



Water Quality Program

Permit Submittal Electronic Certification

Permittee: THURSTON COUNTY

Permit Number: WAR045025

Site Address: 3000 Pacific Ave SE
Olympia, WA 98501

Submittal Name: MS4 Annual Report Phase II Western

Version: 1

Due Date: 3/31/2024

Questionnaire

Number	Permit Section	Question	Answer
1	S5.A	Attach a copy of any annexations, incorporations or boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period per S9.D.6.	Not Applicable
2	S5.A	Attach updated annual Stormwater Management Program Plan (SWMP Plan). (S5.A.2)	Question_2_2_02292024094216
3	S5.A	Implemented an ongoing program to gather, track, and maintain information per S5.A.3, including costs or estimated costs of implementing the SWMP.	Yes
4	S5.A.5.b	Coordinated among departments within the jurisdiction to eliminate barriers to permit compliance. (S5.A.5.b)	Yes
5	S5.C.1.	Have you convened an interdisciplinary team to inform and assist in the development, progress, and influence of the comprehensive stormwater planning program? (S.5.c.1). August 1, 2020	Yes
14	S5.C.1.b	Did you submit a report as described in S5.C.1.b.i(b)? (Required to submit no later than January 1, 2023)	Yes
15	S5.C.1.c	Continue to design and implement local development-related codes, rules, standards, or other enforceable documents to minimize impervious surfaces, native vegetation loss, and stormwater runoff, where feasible? See S5.C.1.c.i. (Required annually)	Yes
16	S5.C.1.c	From the assessment described in S5.C.1.c.i (a), did you identify any administrative or regulatory barriers to implementation of LID Principles or LID BMPs? (Required annually)	No
20	S5.C.2	Did you choose to adopt one or more elements of a regional program? (S5.C.2)	Yes

20a	S5.C.2	If yes, list the elements, and the regional program.	The County continued its participation in the Regional Environmental Education Program (REEP) in 2023, implementing several joint programs as well as providing a suite of education and outreach around stormwater BMPs. This partnership included the Cities of Olympia, Lacey, and Tumwater. REEP aims to build general awareness, provide stewardship opportunities, and community engagement opportunities to reduce impacts from stormwater runoff. Elements include messaging and event promotion through print as well as online publications, trainings, and other channels. Refer responses for questions 21 and 26a for details on REEP and the County's other regional partners.
21	S5.C.2	Attach a description of general awareness efforts conducted, including your target audiences and subject areas, per S5.C.2.a.i.	Question_21_21_02292 024083938
24	S5.C.2	Began implementing strategy outlined in S.5.C.2.a.ii(c) (S5.C.2.a.ii(d) – Required by April 1, 2021)	Yes
25	S5.C.2	Attach the report developed in accordance with S5.C.2.a.ii(e), which evaluated the changes in understanding and adoption of targeted behaviors resulting from the implementation of the strategy and any planned or recommended changes to the program in order to be more effective. (Required no later March 31, 2024)	Question_25_25_02292 024083938
26	S5.C.2	Promoted stewardship opportunities (or partnered with others) to encourage resident participation in activities such as those described in S5.C.2.a.iii.	Yes
26a	S5.C.2	Attach a list of stewardship opportunities provided.	Question_26a_26a_020 72024105956

27	S5.C.3.	Describe in Comments field the opportunities created for the public, including overburdened communities, to participate in the decision-making processes involving the development, implementation, and updates of the Permittee's SWMP and the SMAP. (S5.C.3.a)	The County's nine-member Storm & Surface Water Advisory Board (SSWAB) includes representatives residing throughout the County's unincorporated area. Appointed by the Commissioners, SSWAB is entrusted to effectively represent ratepayers. This includes reviewing and providing recommendations on the Utility's annual work program, budget, capital facilities plan, rates, policy proposals, and the County's Stormwater Management Program Plan. SSWAB meets at least bi-monthly and the meetings are open to the public. The County also continued its efforts to engage staff, SSWAB, and permittee partners in exploring approaches to effectively engage overburdened communities as well as examine to what extent, if any, the County's stormwater management programs may disproportionately impact certain communities. This included developing a georeferenced Equity Index Tool to help analyze how well regional and jurisdictional stormwater programs are reaching and serving overburdened communities. The Equity Index Tool inform the SMAP process and the County began using it to inform other stormwater management planning processes, including public outreach, education, and involvement.
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28	S5.C.3.	Posted the updated SWMP Plan and latest annual report on your website no later than May 31. (S5.C.3.b)	Yes
28a	S5.C.3.	List the website address in Comments field.	https://www.thurstoncountywa.gov/departments/community-planning-and-economic-development-cped/community-planning/storm-management Comment: The Comments field only accepts on website address. That webpage link contains separate links to the SWMP Plan (https://s3.us-west-2.amazonaws.com/thurstoncountywa.gov.if-us-west-2/s3fs-public/2024-01/cped-stormwater-2023-SWMPP-Final.pdf) and the latest annual report (https://s3.us-west-2.amazonaws.com/thurstoncountywa.gov.if-us-west-2/s3fs-public/2023-01/cped-storm-docs-MS4_Annual_Rpt.pdf)
29	S5.C.4.	Maintained a map of the MS4 including the requirements listed in S5.C.4.a.i-vii?	Yes
30	S5.C.4.	Started mapping outfall size and material in accordance with S5.C.4.b.i? (Required no later than January 1, 2020)	Yes
30a	S5.C.4.	Attach a spreadsheet that lists the known outfalls' size and material(s).	Question_30a_30a_02072024111443
31	S5.C.4.	Completed mapping connections to private storm sewers in accordance with S5.C.4.b.ii? (Required no later than August 1, 2023)	Yes
33	S5.C.5	Informed public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste? (S5.C.5.b)	Yes
33a	S5.C.5	Actions taken to inform public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste.	County employees, businesses, and the general public were informed through the following efforts: -Year round offering of an online Illicit Discharge Detection (IDDE) & Elimination AND Spill Response training for staff -HAZWOPER refresher training for staff -Ongoing regional

				leaking dumpster outreach campaign aimed at businesses and multi-family housing facilities -Stormwater Private Facilities Inspections & Maintenance online course, how and where to report spills, aimed at homeowner associations & facility maintenance contractors -Temporary erosion and sediment control best management practices flipbook, printed in English and Spanish, for construction sites (e.g., Certified Erosion & Sediment Control Leads, inspectors, and contractors) -Online erosion and sediment control training for building inspectors, fire code specialist, and maintenance staff -Website outreach including information on IDDE/spills and response, as well as hazardous waste pollution prevention - Provide information about the hazards associated with illicit discharges and improper disposal of waste during businesses and general public site visits -Distributed handouts on mobile carpet cleaners pollution prevention, integrated pest management, and Common Sense Gardening -Added spills criteria to the Thurston Green Business Awards application. -Published an IDDE article in the Stream Team Newsletter. -Promoted the spills hotline in the Storm & Surface Water Utility's newsletter. -Participated in the Puget Sound Starts
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			Here Month "Report spills to your local government" free coasters for restaurants campaign.
34	S5.C.5	Implemented an ordinance or other regulatory mechanism to effectively prohibit non-stormwater, illicit discharges as described in S5.C.5.c.	Yes
35	S5.C.5	Implemented procedures for conducting illicit discharge investigations in accordance with S5.C.5.d.i.	Yes
35a	S5.C.5	Cite field screening methodology in Comments field.	Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (Center for Watershed Protection, October 2004); Illicit Connection and Illicit discharge field Screening and Sources Tracing Guidance Manual (Prepared for Washington State Department of Ecology, May 2013); Illicit Discharge Detection and Elimination (IDDE) Program (Thurston County, May 2016).
36	S5.C.5	Percentage of MS4 coverage area screened in the reporting year per S5.C.5.d.i. (Required to screen 12% on average each year.)	47
36a	S5.C.5	Cite field screening techniques used to determine percent of MS4 screened.	Field Screening Methodologies: Catchbasin/Manhole inspections, outfall inspections, Stormwater BMP inspections, video inspections, and windshield ditch surveys.
37	S5.C.5	Percentage of total MS4 screened from permit effective date through the end of the reporting year. (S5.C.5.d.i.)	99

38	S5.C.5	Describe how you publicized a hotline telephone number for public reporting of spills and other illicit discharges in the Comments field. (S5.C.5.d.ii)	The County's stormwater utility spill reporting and solid/hazardous waste hotline phone numbers are published via the County's website, the Stormwater Utility's annual ratepayer newsletter, and social media posts. Stormwater Utility Spill Reporting: 360-867-2099; Solid/Hazardous; Waste Hotline: 360-867-2664
39	S5.C.5	Implemented an ongoing illicit discharge training program for all municipal field staff per S5.C.5.d.iii.	Yes
40	S5.C.5	Implemented an ongoing program to characterize, trace, and eliminate illicit discharges into the MS4 per S5.C.5.e.	Yes
41	S5.C.5	Municipal illicit discharge detection staff are trained to conduct illicit discharge detection and elimination activities as described in S5.C.5.f.	Yes
42	S5.C.5	Attach a report with data describing the actions taken to characterize, trace, and eliminate each illicit discharge reported to, or investigated by, the Permittee as described in S5.C.5.g. The submittal must include all of the applicable information and must follow the instructions, timelines, and format described in Appendix 12.	Question_42_42_02212 024092802
43	S5.C.6.	Implemented an ordinance or other enforceable mechanism to effectively address runoff from new development, redevelopment, and construction sites per the requirements of S5.C.6.b.i-iii.	Yes
45	S5.C.6.	Number of adjustments granted to the minimum requirements in Appendix 1. (S5.C.6.b.i. and Section 5 of Appendix 1)	Not Applicable
46	S5.C.6.	Number of exceptions/variances granted to the minimum requirements in Appendix 1. (S5.C.6.b.i., and Section 6 of Appendix 1)	Not Applicable
47	S5.C.6.	Reviewed Stormwater Site Plans for all proposed development activities that meet the thresholds adopted pursuant to S5.C.6.b.i. (S5.C.6.c.i)	Yes
47a	S5.C.6.	Number of site plans reviewed during the reporting period.	1005
48	S5.C.6.	Inspected, prior to clearing and construction, permitted development sites per S5.C.6.c.ii, that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7 – Determining Construction Site Sediment Damage Potential?	No
48a	S5.C.6.	If no, inspected, prior to clearing and construction, all construction sites meeting the minimum thresholds (S5.C.6.c.ii)?	Yes

49	S5.C.6.	Inspected permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls per S5.C.6.c.iii.	Yes
49a	S5.C.6.	Number of construction sites inspected per S5.C.6.c.iii.	1028
49b	S5.C.6.	Inspected stormwater treatment and flow control BMPs/facilities and catch basins in new residential developments every 6 months per S5.C.6.c.iv?	Yes
50	S5.C.6.	Inspected all permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater facilities. (S5.C.6.c.v)	Yes
51	S5.C.6.	Verified a maintenance plan is completed and responsibility for maintenance is assigned for projects prior to final approval and occupancy being granted. (S5.C.6.c.v)	Yes
52	S5.C.6.	Number of enforcement actions taken during the reporting period (based on construction phase inspections at new development and redevelopment projects). (S5.C.6.c.ii-iv) (S5.C.7.c.viii)	29
53	S5.C.6.	Achieved at least 80% of scheduled construction-related inspections. (S5.C.6.c.vi)	Yes
54	S5.C.6.	Made Ecology's Notice of Intent for Construction Activity and Notice of Intent for Industrial Activity available to representatives of proposed new development and redevelopment? (S5.C.6.d)	Yes
55	S5.C.6.	All staff whose primary job duties are implementing the program to control stormwater runoff from new development, redevelopment, and construction sites including permitting, plan review, construction site inspections, and enforcement are trained to conduct these activities? (S5.C.6.e)	No
56	S5.C.7.	Implemented maintenance standards that are as protective, or more protective, of facility function than those specified in the Stormwater Management Manual for Western Washington or a Phase I program approved by Ecology per S5.C.7.a.?	Yes
58	S5.C.7.	Applied a maintenance standard for a facility or facilities which do not have maintenance standards specified in the Stormwater Management Manual for Western Washington? If so, note in the Comments field what kinds of facilities are covered by this alternative standard. (S5.C.7.a)	No
59	S5.C.7.	Verified that maintenance was performed per the schedule in S5.C.7.a.ii when an inspection identified an exceedance of the maintenance standard.	Yes
59a	S5.C.7.	Attach documentation of maintenance time frame exceedances that were beyond the Permittee's control.	Not Applicable

60	S5.C.7.	Implemented an ordinance or other enforceable mechanisms to verify long-term operation and maintenance of stormwater treatment and flow control BMPs/facilities regulated by the permittee per (S5.C.7.b.i (a))?	Yes
61	S5.C.7.	Annually inspected stormwater treatment and flow control BMPs/facilities regulated by the Permittee per S5.C.7.b.i(b)	Yes
61a	S5.C.7.	If using reduced inspection frequency for the first time during this permit cycle, attach documentation per S5.C.7.b.i (b)	Not Applicable
62	S5.C.7.	Achieved at least 80% of scheduled inspections to verify adequate long-term O&M. (S5.C.7.b.ii)	Yes
63	S5.C.7.	Annually inspected all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities. (S5.C.7.c.i)	Yes
63a	S5.C.7.	Number of known municipally owned or operated stormwater treatment and flow control BMPs/facilities. (S5.C.7.c.i)	227
63b	S5.C.7.	Number of facilities inspected during the reporting period.	185
63c	S5.C.7.	Number of facilities for which maintenance was performed during the reporting period.	65
64	S5.C.7.	If using reduced inspection frequency for the first time during this permit cycle, attach documentation per S5.C.7.c.i.	Not Applicable
65	S5.C.7.	Conducted spot checks and inspections (if necessary) of potentially damaged stormwater facilities after major storms as per S5.C.7.c.ii.	Not Applicable
66	S5.C.7.	Inspected municipally owned or operated catch basins and inlets every two years or used an alternative approach? Cleaned as needed? (S.5.C.7.c.iii)	Yes
66a	S5.C.7.	Number of known catch basins?	6060
66b	S5.C.7.	Number of catch basins inspected during the reporting period?	2999
66c	S5.C.7.	Number of catch basins cleaned during the reporting period?	1263
67	S5.C.7.	Attach documentation of alternative catch basin cleaning approach, if used. (S5.C.7.c.iii.(a)-(c))	Not Applicable
68	S5.C.7.	Implemented practices, policies and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee. (S5.C.7.d)	Yes
70	S5.C.7.	Implemented an ongoing training program for Permittee employees whose primary construction, operations or maintenance job functions may impact stormwater quality. (S5.C.7.e)	Yes

71	S5.C.7.	Implemented a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under an NPDES permit that covers stormwater discharges associated with the activity. (S5.C.7.f)	Yes
74	S5.C.8	Established an inventory per S5.C.8.b.ii. (Required by August 1, 2022.)	Yes
74a	S5.C.8	Number of total sites identified for the inventory.	36
75	S5.C.8	Implemented an inspection program S5.C.8.b.iii (Required by January 1, 2023).	Yes
76	S5.C.8	Implemented a progressive enforcement policy per S5.C.8.b.iv (Required by January 1, 2023).	Yes
77	S5.C.8	Attach a summary of actions taken to implement the source control program per S5.C.8.b.iii and S5.C.8.b.iv.	Question_77_77_02072 024114932
78	S5.C.8	Attach a list of inspections, per S5.C.8.b.iii, organized by the business category, noting the amount of times each business was inspected, and if enforcement actions were taken.	Question_78_78_02072 024114932
79	S5.C.8	Implemented an ongoing source control training program per S5.C.8.b.v?	Yes
80	S7	Complied with the Total Maximum Daily Load (TMDL)-specific requirements identified in Appendix 2. (S7.A)	Yes
81	S7	For TMDLs listed in Appendix 2: Attach a summary of relevant SWMP and Appendix 2 activities to address the applicable TMDL parameter(s). (S7.A)	Question_81_81_02072 024115033
82	S8	Submitted payment for cost-sharing for Stormwater Action Monitoring (SAM) status and trends monitoring no later than December 1, 2019 (S8.A.1); and no later than August 15 of each subsequent year? (S8.A.2.a.)	Yes
84	S8	Submitted payment for cost-sharing for SAM effectiveness and source identification studies no later than December 1, 2019 (S8.B.1); and no later than August 15 of each subsequent year (S8.B.2.a or S8.B.2.c)?	Yes
87	S8	If conducting stormwater discharge monitoring in accordance with S8.C.1, attach a data and analysis report per S8.C.1. and Appendix 9. (Due annually beginning March 31, 2021.)	Not Applicable
88	G3	Notified Ecology in accordance with G3 of any discharge into or from the Permittees MS4 which could constitute a threat to human health, welfare or the environment. (G3)	Yes
89	G3	Took appropriate action to correct or minimize the threat to human health, welfare, and/or the environment per G3.A.	Yes

90	Compliance with standards	Notified Ecology within 30 days of becoming aware that a discharge from the Permittee's MS4 caused or contributed to a known or likely violation of water quality standards in the receiving water. (S4.F.1)	Not Applicable
91	Compliance with standards	If requested, submitted an Adaptive Management Response report in accordance with S4.F.3.a.	Not Applicable
92	Compliance with standards	Attach a summary of the status of implementation of any actions taken pursuant to S4.F.3 and the status of any monitoring, assessment, or evaluation efforts conducted during the reporting period. (S4.F.3.d)	Not Applicable
93	G20	Notified Ecology of the failure to comply with the permit terms and conditions within 30 days of becoming aware of the non-compliance. (G20)	Yes
94	G20	Number of non-compliance notifications (G20) provided in reporting year. List permit conditions described in non-compliance notification(s) in Comments field.	1
94a	G20	List permit conditions described in non-compliance notification(s).	S5.C.6.c.vi. and S5.C.6.C.vii.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Joshua Cummings

3/8/2024 3:35:02 PM

Signature

Date

Stormwater Management Program Plan

December 2023

Stormwater Management Program Plan

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1. INTRODUCTION

1.1 Overview

When precipitation from rain and snow flows over hard surfaces like roads, roofs, and parking lots, it can pick up oils, chemicals, debris, and other pollutants that end up washing into waterways. While this runoff may take a direct path to the waterway, in developed areas it commonly gets conveyed through storm sewers to waterbodies. Thurston County's *Stormwater Management Program Plan* (Stormwater Plan) describes the various activities, procedures, and practices the County uses to help reduce the adverse impacts from runoff coming from storm sewer systems owned or operated by the County. As described in *Section 1.1.1*, this Stormwater Plan fulfills the County's regulatory obligations to develop a plan describing the actions and activities necessary to meet requirements of the Ecology-issued Municipal Stormwater Permit, rather than a comprehensive business plan for the Storm and Surface Water Utility.

The annual revision of the Stormwater Plan reflects changes in regulations, advancements in stormwater management, and the evolution of the County's procedures and practices. The Stormwater Plan also serves as an informative guide to the County staff responsible for carrying out these programs as well as a resource for the public to learn about the County's stormwater management efforts.

1.1.1 Regulatory Context

In 1948, the United States enacted the Federal Water Pollution Control Act, which was revamped in 1972 and became known as the Clean Water Act. This Act set standards to limit harmful substances from entering the water we all share. Under this act, the U.S. Environmental Protection Agency (EPA) established stormwater regulations for the municipal stormwater permit program. In Washington State, EPA delegates administration of municipal stormwater permits to the Department of Ecology (Ecology). In addition to applying federal stormwater regulations, Ecology-issued permits also apply regulations under the State Water Pollution Control Act.

Since January of 2007, the County has been required to comply with these federal and state water pollution control laws through an Ecology-issued [municipal stormwater permit](#) (Permit). This Permit conditionally authorizes the discharge of stormwater to surface waters and to ground waters from County owned or operated separate storm sewer systems¹ within the regulated area.

The Permit requires the County to develop, implement, and annually update a Stormwater Plan designed to reduce discharges of pollutants from its municipal stormwater systems to

¹ Separate storm sewer systems involve those used for collecting or conveying only stormwater runoff. Thurston County does not have any combined systems that handle both sewage and stormwater runoff.

protect water quality. The Permit requires the Stormwater Plan to contain the following program components:

- Stormwater planning
- Public education and outreach
- Public involvement and participation
- Municipal storm sewer mapping and documentation
- Illicit discharge detection and elimination
- Controlling runoff from new development, redevelopment, and construction sites
- Municipal operations and maintenance
- Source control program for existing development
- Planned actions to meet applicable Total Maximum Daily Load (TMDL) requirements
- Planned actions to meet the Permit's monitoring requirements

In addition to developing and implementing these programs, expected to expand upon the Permit's reissuance in 2024, the Permit requires the County to submit an annual [report](#) to the Washington State Department of Ecology documenting the County's progress in fulfilling the Permit's requirements for that calendar year. [Ecology's Water Quality Permitting and Reporting Information System](#) (PARIS) contains copies of these annual report submittals.

1.1.2 Area and Facilities Covered

Thurston County's Permit covers unincorporated urbanized areas² and urban growth areas associated with permitted cities (i.e., the Cities of Lacey, Olympia, and Tumwater) falling under the jurisdictional control of the County. The geographic scope of the permit coverage evolves as the County's jurisdictional control transfers due to annexations to permitted cities. Upon reissuance of the Permit in 2024, the County's Permit will expand to include the unincorporated Urban Growth Area (UGA) surrounding the City of Yelm as Ecology's evaluation of new Census data determined the City requires Permit coverage.³ [Appendix A](#) details the County's 2023 Permit boundary. The County also implements several of the programs described in the Stormwater Plan countywide.

² A federally designated land area comprising one or more places and the adjacent densely settled surrounding area that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile. The U.S. Census Bureau designates *urbanized areas* based on the most recent decennial census.

³ Thurston County's regulatory coverage includes all the unincorporated UGAs associated with cities regulated under the Permit.

1.2 Stormwater Management Program Plan Organization

[Section 1: Introduction](#) provides an introduction/overview of the County's stormwater management program, the regulatory context of the program, the area and facilities affected, and permit history.

[Section 2: Stormwater Management Program Administration](#) describes the County's stormwater-related internal and external coordination mechanisms, utility fee funding structure, and the Stormwater Plan revision process.

[Section 3: Stormwater Planning](#) describes the County's program to inform and assist in the development of policies and strategies as water quality management tools to protect receiving waters.

[Section 4: Public Education and Outreach](#) describes the County's programs designed to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts as well as encourage public participation in stewardship activities.

[Section 5: Public Involvement and Participation](#) describes the ongoing opportunities for public involvement and participation in developing, implementing, and revising the Stormwater Plan.

[Section 6: Storm Sewer System Mapping and Documentation](#) describes the program for mapping and documenting the County's municipal separate storm sewer system (MS4), including stormwater system asset management.

[Section 7: Illicit Discharge Detection and Elimination](#) describes the ongoing program designed to prevent, detect, characterize, trace, and eliminate unauthorized connections and illicit discharges into the County's MS4.

[Section 8: Controlling Runoff from New Development, Redevelopment, and Construction Sites](#) describes the County's program and enforcement mechanisms to reduce pollutants in stormwater runoff to its MS4 from new development, redevelopment, and construction activities.

[Section 9: Municipal Operations and Maintenance](#) describes the County's operations and maintenance program to prevent or reduce pollutant runoff from its municipal operations.

[Section 10: Source Control Program for Existing Development](#) describes the program to prevent and reduce pollutants in runoff from areas that discharge to the County's MS4.

[Section 11: Compliance with Total Maximum Daily Load Requirements](#) describes the County's TMDL-related obligations for stormwater discharges from its MS4.

[Section 12: Monitoring and Assessment](#) describes the County's participation in the Regional Stormwater Monitoring Program as well as any stormwater monitoring or stormwater-related studies conducted by the County.

2. STORMWATER MANAGEMENT PROGRAM ADMINISTRATION

2.1 Internal Coordination

The responsibility for the overall administration of the Stormwater Plan and compliance coordination for the Permit lies with the County's *Stormwater Program Coordinator* in consultation with the County's *Stormwater Coordination Team* (SCT). The County's various departments, divisions, and programs distribute functional responsibilities associated with the County's Stormwater Plan.

2.1.1 Stormwater Coordination Team (SCT)

The SCT assists in addressing stormwater management-related policy issues as well as providing a framework for communication, coordination, and cooperation in the development and implementation of the County's stormwater management program. The SCT also serves as a resource to County departments for feedback on stormwater-related programs and policies. The SCT meets quarterly and consists of representatives from County departments and programs required to commit or expend resources related to stormwater management. Meeting summaries, focusing on action items and recommendations, are kept, and distributed to SCT members. When appropriate, the SCT directs assignments to subcommittees.

Duties and responsibilities of the SCT include:

1. Making recommendations regarding stormwater management-related policies, programs, and planning
2. Providing regular updates on program direction and evolving policy issues to the Storm and Surface Water Advisory Board (SSWAB), a citizen advisory committee to the Board of County Commissioners (BoCC)
3. Providing recommendations on preferred approaches to meet regulatory obligations
4. Guiding development and deployment of the County's Stormwater Plan by making recommendations regarding
 - Funding, staffing, and other resources necessary to support its development and implementation
 - The roles and responsibilities of the County departments and programs that are essential for its successful implementation
 - How best to carry out stormwater-related work or, if that is not possible, suggest priorities on what should be done so the risks and downsides are understood
5. Ongoing evaluation of the Stormwater Plan's effectiveness

6. Improving communication among affected workgroups in County departments and programs.
7. Assisting in the resolution of stormwater-related problems and conflicts.

2.1.2 Permit Implementation Tracking Tool

The County uses the spreadsheet-based stormwater permit implementation tracking tool to aid in:

- Communicating stormwater permit obligations among department, programs, and staff.
- Identifying resource and staffing needs.
- Assigning roles and responsibilities among departments and staff.
- Developing work programs and budgets.
- Tracking permit compliance.
- Generating annual reporting assignments.

The tool undergoes continuous updates to reflect staffing changes and organizational realignments. The tool will receive a significant update in 2024 to reflect new obligations expected to emerge in the reissued Permit.

2.2 Intergovernmental Coordination

The County coordinates with local, state, and federal governments, tribes, and various stakeholder groups. Improved intergovernmental coordination helps identify areas for stormwater retrofit, maintenance, illicit discharge detection and elimination, spill response, monitoring, source control, and education. As appropriate, the County works with these groups to help coordinate the implementation of our Stormwater Plan.

The County actively participates in numerous groups and committees to coordinate stormwater-related policies, programs, and projects. This helps leverage resources, maximize program effectiveness, and foster information sharing. These groups and committees, ranging from local to national involvement, include such areas as permit coordination, operations and maintenance, education and outreach, basin planning, salmon recovery, TMDLs, nonpoint pollution⁴, monitoring, floodplain management, and technical advisory functions.

2.3 Storm and Surface Water Utility Fees

Most property owners in unincorporated Thurston County pay storm and surface water utility fees. The rates, as specified in Thurston County Code 15.06, vary depending on the property's use (e.g., residential, multi-family, commercial, industrial, agricultural, government, public and

⁴ A term used to describe pollution resulting from many diffuse sources, in direct contrast to point source pollution which results from a single source.

private roads, and vacant land), square feet of impervious surface, and whether the property lies within the regulatory boundaries of the Permit. The storm and surface water utility rate consists of two components, a base rate, and a capital rate. The rates appear as a single stormwater charge on annual property tax statements. Ratepayers alleging an error in billing, such as basin location, acreage, impervious surface coverage, or land use classification may appeal their charge.

The County offers a [rate fee credit program](#) as a way for schools and non-residential properties to reduce their stormwater fees. The fee credit program is designed to recognize schools, commercial businesses, and other non-residential property owners whose activities support the County's stormwater management goals by granting these parcel owners up to a 50 percent credit on their stormwater rates and charges. Non-residential properties include, but are not limited to, retail, wholesale, or services businesses; offices; public buildings; and places of worship.

Ten percent rainwater harvesting credits exist for qualifying commercial buildings. In addition, property located within lake management districts and drainage districts are eligible for up to 50% reductions on their fees provided that the district is: 1) actively engaged in projects and programs which have water quality improvement as a primary goal; 2) submits an annual report to the County documenting the projects and programs undertaken in the preceding year.

The County's Stormwater Comprehensive Study will include a financial analysis. This analysis will evaluate existing financial and rate policies, including the rate structure, rate credit program, and equitability of existing and alternative rate structures. The evaluation will provide recommendations for the County's consideration, including outline industry-standard approaches to fiscal policies and present the advantages and disadvantage of rate credit programs.

More information on the County's existing storm and surface water utility fees and rate fee credit program can be found at the [About Stormwater Billing webpage](#).

2.4 Tracking Stormwater-Related Training

The County's *Stormwater Training Plan* ([Appendix B](#)) facilitates deployment of the training requirements set forth in the Permit. This pertains to the following program areas:

- Illicit discharge detection and elimination
- Controlling runoff from new development, redevelopment, and construction sites
- Operation and maintenance
- Source control
- Enforcement

For each of these program areas, the training plan describes the key target audience, curriculum, training delivery mechanism, and training frequency. With the annual revision of the Stormwater Plan, the County reviewed its existing training programs and refined the training plan accordingly.

The County continues to explore the feasibility and process for integrating the elements of the training plan into the County's electronic Learning Management System (LMS) to improve efficiency of notification, tracking, and training attendance documentation. Opportunities for integration may reveal themselves once the deployment of the Countywide Enterprise Resource Planning (ERP) system comes online.

2.5 Stormwater Plan Revision Process

The County updates its Stormwater Plan annually for submittal with its annual municipal stormwater permit compliance report to Ecology. In addition to including planned activities in the coming year, the County may identify trends, common problems, or solutions that spur the need to revise aspects of the Stormwater Plan as part of our ongoing evaluation and continuous improvement of program areas. The SCT identified leads to coordinate the ongoing review of the Stormwater Plan's content. The Stormwater Plan revision process involves circulating the revised draft for internal staff review as well as review by the SSWAB.

3. STORMWATER PLANNING

3.1 Overview

The Permit requires the County to implement a stormwater planning program to inform and assist in the development of policies and strategies that protect the beneficial uses of our receiving waters. The County has invested in efforts to inform and improve our collective understanding of stormwater-related impacts and effectiveness of the stormwater management programs and practices. We intend to build off this work in the development and deployment of the stormwater planning program. Elements of this program include:

- Utilizing an inter-disciplinary team to inform and assist in the program's development, progress, and influence
- Coordinating stormwater management needs with locally initiated or state-mandated long-range land use plans used to guide efforts to accommodate growth or transportation demand
- Using watershed-based approaches to meet state and federal stormwater and water quality-related requirements as well as inform development of County policies and program priorities
- Continuing to require low impact development (LID) principals and LID best management practices (BMPs) when updating, revising, and developing new local development-related codes, rules, standards, or other enforceable documents
- Developing a Stormwater Management Action Planning (SMAP) for at least one high priority catchment area

The County utilizes its inter-disciplinary SCT, led by a core subgroup (including additional subject matter experts), to assist in the stormwater planning program's development and deployment. In addition, the County leverages its existing coordination efforts with local, state, and federal governments; tribes; and various stakeholder groups interested in stormwater management and water resources to help inform program efforts.

While not required by the Permit, in November 2022, the Board of County Commissioners approved a contract award for professional services to undertake a Storm and Surface Water Comprehensive Study. The study will review programmatic activities for Permit compliance, evaluate current rate structures and methodologies against other utilities, review the capital project ranking process, and evaluate the asset management program against industry best practices. This study will include a comprehensive assessment and make management recommendations that assure the Utility provides an equitable program across unincorporated Thurston County, meets applicable regulatory requirements, as well as Thurston County's strategic objectives for which there may be no regulatory requirements. This study, currently underway, will continue into 2024.

