact groundwater. Cleanups take many years to complete and cost millions. New sites continue to be identified and each needs to be investigated to determine the source and extent of the contamination. Corrective Action cleanup sites previously believed to be concluded will need to be evaluated for PFAS contamination. Ecology anticipates a greater need for PFAS cleanup support in the 2027–2029 Biennium. The EPA released new maximum contaminant levels for PFAS in drinking water in April 2024.³¹ These new limits will impact decisions across all of our regulatory frameworks.

The science is emerging, and our understanding of how new information affects state response is still evolving. A good example is that Ecology is currently evaluating how PFAS relates to greenhouse gas reduction. In 2021, the Legislature adopted Chapter 70A.60 RCW, ³² which restricts potent greenhouse gases known as hydrofluorocarbons in products and equipment. Hydrofluorocarbons and the common replacement chemicals, hydrofluoroolefins, are all PFAS chemicals.

The atmospheric degradation of many of these chemicals generates a substance known as trifluoroacetic acid, which is yet another type of PFAS. At this time, there is no data available accounting for the presence of this chemical in Washington surface water and drinking water sources. It is likely that there will be a need to expand environmental monitoring to accommodate testing for this and other types of PFAS that we aren't actively looking for.

Preventing more PFAS from entering the state should be considered a long-term legislative goal. Other states are setting PFAS-free goals that extend into the 2030s, such as prohibiting the sale of products containing intentionally added PFAS, except for those determined to involve current unavoidable uses. As with other contaminants, remediation and cleanup is far more resource-intensive and expensive than prevention. Although laws, rules, and regulations, are not the focus of this strategy, it should be considered within any long-term planning effort regarding this topic.

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³¹ https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas

³² https://app.leg.wa.gov/RCW/default.aspx?cite=70A.60

Recommended Actions Summary

The authorizing budget proviso 33 directs Ecology to develop the statewide funding strategy and "build upon the recommendations contained in the department's 2022 per- and polyfluoroalkyl substances chemical action plan."

The PFAS Chemical Action Plan made 12 general recommendations, divided into four categories:

- Ensure drinking water is safe.
- Manage environmental PFAS contamination.
- Understand and manage PFAS in waste.
- Reduce PFAS in products (note: this category wasn't mentioned in the proviso).

While the proviso is limited to the first three of these categories, we summarized all 12 recommendations in Appendix A for ease of reference.

This strategy document identifies 31 recommended actions, organized by focus areas that roughly align with the categories above:

- A. Overarching recommended actions (corresponds to the <u>strategic initiatives</u> listed above).
- B. Ensuring safe drinking water.
- C. Managing environmental PFAS contamination.
- D. Evaluating PFAS waste management options.
- E. Emerging needs.

Recommendations by Focus Area

A. Overarching recommended actions

While these actions are not addressed in the PFAS Chemical Action Plan, we consider the overarching recommended actions to be:

- Necessary for cross-agency coordination to successfully reduce PFAS in Washington.
- Imperative for considering overburdened communities and vulnerable populations in the implementation process.

As required by the proviso, this plan builds off the PFAS Chemical Action Plan and identifies recommended actions to reduce PFAS in the environment. These recommended actions

³³ https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/Senate/5200-S.sl.pdf#page=113

consider new information and additional science, policy, and reduction issues that have emerged since the Chemical Action Plan was published.

The overarching recommended actions in this strategy document are crucial to reduction efforts statewide. These are actions that are comprehensive in nature and affect all other recommended actions. Without these overarching items, the recommended actions listed in focus areas B—E below would simply be a list of projects to complete in four years, rather than a long-term strategy to address the state's PFAS problem. The overarching recommendations provide the statewide framework needed to efficiently carry out a portfolio of implementation strategies that will change and evolve over time as we learn more and collaborate with greater efficiency.

We identified five overarching recommended actions:

- 1. Centralize and enhance cooperation across agencies by creating a new statewide coordinating body.
- 2. Create a unified PFAS funding mechanism within the state treasury, including a reserve for expedited response to PFAS.
- 3. Create a statewide staff lead for PFAS policy coordination.
- 4. Create staff leads for PFAS coordination at the Departments of Ecology and Health.
- 5. Fully integrate environmental justice considerations into PFAS remediation efforts.

A.1. Establish a new statewide PFAS coordinating entity

Problem identified: Lack of coordinated response to PFAS across state agencies

Multiple state agencies are currently responsible for PFAS response, but cooperation between those agencies is often inconsistent or insufficient. A new statewide PFAS response coordinating entity would address this problem by enhancing problem-solving and cooperation, providing accountability, and allocating additional resources more efficiently.

The existing siloed structure of Washington's state agencies is unlikely to meet the PFAS reduction goals outlined in this plan. Moving forward, Washington must improve collaboration, engage more effectively, and dedicate additional resources to ensure successful long-term reduction efforts. PFAS reduction is a complex issue that spans various subject areas and requires expert input from multiple agencies. Washington's Departments of Ecology, Health, Agriculture, Fish and Wildlife, and Commerce contributed to this strategy. This collaboration marked the beginning of a comprehensive approach. Intentional cross-agency and intra-agency planning is essential to address each situation holistically.

Recommended action A.1: Centralize and enhance cooperation across agencies by creating a new statewide coordinating body

Establishing an organization focused on collaboration and equipped with authority and personnel is essential to direct collaboration among the numerous programs across multiple state agencies. A central structure could foster partnerships with local governments, federal agencies, and communities. This plan's current proposals reflect specific program regulations,

capacity, and priorities. Adopting a more integrated, holistic, and collaborative approach will ultimately better serve Washington residents.

Creation of a new statewide coordinating entity, as detailed in the strategic initiatives section above, would provide needed cooperation and improve efficiency.

Resource needs

The resources required for establishing a coordinating entity depend on the form chosen. A standalone statewide office would require three or more full-time and at least one part-time staff member to manage interagency collaboration, facilitate communication and messaging across agencies, oversee expenditures from the new statewide funding mechanism, and facilitate federal and multi-state response efforts.

A.2. Establish a unified fund for expedited response to PFAS

Problem identified: Decentralized funding across multiple agencies leads to duplication and lack of ready funding for efforts to identify and reduce PFAS exposure, especially in situations that require immediate attention

Many people in Washington are exposed to PFAS above levels recommended by state and federal health agencies, but current state budgets don't account for quick response to exposure. The grant-funding process is too slow to receive and use funds through typical contract routes. Ecology, Health, and other state entities need funds for initial response to community PFAS exposure. Since state agencies don't collaborate with one another to develop their budgets, there can be duplicative efforts and missing funding line items.

Community groups at impacted sites have expressed the need for accelerated state-supported efforts to identify and reduce their exposure. Some current sites have very high levels of contamination and need urgent attention. We expect many more PFAS sites in the next few years. Currently, several large military sites aren't following appropriate cleanup levels when they investigate and respond to drinking water exposures. Many other PFAS-contaminated sites haven't identified a potentially liable party responsible for funding and performing cleanup efforts.

Additionally, it can be difficult to identify existing expenditures for PFAS response. Individual budget provisos may clearly identify a PFAS project, but reappropriations and carryforward amounts can be difficult to account for. Similar work being done by separate agencies may be funded separately and lead to duplication of efforts or otherwise missing opportunities to improve efficiency.

Recommended action A.2: Create a unified PFAS funding mechanism within the state treasury, including a reserve for expedited response to PFAS

Creating a single dedicated resource to fund PFAS efforts will improve efficiency, increase transparency, and help reduce duplicative efforts. The creation of this new fund would allow all PFAS budget line items to be transferred to a single fund source. As there would be a mix of activities appropriated out of this fund, we would need to establish both capital and operating accounts.

Including a reserve fund dedicated to rapid contamination response will allow the state to quickly begin initial investigation of polluted sites, complete interim actions to reduce human PFAS exposure, and provide clean drinking water to those affected by PFAS contamination of water sources.

Resource needs

All budgeted PFAS responses would be transferred to the new fund, along with monies from applicable funds used previously, such as the State Building Construction Account. However, we acknowledge some accounts are restricted from transfer and would be used separately. Ideally, the reserve fund should initially be able to accommodate expenditures for at least two emergency responses simultaneously.

A.3 Coordinate legislative and policy actions and implement Chemical Action Plan recommendations

Problem identified: Lack of dedicated staff to oversee Chemical Action Plan recommendation implementation and coordinate policy efforts

In addition to statewide collaboration, state agencies are lacking resources to implement Chemical Action Plan recommendations and legislative and policy actions. This work is currently being implemented by various agency staff whose time are allocated to other priorities, leading to a patchwork of efforts. At least one staff position dedicated to internal legislative and policy needs would significantly help support PFAS reduction efforts and restore capacity for those who have been pulled into PFAS work from other duties.

Recommended action A.3: Create statewide staff lead for PFAS policy coordination

Ideally, staff for this effort will be housed in the new statewide coordinating entity and would provide needed policy analysis and collaboration related to PFAS Chemical Action Plan recommendations. This core work would focus on the big picture, such as ensuring all the different elements of the Chemical Action Plan implementation is complementary and consistent with other related efforts, such as the Safer Products for Washington program. The focus of this position would primarily be on intergovernmental collaboration at all levels.

Resource needs

This position would be one of the full-time employees noted in item A.1. The costs would be ongoing.

A.4 Hire agency PFAS response coordinators

Problem identified: Department of Ecology and other agencies lack PFAS remediation and reduction coordination

In developing this statewide funding strategy, it became clear there is a need for improved collaboration, organization, and communication among and within agencies. State agencies are currently cooperating as much as possible, but it could be improved in many cases by having a central point of contact or coordinating body. In addition, collaboration with local, federal, and Tribal agencies could be improved. Staff are currently prioritizing PFAS work to the best of their

ability, however current resource levels aren't adequate to resolve the growing issue or additional workload.

Recommended action A.4: Create staff leads for PFAS coordination at Departments of Ecology and Health

A statewide coordinator would provide needed alignment, communication, and planning to successfully manage Ecology's and Health's work towards PFAS reduction as outlined in this strategy. The focus of these positions would be intra-agency collaboration among the various programs and efforts at each agency.

Resource needs

There would be staffing costs for a full-time environmental planner/statewide coordinator and part-time administrative assistance at both Ecology and Health. These positions would not be part of the statewide coordinating entity but instead would be the main points of contact at Ecology and Health for the new PFAS response body. These costs would be ongoing.

A.5. Incorporate considerations for overburdened communities and vulnerable populations

Problem identified: Lack of data and knowledge of PFAS contamination in overburdened communities

To date, PFAS contamination has disproportionately affected low-income communities, communities of color, and Tribes, and those effects are likely to continue. However, our understanding of contamination is confined to areas where impacts have been identified. The state needs to both expand testing in these areas and engage in community education and outreach. Previously, these efforts weren't done in partnership, with cultural competency, or with respect.

Recommended action A.5: Fully integrate environmental justice considerations into PFAS remediation efforts

It is important that Washington's efforts use an environmental justice framework when making decisions about additional research and testing of produce, water, and soil to verify presumptive PFAS exposure in overburdened communities and vulnerable populations. This would allow funding prioritization in the communities most in need based on verified exposure.

Increased testing in presumed areas of PFAS contamination will benefit from a collaborative approach. Incorporating local knowledge from the overburdened communities and vulnerable populations affected by that testing would help focus resources where they can be used most effectively.

Ecology and Health would work with community advisory groups and integrate community science into the testing process through community-based participatory research. This is a collaborative process between community-based organizations and academic investigators. It has the potential to make research more responsive to existing needs, enhance a community's ability to respond to important health issues, and potentially impact structural changes that can reduce environmental health disparities.

Resource needs

These costs can be expensive and will vary from project to project. They should be factored into implementation costs of each action item.

B. Ensuring safe drinking water

When PFAS concentrations in drinking water exceed federal limits or state action limits, agencies and communities may need to take timely action to lower exposure, protect human health, and meet drinking water requirements. The higher the concentration, the more urgent the response.

Without funding assistance, private well owners, public water systems, and their ratepayers must absorb expensive response costs. PFAS water testing and treatment is expensive. Health equity worsens in communities when only those with financial means can afford to take protective action.

Washington's water systems are regulated in three different categories:

- Group A public water systems are larger systems that must comply with federal safe drinking water act requirements.
- Group B public water systems are all other water systems that typically serve between 3 and 14 connections.
- Private wells typically serve one to two homes or small farms.

Health's role in these water systems is:

- Regulating Group A public drinking water systems.
- Overseeing and supporting response to PFAS in public water supplies.
- Supporting local health jurisdictions as they respond to PFAS in Group B systems and private wells.
- Having staff available to:
 - Support community health education and risk communication.
 - Evaluate specific exposure pathways.
 - Engage the impacted community.

Multiple other local, state, and federal agencies may be involved in investigating and responding to drinking water contamination, including local governments, Ecology, EPA, food safety officials, and military bases.

The recommendations in this section anticipate an increase in the number of drinking water sources statewide that will need to act to resolve PFAS contamination now that EPA has established new federal maximum contaminant levels. These recommendations build on those in Section 1 of the PFAS Chemical Action Plan.

The recommendations reflect our recent experience with critical gaps in the current state response, the practical needs expressed by communities responding to PFAS drinking water contamination, and the importance of prioritizing health equity in our public health responses.

