

City of Port Angeles

2021 Annual Report

NPDES Phase II Municipal Stormwater Permit



Permit #: WAR045028
Permit Cycle: 2019-2024

Annual Report

Number	Permit Section	Question
1	S5.A	<p>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.</p> <p>Not Applicable</p>
2	S5.A	<p>Attach updated annual Stormwater Management Program Plan (SWMP Plan). (S5.A.2)</p> <p>SWMP Plan for 2022_Final_w. ap_2_03292022141010</p>
3	S5.A	<p>Implemented an ongoing program to gather, track, and maintain information per S5.A.3, including costs or estimated costs of implementing the SWMP.</p> <p>Yes</p>
4	S5.A.5.b	<p>Coordinated among departments within the jurisdiction to eliminate barriers to permit compliance. (S5.A.5.b)</p> <p>Yes</p>
5	S5.C.1.	<p>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</p> <p>Yes</p>
15	S5.C.1.c	<p>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)</p> <p>Yes</p>
16	S5.C.1.c	<p>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)</p> <p>No</p>
17	S5.C.1.d	<p>Developed a watershed inventory as outlined in S5.C.1.d.i? (Submitted by March 31, 2022)</p> <p>Yes</p>
17a	S5.C.1.d	<p>Attach watershed inventory as described in S5.C.1.d.i.</p> <p>CoPA SMAP Receiving Water Asse_17a_03292022145436</p>

Number	Permit Section	Question
18	S5.C.1.d	Developed a receiving water prioritization method and process as described in S.5.C.1.d.ii(a)-(c)? (Required by June 30, 2022.) Not Applicable
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. West Sound Stormwater Outreach Group (WSSOG) - Build general awareness, effect behavior change via: targeted stormwater awareness advertisement campaign, interactive games, educational materials, practical handouts, collaborative research to influence and improve our local programs, etc.
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. 2021 Public Outreach Tracking_21_03292022145741
23	S5.C.2	Developed a behavior change campaign that is tailored to the community in accordance with S5.C.2.a.ii(c)? (Required no later than February 1, 2021) Yes
23a	S5.C.2	Attach the strategy and schedule developed in accordance with S5.C.2.a.ii(c). WSSOG ACTIVITIES REPORT 2021.p_23a_03292022145813
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
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.
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 stormwater informational webpage on the City's website contains a direct link to the updated SWMP Plan along with a link to a digital form where public input on the SWMP is encouraged. In addition, City staff are available to the public for direct communication regarding stormwater, as described in the SWMP Plan.
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

Number	Permit Section	Question
28a	S5.C.3.	List the website address in Comments field. https://www.cityofpa.us/255/Stormwater-Utility
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). 11x17 SW Outfalls_CoPA 2021_30a_03292022150358
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) Not Applicable
32	S5.C.4.	Developed an electronic format for map, with fully described mapping standards in accordance with S5.C.4.c? (Required no later than August 1, 2021) 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. Provided staff training. Maintained IDDE page on website. Implemented the City's IDDE program. Implemented the Pollution Prevention Assistance (PPA) Program providing education to local businesses.
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. The City's field screening methodology consists of: business inspections (under the PPA program), stream and creek walks, and stormwater infrastructure inspections in basins selected for that year. Results of the field inspections are used to select monitoring nodes. Primary indicator testing is performed at monitoring locations. If thresholds are exceeded, the area upstream from the monitoring site is flagged for further investigation. See the "2021 Screening Summary and Map Update.pdf" attachment for more details.

Number	Permit Section	Question
36	S5.C.5	<p>Percentage of MS4 coverage area screened in the reporting year per S5.C.5.d.i. (Required to screen 12% on average each year.)</p> <p>8.1</p>
36a	S5.C.5	<p>Cite field screening techniques used to determine percent of MS4 screened.</p> <p>The City was divided up into eight (8) roughly equal screening basins by the number of catch basins within the right of way. Each year, one basin is selected and screened using the methodology described above. See the "2021 Screening Summary and Map Update.pdf" attachment for more details and a map of the screening basins.</p>
37	S5.C.5	<p>Percentage of total MS4 screened from permit effective date through the end of the reporting year. (S5.C.5.d.i.)</p> <p>33.5</p>
38	S5.C.5	<p>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)</p> <p>Posted on the City website (https://www.cityofpa.us/262/Reporting-Spills), advertised at public outreach events, and listed on handout materials.</p>
39	S5.C.5	<p>Implemented an ongoing illicit discharge training program for all municipal field staff per S5.C.5.d.iii.</p> <p>Yes</p>
40	S5.C.5	<p>Implemented an ongoing program to characterize, trace, and eliminate illicit discharges into the MS4 per S5.C.5.e.</p> <p>Yes</p>
41	S5.C.5	<p>Municipal illicit discharge detection staff are trained to conduct illicit discharge detection and elimination activities as described in S5.C.5.f.</p> <p>Yes</p>
42	S5.C.5	<p>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.</p> <p>2021 IDDE Tracking_XML_version_42_03292022150842</p>
43	S5.C.6.	<p>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.</p> <p>Yes</p>
44	S5.C.6.	<p>Revised 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. (Required no later than June 30, 2022)</p> <p>Not Applicable</p>

Number	Permit Section	Question
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. 141
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? Yes
48a	S5.C.6.	If no, inspected, prior to clearing and construction, all construction sites meeting the minimum thresholds (S5.C.6.c.ii)? No
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. 37
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

Number	Permit Section	Question
52	S5.C.6.	<p>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)</p> <p>1</p>
53	S5.C.6.	<p>Achieved at least 80% of scheduled construction-related inspections. (S5.C.6.c.vi)</p> <p>Yes</p>
54	S5.C.6.	<p>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)</p> <p>Yes</p>
55	S5.C.6.	<p>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)</p> <p>Yes</p>
56	S5.C.7.	<p>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.?</p> <p>Yes</p>
57	S5.C.7.	<p>Updated maintenance standards specified in Stormwater Management Manual for Western Washington per S5.C.7.a? (Required no later than June 30, 2022)</p> <p>Not Applicable</p>
58	S5.C.7.	<p>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)</p> <p>No</p>
59	S5.C.7.	<p>Verified that maintenance was performed per the schedule in S5.C.7.a.ii when an inspection identified an exceedance of the maintenance standard.</p> <p>Yes</p>
59a	S5.C.7.	<p>Attach documentation of maintenance time frame exceedances that were beyond the Permittee's control.</p> <p>Not Applicable</p>
60	S5.C.7.	<p>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))?</p> <p>Yes</p>

Number	Permit Section	Question
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) 193
63b	S5.C.7.	Number of facilities inspected during the reporting period. 193
63c	S5.C.7.	Number of facilities for which maintenance was performed during the reporting period. 92
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. Yes
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? 2681
66b	S5.C.7.	Number of catch basins inspected during the reporting period? 2248

Number	Permit Section	Question
66c	S5.C.7.	Number of catch basins cleaned during the reporting period? 2066
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
69	S5.C.7.	Documented 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 – Required by December 31, 2022) Not Applicable
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
72	S5.C.7.	Updated, if needed, SWPPPs according to S5.C.7.f no later than December 31, 2022. Not Applicable
73	S5.C.8	Adopted ordinance(s), or other enforceable documents, requiring the application of source control BMPs for pollutant generating sources associated with existing land uses and activities per S.5.C.8.b.i. (Required by August 1, 2022) Not Applicable
74	S5.C.8	Established an inventory per S5.C.8.b.ii. (Required by August 1, 2022.) Not Applicable
75	S5.C.8	Implemented an inspection program S5.C.8.b.iii (Required by January 1, 2023). Not Applicable
76	S5.C.8	Implemented a progressive enforcement policy per S5.C.8.b.iv (Required by January 1, 2023). Not Applicable

Number	Permit Section	Question
77	S5.C.8	<p>Attach a summary of actions taken to implement the source control program per S5.C.8.b.iii and S5.C.8.b.iv.</p> <p>Summary of Actions_SC Program_77_03292022152321</p>
78	S5.C.8	<p>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.</p> <p>Not Applicable</p>
79	S5.C.8	<p>Implemented an ongoing source control training program per S5.C.8.b.v?</p> <p>Not Applicable</p>
80	S7	<p>Complied with the Total Maximum Daily Load (TMDL)-specific requirements identified in Appendix 2. (S7.A)</p> <p>Not Applicable</p>
81	S7	<p>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)</p> <p>Not Applicable</p>
82	S8	<p>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.)</p> <p>Yes</p>
84	S8	<p>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)?</p> <p>Yes</p>
86	S8	<p>If conducting stormwater discharge monitoring in accordance with S8.C.1, submitted a QAPP to Ecology no later than February 1, 2020? (S8.C.1.b and Appendix 9)</p> <p>Not Applicable</p>
87	S8	<p>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.)</p> <p>Not Applicable</p>
88	G3	<p>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)</p> <p>Yes</p>
89	G3	<p>Took appropriate action to correct or minimize the threat to human health, welfare, and/or the environment per G3.A.</p> <p>Yes</p>

Number	Permit Section	Question
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) Yes
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) Water Quality Monitoring_Strea_92_03292022152634
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) Not Applicable
94	G20	Number of non-compliance notifications (G20) provided in reporting year. List permit conditions described in non-compliance notification(s) in Comments field. Not Applicable

Attachments:

View Files Attached to Submission

	DocDescr	DocName	DocExt	DocID	SubID	AppName
View	WAR045028_30a_03292022150358	11x17 SW Outfalls_CoPA 2021_30a_03292022150358	.pdf	1233669	1815079	wqwebportal
View	Streamkeepers ILA	2017-2021 Streamkeepers Agreement - Fully Executed	.pdf	1233698	1815079	wqwebportal
View	IDDE Tracking Spreadsheet	2021 IDDE Tracking Spreadsheet	.pdf	1233704	1815079	wqwebportal
View	WAR045028_42_03292022150842	2021 IDDE Tracking_XML_version_42_03292022150842	.xml	1233672	1815079	wqwebportal
View	WAR045028_21_03292022145741	2021 Public Outreach Tracking_21_03292022145741	.pdf	1233655	1815079	wqwebportal
View	Basin Screening Summary	2021 Screening Summary and Map Update	.pdf	1233705	1815079	wqwebportal
View	Private Facility SW Inspections	2021_Annual Private Facility Inspections	.pdf	1233707	1815079	wqwebportal
View	CoPA O&M SW Facility Tracking	2021_COPA O and M Program_tracking spreadsheet	.pdf	1233708	1815079	wqwebportal
View	Construction review & inspection tracking	2021_Inspection Documentation Tracking List	.pdf	1233706	1815079	wqwebportal
View	PPA Program - SW Education Tracking 2021	2021_Stormwater Education Tracking_PPA Program	.pdf	1233711	1815079	wqwebportal
View	PPA Partnership_2019-2021 Biennium Report	2104049	.pdf	1233712	1815079	wqwebportal
View	CoPA_CESCL Certs_active	CESCL_CoPA_Current_3.29.2022	.pdf	1233715	1815079	wqwebportal
View	WAR045028_17a_03292022145436	CoPA SMAP Receiving Water Asse_17a_03292022145436	.pdf	1233651	1815079	wqwebportal
View	1.2.2021_SSO_S4F1 Notification	COPA_S4.F.1 Notification_Jan.2 SSO into MS4_signed	.pdf	1233721	1815079	wqwebportal
View	E&O Utility Bill Mailer	Final_SW Rains Flier_2021	.pdf	1233685	1815079	wqwebportal
View	Ongoing IDDE Staff Training	IDDE Staff Training - Tracking Spreadsheet	.pdf	1233716	1815079	wqwebportal
View	List of Stewardship Opportunities	List of Stewardship Opportunities_2021	.pdf	1233697	1815079	wqwebportal
View	IDDE_New Employee Tracking	New Employee_IDDE_BB2021	.pdf	1233717	1815079	wqwebportal
View	Overburdened Communities Memo	Overburdened Communities Transmittal Memo 2021-03-	.pdf	1233686	1815079	wqwebportal
View	Use Pond at Trans. Station_BMP	PALF wet weather BMP-Storage Pond	.pdf	1233722	1815079	wqwebportal
View	CoPA_PPA Program Documents	Pollution Prevention Program_ Port Angeles, WA -	.pdf	1233713	1815079	wqwebportal

View	PA Watershed	Port Angeles Watershed	.pdf	1233703	1815079	wqwebportal
View	Kitsap Co. WSSOG ILA	PSA-2019-50 WSSOG - Fully Executed	.pdf	1233695	1815079	wqwebportal
View	Rain Garden Presentation Slides	Rain Gardens - Fiero July 2021	.pdf	1233694	1815079	wqwebportal
View	S8 Notification Letter	S8 Notification Letter_11.8.2019	.pdf	1233718	1815079	wqwebportal
View	5.2021_SAM Annual Report	SAM 2020 Annual Report_May 2021	.pdf	1233720	1815079	wqwebportal
View	2021 Invoice_S8	SAM2021Invoice-PortAngeles_approved	.pdf	1233719	1815079	wqwebportal
View	SW Utility Map_GIS	Stormwater Utility map	.pdf	1233702	1815079	wqwebportal
View	WAR045028_77_03292022152321	Summary of Actions_SC Program_77_03292022152321	.pdf	1233682	1815079	wqwebportal
View	SW Eagle Scout Project	SW Eagle Scout Project_H.Hughes_summer 2021	.pdf	1233699	1815079	wqwebportal
View	WAR045028_2_03292022141010	SWMP Plan for 2022_Final_w. ap_2_03292022141010	.pdf	1233614	1815079	wqwebportal
View	WAR045028_92_03292022152634	Water Quality Monitoring_Strea_92_03292022152634	.pdf	1233683	1815079	wqwebportal
View	WAR045028_23a_03292022145811	WSSOG ACTIVITIES REPORT 2021.p_23a_03292022145811	.pdf	1233660	1815079	wqwebportal
View	WAR045028_23a_03292022145813	WSSOG ACTIVITIES REPORT 2021.p_23a_03292022145813	.pdf	1233661	1815079	wqwebportal
View	Virtual Tour Presentation Slides	WWU Presentation_slides_1.23.2021	.pdf	1233692	1815079	wqwebportal

[Back](#)

This is a copy of the City's Stormwater Management Program (SWMP) Plan. It defines what the City plans to do to reduce adverse stormwater runoff impacts on downstream receiving waterbodies.

We would like your input on methods to improve the quality of our stormwater and the environment.

Please let us know if you have any comments, ideas, or concerns! You can provide feedback directly to City Hall at 321 East Fifth Street, attention Stormwater Engineer. You can also call the stormwater hotline at 360-417-4830, or send an email to stormwater@cityofpa.us.

City of Port Angeles

Stormwater Management Program Plan

Revised: March 21, 2022



As required by the

Western Washington Phase II Municipal Stormwater Permit
State of Washington – Department of Ecology

Permit Number: WAR045028
Permit Cycle: 2019-2024

Table of Contents

- Background and Intent5
- 1) Stormwater Planning.....6
 - a) Stormwater Planning Team.....6
 - b) Long-range Plan Coordination Report.....6
 - c) LID Code-related Requirements7
 - i) LID Barrier Assessment..... 7
 - d) Stormwater Management Action Planning (SMAP)7
 - i) Receiving Water Assessment..... 8
 - ii) Receiving Water Prioritization 8
 - iii) SMAP Development 8
- 2) Public Education and Outreach.....9
 - a) General Awareness9
 - b) Behavior Change.....12
 - c) Stewardship.....13
 - d) Recordkeeping14
- 3) Public Involvement and Participation14
 - a) Public Involvement in SWMP14
 - b) Availability of Information to the Public.....15
- 4) MS4 Mapping and Documentation15
 - a) Municipal Separate Storm Sewer System (MS4) Map16
 - i) Location of Known Outfalls, Receiving Waters and Structural BMPs 16
 - ii) New Connections to the MS4 16
 - iii) Areas Not Discharging to Surface Waters 16
 - b) Availability of Information17
- 5) Illicit Discharge Detection and Elimination (IDDE)17
 - a) IDDE Policy and Procedures17
 - b) IDDE Education.....17
 - c) Illicit Discharge Ordinance18
 - d) Illicit Discharge Detection18
 - i) Field Screening and Potential Sources..... 18
 - ii) Hotline for Public Reporting of Discharges and Spills..... 19
 - iii) IDDE Staff Training 20
 - e) Illicit Discharge Response20
 - i) Nature of Discharge 20
 - ii) Source Tracing..... 20
 - iii) Discharge Elimination 21
 - iv) Permit Compliance Timeframes 21
 - f) Recordkeeping21

6)	Controlling Runoff from New Development, Redevelopment, and Construction Sites.....	22
a)	Stormwater Ordinance Regulating Development.....	22
i)	Minimum Requirements, Technical Thresholds, and Definitions.....	22
ii)	Legal Authority to Inspect Private Facilities.....	23
ii)	LID Required.....	23
iii)	Erosivity Waiver.....	23
b)	Permitting.....	23
i)	Review of Stormwater Site Plans.....	23
ii)	Erosivity Waiver.....	24
iii)	Notice of Intent.....	24
c)	Inspections.....	24
i)	Pre-Construction Inspections.....	24
ii)	During Construction Inspections.....	24
iii)	Post-Construction Inspections.....	25
iv)	Inspection Compliance.....	25
v)	Enforcement Strategy.....	25
d)	Staff Training.....	25
e)	Recordkeeping.....	25
7)	Operations and Maintenance.....	25
a)	Maintenance Standards.....	25
b)	Permitted Stormwater Facilities.....	26
i)	Operations and Maintenance Ordinance.....	26
ii)	Maintenance Standards.....	26
iii)	Annual Inspections.....	26
iv)	Compliance & Recordkeeping.....	27
c)	City Owned Stormwater Facilities.....	27
i)	Treatment and Flow Control Inspections.....	27
ii)	Spot Checks.....	27
iii)	Catch Basin Inspections.....	27
iv)	Compliance.....	28
d)	Stormwater Impact Reduction from Public Lands.....	28
e)	Training Program.....	28
f)	Stormwater Pollution Prevention Plans.....	29
g)	Recordkeeping.....	30
8)	Source Control Program for Existing Development.....	30
a)	Program Goals.....	31
b)	Program Components and Milestones.....	31
i)	Ordinance to Apply BMPs.....	32
ii)	Inventory of Sites.....	32
iii)	Inspection Program.....	32
iv)	Progressive Enforcement Policy.....	33
c)	Staff Training.....	33
	Stormwater NPDES and Capital Needs Assessment.....	34

Documents Referenced35

SWMP Appendix A : Inter-Departmental Coordination Mechanism Policy36

SWMP Appendix B : Public Outreach Plan Activity Matrix37

SWMP Appendix C : Illicit Discharge Detection and Elimination (IDDE) Response
Policy38

List of Tables

Table 1: Status of Stormwater Pollution Prevention Plans for City Facilities..... 29

Table 2: Existing Individual Stormwater and Stormwater-Related Permits..... 30

Appendices

- Appendix A: Public Outreach Plan Activity Matrix
- Appendix B: Illicit Discharge Detection and Elimination (IDDE) Response Policy
- Appendix C: Inter-Departmental Coordinating Mechanisms

BACKGROUND AND INTENT

The City of Port Angeles (City) was issued a Western Washington Phase II Municipal Stormwater Permit (Permit) on January 17, 2007. The Permit was issued by the State of Washington's Department of Ecology (Ecology) in compliance with the State of Washington Water Pollution Control Law (Chapter 90.48 Revised Code of Washington) and the Federal Water Pollution Control Act (Title 33 United States Code, Section 1251 et seq). The Permit was renewed on August 1, 2013 for a five-year term (2013-2018), however, Ecology extended the permit an additional year into 2019. On August 1, 2019, Ecology updated and renewed the permit for another five-year term (2019-2024). The Permit authorizes the City to discharge from the municipal separate storm sewer system (MS4) to surface waters and ground waters of the state.

A Stormwater Management Program (SWMP) was developed by the City to meet the specific requirements of Special Condition S5 of the Permit: "Stormwater Management Program for Cities, Towns, and Counties." The SWMP Plan is a written set of planned actions and activities designed to reduce the discharge of pollutants to the maximum extent practicable and to protect water quality.

The organization of the City's SWMP reflects the eight core components required by Special Condition S5 under the active Permit; the corresponding permit sections are provided in parentheses:

1. Stormwater Planning (S5.C.1)
2. Public Education and Outreach (S5.C.2)
3. Public Involvement and Participation (S5.C.3)
4. MS4 Mapping and Documentation (S5.C.4)
5. Illicit Discharge Detection and Elimination (S5.C.5)
6. Controlling Runoff from New Development, Redevelopment, and Construction Sites (S5.C.6)
7. Operation and Maintenance (S5.C.7)
8. Source Control Program for Existing Development (S5.C.8)

The City's SWMP Plan is updated and submitted to the Department of Ecology annually, as required. A digital copy of the SWMP Plan is available on the City's stormwater web page. Updates to the Plan for each calendar year are posted by March 31st, as require by the Permit

Many of the activities described in the SWMP are planned activities, and their inclusion in this document does not guarantee that they will be implemented as described. An annual report of actual activities performed is submitted annually to Ecology.

The public is encouraged to participate in the ongoing development and improvement of the SWMP. To provide input, contact the Department of Public Works and Utilities with questions, comments, or suggestions at:

Address: 321 East Fifth St, Port Angeles, WA 98362

Phone: (360) 417-4830 (Stormwater Hotline)
(360) 417-4745 (Illicit Discharge Hotline) ***Report a Spill***
(360) 417-4701 (City Stormwater Engineer)

Email: illicitdischarge@cityofpa.us

Website: <http://www.cityofpa.us> CLICK >> Departments... Public Works & Utilities... Stormwater Utility... Stormwater Management Program.

Digital Copy: SELECT >> [Stormwater Management Program planning document \(PDF\)](#).

Web Form: SELECT >> [Stormwater Plan Survey](#)

1) STORMWATER PLANNING

The City is in the process of implementing a Stormwater Planning Program designed to inform and assist in the development of policies and strategies as water quality management tools to protect receiving waters. During the current permit cycle, this program will be further developed and executed within the allowable timeframes to meet the requirements of the 2019-2024 Permit.

a) STORMWATER PLANNING TEAM

Within the City, inter-departmental communication and coordination regarding stormwater management (i.e. code changes, permit compliance, low-impact development standards, illicit discharges, pollution prevention, education and outreach, permitting, tracking, etc.) has been well-established, as documented by the City's Inter-Departmental Coordination Mechanism Policy. The City's Stormwater Permit Coordination Group (SWPCG) was expanded upon in 2020 to specifically include a "Planning" component that is dedicated to informing and assisting in the development, progress, and influence of the City's overall Stormwater Planning Program. The Group's written policy was updated in July 2020, included here-in in Appendix A, and was renamed the "Stormwater Permit Coordination and Planning Group" (SWPCPG). Semi-regular meetings are held to discuss ongoing and future stormwater management items across select departments and divisions within the City.

b) LONG-RANGE PLAN COORDINATION REPORT

During this permit Cycle, the City will be reviewing and evaluating how stormwater management needs and protection/improvement of receiving water health are (or are not) informing the planning update processes and influencing policies and implementation strategies.

This effort will manifest in two reports to Ecology describing how the water quality and watershed protection policies, strategies, codes, and other measures intended to protect and improve local receiving water health through planning, or taking into

account stormwater management needs or limitations; under the previous permit cycle and, again, under the current permit cycle.

Included in the City's 2020 annual report to Ecology (due on or before March 31, 2021), the City has responded to the series of Stormwater Planning Annual Report questions describing how anticipated stormwater impacts on water quality were addressed, if at all, during the 2013-2019 permit term in updates to the Comprehensive Plan (or equivalent) and in other locally initiated or state-mandated, long-range land use plans that are used to accommodate growth or transportation.

These same questions will be applied to the current permit cycle and used to generate a Long-range Plan Coordination Report to Ecology, due January 1st, 2023.

c) LID CODE-RELATED REQUIREMENTS

The City will continue to require Low-impact Development (LID) Principles and LID BMPs when updating, revising, and developing new local development-related codes, rules, standards, or other enforceable documents, as needed. The intent being to make LID the preferred and commonly-used approach to site development. The local development-related codes, rules, standards, or other enforceable documents will be designed to minimize impervious surfaces, native vegetation loss, and stormwater runoff in all types of development situations, where feasible.

i) LID BARRIER ASSESSMENT

Annually, the City will assess and document any newly identified administrative or regulatory barriers to implementation of LID Principles or LID BMPs since local codes were updated in accordance with Ecology's 2013 Permit, and the measures developed to address the barriers. If applicable, the assessment will describe mechanisms adopted to encourage or require implementation of LID principles or LID BMPs.

d) STORMWATER MANAGEMENT ACTION PLANNING (SMAP)

During this permit cycle, the City will develop a comprehensive stormwater planning approach that is focused on addressing impacts from the cumulative development in a watershed rather than on single site or subdivision impact. The purpose of this effort to determine:

- How the City can most strategically address existing stormwater problems, and
- How the City can meet future population and density targets while also protecting and improving conditions in receiving water.

The resulting SMAP will strategically identify approaches to accommodate future growth and development while preventing water quality degradation and/or improving conditions in receiving waters harmed by past development.

i) RECEIVING WATER ASSESSMENT

In order to develop and implement a strategic plan of action, the City will first identify receiving waters that are most likely to receive a benefit. To achieve this, the City will document and assess existing information related to our local receiving waters.

A tabulated watershed inventory that includes a brief description of the relative conditions of the receiving waters and the contributing areas has been consolidated, per permit requirements, and will be submitted to Ecology by March 31st, 2022. The submittal will include a map of the delineated basins that references back to the watershed inventory table and identifies which receiving waters have a relatively low stormwater management influence and will not be included in the next step; prioritization.

ii) RECEIVING WATER PRIORITIZATION

Informed by the assessment of receiving water conditions, and other local and regional information, the City will develop and implement a prioritization method and process to determine which receiving waters will receive the most benefit from implementation of stormwater facility retrofits, tailored implementation of SWMP actions, and other land/development management actions. The retrofits and actions shall be designed to:

- Conserve, protect, or restore receiving waters through stormwater and land management strategies that act as water quality management tools,
- reduce pollutant loading, and
- address hydrologic impacts from existing development as well as planned for and expected future buildout conditions.

This prioritized and ranked list of receiving waters will be documented no later than June 30, 2022, along with the process used to identify high priority receiving waters. Additionally, the ranking process will include the identification of high priority catchment area(s) for focus of the Stormwater Management Action Plan (SMAP).

iii) SMAP DEVELOPMENT

In this step, the City will develop an SMAP for at least one high-priority catchment area that will:

- Identify specific stormwater management actions to protect water quality in the selected receiving water, and
- Determine an appropriate schedule and budget source(s) for implementing the activities and projects identified.