3.2 Coordination with Long-range Plan Updates

Stormwater management needs and receiving water conditions help inform County planning, policy, and implementation strategies. This includes locally initiated or state-mandated long-range land use plans used to accommodate growth or transportation.

3.2.1 Thurston County Comprehensive Plan

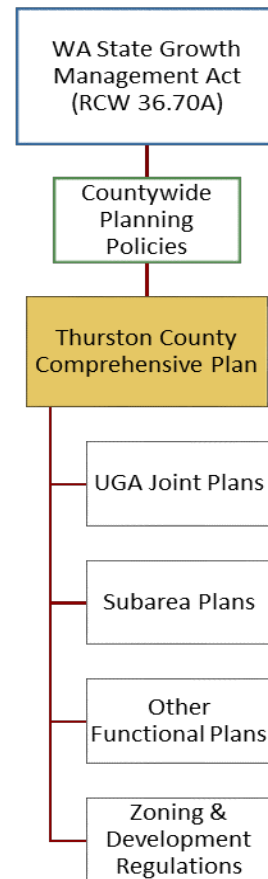
The County's *Comprehensive Plan*, a long-range planning document, states the County's vision for managing future growth and change. The *Comprehensive Plan* contains the following value statements which support that vision:

- Support and preserve the human environment
- Continue commitment to public participation
- Preserve the natural environment, water quality, open spaces, and natural resource base
- Promote economic health and diversified economic activities
- Promote variety and accessibility of living environments
- Manage growth effectively
- Maintain and improve a safe and effective transportation system

Thurston County adopts the *Comprehensive Plan* under the authority of the Washington State Growth Management Act (GMA), RCW 36.70A. Other legislation, including the Planning Commission Act (RCW 35.63), provide additional authority for and the procedures to follow in guiding and regulating the physical development of the County.

The Growth Management Act and the Thurston County County-Wide Planning Policies, a regional framework adopted by the Board of County Commissioners in collaboration with the seven cities and towns within Thurston County, guides the content of the *Comprehensive Plan*. The *Comprehensive Plan* contains goals and policies to govern the unincorporated areas of Thurston County. In turn, the Plan guides several other kinds of specialized plans (i.e., Joint Plans, Subarea Plans, and Functional Plans) and regulations.

The *Comprehensive Plan* mentions stormwater planning in almost all its chapters, most prominently in Chapters 6 – Capital Facilities, Chapter 7 – Utilities, and Chapter 9 – Environment. Updates to these sections of the *Comprehensive Plan* include consultation with stormwater program staff and the County's Storm and Surface Water Advisory Board.



In 2023, the County made several amendments to the *Comprehensive Plan*, including updates to the Lacey Joint Plan, Olympia Joint Plan, and Yelm Joint Plan. Updated policies throughout the three joint plans generally encourage measures that reduce discharge to receiving waters, encourage appropriate land use patterns and densities for the respective areas, require construction of modern stormwater facilities, require more residential development to connect to municipal sewer, and encourage increased cooperation among jurisdictions regarding climate change policies.

Planned revisions in 2024 include updates to the *Comprehensive Plan* related to the periodic update required under the Washington State Growth Management Act. The revisions will refresh goals and policies across all chapters, including those most related to stormwater planning.

3.2.2 Watershed Planning

The County participates in extensive watershed planning, including portions of four watersheds identified by the state as Water Resource Inventory Areas (WRIAs). These include the Upper and Lower Chehalis (WRIAs 22/23), the Deschutes (WRIA 13), Kennedy-Goldsborough (WRIA 14), and the Nisqually (WRIA 11) watersheds. The 2018 Streamflow Restoration Act required the County to work with other partners in the watersheds to add addendums to existing Watershed Plans identifying projects that offset the impact of new domestic permit-exempt wells and achieve a net ecological benefit within the watersheds. In 2020, the County received grant funding to conduct two feasibility studies within the Nisqually watershed. The studies aim to determine suitability of numerous sites to receive managed aquifer recharge facilities to help supplement the natural pattern of groundwater recharge within the watershed. Groundwater recharge can help improve water quality, increase water discharging to streams, and rejuvenate wetlands and springs. This work supports actions and strategies outlined in the Nisqually Watershed Management Plan and the Streamflow Restoration planning process. The County also received grant funding in 2022 to conduct a site evaluation for off-channel storage that would affect the Deschutes watershed, supporting actions proposed in the watershed planning process. This grant funded work continued in 2023 and will continue in 2024.

The County also uses watershed-based approaches to meet state and federal stormwater management and water quality-related requirements as well as inform development of County policies and program priorities. For example, in addition to meeting obligations under the County's Permit, watershed studies help inform County code, policies and program priorities related to the [Critical Areas Ordinance](#), [Shorelines Master Program](#), and the [Comprehensive Plan](#). The County has completed watershed studies for the Deschutes, Henderson Inlet, Nisqually, and Totten-Eld Inlets watersheds using a watershed characterization-based strategy. This science-based examination of the watershed's features and how those features interact to affect the watershed's natural environment, provides baseline information for policymakers to use when making regulatory and land-use decisions. [Methodology to a Watershed Based Approach to Clean Water and Natural Resource Management](#) contains additional information on the approach the County follows for its

watershed characterizations. These methodologies incorporate a similar process as recommended by Ecology's *Driver-Pressure-State-Impact-Response* (DPSIR) conceptual model approach. This model identifies land use as the driver for impacts to aquatic ecosystems. Ecology recommends applying the DPSIR approach to organize stormwater related ecosystem recovery efforts and use monitoring to inform adaptive management.

3.2.3 Capital Improvement Program and Capital Facilities Plan

While the Permit does not currently require a Capital Facilities Plan (CFP)⁵, the County prepares the stormwater utility's CFP with 6- and 20-year planning horizons for inclusion in the Capital Facilities Program. CFP projects include those that require more than minor maintenance or repair and involve a substantial cost and/or engineering and permitting effort. Previously completed capital projects include road conveyance projects, culvert replacements to address road flooding, the construction of runoff treatment, infiltration facilities to replace failing drywells in older subdivisions, and implementation of other standalone runoff treatment and flow control facility retrofits, such as wet ponds and detention ponds in older developments.

The CFP includes project descriptions, estimated construction dates, costs, and proposed methods of financing. The CFP is updated annually using a [priority rating form](#) to rank the projects. The ranking system rates projects using approximately 60 different criteria. The criteria are scored from 0-5 and weighted by category. The categories include:

- Project location (i.e., whether the project falls inside or outside an urban growth area, the municipal stormwater permit boundary, or a sensitive or priority watershed; project proximity to water bodies, wells, etc.)
- Project feasibility (i.e., ease of permitting, utility or site constraints, number of parcels and their ownership effected by the project, project impacts on adjacent activities, and ease of construction)
- Identified high priority projects (i.e., identified in TMDL water cleanup plans or basin plans, known public health and safety issues, priorities identified by outside agencies and tribes, and beneficial impacts to neighborhoods)
- Water quality and quantity conditions (i.e., amount of flow control and treatment the project provides, size of area treated, and pollutant removal effectiveness)
- Environment, habitat, and ecology (i.e., habitat enhancement, wetlands restoration, streambank protection, open space connectivity, and/or stream channel restoration)
- Public stewardship (i.e., total project cost to the stormwater utility compared to total budget, cost per acre of treated impervious surface, public education and outreach potential, cost of maintenance and operations, and outside funding opportunity)

⁵ The Western Washington Phase II Permit formal public review draft proposes a prescribed level of effort to control or reduce stormwater discharges from existing development, including stormwater facility retrofits.

The County's Storm and Surface Water Advisory Board (SSWAB) vets and recommends the ranked list of projects for approval by the BoCC. Projects are scheduled for design and construction based on the project's approved ranking, the project cost, and the available funding for each year of the County's six-year Capital Improvement Program. The County Comprehensive Plan further identifies future needs for projects that cannot be funded in the six-year plan.

One of the tasks in the Stormwater Comprehensive Study task will involve evaluating the current stormwater capital improvement project identification and prioritization processes and provide recommendations for improvement.

3.2.4 Thurston Climate Mitigation Plan

The *Thurston Climate Mitigation Plan* was finalized in December 2020. In early 2021, the Thurston Board of County Commissioners unanimously approved a resolution declaring a climate emergency (Resolution 15983) and unanimously approved a resolution accepting the *Thurston Climate Mitigation Plan* in partnership with the cities of Lacey, Olympia, and Tumwater (Resolution 15984). The plan presents a framework for climate mitigation in our region, including local strategies and actions local governments can take. Working with the Thurston Regional Planning Council, Thurston County and the cities of Lacey, Olympia, and Tumwater crafted this strategic roadmap.

Implementation of the *Thurston Climate Mitigation Plan* and new climate-related updates to the *Comprehensive Plan* may include changes to the County's approaches to stormwater management to further support climate resiliency in the region. The County hired a Climate Mitigation Senior Program Manager in 2023 to begin implementation of the mitigation plan. Implementation work is being done through regional collaboration and in partnership with a stakeholder group. Beyond *Thurston Climate Mitigation Plan* implementation, in 2024 the County will begin reviewing and updating the County's *Comprehensive Plan* to include new state required elements focusing on climate-related mitigation and resiliency measures.

One of the tasks in the Stormwater Comprehensive Study involves analyzing potential and project climate impact and risks to the County's stormwater infrastructure and recommend future stormwater design considerations related to climate projections.

3.3 Low Impact Development Policies and Regulations

The *Thurston County Comprehensive Plan* contains policies that encourage incorporation of LID principles into local planning efforts, including achieving specific LID performance standards for stormwater facilities and increasing education and outreach efforts around LID principals (see Chapter 7 – Utilities). The Thurston County Code includes requirements limiting the amount impervious and hard surfaces allowed for development projects (e.g., TCC 20.07.090 Hard and Impervious Surface Limits).

As explained further in *Section 8.2*, Thurston County Code Chapter 15.05 contains the County's stormwater standards, which adopts by reference the *County's Drainage Design and Erosion Control Manual* (DDECM). The DDECM, among other things, incorporates the guidelines for LID. In 2016, the County updated its building and zoning regulations to incorporate LID principles. Thurston County Code Titles updated include Titles 14, 15, 18, 20, 21, 22, and 23. Title 24 – Critical Areas incorporates LID principles into critical area protections. In early 2022, the County made amendments to development regulations to address implementation of LID regulations on small lots, for lots needing long access driveways, within the Ken Lake Special Overlay District, and limits on large rural lots.⁶

In 2024, the County will continue updating the Urban Growth Area development regulations for Lacey, Tumwater, and Olympia under Titles 21, 22, and 23. These updates may include additional stormwater regulations or updates to LID standards to further urban growth area regulation consistency with the corresponding cities.

3.4 Stormwater Management Action Planning (SMAP)

The Permit requires the development of a *Stormwater Management Action Plan* (SMAP). Based on permit requirements for the SMAP, the County utilized the following approach:

- Reviewed existing watershed plans, the *Science to Policy* (STP) project and Thurston Regional Planning Council's *Thurston County Current and Future Basin Conditions Assessment Report (2021 Basin Conditions Report)* to see how they line up with the Permit's SMAP requirements⁷
- Conducted the receiving water assessment using 2045 projections from the *2021 Basin Conditions Report* to evaluate the County's stormwater management influence level from its MS4 outfall catchment areas⁸
- Screened out MS4 catchments with a low stormwater management influence and/or falling within *degraded* or *highly degraded* categories based on 2045 basin condition projections. This process revealed six candidate receiving waters that underwent further evaluation during the prioritization ranking process

The receiving water prioritization work benefited from using a SMAP web-based geodata analysis tool, reviewing existing County basin plans, and insights gleaned from staff's situational awareness. The result identified the following top three candidates receiving waters: 1) Green Cove Creek, 2) Mud Bay, 3) and Black Lake. Green Cove Creek, not previously identified during the receiving water assessment, came to light during the review of existing basin plans. Had we obtained the 2045 annual average daily traffic (AADT) stream crossing projections in time to use during the receiving water assessment, one of its MS4 catchments would have been flagged as high stormwater management influence.

⁶ *Lots* are distinct portions of land as written in the legal description that address permissions or constraints upon its development.

⁷ The Permit allows for the use of existing information.

⁸ More precisely, used Light Detection and Ranging (LiDAR) data to identify areas with the potential to discharge to the outfall.

Based on the work above, the County developed a SMAP for Green Cove Creek's MS4 catchments capitalizing on the work previously done as part of the December 1998 *Green Cove Creek Drainage Basin Plan*. The SMAP contains a package of short- (i.e., within six years) and long-term (i.e., 7-20 years) actions, in addition to the Permit's existing programs, designed to address discharges from the County's municipal storm sewer into Green Cove Creek. The SMAP contains brief descriptions of capital, programmatic, and adaptive management actions; likely and potential funding sources; and expected implementation timeframes. SMAP reviews will occur concurrently with the County's annual review and update of its *Stormwater Management Program Plan*. More in-depth reviews will occur in conjunction with the Permit's five-year reissuance cycle.

4. PUBLIC EDUCATION AND OUTREACH PROGRAM

4.1 Overview

Thurston County recognizes the essential role individuals and businesses can play in proactively preventing or reducing polluted stormwater runoff and stormwater flooding—issues that present challenges to thriving communities, a prosperous economy, public safety, and a healthy environment.

Thurston County’s public stormwater education and outreach consists of various programs and campaigns designed to assist and empower citizens, property owners, business owners, and other community stakeholders in addressing the stormwater issues that directly impact them. This section provides an overview of program activities conducted in 2023 and plans for the coming year.

We design and deploy our education and outreach programs in several ways, including direct efforts by staff, collaborative relationships throughout Thurston County government, external organizations, regional collectives, and in coordination with local contractors. Program deployment occurs on an ongoing/annual basis or as customized time-bound campaigns that fall under three types of intended outreach outcomes required by the permit: 1) general awareness, 2) behavior change, and 3) stewardship.

4.1.1 Internal, Local, and Regional Partnerships

Interdepartmental County teams from a variety of programs regularly coordinate to share insights, brainstorm consistent and effective messaging, reduce inefficiencies, plus improve program strategies involved in external communication, education, and outreach activities. Internal departments and divisions involved with stormwater related education and outreach include:

- Public Works (PW) department
 - Water Resources (WR) division which oversees the stormwater utility
 - Solid Waste (SW) division
- Community Planning and Economic Development (CPED) department
 - Community Planning (CP) division
 - Thurston County Washington State University (WSU) Extension
- Public Health and Social Services (PHSS) department
 - Environmental Health (EH) division
- Emergency Management (EM) department
- Central Services (CS) department

In 2024, education and outreach staff across multiple departments and divisions will continue meeting regularly with the goal of improved reach, coordination of efforts, and consistency in messaging.

The County also recognizes the co-benefits of external partnerships in leveraging resources, reducing effort overlaps, and reaching a wider audience when applicable. The County continues to coordinate some of our stormwater education and outreach efforts with the cities of Lacey, Olympia, and Tumwater as part of a regional interlocal agreement (ILA) called the Regional Environmental Education Program (REEP).

The REEP ILA with the cities of Lacey, Olympia, and Tumwater provides a method for the County and the Cities to voluntarily collaborate in the funding, development, implementation, and assessment of joint stormwater education and outreach programs. Through this ILA, the Cities and the County also coordinate the regional Stream Team program, which includes stormwater pollution prevention best management practices, a quarterly educational newsletter, habitat restoration trainings, as well as local stewardship opportunities. In 2024, REEP will move forward with the development of a plan to expand accessibility and fairness of programs, focused on overburdened communities, informed by the findings in their recently completed audience and program assessment and equity analysis.⁹

In 2023, the County also continued networking and exploring opportunities for education and outreach collaboration on a broader regional scale through the Puget Sound-wide STORM (Stormwater Outreach for Regional Municipalities) work group. In 2023, the County, with City partners, participated in STORM's *Puget Sound Starts Here* campaign to raise awareness on stormwater-related issues focused on tire care and raising awareness about tire wear particles containing 6PPD-q and the connection to urban coho salmon pre-spawn mortality. This effort included a focus on messaging to underserved communities (Spanish, Korean, and Vietnamese-speaking communities). The County and City partners further emphasized the *Puget Sound Starts Here* message and stormwater BMPs, providing coasters and coffee sleeves with stormwater BMPs to local businesses.

Furthermore, the County continued to participate in the STORM-led regional "Leaking Dumpsters" campaign through the REEP partnership. The campaign's main goal is to improve water quality by nudging regional businesses and multi-family housing complexes to shut their dumpster lid every time they use it. Participating municipalities will evaluate and refine the program to ensure continued effectiveness in 2024.

4.2 General Awareness Programs

4.2.1 Stormwater Utility Business Communications

In 2023, the County continued to publish information to provide general awareness regarding the impacts of stormwater on surface waters, impacts from impervious surfaces, stormwater

⁹ Overburdened communities, per the Permit, means minority, low-income, tribal, or indigenous populations or geographic locations in Washington State that potentially experience disproportionate environmental harms and risks.

utility-funded programs, the County's spill reporting hotline, annual ratepayer information, best management practices, and tips to homeowners and businesses. Tips to homeowners and businesses included how and where to dispose of potentially hazardous materials, the dos and don'ts of stormwater swale maintenance, tips for private stormwater system inspections and maintenance, bagging and trashing pet waste every time, how to maintain catch basins, when to actively clear leaves and debris from local storm drain grates, natural lawncare recommendations, and reducing water pollution by fixing vehicle leaks. These BMP messages will continue to take priority in 2024, with increased use of creative short video-based delivery and enhanced audience prioritization. Information was published via several communication channels including:

- Annual stormwater utility mailing to ratepayers
- [Stormwater utility website](#)
- Educational materials such as signs, flyers, postcards, and online resources
- Regional Stream Team quarterly newsletters, monthly e-newsletters, and various social media channels
- Stormwater utility capital facilities projects signs and public information
- Online training modules
- In-person workshops

In 2024, we will explore several new channels, including:

- Targeted BMPS using a new permitting platform
- Focus Groups
- Shifting away from postcards to letters

The County also created plans for locating pollution prevention signage targeting dumpsters at multi-family housing developments and businesses throughout Thurston County. The sign went through final review and testing in the late part of 2021 and printing in 2022. Planning for signage placement at specific businesses and multi-family housing complexes occurs as problems are identified in collaboration with Thurston County Solid Waste.

4.2.2 Community Events

At community events, the County uses displays and promotional handouts to provide information on 1) stormwater utility services and programs and how they benefit our communities; and 2) general impacts of stormwater runoff on local waters, including how land use, development, and residential and business activities and behaviors can impact surface and groundwaters.

Many events continued to follow a hybrid model for maximum accessibility, including both an online and in-person format in 2023, a model that we plan to continue into 2024. The regional Stream Team program boosted information and messaging via its social media channels, including Facebook and Instagram and submitted articles to *Thurston Talks*, a local paper available online. Additionally, Stream Team continued to increase video-based BMP

messaging online via social media, its website, and through monthly emails. While online events remain a popular option to reach the most people, in-person events have returned full force and recognized as the best place to get a pulse on a community, have meaningful conversation/receive feedback, and meet people where they're at.

In 2023, the County coordinated an interdepartmental display at the Thurston County Fair teaming our efforts to deliver focused messaging and resources around native plants, natural yard care practices, and how to respond to noxious weeds safely and effectively. We plan to continue this effective and efficient approach in 2024. Staff also attended the Nisqually Watershed Festival, Arbor Day, Yelm and Tenio farmers markets, Rainier Round Up, and World Oceans Day co-representing alongside Stream Team We aim to establish a County-wide list of the most relevant and impactful community events to return to in 2024. This team also coordinated a natural yard care-focused workshop at the Thurston Conservation District-led Harvest Festival this October. We plan to return to this event again in 2024, taking advantage of the amplified marketing and collaboration opportunities to effectively reach the community.

4.2.3 Kindergarten-12th Grade (K-12) Education Sponsorships

The County contracts with three local nonprofit organizations to assist teachers in developing and implementing water quality education curricula and to provide students with opportunities to participate in hands-on learning. These organizations include South Sound GREEN (SSG), the Nisqually River Education Project (NREP), and the Chehalis Basin Education Consortium (CBEC).

Working within a collective impact model, these organizations deliver services and programs across Thurston County reaching K-12 students in the Nisqually, Deschutes, and Chehalis watersheds. Students learn about the water cycle, the potentially harmful impacts of stormwater runoff from impervious surfaces, and pollution prevention best management practices. Additionally, an annual teacher training occurred to provide educators the tools needed to align Next Generation Science Standards with the place- and field-based science these three organizations provide.

Chum salmon field trips to McLane Creek Nature Trail continued in person, and the virtual field trips developed in 2021 remained an option for those schools or students requiring additional access. During these field trips, students learned how stormwater runoff can impact streams, affect salmon mortality, and what they can do at home to prevent pollution from reaching salmon-bearing streams.

Water quality testing activities also continued in 2023. Students experienced and learned about water quality testing in real-time. Students traveled to different stream sites around the County, collected water samples, tested them in the field and documented their findings. In March 2023, 419 students from all three watersheds spent a day presenting and comparing their data at the *Green Congress*, which took place at the Evergreen State College.

In 2024, SSG, NREP, and CBEC will continue to support County program activities. They plan to work strategically to broaden the programmatic reach to additional unincorporated

Thurston County schools. They will identify and prioritize other organizations to help Thurston County reach K-12 educational goals while incorporating equity and inclusion goals as much as possible.

4.2.4 Capital Improvement Projects

Outreach support provided included three stormwater capital projects completed in 2023: Boston Harbor Stormwater Conveyance & Outfall Improvements where direct emails were sent to 52 interested residents, Woodard Creek Retrofit Site #1 where 12 postcards were sent to affected residents, and Madrona Beach Conveyance & Outfall Improvements where 178 postcards were sent to affected residents.

4.2.5 Stream Team – General Awareness

The County and its city partners produce quarterly Stream Team newsletters, which are emailed to volunteers, with [printed copies](#) distributed throughout the community at public locations and local businesses. The quarterly newsletter includes articles related to stormwater to help raise general awareness. Stream Team also posts messages on its social media channels, including Facebook and Instagram, to help raise awareness around stormwater issues and to promote best management practices such as picking up pet waste, natural lawn care and using slow-release fertilizer, taking cars to commercial car washes, [proper tire care](#), and fixing automotive leaks.

Stream Team continued in-person *Marine Creature Mondays*’ programming in 2023, hosting groups at Boston Harbor Marina in the summer. The *Marine Creature Mondays*’ program helps participants learn about how freshwater inputs upstream affect downstream marine waters and actions they can take to prevent pollution from entering the marine environment.

In 2023, Thurston County provided opportunities for the public to engage in community science by offering benthic macroinvertebrate volunteer training and monitoring on five streams. Volunteers joined Thurston County staff to collect stream bugs and perform habitat assessments to see first-hand the roll Benthic Index of Biotic Integrity (B-IBI) scores play as an important indicator of a stream’s health.

To diversify audiences, Stream Team cultivated a relationship with CIELO, a non-profit with a mission to support the local Latinx community. Stream Team hosted two events for CIELO with a Spanish interpreter: one Marine Creature Monday; one stream bug monitoring event.

4.2.6 Tracking & Reporting General Awareness Activities

The County tracks program-related metrics for its general awareness programs and reports many of these in the Permit's annual report submission to Ecology. General awareness metrics tracked include:

- Number of participants in an activity, such as a workshop presentation, or field trip
- Number of clicks or views online
- Number of printed outreach materials distributed
- Number of pet waste stations and bag dispensers for leashes distributed

4.3 Behavior Change Programs

4.3.1 Behavior Change Program Evaluation and Future Direction

Behaviors from residents and business practices can contribute to significant environmental problems including stormwater pollution. The County began working on its primary behavior change program in 2020, addressing residential lawn care practices.

As a first step, the County implemented a long-term follow-up survey for participants from a previous local lawn care program, called Go GREEN, which was implemented in 2014 and 2015.

The 2014 and 2015 Go GREEN lawn care program included a wide variety of incentives and education around multiple lawn care behaviors. At the same time, jurisdictions in the north part of Puget Sound implemented a yard care program, which included lawn care practices. The County used the results from its follow-up survey and from the North Sound's follow-up survey to inform the development of a pilot program in 2021. During this same time, the County developed an internal mapping tool using interdepartmental data to more effectively prioritize its pilot and campaign audience based on residential lawn care practices direct link to local water quality impacts via the MS4. The County also developed internal messaging, designed a postcard mailer, built the program web pages and associated application documents, and created strategic partnerships (including with a local soil-testing lab and educator) to prepare for pilot launch in 2022.

In 2022, the County launched its Go Green Lawncare pilot program, inviting prioritized neighborhoods located throughout the County to apply via a survey. The County selected 34 participants who use quick-release fertilizer and do their own lawncare among several other program criteria. Since inception, 33 participants remained in the program. Throughout the pilot, participants receive incentives that support the main behavior of switching to slow-release fertilizer as well as supporting incentives like lime application to rebalance soil pH. Participants also received access to an online classroom with natural lawn care videos and resources, two live Zoom-based question & answer sessions, regular nudges aligning with

program actions, and an invitation to an in-person natural lawn care demo day workshop. The pilot program began with an introductory survey and closed with another survey.

Program evaluation took place in early 2023 followed by updates and a re-launch in spring 2023, which changed focus from lawn care to yard care. The new program, Go Green Yard Care, included regular email nudges, a live presentation and demonstration event in collaboration with Thurston Conservation District, a live question and answer video conference session with a native plant presentation, an online workshop, and more. Go Green Yard Care has 52 participants in 2023.

Additionally, the County partners with REEP and many jurisdictions in the regional STORM program on a multi-year behavior change project focused on best management practices related to dumpsters. In 2020, the County and its partners began gathering initial data on dumpster maintenance and on the focus audience. In 2021, using compiled data and research, project partners developed a pilot program and outreach materials designed around the behavior of shutting dumpster lids after each use. Pilot assessment occurred in the late part of 2021. The County modified this effort using analytics collected from regional pilots. Program implementation, which included design updates, strategic messaging, education, and outreach, began in 2022 and continued in 2023 with each jurisdiction planning to work more independently moving forward. In 2023, the County focused on its County-specific dumpster program and sharing insights amongst the REEP and STORM partners.

4.3.2 Private Stormwater Facilities Maintenance

In 2020, the County converted its in-person private stormwater facilities workshop into a virtual workshop, along with participation from the Cities of Lacey, Olympia, and Tumwater. The workshop was marketed to Homeowner Associations (HOAs), property management companies, and residents of Thurston County. The County and its city partners offered this workshop again in summer of 2021 and a similar virtual workshop to landscapers, stormwater contractors, and property management companies in fall 2021. The County and its City partners continue to offer these workshops virtually.

The late fall 2022, relaunch of the online program on the regionally managed training platform, incorporated REEP stormwater inspectors' feedback based on boots on the ground observations, video captioning for increasing accessibility, more low impact development/green stormwater infrastructure training, and broadening the audience to include more Thurston County businesses. A postcard mailing marketing the new course went out in fall 2022 announcing the course launch. The course received one round of additional marketing in spring of 2023 focused on HOAs, while remaining open throughout the entire year to offer a more flexible go-at-your-own-pace delivery model. After 1,019 postcards mailed to HOAs in 2023, there have been 45 individuals trained. The program offering will continue in 2024.

The online workshop provides information and field-based virtual learning on how to properly inspect, maintain, budget, plan, and file annual reports for private stormwater facilities. Additionally, the workshops include information about general stormwater runoff

impacts as well as low impact development principles and facilities while connecting participants to their jurisdiction's stormwater inspector.

In 2023, the County and its partners continued use of the regionally developed stormwater system inspections and maintenance calendar linking important dates with related inspection and maintenance activities. The tool aims to increase compliance, nudge residents and contractors when to complete important activities, and remind them of important considerations (e.g., nesting birds).

Furthermore, the County maintains an online list of contractors that perform private stormwater facilities maintenance services. Contractors who complete the County's private facilities maintenance workshop can opt to be included on this list. This list will receive a basic review and update in the fourth quarter of 2023.

4.3.3 Stormwater Site and Erosion Control

In 2021, the County and the Cities of Lacey, Olympia, and Tumwater continued to promote the Temporary Erosion and Sediment Control (TESC) flipbook created in 2020 to CESCL's and construction site inspectors. This flipbook presents best management practices related to stormwater site and erosion control. In 2023, the County and its regional partners participated in a review of this flipbook in collaboration with the Washington Stormwater Center and an Eastern Washington stormwater cohort. The revised flipbook is scheduled to be transcreated in 2024 and made available statewide.

4.3.4 Reduction of Fecal Coliform Bacteria in Stormwater

Recognizing that improper maintenance and operation of septic systems can lead to polluted runoff and impaired water quality, the County conducts septic system maintenance education and outreach by providing citizens with:

- Educational materials
- Workshops on proper septic system operation and maintenance
- Mailings to sites with Operational and Maintenance Certificates
- Self-inspection trainings
- A list of professionals certified to perform septic system services
- Incentives and financial assistance

The County offered self-certification workshops throughout 2021, which were a hybrid model of online and in-person learning. Participants viewed septic maintenance videos online and then took a field training outside at the County's septic park. In 2022, the County held its first in-person Septic Sense workshop since 2019.

The County switched to fully in-person workshops for the self-inspection certification workshops beginning in April 2023 and expanded the ability to take the class countywide for eligible septic systems. To accommodate the larger audience, the County doubled the number of classes, holding 2 workshops per month. Between the months of January and September

2023, 25 workshops were offered with 200 people certified to self-inspect their septic systems.

Septic Sense workshops were held in the fall of 2023 for Septic Smart week, where 925 postcards were mailed to the Black Lake area promoting four workshops. Social media channels and a digital ad in the Nisqually Valley News were also utilized for marketing. The efforts generated 41 participants.

In 2023, a mailing went out to approximately 3,000 people on the Assessor's Senior/Disabled tax relief list who have septic systems to inform them of the availability of financial aid for septic maintenance, which included information regarding the self-inspection certification workshops.

For animal manure, the County provides free site visits, educational materials, and information to direct property owners to other helpful resources in support of the County's nonpoint ordinance for managing animal manure.

With the goal of reducing fecal coliform pollution in stormwater, Thurston County continued its twenty-year-old program of distributing free pet waste stations to neighborhoods and HOAs. To encourage dog walkers to pick up their dogs' waste, the County coordinates the distribution of free pet waste signs and bag dispensers to residential neighborhoods in unincorporated Thurston County. Qualifying applicants receive a free "Don't Let Your Pooch Pollute" metal sign(s), bag dispenser(s) and an initial set of 500 pet waste bags per dispenser. The County provided 12 pet waste stations to Thurston County neighborhoods in 2022. We follow up with applicants within the first year to ensure the pet waste stations have been installed and to gather qualitative information. We also dispense free pet waste bag dispensers that can attach to a dog leash at various community events. The County distributed roughly 200 pet waste bag dispensers in 2022. In 2023, the County began to map the locations of the pet waste stations. The mapping data will allow County staff to identify coverage gaps as well as compare and potentially correlate pet waste station locations with fecal coliform levels measured in surrounding waterbodies.

Both programs support applicable Total Maximum Daily Load (TMDL) Water Cleanup Plans, which include Permit-required actions to address fecal coliform bacteria comingling with stormwater within the Henderson Inlet Watershed and Nisqually River Basin.

In 2021, the County analyzed the survey results from a survey sent in 2020 to all the contacts who received pet waste stations. The purpose of the survey was to 1) assess the number of stations still maintained; 2) encourage residents to continue stocking the stations with pet waste bags; and 3) determine the number of pet waste stations requiring new maintenance contacts. Of the 200 surveys sent, 50 were returned. Respondents self-reported an average of 75% reduction in pet waste, with 95% of the stations still maintained and utilized. In addition, the effort resulted in updated contact information for roughly 50 pet waste stations. The County will send out another survey in 2023 to review the program and send a reminder to program participants.