We identified nine action items in this category:

- 1. Implement new federal standards for PFAS in drinking water.
- 2. Allocate funding to test private wells and Group B water systems in areas at risk for PFAS contamination.
- 3. Fund treatment of public water systems impacted by PFAS in coordination with federal funding and existing cleanup efforts.
- 4. Provide interim alternative water for underserved or at-risk populations as a long-term solution is investigated and implemented.
- 5. Provide alternative water sources and support for affected populations.
- 6. Fund PFAS testing of home-raised livestock and food gardens in impacted areas and develop actionable state advice.
- 7. Establish and administer a state contract for laboratory analysis of PFAS in serum.
- 8. Support community health in PFAS-impacted areas with health fairs.
- 9. Seek opportunities for Washington residents to participate in PFAS health studies.

B.1 Implement new federal standards for PFAS in drinking water

Problem identified: Implementing EPA's stricter PFAS standards will increase workload, requiring additional support for compliance and communication

Health already supports <u>PFAS State Action Level</u>³⁴ implementation and PFAS testing in over 2,400 public drinking water systems as required by the <u>Washington State Board of Health</u>³⁵ in 2021. This workload increased significantly when EPA adopted enforceable federal safety standards (called maximum contaminant levels) in April 2024. This federal action requires additional state support to adopt the maximum contaminant levels and rectify changes between Washington's current rules and the new maximum contaminant levels. Since EPA standards are more stringent, we anticipate a threefold to fourfold increase in water systems needing to take action on PFAS. This increases the need for Health technical and communication support and for compliance activities.

Recommended action B.1: Implement new federal standards for PFAS in drinking water

This action item responds to part of recommendation 1.1 of the PFAS Chemical Action Plan. Implementation of the new federal drinking water standards requires additional staff to handle the new requirements, communicate about the transition from state action levels to new

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³⁴ https://sboh.wa.gov/rulemaking/agency-rules-and-activity/group-public-water-supplies-pfas-drinking-water-standard

³⁵https://sboh.wa.gov

mandatory standards, and respond to a much larger number of water systems that will be out of compliance relative to our state action levels.

Resource needs

This would require additional staff in Health's Office of Drinking Water to work on PFAS compliance and additional staff support for communications. This doesn't include the cost of required water testing as we have been leveraging federal funding to test public water systems for PFAS as required.

B.2 Fund drinking water testing of private wells and Group B water systems in areas with PFAS contamination

Problem identified: PFAS testing in private wells relies on homeowner resources, furthering health disparities in disadvantaged communities

PFAS water testing at public water systems is partially supported with federal funds. Until recently, no resources were available to help private wells and Group B well systems test when PFAS was found in nearby groundwater wells. The cost of testing (\$500 to \$700 for individuals) is out of reach for many well owners. When only those who can afford to follow our health recommendations test their wells, many wells remain untested. Exposures persist among the most disadvantaged residents, further intensifying health inequity within the community.

Recommended action B.2: Allocate funding to test private wells and Group B water systems in areas at risk for PFAS contamination

This action item responds to part of recommendation 1.1 of the PFAS Chemical Action Plan. It also builds on a 2023 legislative proviso for Health to implement a program that supports private individual wells and Group B water systems with groundwater contamination from nitrate, arsenic, manganese, and PFAS. More funding is needed to respond to the scale of the problem as impacts have significantly increased. We are estimating that 500 samples per year would potentially need state support, when a potentially liable party is initially either unknown or unable to fund this portion of an investigation.

Resource needs

This action item would require sufficient funds to cover testing at up to 500 sites annually. The money is typically passed through to local health jurisdictions who can hire a contractor to implement the testing; funding would need to cover some administrative and contracting costs.

B.3 Fund treatment of public water systems impacted by PFAS in coordination with federal funding and existing cleanup efforts

Problem identified: A large number of water systems are expected to exceed new federal drinking water standards

Remediation and treatment of PFAS contamination is extremely expensive and far exceeds federal funding available for impacted public water systems. Public water system treatment costs will be substantial—likely costing billions of dollars. With EPA's stricter and more enforceable standard for six PFAS in 2024, we expect a threefold to fourfold increase in the number of public water systems requiring treatment. When initial testing at public water

systems is complete, we anticipate that 215 water systems will exceed the proposed federal guidelines. That could result in a cost estimate of between \$1 and \$2 billion (based on an extrapolation from current sampling data from systems that have tested for PFAS). However, as more data and information are collected in the future, that estimate could increase significantly.

Recommended action B.3: Fund treatment of public water systems impacted by PFAS in coordination with federal funding and existing cleanup efforts

This action item responds to part of recommendation 1.1 of the PFAS Chemical Action Plan. Some of the costs identified are eligible for forgivable loans or grants provided by EPA under the Bipartisan Infrastructure Law. Washington will receive \$120 million of funding to directly support impacts from unregulated contaminants. If Health can maximize the use of the funds received, this still leaves a gap of between \$1 and \$2 billion.

This task would require design, review, and installation of treatment plants for public water systems impacted by PFAS.

Utilities will need up-front funding support as they work to understand those other provisions. Much of the spending is needed in the 2027–2029 Biennium for the capital installations. It is currently unclear how other funding from principally liable parties and/or class action lawsuits will help to offset the costs.

B.4 Fund alternative water for individual wells and Group B water systems Problem identified: Current regulations don't support rapid response to PFAS exposure for water supplies not federal regulated

When PFAS contamination impacting individual wells and Group B public water systems is discovered, there aren't sufficient funds available for a rapid response to minimize exposure for people on these systems. The cost of buying and installing filtration or switching to bottled water is out of reach for many residents. This can worsen health inequity as low-income households can't afford to follow our public health advice.

While there is a process to order potentially liable parties to take protective interim actions that mitigate harmful human exposure, it may take years to identify the potentially liable party and begin the investigation and cleanup process. The procedures to manage compensation from a cleanup action under federal superfund laws or the Model Toxics Control Act can take many years to resolve.

Recommended action B.4: Provide interim alternative water for underserved or atrisk populations as a long-term solution is investigated and implemented

This action item responds to part of recommendation 1.1 of the PFAS Chemical Action Plan. It would build on a 2023 legislative proviso for Health to implement a program supporting private individual wells and Group B water systems with groundwater contamination from nitrate, arsenic, manganese, and PFAS. The impacts have significantly increased and require more funding to handle the scale of the problem in the coming years. We estimate that 375 households per year would potentially need this state support. The funding would pay for

point-of-use water filters or bottled water for drinking and cooking, and local health staff to communicate with residents and support implementation (for example, hiring a local plumber to install filtration). This funding could be included in similar funds to B.1–B.3 for expedited use and need.

Resource needs

Supporting private wells and homeowners on Group B Water systems impacted by PFAS should also cover costs of installed treatment for point-of-use devices. While there isn't an accurate way to predict the exact number of households impacted, we estimate that 75% of the 500 samples collected under recommendation B.2 will have impacts greater than EPA's maximum contaminant levels requiring treatment. This contract could be managed by existing staff working on <u>Alternative Water funding</u>. The specific program would need to grow to support this recommended action.

B.5 Support public water systems' customers with a safer drinking water alternative

Problem identified: Lack of funding for a temporary source of safe water for sensitive groups

When communities discover PFAS in their public water systems, the utility notifies them of the action the water system is taking to lower PFAS and what they can do to protect themselves. This may include a recommendation for the general population or sensitive populations to switch to filtered or bottled water for drinking and cooking. While many can afford to purchase bottled water or point-of-use devices to help lower their exposure, this is a significant equity issue for underserved and at-risk populations.

Recommended action B.5: Provide alternative water sources and support for affected populations

This action item responds to part of recommendation 1.1 of the PFAS Chemical Action Plan. It can take two years or more for a water system to design and install central PFAS filtration at their contaminated sources. State support should focus on funding short-term point-of-use filters or bottled water to help sensitive populations—including infants and breastfeeding or pregnant persons—and other affected residents follow state advice for drinking, cooking, and mixing infant formula. We estimate PFAS impacts the drinking water of 1.4 million people in Washington above a state action level. The levels in most of these homes could be treated by using a pitcher-style filter with monthly cartridge replacements. This support would include replacement filter cartridges until the water system's permanent solution is operational.

Resource needs

Resource needs include providing pitcher-style and other water filters to high-risk PFAS-affected residents. In some cases, funding for bottled water might also be necessary.

³⁶https://doh.wa.gov/sites/default/files/2023-07/Alt-DW-Program.pdf

B.6 Test home-raised livestock and food gardens for PFAS and develop actionable advice

Problem identified: Communities need testing and actionable health advice regarding consumption of home-raised livestock and garden produce

Research studies show that livestock and food gardens watered with contaminated well water can take up PFAS and pose a food safety issue. Communities with PFAS in their water supply need immediate, actionable public health guidance on PFAS in backyard gardens and livestock for food items like meat and eggs. Consuming these types of products is a potentially important pathway for human exposure when PFAS are in water supply. Communities are urgently asking for testing and more actionable health guidelines about when to act and how to check whether it is safe to consume home-raised livestock and garden produce.

This is a particular concern where PFAS in drinking water impacts rural areas such as in East Selah near the Yakima Training Center and in the West Plains near Fairchild Air Force Base in Spokane County. There aren't national or Washington standards or guidance on what levels of PFAS in water are safe to use for watering vegetable gardens and livestock. The military bases in Washington provide certain households alternate water for human drinking and cooking, but don't provide alternate water for additional human exposure pathways.

Recommended action B.6: Fund PFAS testing of home-raised livestock and food gardens in impacted areas and develop actionable state advice

This action item responds to part of recommendation 1.1 of the PFAS Chemical Action Plan. This recommended action is for a multi-pronged approach to improve safety guidance about consumption and develop evidence-based recommendations for guidance to reduce PFAS exposure through these pathways. This includes:

- Establishing a fund to test for PFAS in home garden produce and livestock that use PFAS-contaminated drinking water. Without standards, this is the only immediate way to provide actionable and specific safety advice about family consumption in areas contaminated with PFAS. A toxicologist would plan and oversee the collection of appropriate data, evaluate the test results, provide interpretation of results for participating households, and provide any health recommendations about consumption and how to reduce exposure through this pathway. This project would build on experience from a pilot livestock testing project carried out by Health and U.S. Department of Agriculture in December 2023.
- Designing a community garden and livestock study that would develop the evidence base for what PFAS concentrations in water the public can safely use for watering a garden and livestock for home consumption. We would partner closely with one or two impacted communities and the Washington State University Food Safety Program or other local college or university.
- Developing state health advice for home vegetable and fruit gardens and home-raised livestock based on the new information above. Advice would build on other state efforts in Maine, Michigan, and New Mexico to set PFAS advice for commercial farmers.

This issue intersects somewhat with Washington State Department of Agriculture. PFAS aren't yet regulated in commercial foods. An impacted commercial farm would seek guidance set by the state's Department of Agriculture and U.S. Food and Drug Administration. Agencies work together to evaluate and regulate the human safety of commercial crops and livestock products sold in the United States.

Home gardens and livestock products produced by domestic and hobby farms fall outside the jurisdiction of these agencies but are a common feature of PFAS-contaminated sites in Washington. This proposed work would manage this common issue when drinking water wells with PFAS contamination are used for watering gardens or livestock. Scientists from Health can support Department of Agriculture and other agencies on future assessments of PFAS impacts on commercial farming operations in Washington.

Resource needs

Resource needs include developing strategies to implement PFAS testing for home gardens and livestock. This covers:

- Testing home-raised livestock and food gardens, including:
 - Laboratory costs.
 - o Staff time to collect samples and run the program.
 - Sample collection supplies.
 - Additional veterinarian costs.
 - Travel costs.
 - Shipping.
- Conducting a two-year community garden and livestock study. The community garden and livestock study would test practical and affordable ways to functionally reduce exposure to PFAS from these pathways and identify what PFAS concentrations in water can safely water a garden and livestock for home consumption. The study assumes a minimum of two years to complete.
- Creating statewide public health advice. A toxicologist would work with health educators
 and coordinate with sister agencies and local partner organizations, preparing public
 communication staff to develop guidance for residents raising gardens and livestock. This
 would involve creating public-facing materials and engaging with communities about the
 information.

B.7 Fund PFAS biomonitoring (blood serum testing)

Problem identified: Impacted communities face disparities in accessing PFAS exposure assessment

Community members with PFAS in their drinking water are asking for serum testing to better understand their accumulated exposure. Testing blood serum helps potentially impacted residents know if their PFAS exposure is elevated compared to national norms and helps their doctor apply clinical and public health recommendations for elevated exposure.

Not everyone in Washington has equitable access to serum monitoring. A Health survey found that many Washington health insurance carriers will cover a PFAS serum test and recommend health screenings. However, impacted communities are encountering significant access barriers including uninsured or underinsured status.

Testing would be offered in communities where PFAS levels in the water are high enough to trigger any recommendations for evaluation or care by medical providers. We would use available models such as the Agency for Toxic and Disease Registry serum estimator tool and assume a chronic exposure scenario to determine this potential.

Recommended action B.7: Establish and administer a state contract for laboratory analysis of PFAS in serum

This action item responds to part of recommendation 1.3 of the PFAS Chemical Action Plan. It would establish and administer a state contract for laboratory analysis of PFAS in serum. This would allow us to meet the need for free serum testing to confront demonstrated financial and access barriers. Testing would be offered in a way that targets the barriers, including a partnership with a local clinic, through a mobile clinic such as Health's Care-A Van, or within a community health fair model.

Resource needs

A serum testing program covering at least 250 tests per year would require staff to administer the program.