As required by the Permit, this SMAP will be developed by March 31st, 2023 and will include the following:

1. A description of the stormwater facility retrofits needed for the area, including the BMP types and preferred locations.

2. Land management/development strategies and/or actions identified for water quality management.
3. Targeted, enhanced, or customized implementation of stormwater management actions related to permit sections within section S5 of the Permit, including:
 - a. IDDE field screening,
 - b. Prioritization of Source Control inspections,
 - c. O&M inspections or enhanced maintenance, or
 - d. Public Education and Outreach behavior change programs.

Identified actions will support other specifically identified stormwater management strategies and actions for the basin overall, or for the catchment area in particular.

4. If applicable, identification of changes needed to local long-range plans, to address SMAP priorities.
5. A proposed implementation schedule and budget sources for:
 - a. Short-term actions (accomplished within 6 years)
 - b. Long-term actions (accomplished within 7-20 years)
6. A process and schedule to provide future assessment and feedback to improve the planning process and implementation of procedures or projects.

2) PUBLIC EDUCATION AND OUTREACH

The City’s public education and outreach program has been developed consistent with the original Permit goal: “to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.” The program’s foundational goals are to:

- build general awareness within the community about methods to address and reduce impacts from stormwater runoff,
- effect behavior change to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts,
- create stewardship opportunities that encourages community engagement in addressing the impacts from stormwater runoff.

The City is a member of the West Sound Stormwater Outreach Group (WSSOG); a regional group facilitated by Kitsap County that consolidates resources, knowledge, and experience in an effort to achieve a robust, engaging, and consistent education and outreach program. Regionally developed strategies and materials are tailored to meet the City’s needs and implemented locally.

a) GENERAL AWARENESS

At a minimum, the City will annually select one target audience from the list below and implement an education and outreach program designed to provide

general awareness regarding stormwater issues and solutions. The content of the program will be relevant to the target audience selected and will be implemented on an ongoing or strategic schedule. The target audiences included in the permit and relevant subject areas to be covered are detailed below.

General Public or Businesses

Including overburdened communities, or school age children and including home-based or mobile businesses, respectively.

Subject areas:

- General impacts of stormwater on surface waters, including impacts from impervious surfaces.
- Low impact development (LID) principles and LID BMPs.

Land Development Professionals

Engineers, contractors, developers, or land use planners.

Subject areas:

- Technical standards for stormwater site and erosion control plans.
- LID principles and LID BMPs.
- Stormwater treatment and flow control BMPs/facilities

The following is a list of means and methods the City may employ in their annual targeted education and outreach program:

- **Stormwater website:** the City's stormwater website contains information on general stormwater impacts, impervious surfaces, and opportunities for the public to help improve stormwater quality within the watershed. The webpage may be found at (<http://www.cityofpa.us> CLICK>> Departments...Public Works & Utilities...Divisions...Stormwater Utility). The website will be updated as more information becomes available. Specific updates are planned to include a list of frequently asked questions, a list of upcoming stormwater-related events, additional links to other websites, and copies of educational materials developed under this program.
- **Presentations / Meetings:** Annually, the City may hold virtual and/or in-person public meetings to discuss the stormwater management program plan, stormwater management requirements, permitting, stormwater templates, ordinances, LID, etc. In these meetings we may discuss local water quality, the effects of impervious surfaces on stream health, and stormwater pollutants generated by home and automobile owners. Meetings may be held with local interest groups such as Streamkeepers, EcoNet, and the North Peninsula Builders Association.
- **Informational handouts:** Take-home fliers and brochures and will be made available to the public at facilities such as Port Angeles City Hall (customer service and billing desk, Public Works and Utilities reception area), Clallam County Courthouse, Port Angeles Public Library, City Pier (Arthur D. Feiro Marine Life Center), Peninsula College, and others. The informational

brochures are designed to address the education goals listed above. As new brochures and other informational materials are developed, electronic copies will be made available through the City's stormwater webpage.

- **Media advertisements:** The City may periodically place stormwater-related information in the local newspaper (Peninsula Daily News), on paid cable and satellite, locally targeted internet advertising platforms, and at local movie theatres. This information will be designed to address the education goals listed above and will be timed to reflect the greater impact during the wet winter season. Electronic copies of media advertisements may be made available through the City's stormwater webpage.
- **Utility bill mailers:** One month of the year, typically October, educational mailers are sent out with the monthly utility bills, thereby reaching the City's utility customers. The mailers will be developed to create a progressive flow of general stormwater related information with practical tips for home and business owners to help improve water quality. Copies of mailers will also be made available on the City's stormwater website and as handouts. The 2022 utility bill mailer are likely to feature topics such as: LID code updates, stormwater programmatic changes, BMPs, dog waste, vehicle washing, natural yard care, and the upcoming source control program.
- **Local event participation:** Educational materials (posters, brochures/handouts, maps, etc) are commonly distributed at existing local and regional events that attract members of the target audiences. At such events, City representatives are made available to answer questions and provide information. Typical events include: Clallam County Fair, Clallam County Home and Lifestyle Show, and others. Event-specific materials are developed and distributed as appropriate. Announcements of upcoming events and copies of materials used at events are typically available on the City's stormwater website. This normally effective method of outreach was essentially canceled in 2020 and 2021 due to the global Covid-19 pandemic and is still expected to continue to be restricted in 2022.

A matrix has been prepared to show planned activities for the current year and their relationship to the target audiences. This matrix is attached as Appendix B to this document. Updates of actual education and outreach activities performed will be provided with the Annual Report for the year.

In addition to the means and methods listed above (whose primary purpose is to provide stormwater education and meet permit requirements), throughout a typical year, the City also indirectly provides education outreach, such as:

- **Pollution prevention site visits:** The City receives grant funding through the State Department of Ecology to support a Pollution Prevention Specialist position. This person schedules site visit appointments at businesses within the City. The purpose will be to educate them about stormwater pollution and their connection to the local water ways, to educate them about the impacts of

illicit discharges and how to report them, to help them implement BMPs on use and storage of hazardous materials, to fill out the Department of Ecology's Source Control Checklist and to report that information to Ecology and the City. Under the current permit cycle, Source Control is now a permit condition and starting in Jan. 2023, this program will become an active component to the City's overall stormwater management program. See Section 8 for more details.

- **Illicit discharge information for the general public:** General information regarding illicit discharges to stormwater is provided to the public in an ongoing manner under the City's IDDE program. Information includes a description of illicit discharges, applicable laws, environmental effects, preventative measures, reporting measures, and links to other sources of information. A "Stormwater Pollution Hotline" is available for public reporting of illicit discharges (360-417-4745). See Section 5 for more details.
- **Direct mail:** Mailers designed to address specific stormwater education goals or stormwater ordinance updates may be sent directly to a specific target audience or City wide (i.e. car washes, golf courses, LID code changes, etc.). The audience will be selected based on classification in directories such as telephone books, web searches, or utility information.
- **BMP and LID incentives programs:** the City will continue to implement a stormwater rebate program that will offer financial incentives to small development projects who implement certain stormwater LID BMPs, on their properties. This program will be advertised on the City website and at local public events. The City has also implemented a rain garden rebate program for existing homes and businesses to further encourage LID. The rain garden rebate reimburses an approved applicant the cost of up to \$1000 for the material required. Program details can be found on the City's Stormwater webpage.
- **Stormwater Management Manual for Western Washington:** a copy of the most recent version of the Department of Ecology's manual is available at the City's Public Works and Utilities Department's Engineering Services Office so that designers can access the manual without purchasing or printing it. Staff are available by appointment to assist with the use of the manual.
- **Workshops or one-on-one meetings with developers:** The city stormwater engineer meets regularly with developers and engineers to help them interpret the City stormwater regulations, and to recommend low impact development techniques as generally lower cost stormwater solutions. New in 2021; via Microsoft Bookings and from the City's website, interested parties can now directly schedule a virtual meeting with Public Works Staff to discuss all aspects of development, including stormwater management or concerns.

b) BEHAVIOR CHANGE

At a minimum, the City will annually select one target audience and one Best Management Practice (BMP) from the list below and implement an education and

outreach program designed to effect behavior change to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.

Target Audiences

Residents, landscapers, property managers/owners, developers, school age children, or businesses (including home-based or mobile businesses).

Best Management Practices (BMPs):

- Use and storage of: pesticides, fertilizers, and/or other household chemicals.
- Use and storage of: automotive chemicals, hazardous cleaning supplies, carwash soaps, and/or other hazardous materials.
- Prevention of illicit discharges.
- Yard care techniques protective of water quality.
- Carpet cleaning.
- Repair and maintenance BMPs for: vehicles, equipment, and/or home/buildings.
- Pet waste management and disposal.
- LID Principles and LID BMPs.
- Stormwater facility maintenance, including LID facilities.
- Dumpster and trash compactor maintenance.
- Litter and debris prevention.
- Sediment and erosion control.
- (Audience specific) Source control BMPs (refer to S5.C.8).
- (Audience specific) Locally-important, municipal stormwater-related subject area.

As required by the permit, behavior change effectiveness studies will be performed at the time intervals specified. The City anticipates continuing to meet behavior change and program evaluation requirements in collaboration with the regional West Sound Stormwater Outreach Group (WSSOG), facilitated by Kitsap County. The City's inter-local Agreement with Kitsap County was re-signed at the beginning of the year through Dec. 2022. The focus in 2021, and will be again 2022, has been Natural Yard Care (NYC).

Tailoring of the program to meet the City's needs may be necessary to ensure the content is applicable to Port Angeles. Results from the effectiveness study will be used to optimize the strategy and schedule of our existing education and outreach program. Social marketing practices and methods will be incorporated, and a program evaluation plan will be developed and implemented to monitor ongoing performance. Progress reports regarding the program evaluation results and improvements will be submitted to Ecology at specified intervals.

c) STEWARDSHIP

Empowering and encouraging local citizens to take ownership in their community is known to have long-term positive impacts that can be felt for generations to come. The permit requires the City provide and advertise stewardship

opportunities and/or partner with existing organizations (including nonpermittees) to encourage residents to participate in activities or events planned and organized within the community, such as: stream teams, storm drain marking, volunteer monitoring, riparian plantings, and education activities. To meet this permit requirement, the City intends to continue its partnership with Streamkeepers of Clallam County; a citizen-based watershed monitoring program that provides volunteer opportunities and project assistance in the effort to protect and restore the local watersheds in Clallam County. However, new ideas for new partnerships and ways to support local stewardship opportunities are always welcome and can be submitted to the City's Stormwater Engineer.

d) RECORDKEEPING

The City will track and maintain records of all public education and outreach activities conducted. An electronic database of this information is maintained by the City's Public Works and Utilities Department. The database contains the following entries, where applicable:

- Name of outreach activity/distribution/event
- Date(s)
- Location(s)
- City personnel involved
- Target audience(s)
- Contact information for other group(s)
- Subject area(s)
- Attendance/distribution (actual or approximate)
- Educational materials used (flyers, handouts, slide shows, posters, etc)
- Notes/other

The public education and outreach database is available from the City upon request. An updated version will be included with each annual report. Copies of all material used during public education and outreach activities will be maintained, as well as photos, descriptions of feedback, lessons learned, and other information.

3) PUBLIC INVOLVEMENT AND PARTICIPATION

The SWMP will include opportunities for public involvement and participation to ensure that the program addresses the goals and expectations of the public as well as the requirements of the Permit. Public comments will be tracked and responded to as appropriate.

a) PUBLIC INVOLVEMENT IN SWMP

The City seeks public involvement and participation in developing and managing stormwater within the community. The permit describes ongoing opportunities for participation may be provided through advisory councils, public hearings, watershed committees, developing rate-structures, or other similar activities. Ways to engage

and include overburdened communities, as defined in the permit, will be considered when providing a means for involvement. Currently, common ways the public have opportunities for participation are:

- Direct contact with City staff: An email address, phone number, and mailing address will be provided on all City stormwater information distributed. The public will be encouraged to contact City staff at any time with questions or concerns.
- Web page: The City's stormwater web page (<http://www.cityofpa.us> CLICK >> Departments.... Public Works & Utilities.... Divisions.... Stormwater Utility) includes an updated copy of the SWMP, encourages public involvement, elicits feedback, and gives contact information.
- Public hearings: All City policy decisions will follow standard City procedure and will be brought before City Council through the public hearing process. This includes rate changes, new or revised ordinances, and other official policy decisions. The public are notified, as required, and will have a chance to comment during the hearings.
- Engineering counter handout: The SWMP is available at City Hall in the Public Works and Utilities (PW&U) reception area.
- Stormwater workshops: The City stormwater engineer may hold public information sessions on the stormwater management program to local professionals, the public, and stakeholder groups such as Streamkeepers, EcoNet, and North Peninsula Builders Association.

All opportunities for public involvement and comments received will be tracked on a spreadsheet maintained by the Department of Public Works and Utilities. The City will consider comments as they are received and will follow up with the public as appropriate.

b) AVAILABILITY OF INFORMATION TO THE PUBLIC

The most recent annual report to Ecology, the SWMP, and other submittals required by the Permit are made available to the public on the City's stormwater webpage. The documents are also be available to the public at the Department of Public Works and Utilities (321 East Fifth St, Port Angeles), upon request. Staff will be available by appointment to discuss the documents with any interested parties.

4) MS4 MAPPING AND DOCUMENTATION

Accountability of a municipality's existing and developing stormwater network is necessary to build upon the past, maintain what's existing, and plan for the future. In the late 90's and early 2000's, the City began collecting field stormwater infrastructure data and recording it electronically using data management and spatial mapping software. Today, the City's inventoried and mapped stormwater system consists of approximately:

- 65 miles of stormwater conveyance

- 2,600 catch basins
- 170 outfalls
- 190 treatment and flow control facilities

Maintaining accountability and updating the mapping system is an ongoing collaborative effort that relies heavily on communication and established information processing pathways.

a) MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) MAP

The City’s stormwater system is mapped electronically in the City’s Geographic Information System (GIS). The data contained in the map is updated and corrected continuously as information is gathered in the field or as new development occurs. Updates are made based on field sketches, design plans, as-built plans, aerial photography, and/or other sources of information that become available.

The stormwater GIS layers contain information on storm drain manholes, catch basins, outfalls, pipes, ditches, culverts, detention ponds, treatment facilities, and drainage basins. Other layers within the City’s overall GIS dataset contain information relevant to stormwater as well, for example: land use, land cover, zoning, impervious surfaces, topography, natural hydrology, and combined sewers. Aerial photography is also available, with the most recent flyover being performed in 2019.

i) LOCATION OF KNOWN OUTFALLS, RECEIVING WATERS AND STRUCTURAL BMPs

The locations of all known outfalls, receiving waters, and structural BMPs owned, operated and/or maintained by the City have been mapped in the GIS. Additional information regarding tributary conveyances (pipes, ditches, etc), associated drainage areas, and land use will be developed as part of the program’s ongoing refinement process. During the course of normal business, Stormwater Operations staff are in the process of collecting and recording more detailed information specifically regarding outfalls such as material type, diameter, condition, etc.

ii) NEW CONNECTIONS TO THE MS4

The City continuously updates the stormwater GIS with all new connections or infrastructure permitted or otherwise authorized by the City. New connections are mapped from development plans, project plans, field reports, and/or other sources as appropriate.

iii) AREAS NOT DISCHARGING TO SURFACE WATERS

Most of the areas served by the City-owned MS4 discharge into surface waters, however there are four west side retention basins which provide an unmeasured level of infiltration: Lincoln Park Pond, Big Boy Pond, M & 10th St. Wetland, and the 10th and N St. Quarry). All of these areas have overflow structures that allow stormwater to discharge to surface waters. Also, the City has many surface water catch basins which drain to the City’s wastewater plant. These basins have been mapped.

b) AVAILABILITY OF INFORMATION

The City's stormwater mapping with associated infrastructure information is available to anyone at anytime on the City's website or via the following web address:

<https://pawa.maps.arcgis.com/apps/webappviewer/index.html?id=e58c0d47915c44cf833174513da11086>

Additionally, City staff are available by appointment to provide assistance with navigating the GIS mapping database and in providing more-detailed project specific information, if available.

Upon request, and to the extent appropriate, the City is able provide mapping information to federally recognized Indian Tribes, municipalities, and other Permittees, however, depending on the extent of the request, the City may recover reasonable costs associated with fulfilling these mapping information requests.

Upon request, the City can provide available stormwater maps to Ecology. The City can provide the required mapping information in electronic format that meets or exceeds Ecology's GIS mapping standards, with the exception of metadata, which the City does not have available in electronic format at this time.

5) ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

An illicit discharge is any direct or indirect discharge into the City's stormwater system that is not comprised entirely of stormwater, with some exceptions explicitly described in the Phase II permit and reiterated in municipal code. This section of the stormwater management program is designed to prevent, detect, characterize, trace, and eliminate illicit discharges to the City's municipal separate storm sewer system (MS4).

a) IDDE POLICY AND PROCEDURES

In 2010, the City developed a written IDDE Response Policy and Procedure Manual for the Department of Public Works and Utilities. This manual details the City's standard operating procedures for reporting, responding, and correcting or removing illicit connections, spills, or other illicit discharges, whether suspected or confirmed. The most recent comprehensive update to the City's IDDE policy occurred in Dec. 2014, however, a re-evaluation and update is currently underway and is expected to be finalized within the year. The goal of the update is to ensure the City's policy is consistent with current techniques, methods, and standards and increase the document's overall usability. A copy of this policy is included as Appendix C to this document. In compliance with the Permit, implementation of this Policy will continue through the 2019-2024 permit cycle. Each element is discussed in the following sections.

b) IDDE EDUCATION

The City will primarily utilize its established Education and Outreach Program, as described in Section 2, to proactively disseminate information about illicit discharges,

associated hazards, and improper disposal of waste. Additional education opportunities are taken under the City's Source Control Program (Section 8) and, reactively, during IDDE investigations.

c) ILLICIT DISCHARGE ORDINANCE

The City developed a comprehensive stormwater ordinance including an illicit discharge provision for the MS4 (PAMC 13.63). The ordinance was written to satisfy the criteria listed in the original Permit, including: illegal discharges, allowable discharges, categories of discharge identified as significant sources of pollution to waters of the State, escalating enforcement procedures, and enforcement strategies. The ordinance was passed by the City Council on June 16th, 2009. Additional permit driven updates to the stormwater code were enacted on December 20th, 2016.

d) ILLICIT DISCHARGE DETECTION

Within the City's IDDE program, mechanisms for the detection and identification of non-stormwater discharges and illicit connections have been established and are being implemented.

i) FIELD SCREENING AND POTENTIAL SOURCES

The City's established field screening methodology is described in full detail in the City's IDDE Response Policy, attached in Appendix C, and in the City's IDDE screening strategy that is updated annually and submitted to Ecology as part of the annual report.

Prioritization of receiving waterbodies was completed on February 12, 2010. Prioritization is based on the Department of Ecology's 303d list, as well as the significance of the waterbody for potential salmon recovery.

303(d) listed waterbodies

- Peabody Creek
- Tumwater Creek
- Port Angeles Harbor
- Dry Creek
- Valley Creek
- Ennis / White Creek

Creeks with high salmon recovery potential

- Ennis / White Creek system

Proposed highest priority waterbodies for visual inspection:

- Peabody Creek
- Tumwater Creek
- Ennis / White Creek system

Starting in 2014, the City was broken up into 8 annual screening basins based on equal distribution of stormwater infrastructure. This enabled the City to begin

annually screening, on average, 12.5% of its MS4 system for illicit connections and discharges. When a basin contains or borders a creek, a field assessment of the creek from its outfall to the basin limit is performed as part of the screening program. Field assessments of the Peabody, Tumwater, Valley, Mill, Dry, White, and Ennis Creeks have been completed at least once within City limits. Field assessment activities include visual inspection during dry weather and field screening for illicit discharges in accordance with the City’s “Illicit Discharge Detection and Elimination (IDDE) Response Policy”. IDDE basin 6 was screened in 2021 achieving 100% of the City being screened since 2014. Basin 1, consisting of the urbanized Peabody Creek area, is scheduled for screening in 2022.

Screening of these basins is accomplished through the use of existing City inspection programs. Every Stormwater catch basin within the priority screening basin is visually inspected during its years screening. Existing programs and tasks are also leveraged to fulfill this requirement including Business Inspections, Manhole Inspections, Outfall Inspections, and Stormwater BMP Inspections.

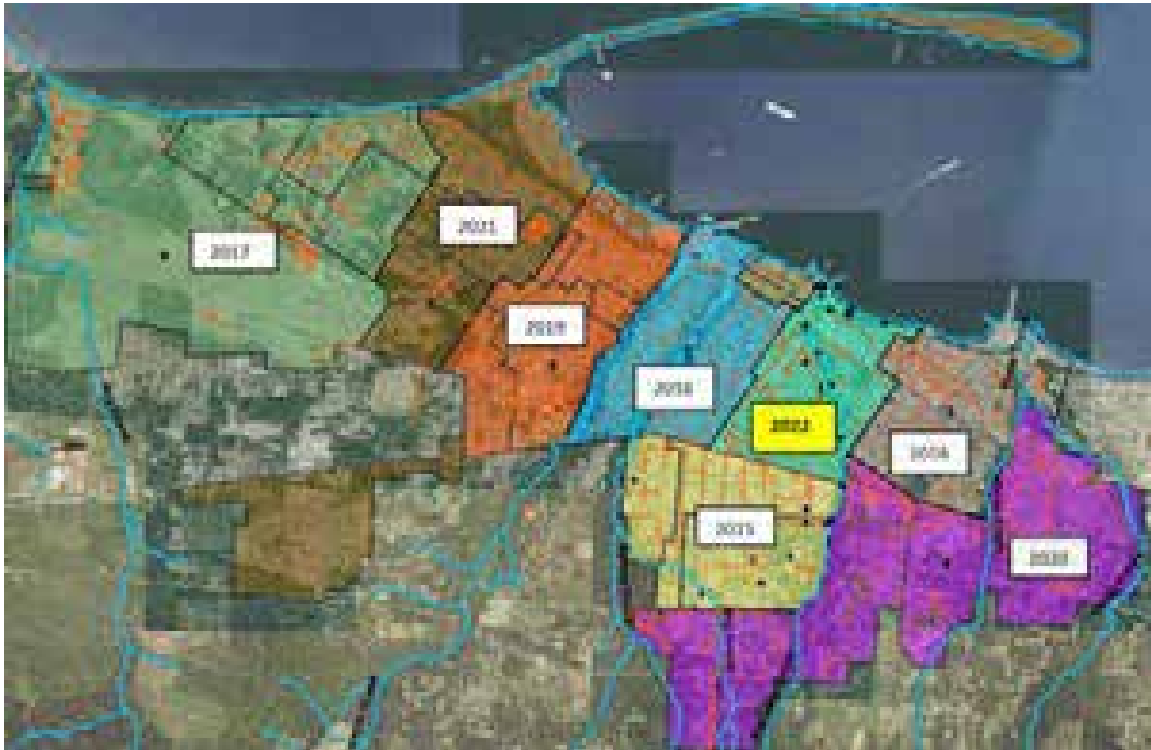


Figure 1. IDDE Screening Strategy: Screening basin boundary map and schedule.

ii) HOTLINE FOR PUBLIC REPORTING OF DISCHARGES AND SPILLS

The City’s Illicit Discharge Hotline (360-417-4745) is available for public reporting of discharges and spills. Outside of traditional working hours, this number is forwarded to the Public Works On-Call number for after-hours response. The hotline number will be published with all stormwater information and is available on the City’s stormwater website. The public will also be able to report discharges, spills, or other concerns via the City’s storm water webpage,

utilizing an online form, where information on the spill and photos can be submitted. Direct reporting via email is also available: illicitdischarge@cityofpa.us. Both the hotline and email are forwarded directly to City staff to ensure a timely response.

iii) IDDE STAFF TRAINING

Municipal staff who are responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges, including spills, improper disposal, and illicit connections are specifically trained to conduct these activities. Follow-up training will be provided as needed to address changes in procedures, techniques, or requirements. The City documents and maintain records of training provided and staff trained.

Municipal field staff, which, as part of their normal job responsibilities, might come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system are provided on-going annual or biennial IDDE trainings, depending on need and availability. This training is intended to educate staff members in the basics of the City's policy, IDDE identification, and the proper procedures for reporting to response teams. New employees receive this training during their probationary period to ensure all staff are trained to understand the basics and importance of IDDE notification and response.

e) ILLICIT DISCHARGE RESPONSE

Following IDDE detection or notification, the City's response plan includes characterization, threat assessment, source tracing, discharge elimination or disconnection, spill clean-up, and reporting.

i) NATURE OF DISCHARGE

Any illicit discharges discovered by or reported to the City will be characterized using the City's IDDE Response Policy in terms of potential public or environmental threat. The City will investigate any complaints, reports, or monitoring information that indicates a potential illicit discharge, spill, or illegal dumping within seven days. Problems and violations determined to be emergencies or otherwise judged to be urgent or severe will be investigated immediately.

ii) SOURCE TRACING

The City will trace the source of illicit discharges using one or more of the following means and methods:

- Visual observation
- Tracing upstream from manhole to manhole
- Dye testing
- Sewer inspection camera
- Water sampling and analysis
- Site inspections of potential sources

Additional tracing methods will be employed as available and applicable. The results of the tracing investigation will be entered onto the appropriate data base and used for follow-up activities. A drainage contaminate survey was performed on Peabody Creek with a goal of detecting and eliminating illicit connections contributing to high levels of fecal coliform. An inter-local agreement with Streamkeepers of Clallam County facilitates ongoing sampling of priority areas identified in the contaminate survey alongside routine sampling of Peabody, Tumwater, and Valley Creeks.

iii) DISCHARGE ELIMINATION

Once identified, sources of illicit discharges and illicit connections will be eliminated using all allowable means made available by municipal code. If necessary, escalating enforcement and legal actions will be used if discharge elimination/disconnection cannot be achieved voluntarily and within allowable frames.

iv) PERMIT COMPLIANCE TIMEFRAMES

Regarding IDDE response, Permit compliance is achieved by meeting the following timelines:

- Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment, consistent with General Condition G3.
- Investigate (or refer to the appropriate agency with the authority to act) within 7 days, on average, any complaints, reports, or monitoring information that indicates a potential illicit discharge.
- Initiate an investigation within 21 days of any report or discovery of a suspected illicit connection to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection.
- Upon confirmation of an illicit connection, use the compliance strategy in a documented effort to eliminate the illicit connection within 6 months. All known illicit connections to the MS4 shall be eliminated.

f) RECORDKEEPING

The City will track the following information, as required by the 2019-2024 Permit:

1. Jurisdiction name and permit number
2. Date incident discovered or reported to you
3. Date of beginning your response
4. Date of end of your response
5. How was the incident discovered or reported to you?
6. Discharge to MS4?
7. Incident Location
8. Pollutants Identified

9. Source or Cause
10. Source tracing approach(es) used
11. Correction/elimination methods used
12. Field notes, explanations, and/or other comments

More details regarding the information tracked is described in Appendix 12 of the Permit.

