

MOVE AHEAD WASHINGTON STORMWATER RETROFIT

2023 Legislative Report

WSDOT Environmental Services Office September 18, 2023

Title VI Notice to Public It is the Washington State Department of Transportation's (WSDOT) policy to assure that no person shall, on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For additional information regarding Title VI complaint procedures and/or information regarding our non-discrimination obligations, please contact OEO's Title VI Coordinator at (360) 705-7090. Americans with Disabilities Act (ADA) Information This material can be made available in an alternate format by emailing the Office of Equal Opportunity at wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4ADA(4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

Table of Contents

Introduction	1
Move Ahead Washington stormwater retrofit proviso	1
Move Ahead Washington proviso reporting	1
Urgency of implementation to address 6PPD and other pollutants, salmon recovery, an health disparities	
First year program accomplishments	3
Outreach, communications, transparency, and trust-building	4
Stormwater retrofit prioritization update (in progress)	7
Stormwater features inventory	7
Partnerships	8
Green stormwater infrastructure career development	9
Project delivery and funding	10
Anticipated funding needs	10
Benefits of immediate funding	11
Projects awaiting funding	12
Urban Stormwater Partnership - I-5 Ship-Canal Bridge Pilot (Seattle) update	12
Research	13
Conclusion	15

Figures

Figure 1. Illustrates harm caused by 6PPD-quinone for coho and other fish in some locations.	2
Figure 2. Stormwater retrofits can improve water quality, ecosystems, and human health	2
Figure 3. Engagement events correlated with Survey123 participation.	5
Figure 4. WSDOT outreach and Survey123 produced these recommended priority stormwater retrofit locations from tribes, local agencies, and interested parties as of August 2023	
Figure 5. Current funding versus optimal delivery.	10
Tables	
Table 1. Outreach and engagement events January through August 2023	5

Acronyms and Abbreviations

AASHTO American Association of State Highway Transpiration Officials
CABS compost-amended biofiltration swale
Ecology Washington State Department of Ecology
FHWA Federal Highway Administration
GIS geographic information system
GSI green stormwater infrastructure

HEAL Healthy Environment for All MAW Move Ahead Washington

MVFS Modified vegetated filter strip
NMFS National Marine Fisheries Service

NPDES National Pollutant Discharge Elimination System

USFWS US Fish and Wildlife Service

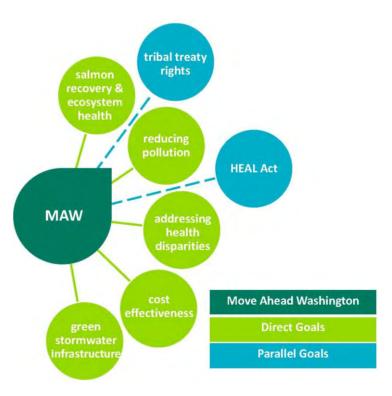
WSDOT Washington State Department of Transportation

Introduction

Vehicles traveling on roadways are a major source of pollution. There is a new urgency to address the toxic effects of stormwater on the environment and human health with the recent discovery of 6PPD-quinone, a chemical that leaches from tires which is lethal to coho salmon and harmful to other fish. Additionally, a federal, state, local agency, and tribal focus on improving water quality and ecosystem health in Washington adds to the need for action. Washington State Department of Transportation (WSDOT) recognizes that the state transportation system contributes to stormwater impacts and is committed to avoiding, minimizing, and mitigating the harmful effects of stormwater.

Move Ahead Washington stormwater retrofit proviso

The 2022 Washington State Legislature, through Senate Bill 5975 Section 303 (3), authorized \$500 million over 16 years beginning in 2023 for WSDOT stormwater retrofits as part of the Move Ahead Washington (MAW) funding package to enhance stormwater treatment from existing roads and infrastructure with an emphasis on green infrastructure retrofits. The Legislature directed WSDOT to prioritize projects that focus on benefits to salmon recovery and ecosystem health, reducing toxic pollution, addressing health disparities, and cost effectiveness. Of the stormwater retrofit funding, the Legislature provided \$6 million in the 2023/2025 biennium for the Urban Stormwater Partnership - I-5 Ship-Canal Bridge Pilot (Seattle). Move Ahead Washington goals dovetail with the state's Healthy Environment for All (HEAL) Act and support tribal treaty rights.