4.3.5 Safer Yard Care & Pest Control

The County has an ongoing Integrated Pest Management (IPM) education program which helps residents learn about least-toxic methods for managing weed, pest, and disease problems. Residents can learn about IPM through the County's *Common Sense Gardening Program*, which includes community workshops, outreach events, brochures, and fact sheets.

Residents can also learn about IPM methods from WSU Extension Master Gardeners who conduct outreach at community events and public locations year-round throughout Thurston County. In addition, the County also maintains an online yard care products website called *Grow Smart Grow Safe* and distributes a bi-monthly electronic newsletter called *Thurston Home and Garden* to over 800 residents, which includes timely tips related to lawncare and other stormwater-related messaging for residents.

The County works with local businesses that sell yard care products to encourage the purchase of lawn and yard care products that are safer for people, pets, and our local waters. The County continued to distribute *Common Sense Gardening Guides* and IPM fact sheets to most garden centers and will for the foreseeable future.

The County also provides information for the proper disposal of unwanted yard care products at HazoHouse. In addition, the County helps train local landscaping professionals in the Washington-state certification ECOPro program and chair the program's steering committee.

The County coordinates the Noxious Weeds Control Program, which provides residents with site visits, weed identification and control recommendations, weed disposal, and other resources and information free of charge. Thurston County's Noxious Weeds Control Program website contains information on how to identify noxious weeds and how to get rid of them safely.

4.3.6 Hazardous Materials Management and Disposal

The County distributes information to residents on the proper storage and disposal of household hazardous chemicals and wastes through information published on the County website, in publications and newsletters, through the *Healthy Homes Program*, at retail stores, and by conducting community and school presentations.

We provide free technical assistance and information about hazardous material, waste regulations, and the County's Nonpoint Source Pollution Ordinance (Article VI of the Sanitary Code) to businesses considered to be *small quantity generators*. Technical assistance campaigns have included outreach to automotive shops, landscapers, marinas, golf courses, nurseries, pesticide applicators, schools, commercial printers, dentists, dry cleaners, auto recyclers, and paint contractors.

In addition, the County includes tips on how to safely store, use and dispose of household hazardous waste in its bi-monthly electronic *Thurston Home and Garden* newsletter.

4.4 Stewardship Programs

4.4.1 *Thurston Youth WIN (Work Involvement Now)!*

The Thurston Youth WIN! Program encourages youth groups in unincorporated Thurston County to apply to participate in annual events and community projects that address stormwater issues. The County provides stipends up to \$400 for up to ten eligible groups a year that successfully complete an approved project where youth and sponsors provide a minimum of 40 total hours of volunteer labor. This program also intends to help reduce the number of charity carwashes popular with youth groups that could result in illicit discharges and contribute harmful pollution to the County's MS4. Examples of eligible community projects include such activities as clean up and removal of invasive weeds from neighborhood stormwater ponds. Due to COVID-19, the County did not offer this program in 2021, 2022, or 2023. However, the County plans to relaunch the program in 2024.

4.4.2 *Stream Team*

Stream Team is a regional volunteer program focused on providing residents with education related to stormwater and opportunities to participate in stormwater-related stewardship, such as habitat restoration projects. Thurston County coordinates this regional program along with the Cities of Lacey, Olympia, and Tumwater. Stream Team volunteers support the McLane Creek Natural Trail Maintenance and Salmon Stewards programs as well as participate in volunteer events coordinated by WSU Extension, a contractor for Thurston County.

4.4.3 *McLane Creek Nature Trail Maintenance*

The County contracts with WSU Extension to coordinate volunteer events to help maintain the Washington State Department of Natural Resources' McLane Creek Nature Trail. Volunteers receive education and real-world examples of stormwater issues and how land management practices and forest ecosystems help support clean water. The trail also provides accessible chum salmon spawning viewing locations for the County's McLane Creek Salmon Stewards program and County-sponsored student salmon viewing fieldtrips.

4.4.4 *McLane Creek Salmon Stewards*

The County provides training and incentives to volunteers (i.e., Salmon Stewards) who serve during the wild chum salmon run along the McLane Creek Nature Trail in late Fall. The volunteers assist at observation points to provide facilitation during high traffic times to keep visitors and dogs away from spawning salmon, answer questions about salmon life history, and make connections between stormwater runoff and clean water for both fish and residents. They also assist with student field trips to observe chum spawning in McLane Creek. After a several year pandemic hiatus, in-person volunteer training resumed in 2023. Stream Team Coordinators offered a three-part basic classroom training which were recorded to provide

training opportunities for people unable to attend in-person. Salmon Steward field training occurs at the McLane Nature Trail.

The Salmon and Cider event encourages people to see the salmon run, hear from the Salmon Stewards, and learn about actions they can take to protect water quality. In 2024, Stream Team staff plan to move the Salmon Steward training curriculum to an online educational platform to increase reach and opportunities for more people to become involved.

4.4.5 Native Plant Salvage Program (NPSP) Sponsorship

The County oversees a sponsorship agreement for WSU Extension's Native Plant Salvage Program (NPSP), which provides additional volunteer opportunities and training on how to identify, remove, and transplant native plants. Volunteers may participate in native plant salvage events at sites slated for development, restoration, and at the McLane Creek Nature Trail. Some of the salvaged native plants may later be used for Thurston County capital improvement, restoration, enhancement, or mitigation projects which can help support protection of clean water.

This program also provides year-round volunteer events and opportunities to sustain an active volunteer base in the County. These volunteers tend to also participate in other stewardship programs such as *Stream Team*, McLane Creek Nature Trail Maintenance, and/or McLane Creek Salmon Stewards.

4.4.6 Tracking & Reporting Stewardship Activities

The County tracks the following metrics related for its stewardship programs:

- Number of participants in an activity
- Number of volunteer hours
- Number of trees planted

5. PUBLIC INVOLVEMENT AND PARTICIPATION

5.1 Overview

Public involvement in the County's Stormwater Program directly links public agencies and elected officials to interested citizens. It greatly enhances the quality and effectiveness of stormwater utility programs by gathering information from community members, creating a shared sense of responsibility, and leveraging local knowledge. In addition, the County sees public involvement as a means to inform and educate citizens, leading to support in the adoption of stormwater solutions with the aim of fostering innovation and more cost-effective solutions. Public participation can help inform and shape the ordinances enacted by the County's elected officials and administered by its departments. It also helps support and compliment the County's regulatory obligations such as implementing programs and actions to help achieve state water quality standards with the aim of making the County's waters more "drinkable, fishable and swimmable."

To meet the obligation under the Permit, as well as to maximize the benefits of public involvement, Thurston County has established the Storm and Surface Water Advisory Board (SSWAB) and conducts extensive public contact through the County's Education and Outreach Program (*Section 4*). In addition, the County hosts a website for the stormwater utility.

The County continues to engage staff, SSWAB, and permittee partners in exploring approaches to effectively engage overburdened communities as well as examine to what extent, if any, the County's stormwater management programs may disproportionately impact certain communities.

5.2 Opportunities for Public Involvement

5.2.1 Storm and Surface Water Advisory Board

The Storm and Surface Water Advisory Board (SSWAB) was established in 1990 by Thurston County Resolution No. 9514, and most recently revised in [Resolution No. 15450](#), in order to provide review and recommendations on issues affecting the County's stormwater utility. SSWAB members, appointed by the Board of County Commissioners (BoCC), serve staggered three-year terms. By resolution, SSWAB composition shall include nine voting members from the utility rate boundary, with two members selected from each of the three BoCC Districts and three members selected at large.

SSWAB develops an annual meeting schedule each November for the following calendar year. Meetings, open to the public, occur six times per year, with materials posted on SSWAB's website in advance of each meeting. While historically held in-person, these transitioned to video conference meetings (with phone-in accommodations) in spring 2020 due to COVID-19. In 2022, the meeting went to a hybrid format allowing participants to attend in-person or via video conference.

Specific duties of the SSWAB established by County Resolution include:

1. Providing public involvement and accountability within the rate boundary where the County collects fees and charges for the stormwater utility
2. Specifically reviewing and providing recommendations to staff and the BoCC on the stormwater utility annual work program, budget, Capital Facilities Plan, rates, and policy proposals
3. Carrying on regular communications with the public and other water resource concerned groups to bring a broad water resource perspective to the stormwater utility. When requested, Storm and Surface Water Advisory Board Members may also serve on, or provide input to, ad hoc committees dealing with other water resource-related issues within Thurston County

In 2020, SSWAB identified and developed performance metrics for the stormwater utility which they track and report on annually during SSWAB's Commissioner briefing. In June 2023, SSWAB held a retreat to strategize their goals and objectives with the intent of identifying priority focus areas for the coming year. [SSWAB's web page](#) contains their full briefings, including their detailed recommendations, accomplishments, and future areas of focus for the coming year.

With the transition to five commissioner districts beginning in 2024, like the County's other advisory boards, the Commissioners will make decisions regarding revisions to SSWAB's guiding resolution and membership composition. One proposal under consideration involves sunseting SSWAB to free up limited staff resources to support a broader community engagement model that would reach a more diverse audience, including underrepresented and overburdened communities.

5.2.2 Stormwater Education and Outreach Program

The County also encourages public involvement in the County's stormwater management program through the broad range of education and outreach programs sponsored by the County. *Section 4* (Education and Outreach) provides a detailed discussion of additional education and outreach programs and activities supported by the stormwater utility that provide opportunities for public involvement and encourage stewardship.

5.2.3 Special Projects

The stormwater utility also provides opportunities for public involvement and outreach as part of special projects including:

- Property owner and community meetings related to specific capital projects proposed for design or construction
- Outreach to stakeholders related to updates of stormwater-related ordinances and guidance

5.3 Website

This [Thurston County stormwater website](#) provides access to news and resources related to the County's stormwater program, such as the *Thurston County Stormwater Management Program Plan* (i.e., this document), *Drainage Design and Erosion Control Manual*, and *Annual Report* to the Washington State Department of Ecology. As an obligation under its Permit, the County posts its current version of this Stormwater Plan and most recent submittal of its annual report on the stormwater utility's website no later than May 31st each year.

6. STORM SEWER SYSTEM DOCUMENTATION

6.1 Municipal Storm Sewer System Mapping

As a component of Thurston County's ongoing asset management program, the County maintains mapping data of its municipal separate storm sewer system (MS4) in a Geographic Information System (GIS). Staff can access this data through the County's VUEWorks asset management software program.

6.2 Mapping Features

The County's datasets meet the Permit's mapping and documentation requirements. Examples of these features include:

- Known MS4 outfalls and discharge points
- Receiving waters
- Stormwater treatment and flow control BMPs
- Tributary conveyances, associated drainage areas and land use
- Connections to and from the MS4
- Size and material of conveyances and outfalls

6.3 Asset Management

The County built a very detailed foundation of data used for daily operation and maintenance related to illicit discharge detection and elimination (IDDE), stormwater facility asset management, utility locates, facility inspections, work order generation, service requests, and technical assistance. County asset management efforts focus on maintenance, identifying structural defects, as well as condition inspection tracking and reporting on the overall condition of its stormwater infrastructure assets.

The County uses VUEWorks asset and maintenance management software to maintain a map of its MS4 in a GIS database. The County edits the data to fit within the established database structure using data collected in the field, from CAD files, or record drawings. Importing the data into VUEWorks results in a searchable database for everyday use in the field and office.

The County continues to map new, replaced or discovered stormwater infrastructure throughout unincorporated Thurston County. Ultimately, the County aims to map the location of all public and relevant private stormwater infrastructure¹⁰ in the unincorporated areas of the County, both inside and outside the Permit regulated area. This is an ongoing challenge due to facility replacement, new development and redevelopment, and discovery of previously unknown systems.

¹⁰ *Relevant private stormwater infrastructure* generally refers to stormwater systems subject to requirements contained in the County's municipal stormwater permit.

7. ILLICIT DISCHARGE DETECTION AND ELIMINATION

7.1 Core Program Functions

An *illicit discharge* (ID) means any direct or indirect non-stormwater discharge to a storm drainage facility except those specifically allowed in Thurston County Code Chapter 15.07.060

B. Examples of illicit discharges include trash or debris, construction material, petroleum products, human and animal waste, chemical spills, and vehicle collision spills. An *illicit connection* (IC) refers to any man-made conveyance connected to the County's storm sewer system without a permit or other form of written approval by the Director of Thurston County Department of Public Works, excluding roof drains and other similar type connections. Examples of illicit connections include sanitary sewer connections and floor drains connected directly to the municipal separate storm sewer system.

Thurston County designed its Illicit Discharge Detection and Elimination (IDDE) program in 2010 to perform the following four core functions on an ongoing basis:

1. Identify potential illicit discharges or illicit connections to the County's storm sewer system (i.e., MS4)
2. Detect, record, and report the characteristics and scope of those discharges or connections
3. Eliminate any illicit discharges or illicit connections
4. Utilize education and outreach programs to help prevent illicit discharges and illicit connections from occurring

To meet its obligation under its municipal stormwater permit, as well as successfully perform these core functions, the County has undertaken the task of mapping its storm sewer system, implementing an ordinance that prohibits illicit discharges and connections, conducting ongoing ID/IC detection staff trainings, and incorporating ID/IC detection into its stormwater facilities inspection program.

7.2 Stormwater Pollution Prevention Ordinance

On September 7, 2010, the BoCC adopted Ordinance 14404, which amended Chapter 15.05 of the Thurston County Code (TCC) and created Chapter 15.07 Illicit Discharge Detection and Elimination Ordinance. This ordinance prohibits the discharge of pollutants into storm drainage facilities within unincorporated Thurston County.

The County initiated a review of its IDDE ordinance to identify amendments needed to reflect, among other things, the administrative changes triggered by the stormwater utility's reorganization and Source Control Program requirements within the Permit. On July 19, 2022, the BoCC adopted Ordinance 16180, which amended Chapter 15.07 Illicit Discharge Detection and Elimination Ordinance creating the Stormwater Pollution Prevention Ordinance.

7.3 IDDE Program

The County maintains publicly listed and publicized phone numbers that citizens, field personnel, and outside agencies can call to report a suspected illicit discharge, illicit connection, or an illegal dumping action. Incidents within the County limits may be reported to the stormwater utility spill reporting number (360-867-2099), the Hazardous Waste complaint number (360-867-2664), or through the [online reporting form](#) located on the County's Stormwater Utility webpage. After-hour emergencies or large-scale incidents get reported through the Department of Ecology's Emergency Spill Hotline (360-407-6300) or by calling 911.

While Thurston County receives reports from a variety of sources, trained stormwater field staff are the primary identifiers of ID/IC. The County's ongoing IDDE program includes private, commercial, and public storm system inspections. The County may discover an ID/IC while:

- Conducting video inspections for system condition assessments, general locating, or construction approval
- Performing daily field work and routine inspections
- Conducting dry weather outfall inspections
- Conducting biannual stormwater pollution prevention plan (SWPPP) inspections

Some, but not all, illicit discharges have obvious and distinct colors, odors, or visual indicator. Other illicit discharges may not be as easy to detect using visual and olfactory senses. County uses the following indicators when performing field screenings:

- Visible signs of staining, residues, or oily substances in the water or detained within ditches, channels, catch basins, or surrounding pavement and soils
- Pungent odors coming from the drainage system (e.g., discharge smells rancid or like sewage, sulfide, petroleum/gas, etc.)
- Abnormal water flow during the dry weather season
- Excessive sediment deposits or turbid waters, particularly near active off-site construction sites
- Floatables (e.g., discharge includes sewage, an oil sheen, suds, etc.)

7.4 Notification Procedures

Upon identifying an illicit discharge or illicit connection, the County implements procedures to eliminate the illicit discharge or illegal connection. For illicit discharges, this also involves characterizing the discharge, tracing its source, and taking appropriate actions to keep the discharge from spreading or causing harm.

In the event of a spill, the County follows the steps outlined in [Figure 1](#). When staff encounter uses of herbicides by private citizens to storm drainage facilities, Thurston County Procedure:

Responding to the Private Use of Herbicides in Storm Drainage Facilities ([Appendix C](#)) provides direction to County personnel regarding the procedures for responding.

When the County becomes aware of an illicit discharge, including spills, into our storm sewer system which constitute a threat to human health, welfare, or the environment, the County takes appropriate action to correct or minimize the threat and notify the Stormwater Operations Manager (360-239-8369) of the incident to initiate the appropriate notification as follows:

- Notify Ecology's southwest regional office (360-407-6300) and other appropriate spill response authorities immediately, but in no case later than with 24 hours of obtaining knowledge of the illicit discharge or spill.
- Immediately report spills or other discharges which might cause bacterial contamination of marine waters, such as discharges resulting from broken sewer lines and failing onsite septic systems, to:
 - Ecology's southwest regional office (360-407-6300)
 - The Department of Health Shellfish Program (360-236-3330 during business hours; 360-789-8962 outside of business hours)
- Immediately report spills or discharge of oils or hazardous substance to:
 - Ecology's southwest regional office (360-407-6300)
 - The Washington Emergency Management Division (1-800-258-5990)

7.5 Response and Remediation

The County responds to identified illicit discharges, illicit connections, or illegal dumping activities using escalating enforcement actions. The first step and preferred approach to address these problems involves pursuing voluntary compliance through private property owner or responsible party education. Often, business operators and property owners are not aware of the existence of illicit connections or activities on their properties that may constitute an illegal discharge. In these cases, providing the responsible party with information about the connection or operation, the environmental consequences, and suggestions on how to remedy the problem may be enough to secure voluntary compliance. Education begins during the site investigation upon confirmation of the illicit discharge or connection.

When voluntary compliance through education does not produce the desired results, the County will pursue enforcement action. Before initiating enforcement, staff are advised to adhere to the authorities and obligations detailed in Chapter 15.07.100 TCC, consult with the Water Resources Division Manager, and inform other County departments, including the Prosecuting Attorney's Office, as necessary.

Thurston County's Public Health and Social Services (PHSS) Department may also use Article 6 of the Sanitary Code to enforce compliance with IDDE through their Environmental Health Division. PHSS tracks and documents investigations and enforcement actions using the software program Amanda.

7.6 Prevention

As part of its ongoing education and outreach program (*Section 4*), the County employs multiple strategies to inform the local community of the importance that preventing illicit discharges plays in protecting water resources and the aquatic environment. These strategies include communications made through social media, the County's website, mailings, newsletters, and brochures as well as during public events, public workshops, and online and print communications published by the regional Stream Team program.

7.7 Training

Field staff and staff responsible for the identification, termination, clean-up, and reporting of illicit discharges (including spills and illicit connections) receive training to conduct these activities as described in the County's *Stormwater Training Plan* ([Appendix B](#)). Employees requiring training include all field staff, including staff responsible for assessing outfalls, and staff responsible for response, tracing, clean-up, and enforcement.



Spill Response

Safety First! If the spill looks hazardous, call 911.

STEP 1: IS THE SPILL REPORTABLE?

YES - the spill IS reportable if ANY of the following are true:

1. It is within a non-paved area (i.e., gravel, dirt, grass).
2. It entered a stormwater facility (i.e., catchbasin, ditch, pond) and/or surface water.
3. It is contained to a paved surface, AND
 - a) It is GREATER than 3 feet in size or
 - b) It has the potential to travel (i.e., downslope, mobilized by rain).

STEP 2: MAKE THE CALL!



Immediately report the spill to your supervisor **AND**
Report it to the County spill hotline at (360) 239-8369.

Leave a detailed message, including:

- 1) Location of spill,
- 2) What spilled,
- 3) How much, and
- 4) Your contact info.

**By Law the County MUST
Track & Report Spills.**

STEP 3: ASSESS THE RISK.

- 1) Non-hazardous spill? Contain & clean-up.
2. Spill looks hazardous? Call 911!

Figure 1: Spill Reporting and Response Matrix

8. CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT, AND CONSTRUCTION SITES

8.1 Overview

This section describes the current and planned compliance activities associated with Section S5.C.6 of the Permit related to Controlling Runoff from New Development, Redevelopment, and Construction Sites. In 2020, the County began reviewing its policy and procedural framework as well as exploring opportunities for process improvements. This effort has resulted in changes and will continue as part of the County's ongoing process improvement efforts.

8.2 Technical Guidance and Standards

The [*Drainage Design and Erosion Control Manual*](#) (DDECM) establishes requirements and provides guidance for managing the quantity and quality of stormwater runoff generated from development and redevelopment in unincorporated Thurston County. This manual complies with the Permit and achieves equivalency with Ecology's 2019 *Stormwater Management Manual for Western Washington* (SWMMWW). The County adopted the 2022 DDECM under Thurston County Code 15.05 on April 12, 2022 and became effective June 30, 2022.

The 2022 DDECM applies to all applications submitted on or after July 1, 2022, that do not have prior vesting under a previous manual. State land use vesting rules apply to projects located outside the Permit-regulated area. For projects located within the Permit-regulated area, the 2022 DDECM (or a superseding DDECM) applies to: 1) project applications submitted before January 1, 2017 that have not started construction by January 1, 2022; or 2) project applications submitted prior to July 1, 2022 that have not started construction by July 1, 2027.

8.3 Permitting and Site Plan Review for New Development and Redevelopment

The County requires all applicants to submit *Drainage and Erosion Control Plans and Reports* meeting the requirements of the DDECM. The County reviews these documents prior to development permit issuance.

In response to the technical complexities in the DDECM, along with an increase in construction and development applications, the County developed the following tools:

- A project review flow-charts ([Appendix D](#)) for projects:
 - a) Triggering DDECM Core Requirements #1-#11
 - b) Not subject to DDECM Core Requirements #6 & #7 and all single-family residential projects
- Stormwater design checklists to improve the completeness and adequacy of plan submittals. The County expects this to reduce the amount of time and workload associated with incomplete applications, project plan deficiencies and resubmittals

As required by the Permit, the County provides copies of the Notice of Intent for construction or industrial activities to representatives of the proposed new development and redevelopment project as part of our review process.

8.4 Stormwater Controls during Construction

[DDECM Volume II](#) describes construction stormwater pollution prevention requirements and key consideration and mechanics for construction stormwater BMPs including:

- Elements to consider when preparing a Construction SWPPP
- Requirements for construction erosion and sediment control, including seasonal limitations
- Standards and specification for source control, and runoff conveyance and treatment BMPs for construction stormwater control and site management

8.5 Site Inspections

8.5.1 Pre-construction

The County conducts a preconstruction erosion and sediment control inspection of all permitted projects that will have land disturbing activities prior to clearing and construction. Land disturbing activities include, but are not limited to, clearing, grading, filling, and excavation as well as compaction associated with stabilization of structures and road construction.

8.5.2 During Construction

During construction projects, the County inspects to verify proper installation, maintenance, and functioning of erosion and sediment controls.

8.5.3 Prior to Final Approval/Occupancy

All projects receive a final inspection to verify that the site is stabilized to prevent erosion and permanent stormwater controls are properly installed and functioning prior to final approval/occupancy. Development Review staff conducts these inspections for smaller projects, such as single-family homes. Inspections for larger projects that will require annual reporting on maintenance of stormwater facilities are performed jointly with the Development Review and Water Resources staff responsible for performing the required ongoing post-construction inspections.

All private projects that connect to the County's MS4 require approval, including submittal of the *Stormwater Conveyance System Connection Application*. Upon approval, Development Review staff meets with Water Resources and Maintenance Operations staff in the field to ensure work is complete and the County receives the necessary information to ensure proper ongoing maintenance.

For private facilities (i.e., single family residence, residential subdivision, or commercial/industrial project), the party (or parties) responsible for maintenance of stormwater facilities and BMPs must execute a project-specific agreement with the County to maintain stormwater facilities and implement a pollution source control plan consistent with the provisions in the DDECM. The responsible party must sign and record the agreement with the Thurston County Auditor's Office prior to final project acceptance by the County.

For County public works projects, the County coordinates per the procedures described in the *Thurston County Project Delivery Manual* which clarifies staff involvement and oversight responsibilities as they pertain to stormwater project design, construction, and post-construction handoff.

Construction Stormwater Inspection and Enforcement Procedures (Appendix E) documents how Thurston County complies with the inspection and enforcement requirements in Permit Condition S5.C.6. The procedures:

- Ensure that standards and specifications set forth in the *DDECM* are consistently implemented, inspected, documented, and enforced.
- Provide a “level playing field” for project proponents, developers, contractors, and builders in Thurston County.
- Protect Thurston County residents, businesses, and stormwater utility ratepayers from incurring unnecessary damage and operations and maintenance (O&M) costs resulting from improper stormwater and drainage work occurring during the construction phase of a project.

Thurston County uses an escalating enforcement policy ([Appendix F](#)) to enforce erosion and sediment control compliance, which ranges from verbal correction notices to stop work orders depending on the nature of the non-compliance issue.

8.5.4 Ongoing Operation and Maintenance Verification

Upon the construction's completion, the County performs inspections to verify the proper operation and maintenance of post-construction stormwater facilities. As required by the DDECM, the developer, per agreement, provides for ongoing maintenance of the facilities until the facilities are turned over to the County, HOA, or other private party. The County conducts annual inspections to ensure proper function of stormwater treatment and flow control facilities unless maintenance records exist to justify a different frequency. The County inspects all catch basins and inlets every two years within its municipal stormwater permit boundary and every two to four years outside the Permit boundary.

During inspection of stormwater facilities, County personnel may discover unauthorized modifications to those facilities. If this occurs, staff should refer to *Thurston County*

Procedure: Responding to the Unauthorized Modification of Storm Drainage Facilities ([Appendix G](#)).

8.6 Enforcement Mechanisms

If sediment and erosion control BMPs are not adequately installed and maintained during construction, the County will attain compliance utilizing steps laid out in the escalating enforcement policy per *Public Works Policy Pol-820* ([Appendix F](#)). If noncompliance leads to a *Stop Work Order* being placed on the property, Thurston County Code contains provisions for enforcement in Title 26.

8.7 Information Management

8.7.1 Private project inspection tracking

County Permit Center staff utilize the AMANDA software to record and maintain inspections and enforcement of private projects. The County is currently working on a replacement permit tracking system scheduled to go into use in 2024.

8.7.2 County project inspection tracking

The County uses Ecology's inspection report forms to track inspections of County construction projects. For projects that require coverage under Ecology-issued construction permits, the County enters discharge monitoring report (DMR) information into Ecology's electronic WQWebDMR system. The County retains hardcopies of the inspection forms for projects that do not require an Ecology permit.

8.8 Training

8.8.1 New Development and Redevelopment Stormwater Controls Training

Staff responsible for reviewing development and redevelopment submittals attend training, both general and specific, pertaining to Thurston County's drainage standards. Most training occurs via outside sources such as those sponsored by Ecology, Washington State University extension, Center for Watershed Protection, and the Washington Stormwater Center. Supplemental Thurston County-specific training occurs on the job. Additional information and updates regarding practices and procedures is shared during weekly staff meetings or during one-to-one discussion. For additional information on related training, please see the *Stormwater Training Plan* in [Appendix B](#).

8.8.2 Construction Stormwater Pollution Prevention Training

All County staff responsible for performing erosion inspections must obtain Certified Erosion and Sediment Control Lead (CESCL) certification. This certification training

occurs through outside sources. For additional information on related training, please see the *Stormwater Training Plan* in [Appendix B](#).

9. MUNICIPAL OPERATIONS AND MAINTENANCE

9.1 Overview

Thurston County developed its Municipal Stormwater Operations and Maintenance Program (O&M Program) to comply with the Permit to prevent or reduce pollutant runoff from municipal operations. The County reviews the O&M Program annually and updates it as necessary. The County performs the inspections and maintenance procedures.

9.2 Technical Guidance and Maintenance Standards

The [*DDECM Volume IV*](#) provides guidance on how to prepare and implement a source control plan to prevent stormwater pollution. [*DDECM Volume V*](#) provides the maintenance standards for permanent stormwater management facilities. The [*Regional Road Maintenance Guidelines*](#) (RRMG) requires the use of a field guide which, among other things, includes stormwater source control BMPs for routine maintenance activities.

The County performs maintenance promptly as necessary to remain compliant with standards. Unless circumstances exist beyond the County's control, when an inspection identifies an exceedance of the maintenance standard, maintenance within the Permit area occurs as follows:

- Within one year for typical maintenance of facilities, except catch basins
- Within six months for catch basins
- Within two years for maintenance that requires capital construction of less than \$25,000

Circumstances beyond the County's control include:

- Denial or delay of access by property owners¹¹
- Denial or delay of necessary permit approvals
- Unexpected reallocations of maintenance staff to perform emergency work

9.3 Inspections and Recordkeeping

The various responsible departments maintain records of training, inspection, and maintenance (or repair) activities as required for annual permit compliance reporting.

As described in *Section 6*, the County inventories and maintains a map of its MS4 in a GIS database accessible through the County's asset management software (i.e., VUEWorks). Public Works Water Resources inspects permanent stormwater facilities that the County owns or operates. Records of all inspections get documented in VUEWorks.

¹¹ To date, stormwater maintenance inspectors have not encountered a situation where access has been denied. However, should such an event emerge, inspectors can seek assistance from the Sheriff's Office to gain access.

9.4 Operations and Maintenance Practices, Policies, and Procedures

The following subsections describe procedures relevant to stormwater operations and maintenance practices.

9.4.1 *Pollution Prevention for Operations and Maintenance Activities*

In 2022, the County completed development of a handbook documenting the pollution prevention practices, policies, and procedures to reduce impacts associated from stormwater runoff from lands owned or maintained by the County, including roads and rights-of-way¹², parking lots, buildings, parks and open space, maintenance yards, and stormwater treatment and flow control facilities. The handbook covers the following activities:

1. Pipe cleaning
2. Cleaning of culverts that convey stormwater in ditch systems
3. Ditch maintenance
4. Street cleaning
5. Road repair and resurfacing, including pavement grinding
6. Snow and ice control
7. Utility installation
8. Pavement striping maintenance
9. Maintaining roadside areas, including vegetation management
10. Dust control
11. Application of fertilizers and pesticides according to the instructions for their use, including reducing nutrients and pesticides using alternatives that minimize environmental impacts
12. Sediment and erosion control
13. Landscape maintenance and vegetation disposal
14. Trash and pet waste management
15. Building exterior cleaning and maintenance

¹² Thurston County Public Works has been a member of the Regional Road Maintenance Program (RRMP) since 2001. The RRMP assisted the County in developing a regional road maintenance program designed to meet the requirements of the Endangered Species Act (ESA). This program helps contribute to the conservation of ESA-listed species by relying on the use of pre-approved BMPs for routine maintenance activities and adaptive management improvements.

9.4.2 Stormwater Treatment and Flow Control Facilities

Public Works Operations performs cleaning of County stormwater treatment and flow control facilities and follows the *RRMG Part 1- Maintenance Category #2* and SWPPP requirements. In addition, the County develops O&M plans for its treatment and flow control facilities. The County tracks inspection, work orders, and maintenance of stormwater facilities in VUEWorks. The County performs spot checks of its permanent stormwater treatment and flow control BMPs/facilities after major storm events (24-hour storm event with a 10-year or greater recurrence interval). If spot checks indicate widespread damage/maintenance needs, all affected stormwater treatment and flow control BMPs/facilities are inspected. Repairs or appropriate maintenance action occurs in accordance with maintenance standards established above.

9.4.3 Catch Basins and Inlets

The County inspects the catch basins and inlets it owns or operates within the geographic scope of the Permit every two years. When a catch basin inspection identifies an exceedance of a maintenance standard, the necessary maintenance occurs within the Permit's six-month timeline.

9.4.4 Exterior Painting

Thurston County's buildings and exterior facilities consist of mostly stone, brick, and metal which do not require painting. When facilities require painting, it takes place during dry weather. All materials used during painting are removed from the area to an approved site for cleaning and crews protect storm drain inlets within 25 feet of work site.

9.4.5 Roof Drains

[*DDECM Volume IV*](#), A7.9 *Roof and Building Drains at Manufacturing and Commercial Buildings*, contains the guidance that the County uses for roof drain maintenance.