In years past, reporting of illicit discharges were tracked using the form developed by the Center for Watershed Protection and incorporated into the City's IDDE Policy. To include all the recently required information listed above, the existing form may need to be updated or the City will begin using Ecology's WQWebIDDE form. Electronic and paper copies of all records, including follow up reports and actions, will be maintained at the Public Works and Utilities office. A summary of this information will be included in the City's Annual Report to Ecology.

6) CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT, AND CONSTRUCTION SITES

The City has developed and will continue to implement and enforce a program to reduce pollutants in stormwater runoff from new development and redevelopment construction projects, in accordance with Appendix 1 of the Permit. The program applies to both private and public development, including transportation projects.

a) STORMWATER ORDINANCE REGULATING DEVELOPMENT

The City developed and adopted an ordinance that addresses runoff from new development, redevelopment, and construction site activities at sites 2,000 sq-ft and greater. The ordinance adopts most of the Department of Ecology's 2014 Stormwater Management Manual for Western Washington and the Low Impact Development Technical Guidance Manual. For more details, review Port Angeles Municipal Code, Section 13.63.

In conjunction with the Stormwater Ordinance, the City has developed and implemented a permitting program to reduce pollutants in stormwater runoff from new development, redevelopment, and construction site activities. The program is being applied to development or re-development projects with greater than or equal to 7,000 sq. feet of land disturbance or projects that install 2,000 sq. feet of new or replaced hard surface. The program applies to both private and public development, including transportation projects. The program is enforced through the City Ordinance described above as well as through the City's development standards (The City of Port Angeles Urban Services Standards and Guidelines, USSG).

i) MINIMUM REQUIREMENTS, TECHNICAL THRESHOLDS, AND DEFINITIONS

The minimum requirements, technical thresholds, and definitions in Appendix 1 of the permit have been in-effect in Port Angeles since 2009. As required by the

previous Permit, the lowered stormwater management thresholds were adopted and enforced January 1st, 2017.

To ensure the City's program satisfies the State's requirements under Chapter 90.48 RCW regarding water quality protection and reducing discharge of pollutants, the City utilizes Ecology's Stormwater Management Manual for Western Washington (SWMMWW) for:

- Site planning requirements
- BMP selection criteria
- BMP design criteria
- BMP infeasibility criteria
- LID competing needs criteria
- BMP limitations

The City has utilized the SWMMWW since 2009 to meet these permit requirements.

ii) LEGAL AUTHORITY TO INSPECT PRIVATE FACILITIES

The City's stormwater ordinance includes provisions providing City inspectors legal authority to inspect private stormwater facilities that discharge into the City's MS4.

ii) LID REQUIRED

As of December 31, 2016 the City updated its development codes to require LID where feasible, as determined by the SWMMWW criteria.

iii) EROSION WAIVER

The City does not allow developers to apply the Erosion Waiver in Appendix 1, Minimum Requirement #2 of the permit. Therefore, the City does not plan to include enforcement sanctions for construction sites that provide notice of intent to apply the waiver but do not meet the requirements.

b) PERMITTING

The City has developed a permitting process with plan review, inspection, and enforcement capability as described herein. The permitting process is applied to both private and public projects that consist of greater than or equal to 7,000 sq. feet of land disturbance or projects that install 2,000 sq. feet of new or replaced hard surface. Permitting is administered by qualified personnel.

i) REVIEW OF STORMWATER SITE PLANS

The City reviews stormwater site plans as part of the permitting process. Plans are reviewed for compliance with the stormwater ordinance (PAMC 13.63) and the City's Urban Services Standards and Guidelines (USSG), which implement the ordinance. The review includes the minimum requirements, technical thresholds, and definitions in Appendix 1 of the Permit. The City works with

developers to ensure that stormwater site plans meet the criteria established by both Ecology and the City.

ii) **EROSIVITY WAIVER**

At this time, the City does not allow developers to apply the Erosivity Waiver in Appendix 1, Minimum Requirement #2 of the Permit. Therefore, the City will perform review and inspection tasks for all construction sites as described above.

iii) **NOTICE OF INTENT**

When applicable and during permitting, the City directs applicants also triggering Ecology's Construction Stormwater General Permit (CSWGP) and Industrial Stormwater General Permit (ISWGP) thresholds to submit a Notice of Intent (NOI) with Ecology. The City's stormwater website also directs owners of construction sites and industrial facilities to the Ecology websites where they can find additional information and electronic copies of the notices of intent. In instances where a development project is covered by both local and State permits, the City continues to enforce local ordinances.

c) INSPECTIONS

Construction related inspections required by the City's Phase II Permit include pre-construction, during construction, and post construction site visits, where applicable. Follow-up inspections may be warranted if a project does not meet minimum standards or is in violation of their permit requirements. Additionally, the City may perform inspections of treatment or flow control facilities during installation and connection to the City's MS4.

i) **PRE-CONSTRUCTION INSPECTIONS**

During site plan review, City staff uses the definitions and requirements in Appendix 7 of the Permit (Identifying Construction Site Sediment Transport Potential) to determine which sites have a high potential for sediment transport. These high priority sites are inspected by qualified personnel prior to permitting and before commencement of land disturbing activities.

ii) **DURING CONSTRUCTION INSPECTIONS**

Qualified City staff inspect all permitted development sites during construction that exceed the land disturbance and hard surface thresholds described above to verify proper installation and maintenance of required erosion and sediment controls. Escalation of enforcement is described in Ordinance and is implemented when necessary.

Typically, the City inspects new residential developments at least once every six-months for maintenance needs and compliance with development standards, until 90% of the lots are constructed or when construction has stopped and the site is fully stabilized.

iii) POST-CONSTRUCTION INSPECTIONS

Qualified City staff inspect all permitted development sites upon completion of construction and prior to final approval or occupancy. The purpose of the inspection is to ensure proper installation of permanent stormwater controls such as stormwater facilities and structural BMPs. City staff also verifies that a maintenance agreement and plan is completed for all treatment and flow control facilities and that responsibility for maintenance is clearly assigned. Enforcement is used as necessary.

iv) INSPECTION COMPLIANCE

The City maintains permit compliance by the presence and records of an established inspection program designed to inspect all sites and achieving at least 80% of scheduled inspections.

v) ENFORCEMENT STRATEGY

The City has developed an enforcement strategy to respond to cases of non-compliance. This enforcement strategy is included in the City's Stormwater Ordinance PAMC 13.63.

d) STAFF TRAINING

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 is provided as needed to address changes in procedures, techniques or staffing. The City documents and maintains records of the training provided and the staff trained.

e) RECORDKEEPING

The City keeps and maintains permitting records as required by Ecology's permit and State laws. This includes inspection reports, warning letters, notices of violations, and other enforcement actions. Records of maintenance inspections and maintenance activities are also maintained.

7) OPERATIONS AND MAINTENANCE

The City has developed and implemented a program to regulate and conduct maintenance activities to prevent or reduce stormwater impacts. The program elements are described below.

a) MAINTENANCE STANDARDS

The City has adopted Ecology's Stormwater Management Manual for Western Washington (SWMMWW), including maintenance standards. The City uses Ecology's maintenance standards to determine if and when maintenance is required.

It is important to note that the maintenance standard is not a measure of the facility's required condition at all times between inspections and an exceedance of the maintenance standard between inspections and/or maintenance is not a permit violation

When an inspection identifies an exceedance of a maintenance standard, maintenance shall be performed within the following timeframes:

- Within 1 year for typical maintenance facilities, except catch basins.
- Within 6 months for catch basins
- Within 2 years for maintenance that requires capital construction of less than \$25,000.

These timeframes may be exceeded if there are circumstances that are beyond the City's control. Such circumstances may include, but not be limited to, denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. For each such exceedance of the required timeframes, the City will document the extenuating circumstances.

b) PERMITTED STORMWATER FACILITIES

The City has developed and implemented a program to verify adequate long-term operation and maintenance of privately-owned stormwater facilities and BMPs that are regulated pursuant to the City's permitting process.

i) OPERATIONS AND MAINTENANCE ORDINANCE

The City developed and enacted a comprehensive stormwater ordinance which requires projects installing treatment or detention facilities to record an O&M agreement and manual that clearly identifies the party responsible for ongoing inspection and maintenance, details maintenance standards per Ecology's SWMMWW, and acknowledges the City's annual inspection requirements and enforcement procedures.

ii) MAINTENANCE STANDARDS

The City has adopted Ecology's Stormwater Management Manual for Western Washington (SWMMWW).

iii) ANNUAL INSPECTIONS

The City performs annual inspections of all stormwater treatment and flow control BMPs/facilities that discharge to the MS4 and were permitted by the Permittee according including those permitted in accordance with requirements adopted pursuant to the 2007-2019 Ecology municipal stormwater permits, unless there are maintenance records to justify a different frequency.

Reduction of the inspection frequency will be based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the City may substitute written statements to document a

specific less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experience and shall be certified in accordance with Permit requirements.

iv) COMPLIANCE & RECORDKEEPING

Permit compliance is determined by the presence and records of an established inspection program designed to inspect all facilities, and achieving at least 80% of required inspections.

The City maintains records of inspections and enforcement actions by staff, including inspection reports, warning letters, notices of violations, and other enforcement records. Records of maintenance inspections and maintenance activities are also maintained.

c) CITY OWNED STORMWATER FACILITIES

The City has developed and implemented a program to inspect and maintain all municipally owned and operated stormwater facilities to ensure functionality and prevent or reduce stormwater impacts.

In addition to Ecology's permit requirements, the City also has an existing large diameter culvert inspection program. The major culverts that conduct the City creeks under roads are visually inspected in the late summer every two to three years. Maintenance deficiencies are corrected before the wet winter season begins.

i) TREATMENT AND FLOW CONTROL INSPECTIONS

The City performs annual inspections of all municipally owned or operated permanent stormwater treatment and flow control facilities. The City will take appropriate maintenance actions in accordance with Ecology's maintenance standards described in the SWMMWW.

The City may reduce the inspection frequency based on inspection records of double the length of time of the proposed inspection frequency, or upon written and certified statements based on actual inspection and maintenance experience.

ii) SPOT CHECKS

The City performs "spot checks" of potentially damaged permanent treatment and flow control facilities (other than catch basins) after major storm events (greater than 24-hour storm event with a 10-year or greater recurrence interval). If the spot checks indicated widespread damage and/or maintenance needs, the City will inspect all stormwater treatment and flow control facilities that may be affected. Repairs and other maintenance actions will be taken based on inspection results and in accordance with the City's maintenance standards.

iii) CATCH BASIN INSPECTIONS

On a two-year interval, the City inspects all catch basins and inlets owned and/or operated by the City. Catch basins and inlets are cleaned based on inspection

results and in accordance with Ecology's SWMMWW maintenance standards. Decant water is disposed of in accordance with Appendix 6 of the Permit – *Street Waste Disposal*.

iv) COMPLIANCE

Compliance is determined by the presence of an established inspection program achieving at least 95% of permit required inspections.

d) STORMWATER IMPACT REDUCTION FROM PUBLIC LANDS

The City has implemented practices, policies, and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the City, and road maintenance activities under the City's functional control.

The City is in the process of updating the practices, policies, and procedures documentation to align with Ecology's 2019 SWMMWW guidelines.

Lands owned or maintained by a municipality typically include, but are not limited to: streets, parking lots, roads, highways, buildings, parks, open space, road rights-of-way, maintenance yards, and stormwater treatment and flow control BMPs/facilities.

The following activities have been addressed:

- Pipe cleaning
- Cleaning of culverts that convey stormwater in ditch systems
- Ditch maintenance
- Street cleaning
- Road repair and resurfacing, including pavement grinding
- Snow and ice control
- Utility installation
- Pavement striping maintenance
- Maintaining roadside areas, including vegetation management
- Dust control
- Application of fertilizers, pesticides, and herbicides according to the instructions for their use, including reducing nutrients and pesticides using alternatives that minimize environmental impacts
- Sediment and erosion control
- Landscape maintenance and vegetation disposal
- Trash and pet waste management
- Building exterior cleaning and maintenance

e) TRAINING PROGRAM

The City has implemented an on-going operations and maintenance training program for employees whose construction, operations, or maintenance job functions may impact stormwater quality. The training addresses the importance of protecting water quality, the requirements of the permit, operation and maintenance standards, inspection procedures, selecting appropriate BMPs, ways to perform job activities to

prevent or minimize impacts to water quality, and procedures for reporting water quality concerns, including potential illicit discharges. Follow-up training will be provided as needed to address changes in procedures, techniques, or requirements. Training is documented and training records include dates, activities or course descriptions, and names and positions of staff in attendance.

f) STORMWATER POLLUTION PREVENTION PLANS

The City has developed and implemented a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards and material storage facilities that it owns and/or operates. The City’s applicable facilities and current status of SWPPPs or similar documents for each are summarized in the following table. While not all of the documents listed are specifically SWPPPs, they all have relevance to the prevention, containment, and handling of substances that could result in the pollution of municipal stormwater. The City has SWPPPs for all facilities required.

Table 1: Status of Stormwater Pollution Prevention Plans for City Facilities

Facility Name	Facility Use	Document	Status
Sanitary and Storm Sewer Collection System	Collection of sanitary and combined sewerage	“Illicit Discharge Detection and Elimination (IDDE) Response Policy”	Most Recent Revision: December 2014
Corp Yard	Maintenance, equipment & materials storage for water, wastewater, & streets utilities	“City of Port Angeles Maintenance Facility Stormwater Pollution Prevention Plan”	Updated February 2016 (update scheduled for 2022)
Port Angeles Wastewater Treatment Plant	Wastewater treatment plant (secondary treatment)	“City of Port Angeles Wastewater Treatment Plant SWPPP”	December, 2001
Regional Transfer Station	Solid waste transfer station (previously a landfill)	“Port Angeles Transfer Station/ Landfill Stormwater Pollution Prevention Plan”	Updated July 2018
Electric Utility Handling & Warehouse Building	Electric transformer storage and handling	“Spill Prevention Control and Countermeasure Plan”	Completed November 2003
CSO Facilities	Combined sewer collection, storage, and conveyance, and discharge	“Amendment to the 2006 CSO Facilities Reduction Plan”	Updated August 2012

Several of these facilities are regulated by their own environmental permits. See Table 2 below for a listing of individual stormwater or other related permits.

Table 2: Existing Individual Stormwater and Stormwater-Related Permits

Facility Name	Type of Permit	Permit Number
Regional Transfer Station	NPDES General Permit for Stormwater Discharges Associated with Industrial Activities	WAR005613
City of Port Angeles Municipal Solid Waste Facility	Solid Waste Handling Facility Permit	SLW98-0001
Port Angeles Wastewater Treatment Plant/CSO Facilities	NPDES Waste Discharge Permit	WA0023973

In addition, there are approximately twenty non-City-owned facilities in Port Angeles that are regulated by NPDES General Industrial Stormwater Discharge Permits. Because these facilities are regulated directly by the Department of Ecology, their individual stormwater collection infrastructure is not considered part of the municipal stormwater system, although in some cases they discharge into the MS4.

g) RECORDKEEPING

The City maintains records of inspections, maintenance, and repair activities performed in accordance with this section of the SWMP.

8) SOURCE CONTROL PROGRAM FOR EXISTING DEVELOPMENT

The City is in the process of developing a Source Control Program that is designed to prevent and reduce pollutants in runoff from areas that discharge to the City’s MS4, as required by the 2019-2024 Permit. While this is a new permit requirement, the City has had an established pollution prevention presence in the community that can be built upon.

Since 2012, the City of Port Angeles has been a member of the Pollution Prevention Assistance (PPA) Partnership, formerly called Local Source Control, which is a grant funded program designed to help small businesses reduce and manage potential wastes to protect water, soil, and air quality. Under Washington State’s Hazardous Waste and

Toxics Reduction Program, Ecology is able to fund local jurisdictions on a biennium basis to provide free, one-on-one technical assistance to small businesses regarding waste management, pollution prevention, and stormwater-related issues.



Figure 2. Pollution Prevention Assistance partners for 2017-2019 biennium.

a) PROGRAM GOALS

With the intent to prevent and reduce pollutants in runoff from areas that discharge into the City's MS4, the Source Control Program will include:

1. Application of operational source control BMPs, and if necessary, structural source control BMPs or treatment BMPs/facilities, or both, to pollution generating sources associated with existing land uses and activities.
2. Inspections of pollutant generating sources at publicly and privately owned institutional, commercial, and industrial sites to enforce implementation of required BMPs to control pollution discharging into the MS4.
3. Application and enforcement of local ordinances at sites, identified pursuant to the Permit, including sites with discharges authorized by a separate NPDES permit.
4. Practices to reduce polluted runoff from the application of pesticides, herbicides, and fertilizers from the sites identified in the inventory.

b) PROGRAM COMPONENTS AND MILESTONES

The program's minimum performance measures, as defined by the Permit, are:

i) ORDINANCE TO APPLY BMPs

The City will 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. These ordinances will be adopted no later than August 1, 2022,

The City will use the source control BMPs in the SWMMWW, or a Phase I Program approved by Ecology. In cases where the manual(s) lack guidance for a specific source of pollutants, the City will work with the owner/operator to implement or adapt BMPs based on the best professional judgement of the City.

Applicable operational source control BMPs will be required for all pollutant generating sources. Structural source control BMPs, or treatment BMPs/facilities, or both, will be required for pollutant generating sources if operational source control BMPs do not prevent illicit discharges or violations of surface water, groundwater, or sediment management standards because of inadequate stormwater controls. Implementation of source control requirements may be done through education and technical assistance programs, provided that formal enforcement authority is available to the City and is used as determined necessary by the City, in accordance the Permit.

ii) INVENTORY OF SITES

The City will establish an inventory that identifies publicly and privately owned institutional, commercial, and industrial sites which have the potential to generate pollutants to the MS4. This inventory will be compiled by August 1, 2022 and will include:

1. Businesses and/or sites identified based on the presence of activities that are pollutant generating.
2. Other pollutant generating sources, based on complaint response, such as: home-based businesses and multi-family sites.

iii) INSPECTION PROGRAM

The City will develop an inspection program for sites identified in the inventory. The inspection program will be implemented by January 1st, 2023, and will entail the following components:

1. All identified sites with a business address will be provided information about activities that may generate pollutants and the source control requirements applicable to those activities. This information will 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.

2. The City will 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 City 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.
3. The City will inspect 100% of sites identified through credible complaints.
4. The City may count inspections conducted based on complaints, or when the property owner denies entry, to the 20% inspection rate.

iv) PROGRESSIVE ENFORCEMENT POLICY

By January 1st, 2023, the City will implement a progressive enforcement policy that requires sites to comply with stormwater requirements within a reasonable time period, as specified below:

1. If the City determines, through inspections or otherwise, that a site has failed to adequately implement required BMPs, the City will take appropriate follow-up action(s), which may include phone calls, reminder letters, emails, or follow-up inspections.
2. When the City determines that a site has failed to adequately implement BMPs after a follow-up inspection(s), the City will take enforcement action as established through authority in its municipal codes or ordinances, or through the judicial system.
3. The City will 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. The City will also maintain records of sites that are not inspected because the property owner denies entry.
4. The City may refer non-emergency violations of local ordinances to Ecology, provided, the City also makes a documented effort of progressive enforcement. At a minimum, the City's enforcement effort will include documentation of inspections and warning letters or notices of violation.

c) STAFF TRAINING

The City will train staff who are responsible for implementing the source control program to conduct these activities. The ongoing training program will 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. The City will document and maintain records of the training provided and the staff trained.

STORMWATER NPDES AND CAPITAL NEEDS ASSESSMENT

The City retained Herrera Environmental Consultants to complete a comprehensive study of the Stormwater Utility. This project utilized Ecology grant funding to develop a functional resourcing and financial analysis of the staffing, equipment and funding mechanisms necessary to meet the requirements outlined in the NPDES Phase II Municipal Stormwater Permit. Additionally, the analysis included a capital facilities program (CFP) component defining a range of funding support options for CFP projects. The analysis assessed the gap between current resources and the resources necessary to meet operating costs and capital costs under the current (2013-2018) Phase II Permit regulatory requirements. In 2012, the City's stormwater rate was \$6 per month for each equivalent residential unit (ERU). This analysis showed a funding gap and resulted in sequential stormwater rate increases to cover necessary expenses:

-Effective January 2022. \$17.01 per month for each ERU

This revenue is not sufficient to implement all projects in the 6 year Capital Facilities Plan. The City plans to evaluate the Stormwater Utility revenues and obligations again in 2023 to seek public input.

DOCUMENTS REFERENCED

“City of Port Angeles Maintenance Facility SWPPP” City of Port Angeles, 2016

“Amendment to the 2006 CSO facilities Reduction Plan” City of Port Angeles, June 2007

“Illicit Discharge Detection and Elimination – A Guidance Manual for Program Development and Technical Assessments” Center for Watershed Protection, October 2004

“Port Angeles Transfer Station/ Landfill Stormwater Pollution Prevention Plan” City of Port Angeles, July 2018

“Spill Prevention Control and Countermeasure Plan” (Electric Utility) City of Port Angeles, November 2003

“Western Washington Phase II Municipal Stormwater Permit” State of Washington Department of Ecology, Effective August 1, 2019.

“Stormwater Management Manual for Western Washington” Washington State Department of Ecology 2019

“City of Port Angeles Municipal Code Title 13.63, Stormwater Ordinance” last modified in December 2016

“City of Port Angeles Urban Service Standards and Guidelines” last modified in 2017

“Stormwater NPDES and Capital Needs Assessment” Prepared for City of Port Angeles December 2012

**SWMP APPENDIX A : INTER-DEPARTMENTAL COORDINATION
MECHANISM POLICY**



City of Port Angeles
NPDES Phase II Municipal Stormwater Permit
Inter-Departmental Coordination Mechanisms and
Stormwater Planning Team

Background

The Western Washington Phase II Municipal Stormwater Permit (NPDES permit or “Permit”) is a federal permit, facilitated by the Washington State Department of Ecology (Ecology or ECY), issued to municipalities which allows municipal separate storm sewer systems (MS4) to discharge to waters of the state. The City of Port Angeles initially received coverage by the Permit in 2007. The NPDES (National Pollutant Discharge Elimination System) Permit includes broad ranging requirements which require collaboration and implementation by various departments within the City, including Public Works, Parks & Recreation, Community & Economic Development (CED), Fire, and Police.

It was a condition of the 2013 – 2018 NPDES permit (Section S5.A.5.b) and a condition of the 2019 – 2024 Permit (Section S5.A.b) that each jurisdiction develop a coordination mechanism to identify departmental responsibilities to eliminate barriers to compliance with the terms of the permit. Furthermore, it is a condition of the 2019-2024 Permit (Section S5.C.1.a) that the City develop a Stormwater Planning Program and convene an inter-disciplinary team to inform and assist in the development, progress, and influence of this program. These operating guidelines have been created to provide clarification of departmental roles and responsibilities for the purposes of complying with the Permit requirements and intent.

Section 1. Name

The name of this group shall be known as the “Stormwater Permit Coordination and Planning Group (SWPCPG)”.

Section 2. Purpose

The effective management of existing stormwater infrastructure and strategic stormwater planning has an important role to play in reversing the ongoing degradation of local wetlands, streams, harbor, and Strait of Juan de Fuca. The purpose of this group is to ensure the fulfillment of the conditions of the City’s NPDES Permit by removing internal barriers to permit implementation and by requiring and empowering City departments to cooperate, coordinate, and plan in accordance with the City’s Stormwater Management Program (SWMP). The SWPCPG serves as the coordinating body.

Section 3. Mission

The NPDES permit is a broad ranging federal stormwater permit which requires citywide compliance, and as such, shall be viewed as a citywide permit. The mission of the SWPCPG is to provide a coordinated, efficient and effective response to all Permit conditions. Each city

department is subject to implementing compliance activities when applicable to that department. Each department has an important contribution to make in improving the quantity or quality of stormwater discharged under the Permit.

Section 4. Duration

The SWPCPG shall continue indefinitely in order to preserve momentum and effectively manage the work required for Permit compliance.

Section 5. Membership

Management and implementation of the stormwater Permit is the responsibility of the jurisdiction as a whole, however, the core membership of the SWPCPG consists of representatives from the following departments: Public Works Operations and Engineering, Community and Economic Development, Parks & Recreation, Fire, and Police. The City's Stormwater Engineer is the City's Permit Coordinator and therefore has been designated coordinator of the SWPCPG. Representatives from other departments may be requested to attend meeting and provide input on occasion. Additionally, representatives from private consulting firm(s) retained by the City for Permit implementation support or long-term planning support may be invited to attend or facilitate coordination of the SWPCPG meetings.

On behalf of the Public Works Department, the Permit Coordinator shall lead the group, in coordinating compliance with the NPDES permit. All departments responsible for complying with any portion of the NPDES permit shall work cooperatively with the lead department, responding and providing information in a timely manner, including accurate tracking and reporting data.

Each department, division, section, or workgroup engaging in any activities or programs that the Permit Coordinator determines may be subject to or could support compliance with the municipal permit is expected to comply with municipal permit requirements. Other City workgroups or departments may be added to the core group should current needs or future requirements call for expanded responsibility.

A. Coordination framework and expectations:

1. The Permit Coordinator shall be responsible for coordinating the City's municipal permit compliance activities.
2. Each departmental representative shall be familiar with all municipal permit requirements, particularly those applicable to their department or workgroup.
3. Each departmental representative may propose options for funding and staffing to meet municipal permit requirements.
4. Each departmental representative shall communicate regularly with department management on the status of applicable compliance activities.
5. The Permit Coordinator, in collaboration with departmental representatives, shall prepare and provide submittals to Ecology to comply with municipal permit requirements. Submittals include, but are not limited to, annual reports,

stormwater management program (SWMP) plans, compliance reports and other submittals as required by Ecology.

6. Upon request from the Permit Coordinator, departmental representatives or other staff shall provide information regarding department-specific compliance activities in a timely manner. The Permit Coordinator shall indicate the timeline for any request and may extend the timeline at the request of the department representative if there is flexibility to do so.
7. The Permit Coordinator shall communicate as necessary with departmental representatives and other management about municipal permit requirements, the SWMP, and the status of the City's compliance.

Any Permit Coordinator responsibilities listed herein may be delegated to appropriate staff, but the Permit Coordinator shall retain accountability to the City Engineer.

Signature authority for all documents related to the municipal permit that require an official signature shall reside with the Public Works Director, as delegated in a letter from the City Manager to Ecology on September 10, 2013.