Move Ahead Washington proviso reporting

Through this legislation, WSDOT is directed to submit progress reports on its efforts to reduce the toxicity of stormwater runoff from existing infrastructure, recommendations for addressing barriers to innovative solutions, and anticipated demand for funding each biennium. This is the first report in a series to fulfil that requirement. It is the intent of the WSDOT Environmental Services Office to submit a year-one proviso report in 2023 followed by biennial reports in even years as follows: 2024, 2026, 2028, etc. through the 16-year program.

Urgency of implementation to address 6PPD and other pollutants, salmon recovery, and health disparities

The discovery of 6PPD-quinone, with its lethal effects to coho salmon, harm to other fish (Figures 1 and 2), and uncertainty of its broader implications on the environment and human health has led to a new urgency to mitigate the impacts of stormwater across Washington State and beyond. Washington is out in front on this issue through advanced research efforts by state agencies and universities, and as demonstrated by the Legislature through stormwater retrofit funding in MAW. Historically there has been an inability to meet the pace of stormwater retrofits needed to address the scale of the problem and there is a need to move quickly and ramp up efforts to mitigate stormwater effects on human health, and habitat and species recovery, including salmon and orca recovery, and to uphold tribal treaty rights.



Figure 1. Illustrates harm caused by 6PPD-quinone for coho and other fish in some locations.



Figure 2. Stormwater retrofits can improve water quality, ecosystems, and human health.

The intent of Move Ahead Washington stormwater retrofit funding is to provide WSDOT funding to greatly increase stormwater mitigation on state roads and infrastructure. The goals of MAW are mirrored in other national and regional goals, laws, and treaties including:

- Clean Water Act, National Pollutant Discharge Elimination System (NPDES)
- Puget Sound Federal Task Force Action Plan 2022-2026
- Recovery of Puget Sound and Lower Columbia Estuaries, two of 28 estuaries in the Environmental Protection Agency's <u>National Estuary Program</u>
- Tribal treaties
- Washington State Water Pollution Control Act
- The Governor's salmon and orca recovery goals
- Puget Sound Partnership's Action Agenda for Puget Sound
- HEAL Act, environmental justice, and addressing inequities
- <u>Puget Sound Regional Counsel Vision 2050</u> related to goals of restoring the health of Puget Sound

First year program accomplishments

When Move Ahead Washington allotted \$500 million over 16 years for stormwater retrofits, WSDOT moved to ramp up efforts to deliver this program and significantly increase WSDOT's existing stormwater retrofit program, including:

- adding a full time position dedicated to stormwater retrofit outreach and innovation, which was filled in January 2023
- updating WSDOT's stormwater retrofit prioritization to meet MAW goals and emerging science on 6PPD-quinone and other contaminants of concern
- increasing data collection and assessment of the statewide stormwater features inventory by more than three times so that existing stormwater assets can be inventoried, which assists with planning, management, and maintenance of stormwater assets
- inviting partnerships with public, private, and tribal organizations as part of our work to remove barriers and streamline related processes
- planning green stormwater infrastructure workforce development

However, in the 2023 enacted transportation budget, the Washington State Legislature moved the majority of the \$500 million out into the 2029/2031 biennium and beyond. This makes constructing the many necessary stormwater retrofits impossible until then.

Outreach, communications, transparency, and trust-building

Upon passage of MAW, WSDOT engaged in an ongoing outreach and inclusion effort with federal and state agencies, tribes, counties, cities, researchers, and other interested parties, with the goal of:

- informing partners that the Legislature intends to provide \$500 million through Move Ahead Washington to significantly increase WSDOT's stormwater retrofits across the state
- inviting input and collaboration to update WSDOT's stormwater retrofit
 prioritization, a geographic information system (GIS)-based planning tool based on
 the Move Ahead Washington goals, to help identify where to strategically invest in
 retrofits to accomplish the greatest ecological and human health gains while
 incorporating cost effectiveness (Table 1)
- soliciting participation and input from tribes, local agencies, and other entities on their top priority retrofit locations on WSDOT infrastructure, based on their own expertise and local priorities, such as tribal interests or watershed planning efforts (Figures 3 and 4)
- building trust, partnership, collaboration, and transparency on the issues of 6PPD-quinone and the MAW stormwater retrofit program
- regularly updating National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (USFWS) on WSDOT's plan to address 6PPD-quinone so that federal regulators understand that Washington State is proactively addressing this issue

From January through August 2023, the WSDOT Environmental Services Office hosted and participated in 17 outreach and engagement events with participation from federal and state agencies, tribes, counties, cities, elected officials, non-governmental organizations, scientists and researchers, and other interested parties (Table 1).