B.8 Promote community health in areas affected by PFAS

Problem identified: Communities face unequal access to health information and services regarding PFAS health impacts and supporting health after exposure

Communities with impacted drinking water are often worried about their health. They frequently can't find a local health care provider who knows about PFAS and can discuss their concerns, assess their exposure, or provide a plan for recommended care. Many can't afford to travel long distances to seek care from specialists. State and local agency programs have a difficult time connecting with individuals—especially in rural communities—about available assistance for water filters, water testing, public participation grants, and boosting community wellness. Communities need information, resources, and tailored support to promote health holistically and reduce harm from exposure. A PFAS health fair brings these resources to the communities' doorsteps in one place, in a highly engaging event.

Recommended action B.8: Support community health in PFAS-impacted areas with health fairs

These PFAS health fairs are one-day events that will:

- Be held at a convenient location in the community with impacted drinking water.
- Offer sign-ups for all services and grants in one convenient place with a person available to walk residents through the process and answer questions.
- Bring several needed resources to impacted communities including:

- Sign-ups for free water testing and water filters (if funded in actions B.2–B.5).
- Free PFAS serum testing (if funded under recommended action B.7).
- o Clinical consultation from PFAS-trained health care providers.
- Health education about the latest health findings.
- o Best steps to reduce exposure and boost health resilience.

They could also potentially include free health screenings and vaccinations through Health's Care-A-Van program.

Health would organize events in close partnership with the impacted community, local health jurisdictions, Tribal health departments, community organizations, clinical partners, health promotion and community wellness programs, interpreter services, and other government agencies involved in the response.

Resource needs

The goal would be to provide two community health fair events in the first year. This would cover events in East Selah (near the Yakima Training Center PFAS site) and Airway Heights (near the Fairchild Air Force Base and Spokane Airport PFAS sites). Costs would cover evaluation of the fairs effectiveness in year one and an average of two community health fairs each year in subsequent years.

The budget should also include costs for event planning and promotion, participation by the Health Care-A-Van to provide free health screening, travel costs for event staff and professionals (doctors, nutritionist, phlebotomist, veterinarian, and other relevant providers), interpreters, and an expert in PFAS water filters to give people unbiased consultations about which filters are effective and will work best for their needs.

Free serum testing, water testing, and water filters would be contingent on funding.

B.9 Monitor and study health impacts of PFAS

Problem identified: Impacted communities want to monitor health impacts of their exposure; we need more community health information regarding adverse effects and exposure from PFAS

Communities are asking for health studies to better understand the adverse effects of PFAS exposure. They want help assessing potential health impacts of PFAS exposure in their community.

Recommended action B.9: Seek opportunities for Washington residents to participate in PFAS health studies

This action item responds to part of the recommendation 1.3 of the PFAS Chemical Action Plan. Health would continue to evaluate available data from Washington disease registries (for example, the cancer registry), monitor the findings of the many health studies underway, and disseminate the results as part of our ongoing community engagement and public education work.

Conducting a study large enough to answer the most pressing questions would require partnering with an academic research institution to lead the work and likely require a multistate study to recruit sufficient participants. Health applied for one such opportunity in 2018 and continues to look for opportunities. Health will continue to look for grants and academic partners to design a health study of Washington residents with elevated PFAS exposure. The cost of these types of health studies can be significant. Some of the activities we propose above, such as serum testing, could support a health study.

Resource needs

Resource needs include consulting with affected communities about health outcomes and updating our health advice and materials based on new health research findings.

Evaluations of health outcomes that have a state disease registry (such as cancer) are upon request from communities and local health jurisdictions. This would require two community consultations each year, in-house evaluation of new health research findings, and annual updates of health education materials to reflect the newest science.

Additionally, a relevant research institution to conduct a PFAS health study would also need to be considered.

C. Managing environmental PFAS contamination

PFAS is found in surface water, groundwater, soil, sediments, air, animal and fish tissue, milk, and crops. State agencies are in the early stages of determining where PFAS is most prevalent in Washington, where people are exposed at unhealthy levels, and where it needs to be cleaned up. Ecology is currently working on several significant PFAS cleanups. However, the bulk of PFAS cleanup funding needs are likely to be identified in subsequent biennia as sites make it into and through the cleanup process.

The state has several laws and regulations that can be used to manage environmental contamination from PFAS, including the Model Toxics Control Act laws and regulations and the Dangerous Waste Regulations. Ecology establishes state cleanup levels for hazardous substances in the environment. The cleanup level concentrations, under specific exposure conditions, are considered sufficiently "protective of human health and the environment." Exposure conditions are expansive in their origin, so managing environmental contamination related to PFAS includes a diverse range of expertise.

Agencies need to be able to investigate and clean up PFAS contaminated sites and determine where PFAS is present in our environment. They do this by sampling different media, providing health education—based community engagement, mitigating PFAS still present at airports and fire stations, and managing the use of these chemicals in manufacturing. State agencies require more resources to be able to comprehensively manage environmental PFAS contamination to ensure the health of Washington residents and our environment.

The recommended actions below respond to and build on the PFAS Chemical Action Plan recommendations Section 2. We identified nine action items in this category:

1. Create staff positions for site cleanup, community outreach, and legal assistance.

- 2. Increase funding for existing grant programs if PFAS are identified.
- 3. Expand fish tissue monitoring to include PFAS.
- 4. Add capacity to Department of Fish and Wildlife's existing monitoring system to monitor marine and anadromous species for PFAS.
- 5. Extend existing grant-funded pilot study evaluating PFAS in Washington shellfish.
- 6. Expand monitoring and investigations of PFAS contamination in the environment.
- 7. Create staff and obtain resources needed for formative research, health education, and community engagement and program monitoring.
- 8. Fund Ecology's Product Replacement Program to provide equipment cleaning, foam disposal, and other related services.
- 9. Expand current programmatic funding to add technical staff focused on PFAS.

The current cleanup needs for PFAS-contaminated sites are largely undetermined as sites are still actively being identified. Due to the high likelihood of groundwater contamination, many PFAS cleanups are likely conducted under the formal process with significant oversight and direction from Ecology and will likely cost millions of dollars for each cleanup. Ecology plans to use the initial state-directed funds for 2025–2027 to help identified PFAS sites begin the cleanup process and identify potentially liable parties, allowing cleanups to move forward. Ecology expects to have more details outlining specific project needs for local governments, or those that will be contracted by Ecology, in 2027–2029 and subsequent biennia.

C.1 Expand Ecology's PFAS cleanup work

Problem identified: Ecology doesn't have adequate staff to identify and investigate potential contaminated PFAS sites or determine if people are exposed to PFAS at unhealthy levels and, if so, prevent that exposure and keep communities informed

Ecology manages over 38 confirmed PFAS cleanup sites across Washington State and is aware of 36 sites suspected to be contaminated with these chemicals, including facilities such as airports and fire stations. There are also a total of 935 other sites in Washington that have the potential to be contaminated with PFAS including landfills, dry cleaners, and metal plating and finishing sites. Ecology expects the need for site management to grow significantly as sites are identified through drinking water monitoring and site investigations. The two data sources together will help Ecology identify the sources and potentially liable parties for individual sites throughout the state.

The increased workload from contaminated sites, the urgency of this work due to drinking water impacts, and the complexity of PFAS cleanups require an expansion of Ecology cleanup staff to meet the demand. Due to the contamination's complexity and likely impacts to groundwater, many of these sites will need to go through the formal cleanup process and be supervised by Ecology. Formal cleanup sites require legal assistance to negotiate the order or decree and outreach support for public comment and engagement—especially for sites impacting drinking water. To meet this demand, Ecology needs to expand resources for site

management, outreach, legal assistance, and funding to conduct initial sampling and provide safe drinking water.

Although there was previously recognition of a future need for Ecology positions and funds to conduct PFAS work, the work has not been quantifiable until recently. Now that the Departments of Defense and Health identified several sites that contributed to PFAS contamination in drinking water wells, Ecology can assess the most urgent needs for staff positions and funding.

The new federal maximum contaminant levels for PFAS and Department of Defense policies as to how they will comply with these new levels prompted Ecology's new PFAS cleanup work. We recently issued an Enforcement Order for Spokane International Airport and are supplying alternate water using our existing operating budget. We also are assisting with soil and groundwater investigation in the Hannah Height area in the San Juan Islands, conducting work in association with Naval Air Station Whidbey, and starting work at Joint Base Lewis-McChord.

The future anticipated need to oversee PFAS cleanup work exceeds Ecology's current ability to participate in this work in a meaningful productive manner. Therefore, we request additional resources and anticipate additional requests would be required in future biennia as the need is further quantified.

Ecology is in early conversations with EPA and the U.S. Department of Energy regarding PFAS contamination at the Hanford site. Ecology identified that additional resources would be necessary in future biennia (including 2025–2027 and 2027–2029) to address the Remedial Investigation and Feasibility Study that will be conducted on the Hanford site.

Recommended action C.1: Create staff positions for site cleanup, community outreach, and legal assistance

This action item responds to part of recommendation 2.1 of the PFAS Chemical Action Plan. The creation of new full-time staff positions is needed to properly respond to PFAS contamination and ensure the protection of human health and the environment. Additional staff would serve as site managers to ensure:

- Cleanup sites are properly investigated.
- Exposures are mitigated.
- PFAS contamination is cleaned up.
- Communities are provided with education about PFAS and cleanup sites.
- Legal assistance is provided regarding PFAS-contaminated sites.

PFAS needs are currently in an emergent state as the contamination is discovered throughout Washington. Unfortunately, due to the nature of PFAS, a high number of cleanup sites have associated impacts to drinking wells, both public and private. At the time of this strategy, the full extent of PFAS cleanup sites is being determined. However, there is a need to be more responsive to beginning the cleanup process and providing immediate and interim actions for safe drinking water.

As a result, Ecology is requesting support for initial sampling and interim actions, such as providing alternative water supplies. This funding would help projects determine the contamination extent and begin the formal cleanup process, quantifying the needs. In the case of local government projects, this could provide a critical step to initiating investigations for cleanup and moving the project to be ready to apply for a Remedial Action Grant in the 2027–2029 Biennium.

Resource needs

Resource needs include:

- Increasing staff with expertise in environmental engineering; community engagement, outreach, and communications; and contracting.
- Funding for additional Assistant Attorney General assistance.
- Funding to support initial sampling and temporary alternatives for safe drinking water when immediate actions are required to reduce human exposure.

In addition, estimated costs for investigation and cleanup of PFAS contamination at the Hanford Site are currently not clear. Along with additional staff noted above, Ecology anticipates that Nuclear Waste Program Specialist, Environmental Specialist, and Chemist support would likely be necessary in the 2025–2027 and 2027–2029 Biennia.

C.2 Expand grant programs to include PFAS

Problem identified: Various grant programs that include cleanup don't include PFAS

Ecology's Toxic Cleanup Program has three grant programs included in the Ten-Year Financing Report that may overlap with this statewide strategy: Oversight Remedial Action Grants, Safe Drinking Water Action Grants, and Area-wide Groundwater Investigation Grants. The future strategy for Safe Drinking Water Action Grants is to move them and consolidate them at Health.

These grant programs have legislatively required criteria for their prioritization process that includes grant solicitation. They previously haven't included PFAS in this solicitation but plan to include it in the next Ten-Year Financing Report. The intent is to identify what funds are needed for future PFAS cleanups and develop the associated funding requests. The PFAS portion of these grants would need additional funding that is from sources other than Model Toxics Control Act Capital account.

Recommended action C.2: Increase funding for existing grant programs if PFAS are identified

This action item responds to part of recommendation 2.1 of the PFAS Chemical Action Plan. In a month-long process that begins in February every even-numbered year, Ecology asks local governments for information about contaminated sites that fall within their jurisdiction and for their cost estimates to clean up those sites over the next ten years. Through this Ten-Year Solicitation process, local governments can apply for remedial action grants and loans to clean up sites or provide safe drinking water to their communities. They can simply provide Ecology information to share with the Legislature about their cleanup needs for the next ten years. Ecology then prioritizes the projects, submits a budget request to the Governor that funds as

many as we can, and publishes all of them in the Ten-Year Financing Report. To include PFAS in this process, additional funds and possibly additional staff would be needed.

Resource needs

Resource needs include funding to support the increase in costs for any new grants that include PFAS identified by local governments during the grant solicitation process for the following two remaining grant programs: Oversight Remedial Action Grants and Area-wide Groundwater Investigation Grants. This may include additional grant staff if necessary to process, write, administer, or implement any additional grants provided to local governments for PFAS work.

C.3 Monitor for PFAS in freshwater fish

Problem identified: PFAS isn't included as a target analyte in existing fish contaminant monitoring programs

Ecology has conducted several limited studies of PFAS concentrations in freshwater fish tissue from Washington rivers and lakes, but currently no funding exists to include it as an annual target analyte for Ecology's fish contaminant monitoring programs. Previous limited studies resulted in fish consumption advisories for perfluorooctane sulfonic acid in three Washington lakes for several freshwater fish species, indicating a need for sampling in other water bodies to assess exposure.

Recommended action C.3: Expand fish tissue monitoring to include PFAS

This action item responds to part of recommendation 2.1 of the PFAS Chemical Action Plan. Ongoing funding would allow Ecology's two long-term fish tissue monitoring programs to assess PFAS concentrations in 350 freshwater fish samples collected throughout the state each biennium. This addition would help fill data gaps in the state on the presence and extent of PFAS in edible fish fillets and allow Health to assess exposure and determine possible health implications of consuming locally caught fish.