B. Non-compliance:

All city departments are responsible for working with the NPDES Permit Coordinator to resolve instances of permit noncompliance, including:

1. Notifying the NPDES Permit Coordinator as soon as they become aware of any instance of non-compliance; and
2. Identifying steps and a timeline for resolving issues of non-compliance that will be identified in, S4.F, G3, or G20 notifications to Ecology.

Section 6. Meetings

Meetings shall be facilitated by the City Engineer or the Permit Coordinator. Meetings shall be open to any/all staff that need permit information or to share challenges to permit implementation. Meeting frequency, time, and location shall be set by the City Engineer or Permit Coordinator based on the need to meet in order to respond to policy, procedures or barriers to implementation.

Section 7. Attendance Policy

Attendance at the meetings is important to continue being an informed SWPCPG member and to provide useful input into the process. Meeting attendance is expected of SWPCPG members or a designee. If unable to attend a meeting, it is the member's responsibility to inform themselves on issues discussed in those meetings. All meetings will be advertised to core group members, however, depending on content, some meetings may be geared towards a particular department with other departments being listed as "optional" on the meeting invite.

Section 8. Departmental Responsibilities

It is the responsibility of each department head to assign duties and responsibilities to the pertinent members of their staff, as well as ensure they are being implemented correctly. In the event of personnel changes, it is each department head's responsibility to ensure SWPCPG membership, information, and responsibilities are passed on to the designated replacement.

A. Public Works

The Public Works Department is responsible for the majority of the Permit compliance efforts including Sections:

- S5.C.1 Stormwater Planning
- S5.C.2 Public Education and Outreach
- S5.C.3 Public Involvement and Participation
- S5.C.4 MS4 Mapping and Documentation
- S5.C.5 Illicit Discharge Detection and Elimination
- S5.C.6 Controlling Runoff from New Development, Redevelopment, and Construction Sites (for both public and private projects)
- S5.C.7 Operations and Maintenance, and
- S5.C.8 Source Control Program for Existing Development.

These responsibilities include, but are not limited to:

Engineering Division

1. NPDES Permit coordination.
2. Program development appropriate/applicable to the department.
3. Annual reporting.
4. Development and submittal of the Stormwater Management Program (SWMP) Plan.
5. Serving as point of contact for the Department of Ecology regarding issues of the Permit.
6. Submitting S4.F, G3, and G20 noncompliance notifications.
7. Updating codes, policies, plans and standards applicable to the Public Works Department for permit compliance.
8. Private stormwater facility maintenance verification.
9. Enforcement of maintenance or water quality violations.
10. Conducting, tracking, and reporting development review in compliance with adopted standards and policies.
11. Tracking, reporting and justifying any deviations (e.g. variances, exceptions etc.) from adopted stormwater development review standards.
12. Inspection of development sites.
13. Collection of final stormwater system record drawings for new development/ redevelopment and distribution of them to designated GIS and Public Works staff.
14. Updating stormwater system maps for both public and private facilities.
Forwarding updates to GIS for incorporation and maintenance of the mapping

system.

15. Collection and processing of maintenance covenants and operations and maintenance manuals for new development/redevelopment.

Operations Division

16. Inspection and maintenance of municipal stormwater components and facilities.
17. Illicit discharge/illicit connection detection and elimination.
18. Operations and maintenance procedures are in place and followed to reduce stormwater impacts to all lands owned and maintained by the City in accordance with the Ecology Stormwater Management Manual for Western Washington.

C. Community & Economic Development

CED is responsible for implementation of and compliance with portions of Section S5.C.1 Stormwater Planning and Section S5.C.6 of the NPDES Permit entitled "Controlling Runoff from New Development, Redevelopment and Construction Sites". These responsibilities include, but are not limited to:

1. Updating codes, policies, plans, programs, procedures, and standards appropriate/applicable to CED for permit compliance.
2. Processing permit applications and collecting required documents for all building permits, including required stormwater reports and plans.
3. Inspection of building sites for erosion and sediment controls as required by Ecology Stormwater Management Manual for Western Washington

C. Parks & Recreation

Parks is responsible for implementation of and compliance with portions of S5.C.5 Illicit Discharge Detection and Elimination and S5.C.7 Operations and Maintenance. These responsibilities include, but are not limited to:

1. Updating codes, policies, plans, programs, procedures, and standards appropriate/applicable to Parks for permit compliance.
2. Operations and maintenance procedures are in place and followed to reduce stormwater impacts to all lands owned and maintained by the City in accordance with the Ecology Stormwater Management Manual for Western Washington.
3. Report observations of illicit discharges to the Permit Coordinator or other designee.

D. Police and Fire

The Police and Fire Departments have permit responsibilities under S5.C.5 Illicit Discharge Detection and Elimination. As field personnel, it is their responsibility to report observations of illicit discharges to the Permit Coordinator or other designee. Such events include but are not limited to discharge of water or foam to the MS4 during a firefighting event or report of vehicle fluid spill and clean-up operations during

response to a vehicular accident within City limits. They may also be called upon to assist in enforcement activities during an illicit discharge event.

Section 9. Permit Coordinator's Role

The Permit Coordinator's role is to assure the integrity and fulfillment of the Permit. The Coordinator's role includes, but is not limited to:

1. Coordinate NPDES Permit compliance efforts for the City, including collecting tracking and reporting data from the different departments, as well as preparing and submitting annual reports and updates to the Stormwater Management Program Plan to the Department of Ecology.
2. Assist the different City departments in identifying and understanding their individual responsibilities for complying with the pertinent sections of the Permit.
3. Provide permit compliance guidance to individual departments who are developing or updating their departmental programs or procedures which are necessary to comply with Permit requirements.
4. Develop and implement programs and activities associated with the Public Works Department.
5. Work with individual departments to assist in resolving issues of non-compliance, as well as drafting and submitting S4.F, G3, or G20 Non-Compliance Notification letters to Ecology.
6. Coordinate required illicit discharge detection and reporting training for all municipal field staff. Assist in other training activities where applicable.
7. Ensure policies are followed.
8. Manage communication and information exchange among the SWPCPG. Determine meeting topics and agendas. Facilitate the meetings or arrange for an alternate to facilitate meetings. If necessary and appropriate, provide meeting materials to SWPCPG in advance and arrange for meeting notes to be taken.
9. Update this document, as needed.

**SWMP APPENDIX B : PUBLIC OUTREACH PLAN ACTIVITY
MATRIX**

2022 Planned Activities / Events	Location(s)	City Personnel	Target Audience	Contact Information (other groups)	Subject Area(s)
Clallam County Home & Lifestyle Show (canceled, due to Covid)	High School	Vince McIntyre	Developers, contractors, home owners, landscapers, general public	vmcintyre@cityofpa.us	Pollution Prevention: landscaping, automotive care, pet waste, Natural Yard Care
* Clallam County Fair (August)	Fairgrounds, Port Angeles	Vince McIntyre, Lucio Baack, TBD	General public	vmcintyre@cityofpa.us	Focusing on pet waste awareness, natural yardcare, & programatic updates.
Utility Bill Mailer (October)	NA	Vince McIntyre	General Public	vmcintyre@cityofpa.us	LID, Pollution Prevention Hotline, programatic updates.
Pollution Prevention Assistance Partnership (On hold - need staff)	Site visits within the City	TBD, Vince McIntyre	Local Businesses	vmcintyre@cityofpa.us	IDDE, Pollution Prevention, Source Control
Local Cinemas (Sept.)	Deer Park Theatre, Port Angeles	Vince McIntyre	General public	vmcintyre@cityofpa.us	Pollution Prevention
Internet Adverts (Sept.)	Port Angeles	Vince McIntyre	General Public	vmcintyre@cityofpa.us	Pollution Prevention: landscaping, automotive care, pet waste, Natural Yard Care
Natural Yard Care: Behavior Change Analysis via WSSOG (April)	Kitsap Co., Port Angeles	Vince McIntyre	Landscapers, Home Gardeners	vmcintyre@cityofpa.us	Natural Yard Care - free webinars taught by WSU Master Gardeners w/ local coupons at Airport Garden Center
Storm Drain Art Project (On hold - Need Staff)	Francis St. Park	Vince McIntyre	General Public, Local artists	vmcintyre@cityofpa.us	Visual connection between stormwater inlets and the receiving waterbody.

* Subject to Covid-19 restrictions

**SWMP APPENDIX C : ILLICIT DISCHARGE DETECTION AND
ELIMINATION (IDDE) RESPONSE POLICY**



PUBLIC WORKS & UTILITIES DEPARTMENT POLICY AND PROCEDURES

ILLICIT DISCHARGE DETECTION and ELIMINATION (IDDE) RESPONSE PW- 0610

1.0 PURPOSE:

1.1 To establish a uniform procedure for IDDE response within the City of Port Angeles.

2.0 ORGANIZATIONS and SPECIFIC POSITIONS AFFECTED:

2.1 Public Works & Utilities Department staff

2.2 Key response personnel in order of response to pollution report:

1. Stormwater Lead Worker Cell: 461-5174
2. Streets Superintendent Office: 417-4825 Cell: 912-0260
3. Assistant Stormwater Engineer Office: 417-4720
4. Stormwater Engineer Office: 417-4811 Cell: 460-3456
5. Source Control Coordinator Office: 417-4693 Cell: 808-6930
6. Deputy Director of Public Works Office 417-4803 Cell: 808-3089

3.0 POLICY:

3.1 This policy will implement an ongoing program to detect and address non-stormwater discharges, including spills, and illicit connections into the City's municipal separate storm sewer system. It shall be followed throughout the Public Works and Utilities organization. The Stormwater Engineer is the authorized department representative for the implementation of this program and the maintenance of this policy.

4.0 SAFETY ASPECTS:

4.1 Follow all safety measures as promulgated in the Public Works and Utilities Department Accident Prevention Plan.

4.2 Do not enter private property without permission (If the property owner is unwilling to allow access, and access is necessary for the investigation, contact the legal department or stormwater engineer for assistance).

5.0 DEFINITIONS:

5.1 Illicit discharge: any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

5.2 Small non-hazardous spills: Under 5 gallons of oil based products, paints or automotive fluids.

5.3 Large non-hazardous spills: Over 5 gallons of oil based products, paints or automotive fluids.

5.4 Hazardous or very large spills: Spills over 20 gallons of any chemical, flammable, or unknown substance. * Gasoline is very flammable. Treat a gasoline spill of over five gallons as a hazardous spill.

- 5.5 A discharge which could constitute a threat to human health, welfare, or the environment:
Large non-hazardous spills, hazardous or very large spills, or discharges exceeding thresholds in Section 7.3(3),
- 5.5 Dangerous system: A flooded stream system or a flooded large diameter culvert or manhole.

6.0 EQUIPMENT FOR RESPONSE PERSONNEL:

Required Equipment:

- Appropriate PPE (e.g., nitrile gloves, glasses, reflective vests, etc.)
- This SOP
- Hand Sanitizer

Other Equipment As Needed:

- System map
- Spill trailer or spill kit
- Sterile sample bottles

7.0 PROCEDURES:

7.1 Illicit Discharge Contact Methods

- a. The official number for the public or City staff to report suspected illicit discharges is:

Public Works Emergency and Afterhours Phone Number	360-417-4745
---	--------------

- b. Illicit discharges can also be reported by email using the following address:

illicit-discharge@cityofpa.us

- c. Discharge reporting numbers and email addresses shall be posted on the City website.
- d. During normal working hours, the PWU clerical staff will receive calls and emails. For each call or email a CityWorks Service Request will be created and populated and forwarded to the key response personnel. PWU clerical staff will be responsible for maintaining the official record of all such contacts. The report of an illicit discharge will also be directly made to one of the following staff personnel in the order listed:
 - Stormwater Leadworker
 - Streets Superintendent
 - Deputy Director of Operations
 - Stormwater Engineer
 - Source Control Coordinator

In addition, email reports shall be automatically distributed to all of the personnel

listed above.

- e. After normal working hours, the PWU on-call staff member will be responsible for handling the call, filling out the Illicit Discharge Contact Form (Appendix 8.1), doing the initial visual inspection of the incident, making initial containment if appropriate, and notifying management and requesting additional support when necessary. All recorded information shall be forwarded to the personnel listed in paragraph (d) no later than 08:00 A.M. the following workday.
- f. Illicit discharges or spills observed by City field personnel during the course of work should be immediately reported to their direct supervisor. In addition, City field personnel shall report the incident using one of the methods listed above to ensure that the key stormwater personnel are notified.

7.2 Priority Area Identification and Reconnaissance

- a. The Stormwater Engineer, shall be responsible for conducting a process for locating priority areas likely to have illicit discharges and/ or source control violations. This shall include at a minimum evaluating land uses and associated business/industrial activities present; areas where complaints have been registered in the past; and areas with storage of large quantities of materials that could result in spills.
- b. The lead organization for illicit discharge identification and field reconnaissance response shall be Operations Division, with the primary role for managing it being the Streets Section Superintendent. The Engineering Division shall provide technical support where appropriate. The responsibilities include:
 - (1) At a minimum, visually inspect all priority outfalls in the yearly Field Screening basin during dry weather conditions. Priority outfalls will be as designated by the Stormwater Engineer after consultation with the Streets Division Superintendent. Annually inspect and document the condition, sediment loading, blockages, and any other abnormal conditions for all priority culverts/outfalls.
 - (2) In addition, during dry weather, conduct stream reconnaissance for the purposes of verifying outfall locations, identifying previously unknown outfalls, and detecting illicit discharges. Stream reconnaissance will be conducted on one of the City's six stream systems or shoreline annually within the Port Angeles City limits.
 - (3) Flows suspected of containing illicit discharges due to the presence of odors, colors or sheens shall be tested. Testing will be done either in the field by trained personnel or by the COPA WW Lab. Test parameters include but are not limited to ammonia, surfactants, flouride, fecal coliform, pH, , turbidity, and temperature, . Testing will be performed by the lab within four hours of sample delivery, or by 10:00 am the next day, if the sample is delivered to the lab after 2:00 pm on any business day or on a weekend. Screening for illicit connections shall be conducted using: Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, October 2004.

- (4) The results of the inspections and testing shall be documented and maintained on the Spill (Illicit Discharge Characterization) Field Sheet in Appendix 8.5 and input into the City's maintenance tracking software and GIS system to allow tracking of outfall locations, inspection dates, chemical tests conducted, and follow-up procedures implemented to correct any detected illicit discharge. The physical condition of the outfall shall also be noted during the inspections. Illicit discharge data will be used in the preparation of the annual report for the permit.
- c. Results from the program shall be compiled and analyzed by the Stormwater Engineer, who may request additional requirements be done to achieve the overall objectives of this element.

7.3 Illicit Discharge Response, Characterization, and Tracing

- a. The lead organization for illicit discharge response shall be Operations Division, with the primary role for managing being the Streets Division Superintendent. The Engineering Division shall provide technical support where appropriate.
- b. If the material is unknown, chemical or hazardous in nature contact the fire department.
- c. Containment. The qualified onsite responding personnel shall immediately assess a spill and determine if it is containable, recoverable, or neither. Attempt to contain and recover the material to the maximum extent practical using the procedure below, if feasible, safe to do so and the appropriate equipment is available. Block the nearby storm drains, so that the area impacted is minimized. If the appropriate equipment is not available, the material is unknown, chemical, or hazardous, wait for properly trained personnel to contain the materials.

Small non-hazardous spills

- Use a rag, damp cloth, or absorbent materials for general cleanup of liquids
- Use brooms or shovels for the general cleanup of dry materials
- If water is used, it must be collected and properly disposed of. The wash water cannot be allowed to enter the storm drain
- Dispose of any waste materials properly
- Clean or properly dispose of any equipment used to clean the spill

Large non-hazardous spills

- Use absorbent materials for general clean up of liquids
 - Use brooms, shovels or street sweepers for the general cleanup of dry materials
 - If water is used, it must be collected and properly disposed of. The wash water cannot be allowed to enter the storm drain
 - Clean or dispose of any equipment used to clean up the spill properly
- d. For hazardous or very large spills, chemical spills, or spills of unknown materials immediately contact the Fire Department, followed by the Streets Division Superintendent or Deputy Director of Operations.

e. Illicit discharges indicated by the presence of odors, colors or sheens shall be tested. Testing will be done either in the field by trained personnel or by the COPA WW Lab.. Test parameters include but are not limited to ammonia, surfactants, flouride, fecal coliform, pH, turbidity, and temperature. Screening for illicit connections shall be conducted consistent with the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, October 2004. The following additional guidance pertains:

- (1) The spill or illicit discharge will be characterized by the key response personnel, by the stormwater field crew or by on call staff if the discharge occurs after hours. The discharge will be characterized using Appendix 8.4 (Spill Characterization Field Sheet), visual observation and field testing as an unlikely, potential, suspect or obvious discharge. Characterization (or referral to the appropriate agency) shall occur within 7 days of any complaints, reports or monitoring information that indicates a potential illicit discharge, or shall occur immediately on the next business day for discharges deemed to be emergencies, urgent or severe.
- (2) Take a sample of the material in a sterile collection bottle and take the sample to the COPA WW lab for analysis.
- (3) The sample results should be compared to the following thresholds to determine if further IDDE investigation is necessary:

Indicator	Threshold	Comments
pH	<5 or > 10	Good indicator for industrial discharge
Ammonia	>5 mg/L	Good indicator of sanitary sewage, main ingredient in fertilizers
Detergents/ Surfactants	>1 mg/L	Excellent indicator of wash water
Fecal Coliform	>2000 CFU/100mL (Dry Weather) or >5000 CFU/100mL (Wet Weather)	Human sources include failing septics, wastewater leaks or cross-connections. Animal sources include pets, livestock, and wildlife.

f. Verifying and tracing the discharge shall be considered the initiation of the investigation and shall be performed within 21 days of a discharge characterization, unless tracing requires entry into a dangerous system, as defined in 5.5. If a dangerous system exists, verifying and tracing shall be performed when low flow conditions in the stormwater or stream system resume. The Stormwater Engineer shall determine when a dangerous system exists and shall document the delay and set the date to resume the investigation. In all cases, initial investigation shall be performed within 9 months of the discharge characterization. If the tracing

confirms an illicit connection, the connection shall be removed using the City's enforcement authority within 6 months.

Procedures for tracing the source of an illicit discharge include visual inspections, and when necessary, opening manholes, using mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures. The equipment and methods described in "Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments", Chapter 13 shall be used to trace the spill or illicit discharge to its source. The following additional guidance pertains:

- (1) Review information collected when illicit discharge was initially identified (Spill Characterization Field Sheet).
 - (2) Consider storm drainage basin and land uses.
 - (3) Revisit outfall to verify reported discharge is still present.
 - (4) Contact COPA lab for determination of probable source.
 - (5) Survey the general area / surrounding properties to identify potential sources of the illicit discharge.
 - (6) Investigate illicit discharges using visual inspections of upstream points.
 - (7) Utilize M&O resources and equipment as required (traffic control, video truck, additional staff).
 - (8) Document investigation results for NPDES Permit compliance.
 - (9) If source cannot be found, add the location to a future inspection program.
- g. Results shall be documented and reported to the Deputy Director of Operations and the Stormwater Engineer.
 - h. The Stormwater Engineer shall be responsible for administering the City's response to violations and ensuring consistency with City ordinances. All violation letters to property owners will be signed by the City Engineer level or higher. Technical assistance for eliminating the discharge; follow-up inspections; and escalating enforcement and legal actions if the discharge is not eliminated will be coordinated by the Stormwater Engineer.
 - i. The IDDE Incident Closure Form will be completed by the personnel responsible for investigating the specific IDDE. This form is to be reviewed by the Stormwater Engineer. When the form is completed by operations personnel it shall be signed by the Deputy Director of Operations unless a violation letter has been issued, whereby the City Engineer shall sign. When the form is completed by engineering personnel it shall be signed by the City Engineer.

7.4 Regulatory Reporting Requirements

- a. Within 24 hours all spills/ discharges which could constitute a threat to human health, welfare, or the environment shall be reported to Ecology regional office (Appendix 8.1).

- b. Immediately report spills or discharges which might cause bacterial contamination of marine waters such as discharges resulting from broken sewer line to Ecology regional office, and Department of Health, Shellfish Program. (Appendix 8.1).
- c.. Immediately report discharges of any size oil or other hazardous substance to Ecology and Washington Emergency Management Division (Appendix 8.1).
- d. Reportable spills/illicit discharges shall be reported to the appropriate regulatory agencies by the following personnel in the order listed:
 - Stormwater Leadworker
 - Streets Superintendent
 - Deputy Director of Operations
 - Stormwater Engineer
 - Source Control Coordinator

Reporting requirements are detailed in Appendix 8.1. If none of the personnel listed above can be reached, contact your supervisor for guidance. The Pollution Investigation Checklist shall be followed and returned to the Stormwater Engineer no later than 08:00 A.M. the following workday. If there is any doubt as to whether a spill is reportable, contact the appropriate regulatory agency for clarification.

7.5 Field Screening

Each year field screening will be performed on average of 12% of the MS4. Percent of MS4 will be measured based on the combination of the number of catch basins and geographic area within City limits. Detection, response and elimination methods will be used as outlined in this policy.

7.6 Public Education

The Stormwater Engineer shall conduct a program to inform City employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. Acceptable methods to accomplish this provision include direct training, contract training, brochures, internet, mailers, etc.

The Source Control Coordinator will conduct site visits to target businesses to educate them on the proper requirements for stormwater discharges.

7.7 IDDE Assessment

The Stormwater Engineer shall be responsible for program evaluation and assessment, including tracking the number and type of illicit discharges, including spills identified; inspections made; and any feedback received from public education efforts. A summary of this information shall be included in the City's annual report.

7.8 Training for City Staff

The Streets Division Superintendent will be responsible for arranging for or conducting training requirements for the Streets and Stormwater workforce as well as on-call personnel.

The Stormwater Engineer will be responsible for arranging for or conducting

training for the Engineering Division staff and clerical staff for requirements needed to implement the policy contained herein. The following topics will be covered where appropriate:

TOPIC	TARGET AUDIENCE
Proper chain of contact for initial spill reporting	Clerical staff / on-call staff
Properly filling out the Spill Characterization Field Sheet and Pollution Investigation Checklist.	Field crews / on-call staff
Spill containment and response	Field crews / on-call staff
Simulated spill drill response, containment, and cleanup.	Stormwater Engineer, field crews, on-call staff, clerical staff
IDDE Characterization and Tracing	Stormwater Engineer, Streets Superintendent, Stormwater Leadworker, Deputy Director of Operations, Field Staff, On Call Staff
Requirements in this SOP	Stormwater Engineer, Streets Division, on-call staff, Clerical Staff

8.0 APPENDIX:

- 8.1 Combined Contact & Pollution Investigation Checklist
- 8.2 Public Works & Utilities Emergency Call List for Spill/ Pollution Incidents
- 8.3 Spill Response (Discharge Type) Chart
- 8.4 Spill Characterization Field Sheet and Identification Figures
- 8.5 Stormwater Sampling Checklist
- 8.6 IDDE Incident Closure Form



APPENDIX 8.1

COMBINED CONTACT & POLLUTION INVESTIGATION CHECKLIST

This checklist is to be used as an aid in preparing your report and included with the report when forwarded to the Public Works and Utilities Department.

SPILL INVESTIGATION

- 1. Date and time notification received or spill discovered _____
- 2. Name of City employee that discovered/reported the spill _____
- 3. If spill reported by public, name of staff reported to: _____
By: _____
(Reporting Citizen's Name) (Address) (Phone #)

- 4. Call to Key Response Personnel received by _____
(This is the key response person who will report to the incident)
- 5. Notification of Authorities: (See PW 0808_04 Emergency Call List)

Required when a discharge or spill could constitute a threat to human health, welfare, or the environment.

Oil Spill	Phone No.	Name	Date	Time
(Petroleum or Hazardous Materials)				
WS Emergency Management				
Division (24hrs)- Immediate	<u>1-800-258-5990</u>	_____		
National Response Center- Immediate	<u>1-800-424-8802</u>	_____		
Ecology Regional Office-SW- 24 Hrs	<u>360-407-6300</u>	_____		
City of PA Stormwater Eng.- 24 Hrs	<u>360-460-3456</u>	_____		

Bacterial-

WWTP or Collections System Failure

Ecology Regional Office-SW- Immediate	<u>360-407-6300</u>	_____		
WS DOH Shelfish Protection- Immediate	<u>360-236-3330</u>	_____		
(If no answer)	<u>360-786-4183</u>	_____		
Clallam County Enviro Health- 24 Hrs	<u>360-417-2415</u>	_____		
City of PA Stormwater Eng.- 24 Hrs	<u>360-460-3456</u>	_____		

ERTS # _____

- 6. Spill/ Discharge Scene:
 - a) Location/Address _____
 - b) Time of arrival _____
 - 7. Type and Amount of pollutant and discharge _____
 - 8. In the judgment of the qualified onsite personnel, is the spill Containable? Recoverable? Or Neither? (Circle)
- Initial Containment Measures _____

- 9. Ultimate discharge:
 - a) Date/Time discharge terminated _____
 - b) Date/Time cleanup commenced _____
 - c) Final Cleanup measures _____
 - d) Date/Time cleanup completed _____

10. Additional remarks (as necessary) _____

Signature _____ Title _____

**APPENDIX 8.2
PUBLIC WORKS & UTILITIES
EMERGENCY CALL LIST**

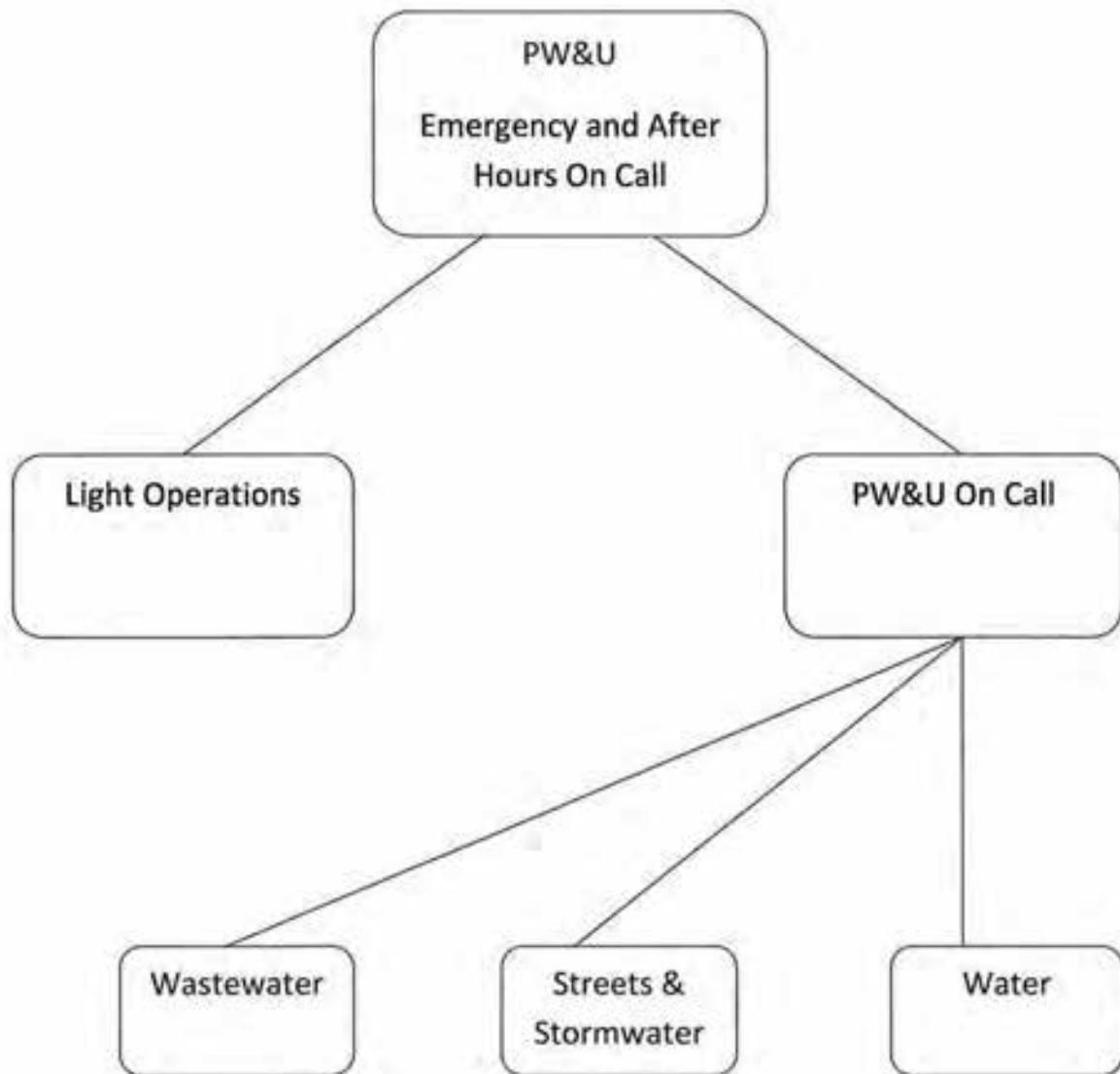
FOR POLLUTION INCIDENTS

The following phone/checklist is for the investigation and notification of the proper agencies of a pollution incident. By providing the applicable information, an accurate, orderly investigation and record will be assured. This checklist is to be used as an aid in preparing a final report and shall be included with the report when forwarded to the Public Works & Utilities Director.