The nature of this subject, with emerging science informing planning and management, means continual improvement is inherent, and partnering will produce better outcomes. Outreach is ongoing and will continue into 2024 and collaboration will be continual throughout the life of MAW.

Table 1. Outreach and engagement events January through August 2023

Outreach and engagement events	Date (2023)
American Public Works Association	Jan 20
6PPD-quinone West Coast DOTs, MS4s meeting	Jan 25 & May 3
David Troutt, Natural Resources Director, Nisqually Indian Tribe	Feb 15
Webinar for Alaska DOT&PF on Washington Response to 6PPD-quinone	Mar 1
Northwest Indian Fisheries Commission, Coordinated Tribal Water Quality Program	Mar 14
Russell Hepfer, Vice-Chairman Lower Elwha Klallam (LEK) and other LEK staff	Apr 11
Columbia River Intertribal Fish Commission (Upper Columbia United Tribes invited but did not attend)	Apr 24
Growth Management Policy Board	May 4
King County hosted Stormwater Summit 2.0 – federal/state/local/elected officials	May 31
WSDOT tribal briefing – 34 tribes invited for consultation kickoff	Jun 1
Washington State Department of Ecology (Ecology) webinar on 6PPD for tribes	Jun 14
Our Green Duwamish meeting	Jun 15
Ecology webinar on 6PPD for general audience	Jun 21
Email listserv to invite participation in Survey123 from	Jun 28,
Municipal Permittee Bulletin: Inquiries, Resources, and News	Jul 12 & 27
American Association of State Highway and Transportation Officials (AASHTO) podcast episode, Washington State DOT's Stormwater Management Innovations	Jul 6
NPDES Phase I Coordinators	Aug 10
Snoqualmie Valley Planning Committee – Water Resource Inventory Area (WRIA) 07	Aug 23

In May 2023, WSDOT launched a <u>Survey123</u> which gathers recommendations for priority stormwater retrofit locations on WSDOT infrastructure based on the interests and planning efforts of tribes, local agencies, and other interested parties. This effort demonstrates WSDOT's earnest effort for inclusion and quality in developing an equitable, science-based planning tool for stormwater retrofit prioritization by incorporating external expertise. The data from the survey will inform WSDOT's stormwater retrofit prioritization update and incorporate the knowledge, interests, and planning goals of tribes, local agencies, and other interest groups. A strong correlation is observed between WSDOT's outreach events and survey participation, which produced valuable data, including 46 recommended priority retrofit locations from 25 different entities between May and August 2023 (Figures 3 and 4).

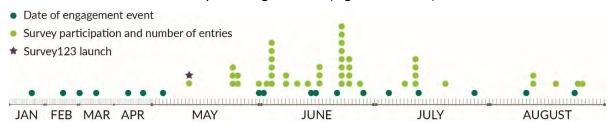


Figure 3. Engagement events correlated with Survey123 participation.

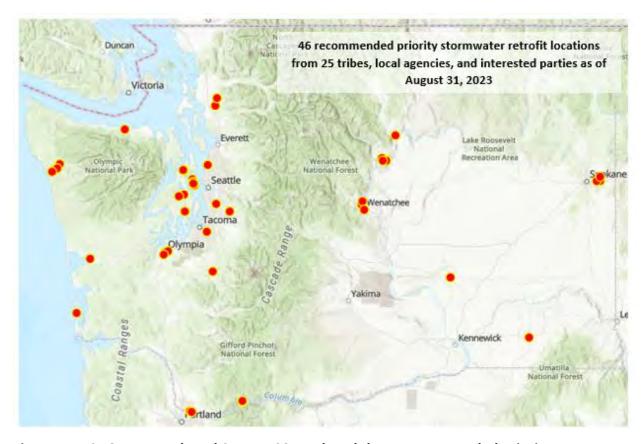


Figure 4. WSDOT outreach and Survey123 produced these recommended priority stormwater retrofit locations from tribes, local agencies, and interested parties as of August 2023.