9.4.6 Waste Handling and Disposal

The following addresses the generally applicable stormwater runoff pollution prevention BMPs associated with waste handling and disposal:

BMPs for Storage of Liquid or Dangerous Waste

- Clean up leaks and spills
- Store containers in impervious containment under a roof
- Liquids – Use tight fitting lids or bungs; use of drip pans; inspect containers for damage and leaks
- Solids – Elevate or otherwise protect from stormwater

- If generating “dangerous waste” or identifying hot loads, follow [*Ecology Publication #09-04-015 \(revised 2020\) Shop Guide for Dangerous Waste Management*](#). In addition, the County follows all developed SWPPP’s for County facilities and *WARC Decant Operation Plan*
- Comply with *Uniform Fire Code* if waste is flammable, reactive, or explosive
- Cover trash cans and dumpsters

BMPs for Storage or Transfer (outside) of Solid Raw Materials, By-products, or Finished Products

Provide (impervious where necessary) containment with berms, dikes, etc. and/or cover to prevent run-on and discharge of leachate pollutants and total settleable solids

- Do not hose down materials/product to the stormwater system
- Protect storm drainage (e.g., catch basins) and surface water entry points nearest to the pile
- Sweep regularly
- Treat runoff where it has a pathway to the storm sewer or surface waters

Dangerous or Special Wastes

These waste materials typically contain hazardous substances, oils, or exhibit hazardous characteristics such as corrosiveness, ignitability, reactivity, toxicity, or environment persistence. State regulations (WAC 173-303-330) require training for anyone handling and managing these wastes (including, but not limited to waste designation, packaging, labeling, preparing shipping documents, and transporting). Appropriate County staff receive training in the handling and managing of dangerous or special waste, such as hazardous waste operations and emergency response (HAZWOPER) training. Spills that include dangerous waste materials trigger a 911 response.

Street Wastes

Thurston County complies with the Western Washington Phase II Municipal Stormwater Permit, *Appendix 6 – Street Waste Disposal*. When street waste generated by street sweeping or cleaning of catch basins by a vactor (vacuum) truck are taken to the decant facility located at the County’s Waste and Recovery Center, the waste is processed in accordance with the Decant Facility Operations Plan. Prior to removal from the facility, the solids material gets tested to ensure contaminant levels fall within permitted limits. Tested solids suitable for reuse are used on pit reclamation projects. Liquids, including precipitation falling on the site, flow through a treatment train that allows suspended solids to settle out in the facility’s settling bays, drain through two sedimentation structures, and then flow into the permitted pre-treatment aeration pond prior to discharge into the City of Lacey sanitary sewer under Wastewater Discharge Permit No. LA-004 for final treatment at the LOTT Wastewater Treatment Plant. Discharge from the Vactor Waste Decant Facility shall not cause an exceedance of Permit No. LA-004 Solids testing occurs in accordance with the *Solid Waste Permit*, WAC 173-350, *Water Quality Standards for Ground Water of the State of Washington*, and as approved by Thurston

County Environmental Health.

9.5 Operations Facilities

9.5.1 Operations Division

Public Works, Fleet Services, and Emergency Operations provide services from a facility located at 9605 Tilley Road S., Olympia. The facility follows its own Stormwater Pollution Prevention Plan (SWPPP) as it includes heavy equipment and a storage yard. To ensure Permit compliance and improve usability, the SWPPP gets reviewed regularly and was updated in January 2019. The SWPPP is posted on the Stormwater Coordination Team's SharePoint site with the original located in Public Works Buildings A, ER&R Fleet Services.

9.5.2 Solid Waste

The Waste and Recovery Center (WARC) receives all refuse material collected throughout the County. The WARC is located at 2420 Hogum Bay Rd NE, Lacey. In addition to falling under the Permit's coverage, the WARC operates under its own Wastewater Discharge Permit for its discharges to sanitary sewer. To ensure Permit compliance and improve usability, the SWPPP gets reviewed regularly and received an update in 2022. The Stormwater Coordination Team's SharePoint site includes a copy of the SWPPP, with the original located in the main office of the WARC.

9.5.3 Fairgrounds

The Thurston County Fairgrounds, located at 3054 Carpenter Road, Lacey, hosts the annual County fair. The facilities are also available to rent for functions and vehicle storage. The site's stormwater infrastructure falls under the Underground Injection Control Program regulatory scheme (i.e., not the County's Phase II municipal stormwater permit).

9.5.4 Central Services

Central Services, through the Facilities Services Division, has maintenance responsibilities for a number of facilities located in various parts of the County (See [Appendix H](#)).

The Facilities Services Division makes all known, available, and reasonable efforts to reduce stormwater impacts associated with runoff from buildings, sidewalks, parking lots, and driveways owned by the County and maintained by the Department. The Facilities Services Division uses applicable stormwater BMPs in conducting maintenance tasks.

9.5.5 Parks & Trails Program

The Parks & Trails Program manages parkland, trails, historic sites, preserves, and undeveloped land. It conducts operations out of the facility located at 9605 Tilley Road S., Olympia. Developed County parks include:

- Kenneydell – 6745 Fairview Road SW
- Burfoot – 6927 Boston Harbor Road NE
- Frye Cove – 4000 NW 61st Avenue NW
- Deschutes Falls Park – 25005 Bald Hill Rd. SE

9.6 Training

Thurston County implements an ongoing training program for employees whose primary responsibilities involve operations or maintenance job functions that may adversely impact stormwater quality. Operation and maintenance staff receive training on the importance of protecting water quality during maintenance operations. Additional training courses for maintenance personnel may apply based on individual job duties. Follow-up training occurs as needed to address changes in procedures, techniques, requirements, or staffing. For additional information on related training, please see the *Stormwater Training Plan* in [Appendix B](#).

10. SOURCE CONTROL PROGRAM FOR EXISTING DEVELOPMENT

10.1 Core Program Functions

The Permit requires Thurston County to deploy a program to prevent and reduce pollutants in runoff from existing development that discharge to the MS4 by applying operational and structural source control best management practices (BMPs).

The County designed its Source Control Program to perform the following core functions:

1. Maintain an inventory identifying sites that have the potential to generate pollutants to the County's MS4.
2. Inspect potential pollutant generating sources at identified sites.
3. Provide technical assistance on operational and structural practices to prevent and reduce polluted runoff from sites identified in the inventory.
4. Enforce local code requiring BMPs to control pollution discharging or having the potential to discharge to the MS4.

10.2 Source Control Ordinance

On July 19, 2022, the BoCC adopted Ordinance 16180, which amended Chapter 15.07 Illicit Discharge Detection and Elimination Ordinance creating the Stormwater Pollution Prevention Ordinance to meet the Permit's August 1, 2022, deadline to *adopt and make effective an ordinance(s), or other enforceable documents, requiring the application of source control BMPs for pollutant generating sources associated with existing land uses and activities.*

The County will meet these requirements using the source control BMPs in the County's *Drainage Design and Erosion Control Manual*. In cases where the manual lacks guidance for a specific source of pollutants, the County will work with the owner/operator to implement or adapt BMPs based on the best professional judgement.

10.3 Site Inspections

The County has developed an inventory of sites with a potential to generate pollutants to the MS4. The inventory includes businesses or sites identified based on the presence of activities that are pollutant generating or complaint-based from home-based businesses and multi-family sites.

The inspection program:

- Provides outreach to sites identified with activities that may generate pollutants on the new requirements and resources available.
- Annually completes inspections equal to 20% of the number of sites.

10.4 Enforcement Mechanism

The County implements a progressive enforcement policy requiring sites to comply with stormwater requirements within a reasonable timeframe.

10.5 Training

Staff responsible for implementing the source control program will receive training to conduct these activities as described in the County's *Stormwater Training Plan* ([Appendix B](#)).

11. COMPLIANCE WITH TOTAL MAXIMUM DAILY LOAD REQUIREMENTS

11.1 Background

Section 303(d) of the Clean Water Act (CWA) requires states, territories, and authorized tribes to develop lists of impaired waters (i.e., waters too polluted or otherwise degraded to meet the water quality standards set by states, territories, or authorized tribes). The law requires that these jurisdictions establish priority rankings for these listed waters and develop corresponding Total Maximum Daily Loads (TMDLs). A TMDL represents the numerical value of the highest amount of pollutant a surface water body can receive and still meet water quality standards. Any amount of pollution exceeding the TMDL level needs to be reduced or eliminated. Pollution sources fall into two broad categories: “point source pollution” and “nonpoint source pollution”, based on federal regulations. Point source pollution is discharged by a discernable, confined, and discrete conveyance (e.g., pipes, ditches) and subject to NPDES permitting under Section 402 of the CWA. Nonpoint source pollution, by contrast, comes from many diffuse sources not subject to NPDES permitting.

TMDLs assign *wasteload allocations* (WLAs) to point sources of pollution and *load allocations* (LAs) to nonpoint sources of pollution. The TMDL Water Quality Improvement Report and Implementation Plan (WQIR/IP) sets out the pollution reduction actions required for nonpoint and point sources in the TMDL area to ensure TMDL allocations are met, ultimately leading to compliance with water quality standards. WLAs established for discharges from permitted municipal stormwater systems are implemented via the municipal stormwater permit program. As a result, the County must demonstrate compliance with specific requirements identified in the TMDL water quality cleanup plan and listed in Appendix 2 of the Permit.

11.2 Engaging in TMDL Development

The County tracks and participates in the development of TMDLs for waterbodies in Thurston County. During the public comment period for the proposed Water Quality Assessment, the County reviews each proposed water quality impairment listing to determine if any inaccuracies or incomplete information exists, and/or if supporting data suggests a waterbody has been improperly categorized. The County then submits its comments to Ecology for their consideration.

Once the water quality assessment concludes that a TMDL must be established to address water quality impairments, Ecology solicits participation in an advisory group to help guide the development of the associated Water Quality Improvement Plan. As a participant in an advisory group, the County helps steer the development of the plan by:

- Committing to participate in the multi-year process.
- Cooperatively working with Ecology and other stakeholders to use the best available science and share local knowledge about implementation challenges and opportunities.

- Sharing applicable water quality data, where available.
- Advising and suggesting ideas on effective strategies and implementation actions to improve water quality.
- Reviewing, editing, and providing comments on draft documents.

The County's engagement in TMDL development processes helps improve the chances that WLAs and permit actions are appropriate and effective in reducing pollutant discharges and ultimately meet water quality standards.

TMDL water quality cleanup plans inform the County's efforts to prioritize and direct resources to the most meaningful projects and programs by identifying critical watershed areas and activities that could help address water quality impairments. The County takes a proactive approach to prevent and address known impairments and is building partnerships, both within and outside the County, to leverage existing resources and local knowledge to develop more informed and meaningful implementation strategies.

11.2.1 Interagency Team

While the County works hard to contribute meaningfully to the development of TMDLs, there has been much discussion over the last decade about the efficacy of the TMDL program in successfully addressing water quality impairments. In order to assist in the effort to improve our state's approach to assessing and cleaning up impaired water bodies, the County has been participating in an [Interagency Team](#) (IAT). The IAT consists of staff from the King, Kitsap, Pierce, Snohomish, and Thurston Counties; Cities of Bothell and Everett; and the Washington State Department of Transportation. Key areas of interest include identifying:

- Criteria Ecology uses for determining which waters are added and removed from the state's list of polluted waters. This includes methods for ensuring the list reflects the waterbody's actual and current conditions based on scientifically credible and legally defensible decisions.
- Criteria and methods for prioritizing impaired waters for TMDL development.
- Methods for determining the level of effort and rigor necessary for TMDL studies ranging from complex multi-year sampling and analysis efforts to the "straight to implementation" approach.
- Criteria for selecting TMDL implementation actions based on the pollutant(s) of concern in municipal stormwater runoff.
- Approaches successfully used in other states.

To date, the IAT has developed the following nine key recommendations:

1. Establish a multi-stakeholder standing committee to improve coordination and engagement with the regulated community.
2. Implement existing regulatory authority related to unpermitted and nonpoint sources.
3. Refine water quality standards and water quality assessment methodologies.
4. Improve and employ consistent processes for collecting, assessing, and utilizing credible data in Water Quality Assessment and TMDL development.
5. Refine water quality assessment categories to improve clarity and aid in defining priority water bodies.
6. Update the current biological assessment and listing methodology.
7. Define TMDL prioritization methodology, timelines, and process for public involvement.
8. Define TMDL development methodology.
9. Develop consistent TMDL implementation expectations.

The IAT has developed strategies and working agendas in an effort to initiate implementation of the key recommendations. The goal of the IAT effort aims to increase the efficacy of Water Quality Assessment and TMDL program in Washington State in order to restore water quality and remove impaired waterbodies from the 303(d) list.

11.3 Thurston County TMDL Compliance Requirements

Thurston County implements assigned TMDL actions specified in Appendix 2 of the Permit. Applicable areas in Thurston County include the Nisqually River Basin Reach (WRIA 11), Deschutes River Watershed (WRIA 13), and Henderson Inlet Watershed (WRIA 13). With the upcoming 2024 Permit reissuance, the County expects additional actions associated with the Budd Inlet (WRIA 13) TMDL.

Tables 8.3a and 8.3b and 8.3c, provide greater detail on the County's permit-related obligations associated with each of the three existing TMDLs. The content was excerpted and adapted from Appendix 2 of the Permit. In addition to performing these specific actions, the Permit requires the County to keep records associated with these TMDL-related actions and report annually on the status of TMDL implementation as part of its annual permit report submittal to Ecology. On August 6, 2021, EPA transmitted revised final TMDLs for the Deschutes River and its tributaries to Ecology. These new TMDLs were developed for sediment, bacteria, dissolved oxygen, pH, and temperature. To date the TMDL's implementation plan (i.e., the water cleanup plan), including how TMDL waste load allocations are incorporated into municipal stormwater permits, remains unchanged.

Stormwater Management Program Plan

Table 8.3a: Nisqually River Basin TMDL Requirements

Document(s) for TMDL	<i>Nisqually Watershed Bacteria and Dissolved Oxygen Total Maximum Daily Load (Water Cleanup Plan): Submittal Report</i> <i>Nisqually River Basin Fecal Coliform Bacteria and Dissolved Oxygen Total Maximum Daily Load: Water Quality Implementation Plan (WQIP)</i>
Areas Where TMDL Requirements Apply	Requirements apply in all areas regulated under the Permittee's municipal stormwater permit and discharging to water bodies listed within the specific requirement in this TMDL section.
Parameter	Fecal Coliform, Dissolved Oxygen
Task Description	
Annually implement the following best management practices for reducing fecal coliform bacteria in areas discharging to the Nisqually Reach via the MS4 in accordance with the Permit:	
a. Reach households in targeted watershed through mailings, door hangers, etc. to increase awareness of the sources of bacteria pollution. b. Adequately maintain vegetation around stormwater facilities, ditches, and ponds.	

Table 8.3b: Deschutes River Watershed TMDL Requirements

Document(s) for TMDL	<i>Deschutes River, Percival Creek, and Budd Inlet Tributaries Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load Technical Report: Water Quality Study Findings</i> <i>Deschutes River, Percival Creek, and Budd Inlet Tributaries Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Fine Sediment Total Maximum Daily Load: Water Quality Improvement and Implementation Plan</i>
Area Where TMDL Requirements Apply	Requirements apply in all areas regulated under the Permittee's municipal stormwater permit and discharging to water bodies listed within the specific requirement in this TMDL section.
Parameter	Temperature
Task Description	
1. Annually report on temperature reduction measures in the watershed.	

Table 8.3c: Henderson Inlet Watershed TMDL Requirements

Document(s) for TMDL	<i>Henderson Inlet Watershed Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Temperature Total Maximum Daily Load Study</i> <i>Henderson Inlet Watershed Fecal Coliform Bacteria, Dissolved Oxygen, and pH Total Maximum Daily Load: Water Quality Improvement Report Implementation Strategy</i> <i>Henderson Inlet Watershed Fecal Coliform Bacteria Total Maximum Daily Load: Water Quality Implementation Plan</i>
Area Where TMDL Requirements Apply	Requirements apply in all areas regulated under the Permittee's municipal stormwater permit and discharging to water bodies listed within the specific requirement in this TMDL section.
Parameter	Fecal Coliform, Dissolved Oxygen, pH, Temperature
Task Description	
1. Annually implement the following best management practices in areas discharging to the Henderson Inlet via the MS4 in accordance with the Permit: a. Require phosphorus control for new and redevelopment projects that discharge via the MS4 to Woodard Creek and meet the project thresholds in <i>Appendix 1, Minimum Requirement #6: Runoff Treatment of the Permit</i> .	
2. Annually implement the following best management practices for reducing fecal coliform in areas discharging to the Henderson Inlet via the MS4 in accordance with the Permit: a. Enhance screening in Henderson Inlet in areas of concern. Investigation shall include stormwater ponds and on-site septic systems as potential fecal coliform sources, and sampling of wet-weather discharges (November-April)	
3. Annually implement the following best management practices for reducing fecal coliform in areas discharging to the Henderson Inlet via the MS4 in accordance with the Permit: a. Continue offering public education and outreach efforts for fecal coliform reduction such as brochures, signage, and pet waste stations to homeowner associations.	

11.4 Thurston County Programs and Activities that Address TMDL Requirements

Many Thurston County departments and divisions are engaged in implementing the TMDL requirements including Community Planning & Economic Development, Environmental Health, and Public Works. This requires ongoing coordination, support, and education on permit compliance and TMDL implementation activities. This inter-county partnership allows the County to make continuous improvements to its implementation of TMDL-related activities and make more insightful and relevant contributions during TMDL development processes. Details regarding Thurston County programs and activities that address TMDL requirements are provided in greater detail in other sections of this document. In addition, the County actively evaluates additional programs and partnership opportunities that may help address TMDL-related water quality impairments.

12. MONITORING

12.1 Overview

Monitoring of streams, lakes, groundwater, and weather has been ongoing in Thurston County for over 20 years. The information obtained from the monitoring programs helps inform land use studies, regulations, and provides information used in efforts to improve water quality and protect people and property. For example, the County uses this data to develop and calibrate hydrologic models and identify problem areas requiring further assessment and remediation. The monitoring program also incorporates water quality and quantity data from multiple County sources in a centrally accessible database.

This section describes how Thurston County meets the Permit requirements related to water quality monitoring and assessment. This section also describes the programs and activities that occur outside of the Permit's regulatory framework as well as future planned activities.

12.2 Stormwater Action Monitoring

Ecology established the Regional Stormwater Work Group (RSWG) to develop a Regional Stormwater Monitoring Program for Puget Sound, now renamed Stormwater Action Monitoring (SAM), that was integrated into the 2013 reissuance of the Western Washington Municipal Stormwater Phase I and II permits. Thurston County originally participated in the RSWG and will continue to participate to evaluate the results of the program and assist in the development of status and trends, source identification, and BMP effectiveness monitoring for inclusion in the next iteration of the stormwater permit as time permits.

In August of 2019, Thurston County notified Ecology that it chose the Permit option that allows paying into the collective fund to implement the SAM in lieu of conducting independent monitoring studies. Our contribution to the monitoring elements of the Permit for 2019 includes the following annual payments:

- *Status and Trends Monitoring* - \$8,371 to help implement SAM for small streams and marine near shore status and trends monitoring in Puget Sound
- *Effectiveness Studies and Source Identification Monitoring* - \$15,299 to help implement the SAM effectiveness and source identification studies

12.3 Thurston County Environmental Monitoring Program

Thurston County's Environmental Monitoring Program (TCEMP) includes ambient water quality, limited biological, and physical monitoring elements. The ambient water quality monitoring samples lakes and streams throughout the County for multiple parameters including pH, specific conductivity, dissolved oxygen, turbidity, nitrogen, phosphorous, and E-coli bacteria as well as chlorophyll a and phaeophytin for lakes. The physical monitoring element includes weather monitoring (precipitation, temperature, evaporation, wind speed/direction,

solar radiation, and evapotranspiration), stream flow, lake level and water transparency (Secchi disk) and groundwater level monitoring.

The physical environmental monitoring program supports the emerging needs of the County for landslide analysis, groundwater protection, water availability, and Low Impact Development implementation. The program includes live telemetry at twenty-one locations throughout the County, including thirteen weather stations, four streamflow stations, one lake level station, and one groundwater monitoring site.

The GData database platform, the engine behind the County's online [Monitoring Dashboard](https://thurstonwater.org/monitoring) (<https://thurstonwater.org/monitoring>), allows multiple users to access datasets from 20+ years of water quality and water quantity data using a seamless interface. However, the transition away from using GData as the data repository has begun as the database can no longer handle the new types of data sets the County plans to add. The County also found errors in how GData calculates and reports some types of data. Environmental Health has begun entering water quality data into the U.S. EPA's WQX database. In 2024, the County plans on evaluating and selecting a commercial software product to replace GData.

12.3.1 Stream Flow Monitoring

Stream flow monitoring includes 21 stream gage sites evaluated for flow and temperature. The program monitors stream stage continuously using data loggers and completes a stream cross section and flow calculation several times per year. Stage-discharge curves are developed from this data at regular intervals to provide flow history for each stream.

Rating curves for each stream are completed and certified as needed using scientifically defensible statistical methods for flow volume calculations. The County uses these curves to generate flow quantities from stage-discharge relationships at each stream monitoring site.



Figure 2: Stream flow monitoring

12.3.2 Weather Monitoring

Thurston County monitors 22 weather stations located throughout the County. All weather stations record temperature and precipitation. Most stations also track relative humidity, barometric pressure, wind speed and direction, solar radiation, and evapotranspiration. The weather stations, distributed throughout the County, provide uniform coverage while avoiding significant overlap.

A National Oceanic and Atmospheric Agency weather station at the Olympia Airport also collects weather data. This constitutes an important part of the monitoring program as the County uses its data as a standard for statistical calculations and comparisons to the County's weather station data.



Figure 3: Precipitation station

12.3.3 Groundwater Monitoring

Groundwater level monitoring occurs at over 48 wells throughout the County. Many of these wells are in the Salmon Creek Basin, an area that has a history of high groundwater flooding. Well loggers installed in most wells provide a continuous record of groundwater level. A few wells are only monitored monthly for groundwater level. Data download occurs monthly.

The County has reoriented the groundwater monitoring program from project-driven to an ambient status and trends program, more in keeping with the stream and weather monitoring programs. This expanded network of groundwater calibration points supports predictive analysis of flooding, determinations of stream baseflows, and contaminant migration into streams and lakes.



Figure 4: Groundwater monitoring equipment

12.3.4 Lake Water Level

Lake level monitoring currently includes three lakes: Long Lake, Lake St. Clair, and Black Lake. A volunteer reports lake levels for Hicks Lake. Additional lakes are being considered for level monitoring. Real-time automated monitoring of Lake St. Clair and of Black Lake Ditch reduces program costs and enhances our ability to monitor inundation risks to nearby residents and at-risk species.

12.3.5 Ambient Water Quality Monitoring

Thurston County Environmental Health (EH) Division of the Public Health and Social Services Department conducts ambient water quality monitoring on the County's numerous lakes, streams, and rivers. Stream water quality monitoring, conducted monthly, includes parameters such as pH, temperature, conductivity, dissolved oxygen, total phosphorous,

nitrate + nitrite nitrogen, turbidity, and e-coli bacteria. Monitoring occurs at 13 sites on nine lakes between May and October. Monitoring at Summit Lake will occur monthly through 2024. In addition, ambient water quality monitoring occurs at 33 sites, 22 monthly and 11 quarterly, 23 with streamflow data. The County deploys continuous temperature sensors at all our stream sampling locations. This improves our ability to characterize diurnal cycling (i.e., daily fluctuations) and to accurately calculate statistics like the seven-day average daily maximum temperature.

12.3.6 Macroinvertebrate

Thurston County's Macroinvertebrate (B-IBI) monitoring program is a staff-led opportunity for volunteers to collect stream data. B-IBI monitoring rotates to different sites around the County each year; sites are visited every three to five years, after an initial establishment phase of 2-3 consecutive sampling years.

12.4 Pollution Identification and Control (PIC)

Thurston County Environmental Health (EH) initiated a pilot pollution identification and correction (PIC) program in the Henderson Inlet watershed in 2019. That program consisted of targeted monitoring of specific streams for bacteria that could contribute to shellfish bed infection and closures. Based on the success of that pilot, EH applied for and received a grant from the Washington Department of Health to expand the PIC program to the Totten and Eld inlet watersheds. That project, completed in September 2022, involved shoreline surveys of both inlets during which all flowing fresh waters (i.e., streams, groundwater seeps, small drainpipes, stormwater outfalls, etc.) were sampled, E. coli bacteria "hot spots" confirmed, and investigation either completed or still in process.

The Black Lake PIC Project began in late 2022 with grant funding from the Washington State Department of Ecology, matched with other state funds received by local health departments state-wide. That project targets intensive sampling of all tributaries to Black Lake for E. coli bacteria and total phosphorous. It also involves "door to door" sanitary surveys of at least 400 priority properties with the aim of both preventing, identifying, and correcting sources of E. coli bacteria (e.g., failing septic systems, animal waste, etc.) and total phosphorous (e.g., fertilizers, human and animal waste, etc.).

While mostly prohibited for shellfish harvest, Budd Inlet has a small approved area located at its entrance. At minimum, the County will sample within the approved area upon completion of the Eld Inlet Shoreline Survey. Sampling could occur within the prohibited areas of Budd Inlet, but budget limitations may preclude completing such work. Additional PIC efforts involve investigating 40 acres of tidelands in the Nisqually Reach closed to harvest due to elevated fecal coliform results within multiple freshwater drainages. The County hopes that these 40 acres will re-open to harvest at some point in 2024.

PIC monitoring starts by establishing multiple monitoring points along individual streams and sampling them on a regular basis to help investigators determine which segments experience the highest levels of pollution. The County adds monitoring stations (if possible) within the polluted segments to enable investigators to further home in on the pollution's source. The County then conducts sanitary surveys of properties in the most polluted segments to identify and locate sources of pollution and provides targeted public education to target elimination of those sources. In instances where diagnostic efforts involve a stormwater outfall, source tracing sampling can continue up the storm sewer conveyance pathway. The diagnostic process utilizes land use characterizations, stormwater facilities inventories, septic system maintenance records, field observations (e.g., windshield surveys), and outreach to help verify the source(s). Once the County identifies the pollution source(s), the County works with the landowner to reduce or eliminate it.

12.5 Reporting

The County has historically prepared ambient water quality monitoring and physical monitoring reports typically on an annual basis to summarize the results and posts the data reports to its website:

- [Ambient water quality monitoring data](#)
- [Water Year Reports](#)

However, the County has been working with a consultant to develop both professional data dashboards and a public facing dashboard that should be available in the first quarter of 2024. Additionally, the County prepares and posts reports for each completed pollution identification and correction project. The reports include details on the number of E. coli bacteria “hot spots” located and confirmed, the number of property sanitary surveys completed, and the number of pollution sources corrected during the project. Work also includes the development of a web-based map depicting E. coli bacteria “hot spot” investigations and their status.

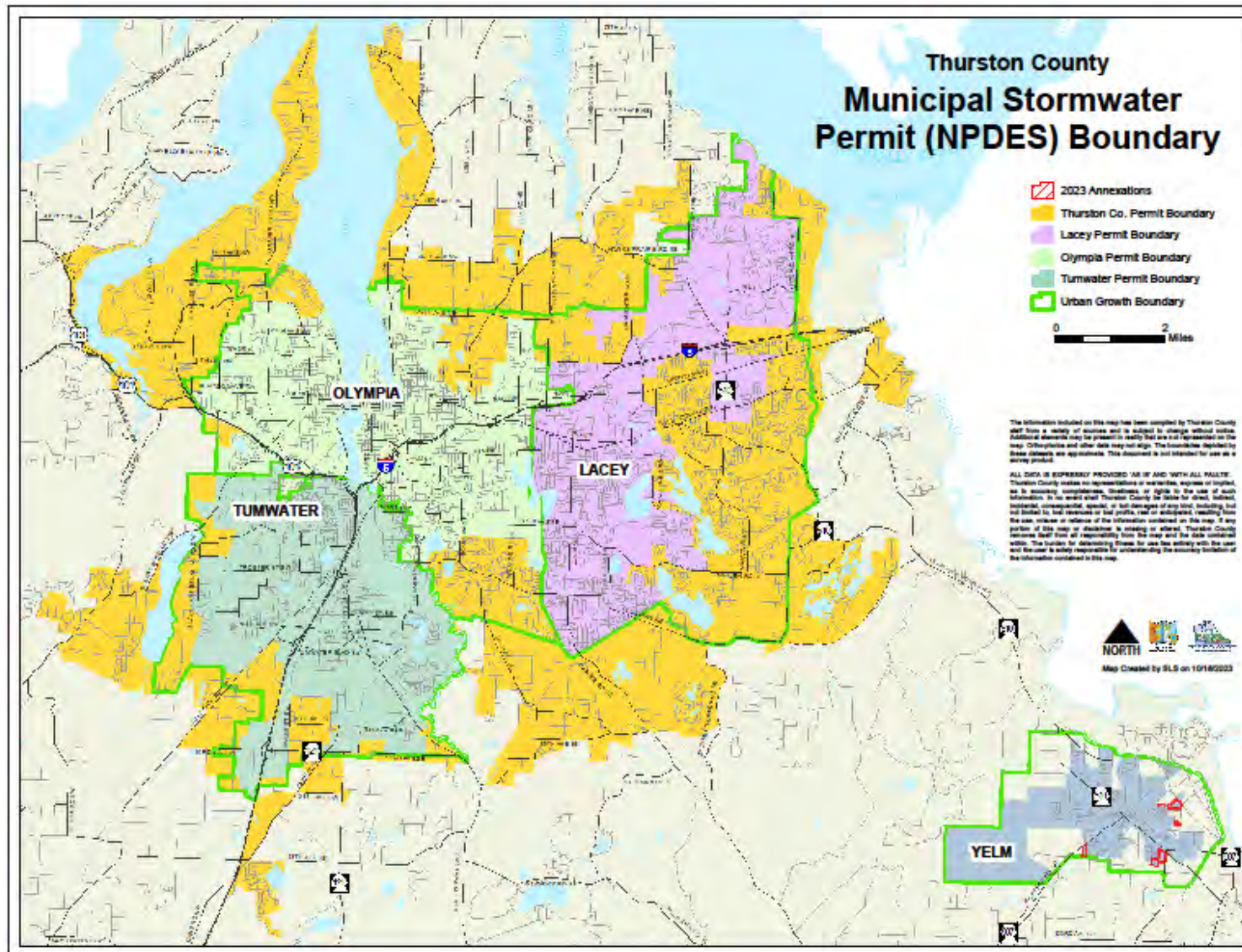
12.6 Planned Activities

Going forward, Thurston County's monitoring program will continue to collect, analyze, and disseminate data on ambient water quality, stream flow, groundwater, and rainfall to inform stormwater system management, design, and retrofits. The County intends to:

- Continue funding SAM as required by the Permit.
- Continue to participate in the RSWG's Local Caucus sub-committee, time permitting.
- Continue to implement program changes identified in the Phase 1 & 2 monitoring program evaluations.

- Certify and publish all updated rating curves for County streams included in the TCEMP monitoring program plan.
- Continue to develop database capabilities for rapid evaluation and reporting of customized data presentations.
- Maintain and expand the online *Dashboard* to allow rapid data access.
- Expand and incorporate all new and proposed telemetered field stations as they become operational for real time access to field conditions via the online *Dashboard*.
- Implement recommended changes to the 2018 Groundwater Monitoring Plan.
- Invest in upgrading field equipment to incorporate telemetry as a standard operating practice.
- Invest in upgrades to web development of front-end capabilities for online data sharing.
- Assist in Countywide data projects for real-time advanced notification warning of vulnerable flood areas (in cooperation with Emergency Management and Environmental Health).
- Evaluate changes to Federal Emergency Management Agency Insurance Rate Maps.