City of Port Angeles	Contact Person	Phone Nos.
Street/Stormwater Division	1) Eric Wheatley 2) Mike Brockopp 3) Guy Wehr 4) Street/Stormwater On-Call	Work: 360-417-4825 Cell: 360- 912-0260 Work: 360-565-3854 Cell: 360-461-5174 Work: 360-417-4827 Cell: 360-460-9676 Cell: 360-477-1260
Stormwater Engineer	Jonathan Boehme	Work: 417-4811 Cell: 460-3456
Wastewater Collection	1) Jeff D. Young 2) Jay Divelbiss	Work: 360-417-4845 Cell: 360-461-1044 Work: 360-417-4845 Cell: 360-460-3976
Wastewater Treatment Plant	1) Jeff D. Young 2) Gary Richmond 3) WWTP on-call	Work: 360-417-4845 Cell: 360-461-1044 Work: 360-417-4845 Cell: 360-808-4757 Cell: 360461-0111
Deputy Director of Operations	Mike Puntenney	Work: 360-417-4803 Cell: 360-808-3089
Fire Department	1) Coral Wheeler	Work: 360-417-4650 Dispatch: 360-417-4797

Agency	Contact Person	Phone Nos.
WS Department of Ecology Water Quality, SW Regional Office. <i>Notification shall be provided not later than 24 hours from the time the Permittee becomes aware of the circumstances. If this information is provided orally, a written submission covering these points shall be provided within five (5) days of the time the Permittee becomes aware of the circumstances, unless the Department waives or extends this requirement on a case-by-case basis.</i>	24 Hour Spill Reporting	360-407-6300
WS Department of Health Shellfish/Marine Division	Dept. of Health Shellfish Program – Appropriate Person: Mark Toy	360-236-3306 Page: 360-786-4183 (After hours only)
Clallam County Department of Health	Andy Brastad	360-417-2415 Fax: 417-2313
Feiro Marine Lab (Water intake at mouth of Peabody Creek)		360-417-6254
Lower Elwha Klallam Tribe	Matt Beirne	360-457-4012 ext 12
Port of Port Angeles	Randy Brackett 24 Hours	360-417-3446 360-457-1909

APPENDIX 8.3



APPENDIX 8.4 - SPILL (ILLICIT DISCHARGE) CHARACTERIZATION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID:	
Incident Date / Today's Date:		Time (Military):	
Investigators:		Form Completed by:	
Temperature (°F):	Rainfall (in.):	Last 24 hours:	Last 48 hours:
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	
Land Use in Drainage Area (Check all that apply):			
<input type="checkbox"/> Industrial	<input type="checkbox"/> Open Space		
<input type="checkbox"/> Ultra-Urban Residential	<input type="checkbox"/> Institutional		
<input type="checkbox"/> Suburban Residential	<input type="checkbox"/> Other: _____		
<input type="checkbox"/> Commercial	<input type="checkbox"/> Known Industries: _____		
Notes (e.g., origin of outfall, suspected violator information, if known):			

Section 2: Outfall Description – Skip this section if spill occurs in the public right of way or on private property

LOCATION	MATERIAL	SHAPE	DIMENSION (IN.)	SUBMERGED	
<input type="checkbox"/> Closed Pipe	<input type="checkbox"/> RCP <input type="checkbox"/> CMP <input type="checkbox"/> PVC <input type="checkbox"/> HDPE <input type="checkbox"/> Steel <input type="checkbox"/> Other: _____	<input type="checkbox"/> Circular <input type="checkbox"/> Elliptical <input type="checkbox"/> Box <input type="checkbox"/> Other: _____	<input type="checkbox"/> Single <input type="checkbox"/> Double <input type="checkbox"/> Triple <input type="checkbox"/> Other: _____	Diameter/Dimensions: _____ Depth: _____ Top Width: _____ Bottom Width: _____	In Water: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully With Sediment: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully
<input type="checkbox"/> Open drainage	<input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> Rip-rap <input type="checkbox"/> Other: _____	<input type="checkbox"/> Trapezoid <input type="checkbox"/> Parabolic <input type="checkbox"/> Other: _____			
<input type="checkbox"/> In-Stream	(applicable when collecting samples)				
Flow Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>If No, Skip to Section 5</i>				
Flow Description (if Present)	<input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial				

Section 3: Quantitative Characterization - Skip this section if spill occurs in the public right of way or on private property

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER	RESULT	UNIT	EQUIPMENT	
<input type="checkbox"/> Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
<input type="checkbox"/> Flow #2	Flow depth		In	Tape Measure
	Flow width	_____ ' _____ "	Ft, In	Tape Measure
	Measured length	_____ ' _____ "	Ft, In	Tape Measure
	Time of travel		S	Stop Watch
Temperature – field measure			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			Mg/L	Test strip – or lab

Section 4: Physical Indicators for Flowing Spills or Illicit Discharges Only

Are physical indicators present in the flow? Yes No (If No, Skip to Section 5)

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	<input type="checkbox"/>	<input type="checkbox"/> Sewage <input type="checkbox"/> Rancid/Sour <input type="checkbox"/> Petroleum/gas <input type="checkbox"/> Sulfide <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Faint	<input type="checkbox"/> 2 – Easily detected	<input type="checkbox"/> 3 – Noticeable from a distance
Color	<input type="checkbox"/>	<input type="checkbox"/> Clear <input type="checkbox"/> Brown <input type="checkbox"/> Gray <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Red <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Faint colors in sample bottle	<input type="checkbox"/> 2 – Clearly visible in sample bottle	<input type="checkbox"/> 3 – Clearly visible in outfall flow
Turbidity	<input type="checkbox"/>	See Severity	<input type="checkbox"/> 1 – Slight cloudiness	<input type="checkbox"/> 2 - Cloudy	<input type="checkbox"/> 3 - Opaque
Floatables – Does Not Include Trash!	<input type="checkbox"/>	<input type="checkbox"/> Sewage (Toilet Paper, etc.) <input type="checkbox"/> Suds <input type="checkbox"/> Petroleum (oil sheen) <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Few/slight; origin not obvious	<input type="checkbox"/> 2 – Some; indications of origin (e.g., possible suds or oil sheen)	<input type="checkbox"/> 3 – Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Spills or Illicit Discharges

Are physical indicators that are not related to flow present? Yes No (If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	<input type="checkbox"/>	<input type="checkbox"/> Spalling, Cracking or Chipping <input type="checkbox"/> Peeling Paint <input type="checkbox"/> Corrosion	
Deposits/Stains	<input type="checkbox"/>	<input type="checkbox"/> Oily <input type="checkbox"/> Flow Line <input type="checkbox"/> Paint <input type="checkbox"/> Other:	
Abnormal Vegetation	<input type="checkbox"/>	<input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited	
Poor pool quality	<input type="checkbox"/>	<input type="checkbox"/> Odors <input type="checkbox"/> Colors <input type="checkbox"/> Floatables <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Suds <input type="checkbox"/> Excessive Algae <input type="checkbox"/> Other:	
Pipe benthic growth	<input type="checkbox"/>	<input type="checkbox"/> Brown <input type="checkbox"/> Orange <input type="checkbox"/> Green <input type="checkbox"/> Other:	

Section 6: Overall Spill or Illicit Discharge Characterization

<input type="checkbox"/> Unlikely	<input type="checkbox"/> Potential (presence of two or more indicators)	<input type="checkbox"/> Suspect (one of more indicators with a severity of 3)	<input type="checkbox"/> Obvious
-----------------------------------	---	--	----------------------------------

Section 7: Data Collection –Two samples must be taken for lab analysis. Test parameters are in 7.2 b 3 and 7.3 e

1. Sample for the lab?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Collected from:	<input type="checkbox"/> Flow <input type="checkbox"/> Pool
3. Intermittent flow trap set?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, type: <input type="checkbox"/> OBM <input type="checkbox"/> Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?



Figure 8.4.1: Characterizing Submersion and Flow

Spill Characterization Field Sheet Section 2

If discharge is discovered in a pipe or open drainage ditch, fill in this section using Figure 8.4.1 above to determine the level of flow and submergence. If the discharge is discovered on the pavement or in a curb and gutter, skip to the bottom of Section 2 and determine if flow is present or not.

Spill Characterization Field Sheet Section 3

Use this section if the discharge is coming from a pipe or ditch. If you have the Horiba water quality meter, test for temperature and pH and record the results. Ammonia is one of the parameters that will be tested by the City lab.

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS			
PARAMETER	RESULT	UNIT	EQUIPMENT
<input type="checkbox"/> Flow #1	Volume		Liter
	Time to fill		Sec
<input type="checkbox"/> Flow #2	Flow depth		In
	Flow width	____' ____"	Ft, In
	Measured length	____' ____"	Ft, In
	Time of travel		S
Temperature			"F
pH			pH Units
Ammonia			mg/L
			Test strip

Figure 8.4.2: Section 3 of the ORI Field Sheet

Spill Characterization Field Sheet Section 4

Odor

Section 4 asks for a description of any odors that emanate from the outfall and an associated severity score. Since noses have different sensitivities, the entire field crew should reach consensus about whether an odor is present and how severe it is. A severity score of one means that the odor is faint or the crew cannot agree on its presence or origin. A score of two indicates a moderate odor within the pipe. A score of three is assigned if the odor is so strong that the crew smells it a considerable distance away from the outfall.

Tip

Make sure the origin of the odor is the outfall. Sometimes shrubs, trash or carrion, or even the spray paint used to mark the outfall can confuse the noses of field crews.

Color

The color of the discharge, which can be clear, slightly tinted, or intense is recorded next. Color can be quantitatively analyzed in the lab, but the spill characterization field sheet only asks for a visual assessment of the discharge color and its intensity. The best way to measure color is to collect the discharge in a clear sample bottle and hold it up to the light (Figure 8.4.3).

Field crews should also look for downstream plumes of color that appear to be associated with the outfall. Figure 8.4.4 illustrates the spectrum of colors that may be encountered during a spill investigation, and offers insight on how to rank the relative intensity or strength of discharge color. Color often helps identify industrial discharges.

Turbidity

The spill characterization field sheet asks for a visual estimate of the turbidity of the discharge, which is a measure of the cloudiness of the water. Like color, turbidity is best observed in a clear sample bottle, and can be quantitatively measured using field probes. Crews should also look for turbidity in the plunge pool below the outfall, and note any downstream turbidity plumes that appear to be related to the outfall. Field crews can sometimes confuse turbidity with color, which are related but are not the same. Remember, turbidity is a measure of how easily light can penetrate through the sample bottle, whereas color is defined by the tint or intensity of the color observed. Figure 8.4.4 provides some examples of how to distinguish turbidity from color, and how to rank its relative severity. Also, under high intensity or long duration rainfall, Port Angeles streams will be turbid from natural processes upstream. If turbid water is encountered in the stream, investigate waters upstream to determine the source.



Figure 8.4.3: Using a sample bottle to estimate color and turbidity



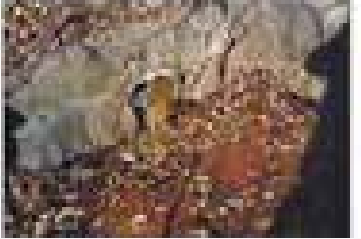



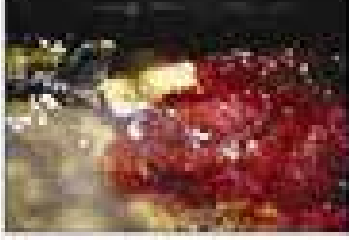






 <p>Color: Brown; Severity: 2 Turbidity Severity: 2</p>	 <p>Color: Blue-green; Severity: 3 Turbidity Severity: 2</p>	 <p>Highly Turbid Discharge Color: Brown; Severity: 3 Turbidity Severity: 3</p>
 <p>Sewage Discharge Color: 3 Turbidity: 3</p>	 <p>Paint Color: White; Severity: 3 Turbidity: 3</p>	 <p>Industrial Discharge Color: Green; Severity: 3 Turbidity Severity: 3</p>
 <p>Blood Color: Red; Severity: 3 Turbidity Severity: None</p>	 <p>Failing Septic System: Turbidity Severity: 3</p>	 <p>Turbidity in Downstream Plume Turbidity Severity: 2 (also confirm with sample bottle)</p>
 <p>High Turbidity in Pool Turbidity Severity: 2 (Confirm with sample bottle)</p>	 <p>Iron Floc Color: Reddish Orange; Severity: 3 (Often associated with a natural source)</p>	 <p>Slight Turbidity Turbidity: 1 (Difficult to interpret this observation; May be natural or an illicit discharge)</p>
<p>Construction Site Discharge Turbidity Severity: 3</p>		<p>Discharge of Rinse from Floor Sanding (Found during wet weather) Turbidity Severity: 3</p>

Figure 8.4.4: Interpreting Color and Turbidity

Floatables

The last sensory indicator is the presence of any floatable materials in the discharge or the plunge pool below. Sewage, oil sheen, and suds are all examples of floatable indicators; trash and debris are generally not in the context of the Outfall Reconnaissance Inventory (ORI). The presence of floatable materials is determined visually, and some guidelines for ranking their severity are provided in Figure 8.4.5, and described below.

If you think the floatable is sewage, you should automatically assign it a severity score of three since no other source looks quite like it. Surface oil sheens are ranked based on their thickness and coverage. In some cases, surface sheens may not be related to oil discharges, but instead are created by in-stream processes, such as shown in Figure 8.4.6. A thick or swirling sheen associated with a petroleum-like odor may be diagnostic of an oil discharge.

Suds are rated based on their foaminess and staying power. A severity score of three is designated for thick foam that travels many feet before breaking up. Suds that break up quickly may simply reflect water turbulence, and do not necessarily have an illicit origin. Indeed, some streams have naturally occurring foams due to the decay of organic matter. On the other hand, suds that are accompanied by a strong organic or sewage-like odor may indicate a sanitary sewer leak or connection. If the suds have a fragrant odor, they may indicate a sanitary sewer leak or connection. If the suds have a fragrant odor, they may indicate the presence of laundry water or similar wash waters.



Figure 8.4.5: Determining the Severity of Floatables

SUDS



Figure 8.4.6: Synthetic versus Natural Sheen (a) Sheen from bacteria such as iron floc forms a sheet-like film that cracks if disturbed (b) Synthetic oil forms a swirling pattern

Sample Collection Field Sheet Section 5

Section 5 of the ORI field sheet examines physical indicators found at both flowing and non-flowing outfalls that can reveal the impact of past discharges. Physical indicators include outfall damage, outfall deposits or stains, abnormal vegetation growth, poor pool quality and benthic growth on pipe surfaces. Common examples of physical indicators are shown in Figures 8.4.7 and 8.4.8. Many of these physical conditions can indicate that an intermittent or transitory discharge has occurred in the past, even if the pipe is not currently flowing. Physical indicators are not ranked according to their severity, because they are often subtle, difficult to interpret and could be caused by other sources. Still physical indicators can provide strong clues about the discharge history of a storm water outfall, particularly if other discharge indicators accompany them.

		
<p>Bacterial growth at this outfall indicates nutrient enrichment and a likely sewage source.</p>	<p>This bright red bacterial growth often indicates high manganese and iron concentrations. Surprisingly, it is not typically associated with illicit discharges.</p>	<p>Sporalitis filamentous bacteria, also known as "sewage fungus" can be used to track down sanitary sewer leaks.</p>
		
<p>Algal mats on lakes indicate eutrophication. Several sources can cause this problem. Investigate potential illicit sources.</p>	<p>Illicit discharges or excessive nutrient application can lead to extreme algal growth on stream beds.</p>	<p>The drainage to this outfall most likely has a high nutrient concentration. The cause may be an illicit discharge, but may be excessive use of lawn chemicals.</p>
 <p>This brownish algae indicates an elevated nutrient level.</p>		

Figure 8.4.7: Interpreting Benthic and Other Biotic Indicators

 <p>Reddish staining on the rocks below this outfall indicate high iron concentrations.</p>	 <p>Toilet paper directly below the storm drain outlet.</p>	 <p>Watershed Protection??</p>
 <p>Trash is not an indicator of illicit discharges, but should be noted.</p>	 <p>Staining at the base of the outfall may indicate a persistent, intermittent discharge.</p>	 <p>Excessive vegetation may indicate enriched flows associated with sewage.</p>
 <p>Brownish stain of unclear origin. May be from degradation of the brick infrastructure.</p>	 <p>Cracked rock below the outfall may indicate an intermittent discharge.</p>	 <p>Poor pool quality. Consider sampling from the pool to determine origin.</p>

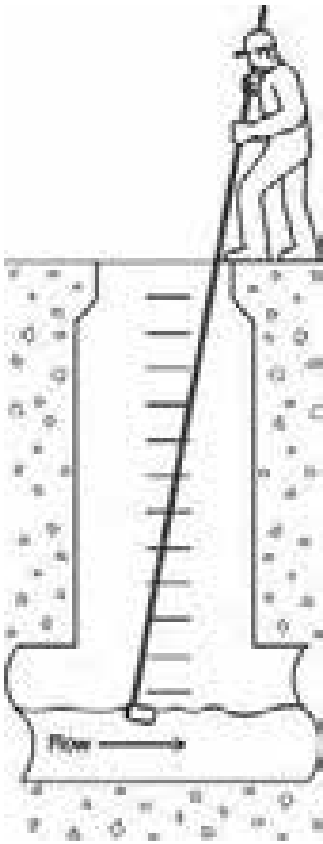
Figure 8.4.8

Typical Findings at Both Flowing and Non-Flowing Outfalls

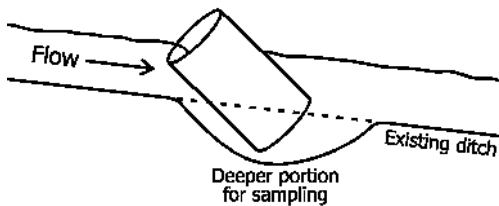
Appendix 8.5 – Stormwater Sampling Checklist

General Sampling Techniques

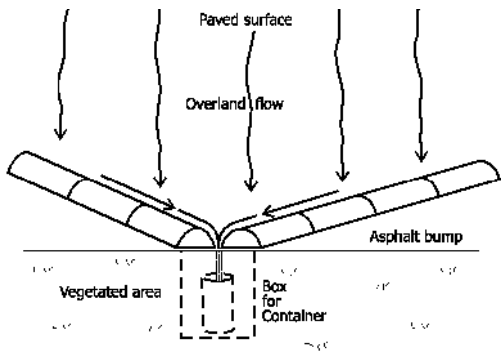
- . If possible, notify the wastewater lab ahead of an illicit discharge investigation, a stream survey or a priority outfall survey so they will be aware that timely testing may be required.
- Collect two sample bottles for each sample site from the lab. Lab note: for fecal coliform samples: Bacteria sample containers should be 250-mL or 500mL pre-autoclaved (sterilized) polypropylene bottles with aluminum foil wrapped caps used to preserve sterility near the bottle opening. No preservative should be added. However, if sampling near a major road or highway, EDTA should be added to neutralize the high metals
- Prepare and carry a small sample cooler with ice.
- When collecting the sample:
 - o Safety is most important. If a trip hazard is present or if there is deep, or swift water, samples should be taken with a partner. Do not enter any manhole or long culvert, unless you have been trained to enter confined spaces.
 - o Wear disposable powder free gloves.
 - o The sample should be collected by hand (grab sample) or with sample bottle attached to an extension pole. Samples cannot be pumped or transferred from container to container (dipper).
 - o Care should be used at all times to avoid contamination of the inside of the sample bottle cap. (Do not touch the inside of the bottle cap with your hands, or place the open side on the ground.)
 - o Do not rinse the bottle.
 - o Do not disturb sediment from the stream bed, pipe or manhole. If the flow is too shallow to take a sample without sediment, the flow can be dammed to create a deep spot, or the ditch can be deepened with a shovel to create a small sampling pocket. See examples below.
 - o Always collect samples from the active part of the stream or pipe flow.
 - o Face the opening of the bottle upstream (or into the tidal flow in marine water).
 - o Plunge the sample bottle to mid flow depth and sweep up.
 - o Leave ½ inch headspace in the bottle for mixing.
 - o As soon as the sample is collected, cap the bottle and label it.
 - o Immediately store in a cooler with ice.
 - o Deliver to the lab within 6 hours.



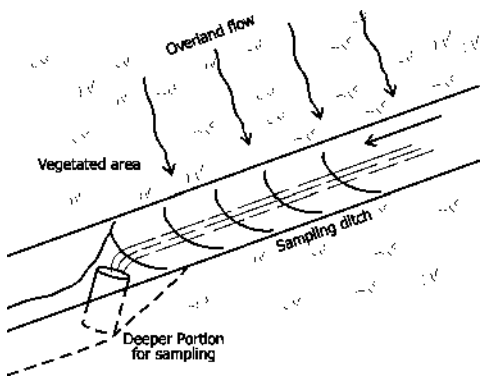
When sampling from a manhole, use a pole to safely sample from above ground. Avoid touching the sides of the manhole or pipes with the bottle to prevent contamination. Place the opening of the bottle upstream so that the flow enters the bottle directly.



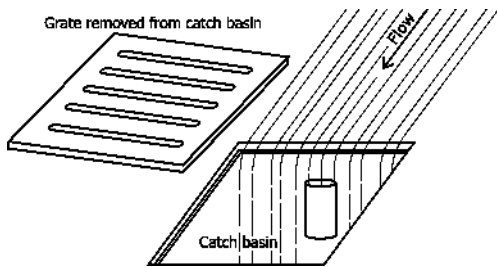
Deepening an existing ditch can allow samples to be collected directly into bottles in some cases. Be careful not to stir up solids from the sides or bottom of the ditch



Overland flow on paved areas can be sampled by constructing asphalt or concrete bumps to collect and concentrate the flow. A box positioned below ground surface in the paved area or the edge of an unpaved area can provide a place to collect samples directly into bottles.



Overland flow from vegetated areas can be sampled by constructing a shallow ditch to intercept the runoff and a deepened area to place bottles to catch the runoff.



Runoff entering a catch basin can sometimes be collected directly into bottles by removing the grate and allowing the runoff to fall into the bottles.



Do not touch openings of bottles. Keep bottles clean to prevent contamination.



Do not allow bottle lids to touch ground. Keep lids clean to prevent contamination.



Do attach a bottle to a pole for sampling in manholes or when a hand sample would be in stagnant water. A boathook is used in this example and the bottle is attached to it with filament strapping tape.



Do not sample in stagnant areas with little flow. Do not stir up bottom sediments or allow foreign materials to enter the sample bottle. (Do be careful to grab a clean sample in cases where stormwater runoff is shallow.) If the runoff is so shallow that it is not possible to sample without the sample being contaminated in the process, then find an alternative way to sample.



If the water is too shallow to sample with the bottle upright on the pole, try taping it on sideways, but tilted up slightly.



Do not sample with the bottle opening facing downstream, when using a pole or when sampling by hand. Water flowing past your container, pole, or hand and into the container can be contaminated by such contact.



Do not allow water to overfill the bottle, particularly not for sample bottles with preservative. Oil and grease samples should be collected from water falling into the bottle when possible, or otherwise in a single swoop.




Do sample with the opening of the bottle facing upstream, into the flow so the water will enter directly into the bottle. This is true when sampling either by hand or with a pole. Do sample water that is rapidly flowing rather than stagnant.



Do collect samples without overfilling the bottle.

Appendix 8.6 – IDDE Incident Closure Form

 IDDE INCIDENT CLOSURE FORM		
Initial investigation date:	Title:	Investigators:
Cityworks WO#:		
<input type="checkbox"/> No investigation made:	Reason:	
<input type="checkbox"/> Referred to different department/agency:	Department/Agency:	
<input type="checkbox"/> Investigated: No action necessary		
<input type="checkbox"/> Investigated: Requires action	<input type="checkbox"/> Report to Ecology ERTS #	
<input type="checkbox"/> Enforcement Required?	<input type="checkbox"/> Referred to Stormwater Engineering for Enforcement	
Description of Event:		
Description or Actions Taken:		
Conclusion/Findings:		
Date of Case Closed:		

X _____
Deputy Director of Public Works & Utilities



DATE MARCH 31, 2022

TO WASHINGTON DEPARTMENT OF ECOLOGY, SW REGIONAL OFFICE, WATER QUALITY PROGRAM

CC ANGELA VINCENT, WASHINGTON DEPARTMENT OF ECOLOGY

AUTHOR(S) VINCE MCINTYRE, PE | CITY OF PORT ANGELES
FRANCESCA WHITE, PE | OSBORN CONSULTING, INC.
KAELA MANSFIELD, PE | OSBORN CONSULTING, INC.
KEVIN FLANAGAN, EIT | OSBORN CONSULTING, INC.