As part of the outreach efforts WSDOT has created the following materials which have been shared with external partners:

- WSDOT Stormwater Retrofit Folio (May 2023)
- WSDOT Stormwater Retrofit 2023/2024 Prioritization Update Survey123 (May 2023)
- AASHTO Podcast: Washington State DOT's Stormwater Management Innovations (July 2023)
- WSDOT Video: Stormwater Retrofits, WSDOT Programs, 6PPD, & Move Ahead Washington (September 2023)

In addition to these materials, key leaders and staff across WSDOT were provided talking points to become familiar with the issue and be able to message information on 6PPD-quinone and the MAW stormwater retrofit program with broader audiences. A Survey123 for WSDOT staff was also created as a companion to the external Survey123, capitalizing on the expertise of agency staff by allowing them to contribute recommended priority retrofit locations to be considered in the prioritization update.

Stormwater retrofit prioritization update (in progress)

The first year of the program has focused on updating WSDOT's stormwater retrofit prioritization, a GIS, science-based, equitable planning tool, that includes a watershed approach. The prioritization will help determine the most important locations to focus funding, with an emphasis on cost-effective, green stormwater infrastructure solutions, to reduce the toxicity of stormwater runoff from existing infrastructure and:

- meet Move Ahead Washington priorities:
 - o salmon recovery and ecosystem health
 - o reducing toxic pollution
 - addressing health disparities
 - cost effectiveness
- meet agency goals for HEAL Act compliance:
 - 40% of stormwater retrofit improvement investments across the state directed to eliminate or reduce health disparities for vulnerable populations and overburdened communities
- incorporate tribal treaty rights

To accomplish this, WSDOT has engaged in outreach as described above and is working internally to update the prioritization. The goal is to have the prioritization ready for use in the Fall of 2024 after completion of the first phase of collaboration efforts and incorporation of feedback. The draft prioritization is being developed within WSDOT at the time of this report. Next steps include workshopping the prioritization through outreach channels to invite additional feedback and collaboration to ensure the prioritization is equitable, inclusive, science-informed, and vetted. Because the science around 6PPD-quinone and other emerging contaminants of concern continues to evolve, the prioritization is intended to be updated to incorporate best available science, and priority locations may change to reflect the most current understanding of the best ways to prioritize the limited resources to address the problem. WSDOT is also collaborating on a Puget Sound Stormwater and Transportation Charter Group initiated by the Puget Sound Federal Leadership Task Force action 2.3.3. that directs the National Oceanic and Atmospheric Administration and Environmental Protection Agency to convene federal agencies to partner with WSDOT, Ecology, Washington State Department of Fish and Wildlife, and other agencies to proactively address stormwater pollution from the regional transportation system.

Stormwater features inventory

WSDOT's stormwater features inventory program maps and documents WSDOT's stormwater assets. This work is critical to support stormwater retrofit planning and implementation as well as to manage and maintain existing assets to ensure their locations are known and they are functioning as intended to both maximize the longevity of the transportation system and mitigate stormwater impacts.

The program has historically focused on identifying stormwater assets within the NPDES Municipal Stormwater Permit Phase I and II areas. This work is ongoing and focuses on the most populated cities and counties in Washington. There is a need to greatly increase this effort, expanding features inventory to all transportation infrastructure across the state. A complete inventory allows us to make better informed decisions for an equitable statewide approach.

WSDOT is significantly adding capacity to its stormwater features inventory work by hiring consultant teams, on top of WSDOT's staff, to identify and map remaining features, increasing the features inventory data collection by more than three times. The increased collection effort that began in August 2023 is an anticipated need over several years to meet the planning, management, and maintenance needs of the state transportation system and Move Ahead Washington goals.

Partnerships

Partnership is key to tackling the vast stormwater problem that goes beyond the state transportation system. WSDOT is working to invite and streamline the processes of partnership on stormwater solutions. Several partnerships are underway and are all in early stages of development and include:

- Urban Stormwater Partnership I-5 Ship-Canal Bridge Pilot (Seattle) a partnership to demonstrate the potential for multijurisdictional stormwater facilities in the Puget Sound, to treat high volumes of 6PPD and other pollutants, and for WSDOT stormwater retrofits to integrate with community needs in an urban area. The project also offers research opportunities for 6PPD-quinone.
- Stewardship Partners adopt-a-down spout test the ability of small scale, inexpensive bioretention boxes to treat heavily polluted stormwater coming off I-5 under the I-5 Ship Canal Bridge in Seattle.
- Environmental Coalition of South Seattle (ECOSS) exploring partnership to determine feasibility of adding stormwater treatment under an on-ramp to I-5 in the Georgetown neighborhood of Seattle, while opening the space to community cobenefits such as park-like features, educational signage, and community art.
- WSDOT is also partnering on science and research (see Research section below).