Resource needs

Funding would cover adding PFAS as a target analyte to currently established fish tissue monitoring programs, laboratory costs, and a Natural Resource Scientist to assist with sample collection efforts, data entry, and data management.

C.4 Monitor PFAS concentrations in marine and anadromous species Problem identified: Current monitoring program doesn't screen for PFAS

Washington Department of Fish and Wildlife's contaminant monitoring program, Toxics Biological Observation System, conducts ongoing biennial surveys of toxic contaminants in juvenile Chinook salmon, Pacific herring, adult salmonids, and English sole tissues. They also just recently began monitoring contaminants in the nearshore using caged mussels. They report their results as part of the Toxics in Aquatic Life Vital Sign. Preliminary monitoring results revealed PFAS detected in Pacific herring and Chinook salmon, sometimes at levels of potential

³⁷ https://vitalsigns.pugetsoundinfo.wa.gov/VitalSign/Detail/28

concern for the health of people and wildlife that consume them, including the endangered Southern Resident Orca.

Washington Department of Fish and Wildlife recently received funding from the Legislature to add monitoring of contaminants of emerging concern, including PFAS, to their historic indicator species. This would require additional long-term funding to conduct detailed assessments. To protect juvenile Chinook and coho salmon, additional sampling in river estuaries and associated nearshore habitats where juvenile salmon are likely exposed to PFAS is necessary. New sampling for marine species the Department of Fish and Wildlife doesn't currently monitor, but that are of interest to Health for seafood safety assessments will also need to be added.

Not having appropriate ways to assess Puget Sound health will result in uninformed management actions that may:

- Fail to recover or maintain sustainable fisheries.
- Miss opportunities to prioritize restoration and pollution prevention activities that are effective at recovering fish health.
- Unnecessarily restrict fishing or resource-use opportunities.
- Fail to protect the health of Washington residents who may consume contaminated seafood.

Without this monitoring, the state's ability to evaluate if money spent on Puget Sound cleanup and contamination prevention has effectively recovered fish health would be compromised.

Recommended action C.4: Add capacity to Department of Fish and Wildlife's existing monitoring system to monitor marine and anadromous species for PFAS

This action item responds to part of recommendation 2.1 of the PFAS Chemical Action Plan. This funding would cover PFAS analysis for species Department of Fish and Wildlife doesn't currently monitor, but that are of interest to Health for human health risk assessments. It would also provide detailed assessments of samples taken in river estuary and associated marine habitats where juvenile salmon are known to be exposed.

Fully funding PFAS analyses for all Department of Fish and Wildlife's indicator species—particularly for estuarine and nearshore species (such as juvenile Chinook salmon and caged bay mussel)—is necessary to:

- Understand where these chemicals are entering the Puget Sound food web.
- Better target remediation efforts needed to protect fish health.
- Protect the health of people and whales that consume fish.

Additional funding would allow Health to assess exposure for people and determine potential health impacts of consuming locally caught marine and anadromous fish.

Resource needs

Funding would cover laboratory costs to:

- Add PFAS as a target analyte to fully implement marine and anadromous fish tissue monitoring.
- Procure goods and services.
- Hire a Research Scientist to assist with sample collection efforts, data entry, data management, and reporting results to Ecology and Health.

Agencies would leverage samples from an existing long-term monitoring program, which saves costs on staff time and field efforts.

C.5 Monitor PFAS concentrations in shellfish

Problem identified: PFAS may be present in Washington shellfish

Health is currently conducting a pilot study to evaluate PFAS in recreational shellfish species, which is funded through an EPA multipurpose grant. Although data isn't available yet, based on the literature data and recent U.S. Food and Drug Administration seafood market evaluation, it is possible that PFAS are present in Washington shellfish. Although Health manages and monitors shellfish, no current funding is dedicated for PFAS analysis.

Recommended action C.5: Extend existing grant-funded pilot study evaluating PFAS in Washington shellfish

This action item responds to part of recommendation 2.1 of the PFAS Chemical Action Plan. Adding funding would expand the pilot survey and cover a two-biennium investigation into contamination at recreational shellfish harvest locations throughout Washington. The data collected over this period will be critical in understanding PFAS background in shellfish, identifying hotspots, evaluating human health implications, and assessing the need for long-term monitoring. If ongoing recreational monitoring is needed, additional funding would be required.

Resource needs

Resource needs include lab costs and staffing.

C.6 Expand PFAS monitoring and contamination investigations in the environment

Problem identified: Implementation of the Chemical Action Plan Implementation Monitoring Program is limited

In 2019, the Legislature allocated funding for Ecology to implement Chemical Action Plan recommendations associated with environmental monitoring (recommendations 1.2d and 2.1c).

The Chemical Action Plan Implementation Monitoring Program has used this ongoing funding to measure PFAS in surface water, groundwater, biofilms, and sediments in areas of prioritized concern. The program implements project investigations to identify and assess environmental sources and impacts of these chemicals in Washington. The need for more resources to investigate sources and impacts is evident as detections of these chemicals in drinking water and the environment has become increasingly pervasive.

The capacity of this program to conduct this work is limited by staff and budget. Funding is needed to increase the capacity of the Chemical Action Plan Implementation Monitoring Program to carry out its objectives. However, existing programmatic and budget constraints limit action to the top one or two highest priority projects annually.

Recommended action C.6: Expand monitoring and investigations of PFAS contamination in the environment

This action item responds to parts of recommendations 1.2 and 2.1 of the PFAS Chemical Action Plan. Expanding available resources would add three additional high priority projects annually. Funding would cover laboratory and field expenses as well as two natural resource scientists, two hydrogeologists, a chemist, and an administrative assistant to collect field data, support field work, analyze data and verify analytical results, and prepare laboratory reports.

Resource needs

Resource needs include lab costs, field vehicle expenses, and staffing.

C.7 Partner with local communities with contaminated water or contaminated sites

Problem identified: Currently Health is understaffed and underfunded to provide robust and community-engaged environment health education

<u>Chapter 70A.02 RCW</u>³⁸ (commonly referred to as the Healthy Environment for All or HEAL Act) mandates state agencies to develop and implement a community engagement plan that provides a voice for disproportionately affected communities, particularly those facing environmental justice disparities. Health's Site Assessment and Toxicology section of the Office of Public Health Science and the Health Promotion and Education division of the Office of Public Affairs and Equity work together to meet this statutory requirement for PFAS sites through toxicology health science and health education—based community engagement.

Health education as a field supports improved health outcomes by providing the knowledge, resources, and services community members need to improve their health literacy and make informed health decisions. Health education is data-based and draws on fields like health psychology, social marketing, communication psychology, risk communication, and behavior change science. The two divisions are underfunded to fulfill the HEAL Act requirements at the level necessary to meet community engagement needs across the state, especially for a contaminant that is as widely ranging in locality and severity as PFAS. This severely reduces the effectiveness of Health's collaborative response.

Many people in Washington have PFAS-impacted drinking water or live near a contaminated site. To be successful, broad public outreach and engagement efforts need foundational research on public perception and environmental health literacy to inform the messaging. This problem needs a robust health education program from start to finish. The program listens to impacted communities about their specific needs and concerns, tailors messaging and

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³⁸ https://app.leg.wa.gov/RCW/default.aspx?cite=70A.02

response, and evaluates whether our efforts were understood and resulted in people taking protective action.

Recommended action C.7: Create staff and obtain resources needed for formative research, health education, and community engagement and program monitoring

This action item responds to part of recommendation 2.2 of the PFAS Chemical Action Plan. It offers a varied structure and plan to meet the requirements of the HEAL Act and provides effective environmental health education. A robust and community-engaged environment health education would include:

- A statewide study to obtain data needed to help agency personnel identify community needs and to prepare effective materials with targeted messaging.
- Support for community engagement that integrates community voices and needs into
 material development and testing process, which improves effective communication
 avenues to then empowers communities to act, including opportunities for non-native
 English speaking or limited English proficiency community members to express their
 needs.
- Development of health education materials that are easily understandable, actionable, and accessible, as well as hosting engagement events with impacted communities that include elements of listening and two-way dialogue on community needs.

Formative research allows Health to build strong dataset on community perceptions and needs with an equity lens. Environmental justice considerations center on community members' experiences where they may have been historically excluded from decision making. Health partners with underfunded local health jurisdictions to meet HEAL Act requirements and hold community engagement events.

Resource needs

Resource needs include studies and research; additional health educators and an outreach coordinator; development of educational and engagement materials; funding to host community meetings and facilitate events; training for multi-language community educators; and costs for program monitoring and evaluation.

C.8 Assist state and local governments and fire districts with firefighting foam that contains PFAS

Problem identified: Fire departments need assistance to dispose of firefighting foams that contain PFAS and switch to safer alternatives

Local governments need to clean or replace fire engines, fire apparatus, and other items contaminated with PFAS firefighting foam. They also need to dispose of firefighting foam concentrate that contains PFAS and replace it with safer, non-PFAS foam. This is an expensive undertaking that is out of reach for many smaller departments.

Recommended action C.8: Fund Ecology's Product Replacement Program to provide equipment cleaning, foam disposal, and other related services

This action item responds to part of recommendation 2.3 of the PFAS Chemical Action Plan. Additional funding would cover expenses related to deep cleaning vehicles and relevant equipment as well as expanding the Product Replacement Program to include other stockpiles of PFAS firefighting foams, such as those at airports, manufacturing facilities, and refineries.

Resource needs

Resource needs include providing cleaning for fire vehicles and collecting and discarding PFAS-based firefighting foams from additional stockpiles.

C.9 Develop an understanding of PFAS in industry, manufacturers, and businesses through data analysis

Problem identified: Ecology staff need a solid understanding of the current PFAS universe and detailed data analysis

Before Ecology's staff can effectively offer technical assistance (such as information, training, tools, or expert advice) to industry, manufacturers, and businesses, they need a solid understanding of the relevant manufacturing demands and environment as well as detailed data analysis of the universe of PFAS use. This will allow them to prioritize efforts effectively and provide needed recommendations to entities currently using these chemicals to encourage the development and implementation of pollution prevention practices.

Pollution prevention measures can reduce the amount of PFAS entering the environment prior to treatment or disposal, and therefore reduce the hazards posed to public health and the environment associated with the release of PFAS.

Recommended action C.9: Expand current programmatic funding to add technical staff focused on PFAS

This action item responds to part of recommendation 2.3 of the PFAS Chemical Action Plan. Adding staff would allow Ecology to identify and reduce the risks posed by PFAS used in industry, manufacturing, and businesses through promoting pollution prevention activities. In coordination with the actions under Recommendation C.9 above, the key objectives are to:

- Identify sources and uses of PFAS in industry, manufacturing, and businesses, including comprehensive research and data analysis to identify the various sources and uses within Washington.
- Prioritize industries based on risks to human health and environment, including analyzing collected data to identify industries in Washington that have used or are currently using quantities that pose risks to human health and the environment.
- Conduct outreach and technical assistance, including:
 - Engaging in non-enforcement outreach and technical assistance to help industries and businesses reduce their PFAS usage.
 - Developing outreach materials tailored to specific industry sectors.

Additional funding would be used to hire technical expertise specialists to assist full-time employees with research and data analysis, identifying and assessing safer alternatives, and supplementing the outreach efforts by delivering community-based technical assistance as needed.

Developing a reimbursement program would support businesses in exploring safer alternatives, certifying safer products, and implementing source reduction projects. This program would be specifically directed to businesses that use or store PFAS, giving priority to business that don't receive funding through the Product Replacement Program or other state funding sources.

Resource needs

Ecology needs funding for full-time engineering Environmental Specialist staff, with the goal of identifying and reducing the risks posed by PFAS used in industry, manufacturing, and businesses through pollution prevention activities.

D. Evaluating PFAS waste management options

Products people use in their homes and businesses can release PFAS. For example, laundry and carpet cleaning have been shown to generate high concentrations of these chemicals. ³⁹ Firefighting, fire training, and military and industrial activity may also release these chemicals. Waste streams generated in residential, emergency management, industrial, and commercial settings are treated in wastewater treatment plants or sent to disposal facilities such as landfills. This can re-emit PFAS to the environment. Some releases contaminate stormwater runoff from public or private lands, which may drain to surface waters or groundwater. PFAS in municipal and industrial wastewater entering wastewater treatment plants may partition to different media (for example, solids and liquids) and transform into terminal PFAS compounds. Decomposing domestic and industrial waste containing PFAS and rainfall can create leachate that contains these chemicals, which are then released from disposed products.

The recommendations listed below respond to and build on the PFAS Chemical Action Plan recommendations Section 4. We have identified six action items in this category:

- 1. Monitor influent, effluent, and biosolids at 100 publicly owned treatment works over a ten-year period.
- 2. Complete a one-time sampling study of industrial State Waste Discharge permittees to analyze PFAS in their waste streams.
- 3. Establish dedicated staff to provide technical support and guidance that identifies PFAS sources in publicly owned treatment works.
- 4. Hire personnel to provide technical support and develop and access source control best management practices.
- 5. Sample leachate and groundwater at selected landfills across the state.

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³⁹ https://pubmed.ncbi.nlm.nih.gov/38316740/

6. Sample and test for PFAS at all wastewater treatment plants that produce biosolids intended for beneficial use within the state.

D.1 Monitor PFAS in wastewater treatment

Problem identified: Wastewater effluent from publicly owned treatment works is known to pass through upstream sources of PFAS

Ecology identified the need to monitor wastewater effluent from publicly owned treatment works because it is a known pathway of PFAS into receiving waters.⁴⁰ These facilities receive wastewater from industrial and domestic sources, which can both contain these chemicals.