APPENDIX A



APPENDIX B

THURSTON COUNTY STORMWATER MANAGEMENT TRAINING PLAN

2023 v4



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Introduction

Thurston County prepared this *Stormwater Training Plan*, in consultation with the Stormwater Coordination Team, to facilitate deployment of the training requirements set forth in the Western Washington Phase II Municipal Stormwater Permit (Permit). This training plan receives periodic updates to reflect changes in regulations, advancements in stormwater management, and the evolution of the County's policies, procedures, and practices. [Appendix 1](#) of this training plan contains the specific permit conditions that require training for County staff who have a direct or indirect job duties that fall into the following stormwater program areas:

1. Illicit Discharge Detection and Elimination (IDDE)
2. Controlling Runoff from New Development, Redevelopment and Construction Sites
3. Operations and Maintenance (O&M)
4. Source Control
5. Enforcement

For each of these program areas, the *Stormwater Training Plan* describes the audience (i.e., the groups or positions that need the training), curriculum, training delivery mechanism, and training frequency. Refresher training occurs as needed to address changes in procedures, techniques, requirements, or staffing. The responsibility lies with the supervisors to document that their staff receives the applicable training.

Illicit Discharge Detection and Elimination

The IDDE training fulfills Permit Special Conditions S5.C.5.d.iii and S5.C.5.f. This training is tailored toward three audiences:

- Field staff
- Sheriff's Deputies
- IDDE Investigators

1.1 Field Staff

Field staff who, as part of their normal job responsibilities, might encounter or otherwise observe a spill, illicit discharge, and/or illicit connection to the County's municipal separate stormwater sewer system (MS4) receive training on: 1) identifying spills, illicit discharges, and illicit connections; and 2) proper procedures for reporting and responding to these incidents following the County's *Spill Reporting Matrix*.

1.2 Sheriff's Deputies

Deputies receive training on identifying spills and the proper procedures for reporting them via TCOMM 911.¹

¹ Thurston 911 Communications (TCOMM 911) is a countywide enhanced 911 answering point and dispatch center for all law enforcement, fire services, and Medic One departments.

1.3 IDDE Investigators

Staff responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges (including spills and illicit connections) receive additional training to conduct these activities. This includes training on the use of the [Illicit Connection and Illicit Discharge Field Screening and Source Tracing Guidance Manual](#) (ID-IC Manual). Staff responsible for assessing stormwater outfalls receive training on how to map, trace, and characterize illicit discharges and connections. This training includes the use of the VUEWorks asset management software program to assist in identifying the areas contributing to the illicit discharge/connection, possible pollutant entry points upstream, and aquatic resources and health and safety risks downstream of the discharge.

Table 1. IDDE Program Area

Target Audience	Curriculum Description	Training Delivery	Training Frequency
Field staff	IDDE program overview, including information on how to identify and report suspected spills, illicit discharges, and illicit connections	➤ Online IDDE & Spill Response training ²	➤ Within six months of hire ➤ Online IDDE & Spill Response Refresher every two years ³
Deputies	Spill identification and reporting procedures via TCOMM 911	➤ Online Spill Response for Sheriff Deputies training ⁴	➤ Within six months of hire ➤ Refresher training as needed to address changes in procedures
IDDE Investigators	Source tracing, investigation, termination, and cleanup of spills, illicit discharges, and illicit connections	➤ Online IDDE & Spill Response Training ⁵ ➤ IC-ID Field Screening & Source Tracing Guidance Manual and related training ⁶ ➤ Read TCC 15.07 ; MS4 Permit Special Condition S4.F, and General Condition G3 ➤ HAZWOPER ⁷ 40-hour ➤ VUEWorks training	➤ Within six months of hire ➤ Online IDDE & Spill Response Refresher every two years ⁸ ➤ 8-hour annual HAZWOPER

² Access training at: <https://www.thurstonlearning.org/>

³ Access training at: <https://www.thurstonlearning.org/>

⁴ Access training at: <https://www.thurstonlearning.org/>

⁵ Access training at: <https://www.thurstonlearning.org/>

⁶ Training via workshops, webinars, or [Washington Stormwater Center's online videos](#).

⁷ Hazardous Waste Operations and Emergency Response

⁸ Access training at: <https://www.thurstonlearning.org/>

Controlling Runoff from New Development/Redevelopment/Construction Sites

Training for controlling stormwater runoff from new development, redevelopment, and construction stormwater fulfills Permit Special Condition S5.C.6.e. Refer to 3.1 below for training related to S5.C.6.c.iv. duties. This training is tailored to staff teams responsible for:

- Permitting
- Plan review and designing Public Works construction and maintenance projects
- Construction site oversight and inspections
- Building inspections & maintenance

2.1 Permit Development Center Staff

Staff responsible for reviewing low impact development (LID) code applicability and stormwater-related documents to identify potential conflicts with other codes (e.g., steep slopes, wetlands, critical areas, and shorelines).

2.2 Stormwater Plan Reviewers and Project Designers for Capital and Maintenance Projects

Stormwater plan reviewers and designers for public works construction and maintenance projects receive training to conduct these activities. Training includes site plan and report review per the guidelines in the County's *Drainage Design and Erosion Control Manual* (DDECM)⁹ and supporting documents, project review flowcharts, public works construction and maintenance projects coordination procedures, Certified Erosion and Sediment Control Lead (CESCL) certification, and best management practice (BMP) selection/design.

2.3 Construction Site Inspectors and Road Operations Crew Chiefs

Construction Inspectors and Road Operations Crew Chiefs receive training on temporary erosion and sediment control (TESC) and construction stormwater pollution prevention per the guidelines in the County's DDECM and related recordkeeping. They also maintain CESCL certification.

2.4 Building Inspectors, Fire Code Specialists, and Maintenance Staff

Building Inspectors, Fire Code Specialists, and Public Works and Facilities maintenance staff receive training on what to look for and report to construction inspectors regarding TESC and construction stormwater pollution prevention.

⁹ WSDOT's Highway Runoff Manual (HRM), as applicable for road projects.

Table 2. New Development/Redevelopment/Construction Stormwater Program Area Training

Target Audience	Curriculum Description	Training Delivery	Training Frequency
Building Development Center staff	LID code applicability per Ordinance 16151	➤ Read LID codes per Ordinance 16151	➤ Within six months of hire ➤ Refresher training as needed to address changes in codes and procedures
Stormwater Plan Reviewers and Project Designer for Capital and Maintenance Projects	Reviewing site plans and reports for new development, redevelopment, and construction activity; applying DDECM (HRM, as applicable for road projects); and LID principles and codes.	➤ Site Plan Review Training videos ¹⁰ ➤ Read SWMPP <i>Chapter 8</i> and <i>Appendix D</i> ; <i>Thurston County Public Works Project Delivery Manual Chapters 3 & 6</i> ; DDECM ¹¹ ; and LID codes per Ordinance 16151 ➤ Hydrologic analysis & modeling (e.g., WWHM, MGSFlood) ➤ CESCL	➤ Within six months of hire ➤ Obtain CESCL certification within six months of hire; recertify every three years ➤ Refresher training as needed to address changes in procedures, techniques, and requirements
Construction Site Inspectors and Road Operations Crew Chiefs	Assessing compliance with TESC, construction stormwater pollution prevention plans (SWPPPs), and applicable drainage codes. Related recordkeeping.	➤ Read SWMPP <i>Sections 8.4-8.6</i> and <i>Appendices E & F</i> ; and DDECM <i>Volume II</i> ➤ CESCL	➤ Obtain CESCL certification within six months of hire; recertify every three years ➤ Refresher training as needed to address changes in procedures, techniques, and requirements
Building Inspectors, Fire Code Specialists, and Public Works and Facilities maintenance staff	Identifying and reporting deficiencies in erosion and sediment control and construction stormwater pollution prevention.	➤ Online Erosion & Sediment Control training ¹²	➤ Within six months of hire ➤ Refresher training as needed to address changes in procedures, techniques, and requirements

¹⁰ Posted on [Washington Stormwater Center's website](#).

¹¹ WSDOT Highway Runoff Manual (HRM) training, as applicable.

¹² Access training at: <https://www.thurstonlearning.org/>. Not required for those with CESCL certification.

Operations and Maintenance

Operations and Maintenance (O&M) training fulfills Permit Special Conditions S5.C.7.e. as well as duties related to S5.C.6.c.iv. This training is tailored to staff responsible for:

- Transitory-located O&M
- County facilities M&O
- Inspection of public and private stormwater facilities

3.1 Transitory-Located Field Staff

Field staff working in their normal job duties at transitory project locations (e.g., roads, parks, utilities, capital facility construction, etc.) or responding to emergency situations receive training on DDECM operation and maintenance standards, good housekeeping, and BMP selection.

3.2 County Facility Maintenance Staff

Staff whose primary responsibility or main duty station is a County facility (e.g., Facilities, Fleet, and Solid Waste) receive training on DDECM operation and maintenance standards, good housekeeping, and BMP selection, and applicable Stormwater Pollution Prevention Plans (SWPPPs).

3.3 Stormwater Facility Inspectors

Stormwater facility inspectors receive training on DDECM operation and maintenance standards, inspection procedures, SWPPPs, and recordkeeping.

Table 3. Operations and Maintenance Program Area Training

Target Audience	Curriculum Description	Training Delivery	Training Frequency
Transitory-located field staff	DDECM O&M standards BMP and good housekeeping selection, installation, and maintenance per DDECM, HRM, and the Regional Road Maintenance Program (RRMP)	➤ WSDOT 8-hour RRMP field training ➤ Read <i>SWMPP Section 9; Thurston County Stormwater Pollution Prevention Handbook; and DDECM Appendix V-C</i> ¹³	➤ Within six months of hire ➤ Refresher training to address changes in procedures, techniques, and requirements
County facility maintenance staff (i.e., Facilities, Fleet, and Solid Waste)	BMP and good housekeeping selection, installation, and maintenance per DDECM or applicable SWPPP In-depth knowledge of facility SWPPPs	➤ SWPPP walk throughs ➤ Read <i>SWMPP Section 9; Thurston County Stormwater Pollution Prevention Handbook; Tilley or Waste and Recovery Center (WARC) SWPPP (as</i>	➤ Within six months of hire ➤ Refresher training to address changes in procedures, techniques, and requirements

¹³ Vactor and Street Sweeper Operators also need to read Western WA MS4 Permit Appendix 6 – Street Waste Disposal.

		<i>applicable), and DDECM Appendix V-C</i>	
Stormwater facility inspectors	DDECM O&M standards BMP and good housekeeping per DDECM In-depth knowledge of facility SWPPPs	➤ Read SWMPP Section 9 and Appendices D, E, and G; <i>Thurston County Public Works Project Delivery Manual</i> ; <i>Tilley and WARC SWPPP</i> ; and <i>DDECM Appendix V-C</i>	➤ Within six months of hire ➤ Refresher training to address changes in procedures, techniques, and requirements

Source Control

Source Control training fulfills Permit Special Condition S5.C.8.b.v. Staff responsible for implementing the source control program receive training on source control BMPs and their proper application, inspection protocols, and escalating enforcement procedures.

Table 4. Source Control Program Area Training

Target Audience	Curriculum Description	Training Delivery	Training Frequency
Source control site inspectors	DDECM source control standards BMP and good housekeeping per DDECM	➤ Read Source Control Inspection Guidance Manual & complete associated training ➤ Read <i>SWMPP Section 10</i> and <i>DDECM Volume IV Chapters 4 & 5</i>	➤ Within six months of hire ➤ Refresher training to address changes in procedures, techniques, and requirements

Code Enforcement

Code Enforcement training fulfills Permit Special Conditions S5.C.6.e and S5.C.8.b.v. County code enforcement staff obtain CESCL certification and training on County DDECM, IDDE, and Source Control code enforcement, policies, and procedures. This includes compliance with erosion and sediment control standards, SWPPPs, and pollution prevention plans.

Table 5. Code Enforcement

Target Audience	Curriculum Description	Training Delivery	Training Frequency
Code enforcement staff	Enforcement compliance of DDECM, IDDE, and Source Control codes per the County's code enforcement policies and procedures.	➤ Read <i>SWMPP Sections 8.6 & 10</i>, and <i>Appendices E & F</i>; TCC 15.05, TCC 15.07, and Title 26 ➤ CESCL	➤ Within six months of hire ➤ Obtain CESCL certification within six months of hire; recertify every three years ➤ Refresher training to address changes in procedures, techniques, and requirements

Tracking and Recordkeeping

The County uses a spreadsheet to track and maintain stormwater-related staff training records. Tracking and recordkeeping responsibilities lie with the supervisors for their applicable staff. Supervisor responsibilities includes ensuring the spreadsheet documents the training for all applicable team members based on their staff's roles and responsibilities related to *Sections 1-5* in the *Training Plan*. Managers and supervisors can generate reports from the spreadsheet to assess adherence with the training plan as well as inform annual employee development planning.

Appendix 1 - Permit Conditions Related to Training

S5.C.5.d.iii.

An ongoing training program for all municipal field staff, who, as part of their normal job responsibilities, might come into contact or otherwise observe an illicit discharge and/or illicit connection to the MS4, on the identification of an illicit discharge and/or connection, and on the proper procedures for reporting and responding to the illicit discharge and/or connection. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staffing. Permittees shall document and maintain records of the trainings provided and the staff trained.

S5.C.5.f.

Permittees shall train staff who are responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges, including spills, and illicit connections, to conduct these activities. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staffing. Permittees shall document and maintain records of the training provided and the staff trained.

S5.C.6.e.

Each Permittee shall ensure that all staff whose primary job duties are implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. Follow-up training must be provided as needed to address changes in procedures, techniques, or staffing. Permittees shall document and maintain records of the training provided and the staff trained.

S5.C.7.e

Implement an ongoing training program for employees of the Permittee whose primary construction, operations, or maintenance job functions may impact stormwater quality. The training program shall address the importance of protecting water quality, operation and maintenance standards, inspection procedures, relevant SWPPPs, selecting appropriate BMPs, ways to perform their job activities to prevent or minimize impacts to water quality, and procedures for reporting water quality concerns. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staffing. Permittees shall document and maintain records of training provided. The staff training records to be kept include dates, activities or course descriptions, and names and positions of staff in attendance.

S5.C.8.b.v.

Permittees shall train staff who are responsible for implementing the source control program to conduct these activities. The ongoing training program shall cover the legal authority for source control, source control BMPs and their proper application, inspection protocols, lessons learned, typical cases, and enforcement procedures. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staff. Permittees shall document and maintain records of the training provided and the staff trained.

APPENDIX C

Thurston County Procedure: Responding to the Private Use of Herbicides in Storm Drainage Facilities

Section 1. Purpose

This procedure provides direction to County personnel regarding the procedures for responding to the private use of herbicides in storm drainage facilities in unincorporated Thurston County. This procedure clarifies a portion of the Thurston County Stormwater Pollution Prevention Ordinance; [Thurston County Code 15.07](#).

Section 2. Definitions

"Department" means any division; subdivision; or organizational unit of the County established by ordinance, rule, or order.

"Director" means the Director of the Thurston County Public Works Department or any duly authorized representatives of the Director.

"Discharge" means to throw, drain, release, dump, spill, empty, emit, or pour forth any matter or to cause or allow matter to flow, drain, run, or spill into a storm drainage system, surface water, ground water, or onto the surface of the ground.

"Stormwater Pollution Prevention Ordinance" means the Thurston County Pollution Prevention Ordinance; [Thurston County Code 15.07](#).

"Illicit discharge" means any direct or indirect non-storm water discharge into a municipal storm drainage system except those specifically allowed in [Section 15.07.060](#) of Thurston County Code.

"Integrated pest management (IPM)" means an approach to pest and vegetation control that utilizes regular monitoring to determine if and when treatments are needed. The approach emphasizes physical, mechanical, cultural, and biological tactics to keep pest numbers or vegetation problems low enough to prevent intolerable damage, annoyance, or public safety hazards. When chemical controls are necessary, they will be the least toxic available and will be used only when no other control methods would be effective or practical. Components for integrated pest management programs are established in the [Thurston County Pest and Vegetation Management Policy](#).

"Municipal storm drainage facility" means any storm drainage facility which Thurston County owns or has a right-of-way or easement to maintain.

"Noxious weed" means a plant listed on the [Thurston County noxious weed list](#) adopted pursuant to RCW 17.10.090.

“Nuisance/invasive vegetation” means any herbaceous or woody plant or tree species that interferes with the drainage, design, capacity, maintenance, and/or function of a storm drainage facility. Examples include, but are not limited to, Cattail, Himalayan Blackberry and Red Alder.

"Person" means any individual, association, municipality, government agency, organization, partnership, firm, corporation, or other entity recognized by law and acting as either the owner or as the owner's agent.

"Private" means not holding public office or employment with Thurston County (e.g., a private citizen, association, or business).

"Repair and maintenance" means those activities associated with the routine care and upkeep of a structure, development, land use, or activity.

"Responsible party" means the owner of a property, premises, or facility on which a violation has occurred, any person who engages in any activity in violation, or any person who, through an act of commission or omission, procures, aids or abets a violation.

"Right-of-way" means an area dedicated to public use for pedestrian and vehicular movement, which may also accommodate public utilities.

"Storm drainage facility" means any public or privately-owned facility by which stormwater is collected, conveyed, and/or treated, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, catch basins, piped storm drains, pumping facilities, retention and detention basins, ditches, human-made or altered drainage channels, swales, reservoirs, and other drainage structures.

Section 3. Affected Departments

This procedure applies to all Thurston County departments involved directly or indirectly in the inspection, monitoring, planning, operation, repair and/or maintenance of storm drainage facilities, or any related education, outreach, or compliance activity.

Section 4. Procedure

1. Background: The Board of County Commissioners adopted Ordinance 14404 on September 7, 2010, amending Chapter 15.05 of the Thurston County Code, and adopting Chapter 15.07 - Illicit Discharge Detection and Elimination (IDDE) Ordinance. In July 2022, Ordinance 16180 amended Chapter 15.07 to also address source control and changed its title to – Stormwater Pollution Prevention. The ordinance aims to prevent the contamination of stormwater runoff and comply with the Western Washington Phase II Municipal Stormwater Permit.
2. The Stormwater Pollution Prevention ordinance (15.07.060.A – Discharge Prohibitions) states “It is unlawful for any person to dump, spill, or allow to be discharged any pollutant into a municipal storm drainage system.” The ordinance lists 22 examples of illicit discharges “...including, but not limited to: “9. Pesticides, herbicides, or fertilizers.”
3. **Applicability to municipal storm drainage facilities:** The Stormwater Pollution Prevention ordinance prohibits private citizens from applying (i.e., discharging) herbicides to municipal

storm drainage facilities, including ditches and swales. As such, the private application of herbicides to municipal storm drainage facilities would constitute an illicit discharge.

4. **Applicability to non-municipal (private) storm drainage facilities:** The *Thurston County Drainage and Erosion Control Manual* (DDECM) contains best management practices (BMPs) for vegetation and landscape management, including pesticide use, based on IPM principles:
 - o **BMPs for Commercial and Industrial Facilities:** The DDECM contains required and suggested BMPs for the use of pesticides (including herbicides) at commercial and industrial facilities. See [DDECM Volume IV](#):
 - BMP A3.6 Landscaping and Lawn/Vegetation Management.
 - BMP A3.11 Pesticides and an Integrated Pest Management Program; and
 - BMP A4.10 Storage of Pesticides, Fertilizers, or Other Products That Can Leach Pollutants
 - o **BMPs for Single Family Residences:** The DDECM contains required and recommended BMPs for residential yard maintenance and gardening, including pesticide use. It states, in part: “Never apply fertilizers over water or adjacent to ditches, streams, or other water bodies.” See [DDECM Volume IV](#):
 - BMP 6.5 Yard Maintenance and Gardening

The [DDECM Volume V](#) contains maintenance checklists for various storm drainage facilities (e.g., detention ponds, infiltration basins, treatment wetlands, bioretention, etc.) to ensure that facilities function according to their intended purpose and design. Vegetation management in storm drainage facilities typically involves mowing or other mechanical methods. In cases where herbicide use is necessary to control [noxious weeds](#) or manage nuisance/invasive vegetation that interferes with facility function/capacity, a licensed pesticide applicator must:

- 1) Apply the herbicide according to the [FIFRA label](#);
- 2) Obtain any necessary state, local, and federal permits; and
- 3) Prevent discharges that may cause or contribute to violations of water quality standards.

Following vegetation management, the operator must revegetate any bare or denuded soils to control erosion, restore facility function, and prevent the discharge of sediment and other pollutants. The application of herbicides to private stormwater facilities, in accordance with this procedure is consistent with Section 15.07.060.B.12²⁶ and therefore does not constitute an illicit discharge under [Section 15.07.060](#).

Section 5. Procedures, Roles, and Responsibilities

1. Thurston County will respond to IDDE violations related to herbicide applications to municipal storm drainage facilities in accordance with its escalating enforcement procedures.
2. Thurston County will initially rely on education and technical assistance to gain compliance with the Stormwater Pollution Prevention ordinance. A notice of violation may be issued.

²⁶ Exceptions to Illicit Discharges. Section 15.07.060.B.12: A person employing properly designed, constructed, implemented, and maintained BMPs and carrying out AKART to prevent pollution of stormwater is considered to be in compliance with sub-section 15.07.060.A above.

3. When education and technical assistance fail to resolve the issue, or when the violation poses a hazard to public health, safety, or welfare, the Director of the Public Works Department in consultation with the Director of the Community Planning and Economic Development Department, his/her Compliance Officer, or a duly authorized representative of the Director, as the situation dictates, may pursue formal enforcement up to and including civil penalties, cease and desist orders, and/or emergency orders, under the authority of Thurston County code (TCC 15.07.040).

Municipal Storm Drainage Facilities

Staff responding to reports or observations of herbicide applications to municipal storm drainage facilities will initiate education and technical assistance with the responsible party. Staff will:

- Explain the prohibition on applying herbicides to municipal storm drainage facilities, based on the Stormwater Pollution Prevention ordinance
- Explain the option to maintain vegetation using mechanical means, if appropriate
- Give the responsible party a hard copy of Thurston County's *Roadside Ditches* pamphlet and/or other appropriate guidance document(s)
- If applicable, follow-up with any complainants and explain status of the County's response
- Document the incident in the County's Asset Management Software

Non-Municipal Storm Drainage Facilities

Staff responding to reports or observations of the herbicide applications to non-municipal storm drainage in a manner inconsistent with Section 4.4 of this procedure will initiate education and technical assistance with the responsible party. Staff will:

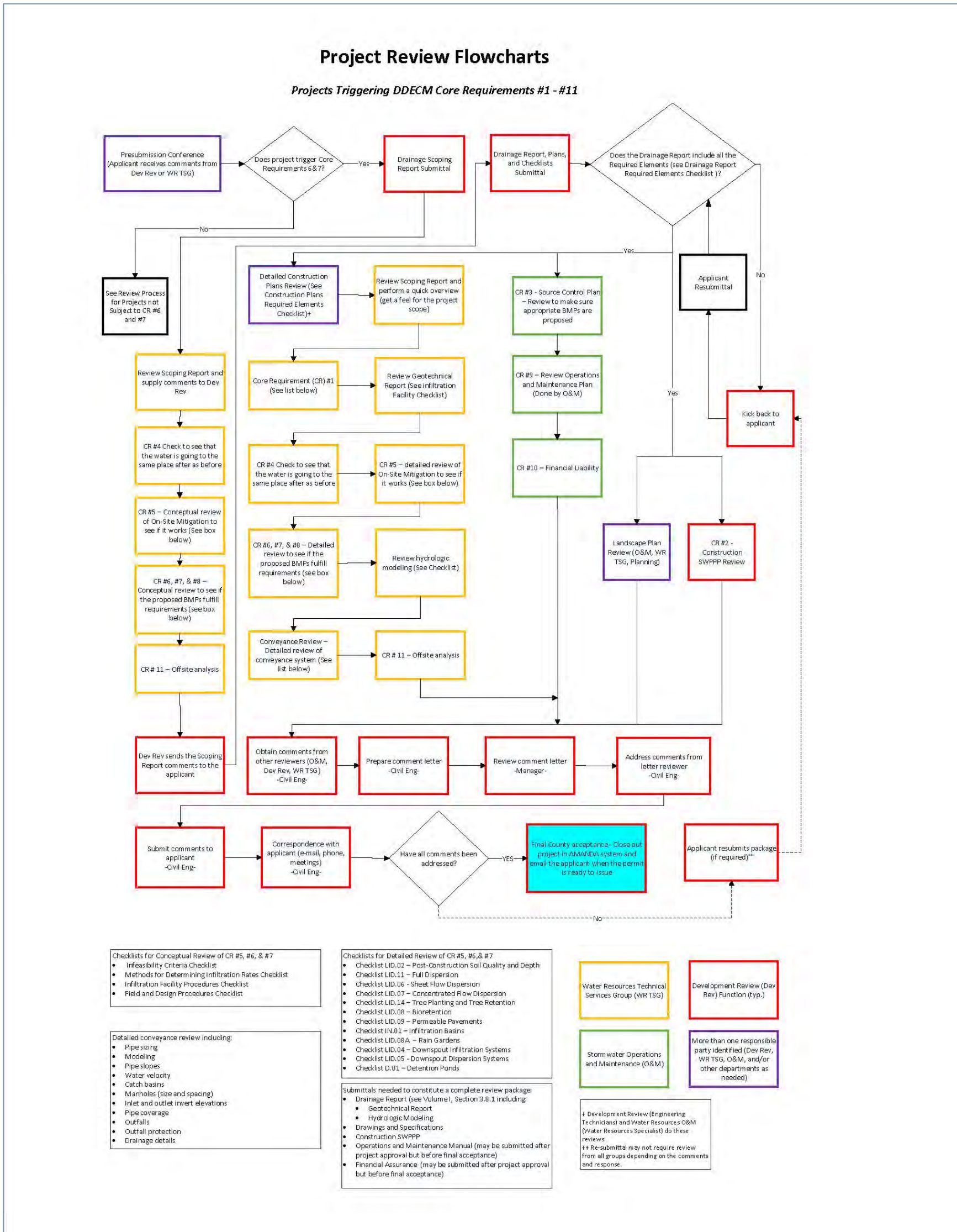
- Investigate and attempt to determine if herbicide applications are being performed in accordance with Section 4.4 of this procedure and provide education/technical assistance, as appropriate
- If applicable, follow-up with any complainants and explain status of the County's response
- Document the incident in the County's Asset Management Software

Noxious Weed Management

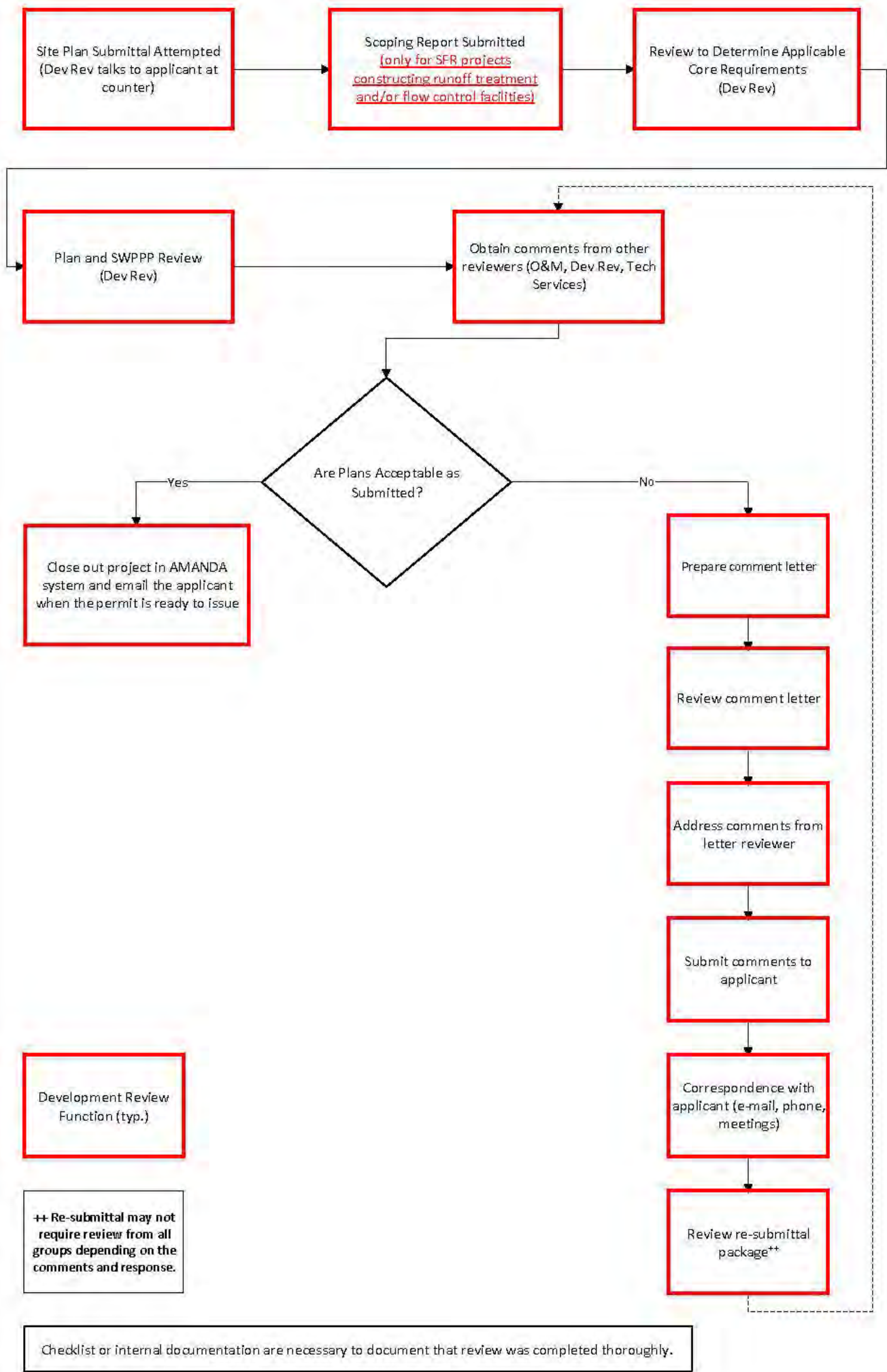
Thurston County Public Works (PW) uses mechanical methods (e.g., mowing) to manage vegetation in municipal storm drainage facilities. However, PW also uses herbicides to eradicate noxious weeds in accordance with the [Thurston County Pest and Vegetation Management Policy, Chapter 17.10 RCW](#) and [Section 15.07.060\(9\)](#) of the Stormwater Pollution Prevention Ordinance.

When a citizen reports the presence of noxious weeds within municipal storm drainage facilities to any Department, staff will put the citizen in contact with the PW Noxious Weed Manager for follow-up, including noxious weed eradication, if necessary.

APPENDIX D



Projects not Subject to CR #6 and #7 Plan Review
and Single-Family Residential Projects



APPENDIX E

Thurston County Procedure: Inspection and Enforcement

Section 1. Purpose

The procedures describe how Thurston County complies with the inspection and enforcement requirements in the Western Washington Phase II Municipal Stormwater Permit; specifically, Condition S5.C.4 - *Controlling Runoff from New Development, Redevelopment and Construction Sites*.

In addition, these procedures:

- 1) Ensure that standards and specifications set forth in the *Thurston County Drainage Design and Erosion and Sediment Manual (DDECM)* are consistently implemented, inspected, documented, and enforced.
- 2) Provide a “level playing field” for project proponents, developers, contractors, and builders in Thurston County.
- 3) Protect Thurston County residents, businesses, and stormwater utility ratepayers from incurring unnecessary damage and operations and maintenance (O&M) costs resulting from improper stormwater and drainage work occurring during the construction phase of a project.