Partnerships are critical to accomplishing this work and spanning many different jurisdictions efforts to improve water quality and ecosystem and human health. WSDOT will continue putting effort into developing partnerships.

To financially position WSDOT to leverage partnerships, flexible funding must be provided as part of the transportation budget. It is often prohibitively difficult to maximize these partnerships without advanced coordination and flexible funding to ensure WSDOT can contribute its share on these important efforts.

Green stormwater infrastructure career development

WSDOT is pursuing development of career pathways, curriculum, and training in green stormwater infrastructure (GSI). There is a growing need for this specialized skill set of installing and maintaining green stormwater infrastructure as the Move Ahead Washington-funded, statewide GSI grows along with other regional efforts to expand this stormwater treatment type throughout local jurisdictions. Career pathways in this field offer unique opportunities for people from marginalized communities, people who lack education, or face other barriers to employment.

WSDOT is currently engaged in two routes to begin expanding green stormwater infrastructure career pathways and curriculum and training development:

- WSDOT is working to partner with Washington State Department of Corrections and the <u>Sustainability in Prisons Project</u> to bring training opportunities to incarcerated people who are nearing their time of reentry, to help them prepare to compete for WSDOT jobs in green stormwater infrastructure management. This skill set is also transferable to other employment opportunities in GSI or similar fields.
- WSDOT is participating in the <u>Green Stormwater Infrastructure Workforce</u>
 <u>Collaborative</u>'s GSI Curriculum Subcommittee to help develop curriculum for core, introductory green infrastructure skills that could be used in both the partnership initiative listed above as well as promoted in various other communities. This curriculum will provide opportunities for skill development and create career pathways for people, while at the same time creating a talent pipeline to help fulfill WSDOT's need to add capacity to this part of the workforce over time.

Removing barriers to employment, creating career pathways, and developing curriculum and training programs for marginalized people or people facing employment obstacles, while solving a need to expand the green stormwater infrastructure workforce sector is mutually beneficial and supports Move Ahead Washington, HEAL Act, and WSDOT goals.

Project delivery and funding

Anticipated funding needs

Historically WSDOT has had about \$7 million per biennium for stormwater retrofits prior to MAW. The 2023 transportation budget provided \$6 million under the stormwater retrofit proviso for the 2023/2025 biennium, dedicated solely to the Urban Stormwater Partnership - I-5 Ship-Canal Bridge Pilot in Seattle, with no funds allotted for other stormwater retrofits until the 2029/2031 biennium. This plan does not allow WSDOT to ramp up and deliver on stormwater retrofit for the next six years, when there is a strong need for timely delivery on stormwater retrofit projects to help recover Washington's iconic salmon species and orca, improve water quality and ecosystem health, and address 6PPD and other stormwater pollutants.

It is important to begin funding Move Ahead Washington stormwater retrofits early in the program. A ramp up in funding over the first two biennia, followed by sustained higher levels of funding is necessary, over current funding, to achieve the Move Ahead Washington goals within the 16 year period (Figure 5).

\$500M OVER 16 YEARS - MAW STORMWATER RETROFIT									
BIENNIUM	23/25	25/27	27/29	29/31	31/33	33/35	35/37	37/39	
Current Funding	\$6M I-5 Ship-Canal	\$0	\$0	\$50M	\$64M	\$80M	\$100M	\$200M	
Optimal Delivery*	\$21M	\$41M	\$73M	\$73M	\$73M	\$73M	\$73M	\$73M	

^{*} Optimal delivery is only conceptional to illustrate desired ramp up followed by need for sustained funding. Specific funding per biennium yet to be determined.

Figure 5. Current funding versus optimal delivery.

To be the best stewards of MAW stormwater retrofit investments, there will be an ongoing funding need for stormwater features inventory and maintenance. WSDOT's stormwater infrastructure system will ultimately only be as good as the maintenance program allows.