Recommended action D.1: Monitor influent, effluent, and biosolids at 100 publicly owned treatment works over a ten-year period

This action item responds to part of recommendation 4.1 of the PFAS Chemical Action Plan. Testing in years one, five, and ten would collect samples to measure PFAS concentrations in wastewater coming into publicly owned treatment works, the treated wastewater leaving these facilities, and the biosolids they generate. This study would give permit writers crucial data about how much and what types of PFAS are in influent, effluent, and biosolids. This work would help answer crucial questions such as:

- How many of these Washington facilities receive PFAS-contaminated wastewater?
- How much of that contaminated wastewater is discharged to surface waters or partitioned to biosolids?
- Is the PFAS discharged as the original PFAS compound or as a transformation product?
- How effective are pre-treatment programs, source control, and other permitting conditions in reducing PFAS contamination over a ten-year time span?

Resource needs

Resource needs include sampling, contracting for sample laboratory analysis, and preparing a report detailing the study findings.

To fully implement this recommended action, sampling events would take place in the 2025–2027 Biennium, the 2029–2030 Biennium, and the 2033–2034 Biennium.

D.2 Study PFAS in industrial waste discharge

Problem identified: It remains uncertain if industrial and other sites with State Waste Discharge Permits contribute PFAS to receiving facilities

<u>Certain industry types</u>⁴¹ regulated by State Waste Discharge permits (such as manufacturing, metal finishing, circuit boarding, and landfills) are known or suspected to use PFAS currently or

⁴⁰ Wastewater treatment plants aren't true sources of PFAS since they don't create the waste. The plants receive wastewater from other sources. Wastewater treatment plants are known pathways or conveyors of PFAS.

⁴¹ https://pubmed.ncbi.nlm.nih.gov/38316740/ (DOI: 10.1007/s11356-024-32206-3)

historically and convey or release them in their operations. Contaminated wastewater from these industries may be discharged to publicly owned treatment works or to groundwater.

Publicly owned treatment works don't use technologies that can remove PFAS from wastewater effluent. As a result, these chemicals pass through these facilities and can end up in either the effluent or biosolids. Certain facilities with discharge permits may discharge PFAS-contaminated wastewater to groundwater, which is a potential exposure pathway to drinking water sources.

Characterizing discharges from State Waste Discharge permittees would allow Ecology to make informed decisions about how to manage discharges to better protect publicly owned treatment works, surface water, and groundwater from PFAS contamination.

The EPA hasn't set water quality standards for any PFAS compound yet. We have drinking water standards for six PFAS compounds, but we don't have surface water standards. We are using our authorities under the Clean Water Act to apply the narrative criteria to address PFAS in National Pollutant Discharge Elimination System (NPDES) permits as they come up for renewal.

Recommended action D.2: Complete a one-time sampling study of industrial State Waste Discharge permittees to analyze PFAS in their waste streams

This action item responds to part of recommendation 4.1 of the PFAS Chemical Action Plan. Industries with pretreatment permits issued under the State Waste Discharge program should be included in a sampling study to better understand and characterize PFAS discharge from industries into publicly owned treatment works. This sampling study would provide data about whether permittees that are under the State Waste Discharge program are a source of PFAS. A one-time snapshot sampling study at 30 sites could generate data to determine if the facilities are a source of contamination. This information would allow Ecology to make informed decisions about how to manage these dischargers.

Resource needs

Resource needs include a contractor to sample at 30 sites, contracting for sample laboratory analysis, and preparing a report detailing the study findings.

D.3 Identify PFAS sources for publicly owned treatment works

Problem identified: PFAS sources cannot be identified with current industrial user surveys

Publicly owned treatment works may not be able to determine their PFAS sources. Treatment facilities that continue to see PFAS levels above detection limits may need technical support from Ecology to help identify sources if the source is not easily identifiable.

Recommended action D.3: Establish dedicated staff to provide technical support and guidance that identifies PFAS sources in publicly owned treatment works

PFAS chemicals are abundant in many products from commercial, industrial, and residential sources. Industrial surveys can help identify and characterize PFAS sources from industrial sources, but identifying non-industrial sources of PFAS may prove more difficult.

A dedicated staff engineer would work with eligible facilities to provide technical support and guidance to identify PFAS sources, assist with the application of source reduction methods, and

develop standard operating procedures for publicly owned treatment works that have high PFAS levels in their receiving waters without easily identifiable sources.

Resource needs

This task requires a full-time environmental engineer, and costs would be ongoing.

D.4 Develop stormwater best management practices for PFAS

Problem identified: The state lacks best management practices for stormwater pretreatment to reduce PFAS

To mitigate both ongoing and historical releases of PFAS, we need best management practices, including treatment practices and source control practices.

Recommended action D.4: Hire personnel to provide technical support and develop and access source control best management practices

The development of best management practices to be used by local governments, utilities, and fire departments to prevent contamination of stormwater and stormwater infrastructure before, during, or after PFAS-containing firefighting foam is used in firefighting activities is key to avoiding this known source of contamination.

This project would include a literature review on source control and treatment best management practices to remove or mitigate releases of PFAS related to firefighting foam from stormwater systems. It would also involve establishing a technical advisory group to inform the development of a guidance document for entities using PFAS-containing firefighting foam. To implement this recommendation, the applicable research and interested parties work would require engineering consultants and staff to provide technical assistance and outreach and education needs.

Eliminating these chemicals from stormwater runoff will be a long-term effort. Although state law prohibits the manufacture and sale of firefighting foam with intentionally added PFAS, it doesn't prohibit fire departments or private entities from using existing stock in case of emergency. The law also doesn't require them to dispose of or switch to fluorine-free foams—they can hold onto their PFAS-containing firefighting foam and use it if necessary.

Firefighting foam isn't the only source of PFAS pollution in storm water runoff. For example, artificial turf fields will likely continue to leach these chemicals into the environment even after the last of PFAS firefighting foam has been disposed of. Research to understand and determine other inputs of PFAS into stormwater is ongoing.

Resource needs

This ongoing task would require a new full-time environmental engineer and a community outreach and education outreach specialist.

D.5 Study PFAS in landfill leachate and groundwater

Problem identified: Wastewater treatment plants receive discharge from landfills that can contain PFAS, and leaking landfills could contribute PFAS to drinking water sources

Wastewater treatment plants receive discharge from municipal solid waste landfills and limited purpose landfills. However, it is unclear how much PFAS ends up in the leachate from those landfills.

Municipal solid waste is non-hazardous solid waste and includes unsegregated garbage, refuse, and similar solid waste material discarded from residential, commercial, institutional, industrial, and community sources.

Limited purpose landfills don't receive municipal solid waste, but they do receive other limited non-hazardous solid wastes such as wood waste, construction and demolition waste, and ash. These landfills may be a source of PFAS, which means wastewater treatment plants receiving the landfill leachate may be receiving these chemicals.

Landfills that are contaminating groundwater may also be contributing PFAS to downgradient well water in the same water-bearing zone.

Recommended action D.5: Sample leachate and groundwater at selected landfills across the state

This action item responds to part of recommendation 4.2 of the PFAS Chemical Action Plan. Ecology prepared a report in 2022 (PFAS in Landfill Leachate 42) that compiled data from one round of leachate sampling at 19 municipal solid waste landfills and limited purpose landfills across Washington. Further sampling would help water quality authorities and wastewater treatment plants make decisions regarding pretreatment needs for landfills that discharge to them.

For landfill cleanup sites where there are downgradient receptors drawing water from the same water-bearing zone affected by the landfill, PFAS may need to be factored into the cleanup process or assessing site risk.

Resource needs

Funding is needed for sampling. This includes equipment, travel, shipping, and lab analysis to sample leachate at 12 landfills (landfills not already tested that discharge to wastewater treatment plants), and groundwater at 20 landfills (landfills with groundwater impacts that have downgradient groundwater users).

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⁴² https://apps.ecology.wa.gov/publications/SummaryPages/2207011.html

D.6 Study PFAS in biosolids

Problem identified: Biosolids generated by wastewater treatment plants and used as soil amendments can contain PFAS

Biosolids are an unavoidable byproduct of our wastewater treatment facilities that can contain contaminants from upstream, pre-wastewater treatment sources. There is evidence that biosolids can contain PFAS, based on samples of biosolids generated in Washington and other states.

Treated sewage sludge generated from municipal wastewater treatment plants can be designated as biosolids if it meets the regulatory standards to allow land application under Chapter 173-308 WAC. ⁴³ Biosolids are a primarily organic and semisolid product that are recycled for public benefit and applied to the land to improve soil health, consistent with protecting human health and the environment. Benefits of biosolid land application include:

- Reducing soil compaction.
- Increasing soil water-holding capacity.
- Adding valuable organic matter to the soil.
- Increasing crop yield and quality.
- Aiding in reducing the impacts of mitigating climate change through carbon sequestration.

However, if PFAS are present in the biosolids, we may be contaminating the soil the biosolids were meant to enhance.

While we have seen lower levels of PFAS in biosolids from upstream sources, it is important to test, assess, and evaluate impacts to biosolids recipients, groundwater, and drinking water in nearby communities. It is unlikely we will find highly industrially impacted biosolids as other states have found, as Washington doesn't have any known PFAS producers. Studies showing elevated soil impacts from biosolids land application are conducted in ways that overestimate bioavailability of contaminants and don't represent beneficial practices in Washington.

Recommended action D.6: Sample and test for PFAS at all wastewater treatment plants that produce biosolids intended for beneficial use within the state

This action item responds to part of recommendation 4.3 of the PFAS Chemical Action Plan. Using data collected under action D.1, Ecology would conduct sampling at 200 additional facilities on a quarterly basis and provide analysis during the first calendar year of this study.

The second year, Ecology would conduct sampling at 300 facilities, followed by analysis. Testing would cover influent, effluent, and biosolids or sewage sludge. This would provide a better understanding of the presence of PFAS in biosolids and sewage sludge generated in

⁴³ https://apps.leg.wa.gov/WAC/default.aspx?cite=173-308

Washington. It would provide information about seasonal fluctuations in PFAS levels and insight into which industries may be contributing to high levels.

Resource needs

This task requires funding for sampling and analysis. In addition, there could be costs associated with disposing of biosolids if PFAS levels are highly elevated.

E. Emerging needs

In addition to the recommendations outlined in the PFAS Chemical Action Plan, we identified two additional action items needed to reduce these chemicals in Washington. We identified these needs in the process of developing this strategy and they are broadly connected to several recommended actions in other categories in this plan.

We identified two action items in this category:

- 1. Hire a staff lead to respond to agricultural implications of PFAS use and contamination.
- 2. Work with manufacturers to help them replace PFAS in their products.

E.1 Address PFAS in agriculture

Problem identified: Washington State Department of Agriculture lacks dedicated staff to prepare for and respond to PFAS in agriculture

PFAS exposure in various agriculture products is an emerging issue. As we identify more water in the state containing PFAS, there is more concern about what this means for the food we grow, eat, and feed to livestock. Since the Department of Agriculture doesn't have dedicated staff to prepare for a response to PFAS in agriculture, this work hasn't started, and the response is lacking.

Recommended action E.1: Hire a staff lead to respond to agricultural implications of PFAS use and contamination

This action item would create a full-time position at the Department of Agriculture to take the lead on PFAS at the agency. Given the seriousness of these chemicals and the potential agricultural implications, this would allow the Department of Agriculture to coordinate internally and with other agencies to develop a plan for handling agriculture with PFAS. The agency may need to respond to PFAS contamination in animal feed, commercial food crops, or market foods. However, home-raised produce and non-commercial livestock products fall under Health's responsibility. The two agencies would collaborate due to the toxicology and human health exposure assessments.

Resource needs

This task requires a full-time operation research specialist, and the costs would be ongoing.

E.2 Address PFAS in consumer products

Problem identified: The presence of PFAS in consumer products will continue to contribute to contamination through the use and disposal of those products

Studies show that use of PFAS-containing consumer products release these chemicals into the environment, including into house dust. PFAS are released from clothing and textiles during laundering. Discarded items that contain PFAS ends up in landfills where they become another source of potential contamination.

Recommended action E.2: Work with manufacturers to help them replace PFAS in their products

Building on work currently done by Ecology's Hazardous Waste and Toxics Reduction Program, this action item would expand those efforts to companies that want to obtain voluntary material health certifications and chemical hazard assessments. This work would focus primarily on chemicals that can be used as alternatives to PFAS in products. Subsidies and reimbursements would help qualifying businesses pursue safer manufacturing of their products.

Resource needs

This task would require a part-time environmental scientist and funding to cover reimbursements and subsidies to qualifying participating businesses.

Conclusion

PFAS impact human health; build up in animals, fish, birds, plants, and people; don't break down in water, soil, or air; can travel large distances in water or air; and have different impacts on people or the environment. PFAS have been discovered above recommended federal and state levels in the drinking water supplies in Washington.

To effectively respond to these chemicals, we need a comprehensive and deliberate strategy that includes cleanup, remediation, and prevention, as well as research and testing activities in a variety of media. Our current approach of various agencies working independently to reduce PFAS is inefficient and ineffective. A coordinated approach is crucial.

We believe a new statewide response entity is key to effectively respond to this contamination. We need a centralized approach to coordinate activities and funding across state and local agencies. This would improve our ability to fully identify the PFAS response scope of work and associated costs—two tasks that have been challenging given the current approach (various agencies independently working on separate parts of the problem). This new entity would be able to provide a shared vision, goals, and pathway, which would improve health equity in environmental justice communities—and all communities—across the state.