Section 2. Applicability

These procedures apply to County staff responsible for inspections and code compliance at development, redevelopment, and construction sites within unincorporated Thurston County including, but not limited to: 1) private development project permitted by Thurston County, 2) County public works projects, or 3) any other projects/activities requiring erosion and sediment control (ESC) best management practices (BMPs) for which a permit has been issued by the County.

Section 3. Related Regulatory Documents

The most current version of the following:

- Department of Ecology-issued [Western Washington Phase II Municipal Stormwater Permit](#)
- Department of Ecology-issued [Construction Stormwater General Permit](#)
- [Thurston County Drainage Design and Erosion Control Manual](#)
- Thurston County Code – [Title 15 Public Works](#)
- Thurston County Code – [Title 26 Code Enforcement](#)
- Thurston County Public Works [POL-820: Escalating Enforcement Policy](#) for Erosion and Sediment Control Compliance

Section 4. Definitions

"Best Management Practices (BMPs)" means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs may include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

"Certified Erosion and Sediment Control Lead (CESCL)" means an individual who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by the Washington State Department of Ecology.

"Department" or "department" means the Thurston County Community Planning and Economic Development Department or the Thurston County Public Works Department, as appropriate.

"Director" or "director" means the director of the Thurston County Community Planning and Economic Development Department or the director of the Thurston County Public Works Department, as appropriate, and the director's designees.

"Discharge" means to throw, drain, release, dump, spill, empty, emit, or pour forth any matter or to cause or allow matter to flow, drain, run, or spill into a storm drainage system, surface water, ground water, or onto the surface of the ground.

"Illicit discharge" means any discharge to the County's municipal storm drainage system except those specifically allowed in [Section 15.07.060](#) of Thurston County Code.

"Municipal storm drainage facility" means any storm drainage facility which Thurston County owns or has rights-of-way or easements to maintain.

"Person" means any individual, association, municipality, government agency, organization, partnership, firm, corporation, or other entity recognized by law and acting as either the owner or as the owner's agent.

"Pollutant" means contamination or other alteration of the physical, chemical, or biological properties of waters of the state, including change in temperature, taste, color, turbidity, or odor of the water, or such discharges of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to the public health, safety or welfare, or domestic,

commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or livestock, wild animals, birds, fish, or other aquatic life.

"Responsible party" means the project proponent or their contractor for which a violation of County Code has occurred, any person who engages in any activity in violation of County code, or any person who, through an act of commission or omission, procures, aids, or abets a violation of County code.

"Stormwater pollution prevention plan (SWPPP)" means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of stormwater.

Section 5. Inspection and Documentation

Thurston County inspectors shall follow established procedures for inspecting and documenting work completed under a County-issued permit or public works contract. If a pre-construction conference is scheduled for the project, emphasis should be placed on the proper installation and maintenance of ESC BMPs and other requirements of the site's construction Stormwater Pollution Prevention Plan (SWPPP) or Erosion and Sediment Control Plan. Identify the Construction Erosion and Sediment Control Lead (CESCL) by name at the pre-construction conference. Identify the applicable permittee for sites issued a Construction Stormwater General Permit by the Washington State Department of Ecology.

Staff will complete a Thurston County Construction Stormwater Site Inspection Form for all erosion and sediment control inspections associated with new development, redevelopment, and construction sites and provide it to the responsible party within the shortest practicable timeframe. The form collects key information regarding the project, site conditions, BMPs evaluated, and specific corrective actions that must be addressed by the responsible party to comply with applicable permit requirements/codes. The form also contains additional detail about BMP standards and specifications under the 13 elements of pollution prevention set forth in the DDECM.

An electronic copy of all inspection-related information gathered on a given day (i.e., inspection report, photos, etc.) must be entered into the County's permitting database on the same day, unless unusual circumstances prevent an inspector from doing so.

At a minimum, Thurston County will conduct and document compliance inspections at all projects covered by these procedures: 1) prior to construction, 2) a minimum of one-time during construction (typically weekly during active construction), and 3) upon completion of construction and prior to final approval or occupancy.

1. Prior to Construction

Inspect, prior to clearing and construction, all permitted development sites and public works projects for which an ESC Plan and/or SWPPP has been completed. No clearing, grading,

grubbing, or removal of surface structures may occur until an inspection occurs to verify the proper installation of ESC BMPs.

2. During Construction

Inspect all permitted development sites and public works projects during construction to verify proper installation and maintenance of required erosion and sediment controls. Verify that the contractor is documenting changes to the site's SWPPP, if applicable. Enforce as necessary based on the inspection, per the procedures outlined below.

3. Upon Completion of Construction

Inspect all permitted development sites and public works projects upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater facilities.

Verify completion of a maintenance plan and assignment of maintenance responsibilities for stormwater treatment and flow control BMPs/facilities. Enforce as necessary based on the inspection, per the procedures outlined below.

Section 6. Enforcement²⁷

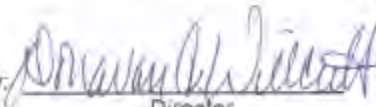
If a project inspected by the County Engineer, Water Resources Manager, or their designee finds the project in a state of non-compliance with applicable permits and/or codes, the County will pursue the escalating enforcement actions contained in *POL-820: [Escalating Enforcement Policy for Erosion and Sediment Control Compliance](#)* if a reasonable level of technical assistance/verbal warning to the responsible party does not achieve voluntary compliance.

Section 7. Conflict with County Code

In the event of any conflict or inconsistency between these procedures and a County Code, the applicable Code shall take precedence.

²⁷ The County holds public works projects to the same DDECM erosion and sediment control standards as private projects. As such, the County and contractors working on behalf of the County are subject to the escalating enforcement strategy provided in this procedure. However, a contractual relationship between the County and a contractor may require the County to modify the enforcement strategy as necessary to prevent conflict or inconsistency with the terms and conditions of the applicable contract. Compliance and enforcement actions for public works projects require close coordination between the Director(s), inspection and compliance staff and, as appropriate, the prosecuting attorney's office.

APPENDIX F

Effective Date: 10-30-13 Revised Date:	Page 1 of 2
PUBLIC WORKS POLICY	
Supersedes: New See Also:	Approved by:  Director

POL-820: Escalating Enforcement Policy for Erosion and Sediment Control Compliance

This policy establishes a formal procedure to be followed when enforcement action is necessary on construction sites that do not comply with the erosion and sediment control Best Management Practices (BMP) installation and maintenance procedures contained in the Drainage Design and Erosion Control Manual (DDECM) adopted by reference under Title 15 Public Work of the Thurston County Code (TCC).

Once site conditions have been verified by the County Engineer or his/her authorized representative, and if the site is determined to be in a state of non-compliance, the following enforcement actions will be pursued.

1. Correction Notice

A correction notice may be used for minor issues. These may include lack of installation and maintenance of appropriate erosion and sediment control BMPs or failure to address minor deficiencies in existing BMPs, (Such as adding more straw mulch, repairing silt fence, re-covering stockpiles, etc). Correction notices may be verbal or written. Verbal correction notices will be documented within the permitting software (currently 'Amanda') under the project or via a letter sent to the responsible party. The time period for implementing corrections required by the correction notice will be provided with the notice. A reasonable effort to obtain a voluntary correction should be pursued.

The County may bypass enforcement action step #1 and advance immediately to enforcement action step #2 based on the severity of the impact, a discharge to the County's MS4, threat to human health, welfare and/or the environment and/or past compliance issues with the responsible party.

2. Stop Work Order

If voluntary correction by the responsible party cannot be reached within the timelines set in the 'Correction Notice' described above, a formal violation will be assessed against the responsible party and a physical stop work order will be posted onsite. The violation will then be forwarded onto the Compliance Section for official processing.

In general, once a stop work order is issued a notice of violation letter will be sent to the responsible party describing the types of violations and timelines to come into compliance. If these timelines are not met, citations and civil penalties can be assessed against the responsible party.

Washington State Department of Ecology will also be contacted at this stage of non-compliance to help aid with enforcement under the responsible party's individual National Pollutant Discharge Elimination System (NPDES) Construction Permit.

3. Emergency Work and Immediate Hazards

If an immediate hazard to public safety is present, the County may abate such hazard without following the procedures of this policy. Any work determined by the County Engineer to be an emergency shall be exempt from erosion and sediment control requirements for forty-eight hours; at which time the County Engineer will evaluate if the emergency will allow erosion control BMPs to be followed. If the County Engineer determines that it is practical to use erosion control BMPs, then the provisions of this policy will go into effect.

APPENDIX G

Thurston County Procedure: Responding to the Unauthorized Modification of Storm Drainage Facilities

Section 1. Purpose

This document provides direction to County personnel regarding the procedures for responding to the unauthorized modification of storm drainage facilities in unincorporated Thurston County.

Section 2. Definitions

"Department" means any division, subdivision, or organizational unit of the County established by ordinance, rule, or order.

"Director" means the Director of the Thurston County Community Planning and Economic Development Department, or any duly authorized representatives of the Director.

"Municipal storm drainage facility" means any storm drainage facility which Thurston County owns or has a right-of-way or easement to maintain.

"Person" means any individual, association, municipality, government agency, organization, partnership, firm, corporation, or other entity recognized by law and acting as either the owner or as the owner's agent.

"Private" means not holding public office or employment with Thurston County, e.g., a private citizen, association, or business.

"Private storm drainage facility" means any storm drainage facility which Thurston County does not own or have a right-of-way or easement to maintain.

"Responsible party" means the owner of a property, premises, or facility on which a violation has occurred; any person who engages in any activity in violation; or any person who, through an act of commission or omission, procures, aids or abets a violation.

"Right-of-way" means an area dedicated to public use for pedestrian and vehicular movement, which may also accommodate public utilities.

"Storm drainage facility" means any public or privately-owned facility by which stormwater is collected, conveyed, and/or treated, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, catch basins, piped storm drains, pumping facilities, retention and detention basins, ditches, human-made or altered drainage channels, swales, reservoirs, and other drainage structures.

Section 3. Affected Departments

This procedure applies to all Thurston County departments involved directly or indirectly in the inspection, monitoring, planning, operation, repair and/or maintenance of storm drainage facilities, or any related education, outreach, or compliance activity.

Section 4. Regulatory Background Storm Drainage Facilities

1. [Title 13 – Roads and Bridges](#) establishes regulations regarding roads and bridges.
2. [Chapter 13.56 – Thurston County Rights-of-Way](#) establishes regulations to provide administrative, procedural, and technical guidance for the installation, replacement, adjustment, maintenance, repair and relocation of all facilities, construction excavation encroachments, and work activities which are located within or upon the County rights-of-way.
3. [Chapter 15.05 – Thurston County Stormwater Standards](#) adopts by reference the [2022 Drainage Design and Erosion Control Manual](#) for Thurston County.
4. [Chapter 15.07](#) establishes the Stormwater Pollution Prevention ordinance.
5. [Title 18 – Platting and Subdivisions](#) establishes regulations regarding the subdivision of land, including, but not limited to, the safety and general welfare in accordance with established standards; to promote safe and convenient travel by the public on streets and highways; to provide for adequate water, drainage, sewer and other public facilities; and to maintain and perpetuate environmental quality.
6. [Title 26 – Code Enforcement](#) governs code enforcement for a number of different titles and sections of the Thurston County Code as listed in [26.05.010](#).

Section 5. Site Assessment and Prioritization

1. For purposes of this document, storm drainage facilities fall into three categories:
 - o Category 1 (High Priority):
 - Facilities constructed under TC DDECM Minimum (Core) Requirement 5, 6, or 7¹
 - MR 5: Onsite Stormwater Management
 - MR 6: Runoff Treatment
 - MR 7: Flow Control
 - Ponds
 - o Category 2 (Medium Priority):
 - Swales (grass-lined), or any other non-Category 1 treatment facility
 - Culverts
 - Any conveyance directly discharging to a 303(d)-listed water body
 - o Category 3 (Low Priority):

¹ Based on the [Drainage Design and Erosion Control Manual \(DDECM\)](#) published November 2009 and updated/adopted in June 2022. For purposes of this section, Minimum Requirement (MR) means Core Requirement (CR).

- Other non-Category 1 and 2 conveyance ditches
2. Risk Factors
- o Staff apply best professional judgement to determine if one or more of the *risk factors* below pertain to an unauthorized stormwater facility modification:
 - Public Health and Safety
 - Flooding
 - Impact to Water Quality
 - Non-compliance with County's Municipal Stormwater Permit
 - Maintenance Issue, e.g., causes mowing problem, safety concern, etc.
 - Precedence, e.g., potential to start adverse trend in neighborhood or locality
3. Modification of a Category 1 (High Priority) facility
- o If one or more risk factors listed in *Section 5.2* are present, staff will notify the responsible party and seek resolution of the issue according to *Section 6*.
 - o For purposes of this section, Public Works Crew Chiefs will screen issues reported by staff before seeking resolution with the responsible party.
4. Modification of a Category 2 (Medium Priority) facility
- o If one or more risk factors listed in *Section 5.2* are present, staff will notify the responsible party and seek resolution of the issue according to *Section 6* if the modification/work is currently underway or recently done where there is a reasonable opportunity to correct/undo with modification. However, if the modification/work pertains to historical/legacy issues that would be overly burdensome and unreasonable to correct, staff may apply discretion and choose not to prioritize the issue for resolution.
5. Modification of a Category 3 (Low Priority) facility
- o If one or more risk factors listed in *Section 5.2* above are present, *and the situation is the subject of a citizen complaint*, staff will conduct site visit, determine the severity of the situation, and make a determination regarding the appropriate response including compliance procedures in *Section 6*. Staff will follow up with the complainant to inform them of the status of the issue.
 - o If one or more risk factors listed in *Section 5.2* above are present, *but the situation is not the subject of a citizen complaint*, staff may notify the responsible party and seek resolution of the issue according to *Section 6* depending on potential impact/risk and workload.
 - Staff will give consideration to whether the modification/work is currently underway or recently done where there is a reasonable opportunity to correct/undo with modification, as opposed to historical/legacy issues that would be burdensome and unreasonable to correct.

Section 6. Procedures, Roles and Responsibilities

1. Thurston County will initially rely on education and technical assistance to gain compliance with ordinances related to municipal and private stormwater drainage facilities.
 - o A stop work order or notice of violation may be issued, on a case by case basis.
 - o In cases where immediate action is required to solve an erosion or drainage problem, the County may perform the necessary construction or remedial work per [15.05.030](#).
2. Depending on the nature of the potential impact/risk associated with the modification/work, staff from the following departments will take the lead on initial contact and technical assistance efforts:
 - o Public Safety, including roadway flooding
 - If municipal storm drainage facility: Public Works – appropriate division, not including Water Resources, takes lead
 - If private storm drainage facility: Water Resources or Code Compliance takes lead
 - o Impact to Water Quality
 - o Non-compliance with County’s Municipal Stormwater Permit, including any modification of a Category 1 facility
 - Water Resources takes lead
 - o Maintenance, e.g., causes mowing problem, safety problem, etc.
 - Road Operations takes lead
 - o Precedence, e.g., potential to start adverse trend in neighborhood or locality.
 - Water Resources or Development Review takes lead
3. When appropriate, the initial response with the likely responsible party will be in-person (i.e., explain reason for visit, gather information/take notes and photos; and provide technical assistance as appropriate).
 - o Residential: If no one is home, staff may leave an informational door-hanger (or other printed materials); or post stop work order, if appropriate.
 - o Commercial or Homeowner Association: If responsible party not available, leave door hanger (or other printed materials) with person affiliated with responsible party; or post stop work order, if appropriate.
4. Applicable staff from Water Resources or Roads Operations will document the modification/work in the applicable County database², e.g., Water Resources uses VUEWorks.
5. If appropriate, staff³ may send likely responsible party “Contact Letter” requesting response within set timeframe (e.g., 14 days).

² Water Resources uses *VUEWorks*; Road Operations uses *CAMS*; and Development Review uses *AMANDA*.

³ May be Code Compliance Officer or staff from other appropriate division, case-by-case.

6. If appropriate, staff from Public Works Water Resources will schedule meeting with Community Planning and Economic Development Compliance Unit to discuss situation and determines if it warrants escalating enforcement from the compliance officer.
 - o If so, Community Planning and Economic Development Compliance Unit sends Contact Letter to likely responsible party.
 - Letter will request that party contact County staff within 14 days.
 - Staff will seek satisfactory resolution of the issue within reasonable timeframe.
 - Community Planning and Economic Development Compliance Unit may issue Notice of Violation if issue not resolved within reasonable timeframe.
7. When education and technical assistance fail to resolve the issue, or when the violation poses a hazard to public health, safety, or welfare, the Director of the Community Planning and Economic Development Department, his/her Compliance Officer, or a duly authorized representative of the Director may pursue formal enforcement up to and including civil infraction, penalties, cease and desist orders, and/or emergency orders, under the authority of Thurston County code ([Title 26 - Code Enforcement](#)).
 - o This step requires close coordination with the applicable Public Works lead on the site-specific issue, before and during the initiation of formal enforcement.

APPENDIX H

Thurston County Central Services Properties		
Property	Address	City
Thurston County Courthouse Bldg. #1	2000 Lakeridge Dr. SW	Olympia
Thurston County Courthouse Bldg. #2	2000 Lakeridge Dr. SW	Olympia
Thurston County Courthouse Bldg. #3	2000 Lakeridge Dr. SW	Olympia
Thurston County Courthouse Bldg. #4	929 Lakeridge Dr. SW	Olympia
Thurston County Courthouse Bldg. #5	2400 Evergreen Park Dr. SW	Olympia
Thurston County Courthouse Bldg. #6	926 24 th Way	Olympia
Thurston County Courthouse Bldg. #7	909 Lakeridge Dr. SW	Olympia
Thurston County Emergency Services	2703 Pacific Ave. SE	Olympia
Thurston County Health	412 Lilly Rd.	Olympia
Tilley Shop A	9605 Tilley Rd SW	Olympia
Tilley Shop B	9605 Tilley Rd SW	Olympia
Tilley Bldg. C	9605 Tilley Rd SW	Olympia
Tilley Bldg. D	9605 Tilley Rd SW	Olympia
Tilley Bldg. E	9521 Tilley Rd SW	Olympia
G Parking Lot	2000 Lakeridge Dr. SW	Olympia
J Parking Lot	910 24 th Way SW	Olympia
Mottman Bldg. 1	2905 29th Ave	Tumwater
Mottman Bldg. 2	2918 Ferguson St W	Tumwater
Mottman Bldg. 3	2915 29th Ave.	Tumwater
Thurston County Family Justice Center	2801 32 nd Ave.	Tumwater
Thurston County Coroners Bldg.	2925 37 th Ave. SW	Tumwater
Thurston County Correction Facility	3491 Ferguson St. SW	Tumwater
Ferguson Bldg.	3285 Ferguson St. SW	Tumwater
Thurston County Work Release	3013 Ferguson St. SW	Tumwater
Benochek Building	3054 Carpenter Rd SE	Lacey
Waste and Recovery Center	2414 Hogum Bay Rd NE	Lacey

ACRONYMS & ABBREVIATIONS

AADT	Annual Average Daily Traffic
BMP	Best Management Practice
BoCC	Thurston County Board of County Commissioners
B-IBI	Benthic Index of Biotic Integrity
CAD	Computer-Aided Design
CESCL	Certified Erosion and Sediment Control Lead
CFP	Capital Facilities Plan
CR	Core Requirement
CS	Thurston County Central Services
CWA	Clean Water Act
DDECM	Drainage Design and Erosion Control Manual
DMR	Discharge Monitoring Report
DPSIR	Driver-Pressure-State Impact-Response
Ecology	Washington State Department of Ecology
EH	Thurston County Environmental Health
EM	Thurston County Emergency Management
EPA	U.S. Environmental Protection Agency
ERP	Enterprise Resource Planning
ESA	Endangered Species Act
ESC	Erosion and Sediment Control
GIS	Geographic Information System
HAZWOPER	Hazardous Waste Operations and Emergency Response
IAT	Interagency Team
IC	Illicit Connection
ID	Illicit Discharge
IDDE	Illicit Discharge Detection and Elimination
ILA	Interlocal Agreement
ILMA	Interlocal Monitoring Agreement
IPM	Integrated Pest Management
LA	Load Allocation
LiDAR	Light Detection and Ranging
LID	Low Impact Development
LMS	Learning Management System
MR	Minimum Requirement
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NPSP	Native Plant Salvage Program

O&M	Operations and Maintenance
PARIS	Ecology's Permitting and Reporting Information System
Permit	Western WA Phase II Municipal Stormwater Permit
PHSS	Thurston County Public Health and Social Services
PW	Thurston County Public Works
RRMG	Regional Road Maintenance Endangered Species Act Guidelines
RRMP	Regional Road Maintenance Endangered Species Act Program
RSWG	Regional Stormwater Work Group
SAM	Stormwater Action Monitoring
SCT	Stormwater Coordination Team
SFR	Single Family Residential
SMAP	Stormwater Management Action Plan
SW	Solid Waste
SWMMWW	Stormwater Management Manual for Western Washington
SSWAB	Storm and Surface Water Advisory Board
Stormwater Plan	Stormwater Management Program Plan
SWPPP	Stormwater Pollution Prevention Plan
TCC	Thurston County Code
TCEMP	Thurston County's Environmental Monitoring Program
TMDL	Total Maximum Daily Load
UGA	Urban Growth Area
WAC	Washington Administrative Code
WARC	Waste and Recovery Center
WIN!	Work Involvement Now!
WLAs	Waste Load Allocations
WQIP	Water Quality Implementation Plan
WQIR/IP	Water Quality Improvement Report/Implementation Plan
WRIA	Water Resource Inventory Area
WSU	Washington State University Extension

Question 21

Thurston County Description of General Awareness Efforts					
Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Public Education					
Arbor Day Celebration	General public	Stormwater pollution prevention best management practices (BMPs)	In-person outreach	17	Cities of Lacey, Olympia, & Tumwater
CEILO Food Bank	LatinX	Equity Stormwater pollution prevention BMPs	In-person outreach	70	Cities of Lacey, Olympia, & Tumwater CEILO
Chum Salmon and Cider	General public	Stormwater pollution prevention BMPs	In-person outreach	160	Cities of Lacey, Olympia, & Tumwater Pacific Shellfish Institute
Dia De La Familia	LatinX	Equity Stormwater pollution prevention BMPs	In-person outreach	105	Cities of Lacey, Olympia, & Tumwater CEILO

Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Harvest Festival	Rural Thurston County general public	Stormwater pollution prevention BMPs	In-person outreach	110	Cities of Lacey, Olympia, & Tumwater
Native Plant Ecosystems and Plant Identification	General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	In-person classes	196	WSU Extension-Native Plant Salvage
Native Plant Nursery -Learn and Serve	General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	In-person classes Volunteer opportunities	49	WSU Extension-Native Plant Salvage
Naturescaping Online Class	General Public	Stormwater impacts on surface waters Promote stewardship activities and opportunities	Online class	33	WSU Extension-Native Plant Salvage
Nisqually Pride and Health Fair	Tribal Members	Equity Stormwater pollution prevention BMPs	In-person outreach	80	Cities of Lacey, Olympia, & Tumwater Nisqually Tribe
Nisqually Watershed Festival	General public	Stormwater pollution prevention BMPs	In-person outreach	275	Cities of Lacey, Olympia, & Tumwater USFWS

Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Orca Recovery Day	General public	Stormwater pollution prevention BMPs	In-person outreach	35	Cities of Lacey, Olympia, & Tumwater
Prairie Appreciation Day	General public	Stormwater pollution prevention BMPs	In-person outreach	200	Cities of Lacey, Olympia, & Tumwater Glacial Hertiage Perserve
Rainier Roundup	Rural Thurston County General public	Equity Stormwater pollution prevention BMPs	In-person outreach	60	Cities of Lacey, Olympia, Tumwater, and Rainer
Stream Team Marine Creature Mondays	General Public Youth	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Workshops Trainings Lectures	332	Cities of Lacey, Olympia, & Tumwater
Stream Team Stream Bug Monitoring	General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	In-person training	19	Cities of Lacey, Olympia, & Tumwater
Stream Team Workshops, Trainings, and Lectures	General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Workshops, training, lectures (12 events)	581 participants	Cities of Lacey, Olympia, & Tumwater
Thurston Conservation District Native Plant Sale	General public	Natural Yard Care Green stormwater infastructure	In-person outreach	170	Cities of Lacey, Olympia, & Tumwater Thurston Conservation District

Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Tenino's Farmers Market	Rural Thurston County general public	Equity Stormwater pollution prevention BMPs	In-person outreach	40	Cities of Lacey, Olympia, & Tumwater City of Tenino
Thurston County Fair	General public	Stormwater pollution prevention BMPs	In-person outreach	200	Thurston County Storm and Surface Water Advisory Board WSU Extension-Native Plant Salvage
Tumwater Dog Days	General public	Stormwater pollution prevention BMPs	In-person outreach	300	Cities of Lacey, Olympia, & Tumwater
Tumwater Falls Festival	General Public	Stormwater pollution prevention BMPs	In-person outreach	350	Cities of Lacey, Olympia, & Tumwater
World's Ocean Day	General Public	Stormwater pollution prevention BMPs	In-person outreach	120	Cities of Lacey, Olympia, & Tumwater
Stream Team Facebook	General public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Social media posts	2,984 total page views 2,696 followers 3,794 average post reach 278 average post engagement	Cities of Lacey, Olympia, & Tumwater
Stream Team Monthly Emails	General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Program marketing Email blogs	56,580 emails sent 23,804 emails opened 2,158 click through 42% open rate	Cities of Lacey, Olympia, & Tumwater

Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Stream Team Instagram	General public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Social media posts	1,107 total followers 21 average monthly posts 199 average post engagement	Cities of Lacey, Olympia, & Tumwater
Stream Team Website	General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Website content	13,082 total users 12,620 new users 26,758 total views	Cities of Lacey, Olympia, & Tumwater
Stream Team You Tube	General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Social media posts	149,706 total video views 3.9 M impressions 3.4% impression click through rate 229 subscribers	Cities of Lacey, Olympia, & Tumwater
County website	General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Website content	4,341 page views	
Youth Education/Parents/Teachers					
Avanti HS Exhibition Night	School-age children	Equity Careers in water resources Stormwater pollution prevention BMPs	In-person outreach	65	Cities of Lacey, Olympia, & Tumwater ESD113

Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Empowerment for Girls	School-age children	Equity Stormwater pollution prevention BMPs	In-person outreach	12	Cities of Lacey, Olympia, & Tumwater Empowerment for Girls
In-class, Online, & Field Presentations	Parents Teachers	Stormwater pollution prevention BMPs Promote stewardship activities and opportunities Careers in water resources	In-person outreach Online outreach	1,580 students	South Sound Green Nisqually River Education Project Chehalis Basin Education Consortium
Lacey's Children's Day	General public Youth	Stormwater pollution prevention BMPs	In-person outreach	500	Cities of Lacey, Olympia, & Tumwater
LatinX Youth Summit	LatinX Youth	Equity Careers in Water Resources Stormwater pollution prevention BMPs	In-person outreach	30	Cities of Lacey, Olympia, & Tumwater CEILO
Student Green Congress	School-age children Parents Teachers	Water quality & stormwater pollution prevention curriculum Promote stewardship activities and opportunities	Classes Workshops	598 students 56 teachers participated	South Sound Green Nisqually River Education Project Chehalis Basin Education Consortium

Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Water Quality Monitoring	School-age children Parents Teachers	Water quality & stormwater pollution prevention curriculum Promote stewardship activities and opportunities	Training (20 classes)	1805 students; 67 teachers participated	South Sound Green Nisqually River Education Project Chehalis Basin Education Consortium
Chum Salmon & McLane Creek Nature Trail Virtual Field Trips	School-age children Chaperones Teachers	Water quality & stormwater pollution prevention curriculum Promote stewardship activities and opportunities	In-person field trips (23 classes)	721 students participated	South Sound Green Nisqually River Education Project Chehalis Basin Education Consortium
Teacher Trainings	Teachers	Stormwater pollution prevention curriculum Promote stewardship activities and opportunities	Training (2 events)	59 teachers	South Sound Green Nisqually River Education Project Chehalis Basin Education Consortium
Stream Team Nature Sleuths	Youth General Public	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs	Online, self-guided education	254 participants	Cities of Lacey, Olympia, & Tumwater
Yelm STEM Camp	Youth General public	Equity Careers in Water Resources Stormwater pollution prevention BMPs	In-person outreach	75	Cities of Lacey, Olympia, & Tumwater Pacific Shellfish Institute Yelm School district
Pet Waste Reduction Pollution Prevention					
Pet Waste Signs & Bag Dispensers for Community Locations	General public Residents Landscapers and property Managers/owners	Stormwater pollution prevention BMP: Pet waste management and disposal	Ongoing campaign	3 pet waste stations distributed	Cities of Lacey, Olympia, & Tumwater

Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Pet Waste Social Media	General public Residents	Stormwater pollution prevention BMP: Pet waste management and disposal	Facebook, Twitter, Instagram posts	33 posts about pet waste	Cities of Lacey, Olympia, & Tumwater
"Don't Let Your Pooch Pollute" brochures	General public Residents	Stormwater pollution prevention BMP: Pet waste management and disposal	Ongoing campaign	Ongoing; >2,000 Bags on Board distributed	Cities of Lacey, Olympia, & Tumwater; Thurston County Joint Animal Services
Business Outreach Pollution Prevention					
Pollution Prevention	Businesses	Proper use, storage & disposal of hazardous materials Equipment maintenance Impacts & prevention of illicit discharges and how to report them Dumpster lid social marketing pilot program Dumpster signage and handouts/postcards for businesses and multi family complexes	Local and regional leaking dumpster outreach; Ongoing outreach via website: www.co.thurston.wa.us/health/ehhw/factsheets.html	101 Businesses visited 328 Webpage views	Cities of Lacey, Olympia, & Tumwater STORM regional effort
Pollution Prevention	Schools	Impacts & prevention of illicit discharges and how to report them	Ongoing campaign	302 Site visits	
Stormwater System Inspections & Maintenance Workshop for Residents, Contractors and Property Management Companies.	Stormwater and Landscape Contractors Property Management Companies Homeowners Associations Board Members Residents General Public	Stormwater impacts to surface & ground waters Impervious surface impacts Stormwater facilities inspections & maintenance BMPs	Online course	33 completed online course	Cities of Lacey, Olympia, & Tumwater
Yard Care Pollution Prevention Outreach					
<i>Common Sense</i> Gardening guides & IPM Prescriptions	Retails customers Homeowners	Guides encourage less toxic, low nutrient yard and garden practices Best management practices for reduced polluted stormwater runoff	Publication guides	15,477 distributed	Thurston County Environmental Health

Program or Campaign	Target Audience	Components	Activity Type	Participants/ Number Reached	Partners
Go Green Yard Care Program	Priority Home Owner Associations Residents	Behavior change program to promote pollution prevention via natural yard care practices	Online Q&A workshops Online training Website Soil sampling & analytics Support & resource materials Email marketing	58 participants	
Healthy Yard Demo Day at Harvest Festival	County Residents	Stormwater best management practices Natural lawn care practices	Workshop	448 Attended	Thurston Conservation District
Native Plant Distribution	County Residents	Natural yard care Native and waterwise plants Stormwater management best management practices	Online education Support Resource materials (4 events)	4,450 plants distributed 425 participants	WSU Extension-Native Plant Salvage
Publications: Pollution Prevention					
SPLASH	General public: Thurston County stormwater utility rate payers	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs Impacts & prevention of illicit discharges and how to report them	Publication	67,700 Publications Mailed	
Stream Team Quarterly Newsletter	General public Stream Team volunteers School-age children Businesses	Promote stewardship activities and opportunities Stormwater pollution prevention BMPs Impacts & prevention of illicit discharges and how to report them	Publication	>8,000 distributed in print; 56,580 distributed electronically	Cities of Lacey, Olympia, & Tumwater

Thurston County's *Go Green* Behavior Change Program

HISTORY:

Thurston County began our Behavior Change campaign with a pilot in 2022 called *Go Green Lawn Yard* – a program modified from a 2014 regional lawn care campaign. We had survey and evaluation data from 2014 and a Contractor (Cascadia Consulting Group) completed a follow-up evaluation in 2019. This information informed the development of our 2022 pilot behavior campaign.