Benefits of immediate funding

There is an undeniable connection between water quality and salmon recovery. If WSDOT is to make progress and achieve the MAW goals for the stormwater retrofit program, we must have appropriate levels of funding to meet the urgent need for action (Figure 5).

Benefits of immediate funding followed by funding ramp up:

- allows for expeditious efforts to address 6PPD-quinone and the MAW goals of salmon recovery and ecosystem health, reducing pollution, and addressing health disparities
- respects tribal treaty rights
- helps achieve Washington State goals around the HEAL Act and environmental justice
- demonstrates that the effort matches the urgency of treating stormwater, and that
 Washington State takes seriously the critical need to address 6PPD-quinone
- improves water quality, species and habitat recovery, and human health
- aligns WSDOT with actions and goals of federal, state, and local agencies which focus on Puget Sound, salmon, and orca recovery
- builds on the trust and collaboration established during early WSDOT messaging and outreach efforts with tribes, federal, state, and local agencies, and as others based on the anticipation of greater funding earlier in the 16-year program
- encourages the momentum gained from the collective enthusiasm for the Legislature's funding for stormwater retrofits, including leveraging partnership benefits
- helps avoid potential lawsuits <u>notice of intent to sue</u> issued to Federal Highway Administration and Oregon and California Departments of Transportation for their accused lack of action on a 6PPD-quinone response
- gets ahead of Endangered Species Act consultation implications related to 6PPD and salmon by contributing to species recovery. Integrating retrofit projects into the WSDOT/ Federal Highway Administration programmatic consultation reinitiations with NMFS and USFWS will significantly decrease consultation timelines for these projects
- prepares WSDOT for program delivery including planning and pre-design, scoping, design, construction, and maintenance
- providing funding in all 16 years of the MAW program reduces burden on WSDOT/consultant/construction contractors etc. within a concentrated period of time, avoiding challenges in delivering the bulk of the \$500 million towards the end of the 16-year period

Projects awaiting funding

Potential project delivery categories and specific projects that can move ahead when funds become available and are independent of the prioritization update include:

• Nearly 20 "shovel-ready" stormwater retrofit projects. In anticipation of MAW funding for stormwater retrofits, WSDOT planned and designed \$20.8 million for stormwater retrofits for the 2023/2025 biennium based on the Governor's proposed 2023 budget. This suite of projects was placed on hold in May of 2023 when the 2023 transportation budget limited stormwater retrofit funding solely for the I-5 Ship Canal Bridge Project. When funds become available, WSDOT is ready to deliver on these projects to begin accomplishing the MAW goals and addressing 6PPD-quinone.

With funding for additional scoping, there are other stormwater retrofit project categories that would result in high benefits including:

- List of potential WSDOT projects in Appendix A of Ecology's 6PPD in Road Runoff Assessment and Mitigation Strategies report
- known prespawn mortality and potential vulnerable habitats locations provided by Ecology
- WSDOT fish passage projects that have been constructed or are in the near fish
 passage delivery plan that were not able to incorporate opportunistic stormwater
 retrofits or full treatment in locations that would benefit from adding treatment

Urban Stormwater Partnership - I-5 Ship-Canal Bridge Pilot (Seattle) update

Move Ahead Washington has a \$6 million line item for the Urban Stormwater Partnership - I-5 Ship-Canal Bridge Pilot (Seattle). WSDOT's Northwest Region is bringing on a general engineering consultant for next steps to conduct pre-design and scoping work related to the contributing basin of the north end of the I-5 Ship Canal Bridge. This work will inform design and capacity for treating stormwater and will determine how much of WSDOT's stormwater will be treated and if additional municipal stormwater treatment is possible.

Research

WSDOT has a stormwater monitoring and research program to advance stormwater science and understanding. WSDOT also partners with others and occasionally contributes funds to relevant research. Scientific research allows for informed decisions on how to best manage stormwater, mitigate its harmful effects, and focus limited resources on cost-effective solutions. Some WSDOT studies are required by Clean Water Act permits while others go above and beyond permit requirements. There are many research gaps around 6PPD-quinone and other emerging contaminants of concern. As the science advances, so too will the effectiveness of our planning and implementation for addressing the problem. For example:

- WSDOT's stormwater retrofit prioritization, a GIS-based planning tool, is designed to be nimble, with the ability to update data inputs based on best available science and reorganize priority locations as needed.
- WSDOT and others may adjust and adapt stormwater treatment methods to best reduce and remove 6PPD-quinone and other pollutants as science advances and better informs the most effective treatment methods.