Additional ways we recommend Washington reduces PFAS contamination across the state are:

- Requesting federal action to respond to PFAS.
- Requesting federal funding to help pay for cleanup and remediation efforts, such as drinking water filtration systems.
- Implementing the various action items detailed in this strategy.

PFAS is an urgent human and environmental health issue we continue to learn more about almost daily. This statewide strategy and overarching vision recommend actions to take based on current information and most pressing needs. It's important to consider this type of strategy as an ongoing process, as priorities will change after this plan's four-year timeframe.

Appendix A. PFAS Chemical Action Plan Recommendations

The authorizing proviso directs Ecology to develop the statewide funding strategy and "build upon the recommendations contained in the department's 2022 per- and polyfluoroalkyl substances chemical action plan." 44

The <u>PFAS Chemical Action Plan</u>⁴⁵ made 12 general recommendations, divided into four categories:

- 1. Ensure drinking water is safe.
- 2. Manage environmental PFAS contamination.
- 3. Reduce PFAS in products (not mentioned in proviso).
- 4. Understand and manage PFAS in waste.

Three of these categories roughly align with the categories mentioned in the proviso.

We summarize the 12 recommendations below for ease of reference. This numbering aligns with the PFAS Chemical Action Plan. It isn't the same numbering as recommended actions in this strategy.

Ensure safe drinking water

The PFAS Chemical Action Plan recommended the following actions to ensure drinking water is safe.

1.1 Identify funding for PFAS drinking water mitigation

The PFAS Chemical Action Plan concluded that water systems may incur a costly response to PFAS detections, especially when there is no responsible party identified. Without funding, public water systems and their ratepayers must absorb these costs. Lower-income and overburdened communities are less able to absorb unplanned ratepayer cost increases when PFAS contamination is identified in their water supply.

1.2 Provide technical support for site characterization, source investigation, and mitigation at contaminated sites

The PFAS Chemical Action Plan found that local water districts and governments often lack the expertise and resources to investigate sources of PFAS contamination. Technical assistance helps them understand the advantages and disadvantages of various options to reduce levels of

⁴⁴ Engrossed Substitute Senate Bill 5200: https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/Senate/5200-S.sl.pdf#page=113.

⁴⁵https://apps.ecology.wa.gov/publications/summarypages/2104048.html#:~:text=The%20Final%20PFA S%20Chemical%20Action,human%20health%20and%20the%20environment.&text=The%20mission%20 of%20the%20Department,preserve%2C%20and%20enhance%20Washington%27s%20environment

PFAS in water and soil. Appropriate actions are informed by site-specific conditions and a knowledge of evolving drinking water treatments and cleanup methods. Research into the unusual properties of PFAS will inform mitigation as replacement PFAS products make their way into the environment.

1.3 Support biomonitoring and other health studies to answer important health questions

The PFAS Chemical Action Plan concluded that biomonitoring could help us understand the best way to reduce human exposure to PFAS. Biomonitoring helps people compare their PFAS exposure level to national averages and could connect residents to health information as it becomes available.

Manage environmental contamination

2.1 Establish PFAS cleanup levels for soil and groundwater

Ecology establishes cleanup levels for hazardous substances in the environment to protect people, animals, and plants from potentially harmful chemical exposures. However, no enforceable federal or Washington regulatory standards currently exist to determine if a site with PFAS contamination requires cleanup; to regulate PFAS cleanup at contaminated sites; or to establish best practices for conducting a cleanup.

2.2 Partner with local organizations in communities with contaminated water or contaminated sites

When testing identifies PFAS in drinking water in a new community, it can be challenging to communicate effectively with area residents. Communities are unique; barriers to acting on public health advice can include social, economic, and systemic cultural and language obstacles for effective communication. These barriers disproportionately affect low-income and other historically overburdened communities, including communities of color.

During PFAS investigation and mitigation, state agencies should collaborate with local leadership and organizations to strengthen community awareness and engagement.

2.3 Work to prevent PFAS releases from firefighting foam use and manufacturing

PFAS-containing Class B firefighting foam has been associated with drinking water contamination in Washington. In their risk-based efforts to identify and mitigate PFAS in drinking water, both the military and Department of Health focus on firefighting foam release sites. Ecology will work proactively with industry, manufacturers, and businesses to eliminate releases to the environment from PFAS use in manufacturing or other processes.

Reduce PFAS in products

3.1 Reduce PFAS exposure from carpets and rugs, water and stain resistance treatments, and leather and textile furnishings

According to EPA, some of the most significant sources of human exposure to nine PFAS in the U.S. are carpets and commercial carpet-care liquids. Treated carpet in homes and offices can contribute to PFAS in indoor environments. Infants and children have higher exposure due to inhalation and ingestion of house dust.

3.2 Identify additional sources and uses of PFAS to consider in the second Safer Products for Washington cycle

Ingesting contaminated food and drinking water leads to the greatest portion of chronic exposure to PFAS (specifically to two types known as PFOS and PFOA) for the general population. People are exposed to PFAS in their homes through PFAS-containing products and house dust. Some occupations can be additional sources of exposure.

High PFAS levels were identified in ski waxes, leather samples, outdoor textiles, and some baking supplies. Indoor air and house dust studies indicate that PFAS exposure occurs from products in the home, such as carpet care liquids, nonstick cookware, food packaging, and waterproof clothing. Many other consumer products may contain PFAS ingredients. Research is needed to understand how these products contribute to human exposure.

3.3 Implement other reduction actions for PFAS in products

Actions need to be implemented to remove or reduce levels of PFAS from products that contribute to human or environmental exposure. Removing chemicals from consumer products can reduce chemicals in indoor air and dust. Investigating uses and regulatory actions can contribute to further reductions in exposures and releases to the environment from the priority consumer products containing PFAS. These actions directly impact human and environmental exposures.

Understand and manage PFAS in waste

4.1 Evaluate PFAS in wastewater treatment

PFAS travel from homes, businesses, and industry sources to publicly owned wastewater treatment plants. Once they enter the plant, PFAS may partition to different media (for example, solids and liquids). PFAS are subject to aerobic and anaerobic biological processes and transform into terminal PFAS compounds that resist further natural breakdown. Future treatment plant design and operation would benefit from a greater understanding of how different wastewater treatment technologies transform PFAS or remove them from the effluent stream.

4.2 Evaluate landfill PFAS emissions

Landfills contain a variety of waste including inert materials (like wood or ash), disposed consumer products, and various organic wastes and solvents. Decomposing waste and rainfall can create leachate that contains water, metallic ions, acids, and other contaminants including PFAS. Landfills manage these liquids differently, but they can be a point of PFAS release to the environment if leachate containing PFAS isn't collected in a lined system, or when leachate from lined landfills is sent to wastewater treatment.

4.3 Evaluate Washington biosolids management

The information gaps regarding biosolids are significant and currently reduce our ability to assess the risk from PFAS in biosolids land applied in Washington. Toxicity, concentration, and pathway of exposure determine the risks that contaminants pose to human health and the environment. Fundamental PFAS concentration data to characterize Washington biosolids is lacking. While we don't expect to find highly industrially impacted biosolids in Washington, this prevents accurate assessment of PFAS risk resulting from land application under the state biosolids program.

Appendix B. Summary of PFAS Actions in Other States

California

State agencies

The state of California has five primary agencies working on PFAS issues: The California Environmental Protection Agency, Department of Toxic Substances Control, Office of Environmental Health Hazard Assessment, California Department of Public Health, and the State Water Resources Control Board. Other state coordinating agencies—including CalRecycle, the California Air Resources Board, and California Department of Pesticide Regulation—have some activities related to PFAS as well.

The California Environmental Protection Agency has been coordinating with the federal EPA and other governmental agencies over PFAS concerns since 2012. This work focused on sampling public water supply wells and implementing national standards for air pollutants.

Much of California's work to address PFAS is currently done through their State Water Resources Control Board and Department of Toxic Substances Control. Biomonitoring California is an interagency effort between California Department of Public Health, the Office of Environmental Health Hazard Assessment, and Department of Toxic Substances Control to monitor various substances, including 12 different PFAS, in adults.

Most other work done to address PFAS is done by individual agencies. The Department of Toxic Substances Control has taken steps to potentially restrict the use of PFAS in some priority consumer products.⁴⁶

Funding

California has used General Fund dollars to fund PFAS work, including approximately \$80 million since 2021 for technical and financial assistance to drinking water systems.

Legislation

The California State Legislature is currently considering <u>SB 903</u>, ⁴⁷ which (as currently written) would take a number of actions to address PFAS including:

 Prohibiting the distribution and sale of all products containing intentionally added PFAS unless the state determines the use is unavoidable.⁴⁸

⁴⁶ In some ways, California's approach is similar to Ecology's Safer Products for Washington program; however, California's regulations require manufacturers to provide information such as an alternatives analysis or remove the chemical of concern from the product within the allowed timeframe.

⁴⁷ https://leginfo.legislature.ca.gov/faces/billStatusClient.xhtml?bill id=202320240SB903

⁴⁸ This mirrors the "unavoidable use" exemption from existing laws in Maine and Minnesota.

• Establishing a fee for "unavoidable use" applications, which would fund a PFAS Oversight Fund to cover the state's costs to administer the law.

Maine

State agencies

The state of Maine has three key agencies working on PFAS: The Maine Department of Environmental Protection; Department of Agriculture, Conservation and Forestry; and the Maine Center for Disease Control and Prevention through the Division of Environmental and Community Health. Funding for these agencies is separated through both state and federal resources.

Funding

The Maine Department of Environmental Protection has a <u>PFAS in products</u>⁴⁹ ban passed in 2021 and revised in 2024. The department expended over \$14 million from July 1, 2018, through November 30, 2023, on personnel and expenses related to PFAS (over \$5 million in personnel and over \$9 million in expenditures). Spending exponentially increased once the Maine Legislature:

- Added 11 full-time employees and six limited period positions.
- Provided \$20 million to both:
 - o Fund soil and groundwater sampling.
 - Install and maintain drinking water filtration systems for private drinking groundwater wells impacted by PFAS from the land application of sewage sludge.

Maine's Department of Environmental Protection obtained an additional \$5 million in federal resources from the American Recovery Program; they used this to provide clean drinking water to residents with PFAS-impacted private drinking wells, provided they're above Maine's standard and the impacts are tied to a Department of Environmental Protection licensed site.

The Maine Department of Agriculture, Conservation and Forestry has a Governor-created PFAS fund that started in 2022. The Legislature appropriated \$60 million from the general fund to support farmers whose land and water are contaminated with PFAS.

Maine Department of Agriculture, Conservation and Forestry developed an implementation plan to guide how to spend the money with the assistance of an advisory committee. The <u>Plan for Administration of the Fund to Address PFAS Contamination</u> 50 was adopted by the PFAS Fund Advisory Committee in July 2023. This committee includes Senate and House of Representatives members, commissioners representing state departments, and public health

⁴⁹ https://www.maine.gov/dep/spills/topics/pfas/PFAS-products/

⁵⁰ https://www.maine.gov/dacf/ag/pfas/docs/pfasfund/admin-plan-pfas-fund-final.pdf

experts. The plan includes 23 strategies to achieve the objectives described in the PFAS fund's enabling legislation.

Maine's Department of Environmental Protection set up funds to collect sludge and septage handling fees. It receives EPA grants for ambient and fish tissues monitoring. Additionally, there are monthly interagency coordination meetings with the other state agencies that help with funding challenges. There is monthly stakeholder collaboration, which allows for feedback and relationship building.

Legislation

Maine adopted a first-in-the-nation bill that requires any person who extracts water to sell it as bottled water to test that water for PFAS and disclose the results. Maine is the first state to establish PFAS standards for milk and animal feed.⁵¹

Maine adopted a policy this year to streamline their PFAS law's implementation to harmonize with Minnesota and avoid duplicating efforts. Maine collaborates with neighboring Northeastern states through the Northeast Waste Management Officials' Association. This facilitates state and federal agency interaction and harmonizes policy and resource sharing.

Michigan

State agencies

The state of Michigan has a PFAS Action Response Team that is a national example of effectively managing statewide PFAS work. Michigan's PFAS Action Response Team is a group of seven state agencies working together to coordinate their PFAS-contamination response. The PFAS Action Response Team became an enduring body under an Executive Order in 2019. Their goal is to protect public health by identifying sources of PFAS, addressing PFAS contamination at the sources, and working with local health jurisdictions to protect people in areas with PFAS-impacted groundwater.

Funding

Funding for Michigan's PFAS response stems from state and federal sources, grants, and loans, and each agency with its own budget. For the first four years, the primary source of PFAS funds was from the Michigan State Legislature.

- State funds come from department budgets—from general funds, remediation funds, and direct appropriations.
- Federal funds come from:
 - o The American Rescue Plan.

⁵¹ www.maine.gov/dep/spills/topics/pfas/Maine%20PFAS%20Screening%20Levels_Rev_12_4_23.pdf

- Drinking Water Bipartisan Infrastructure Law Emerging Contaminant programs such as Emerging Contaminants Small and Disadvantaged Communities grant program.
- o Infrastructure grants:
 - Bipartisan Infrastructure Law Emerging Contaminant program.
 - Drinking Water State Revolving Fund.
 - Clean Water State Revolving Fund.
 - Direction appropriations.