CITY OF PORT ANGELES | STORMWATER MANAGEMENT ACTION PLANNING RECEIVING WATER CONDITIONS ASSESSMENT

INTRODUCTION

The City of Port Angeles (City) is located along the northern edge of the Olympic Peninsula in Washington State. The City is approximately 14.5 square miles in size with a population of approximately 19,960 according to the 2020 census. As an operator of a regulated small municipal separate storm sewer system (MS4) in Western Washington, the City must abide by the Western Washington Phase II MS4 Permit (Permit), regulated by the Washington State Department of Ecology (Ecology). Per Section S5.C.1.d of the 2019 Permit, each Permittee is required to develop a Stormwater Management Action Plan (SMAP) for one high priority basin located within the Permittee's jurisdiction. The first component of developing a SMAP is the Receiving Water Conditions Assessment. This assessment is made of up the following four steps:

- Delineate basins and identify receiving waters
- Assess receiving water conditions
- Assess stormwater management influence
- Assess relative conditions and contributions

The purpose of the Receiving Water Conditions Assessment is to document and assess existing information related to the receiving waters and the contributing area conditions to identify which receiving waters are most likely to benefit from stormwater management planning. This assessment will result in a list of receiving waters that will be ranked later in the SMAP process to select one high priority basin. A planning document will then be developed that identifies approaches to accommodate growth and development within the chosen basin while preventing water quality degradation and improving receiving water conditions.

This memo will discuss the four steps taken to conduct the Receiving Water Conditions Assessment for the City of Port Angeles.

DELINEATE BASINS AND IDENTIFY RECEIVING WATERS

The City is made up of 15 basins. Six of the basins discharge to one of the following creeks (freshwater): Dry Creek, Tumwater Creek, Valley Creek, Peabody Creek, White Creek, and Ennis Creek. The remaining nine basins discharge to the Port Angeles Harbor or the Strait of Juan de Fuca (saltwater). For

the purposes of this report, the basins discharging to saltwater have been labeled Ocean 7 – Ocean 15 and given names based on the area of the outfall location. The basins discharging to the Strait of Juan de Fuca include Ocean 7 (Cemetery Basin), Ocean 8 (N Street Basin), and Ocean 9 (P Street Basin). The basins discharging to the Port Angeles Harbor include Ocean 10 (Mill and Log Yard Basin), Ocean 11 (Ferry Terminal Basin), Ocean 12 (Hollywood Beach Basin), Ocean 13 (Old Rayonier Mill Basin), Ocean 14 (Gales Addition Basin), and Ocean 15 (Ediz Hook Basin). The following resources were used to delineate the basins:

- Puget Sound LIDAR Consortium
- Clallam County – 10-foot Contours
- City of Port Angeles – 2-foot Contours
- City of Port Angeles – GIS Shapefile Data for gravity storm sewer infrastructure and waterbodies (DGravityMain, DCatchBasin, WaRivers)
- Google Maps Aerial Imagery (2022)

Once assembled, the basin delineation work was validated using the basins recently developed for the GreenLink Port Angeles Project, a grant funded watershed planning effort being conducted by Futurewise with the goal of identifying and developing green stormwater infrastructure (GSI) opportunities within the City of Port Angeles.

Results of the basin delineation exercise are shown on the Port Angeles Basin Delineation Map, provided in Attachment 1. The receiving water name, total watershed area, and percent of the total watershed area within the city limits are listed for each basin in the Basin Characteristics Table, provided in Attachment 2.

Per the SMAP Guidance, the last step in the basin delineation process is determining whether outfalls discharging directly to the Puget Sound discharge to a shoreline area where there is likely a buildup of sediments, which often contain stormwater pollutants. The nine basins within the City that discharge to the Port Angeles Harbor or the Strait of Juan de Fuca technically discharge directly to the Puget Sound. According to the Coastal Atlas Map, seven of the basin discharge points are active transport zones, where sediment is transported up or down the shoreline by natural processes. Two basins, Ocean 10 (Mill and Log Yard Basin) and Ocean 11 (Ferry Terminal Basin), have been classified as areas of no appreciable drift, where sediment is not transported and instead accumulates; however, sedimentation and buildup at these discharge points has not been observed on account of continuous wave action and semidiurnal tidal influences along the shoreline.

ASSESS RECEIVING WATER CONDITIONS

The following sections describe the available data that was reviewed and considered to assess the receiving water conditions.

Identify the Designated Uses and Desired Water Quality Conditions

Resources used to identify the designated uses and the extent to which the desired conditions are being met include:

- Ecology's Water Quality Atlas Online Mapping Tool for Assessed Water/Sediment Impairments and Water Quality Standards
- Washington Department of Fish & Wildlife's (WDFW) SalmonScape Online Mapping Tool
- Washington Administrative Code (WAC) 173-201A: Water Quality Standards for Surface Waters of the State of Washington

The designated uses were determined by reviewing the data available for the target waterbody within each basin (or the downstream waterbody for basins discharging to saltwater) and reporting the documented water quality standards and impairments (Ecology Water Quality Atlas, WAC), and fish species presence and spawning use (WDFW's SalmonScape, WAC). The extent to which the desired conditions are being met was assessed by reviewing the Ecology Water Quality Atlas and reporting listings that may impact the desired conditions. Basins with streams and/or downstream waterbodies with Category 5-303(d) listings for any impairment were the primary focus for assessing whether stormwater management actions have potential to address the impairment.

A summary of the designated uses and extent to which the desired conditions are being met for each basin is provided in the Receiving Water Conditions Assessment Table, provided in Attachment 3.

Landscape – Scale Data

Data and corresponding sources for information gathered to evaluate landscape-scale data include:

- Zoning
 - Provided by the City of Port Angeles
- Land Cover
 - Multi-Resolution Land Characteristics Consortium, National Land Cover Database (2019)
 - Google Maps Aerial Imagery (2022)
- Basin Area
 - Puget Sound LIDAR Consortium
 - Clallam County – 10-foot Contours
 - City of Port Angeles – 2-foot Contours
 - City of Port Angeles – GIS Shapefile Data for gravity storm sewer infrastructure and waterbodies (DGravityMain, DCatchBasin, WaRivers)
 - Google Maps Aerial Imagery (2022)
 - GreenLink Delineated Basins
- Effective Impervious Surface
 - Multi-Resolution Land Characteristics Consortium, National Land Cover Database (2019)
 - Land Zoning – Provided by City of Port Angeles
 - Google Maps Aerial Imagery (2022)
- Traffic Proximity and Volume
 - EJScreen: Environmental Justice Screening and Mapping Tool
- Superfund Proximity
 - EJScreen: Environmental Justice Screening and Mapping Tool
- Hazardous Waste Proximity
 - EJScreen: Environmental Justice Screening and Mapping Tool

A summary of the landscape-scale data for each basin is provided in the Basin Characteristics Table, provided in Attachment 2.

Development Pressure

A meeting with the City's Director of Community and Economic Development, Emma Bolin, was held in December 2021 to discuss development pressure within the City. The meeting focused on zoning changes that may direct development towards specific basins and transportation planning. The most notable and relevant zoning code change occurring in recent years consisted of a reduction in minimum lot size, city wide. For example, in 2019, City Council approved the minimum lot size reduction of all lots within Zone R-7, a predominant residential zone within the City, from 7,000 square feet (sf) to 5,000 sf. It was reduced again to 3,500 sf in January 2022. This reduction is anticipated to help prevent urban sprawl, increase housing opportunities, and attract development. While this future development will be required to meet current stormwater regulations, it is also recognized that the feasibility of implementing

onsite stormwater management techniques, such as Low Impact Development (LID), will decrease as lot size decreases. As a result, the City may need to consider different methods of managing stormwater runoff such as upgrades and retrofits to existing systems or installation of small regional facilities serving population-dense regions throughout the City.

The City has also identified areas that would benefit from being rezoned from residential to commercial or mixed use to provide commercial services, which are lacking in the western portion of the City. These areas include W 8th Street between S C Street and S Cedar Street. These rezoning efforts are only speculative at this time. No formal action is scheduled.

To assess development pressure throughout the City, transportation planning was also taken into consideration. For years, the City has been working towards an ongoing goal to improve access for other modes of transportation, as well as making improvements for vehicular traffic. New bike lanes and ADA ramps are common add-ons to most Public Works capital projects and the City actively seeks out grants to help fund transportation improvement projects. For example, the City recently received a grant for the S Race Street Complete Street project, which will develop S Race Street into a multi-modal corridor for pedestrians, bicyclist, vehicles, and transit users. This is a multi-phase, retrofit project. Phase I will implement LID techniques, but this phase of the project did not trigger stormwater detention or treatment requirements. Future phases will likely incorporate treatment and detention elements, based on Ecology's Stormwater Management Manual for Western Washington (SWMMWW) minimum requirements (Washington State Department of Ecology Water Quality Program, 2019). Both the rezoning opportunities and transportation planning efforts will be considered when prioritizing stormwater basins and selecting stormwater management actions.

A summary of the development pressure within each basin is provided in the Receiving Water Conditions Assessment Table, provided in Attachment 3.

Basins Discharging to Impaired Waters

Resources used to assess characteristics of basins discharging to impaired waters include:

- Existing Land Cover and Zoning Data
- SWMMWW Best Management Practices (BMP) descriptions
- United States Environmental Protection Agency (US EPA) 1999 Preliminary Data Summary of Urban Storm Water Best Management Practices (US EPA, 1999)

As outlined in the SMAP Guidance document, this assessment exercise is “intended to be a rapid assessment” of known conditions in the watershed, and there are not expectations “to collect new data or establish a local monitoring program.” Specific monitoring data was not available at the time of this analysis; therefore, each basin was assessed at a desktop level to identify likely characteristics contributing to impairments and options that may improve the conditions.

Each basin was assessed to consider the potential for basin-wide stormwater management approaches to reduce the pollutant loadings specific to each basin waterbody or receiving water. Land cover and zoning data provide an indicator of common pollutants in runoff associated with specific land cover or zoning types. For example, organic materials are typically associated with residential lawns and gardens, commercial landscaping, and animal waste (US EPA, 1999). Category 5 pollutant impairments identified via Ecology's Water Quality Atlas tool were reviewed to assess which water quality BMPs in the SWMMWW could be applied to help mitigate waterbody specific pollutants of concern. Similarly, enhanced municipal stormwater management actions and non-stormwater actions were assessed for potential to reduce pollutant loads and meet targets. For the assessment of methods to reduce pollutant loadings, each basin with an impairment is categorized with an Unlikely/Potential/Likely rating for the opportunity to reduce the loading with the analyzed method (i.e. basins with a Category 5 impairment for

bacteria were listed as “Unlikely” to be addressed through BMPs found in the SWMMWW and applied through the City’s Stormwater Master Plan (SWMP), as follows:

- "Unlikely" where there are not options or actions (i.e. BMPs in the SWMMWW, enhanced municipal stormwater management, non-stormwater components) that can provide measurable improvements to Category 5 impairments specific to a given basin
- "Potential" where there are options or actions (i.e. BMPs in the SWMMWW, enhanced municipal stormwater management, non-stormwater components) that may provide measurable improvements to Category 5 impairments specific to a given basin
- "Likely" where there are options or actions (i.e. BMPs in the SWMMWW, enhanced municipal stormwater management, non-stormwater components) that directly provide measurable improvements to Category 5 impairments specific to a given basin
- "N/A" for basins with zero Category 5 impairments
- "*" for basins with zero Category 5 impairments, but potential to prioritize for protection

If any strategies were categorized as “Potential” or better, the actions that are anticipated to reduce current and future loadings most effectively were listed in the Receiving Water Conditions Assessment Table (ex. the non-stormwater management action of increasing riparian buffer density is likely to reduce temperature and Dissolved Oxygen (DO) impairments). A summary of the data associated with basins discharging to impaired waters, including potential opportunities to reduce the pollutant loadings, is provided in the Receiving Water Conditions Assessment Table.

Overburdened Communities

Information related to overburdened communities was collected from the following source:

- EJScreen: Environmental Justice Screening and Mapping Tool

Data relevant to understanding overburdened communities in the City of Port Angeles included demographic parameters such as People of Color Population and Low-Income Population. This data was then combined and weighed together in a Demographic Index. The percentage of people of color ranged from 12 percent to 22 percent across the basins. The percentage of low-income population ranged from 29 percent to 47 percent, with the highest percentage in the Ocean 12 (Hollywood Beach Basin) and Peabody Creek basins.

A summary of information regarding overburdened communities for each basin is provided in the Basin Characteristics Table, provided in Attachment 2.

ASSESS STORMWATER MANAGEMENT INFLUENCE

As outlined in the SMAP Guidance, a basin with relatively low expected stormwater management influence for SMAP is defined as having both low expected hydrologic impacts and low expected pollutant loadings. Low expected hydrologic impacts are evaluated for MS4s that drain directly to:

- Flow control exempt receiving waters as defined in the 2019 SWMMWW, or
- Ephemeral streams, or
- Receiving waters primarily influenced by groundwater flows.

The Puget Sound is listed as a flow control exempt receiving water in the 2019 SWMMWW; therefore, the basins draining to the Port Angeles Harbor and the Strait of Juan de Fuca are expected to have low hydrologic impacts. Dry Creek basin is the only basin that drains to an ephemeral creek, so it can also be expected to have low hydrologic impacts. The remaining basins are not primarily influenced by groundwater flows and drain to perennial creeks, so they cannot be considered basins with low expected hydrologic impacts.

To determine if low pollutant loadings were expected within a basin, land cover, zoning, parking areas, and the ADT of roadways were evaluated. Resources used to evaluate this information include:

- Ecology's 2019 Stormwater Management Manual for Western Washington (SWMMWW)
- Zoning and Land Cover data (described in the "Assess Receiving Water Conditions" Section)
- ADT raw data provided by the City, collected between 12/3/2019 and 12/9/2021.
- Google Maps Aerial Imagery (2022)

Through this evaluation it was determined that no catch basins within the City limits received runoff from only the sources listed in the 'Assess Stormwater Management Influence' section of the SMAP Guidance; therefore, no basins are expected to have low pollutant loadings. Because no single basin has both low expected hydrologic impacts as well as low expected pollutant loading, no basin within the City is expected to categorically have low stormwater management influence for the SMAP. In other words, all basins have potential for changes in stormwater management or policy to have a direct effect on current impairments. As a result, all basins will be considered in the assessment of relative conditions and contributions. A summary of the relative stormwater management influence for each basin is provided in the Receiving Water Conditions Assessment Table, provided in Attachment 3.

For each basin, the major pollutants were identified and the potential for these pollutant sources to increase under future land use conditions was assessed. There are no significant zoning changes planned for the City; therefore, land use conditions are not expected to change significantly from their current use. As discussed previously, there are opportunities for development on undeveloped and partially developed parcels within residential and industrial zones, implying that the most significant expected change to land cover would be an increase in impervious surface as properties continue to be developed. That said, the City's population has an annual growth rate of 0.6%, which is comparable to the national average and would suggest this anticipated land cover change will likely occur at a manageable rate (World Population Review, 2022). Table 1 identifies the major pollutants, impacted receiving waters, whether the loadings will increase with increased development, and land management strategies that can help manage growth to minimize adverse stormwater impacts.

Table 1: Major pollutants and corresponding land management strategies

Pollutant	Impacted Basin	Will loadings increase under expected future land use conditions?	Can these sources be addressed through other land management strategies, including policies, code, or development standards?	Can future growth be managed to minimize adverse stormwater impacts?
Dissolved Oxygen (DO)	Dry Creek Ocean 15 (Ediz Hook Basin)	DO decreases as oxygen is consumed by micro-organisms, aquatic animals, decomposition, and chemical reactions. Additionally DO and temperature are inversely related. An increase in impervious surface and stormwater systems are anticipated to increase leaf litter accumulation in streams, and increase temperatures of overland flow stormwater runoff, which will likely decrease levels of DO (US EPA, 2012).	Yes, land management strategies including increased riparian buffers density (to reduce stream temperatures) and prioritizing infiltration and/or groundwater recharge opportunities over stormwater outfall discharges to streams may help increase DO levels in water bodies.	Yes, future growth can be managed by preventing development within stream buffers and considering regional flow control and water quality treatment facilities in areas with anticipated future growth.
Bioassessment	Dry Creek Peabody Creek	An increase in impervious surface is anticipated to increase volume, temperature, and flashiness of runoff; therefore, the biological diversity and health of the stream will likely decrease.	Yes, these sources may be addressed through land management strategies such as maintaining adequate stream buffers, increasing vegetation and tree cover density in riparian corridors, and disconnecting outfalls from the stream.	Yes, future growth can be managed by preventing development within stream buffers and considering regional flow control and water quality treatment facilities in areas with anticipated future growth.

Pollutant	Impacted Basin	Will loadings increase under expected future land use conditions?	Can these sources be addressed through other land management strategies, including policies, code, or development standards?	Can future growth be managed to minimize adverse stormwater impacts?
			Development standards can promote adequate flow control to decrease runoff volume.	
Temperature	Dry Creek Peabody Creek	An increase in impervious surface and decrease in vegetation and tree cover density are anticipated to increase the temperature of the stream. Additionally, temperature and DO are inversely related (US EPA, 2012).	Yes, these sources may be addressed through land management strategies such as maintaining adequate stream buffers, increasing vegetation and tree cover density in riparian corridors, and disconnecting outfalls from the stream. Development standards can promote subsurface runoff storage to reduce temperatures, which may also increase DO concentrations.	Yes, future growth can be managed by preventing development within the stream buffers and considering regional flow control and water quality treatment facilities in areas with anticipated future growth.
Bacteria	Tumwater Creek Valley Creek Peabody Creek Ennis Creek Ocean 12 (Hollywood Beach Basin)	Common sources of bacteria include unmanaged pet waste, CSO and SSO releases, and illicit discharges. Specific chronic sources have not been identified. An increase in impervious surface will not likely cause a significant increase in bacteria (Washington State Department of Ecology).	Yes, bacteria reduction may be achieved through targeted education and outreach campaigns, CSO reduction programs, capital upgrades to the sanitary sewer system, and subsidy programs to collect sanitary waste from RVs for the unhoused at no or low-cost.	No, impairment due to bacteria is not anticipated to increase with future development.
Turbidity	Peabody Creek	An increase in impervious surface and decrease in vegetation are anticipated to	Yes, these sources may be addressed through development standards that promote	Yes, as growth occurs and development increases, proper construction BMPs can be put

Pollutant	Impacted Basin	Will loadings increase under expected future land use conditions?	Can these sources be addressed through other land management strategies, including policies, code, or development standards?	Can future growth be managed to minimize adverse stormwater impacts?
		increase factors that cause turbidity, such as sediment (US EPA, 2012).	construction BMPs to limit sediment from entering the receiving waters.	into place to mitigate turbid conditions.
PAHs & PCBs	White Creek Ennis Creek Ocean 13 (Old Rayonier Mill Basin)	PCBs within the City are likely from the Rayonier Mill, which is no longer in operation. An increase in impervious surface is not expected to increase levels of PCBs. An increase in impervious surface through roads may increase PAHs (US EPA, 2016).	Yes, PAHs may be addressed through development standards that promote proper water quality treatment BMPs.	Yes, as growth occurs and development increases, proper water quality treatment BMPs can be put into place.
Mercury in Sediment	Ocean 15 (Ediz Hook Basin)	An increase in industrial development could increase mercury in sediment. (US EPA, 2016)	Yes, these sources may be addressed through development standards requiring proper industrial stormwater permits.	Yes, as growth occurs and industrial development potentially increases, proper industrial stormwater permits can be obtained.

ASSESS RELATIVE CONDITIONS AND CONTRIBUTIONS

To assess the relative conditions of each basin the work conducted as part of the Puget Sound Watershed Characterization Project (PSWCP) was first reviewed. This project previously assessed the degradation conditions and level of importance for each receiving water and designated one of the following categories: protection, restoration, conservation, and/or development. The PSWCP designations can be found in the Receiving Water Conditions Assessment Table, provided in Attachment 3. With the data collected as part of the Receiving Waters Conditions Assessment, these designations were re-evaluated. Level of degradation was determined based on the following information:

- 303(d) listings
- Percent impervious surface
- No drift, if applicable

Using this data, each receiving water received a rating between medium and high. The receiving waters with the highest level of degradation were Peabody Creek, Ocean 13 (Old Rayonier Mill Basin), and Ocean 15 (Ediz Hook Basin).

The level of importance for each receiving water was determined based on the following information:

- Aquatic life use
- Species with documented presence

Using this data, each receiving waters also received a rating between medium and high. The receiving waters with the highest level of importance were Dry Creek, Tumwater Creek, Valley Creek, and Ennis Creek.

The preliminary assessment of relative levels of degradation and importance was presented to the City's interdepartmental Stormwater Permit Coordination and Planning Group (SWPCPG) and feedback was incorporated into the final report. Once finalized, the 2016 Building Cities in the Rain's (BCitR) Management Matrix for Restoration and Protection was used to categorize each receiving water. Chapter 4.2 of BCitR emphasizes focusing stormwater investments on receiving waters categorized as protection or restoration. The following receiving waters within the City fall into one of these two categories:

Protection

- White Creek

Restoration

- Dry Creek
- Tumwater Creek
- Valley
- Peabody Creek
- Ennis Creek

A summary of the classification results is provided in the Receiving Water Conditions Assessment Table, provided in Attachment 3.

Planned and Expected Future Land Uses

Planned and expected future land use changes were assessed as part of the Receiving Water Conditions Assessment. Based on discussions with the City, no major zoning changes are anticipated that would impact land cover within the City. A full build out analysis was performed to determine the percent

increase of impervious surface throughout each basin. This was conducted by assuming the maximum impervious surface, based on City zoning code, occupied by each parcel within the City. The percent increase of impervious surface ranged from 0 – 1 percent in basins currently built out, such as Ocean 11 (Ferry Terminal Basin) and Ocean 12 (Hollywood Beach Basin), to a high of 40 percent in the Dry Creek Basin. In the full build out condition, impervious surface will cover 39 – 85 percent of each basin. An increase in impervious surface can contribute to higher stormwater runoff volumes, greater sediment yields, and increased pollutant loads. While development within the City falls under the City’s Stormwater Management Program, which requires consideration and management of stormwater runoff during development, only larger projects will trigger water quality treatment and flow control requirements. Smaller projects, which are inherently less impactful, yet also more prevalent, are required to implement LID techniques; however, the City’s predominant soil type, Clallam Gravely Sandy Loam, has very poor infiltration rates with a high seasonal groundwater table. This often results in onsite stormwater management being infeasible. Therefore, despite current City and State development standards, BMP options may be limited in order to protect receiving waters. The City’s Stormwater Management Program is continually being upgraded and improved with new and creative techniques proven to be locally effective and beneficial. For example, while infiltration may not be feasible due to the soils and small lot sizes, an incentive program for stormwater cisterns is currently being developed to help mitigate flow rates in downstream receiving waters during peak storm events.

Proposed Protection and Restoration Goals

Protection and restoration goals will be considered for each basin given a protection or restoration designation, as defined in BCiTR. For basins with protection designations, protection goals may include land management actions such as preserving the riparian buffers, installing flow control and water quality controls as development occurs, and promoting proper construction BMPs during development, especially for erosion control. For basins with restoration designations, restoration goals may include installing water quality and flow control facilities where needed in areas of existing development, increasing vegetation and tree cover density within stream buffers, prioritizing retrofit projects involving infiltration and groundwater recharge (where conditions allow), disconnecting outfalls located directly in or adjacent to streams, and conducting education and outreach programs aimed to decrease sources of bacteria, if the sources within the City can be identified.

Protection and restoration goals for each basin will be further developed in the next phase of the SMAP process – Receiving Water Prioritization.

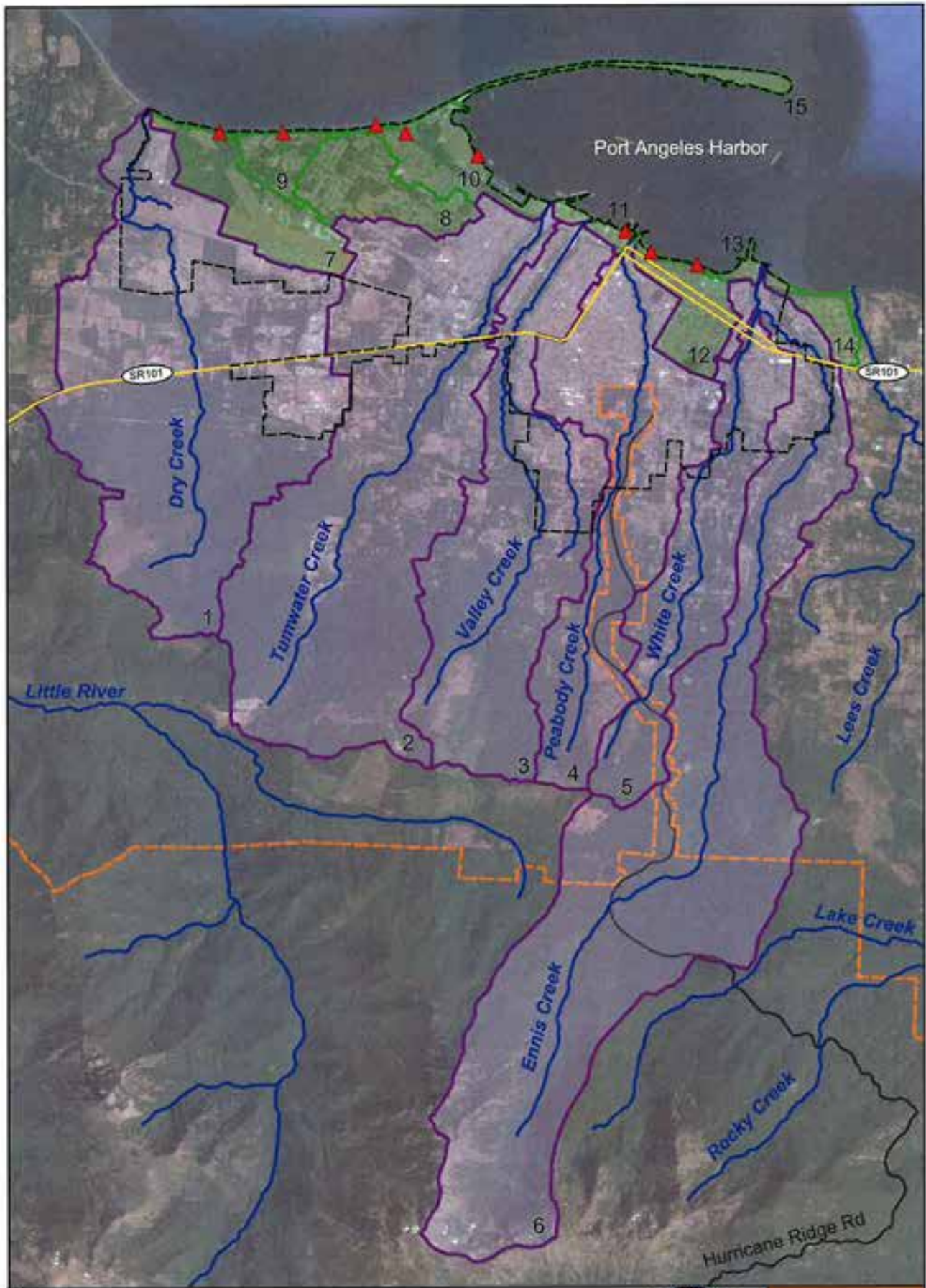
CONCLUSION / RECOMMENDATIONS

By completing the four steps outlined as part of the Receiving Water Conditions Assessment, a candidate list of receiving waters and basins was developed. Though this assessment it was determined all receiving waters and basins within the City were considered to have relatively high expected Stormwater Management Influence for SMAP. With a relative uniform land use distribution throughout the City, these results were expected. The receiving waters within the City provide habitat for several fish species and are important to the community for recreational, domestic, and agricultural purposes. Due to the rural lifestyle, the environmental impacts, while still present, are less than what would be expected in a highly urbanized area. For these reasons, all receiving waters and basins within the City will be considered in the Receiving Water Prioritization process.