WSDOT is currently conducting, partnering, or funding the following research to advance science and understanding around stormwater management and 6PPD-quinone:

First flush study (internal WSDOT)

This study tests the assumption that higher pollutant loads are present in stormwater runoff during the beginning of a given storm event. Better understanding of the first flush phenomena of stormwater could inform stormwater management and result in more targeted and/or cost-effective solutions.

Modified vegetated filter strip (MVFS) (internal WSDOT)

The MVFS study investigated if a compost MVFS could provide advanced treatment of stormwater in a decreased footprint so that this stormwater treatment option could be utilized in a smaller area than the previously approved vegetated filter strip design.

Compost-amended biofiltration swale (CABS) variations (internal WSDOT)

This study monitors CABS to evaluate its effectiveness in treating stormwater runoff at two WSDOT maintenance facilities. The study tests variations in stormwater treatment and flow control designs of a standard CABS, such as increasing hydraulic residence time with compost amendment, and flow length reduction.

Swale longevity (internal WSDOT)

This study tests the effectiveness of two swales beyond their longest effective design age (20 years in WSDOT's Highway Runoff Manual). The data may allow WSDOT to adjust its maintenance and replacement schedules of biofiltration swales.

Federal Highway Administration (FHWA) <u>Transportation pooled fund study</u>: Stormwater Management to Address Highway Runoff Toxicity Due to 6PPD-quinone from Tire Rubber (WSDOT funding provided for combined DOTs and FHWA study)

The WSDOT research office is providing \$30,000 per year for 4 years along with matches from other state DOTs. This research aims to equip DOTs with a targeted approach for effectively managing 6PPD-quinone in highway runoff.

Field verification of King County heat map for modeling 6PPD-quione hot spots (WSDOT partnering with King County)

WSDOT is offering the use of pre-established stormwater sampling locations and collection of water samples to test for 6PPD-quinone and contribute to the field testing of King County's 6PPD-quinone heat map model to field verify the accuracy and assumptions of the model.

Regional status and trends monitoring (WSDOT funds collective monitoring managed by Ecology)

WSDOT annually funds status and trends monitoring of small streams and marine nearshore areas in the Puget Sound basin and for urban streams in the Lower Columbia River basin.

WSDOT is also a member of the Technical Advisory Committee for a Stormwater Action Monitoring study that will sample for emerging contaminates of concern including 6PPD-quinone, PFAS/PFOS (widely used, long lasting chemicals, which break down very slowly), tire wear particles, and microplastics. WSDOT will provide possible sample sites and personnel for collection of stormwater samples.

There is an ongoing need for more research, particularly around 6PPD-quinone and how it affects the environment and human health. WSDOT is committed to advancing stormwater science so that informed and efficient planning will result in cost-effective, high functioning stormwater treatment across Washington, both on the state transportation system and in partnership with local agencies and other land use development.

Conclusion

WSDOT recognizes and appreciates the significance of the Legislature's investment in stormwater retrofit through Move Ahead Washington. WSDOT is working to develop a prioritization plan to strategically invest the funds in projects across the state that accomplish the MAW goals of benefits to salmon recovery and ecosystem health, reducing pollution, addressing health disparities, and cost-effectiveness. Investing in stormwater retrofit further advances national and regional goals around salmon, orca, and Puget Sound recovery and supports tribal treaty rights and HEAL Act goals.

The MAW funded stormwater retrofit program also aligns with WSDOT's values and goals identified in the agency's strategic plan, shown here.

When Move Ahead Washington funds become available WSDOT is ready to begin delivering an initial suite of projects that will have immediate environmental and human health benefits and contribute to addressing the collective regional stormwater issue. WSDOT sees that the outcome of delivering this program will greatly benefit the state.



WSDOT requests the Legislature consider funding the stormwater retrofit program's optimal delivery needs (Figure 5) to address the urgency of the problem and increase WSDOT's ability to implement stormwater retrofits at scale to mitigate the harmful impacts of stormwater pollution.