Minnesota

State agencies

The Minnesota Pollution Control Agency, Department of Natural Resources, and Department of Health are the three main agencies working on PFAS reduction in the state, though other agencies are involved in the work, including the Department of Agriculture.

Funding

Using funding from a lawsuit settlement with 3M, Minnesota is executing a comprehensive plan to ensure that residents in the southeast Twin Cities metro area have clean and safe drinking water. The settlement stems from a 2010 lawsuit filed by Minnesota's attorney general alleging that 3M's production of PFAS chemicals had damaged drinking water and natural resources. The company paid \$850 million to settle the case. Minnesota's Pollution Control Agency and Department of Natural Resources are co-trustees of the settlement money, and the funding has expedited project planning and implementation.

Strategy

Restrictions

The state is tackling sources of PFAS.

- As of July 1, 2020: Firefighting foam used for testing or training must not contain PFAS, except in some instances.
- As of January 1, 2024: Additional uses of PFAS firefighting foams and PFAS added to food packaging were both banned.
- As of January 1, 2025: Additional restrictions on PFAS intentionally added to 11 categories of consumer products go into effect. This will become a full ban in 2032.

Cleanup

Prevention is only one part of the solution strategy; the state's policy makers recognize cleanup will require more funds. Minnesota's PFAS Blueprint⁵² is a strategy that identifies both short-

⁵² https://www.pca.state.mn.us/air-water-land-climate/minnesotas-pfas-blueprint

and long-term opportunities to manage PFAS in the environment and protect families and communities. The plan embraces three strategies:

- Prevent PFAS pollution wherever possible.
- Manage PFAS pollution when prevention isn't feasible, or pollution has already occurred.
- Clean up PFAS pollution at contaminated sites.

The Pollution Control Agency commissioned an <u>independent study</u>⁵³ as part of Minnesota's PFAS Blueprint. Key findings include:

- Removing and destroying PFAS from water and biosolids leaving Minnesota's wastewater treatment facilities could cost between \$14 billion and \$28 billion over 20 years.
- PFAS can be bought for \$50-\$1,000 per pound (according to Minnesota Pollution Control Agency estimates), but costs between \$2.7 million and \$18 million per pound to remove and destroy from municipal wastewater, depending on facility size.
- Small wastewater treatment facilities would face per-pound costs over six times greater than large facilities, due to economies of scale.
- New "short-chain" types of PFAS are more difficult and up to 70% more expensive to remove and destroy compared to old "long-chain" PFAS.⁵⁴

New Jersey

State agencies

New Jersey is still contending with the decades of pollution by such companies as Chemours, DuPont, Solvay, and 3M, as well as various military bases. The New Jersey Department of Environmental Protection is the lead agency with additional work performed by the New Jersey Department of Health and the New Jersey Drinking Water Quality Institute. In addition, the multi-state Delaware River Basin Commission is actively involved with addressing PFAS issues in New Jersey.

Strategy

Testing

The Department of Environmental Protection first conducted a statewide occurrence study of PFAS in drinking water in 2006, which focused on PFOA and PFOS near facilities that used, handled, stored, and/or manufactured PFOA and/or other chemicals. This study revealed that, out of the 23 drinking water sources sampled:

⁵³ https://www.pca.state.mn.us/news-and-stories/groundbreaking-study-shows-unaffordable-costs-of-pfas-cleanup-from-wastewater

⁵⁴ The number of carbon atoms determines a PFAS molecule's length. Generally, "short-chain" PFAS have fewer than 6–8 carbon atoms while "long-chain" molecules have more than 6 carbon atoms.

- PFOA were detected in 65% of the systems tested.
- PFOS were detected in 30% of the systems tested.

A second occurrence study in 2009–2010 revealed that at least one PFAS compound was detected in 70% of the samples tested.

In 2018, the agency performed an assessment of 13 PFAS compounds in the ecosystems of 11 waterways across New Jersey, which included analyzing surface water, sediment, and fish tissue samples. The results of this study revealed all surface water samples, and most sediment samples, contained multiple PFAS compounds. Fish from all waterbodies contained PFAS compounds, resulting in the department needing to issue more restrictive fish consumption advisories for 10 of these sites.

Regulations and standards

The Department of Environmental Protection has adopted drinking water standards, regulations expanding testing of private wells, regulations expanding testing requirements and pollutant listings for discharges to groundwater, and rules designating some PFAS as hazardous substances. The department is also responsible for PFAS-contamination cleanup oversight, especially those around various PFAS manufacturing sites for DuPont, Solvay, Chemours, and 3M.

New Jersey adopted legislation requiring the Department of Environmental Protection and the Drinking Water Quality Institute to study PFAS regulation and treatment. The study will assess how feasible it would be to establish maximum contaminant levels or other standards for the entire chemical class or specific subclasses or PFAS mixtures in drinking water, rather than for each substance. The study will include an assessment of treatment technologies that may effectively remove PFAS from drinking water or wastewater.

Funding

New Jersey's state budget documents show various types and sources of funding for the Department of Environmental Protection but don't contain any line items or specific appropriations for PFAS-related work.

New York

State agencies

In February 2016, New York State created a Water Quality Rapid Response Team to quickly investigate water contamination reports across New York and take corrective action to address these contamination issues. The team is led by the New York State Departments of Environmental Conservation and Health. It is seen as a national model to research, identify, and quickly address water contamination in communities. The Water Quality Rapid Response Team has been working to identify and address drinking water issues across the state, including sampling public water and private wells around facilities suspected or known to have used PFAS.

Funding

New York Clean Water Infrastructure Act

The New York Clean Water Infrastructure Act of 2017 appropriated \$2.5 billion to provide direct support to help communities:

- Upgrade aging drinking water and wastewater infrastructure.
- Protect drinking water sources by conserving open space and addressing contaminants, prioritizing regional collaboration at the watershed scale.

This created thousands of jobs in the process.

The Clean Water Infrastructure Act includes funding to upgrade drinking water infrastructure with modern filtration systems, connect contaminated private drinking water wells to regulated public systems, and provide additional support for the State Superfund program.

In addition, the Clean Water Infrastructure Act of 2017 directed Department of Environmental Conservation—in consultation with Department of Health—to build a comprehensive database so they can evaluate and prioritize over 1,750 inactive solid waste sites statewide. This will help them determine any potential impacts from PFAS and/or other contaminants of concern in drinking water sources from these sites and provide remediation and mitigation recommendations for sites impacting drinking water sources.

As a part of this process, the departments conduct drinking water sampling in areas where groundwater may have been impacted to verify drinking water quality and identify appropriate next steps.

Firefighting foam

Using funding through the Environmental Protection Fund, Department of Environmental Conservation worked with the Division of Homeland Security and Emergency Services to launch a collection program to remove and dispose of PFAS-containing firefighting foam. Through the \$600,000 investment, Department of Environmental Conservation worked with municipal fire and emergency response departments across the state to dispose of the contaminated foam. As of summer 2018, more than 25,000 gallons of contaminated foam was collected and properly disposed; collections are ongoing.

In 2023, legislation was introduced (but not adopted) that would have required manufacturers of PFAS-containing firefighting foam to recall any of their product still in existence in New York.

North Carolina

State agencies

North Carolina is taking decisive action to address PFAS impacts, with a focus on both immediate and long-term solutions. Like New Jersey, North Carolina faces significant environmental challenges due to the presence of Chemours (a PFAS manufacturer) and extensive contamination across the state. The North Carolina Department of Environmental

Quality developed a comprehensive Action Strategy. This strategy includes actions already underway across the department as well as future actions.

North Carolina's strategy involves a thorough review of PFAS compounds and exposure pathways in collaboration with the Secretaries' Science Advisory Board, which examines scientific literature, methods for grouping PFAS, and reference doses. The Department of Environmental Quality is analyzing prevalent PFAS compounds in various environmental media and developing new analytical methods and toxicology protocols. The evaluation includes potential PFAS impacts from sources such as firefighting foam, landfill leachate, and public treatment works. Additionally, the Department of Environmental Quality is establishing an air deposition monitoring network, conducting private well and surface water testing, and planning for fish tissue collection and analysis.

The plan is structured around three primary goals:

- Protect communities by identifying at-risk populations, expanding scientific knowledge, and prioritizing PFAS emission testing and reporting. Agencies and boards will collaborate to refine the PFAS Priority List and adjust regulatory standards based on new data.
- Protect drinking water by setting regulatory standards for contaminated water, encouraging pollution prevention, and supporting initiatives to reduce future PFAS releases. This includes developing standards for groundwater, surface water, and drinking water, as well as helping public water systems address PFAS contamination.
- Clean up existing contamination by continuing remediation efforts at known PFAS sites
 and ensuring that responsible parties are held accountable. The Department of
 Environmental Quality will set remediation goals for contaminated sites and use the
 state's authority to recover cleanup costs from polluters.

Additionally, the state recently launched a pilot program under the Bernard Allen Emergency Drinking Water Fund to provide treatment systems for private wells with PFAS contamination that equals or exceeds health advisory levels, on a scale based on household income. The program is meant to address PFAS contamination when there is no designated responsible party that provides alternate drinking water.

Funding

The 2023–2025 biennial operating budget allocated:

- \$67.5 million from the general fund for research projects, PFAS-containing firefighting foam management, and drinking water systems.
- Approximately \$1.8 million for additional full-time employees and operating expenses for issues related to PFAS and other emerging compounds.
- \$700,000 for emergency drinking water supplies related to PFAS needs.

The budget also appropriated federal funds of approximately \$50 million for grants covering projects related to emerging compounds, such as PFAS, and almost \$31 million for grants to public water systems needing to address PFAS and other emerging contaminants.

Appendix C. Prioritized List of Recommendations

The main priority for PFAS reduction is to reduce human exposure to this group of toxic chemicals. This appendix identifies the most immediate needs, focusing first on those that subject matter experts identified as ready to implement.

All recommendations include efforts to prioritize overburdened communities and vulnerable populations and give impacted communities increased opportunities to participate in solutions.

We sorted the recommended actions into categories of high, medium, and low priority by considering these four questions:

Does the action support efforts to reduce harm or lower PFAS exposure?

These efforts investigate and stop exposures to people, investigate and stop exposures to wildlife, and support the health of impacted communities. The recommendations may include:

- Risk-based investigations of PFAS in drinking water, fish, livestock, gardening pathways, and other foods.
- Short-term mitigation of those risks to stop human exposure such as posting fish consumption advisories, providing filters for water, and supporting health care providers who serve impacted communities so they can better assess and monitor impacted communities' health.

Working with communities to build the tools and skills to lower their own exposure to PFAS is a critical part of building trust and reducing harm.

 Does the action support coordination between federal, state, and local agencies and foster intra-agency collaboration at large organizations?

This includes implementing PFAS-reduction activities, tracking new priorities, and coordinating work in an organized, triaged manner. An unsystematic approach is an inefficient use of resources and can lead to duplicated efforts, missed crucial responses, and failure to include all interested parties in PFAS response work.

Does the action support investigation and long-term cleanup of PFAS contamination?

PFAS don't break down and will continue to cycle through the environment. Investigating and cleaning up contaminated sites with high levels of PFAS is important to reduce contamination and protect people and the environment. This is especially important when contamination impacts drinking water.

Does the action support PFAS contamination prevention?

These efforts stop releases at their source, investigate and limit new PFAS exposure from consumer products and businesses, and prevent PFAS reservoirs from releasing into the environment. The cost of cleanup is exponentially higher than production and purchase of the chemicals.

This appendix includes three focused lists of near-term, implementation-ready recommended actions to reduce PFAS. They are divided into high, medium, and low priority based on each task's category. For the lead agency, the recommended actions are those they plan to implement directly. This list doesn't comprehensively look at all sources of PFAS but focuses on what could realistically be done in the 2025–2027 and 2027–2029 biennia if funding were provided for the recommended action.

It should be noted that these prioritized lists included input from the agencies involved in the drafting of the statewide funding strategy, but the group didn't come to a consensus as to how prioritization would occur. Additional prioritization of work will be done by lead agencies as funding becomes available.

These tables include a column noting whether they are included in an agency decision package for the 2025–2027 Biennium. If so, the decision package title is provided.

High Priority

Table 3: List of high priority recommended actions.

Task	Task Title	Lead Agency	Ongoing	Included in 2025–27 DP
A.1	Establish a new statewide PFAS coordinating entity	New	Yes	No
A.2	Establish a unified fund for expedited response to PFAS		Yes	No
A.3	Coordinate legislative and policy actions and implement Chemical Action Plan recommendations		Yes	Yes CE – PFAS Response
A.4	Hire agency PFAS Response Coordinators	Ecology	Yes	Yes CE – PFAS Response
A.5	A.5 Incorporate considerations for overburdened communities and vulnerable populations		Yes	Yes CE – PFAS Response
B.1	Implement new federal standards for PFAS in drinking water	Health	No	No
B.2	Fund drinking water testing of private wells and Group B water systems in areas with PFAS contamination	Health	No	No

Task	Task Title	Lead Agency	Ongoing	Included in 2025–27 DP
В.3	Fund treatment of public water systems impacted by PFAS in coordination with federal funding and existing cleanup efforts	Health	No	No
B.4	Fund alternative water for individual wells and Group B water systems	Health	No	No
B.5	Support public water systems' customers with a safer drinking water alternative	Health	Yes	No
B.6	Test home-raised livestock and food gardens for PFAS and develop actionable advice	Health	No	Yes PF – PFAS Assessment and Engagement
B.7	Fund PFAS biomonitoring (blood serum testing)	Health	Yes	Yes PF – PFAS Assessment and Engagement
B.8	Promote community health in areas affected by PFAS	Health	Yes	Yes PF – PFAS Assessment and Engagement
B.9	Monitor and study health impacts of PFAS	Health	Yes	Yes PF – PFAS Assessment and Engagement

Task	Task Title	Lead Agency	Ongoing	Included in 2025–27 DP
C.1	Expand Ecology's PFAS cleanup work	Ecology	Yes	Yes CE – PFAS Response and Capital Project No. 40000719 2025-27 PFAS Response
C.3	Monitor for PFAS in freshwater fish	Ecology	Yes	No
C.4	Monitor PFAS concentrations in marine and anadromous species	Fish and Wildlife	Yes	Yes TB – Managing Emergent Toxic Threats
C.5	Monitor PFAS concentrations in shellfish	Health	Yes	No
C.7	Partner with local communities with contaminated water or contaminated sites	Health	Yes	Yes PF – PFAS Assessment and Engagement

Medium Priority

Table 4: List of medium priority recommended actions.