REFERENCES

- US EPA. (1999, August). *Preliminary Data Summary of Urban Storm Water Best Management Practices*. Retrieved from https://www3.epa.gov/npdes/pubs/usw_b.pdf
- US EPA. (2012, March 6). *5.2 Dissolved Oxygen and Biochemical Oxygen Demand*. Retrieved from Water: Monitoring & Assessment: <https://archive.epa.gov/water/archive/web/html/vms52.html#:~:text=Biochemical%20oxygen%20demand%2C%20or%20BOD,from%20water%20via%20chemical%20reaction>).
- US EPA. (2012, March 6). *5.3 Temperature*. Retrieved from Monitoring & Assessment: <https://archive.epa.gov/water/archive/web/html/vms53.html>
- US EPA. (2012, March 6). *5.5 Turbidity*. Retrieved from Monitoring & Assessment: <https://archive.epa.gov/water/archive/web/html/vms55.html#:~:text=Turbidity%20often%20increases%20sharply%20during,rates%20of%20streambanks%20and%20channels>.
- US EPA. (2016, January). *Coal-Tar Sealcoat, Polycyclic Aromatic Hydrocarbons, and Stormwater Pollution*. Retrieved from Stormwater Best Management Practices: https://19january2017snapshot.epa.gov/sites/production/files/2016-01/documents/sw_bmp_coal-tar_sealcoat-jan_16_508.pdf
- US EPA. (2016, February 20). *EPAs Roadmap for Mercury*. Retrieved from <https://archive.epa.gov/mercury/archive/web/html/executivesummary.html>
- Washington State Department of Ecology. (n.d.). *Monitoring Bacteria in Puget Sound*. Retrieved from <https://ecology.wa.gov/Water-Shorelines/Puget-Sound/Issues-problems/Bacteria>
- Washington State Department of Ecology Water Quality Program. (2019, July). *Stormwater Management Manual for Western Washington*. Retrieved from Department of Ecology - Stormwater Manuals: <https://apps.ecology.wa.gov/publications/documents/1910021.pdf>
- World Population Review. (2022, March 23). Retrieved from Port Angeles, Washington Population 2022: <https://worldpopulationreview.com/us-cities/port-angeles-wa-population>
- World Population Review. (2022, 3 23). Retrieved from United States Population 2022 (Demographics, Maps, Graphs): <https://worldpopulationreview.com/countries/united-states-population>

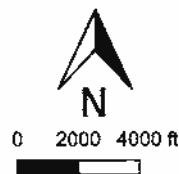
ATTACHMENT 1 - MAPS



Port Angeles Basin Delineations

Legend

- | | |
|--------------------------------|--------------------------|
| Freshwater Basin | Waterbody |
| Saltwater Basin | State Route 101 |
| Port Angeles City Boundary | Saltwater Basin Outfalls |
| Olympic National Park Boundary | Basin ID |

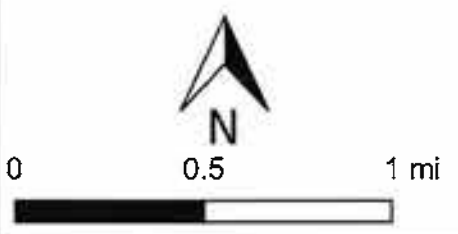


**OSBORN
CONSULTING
INCORPORATED**

Existing Critical Areas Within the City of Port Angeles

Legend

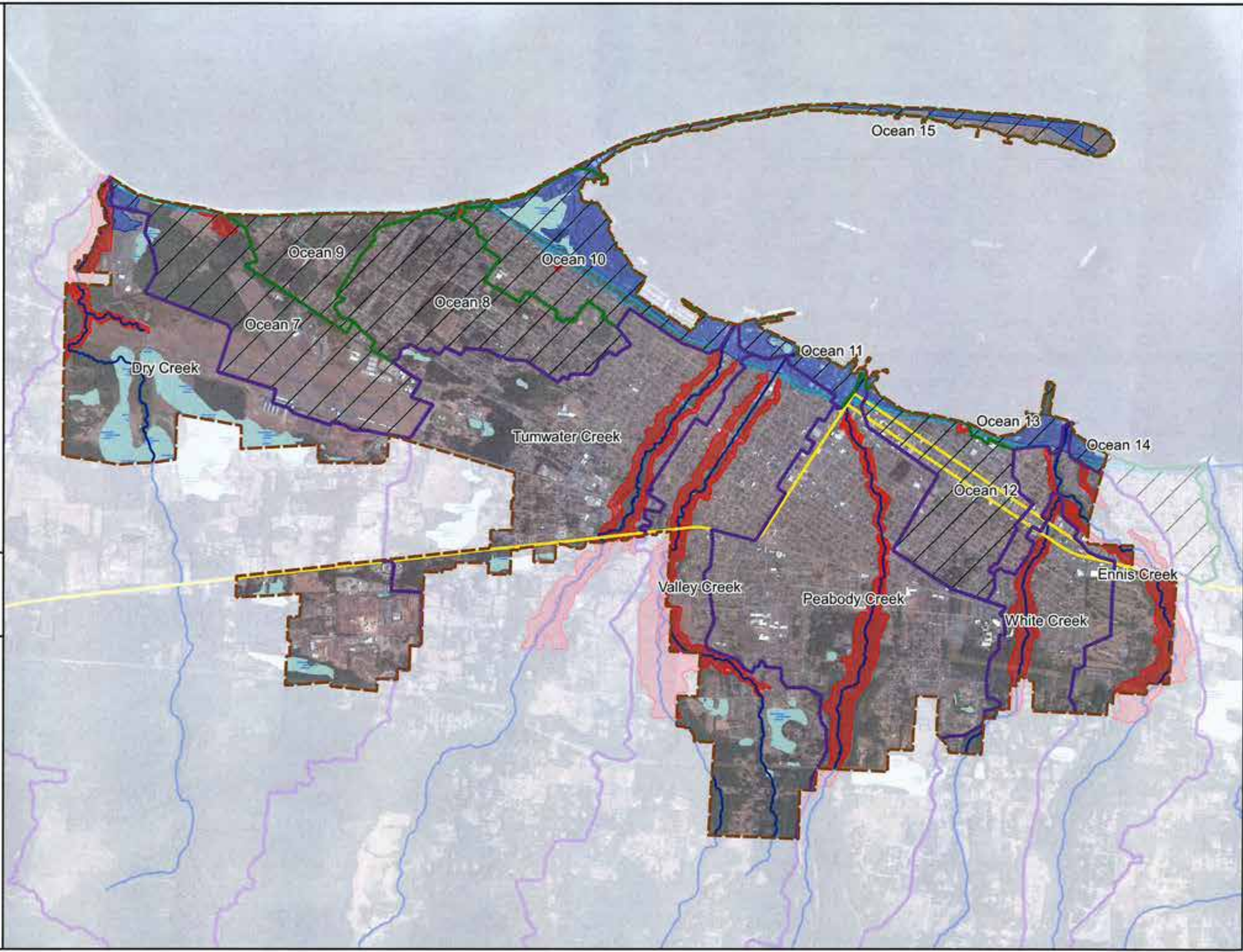
- Port Angeles City Boundary
- Freshwater Basin Boundary
- Saltwater Basin Boundary
- Beaches and Coastal Areas
- Marine Bluffs
- Ravine
- Wetland
- Waterbody
- State Route 101



City of Port Angeles
02/23/2022
Critical areas data developed by the City
of Port Angeles, n.d.



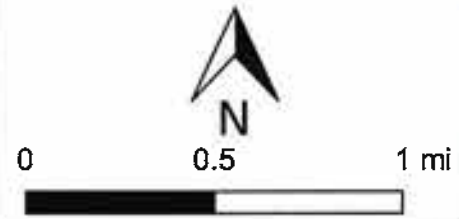
**OSBORN
CONSULTING
INCORPORATED**



Existing Hydrologic Soil Group Within the City of Port Angeles

Legend

- A
- B
- B/D
- C
- C/D
- D
- N/A
- Freshwater Basin Boundary
- Saltwater Basin Boundary
- City Boundary copy copy
- Waterbody
- State Route 101

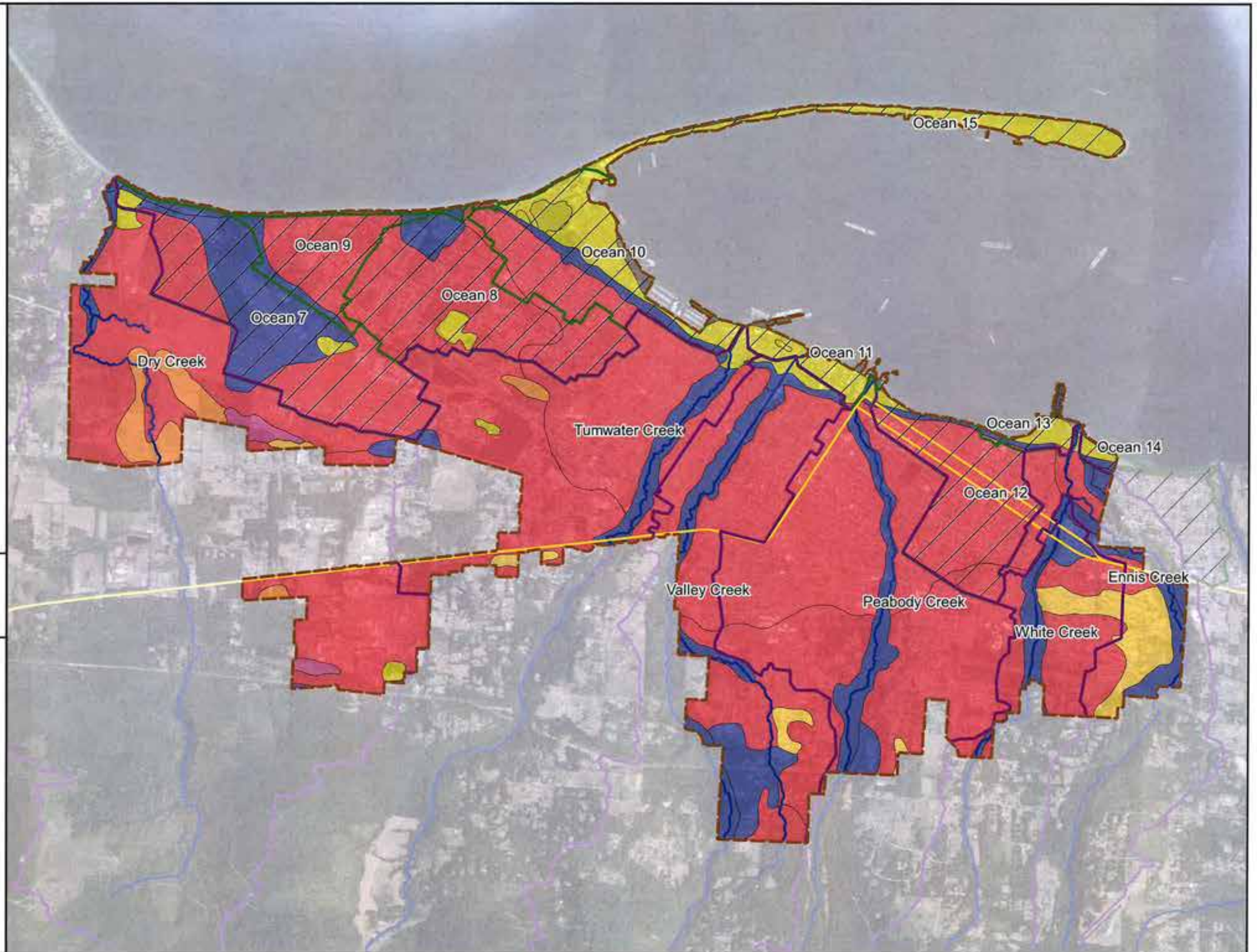


City of Port Angeles
02/23/2022

Soils data developed by USDA's Web Soil Survey, 2022.



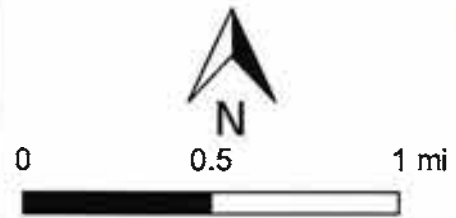
**OSBORN
CONSULTING
INCORPORATED**



Existing Land Cover Within the City of Port Angeles

Legend

- Barren Land
- Developed Land
- Forest
- Open Water
- Pasture
- Wetland
- Freshwater Basin Boundary
- Saltwater Basin Boundary
- City Boundary copy copy
- Waterbody
- State Route 101

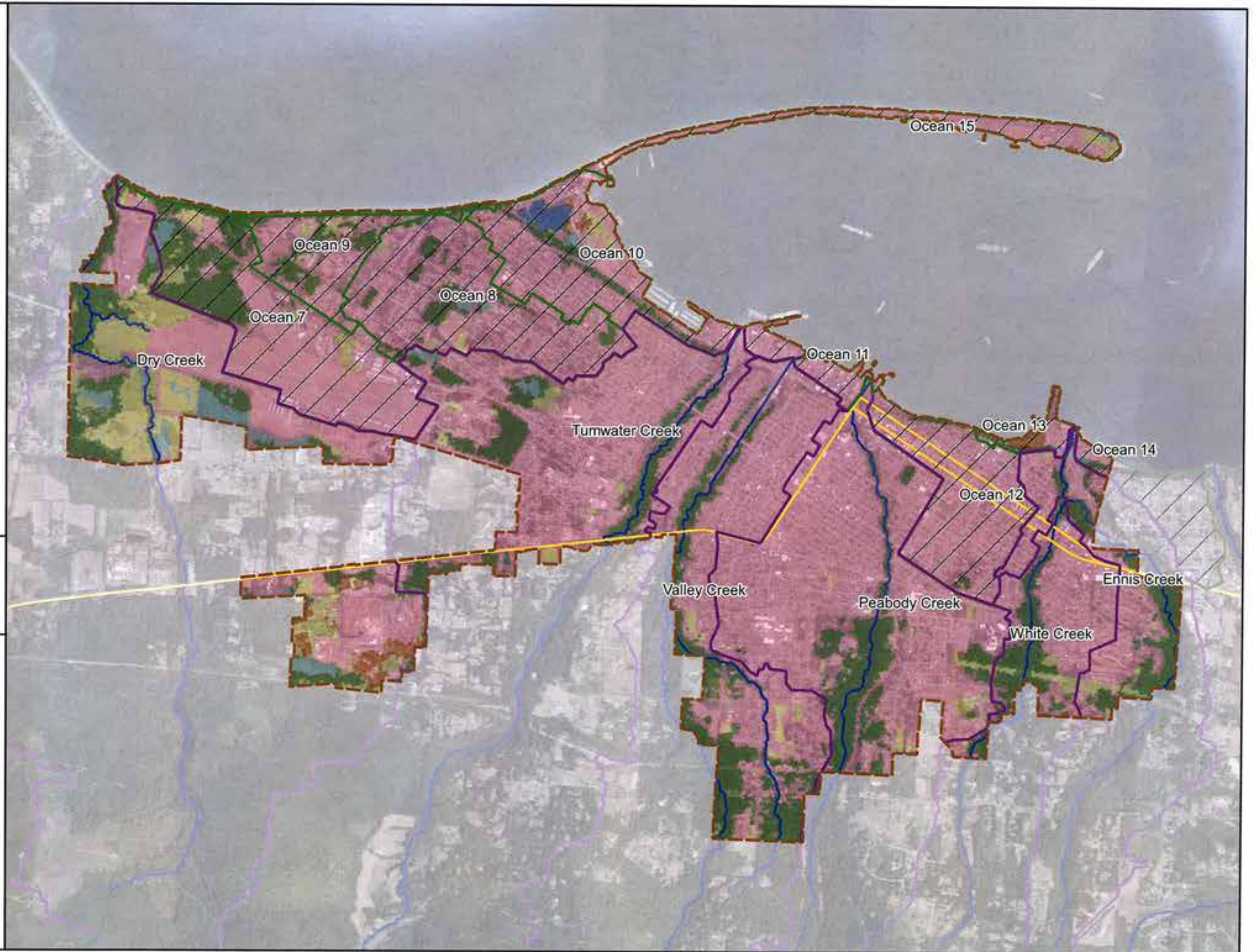


City of Port Angeles
02/23/2022

Land Cover data developed by Multi-
Resolution Land Characteristics
Consortium, 2019.



**OSBORN
CONSULTING
INCORPORATED**



Existing Land Zoning Within the City of Port Angeles

Legend

- Commercial
- High Density Residential
- Industrial
- Medium Density Residential
- Parks and Public Buildings
- Single Family Residential
- Roads
- Freshwater Basin Boundary
- Saltwater Basin Boundary
- Port Angeles City Boundary
- Waterbody
- State Route 101

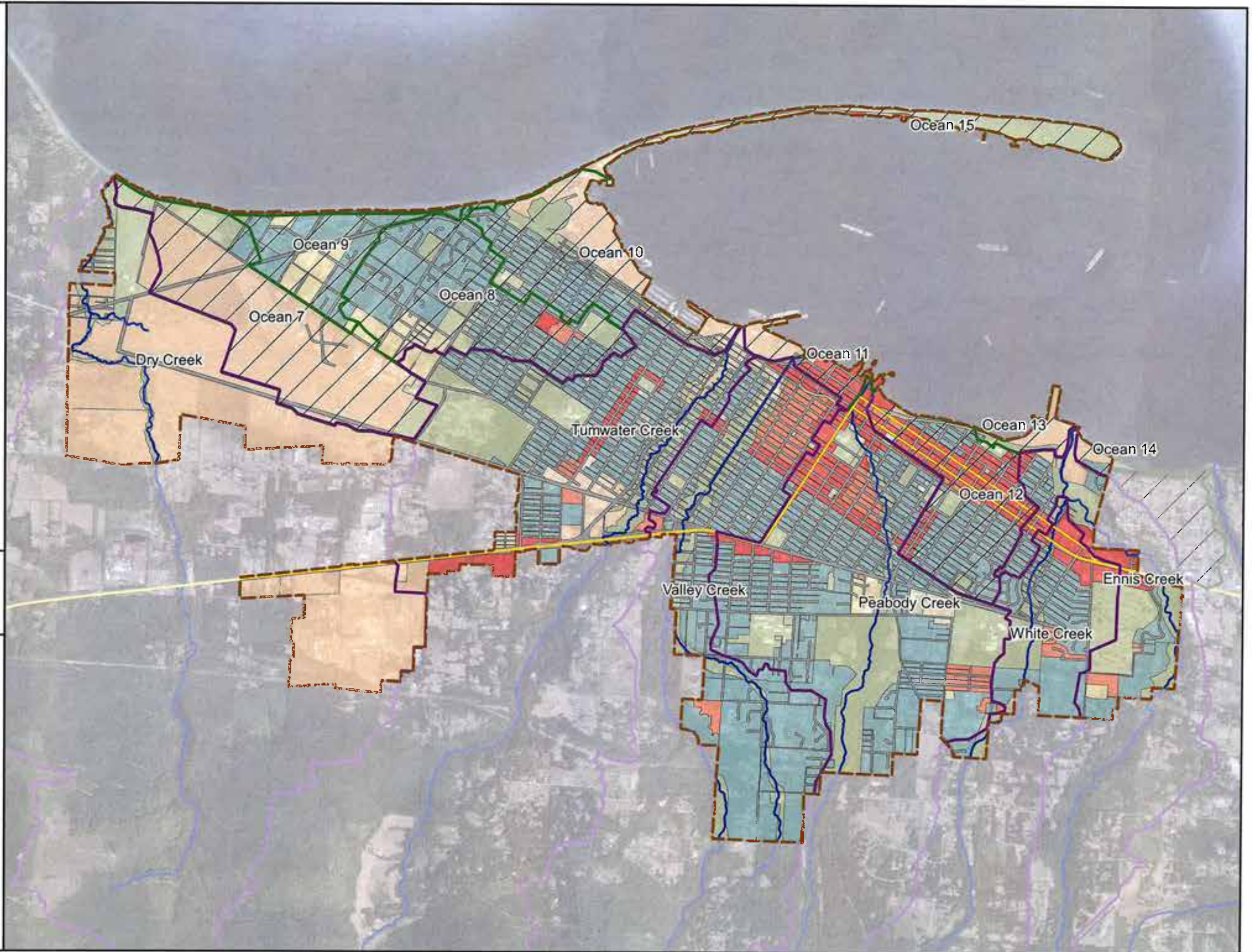


City of Port Angeles
02/23/2022

Land Zoning data provided by the City of
Port Angeles.



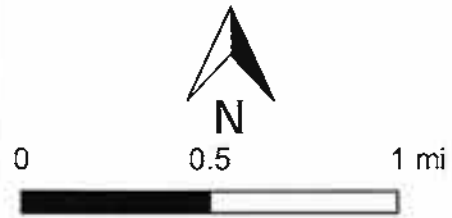
**OSBORN
CONSULTING
INCORPORATED**



Existing Topography Within the City of Port Angeles

Legend

- 10' Contours
- Freshwater Basin Boundary
- Saltwater Basin Boundary
- Port Angeles City Boundary
- Waterbody
- State Route 101



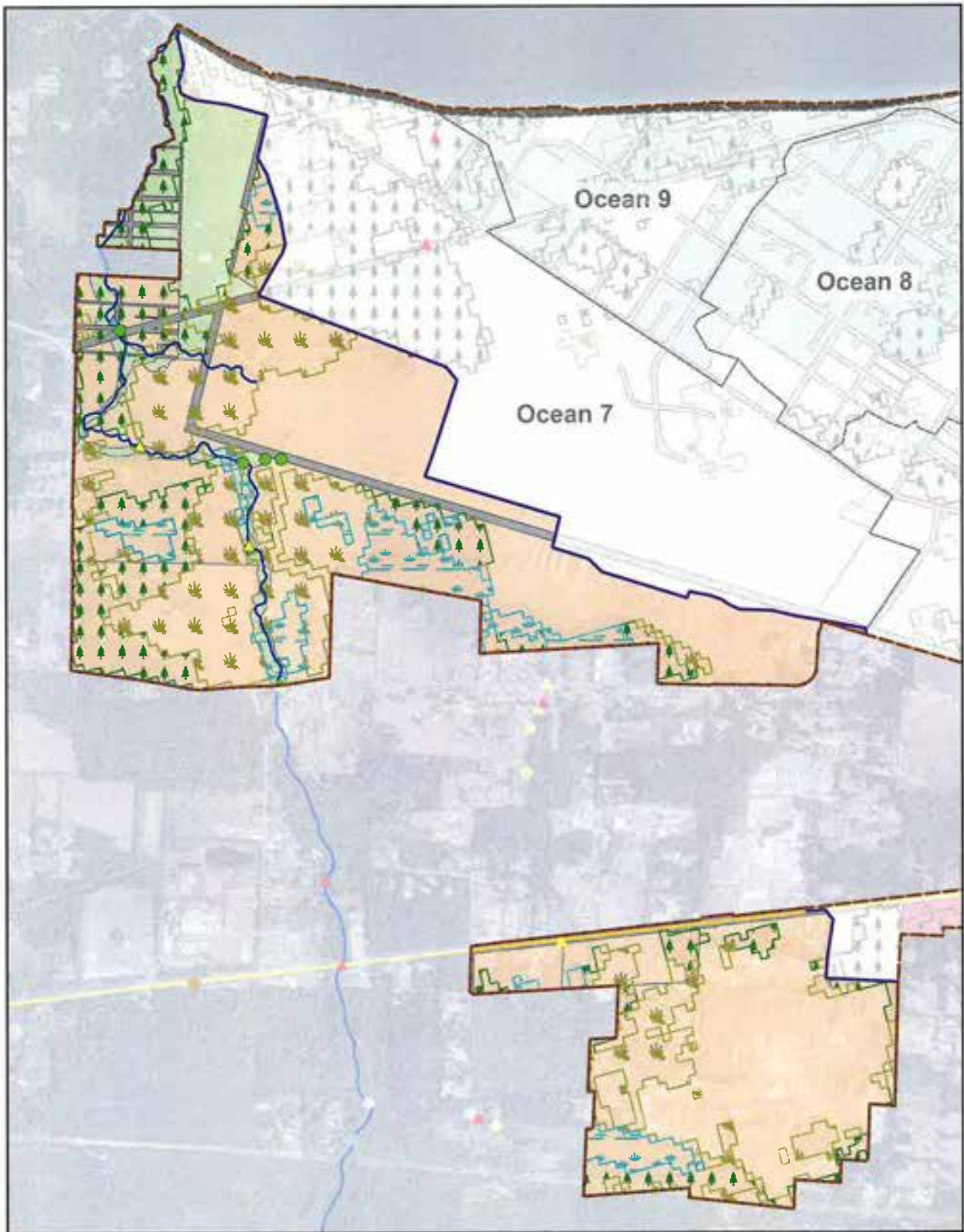
City of Port Angeles
02/23/2022

10-ft Contour Data developed by Clallam
County, n.d.