RESULTS:

The application to *Go Green Lawn Care* program included an introductory survey used to gather baseline data on current lawn care behaviors as well as the beliefs of the applicants. We administered another survey at the conclusion of the pilot program. We contracted again with Cascadia Consulting Group to evaluate the pilot program's effectiveness using the 2022 survey metrics, comparing them to prior years' surveys and evaluations where applicable. Results are detailed in the attached report (*Go Green Lawncare 2022 Pilot Program Evaluation*).

LESSONS LEARNED:

The pilot evaluation found that most participants were White/Caucasian, English-speaking, of or nearing retirement age, and made over \$75k annually. Thus, in 2023, it became a priority for us to improve program accessibility and equity to a wider audience. In addition, we aimed to offer a broader approach to managing stormwater runoff on the residential yard scale rather than limiting the focus to the monocrop lawns. As a result, we modified several program strategies, changing the program focus from lawn care to yard care and expanding to three tracks instead of one:

- *Mulching Rainscaper*: Minimal time and budget needed.
- *Native Eco Planter*: Medium time and budget needed.
- *Green Lawn Grower*: Highest time and budget needed.

The program's goal, remained to *reduce the amount of chemical runoff from lawns/yards into the County's MS4 and natural waterways, including marine waters*. The program continued to focus on helping residents use Natural Yard Care to achieve this goal and protect their family, community, and pets' health.

With our relaunch, we migrated all applicants into the new *Go Green Yard Care* program and created a new application/survey for interested program participants. We grew from 32 participants (pilot) to 57 participants, with new participants continuing to join throughout 2023.

Question 25

Our strategy to measure and evaluate behavior change deviated slightly from the original approach in that we initially planned to conduct a follow-up survey following the first year of relaunch. Coupled with the recommendation from the pilot program evaluation to conduct a follow-up survey 1-2 years later and the reality that program participants trickled in throughout the 2023 calendar year, we decided to wait until late 2024 to administer the follow-up survey to allow us to collect more meaningful data to guide future program adjustments.

No changes to the program will occur in 2024. We will continue to provide timely email nudges, the online *Go Green Yard Care* course, slow-release fertilizer and lime giveaways, an in-person Healthy Yard Demo Day event (in partnership with Thurston Conservation District), 30 free yard soil samples, and continuous availability for technical assistance. We will collect analytics to measure participant changes in understanding and adoption of the targeted behavior of applying natural yard care practices. In addition, we will work with our local partners to consider program expansion opportunities.



Go Green Lawncare 2022 Pilot Program Evaluation

Prepared for Thurston County

Prepared by Cascadia Consulting Group, Inc.

February 2023



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Executive Summary

Thurston County, in past partnership with the City of Olympia, created the [Go Green Lawncare program](#) to reduce the amount of chemical run-off from lawns into the County's MS4 natural waterways and the Puget Sound. The program focuses on helping Thurston County residents use natural lawncare practices.

Over recent years, the County has refined the natural lawncare program using social marketing principles. In 2022, Thurston County piloted the latest version to focus on changing two key practices: using slow-release fertilizer and lime. This program piloted delivering education online, by email, and by phone to reach more participants at a lower cost than the previous in-person education delivered at each participant's home. The 2022 program continued to provide free soil tests, fertilizer, and lime that past participants had reported was important to changing their practices.

- **Almost all 2022 pilot participants who took the post-program survey said they intend to keep using slow-release fertilizer and lime.**
- **Most respondents said they would keep using slow-release fertilizer and lime** because the products improve their lawns, are better for the environment, and are safer for children. However, a few people said cost, time, and difficulty finding products might keep them from using these products in the future.

RECOMMENDATION: Continue building on the program's strengths.

- Continue to emphasize the connections between lawncare products, soil health, lawn health, and the environment.
- Continue to provide free soil tests, slow-release fertilizer, and lime.
- Continue using email reminders and online lessons, with some refinements.

RECOMMENDATION: Follow up with 2022 pilot participants in 2023-2024.

- Offer past participants monthly reminder emails, access to online lessons, and (if budget allows) access to technical lawncare advice.
- Conduct a follow-up survey to confirm whether participants keep using slow-release fertilizer and lime after the program stops providing them for free.

Program Highlights

Key practices

- Using slow-release fertilizer.
- Using lime to improve fertilizer absorption.

Program elements

- Online lessons (videos, documents, and weblinks).
- Free soil test, fertilizer, and lime.
- Professional advice by email and phone.
- Two live Zoom Q&A sessions.
- Outdoor education event.

Participants

- 33 people who do their own lawncare and previously used quick-release fertilizer.

Evaluation

- Surveys before (33 participants) and at the end of (21 respondents) the program.

Introduction

The [Thurston County Go Green Lawncare](#) program was created to protect water quality by reducing polluted runoff from residential lawns. The program focused on helping homeowners change their habits around lawncare. In 2014, the County jointly conducted the program with the cities of Olympia and Tumwater using a full-service model that provided free soil testing, a home visit from a lawncare professional for one-on-one lawncare training, free slow-release fertilizer and lime, and an outdoor workshop. Evaluation of the program found that it was effective at changing behavior in the long term. Use of slow-release fertilizer increased from 30% before the program to 71% five years later (41 point change) and use of weed & feed decreased from 65% before to 38% after (27 point change). At the same time, providing one-on-one education at participants' homes was expensive, representing nearly half of the total cost to deliver the program.

In 2022, Thurston County revised the program to replace at-home, one-on-one training with online video lessons and remote support through phone, email, and Zoom-based question-and-answer sessions. Thurston County also streamlined the program to focus on two key practices:

1. Using slow-release fertilizer.
2. Using lime to improve nutrient availability by balancing soil acidity (pH).

The program continued to provide education on other natural lawncare practices that improve lawn health and appearance, but the emphasis was on fertilizer and lime.

To evaluate the 2022 pilot program, which ran from April to December, Thurston County hired Cascadia Consulting Group (Cascadia) to conduct and analyze surveys of participants before and after the program. This report summarizes participant practices before the program (baseline) and whether they used the practices during the program and intend to keep using them. This report also makes recommendations based on participant feedback about their experience with the program and the new practices.

Program Overview

The 2022 pilot program delivered education online, by email, and by phone to be able to reach more participants at a lower cost and increased safety than in-person home visits. Education included:

- **Online video lessons and program documents** through Thurston County's online education website.
- **Regular emails** at key times for performing lawncare, offering reminders and information resources.
- **Two live Zoom sessions** with a lawncare expert to ask technical questions.
- **Helplines** to ask technical questions by email or phone.
- **Optional outdoor Healthy Yard Demo Day** in October (also open to all county residents).

The 2022 program continued to provide natural yard care incentives that past participants had reported was important to changing their practices. These free incentives covered up to 2,000 square feet of lawn and included:

- **Soil sampling and test** to determine how much fertilizer and lime their lawn needed.
- **Two 50-pound bags of slow-release fertilizer.**
- **One 50-pound bag of lime.**

To participate in the program, applicants must have met the following criteria:

- Use quick-release fertilizer, weed & feed, and pesticides, before the program.
- Care for the lawn themselves.
- Own their home or have permission from owner if renting.
- Commit to not use any quick-release, weed & feed, and pesticides during the year they participated in the program.

Of the 58 households that applied to the program, 50 applicants were qualified and 34 agreed to participate. Qualified applicants who declined to participate mainly cited concerns about time. One participant later dropped from the program due to life circumstances, leaving the program with 33 total participants at the end.

Evaluation Methodology

Cascadia conducted two surveys to understand how participant behavior and awareness changed over the course of the program.

Baseline survey. The program application contained the first survey to determine whether participants qualified for the program, understand applicants' pre-program lawncare practices (such as fertilizing, lime, mowing, watering), and gather basic demographics. All 33 participants took the baseline survey.

Post-program survey. At the end of the program, participants were asked about their lawncare practices during the program, whether they intend to continue those practices, and about their feedback on the program and the new practices. About two-thirds of participants (21 people) took the post-program survey.

Table 1 summarizes the number of applicants, participants (took baseline survey), and post-program survey respondents.

Table 1 Applicant, Participant, and Survey Respondent Counts

Program Applicants	Program Participants	Post-Program Survey Respondents
58	33	21

Natural Lawncare Practices

This section summarizes the lawncare practices that all 33 program participants reported doing before the program and that the 21 participants who also took the follow-up survey reported doing during the program and intending to do after the program. While intentions do not always result in actions, a long-term evaluation of the 2014-2015 natural lawncare program in Thurston County that was conducted in 2020 found that many of the behavior changes were retained in the long term.

Slow-Release Fertilizer

Slow-release fertilizer slowly releases nutrients, so the soil has time to absorb it. In contrast, quick-release fertilizer, including weed & feed, releases nutrients rapidly, making it more likely to run off the lawn during rain or watering. Nutrients in rain and water running off lawns can pollute nearby streams, lakes, underground aquifers, and Puget Sound.

Fertilizing frequency. On the application survey, 23 participants said they fertilized their lawn every year, while 3 said every other year, 2 every three years and another 3 said never (but were still accepted to the program). Finally, two people had not lived there long enough to fertilize.

Fertilizing timing. Based on the application survey, about half (14 of 28) of respondents who fertilize did it in April, while another third (10) applied fertilizer in September. The next most common times were May (6), June (5), and March (5).

Fertilizer type used. Almost all post-program survey respondents (20 out of 21 respondents) intend to continue using slow-release fertilizer compared to fewer than half of program participants (15 out of 33) who used it before the program.

- At baseline, 2 participants used only slow-release fertilizer, 13 used slow-release and a weed & feed or other quick-release fertilizer, and 13 used only a weed & feed or quick-release fertilizer.
- The program gave all participants free slow-release fertilizer. All 21 people who took the post-program survey said they used it with no problems. Most (20 respondents) said they will keep using slow-release fertilizer, and one person was unsure.

Table 2 Fertilizer Types Used

Type of fertilizer used	Baseline (all participants)	Baseline (took post-program survey)	Post survey (during program)	Post survey (future intentions)
Used slow-release	15 (13 also used weed & feed or other quick-release fertilizer)	9 (8 also used weed & feed)	21	20
Did not use slow-release	13	7	0	0
Not sure	0	0	0	1
Skipped or no info	5	5	0	0
Total respondents	33	21	21	21

Reasons to keep using. When asked why they would continue using slow-release fertilizer, participants commonly said that the fertilizer was better for their lawn, the environment, and for protecting against polluted runoff. Several people reported more than one reason, often mentioning benefits to both their lawn and the environment. A few of the comments were:

- *“It kept the grass green and is less harmful to the environment.”*
- *“Less damaging to the environment. We like the longer lasting effects.”*
- *“You have convinced me that this is the way to go, for numerous reasons.”*
- *“To avoid damaging run-off and to protect the environment in my yard and my neighborhood and it’s just plain better for everything.”*

Reasons to not keep using. The one person who felt unsure about using slow-release fertilizer said they did not know where they would find it.

Purchasing slow-release fertilizer. In past evaluations, participants from the 2014-2015 program also reported difficulty finding and identifying slow-release fertilizer as a barrier to keep using it. In both interviews from 2015 and the long-term survey in 2020, participants mentioned being unable to find it in stores and wanted information on which stores carry the product and reminders on when and how much to fertilize. To address these barriers, the 2022 program provided clear guidance and document resources on which stores carry slow-release, when the product is typically stocked, how to read product labels, and how to calculate the amount of fertilizer needed.

- In the post-program survey, a majority of respondents said the program gave them enough information so they know which local stores carry slow-release fertilizer (14 of 20 people), how to identify which bags of fertilizer are slow release (14), and how to calculate the amount of fertilizer their lawn needs per application (15).

- For each of these topics, five participants said the program gave them almost enough information but they need a little more help. One person has several questions about which stores carry the product and how to identify it.
- When asked to interpret nutrient numbers on a bag of fertilizer, 15 out of 18 respondents to the post-program survey correctly identified all three numbers.

Lime

The program encouraged and gave participants lime to balance the acidity of their soils, which helps the soil better access and use the quick-release fertilizer. It also improves the soil so grass grows better and can out-compete moss.

Use of lime. Through the program, participants learned whether their soil needs lime, used it when it was needed, and intend to keep using it when needed.

- Before the program, only 7 of the 33 participants said they used lime at least every three years and 14 people said they had never used lime.
- During the program, almost all respondents said they applied lime once (8 people) or twice (12). Only one person did not apply any because their soil did not need it. No one reported having any problems applying lime to their lawn.
- After the program, almost all respondents said they would continue using lime (19). Two people were unsure and said they would use lime if their lawn needed it. One of these people previously said their soil had not needed lime.

Table 3 Lime

	Baseline (all participants)	Baseline (took post- program survey)	Post survey (during program)	Post survey (future intentions)
Never	14	11	1	0
Apply lime every one to three years	7	3	20	19
Unsure	10	5	0	2
Skipped	2	2	0	0
Total respondents	33	21	21	21

- **When asked what lime does for their lawns**, the most common answers mentioned balancing soil acidity (11 of 18 respondents). Half of respondents made the connection between either creating better soil conditions for growing grass in general (5 people) or helping the lawn absorb nutrients in particular (4). Two people mentioned reducing moss. A few of the comments were:
 - *“To make the soil more able to break down other nutrients including the slow-release fertilizer we applied.”*
 - *“Balances the alkalinity to a level ideal to grow grass.”*
 - *“Mainly because of the soil sample results indicated my yard was deficient, and I learned about its benefits during the course.”*
 - *“To change the pH balance of the lawn and get rid of the moss.”*
- **Respondents said they would continue using lime** mainly because it balances soil acidity and makes their grass healthier or greener. Comments from half of the respondents (9 out of 18) suggested that they recognize the need to use lime for several years. Respondents referred to their answers about what lime does for their lawn, and individual participants specifically mentioned reducing fertilizer use and getting rid of moss. A few of the comments were:
 - *“Because I can’t do it all at once to raise it to the level it needs.”*
 - *“We plan to apply till we get into the preferred pH balance. Then monitor and apply as needed.”*
 - *“Keep the soil healthy and at the right pH level for what I am trying to grow.”*
 - *“To create a healthier lawn that might require less fertilizer overall.”*

Other Natural Lawncare Practices

Several other natural lawncare practices support healthy lawns without the use of quick-release fertilizer or toxic lawn chemicals. The 2022 program also covered these practices, but to a lesser extent than the primary practices of using slow-release fertilizer and lime. Table 4 shows how many survey respondents used supportive practices in the baseline and how many intend to use them next year. The two surveys asked about slightly different sets of practices, so baseline and future intention data are not available for all practices.

Practices most likely to keep doing. Respondents most commonly said they plan to keep sharpening mower blades (17 of 20 respondents), using natural weed and pest control methods (16), mulch mowing (15), aerating (13) and overseeding (12).

- The practices of sharpening mower blades, using natural weed and pest control methods, and aerating each saw an increase in yearly use.

Practices least likely to stop doing. The practices that respondents most commonly said they would not do next year were to top-dress with sand or compost (7 of 19 respondents said they would not), use log sheets to track natural lawncare practices (5), and overseed (4). For each of the other practices, either none or one individual participant said they would not do them; the rest were unsure.

- Respondents mainly cited time and cost as the main reasons for not continuing these supportive natural lawncare practices. Participants especially mentioned time, expense, and amount of work regarding top dressing, overseeding, and aeration.
- Participants also said the log sheets were tedious or a lot of paperwork, with one person saying they note it on their calendar and another person planning to time their practices with federal holidays for simplicity.

Table 4 Supporting Practices

Practice	Baseline (all participants)		Baseline (took post-program survey)	Future Intention
Sharpen blade	23 (9 yearly)		15 (3 yearly)	18 yes 2 not sure
Grasscycle or mulch mow	22 (20 all year)		19 (5 all year)	16 yes 4 not sure
Use non-toxic weed control methods	9		5	16 yes 3 not sure
Aerate lawn	14 (5 every 1-2 years)		8 (3 every 1-2 years)	13 yes 7 not sure
Overseed*	NA*	NA*	NA*	12 yes 4 not sure
Use log sheet	NA*	NA*	NA*	8 yes 6 not sure
Top dress with sand or compost*	NA*	NA*	NA*	7 yes 5 not sure
Total Respondents	33		21	21

NA* These practices were not asked about in the baseline survey.

Watering

Healthy lawns typically need one inch of water per week during the summer to stay green, but how much and how long someone needs to water varies based on the weather and their watering system. Lawns should be watered once a week to build deep roots if keeping the lawn green and once a month if letting the lawn turn brown.

Watering frequency. Respondents' watering frequency did not change much during the program.

- Before and during the program, about half of respondents said they water 2-3 times per week. The second most common frequency was once a week.

Table 5 Watering Frequency

Watering frequency	Baseline (all participants)	Baseline (took post-program survey)	Post- Program Survey
Daily	2	0	1
Every other day	1	1	2
2 to 3 times per week	18	11	11
1 time per week	4	3	5
2 to 3 times a month	2	1	0
Once a month	2	1	0
Less than once a month	0	0	1
Never	1	2	1
Skipped	0	2	0
Total Respondents	33	21	21

Measuring watering amounts. Only 2 out of 17 respondents reported using the tuna can method (placing a tuna can out when watering with a sprinkler to measure how long it takes to fill the can with 1 to 1.5 inches of water) to decide how much to water their lawn. Two people mentioned figuring out the average flow or how long it took to water one inch, but they did not describe how they determined those rates. Most respondents said they used either their “gut” or previous experience (5 people) or mentioned using time or a timer (4). One person waited for rain to water their lawn naturally. The baseline survey did not ask this question.

Minutes or inches watered per watering. Consistent with responses on how they decided how much to water their lawn, most respondents reported how long they watered in minutes. Just under one-third of respondents reported inches, with some of these people also listing the times.

- Most respondents watered somewhere between 20 and 30 minutes (11 out of 21 respondents).
- Those who measured inches most commonly reported watering one inch per watering (4).

Table 6 Amount Watered During Each Watering

Amount	Post-Program Survey
Reported Inches	
1.5 inches	1
1 inch	4
Less than 1 inch	1
None (relied on rain)	1
Reported Minutes Only	
30 minutes	5
20-30 minutes	2
20 minutes	3
10 minutes	4
Total Respondents	21

Participant Feedback on Program

Program Elements

The post-program survey asked respondents if they would recommend the program and to provide their feedback on the program. Some participants did not respond to all questions.

Willingness to Recommend. All respondents would recommend the program to others, with a majority (17 out of 19) saying they would definitely recommend the program.

Usefulness of Program Elements. Participants were offered a number of education resources and incentives, including soil sampling, online video lessons, online program documents, regular email reminders with resources, an email helpline, two live Zoom question and answer sessions, and an in person Healthy Yard Demo Day.

- Respondents gave the highest ratings to the soil sampling, followed by the online video lesson and online program documents.
- Respondents were most likely to say they did not use the in-person Healthy Yard Demonstration Day, the email helpline, or live Zoom question and answer sessions.

Table 7 Program Element Ratings

Program Element	Extremely helpful	Very helpful	Moderately helpful	Slightly helpful	Not at all helpful	I did not use this	Total Respondents
Soil sampling and results	14	4	1	0	1	0	21
Online video lessons	5	12	2	2	0	0	21
Online program documents	5	12	2	1	0	1	21
Regular email reminders with resources	5	8	7	1	0	0	21
Live Zoom question and answer sessions with a lawncare expert	5	5	4	1	0	6	21
Email helpline to ask technical questions by email	4	4	2	2	0	9	21
In-person Healthy Yard Demonstration Day	1	1	0	0	0	19	21

Participant suggestions. Participants were asked for their suggestions on specific program elements, the program overall, and how to support them in the next year. Many responses expressed appreciation for the program and said no changes were needed, but a few people had suggestions. The following sections summarize responses to multiple questions.

Free soil test, slow-release fertilizer, and lime

- Participants gave the highest rating to the soil sampling and results, with 14 respondents rating it extremely useful and another 5 rating it very useful.
- In comments, participants said they appreciated the free soil-sampling and also mentioned the free lime and slow-release fertilizer.
- When asked for suggestions, some people wanted more information on soil sampling and slow-release fertilizer, like understanding how their soil changed over time from use of lime. One person suggested making the soil test results easier to understand. A few respondents suggested offering a second soil test showing how the natural lawncare practices have changed their soil.

- When asked about the most useful things they learned, almost all respondents mentioned learning about fertilizer, lime, and the soil sampling. A few comments were:
 - *“Soil sample data. Info regarding different types of fertilizer.”*
 - *“Using the correct sequence and timing of applications for fertilizer, moss control, and watering frequency.”*
 - *“To follow lime and fertilizer application instructions. To ask questions of the experts. Not to be afraid to dive in and tackle a big job (redoing a whole lawn). To accept that the lawn won't be perfect and that we'll be applying lime and fertilizer and topdressing it for a while.”*
 - *“How to use slow-release fertilizer and lime.”*

Online video lessons and program documents

- Most respondents found the online video lessons and program document very or extremely helpful. Several respondents wanted to keep access to the videos and program documents to review them next year.
- When asked for suggestions, a few comments suggested to:
 - Make the videos more detailed because they seemed too simplistic.
 - Break the longer videos into shorter clips.
 - Organize the program content by month and sharing the links to the relevant videos and documents in each month's reminder email.

Regular email reminders with resources

- Participants generally found the email reminders to be helpful, similar to participants in past Thurston County programs.
- One participant suggested creating more customized reminders based on how participants caring for their lawns, such as different reminders for people who are keeping green lawns all summer and for those who stop watering.

Live Zoom Q&A sessions and email helpline

- Participants were less likely to have used the technical assistance provided through Zoom and email, compared to most of the other program elements.
- Individual participants suggested that the program:
 - Offer a Q&A session during the winter season before lawncare begins.
 - Allow past participants to email the program the following spring when they have questions and have seen how their lawn fared over the winter.

Healthy Yard Demo Day

- Most people did not attend the demonstration day event, but the two people who did rated it very helpful. One other person said they wished they had attended.

Changes in Lawn

Before the program, the most common lawn issues that participants reported on the baseline survey were thin grass or bare spots (28 of 33 participants), moss (27), and dandelions or other broadleaf weeds (26).

Almost all post-program survey respondents said that their lawns were either better or about the same compared to before the program in terms of color, thickness, weeds, moss, and pests.

- More than half of respondents said their lawns were thicker (16 out of 20) or greener (12 out of 19).
- Nearly half (9 out of 20) said the level of weeds decreased while nearly half (9 out of 20) said the level of moss decreased. One participant reported levels of moss were slightly worse after the program.
- The level of pest/pest issues remained about the same, with a few experiencing better levels pest while some outliers experienced worse.

Table 8 Lawn Changes

Criteria	Much better	A little better	About the same	A little worse	Much Worse	Total
Color (greenness)	7	5	7	0	0	19
Thickness	5	11	4	0	0	20
Level of weeds	2	7	10	1	0	20
Level of moss	2	7	9	2	0	20
Level of pest/pest issues	1	6	11	0	1	20

Demographics

This section summarizes basic demographic questions asked on the baseline survey, summarizing results for all participants and for the 19 people who could be identified as having taken the post-program survey. Responses are compared to overall Thurston County demographics for based on data from the Thurston Regional Planning Council.¹

- **Race and ethnicity.** Similar to the county as a whole most participants self-identified as White or Caucasian (28 of 33). One participant identified as Hispanic, Latino, Latina, Latinx and another person identified as Asian or Asian American.
- **Languages.** Similar to the county as a whole, most respondents said they speak English at home. Three participants said they spoke another language, identifying Spanish, Russian, and Vietnamese.
- **Gender.** Responding to an open-ended question, participants were more likely to be male than average, with 19 people self-identifying as male.
- **Age.** Participants are older than Thurston County residents as a whole, with about one-third (12 out of 33 people) of respondents age 65 or older compared to 13% of all county residents. Overall, the largest age group among participants was 65-74 with 9 people, followed by 55-64 with 8 people. Five people identified as 45-54 and five people as 35-44.
- **Household income.** Respondents were more likely to report higher incomes than overall county residents. About two-fifths of participants reported an income \$75,000 or more, compared about half of households in the county as a whole. No respondents reported an income below \$25,000, compared to 14% of county households. Six participants did not provide their household income.

The tables below present the full set of demographic information provided by participants.

¹ Thurston Regional Planning Council, 2022 Statistical Profile for Thurston County, <https://www.trpc.org/391/The-Profile-Thurston-County-Statistics-D>.

Table 9 Race and Ethnicity

Race and Ethnicity	All participants	Took post-program survey	Thurston County (2020)
White or Caucasian	28	18	73%
Black or African American	0	0	3%
Hispanic, Latino, Latina, or Latinx	1	0	10%
Asian or Asian American	1	0	6%
Native American, American Indian, or Alaska Native	0	0	2%
Middle Eastern, North African, or Arab American	0	0	NA
Native Hawaiian or other Pacific Islander	0	0	1%
Multiracial	0	0	12%
I prefer not to say	2	1	NA
Other	0	0	4%
Skipped question	1	2	NA
Total respondents	33	21	NA

Table 10 Languages Spoken at Home

Language	All participants	Took post-program survey	Thurston County (2020)
English	32	19	88.7%
Spanish	1	1	4.2%
Chinese	0	0	0.5%
Cambodian	0	0	NA
Korean	0	0	0.9%
Russian	1	1	NA
Vietnamese	1	0	1%
Other	0	0	3.9%
Skipped question	1	2	NA
Total respondents	33	21	NA

Note: Thurston Regional Planning Council percentage for English represents people who speak only English at home.

Table 11 Gender Identity

Gender	All participants	Took post-program survey
Female	6	4
Male	19	15
Skipped question	8	2
Total respondents	33	21

Note: The Thurston County profile did not include gender identity.

Table 12 Age

Age	All participants	Took post-program survey
18-24	0	0
25-34	1	0
35-44	5	4
45-54	5	3
55-64	8	4
65-74	9	7
75 or older	3	1
Prefer not to say	2	0
Total respondents	33	21

Note: The Thurston County profile reported age data from 2010, combined in to 17 and under (23%), 18-64 (64%), and 65 and older (13%).

Table 13 Household Income

Household Income	All participants	Took post-program survey	Thurston County (2016-2020)
Under \$25,000	0	0	14%
\$25,000-\$75,000	7	5	36%
\$75,000-\$150,000	16	9	50%
\$150,000 and over	4	2	Included above
Prefer not to say	6	3	NA
Total respondents	33	21	NA

Recommendations

Based on post-program survey responses, participants used the natural lawncare practices during the program, and most people intend to continue using slow-release fertilizer and lime next year. Most respondents know where and how to buy more slow-release fertilizer, but some mentioned that cost, time, and difficulty finding the products might keep them from using it in the future. In write-in comments, many respondents made the connection between slow-release fertilizer and environmental health and between lime and either soil health or fertilizer effectiveness. There is some room for improvement in measuring water and using other supportive lawncare practices, but the program achieved its primary goal of encouraging participants to use slow-release fertilizer and lime.

RECOMMENDATION: Build on the program's strengths with a few refinements.

- **Continue to emphasize the connections between lawncare products, soil health, lawn health, and the environment.** Many post-program survey respondents mentioned these connections when asked why they plan to continue using slow-release fertilizer and lime.
- **Continue to provide free soil tests, slow-release fertilizer, and lime.** In comments, participants said they appreciated these incentives. Providing these products for the first year ensures participants start using the practice and have a chance to see the results in their lawns. Recommendations include:
 - Make the soil test results easier to read.
 - If budget allows, consider offering a second soil sampling and test, potentially at cost instead of for free, so participants can see how their behavior changes affected their soil.
- **Continue using email reminders and video content.** Participants appreciated both the email reminders and videos. Recommendations include:
 - Break up some of the longer videos into shorter clips and assess whether some videos should provide more details.
 - Organize or highlight the online lesson content by month. Provide guidance on when participants should review each lesson, based on the lawncare activities they should do each month. Include links to each month's videos and documents in reminder emails.
 - Provide lawncare tips and reminders specifically for people who let their lawns go dormant in summer, not just for people who water.

- **If important, consider expanding content or tools for measuring watering amounts.** When asked about watering, few respondents to the post-program survey said they had used the “tuna can test” or measured how much they need to water. Many said they used intuition or experience but did not measure.

RECOMMENDATION: Offer follow-up support and conduct a follow-up evaluation with 2022 pilot participants in 2023-2024.

- **Offer past participants limited ongoing support.** Some respondents wanted to review the online lessons again and be able to ask questions the following year.
 - Send past participants monthly or seasonal reminder emails. Include updated information on which stores carry slow-release fertilizer and lime.
 - Allow past participants to keep accessing to the online lessons.
 - If budget allows, hold another question-and-answer session in winter before lawncare season starts and/or invite past participants to email the program with questions.
- **Conduct a follow-up survey one to two years after the pilot.** Because the program provided free slow-release fertilizer and lime and required participants to use them, this evaluation is not able to confirm that their practices have changed. Past evaluations comparing participant intentions to future practices have found that participants do not always continue the practices they intend to use. Conducting a second follow-up survey will confirm whether participants continued using slow-release fertilizer and lime after the program stopped providing it for free.