Task	Task Title	Lead Agency	Ongoing	Included in 2025-27 DP
C.2	Expand grant programs to include PFAS	Ecology	Yes	No
C.6	C.6 Expand PFAS monitoring and contamination investigations in the environment		Yes	Yes CE – PFAS Response

Task	Task Title	Lead Agency	Ongoing	Included in 2025-27 DP
C.8	Assist state and local governments and fire districts with firefighting foam that contains PFAS	Ecology	Yes	Yes Capital Project No. 40000719 2025-27 PFAS Response
D.1	Monitor PFAS in wastewater treatment	Ecology	No	Yes CE – PFAS Response
D.2	Study PFAS in industrial waste discharge	Ecology	No	No
D.3	Identify PFAS sources for publicly owned treatment works	Ecology	Yes	No
D.4	Develop stormwater best management practices for PFAS	Ecology	No	Yes CE – PFAS Response

Low Priority

 Table 5: List of low priority recommended actions.

Task	Task Title		Ongoing	Included in 2025-27 DP
C.9	Develop an understanding of PFAS in industry, manufacturers, and businesses through data analysis	Ecology	Yes	Yes CE – PFAS Response
D.5	D.5 Study PFAS in landfill leachate and groundwater		No	No
D.6	D.6 Study PFAS in biosolids		No	No
E.1	E.1 Address PFAS in agriculture		Yes	No
E.2	Address PFAS in consumer products	Ecology	Yes	No

Appendix D. List of Funds Available for PFAS Work

Table 6 lists current state funds with purposes that could cover one or more types of PFAS work. Including a fund in the table doesn't suggest the fund should be used for PFAS work—only that the fund's stated purpose could legitimately cover one or more PFAS response activities, including those related to drinking water.

Table 6: Current funds available for PFAS work.

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
789	Advanced Environmental Mitigation Revolving Account	Used to improve permit processing and environmental protection on transportation projects. Includes but is not limited to: purchase of property, water, or air rights; development of property for improved environmental management; engineering costs necessary for such purchase and development; and the use of mitigation sites to fulfill project environmental permit requirements.	All moneys received by the department from internal and external sources for the purposes of conducting advanced environmental mitigation.	Transportation
12C	Affordable Housing for All Account	To be used for grants for affordable housing programs, per RCW 36.22.250(5); program administration and technical assistance.	Supporting building operation and maintenance costs of housing projects or units within housing projects eligible to receive housing trust funds, that are affordable to very lowincome households with incomes at or below 50% of the area median income, and that require a supplement to rent income to cover ongoing operating expenses.	Commerce

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
199	Biosolids Permit Account	Used to administer permit applications review related plans and documents, monitor, evaluate, conduct inspections, oversee the performance of delegated program elements, provide technical assistance, and support overhead expenses that are directly related to these activities.	Expenditures from the account may be used only for the purposes of administering permits under this chapter.	Ecology
26V	Capital Community Assistance Account	Used for capital costs to provide community support services, and for infrastructure and other capital expenditures to support the well-being of communities.	Moneys in the account may be used for capital costs to provide community support services, and for infrastructure and other capital expenditures to support the well-being of communities.	Commerce
15H	Cleanup Settlement Account	To conduct remedial actions at a specific facility or to assess or address the injury to natural resources caused by the release of hazardous substances from a facility.	Expenditures from the cleanup settlement account may only be used to conduct remedial actions at the specific facility or to assess or address the injury to natural resources caused by the release of hazardous substances from that facility for which the moneys were deposited in the account. Conducting remedial actions or assessing or addressing injury to natural resources includes direct expenditures and indirect expenditures such as department oversight costs.	Ecology

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
04R	Drinking Water Assistance Account	To assist local governments and water systems to provide safe and reliable drinking water and to administer the program. This is also known as the Drinking Water State Revolving Fund.	Moneys in the account may only be used, consistent with federal law, to assist local governments and public water systems to provide safe and reliable drinking water through a program administered through the department and for other activities authorized under federal law.	Health
05R	Drinking Water Assistance Administrative Account	The administrative portion of the program is to assist local governments and water systems in providing safe and reliable drinking water.	Moneys in the account may only be used, consistent with federal law, to assist local governments and public water systems to provide safe and reliable drinking water through a program administered through the department and for other activities authorized under federal law.	Health
24N	Fish, Wildlife, and Conservation Account	To be used only for the purposes of Title 77.12 RCW, including for the payment of principal and interest on bonds issued for capital projects.	Moneys in the limited fish and wildlife account and fish, wildlife, and conservation account created in RCW 77.12.170 may be used only for the purposes of this title. (RCW 77.12.071 authorizes sampling of fish, wildlife, and shellfish by department employees.)	Fish and Wildlife

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
001	General Fund	To account for all financial resources of the state except those required to be accounted for in another fund. The general fund is the principal state fund supporting the operation of the state.	As appropriated by the Legislature.	Office of Financial Management
207	Hazardous Waste Assistance Account	Provide technical assistance and compliance education assistance to hazardous substance users and waste generators; grants to local governments; and administration of this chapter.	Moneys in the hazardous waste assistance account may be spent only for the purposes of this chapter.	Ecology
096	Highway Infrastructure Account	Used for highway loans, grants, or other means of assistance, in equal portions to public or private entities building surface transportation facilities in the state. Legislative intent is that projects representing critical mobility or economic development needs and involving various transportation modes and jurisdictions receive top priority in the use of these funds.	Loans, grants, or other means of assistance, in amounts equal to all or part of the cost, to public or private entities building surface transportation facilities in this state.	Transportation
11P	Large On-Site Sewage Systems Account	Used to provide training and technical assistance to large on-site sewage system owners and operators.	Provide training and technical assistance to large on-site sewage system owners and operators.	Health

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
104	Limited Fish and Wildlife Account	Protection of state wildlife; administrative and certain operating expenses of the Department of Fish and Wildlife per Title 77.12 RCW; certain administrative costs of the Department of Licensing; and administration and enforcement of state game laws.	Moneys in the limited fish and wildlife account and fish, wildlife, and conservation account created in RCW 77.12.170 may be used only for the purposes of this title. (RCW 77.12.071 authorizes sampling of fish, wildlife, and shellfish by department employees.)	Fish and Wildlife
784	Miscellaneous Transportation Programs	Used to administer pass- through federal funds to local governments, public or private reimbursable transportation services, and other reimbursable activities as recommended by the Legislative Transportation Committee and approved by the Office of Financial Management.	Miscellaneous transportation services provided by the department that are reimbursed by other public and private entities. (Only applicable to projects paid for by other entities – e.g., federal grant to reimburse DOT.)	Transportation
23N	Model Toxics Control Capital Account ⁵⁵	Used for the improvement, rehabilitation, remediation, and cleanup of toxic sites.	Moneys in the model toxics control capital account must be used for the improvement, rehabilitation, remediation, and cleanup of toxic sites and other capital-related expenditures for programs and activities as identified in the statute.	Ecology

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 $^{^{\}rm 55}$ The proviso asked us to exclude MTCA accounts in this report.

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
23P	Model Toxics Control Operating Account	Used to carry out administrative and service activities related to hazardous waste planning; solid waste planning; hazardous waste cleanup; state matching funds required under federal law; financial assistance for local governments; reduction and recycling of household hazardous wastes; oil spill prevention and response; water and environmental health protection programs; air quality programs; or plastic or polystyrene foam clean-up.	Moneys in the model toxics control operating account must be used only to carry out the purposes of this chapter, including specified purposes.	Ecology
23R	Model Toxics Control Stormwater Account	Used only to carry out operating and capital programs, activities, and projects directly relating to stormwater activities defined in statute, including but not limited to stormwater pollution control projects and activities that protect or preserve existing remedial actions or prevent hazardous clean-up sites; and stormwater financial assistance to local governments that assist in compliance to the purpose of this chapter.	Moneys in the model toxics control stormwater account must be used for operating and capital programs, activities, and projects identified in the statute.	Ecology
218	Multimodal Transportation Account	Expenditures from the account are restricted for transportation purposes only.	Expenditures from the account may be used only for transportation purposes.	Transportation

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
22L	Public Use General Aviation Airport Loan Revolving Account	To provide direct loans to political subdivisions of the state- and privately-owned airports for the purpose of improvements at public-use airports that primarily support general aviation activities.	The community aviation revitalization board may make direct loans to airport sponsors of public use airports in the state for the purpose of airport improvements that primarily support general aviation activities.	Transportation
12K	Puget Sound Scientific Research Account	For research programs and projects.	Expenditures from the account may be used only for research programs and projects selected pursuant to the process developed and overseen by the Puget Sound science panel as provided in the statute.	Puget Sound Partnership
20R	Radioactive Mixed Waste Account	Expenditures may be used only for carrying out the department's powers and duties under Chapter 70A.300 RCW.	Expenditures from the account may only be used for carrying out the department's powers and duties under this chapter related to the regulation of facilities that treat, store, or dispose of mixed waste or mixed waste facilities that are undergoing closure.	Ecology
04M	Recreational Fisheries Enhancement	To enhance recreational fisheries programs.	Expenditures from the account may be used only for recreational fisheries enhancement programs identified in Chapter 77.105 RCW. Under no circumstances may moneys from the account be used to backfill shortfalls in other state funding sources.	Fish and Wildlife

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
209	Regional Fisheries Enhancement Group Account	To provide financial assistance to regional fisheries enhancement groups to participate in enhancing the state's salmon population including, but not limited to, salmon research, increased natural and artificial production, and habitat improvement.	Expenditures from the account may be used for the sole purpose of fisheries enhancement and habitat restoration by regional fisheries enhancement groups.	Fish and Wildlife
200	Regional Fisheries Enhancement Salmonid Recovery Account	Used for fisheries enhancement and habitat restoration by regional fisheries enhancement groups.	Expenditures from the account may be used for the sole purpose of fisheries enhancement and habitat restoration by regional fisheries enhancement groups.	Fish and Wildlife
03R	Safe Drinking Water Account	To ensure the people of the state have a safe water supply through regulation of public water systems.	Expenditures from the account may be used by Health to carry out the purposes of chapter 304, Laws of 1991, and to carry out contracts with local governments in accordance with this chapter.	Health
N05	Small, Underserved, and Disadvantaged Communities	To assist small, underserved, and disadvantaged communities in meeting the Safe Drinking Water Act.	Moneys in the account may only be used, consistent with federal law, to assist local governments and public water systems to provide safe and reliable drinking water through a program administered through the department and for other activities authorized under federal law.	Health

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
051	State and Local Improvements Revolving Account	For the planning, acquisition, construction, and improvement of public waste disposal facilities in this state.	Used exclusively for the purpose of providing funds for the planning, acquisition, construction, and improvement of public waste disposal facilities in this state.	Ecology
055	State and Local Improvements Revolving Account — Waste Facilities 1980	An account fund used to provide funds for planning, design, acquisition, construction, and improvement of public waste disposal and management systems or for purposes of assisting a public body to obtain an ownership interest in waste disposal and management facilities and/or defray a part of the payments made by a public body to a service provider under a service agreement entered into pursuant to RCW 70.150.060 in this state.	Used exclusively for the purpose of providing funds to public bodies for the planning, design, acquisition, construction, and improvement of public waste disposal and management facilities, or for purposes of assisting a public body to obtain an ownership interest in waste disposal and management facilities and/or to defray a part of the payments made by a public body to a service provider under a service agreement.	Ecology
057	State Building Construction Account	Pay for capital projects authorized by bonding authorities.	As appropriated by the Legislature.	Office of Financial Management
032	State Emergency Water Projects Revolving Account	Solely for the planning, acquisition, construction, and improvement of water supply facilities, withdraw and distribute water to alleviate emergency water supply conditions, and the payment of expenses incurred in the issuance and sale of bonds and notes authorized by the creating act and amendments thereto.	Decodified.	Ecology

Fund	Fund Name	Fund Description	Statutory Allowable Uses	Agency
044	Waste Reduction/ Recycling/ Litter Control	For waste reduction, litter control, recycling activities, and composting activities.	20% to the department for local government funding programs for waste reduction, litter control, recycling activities, and composting activities by cities and counties.	Ecology
727	Water Pollution Control Revolving Account	To be used for water pollution revolving fund loan program costs such as administration costs and information and data system costs.	The department shall use the moneys in the water pollution control revolving fund to provide financial assistance as provided in the Clean Water Act and as provided in statute.	Ecology