Appendices

- Baseline survey instrument
- Post-program survey instrument
- Baseline survey data
- Post-program survey data

Question 26a

Stewardship Event	Target Audience	Components	Number of Stewardship Events	Number of Participants	Partners
Riparian Restoration, & Pollution Prevention Planting Projects	General public School-age children Residents Agricultural operators	Education on stormwater impacts on surface waters Plantings along streams Water-wise plantings at County-owned properties to reduce erosion and use of pesticides Agricultural runoff control	6	183	Washington State University (WSU)- Native Plant Salvage Project Cities of Olympia, Lacey, and Tumwater
McLane Creek Nature Trail Maintenance	General public School-age children	Education regarding stormwater impacts on surface waters Help maintain nature trail at outdoor learning location	9	48	WSU-Native Plant Salvage Project Cities of Olympia, Lacey, and Tumwater
Native Plant Salvages and Nursery Maintenance Work Parties	General public	Education on stormwater impacts on surface waters Salvage and maintain native plants for habitat restoration projects	103	186	WSU-Native Plant Salvage Project Cities of Olympia, Lacey, and Tumwater
Amphibian Egg Mass Surveys	General public	Education regarding stormwater impacts on surface waters	10	50	Cities of Olympia, Lacey, and Tumwater
Oyster Seed Planting for Water Quality	General public	Education on stormwater impacts on surface waters Water quality restoration	5	68	Cities of Olympia, Lacey and, Tumwater

Question 30a

Asset ID	Outfall Material	Outfall Diameter (Inches)
PI709320	CPEP	24
CU720937	CPEP	12
PI712301	CMP	18
PI702778	Concrete	12
PI712033	PVC	6
PI712708	Concrete	18
PI720310	CPEP	12
PI703772	CMP	12
PI714282	CMP	12
PI704826	CPEP	6
PI722902	CPEP	6
CU720012	CPEP	18
CU717780	HDPE	19
PI702904	Concrete	12
CU712508	Concrete	36
PI713274	Concrete	8
PI719769	CPEP	12
PI724092	CPEP	12
PI713234	CPEP	8
PI703608	CMP	12
PI704328	CMP	8
PI720938	CMP	30
PI718762	PVC	10
PI712070	CPEP	12
PI704329	CMP	8
PI721077	PVC	8
CU720310	Concrete	18
PI712068	Concrete	12
PI713382	Concrete	8
PI720697	Concrete	12
PI701881	CPEP	36
PI724106	Concrete	12
CU720938	CPEP	10
CU712919	CMP	84
PI709692	CMP	8
TD700015	PVC Perf	8
PI722158	CPEP	12
PI712232	Concrete	12
PI704468	CPEP	12
PI718964	CPEP	4
PI712031	Concrete	10
TD700001	PVC Perf	12
CU720299	CPEP	18

CU712519	Concrete	36
PI712279	Concrete	12
PI710251	CMP	8
PI709718	CMP	10
PI714342	CPEP	18
PI703609	CMP	8
PI722571	PVC	10
PI714630	Concrete	24
PI721248	CPEP	18
PI714399	CPEP	24
PI717781	CPEP	12
PI704577	Concrete	12
PI710258	CPEP	18
PI725312	CMP	36
PI718967	PVC	6
PI703323	CPEP	12
PI711115	CPEP	12
CU713021	CPEP	12
PI720944	Concrete	12
PI725164	PVC	24
PI724769	CPEP	12
PI722502	CPEP	12
PI712067	CPEP	12
CU713169	Concrete	18
PI709926	Concrete	12
PI705636	Concrete	12
PI712593	CPEP	12
PI712319	Concrete	8
PI718988	CPEP	8
PI718733	Concrete	8
PI712069	Concrete	12
PI719035	Concrete	12
PI703610	CMP	8
PI702326	CMP	12
PI724802	CPEP	12
PI709719	CMP	8
PI718728	CPEP	8
PI711216	CPEP	18
PI711977	Concrete	12
PI711117	CPEP	10
PI710129	CMP	8
PI720060	CMP	12
PI721611	PVC	8
PI712027	CPEP	12
PI724079	CPEP	12
PI725153	PVC	24
CU704630	CPEP	12

Asset ID	Ditch/Swale Type	Swale Bottom Width
LD700215	Lined Ditch	Null
DC706285	Ditch	Null
DC702325	Ditch	Null
DC714342	Ditch	Null
DC714340	Ditch	Null
LD700214	Lined Ditch	Null
DC712580	Ditch	Null
SW704354	Swale	6 feet
DC706283	Ditch	Null
DC714339	Ditch	Null
DC743504	Ditch	Null

Question 42

Date Reported	Date Response Began	Date Response Ended	Type	Explain	Explain2	Address	City	Postal Code	Latitude	Longitude	type3	Explain4	type5	Explain6	type7	Explain8	type9	Explain10	Notes
	44923	44923	2 Staff referral		NoCleanedUp	14710 BALD HILL RD SE	Yelm	98597	568316.3547	1130850.732	1 Fuel and/or vehicle related fluids		6 Other commercial/industrial activity		1 Observation (color/sheen/turbidity/floatables/od				
1/9/2023	44935	44935	4 ERTS referral		NoNoneFound	7419 SW YOLANDA DR	Olympia	98512	604208.4062	1006543.051	0 Unconfirmed, unspecified, or not identified		0 Unconfirmed, unspecified, or not identified		1 Observation (color/sheen/turbidity/floatables/od		7 Other	No spill found	Took photos and responded back to DOE Spills staff
2/6/2023	44962	44962	2 Staff referral		Unknown	2420 HOGUM BAY RD NE	Lacey	98516	640216.5466	1077480.2	1 Fuel and/or vehicle related fluids		0 Unconfirmed, unspecified, or not identified		1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		WABC staff absorbent and booms to contain the spill and used sweeper to pick up absorbent.
2/6/2023	44962	44962	2 Staff referral		NoCleanedUp	16500 SARGENT RD SW	Rochester	98579	562472.2551	1002953.57	7 Paint		6 Other commercial/industrial activity	Rochester Drop Box	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		WABC staff placed absorbent and booms down to contain.
	44993	44993	1 Direct report to your staff		NoCleanedUp	10208 OLD HWY 99 SE	Olympia	98501	594235.0594	1052287.433	1 Fuel and/or vehicle related fluids		7 Vehicle collision	Car vs. Pole, pickup truck discharged fluids after collision.	1 Observation (color/sheen/turbidity/floatables/od	Some oil/fluid on road, some amount likely in ditch but not visible at time of cleanup	0 Clean-up	Used absorbent materials, agitated onto the spill area with a push broom. Bagged and removed materials.	Vehicle was attached to tow truck when I arrived, and I cleaned up the area where it had been idle over the road. The area around the pole did not appear to have fluids.
3/9/2023	44994	44994	2 Staff referral		NoCleanedUp	6940 ALPINE DR SW	Olympia	98512	612834.1511	1009007.333	1 Fuel and/or vehicle related fluids	Oil sheen	8 Other accident/spill	Vehicle leak	1 Observation (color/sheen/turbidity/floatables/od	Oil sheen	0 Clean-up	Cleaned up by roads crew.	Call was forwarded to roads crew chief and cleaned up.
	44998	44998	1 Direct report to your staff		Unknown	17526 STATE ROUTE 507 SE	Yelm	98597	589954.0676	1124085.564	1 Fuel and/or vehicle related fluids	Transformer mineral oil	7 Vehicle collision	Transformer mineral oil after car vs. pole	1 Observation (color/sheen/turbidity/floatables/od		6 Referred to other agency or department	WSDOT initiated cleanup prior to my arrival	Location of incident is a state highway, so WSDOT responded to the cleanup.
3/15/2023	45000	45001	4 ERTS referral		YesNotifiedECY	1138 ARCADIA ST NW	Rainier	98502	637585.2902	1025530.677	1 Fuel and/or vehicle related fluids		8 Other accident/spill	Homeowner spilled gas	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		Placed absorbent pads in 5 catchbasins and will vector out CBs in the morning.
3/24/2023	45009	45010	8 Other	811	NoCleanedUp	1516 HAWAIIAN CT SE	Lacey	98516	627729.7667	1073508.76	1 Fuel and/or vehicle related fluids		1 Vehicle-related business	Multiple emergency and wreckers still on site. Semi was separated from its trailer in the opposite side of the road from the pole.	1 Observation (color/sheen/turbidity/floatables/od	Noticed during an after hours utility locate that a semi hit a pole.	0 Clean-up	The tow company threw down absorbent in the roadway. There was a pool of oil in a depression on the shoulder of the road where I placed several booms to pick up additional fluids.	Will revisit to pick up booms.
	45015	45016	0 Pollution hotline (phone, web, app)		YesNotifiedECY	4606 OYSTER BAY RD NW	Olympia	98502	653976.2593	1008349.325	1 Fuel and/or vehicle related fluids		7 Vehicle collision		1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		absorbents spread over affected area to pick up the majority of the oil and removed and disposed of. Left 6 booms in place overnight to be picked up the following day. Picked up on 3/31/2023, double bagged and disposed in Tilley campus dumpster.
	45021	45021	2 Staff referral		NoCleanedUp	11827 MORRIS RD SE	Yelm	98597	583874.0605	1117120.433	1 Fuel and/or vehicle related fluids		7 Vehicle collision	car vs. pole	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		Absorbents spread out over vehicle spill during emergency locate response. Swept up spread out absorbents the following morning.
	45026	45026	2 Staff referral		NoCleanedUp	5115 89TH AVE SE	Olympia	98501	600901.9098	1062372.947	1 Fuel and/or vehicle related fluids		7 Vehicle collision		1 Observation (color/sheen/turbidity/floatables/od	Sheen	0 Clean-up		Absorbents used to clean up oil sheen where car vs. pole was located. Swept up and then used blower to blow off muddy remnants off road. Car went into the ditch and struck neighbor's fence and hit pole. No ditch remediation necessary at this time. See comments for additional details.
5/8/2023	45054	45054	4 ERTS referral		YesNotifiedECY	7825 26TH CT SE	Lacey	98503	624559.3505	1073930.342	5 Sewage/septage/pet waste/human waste		8 Other accident/spill		1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		City of Lacey cleaned impacted area
	45060	45060	2 Staff referral		NoCleanedUp	20937 OLD HWY 99 SW	Centralia	98531	538958.726	1011379.624	1 Fuel and/or vehicle related fluids		7 Vehicle collision	car vs. pole	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		Spill fluids volatilized, no impact to MS4.
5/25/2023	45071	45071	3 Other agency referral	811	NoCleanedUp	14225 LITTLE ROCK RD SW	Littlerock	98512	574246.5766	1009686.258	10 Other	Transformer fluids leaked.	8 Other accident/spill	Transformer downed. Car vs pole.	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		Geo Engineers was notified to clean any and all transformer fluid that had spilled.
6/8/2023	45085	45085	2 Staff referral		YesNotifiedDOH	13541 S TILLEY RD	Tenino	98589	577310.0435	1037423.62	1 Fuel and/or vehicle related fluids	Unknown vehicle fluids and fluids from fire fighting activities	8 Other accident/spill	RV fire	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		Throw down sorbents to contain liquids, swept up and blew off pavement. Remaining stain will volatilize.
	45097	45097	4 ERTS referral	811	NoCleanedUp	9110 OLD HWY 99 SE	Olympia	98501	600563.3124	1048250.623	1 Fuel and/or vehicle related fluids		7 Vehicle collision	car vs. pole	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		Cleaned up small fuel spill that occurred while filling up truck 8985.
	45103	45103	2 Staff referral		NoCleanedUp	9605 TILLEY RD S	Olympia	98512	597366.9275	1038965.406	1 Fuel and/or vehicle related fluids		8 Other accident/spill	fueling vehicle	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up		Private catch basin had noticeable material floating on surface, which looked bubbly/soapy. A dried streak of the spill was continuous from the driveway to the catch basin.
7/7/2023	45114	45114	0 Pollution hotline (phone, web, app)		NoNoneFound	8743 50TH AVE NE	Olympia	98516	653309.6329	1079446.288	10 Other	Cement slurry	5 Construction activity	Seems to be from a newly paved driveway	1 Observation (color/sheen/turbidity/floatables/od		1 Education/technical assistance	Emailled the Beachcrest HOA that their private CB was affected	Email attached to HOA regarding the incident.
	45119	45119	2 Staff referral		NoCleanedUp	Old Hwy 9 and Old Hwy 99	Centralia	98531	538699.2533	1011397.835	1 Fuel and/or vehicle related fluids		7 Vehicle collision		1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up	Dry sweep	Absorbents placed on fluids by tow company and swept up by TC sweeper
7/19/2023	45127	45127	4 ERTS referral		YesNotifiedECY	14243 123RD AVE SE	Yelm	98597	581774.9259	1106125.81	5 Sewage/septage/pet waste/human waste	Manure	11 Other	Appears to have come from a manure tank	1 Observation (color/sheen/turbidity/floatables/od		7 Other	No action to be taken was dry on roadway. Appears to have sloshed out of tank hauling material on grade.	
8/9/2023	45143	45147	0 Pollution hotline (phone, web, app)		YesNotifiedECY	QUEETS & MAKAH ST NE	Lacey	98516	638906.898	1077953.935	7 Paint	Household paint.	9 Intentional dumping	Adjacent resident intentionally poured paint / oil in drain.	1 Observation (color/sheen/turbidity/floatables/od	Can see paint stains on grate and wall.	0 Clean-up	Placed a WO with road operations to mobilize a vector to clean drains before heavy rains, see linked WO. Stormwater buttons place to educate residents.	Site visit could tell someone dumped white paint into asset ICBT1101196. There is oil in asset ICBT1101194 probably from the road.

																		Cleaned up vehicle fluids at the edge of the roadway using sorbents. Spill was contained to the edge of the roadway and did not reach the shoulder. Picked up some loose debris that made it into the ditch.
	45149	45149	2 Staff referral		NoCleanedUp	10135 DELPHI RD SW	Olympia	98512	596715.2025	1012653.771	1 Fuel and/or vehicle related fluids		7 Vehicle collision				0 Clean-up	
					NoCleanedUp	HANNUS RD SE	Yelm	98597	580343.7377	1120128.864	1 Fuel and/or vehicle related fluids	Appeared to be motor oil.	0 Unconfirmed, unspecified, or not identified		0 Not applicable	Spill was found by random citizen who had their own dry sweep and applied. Road ops crew member drove by an applied some more.	0 Clean-up	Found area, searched for source or other containers, none found. Started to sweep up and my broom broke, completely fell apart. Used flathead shovel to scrap up dry sweep and place in double bag. Disposed of in dumpster at Tilley. The are had been driven upon so it was smashed into asphalt road.
	45176	45176	1 Direct report to your staff		NoCleanedUp	HANNUS RD SE	Yelm	98597	580343.7377	1120128.864	1 Fuel and/or vehicle related fluids	Material was residual fuel in a rotted out gas tank	8 Other accident/spill	Hole in fuel tank of RV that has been abandoned and burnt	0 Not applicable		0 Clean-up	Placed spill pads before loading into truck for disposal.
10/23/2023	45202	45202	1 Direct report to your staff		NoCleanedUp	Sargent RD SW and Littlerock RD SW	Rochester	98579	562974.789	1003121.081	1 Fuel and/or vehicle related fluids				0 Not applicable		0 Clean-up	Placed spill pads before loading into truck for disposal.
														5 quart oil jug of used motor oil leaning up against then outlet of CUTJ3001 with no lid on it	0 Not applicable		0 Clean-up	Put a temporary lid on oil container put it in a garbage bag, secured it and disposed of it at the Thurston County Hazo House
10/5/2023	45204	45204	1 Direct report to your staff		NoNoneFound	3608 BOSTON HARBOR RD NE	Olympia	98501	647326.9718	1043595.43	1 Fuel and/or vehicle related fluids	used motor oil	9 Intentional dumping		0 Not applicable		0 Clean-up	Came across 5qt container half full of used motor oil while doing asset inspections, contained it and put it in a garbage bag, secured the jug and disposed of it.
10/23/2023	45223	45223	0 Pollution hotline (phone, web, app)		YesNotifiedECY	7294 MARTIN WAY E	Olympia	98516	635444.4995	1071426.782	2 Food-related oil/grease	Food-related wastewater	2 Food-related business	Food truck wastewater	1 Observation (color/sheen/turbidity/floatables/od		1 Education/technical assistance	Installed catch basin button and cleaned off catch basin grate. Added to source control inventory for additional follow-up.
10/30/2023	45230	45230	3 Other agency referral	City of Olympia	NoCleanedUp	4943 DUNHAM DR SE	Olympia	98501	617077.0446	1054820.434	5 Sewage/septage/pet waste/human waste		8 Other accident/spill	Broken valve	1 Observation (color/sheen/turbidity/floatables/od	Visual and discussion with contractor on site	0 Clean-up	No evidence of sewage leaving the planter strip where the break was and discharging on to the road.
	45232	45232	2 Staff referral		NoCleanedUp	16748 VAIL LOOP RD SE	Rainier	98579	556686.2074	1102870.705	1 Fuel and/or vehicle related fluids	Hydraulic fluid	8 Other accident/spill	Hydraulic line broke on sweeper 9459	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up	Spill occurred on paved area which was cleaned up with spill pads.
11/13/2023	45243	45243	4 ERTs referral		Other	10145 HWY 12 SW	Rochester	98579	553450.7837	990497.9887	0 Unconfirmed, unspecified, or not identified		0 Unconfirmed, unspecified, or not identified		0 Not applicable	Spilled to WSDOT ROW	6 Referred to other agency or department	No county infrastructure impacted.
	45245	45245	2 Staff referral		NoCleanedUp	6801 FIR TREE RD SE	Olympia	98513	601891.7193	1068655.756	1 Fuel and/or vehicle related fluids	Diesel	0 Unconfirmed, unspecified, or not identified		1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up	Applied sand and swept up.
																		Rainier Drop Box location had a spill over the weekend, 11/15/2023
																		One of Republics Bin container trucks blew a hydraulic line while unloading a bin by the north wall, absorbent material was spread around and underneath the trailer to absorb as much of the fluid as possible and booms were laid out to trap the liquid and prevent run off in case of a rain event. The truck was immobile due to the trailer being lifted at the time and unable to retract. Republics maintenance workers were sent out this morning 11/20/2023 to repair their truck and back to original working condition.
	45249	45249	2 Staff referral		NoCleanedUp	13010 RAINIER ACRES RD SE	Rainier	98576	578812.3348	1090780.6	1 Fuel and/or vehicle related fluids	Hydraulic fluid	6 Other commercial/industrial activity	Hydraulic line blew on contractors truck	1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up	Absorbent material placed on affected area
	45264	45264	3 Other agency referral	TCCOMM	NoCleanedUp	11549 VAIL RD SE	Yelm	98576	584542.0533	1123381.849	1 Fuel and/or vehicle related fluids	minimal petroleum	7 Vehicle collision		1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up	Dry Sweep and Pads and sand
																		put out 10 boom barriers in the ditch and around any basins on the area, as well as sanded the spill.
12/10/2023	45270	45271	2 Staff referral		NoCleanedUp	7434 BOSTON HARBOR RD NE	Olympia	98506	668180.8902	1043267.752	1 Fuel and/or vehicle related fluids		0 Unconfirmed, unspecified, or not identified		1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up	We will sweep it and remove containment material this morning.
	45274	45275	8 Other	TCSO	NoCleanedUp	19939 OLD HWY 99 SW	Rochester	98579	544131.3024	1011329.461	1 Fuel and/or vehicle related fluids		7 Vehicle collision		1 Observation (color/sheen/turbidity/floatables/od		0 Clean-up	Vehicle collision at intersection, looked like attempt to clean was made by others. The area on the top of the island had some fluids present; I was able to get with absorbent. I swept, double bagged and disposed in Tilley dumpster. See comments.
	45282	45282	2 Staff referral		NoNoneFound	7320 JAMES RD SW	Rochester	98579	543239.7987	1004963.612	1 Fuel and/or vehicle related fluids	Smelled like gasoline	0 Unconfirmed, unspecified, or not identified		1 Observation (color/sheen/turbidity/floatables/od		7 Other	Very light sheen in the westbound lane. No action taken due to wet roadway and how light the sheen was.
	45288	45289	2 Staff referral	Web inquiry to Environmental Health, their staff sent to us.	NoNoneFound	5944 CAPITOL FOREST DR SW	Olympia	98512	615844.9209	1016398.421	1 Fuel and/or vehicle related fluids	Identified from photo provided.	0 Unconfirmed, unspecified, or not identified	Could have been small drips from vehicle due to linear description.	1 Observation (color/sheen/turbidity/floatables/od	None found	7 Other	No action needed, may have been drips from a vehicle. No evidence found, probably volatilized since yesterday. I called Barry and told him no action needed.

Question 77



PUBLIC WORKS

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Jennifer D. Walker, Director

Source Control Program for Existing Development

Question 77: Attach a summary of actions taken to implement the source control program per S5.C8.b.iii and S5.C.8.b.iv.

S5.C8.b.iii. No later than January 1, 2023, Permittees shall implement an inspection program for sites identified pursuant to S5.C8.b.ii, above.

a. All identified sites with a business address shall be provided information about activities that may generate pollutants and the source control requirements applicable to those activities. This information shall be provided by mail, telephone, electronic communications, or in person. This information may be provided all at one time or spread out over the permit term to allow for tailoring and distribution of the information during site inspections.

Initial outreach occurred after establishing the source control inventory per S5.C8.b.ii. All identified sites in the source control inventory received a mailer introducing the source control program, potential pollutant generating activities, and source control requirements applicable to those activities. Throughout the Permit cycle, during inspections, the County provided additional information tailored to site-specific pollution-generation activities and best management practices (BMPs) related to those activities.

b. The Permittee shall annually complete the number of inspections equal to 20% of the businesses and/or sites listed in their source control inventory to assess BMP effectiveness and compliance with source control requirements. The Permittee may count follow-up compliance inspections at the same site toward the 20% inspection rate. The Permittee may select which sites to inspect each year and is not required to inspect 100% of sites over a 5-year period. Sites may be prioritized for inspection based on their land use category, potential for pollution generation, proximity to receiving waters, or to address an identified pollution problem within a specific geographic area or sub-basin.

At 27.8%, the County's 2023 inspections exceeded the Permit's 20% annual inspection rate target to assess BMP effectiveness and compliance with the source control requirements. During 2023, the County conducted ten inspections from the 36 sites in the inventory. Seven were initial inspections, two were triggered by complaints, and one involved a follow up inspection related to one of the complaints. In addition to responding to complaints, the County prioritized site inspections based on land use category and potential to pollute. For 2023, this involved prioritizing inspections at convenience stores with gas stations which represents one of the County's larger concerns.

The majority of pollutant generating businesses in unincorporated Thurston County infiltrate on-site and are not connected to the County's MS4 either directly or indirectly. The 36 identified sites in our inventory either directly connect to the MS4 or have drainage pathways that could

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potentially contribute pollutants to the MS4. As the source control program for existing development continues through future Permit cycles, we will continue to reassess our inventory annually to ensure that our inventory includes all potential pollution generating sites to the County's MS4.

c. Each Permittee shall inspect 100% of sites identified through credible complaints.

The County received two complaints triggering source control site inspections. Both sites involved mobile food trucks, one related to an illicit discharge and the other due to absent BMPs resulting in a potential discharge violation. Both sites received education and outreach materials tailored towards mobile food trucks during the inspection. For both of these complaints, we coordinated response with the County's Environmental Health Department that issued the permits governing these food truck operations.

d. Permittees may count inspections conducted based on complaints, or when the property owner denies entry, to the 20% inspection rate.

Two complaints contributed towards meeting the 20% inspection rate. No property owners denied entry.

55.C8.b.iv. No later than January 1, 2023, each Permittee shall implement a progressive enforcement policy that requires sites to comply with stormwater requirements within a reasonable time period as specified below:

a. If the Permittee determines, through inspections or otherwise, that a site has failed to adequately implement required BMPs, the Permittee shall take appropriate follow-up action(s), which may include phone calls, reminder letters, emails, or follow-up inspections.

When the County identified deficiencies where BMPs were not adequately implemented, follow-up actions included phone calls, reminder letters, and follow-up inspections. The County relies heavily on technical assistance and education and outreach to obtain compliance with the County's source control-related codes. Enforcement mechanisms, per code, exists for situations where technical assistance and education and outreach efforts fail to achieve compliance.

b. When a Permittee determines that a site has failed to adequately implement BMPs after a follow-up inspection(s), the Permittee shall take enforcement action as established through authority in its municipal codes or ordinances, or through the judicial system.

Thurston County Code 15.07 – Stormwater Pollution Prevention and 15.07.090 – Enforcement relate to this section. According to the enforcement policy, the County shall initially rely on education and outreach and technical assistance to gain compliance with Chapter 15.07. Enforcement actions may include 1) Technical assistance; 2) Issue a notice of violation; 3) Enter into a compliance agreement; 4) Issue a cease and desist order; 5) Issue a civil penalty; and 6) Seek any other available judicial

remedy, including but not limited to securing an order for abatement, judicial lien against the violator's property, or criminal search warrant.

No notices of violation were issued for any of the sites inspected through the source control program during for this year. The County secured compliance through education and outreach and technical assistance.

- c. Each Permittee shall maintain records, including documentation of each site visit, inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating an effort to bring sites into compliance. Each Permittee shall also maintain records of sites that are not inspected because the property owner denies entry.*

The County documented all inspections in our asset management system, including warning letters, notices of violation, and correspondence related to any deficiencies.

- d. A Permittee may refer non-emergency violations of local ordinances to Ecology, provided, the Permittee also makes a documented effort of progressive enforcement. At a minimum, a Permittee's enforcement effort shall include documentation of inspections and warning letters or notices of violation.*

It was not necessary to refer violations to Ecology.



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Jennifer D. Walker, Director

Source Control Program for Existing Development

This list represents Source Control Program inspections conducted during 2023 per S5.C8.b.iii. Each inspection record is logged in our asset management tracking software and contains detailed information on the activities conducted on-site and associated best management practices (BMPs), inspection photos, inspection results, and records of enforcement actions taken.

Business Name	Address	Business Category	Number of Inspections	Enforcement Actions Taken
California Tacos	7294 Martin Way E	Mobile food truck	1	Education and outreach materials provided; Referral to the Environmental Health Program (EH) where the issues were resolved. The Environmental Health Program now considers these types of site high risk and will re-evaluate annual permit applications related to food trucks.
Tacos Brothers	9335 Martin Way E	Mobile food truck	2	Education and outreach materials provided; Referral to the EH where the issues were resolved. EH now considers these types of site high risk and will re-evaluate annual permit applications related to food trucks.
Buddie's Grocery	6501 Martin Way E	Convenience store with gas station	1	Education and outreach materials provided. No enforcement necessary.
Day & Night Grocery	7637 Martin Way E	Convenience store with gas station	1	Education and outreach materials provided. No enforcement necessary.
Tanglewilde Arco	7291 Martin Way E	Convenience store with gas station	1	Education and outreach materials provided. No enforcement necessary.
Scott Lake Grocery	11315 Scott Creek Dr SW	Convenience store with gas station	1	Education and outreach materials provided. No enforcement necessary.
Black Lake Grocery	4409 Black Lake Blvd SW	Convenience store with gas station	1	Education and outreach materials provided. No enforcement necessary.
JJ's Quick Stop	4845 Black Lake Belmore	Convenience store with gas station	1	Education and outreach materials provided. No enforcement necessary.
Villa Grove Chevron	9200 Littlerock Rd SW	Convenience store with gas station	1	Education and outreach materials provided. No enforcement necessary.

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Nisqually River Basin WQIP

- A. *Reach households in targeted watershed through mailings, door hangers, etc. to increase awareness of the sources of fecal coliform bacteria pollution.*

The County met this through the following actions:

- Continued to offer and promote free pet waste signs and pet waste bag dispenser stations to qualifying neighborhoods located in the watershed.
- Organized four social media posts related to pet waste pollution prevention which were promoted by Thurston County's Instagram, Twitter, and Facebook accounts.
- Promoted pet waste pollution prevention at the Nisqually Pride and Health Fair. Gave away 80 *Bags-on-Board* (BOBs), pet waste bag dispensers that attach to a pet's leash.
- Began a georeferenced pet waste station mapping project to assess condition of stations across the County, including those in the Nisqually River Basin. During Phase I of the project, we updated records of current contacts of the pet waste stations stewards with the goal of geotagging them in 2024. We will then look at potential correlations between station placement and fecal coliform presence in the Nisqually River Basin.
- Partnered with the Olympia Oyster Seed Planting Project to offer the general public hands-on water quality education and stewardship through the preparation of oyster seed bags to be planted in local bays and inlets, including Henderson Inlet
- Partnered with Thurston County Joint Animal Services to provide dog waste education and distribute a *Bag-on-Board* to each Thurston County resident who adopts a dog.
- Conducted self-inspection certification workshops for onsite sewage system owners. Technical assistance to septic system owners occurred via mailings, field visits, and phone conversations. The County maintains a website for the Nisqually Reach Watershed at: <http://www.co.thurston.wa.us/health/ehrp/nisqually.html>.
- Posted septic tips on Health Department social media channels weekly with over 106,000 impressions. Our septic display, hosted in the Health Department lobby, received foot traffic of 7,757 visitors.
- Provided free site visits, educational materials, and information to direct property owners to other helpful resources in support of the County's nonpoint ordinance for managing animal manure.
- Made referrals to the Thurston Conservation District to provide voluntary technical assistance when we receive complaints of improperly managed livestock manure or poor farm practices.

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B. Adequately maintain vegetation around stormwater facilities, ditches, and ponds.

The County met this through the following actions:

- Public Works staff follow best management practices as prescribed in the *Stormwater Management Manual for Western Washington* and *Regional Road Maintenance Guidelines* for maintaining vegetation around stormwater facilities, ditches, and ponds it is responsible for.

Henderson Inlet Watershed Fecal Coliform Bacteria WQIP

1.a. Require phosphorus control for new and redevelopment projects that discharge via the MS4 to Woodard Creek and meet the project thresholds in Appendix 1, Minimum Requirement #6: Runoff Treatment of the Western Washington Permit.

The County met this through the following action:

- The County reviews project proposals to ensure consistency with the requirements of the municipal stormwater permit to provide for phosphorous treatment for projects in the Woodard Creek Basin. By code, the County requires phosphorus control for all new and redevelopment projects that meet the project thresholds as specified in Appendix 1, Minimum Requirement #6: Runoff Treatment.

2.a. Annually implement enhance screening for reducing fecal coliform in areas discharging to the Henderson Inlet via the MS4 in accordance with S5.C.5. Investigation shall include stormwater ponds and on-site septic systems as potential fecal coliform sources, and sampling of wet-weather discharges (November through April).

As Ecology's [Henderson Inlet storyboard](#) conveys, Thurston County has been a meaningful partner in efforts to reduce bacterial pollution in the watershed's receiving waters, a commitment that continues. In light of the findings from the County's enhanced bacteria source tracing efforts, the County reached out to Ecology Southwest Region Office and Headquarters staff and held a meeting on April 11th to discuss a proposal to sunset the enhanced County MS4 outfall screening for fecal coliform. During the meeting, we reviewed the history of how the obligation emerged and findings from the enhanced screening efforts. The County went on to explain how sunsetting this obligation would allow us to apply our resources more strategically to focus our efforts to address known County MS4-related areas requiring attention. After the meeting, upon deliberation, Ecology notified the County that:

We're comfortable dropping this requirement from the Appendix 2 language for this permit cycle. We may revisit this conversation for the next permit cycle if we have reason (shellfish downgrades, consistently high bacteria levels, etc.), but can cross that bridge if necessary. Thanks again for your time and work, and please reach out with any questions.

3.a. Continue offering public education and outreach efforts for fecal coliform reduction such as brochures, signage, and pet waste stations to homeowner associations.

The County met this through the following actions:

- Continued to offer and promote free pet waste signs and pet waste bag dispenser stations to qualifying neighborhoods located in the watershed.
- Organized four social media posts related to pet waste pollution prevention which were promoted by Thurston County's Instagram, Twitter, and Facebook accounts.

Question 81

- Partnered with the Olympia Oyster Seed Planting Project to offer the general public hands-on water quality education and stewardship through the preparation of oyster seed bags to be planted in local bays and inlets, including Henderson Inlet.
- Partnered with Thurston County Joint Animal Services to provide dog waste education and distribute a *Bag-on-Board* to each Thurston County resident who adopts a dog. As part of the Regional Environmental Education Partnership (REEP) attended, Lacey's Children's Day where Pet Waste Education and BOBs were offered to the 500+ people reached.
- Conducted self-inspection certification workshops and for onsite sewage system owners. Technical assistance to septic system owners occurred via mailings, field visits, and phone conversations. The County maintains a website for the Henderson Inlet Watershed at: <https://www.co.thurston.wa.us/health/ehrp/henderson.html>.
- Posted septic tips on Health Department social media channels weekly with over 106,000 impressions. Our septic display, hosted in the Health Department lobby, received foot traffic of 7,757 visitors.
- Provided free site visits, educational materials, and information to direct property owners to other helpful resources in support of the County's nonpoint ordinance for managing animal manure.
- Made referrals to the Thurston Conservation District to provide voluntary technical assistance when we receive complaints of improperly managed livestock manure or poor farm practices.

4. *Annually produce a report that details all actions completed as part of Appendix 2 requirements.*

The County met this through by submitting this attachment in response to *Annual Reporting Question #81*.

Deschutes River Watershed

A. *Annually report on temperature reduction measures in the watershed.*

The County met this through the following actions:

- Applying the County's *Drainage Design and Erosion Control Manual* (DDECM) for new and redevelopment, including the DDECM's low impact development (LID) requirements.
- Thurston County Code limits the amount of impervious (hard) surfaces and promotes the use of low impact development (LID) approaches.
- Implement the County's Shoreline Master Program and Critical Area Ordinance which requires stream buffers for new development.
- Developing an incentive-based program to motivate voluntary restoration of riparian areas on private lands in Thurston County. The program would largely focus on accelerating the rate of forested streamside buffer restoration.
- Contracted with Washington State University to develop tools and produce technical resources materials to support landowners in developing hedgerows and narrow buffers along waterways.