**OSBORN
CONSULTING
INCORPORATED**

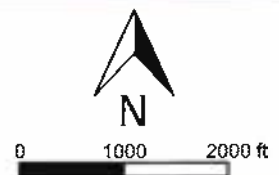




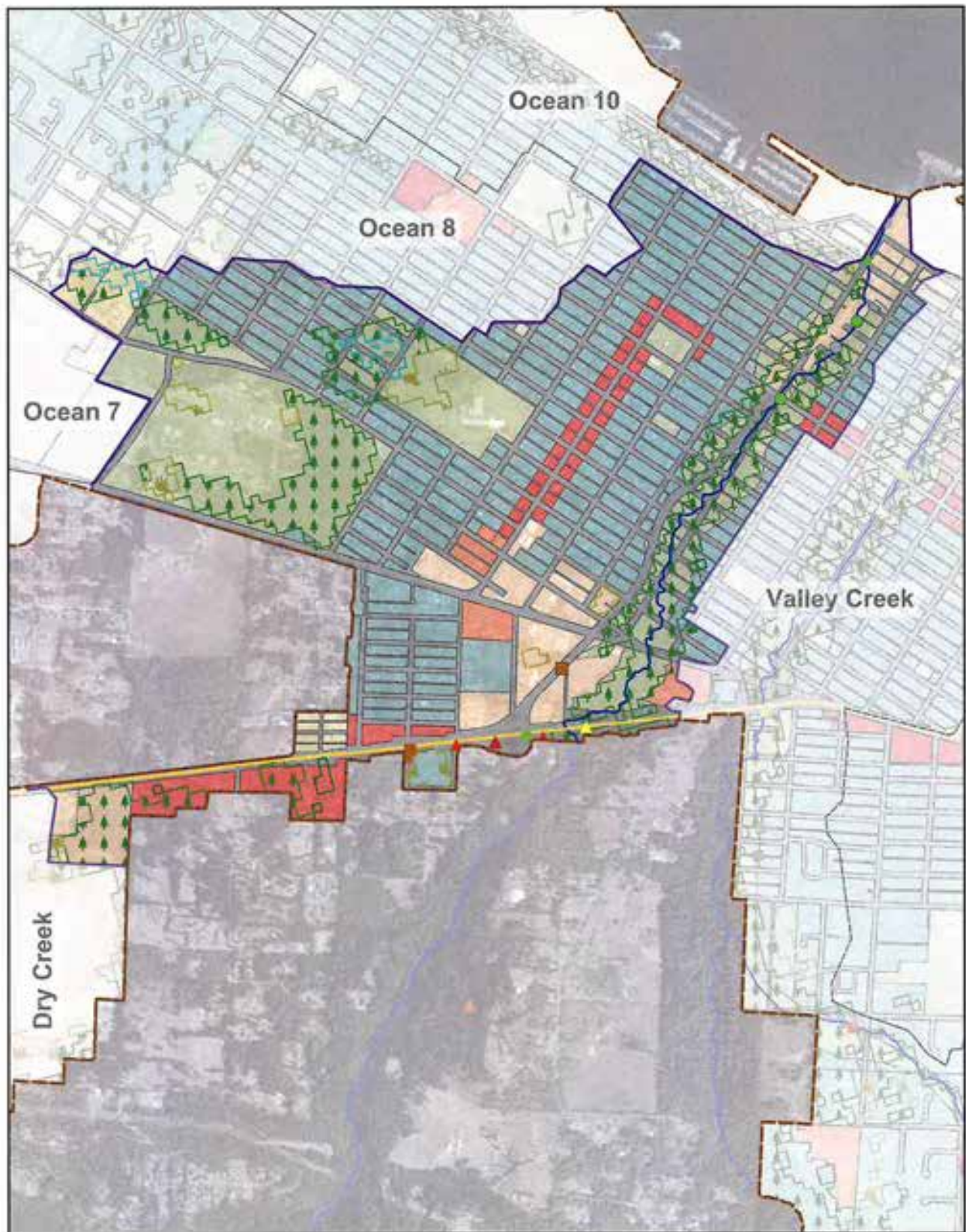
Port Angeles Basin Delineations - Dry Creek

Legend

- | | | |
|-------------------------------|----------------------------|-------------------|
| Freshwater Basin Boundary | State Route 101 | Land Cover |
| Neighboring Basin Boundary | Waterbody | Forest |
| Port Angeles City Boundary | Land Zoning | Pasture |
| Fish Passage | Industrial | Wetland |
| Not a Barrier | Parks and Public Buildings | |
| Partial Fish Passage Blockage | Roads | |
| Natural Barrier | | |



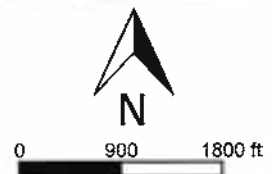
OSBORN
CONSULTING
INCORPORATED



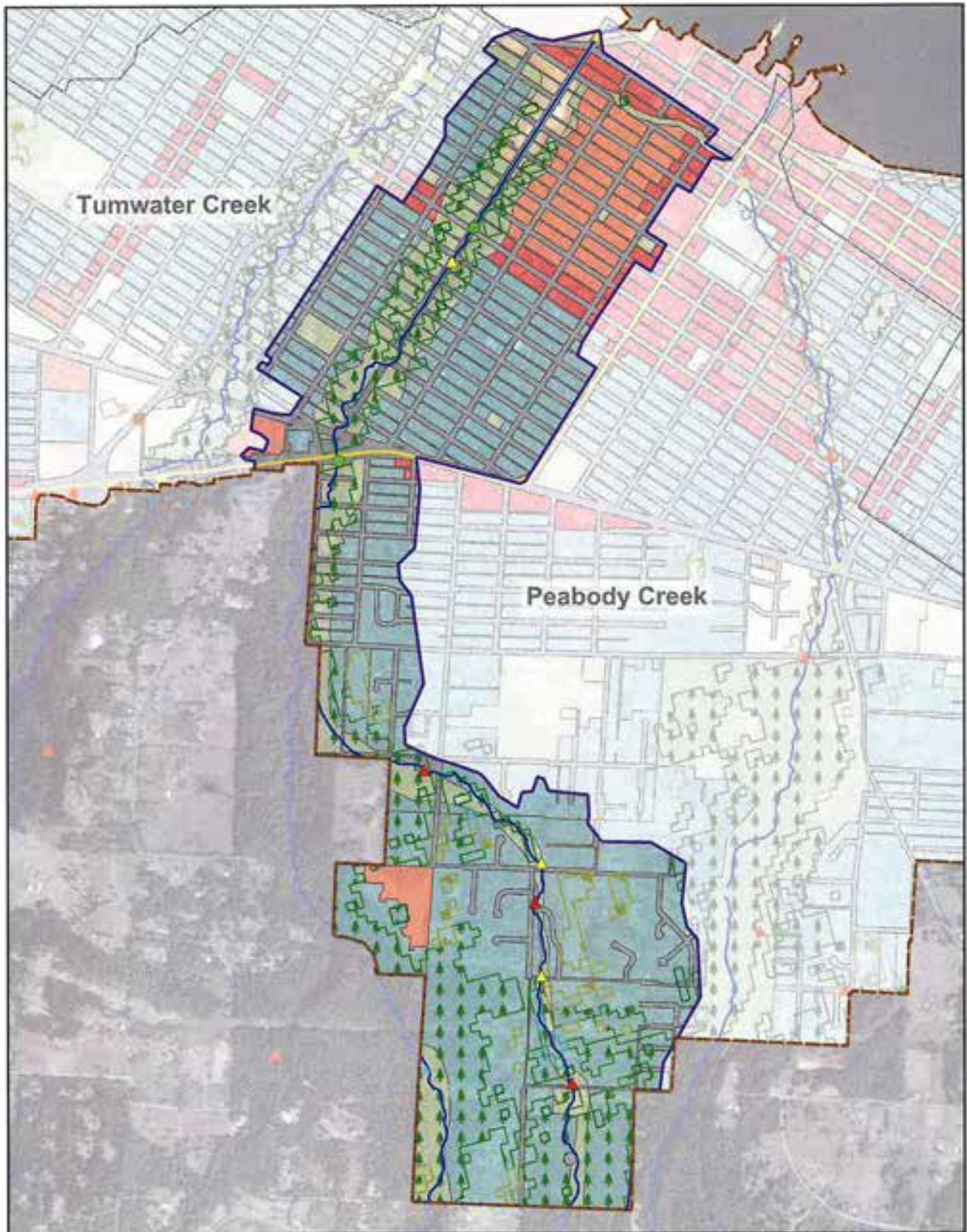
Port Angeles Basin Delineations - Tumwater Creek

Legend

- | | | |
|-------------------------------|----------------------------|-------------------|
| Freshwater Basin Boundary | State Route 101 | Land Cover |
| Neighboring Basin Boundary | Waterbody | Forest |
| Port Angeles City Boundary | Land Zoning | Pasture |
| Fish Passage | Commercial | Wetland |
| Not a Barrier | High Density Residential | |
| Total Fish Passage Blockage | Industrial | |
| Partial Fish Passage Blockage | Medium Density Residential | |
| On a Non-Fish Bearing Stream | Parks and Public Buildings | |
| Unknown | Single Family Residential | |
| | Roads | |



OSBORN
CONSULTING
INCORPORATED



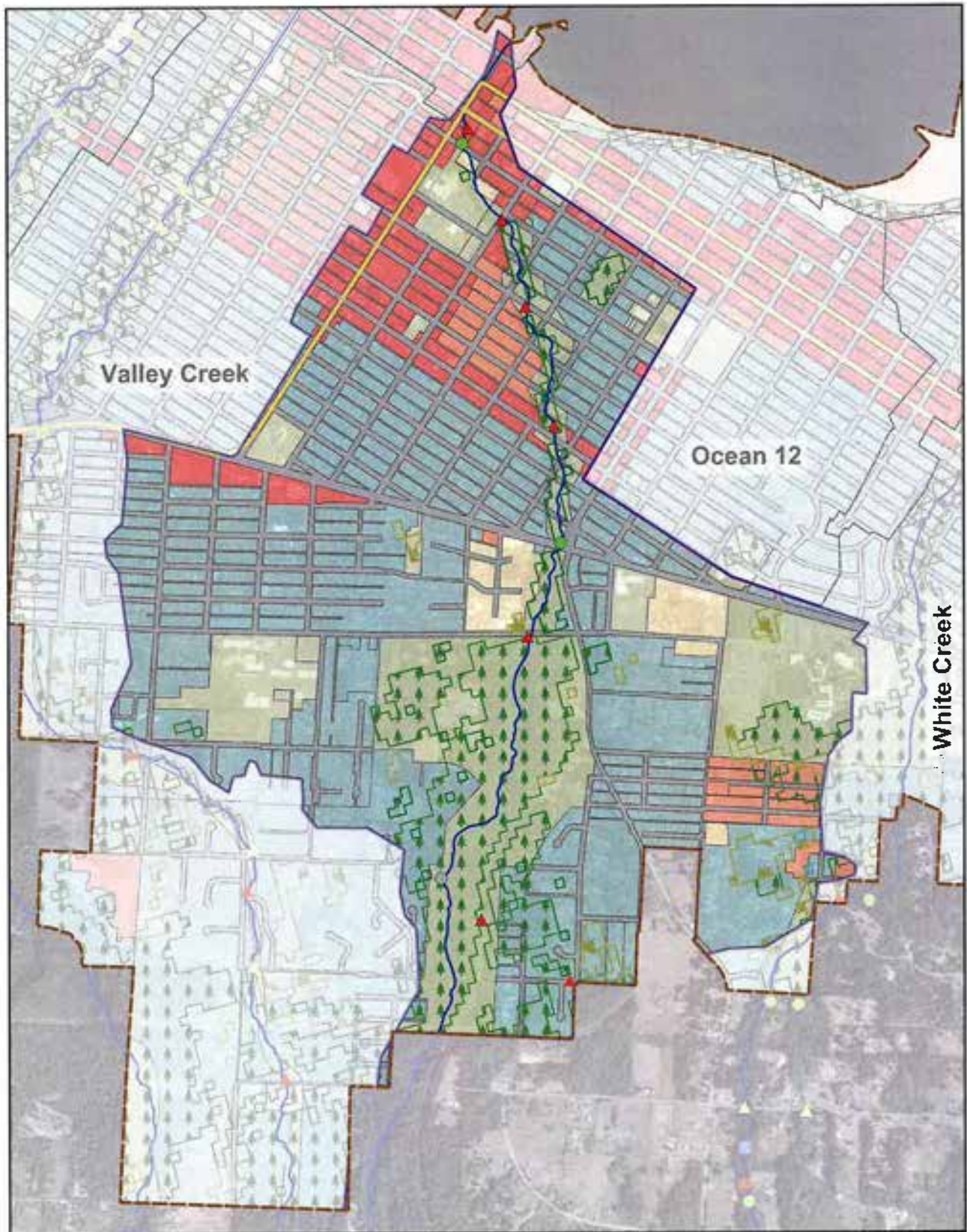
Port Angeles Basin Delineations - Valley Creek

Legend

- | | | |
|-------------------------------|----------------------------|------------|
| Freshwater Basin Boundary | State Route 101 | Land Cover |
| Neighboring Basin Boundary | Waterbody | Forest |
| Port Angeles City Boundary | Land Zoning | Pasture |
| Fish Passage | Commercial | Wetland |
| Not a Barrier | High Density Residential | |
| Total Fish Passage Blockage | Industrial | |
| Partial Fish Passage Blockage | Parks and Public Buildings | |
| Natural Barrier | Single Family Residential | |
| Unknown | Roads | |

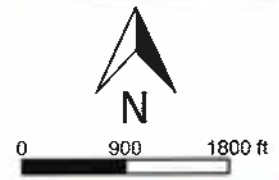


OSBORN
CONSULTING
INCORPORATED

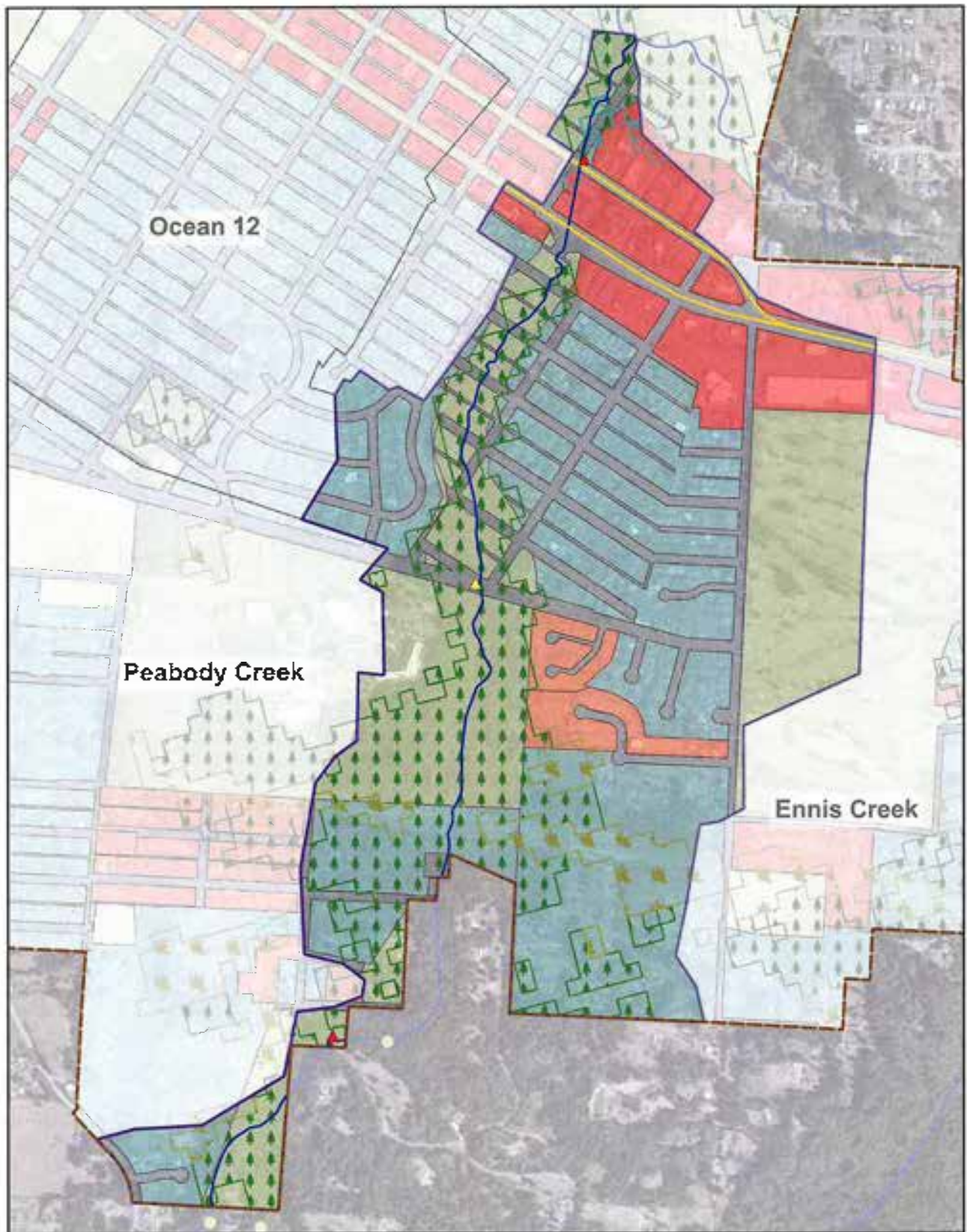


Port Angeles Basin Delineations - Peabody Creek
Legend

- | | | |
|-----------------------------|----------------------------|-------------------|
| Freshwater Basin Boundary | State Route 101 | Land Cover |
| Neighboring Basin Boundary | Waterbody | Forest |
| Port Angeles City Boundary | Land Zoning | Pasture |
| Fish Passage | Commercial | Wetland |
| Not a Barrier | High Density Residential | |
| Total Fish Passage Blockage | Medium Density Residential | |
| Unknown | Parks and Public Buildings | |
| | Single Family Residential | |
| | Roads | |



OSBORN
 CONSULTING
 INCORPORATED



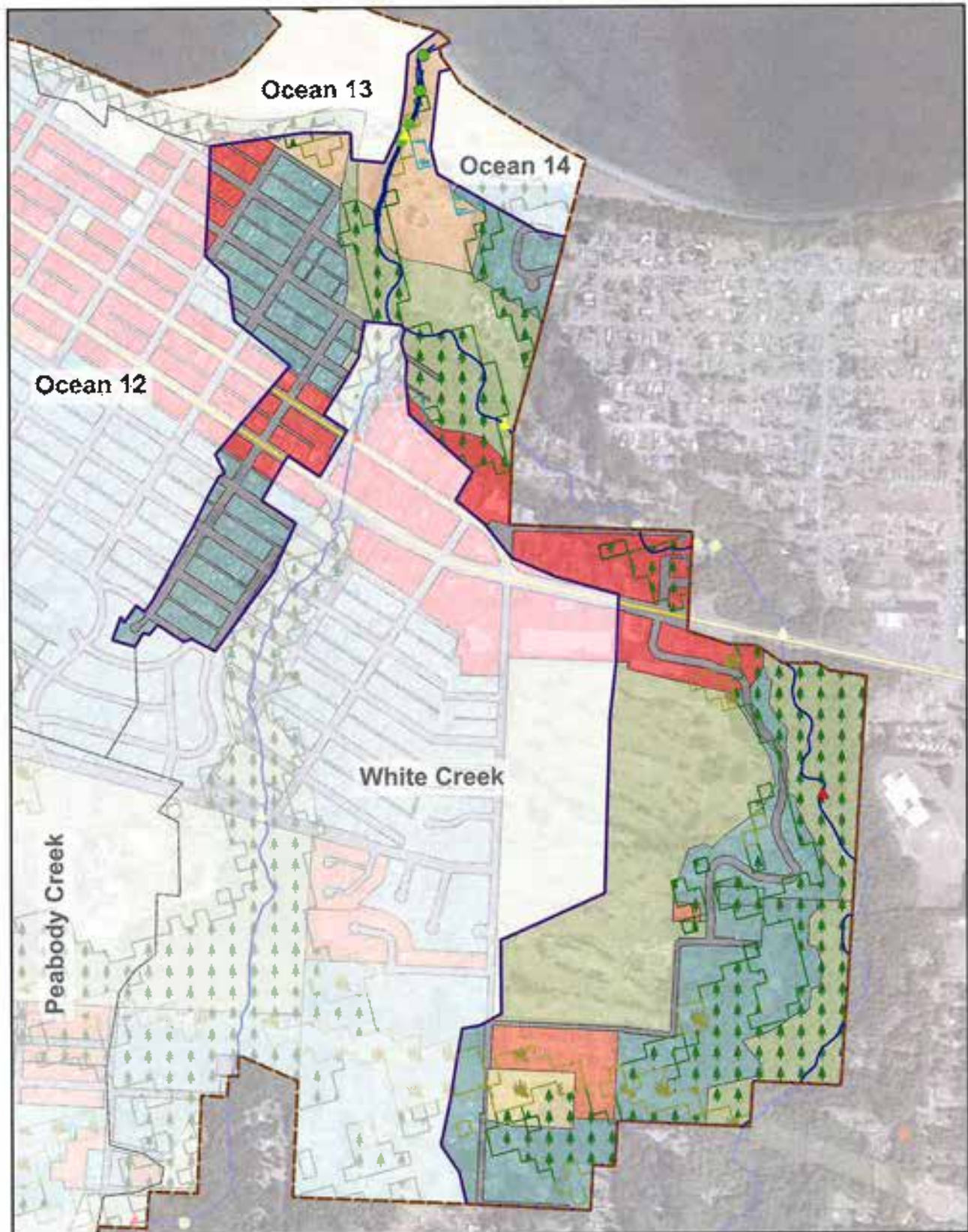
Port Angeles Basin Delineations - White Creek

Legend

- | | | |
|-------------------------------|----------------------------|---------|
| Freshwater Basin Boundary | State Route 101 | Forest |
| Neighboring Basin Boundary | Waterbody | Pasture |
| Port Angeles City Boundary | Land Zoning | Wetland |
| Fish Passage | Commercial | |
| Total Fish Passage Blockage | High Density Residential | |
| Partial Fish Passage Blockage | Parks and Public Buildings | |
| | Single Family Residential | |
| | Roads | |



OSBORN
CONSULTING
INCORPORATED



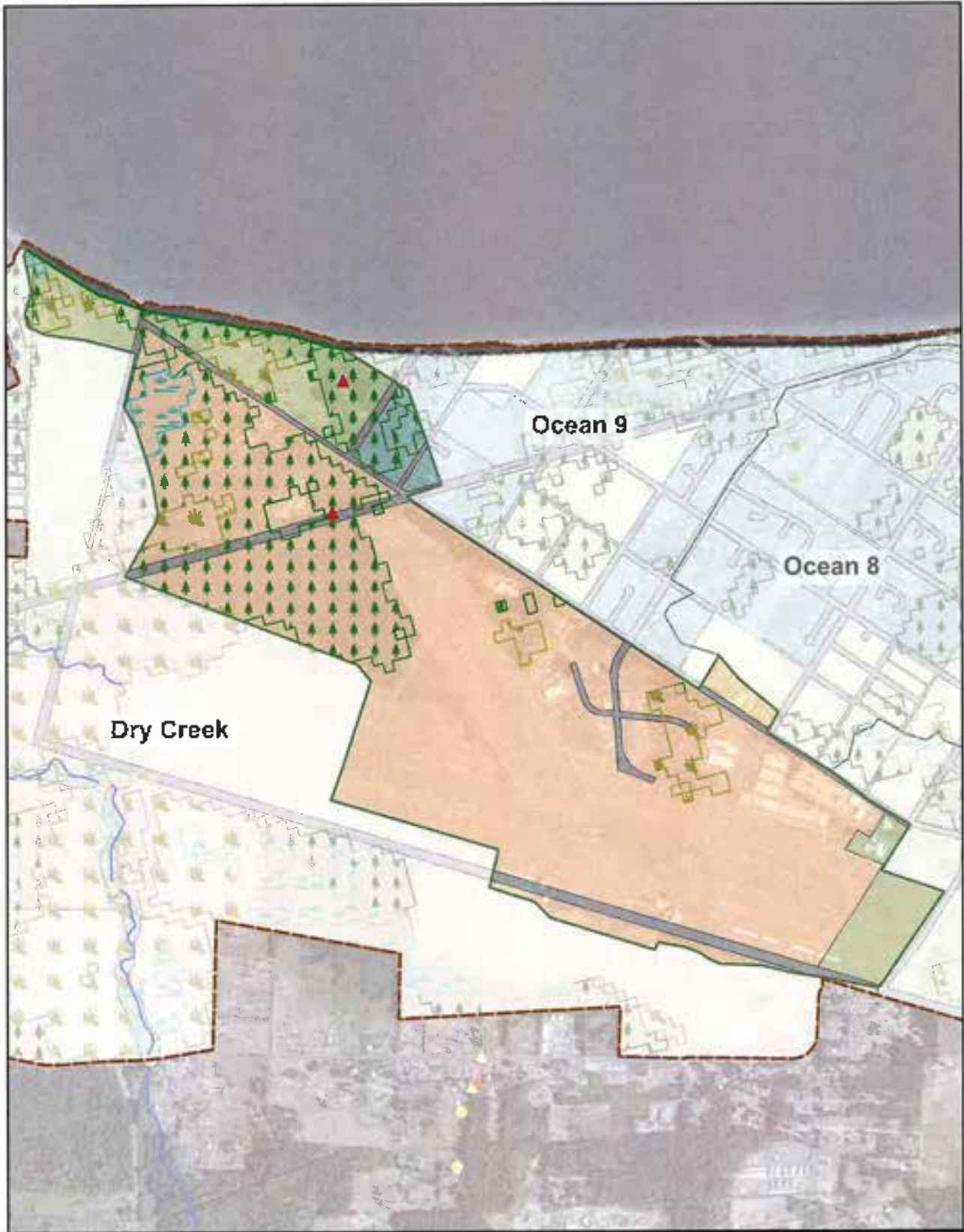
Port Angeles Basin Delineations - Ennis Creek

Legend

- | | | |
|-------------------------------|----------------------------|---------|
| Freshwater Basin Boundary | State Route 101 | Forest |
| Neighboring Basin Boundary | Waterbody | Pasture |
| Port Angeles City Boundary | Land Zoning | Wetland |
| Fish Passage | Commercial | |
| Not a Barrier | High Density Residential | |
| Total Fish Passage Blockage | Industrial | |
| Partial Fish Passage Blockage | Medium Density Residential | |
| | Parks and Public Buildings | |
| | Single Family Residential | |
| | Roads | |



OSBORN
CONSULTING
INCORPORATED



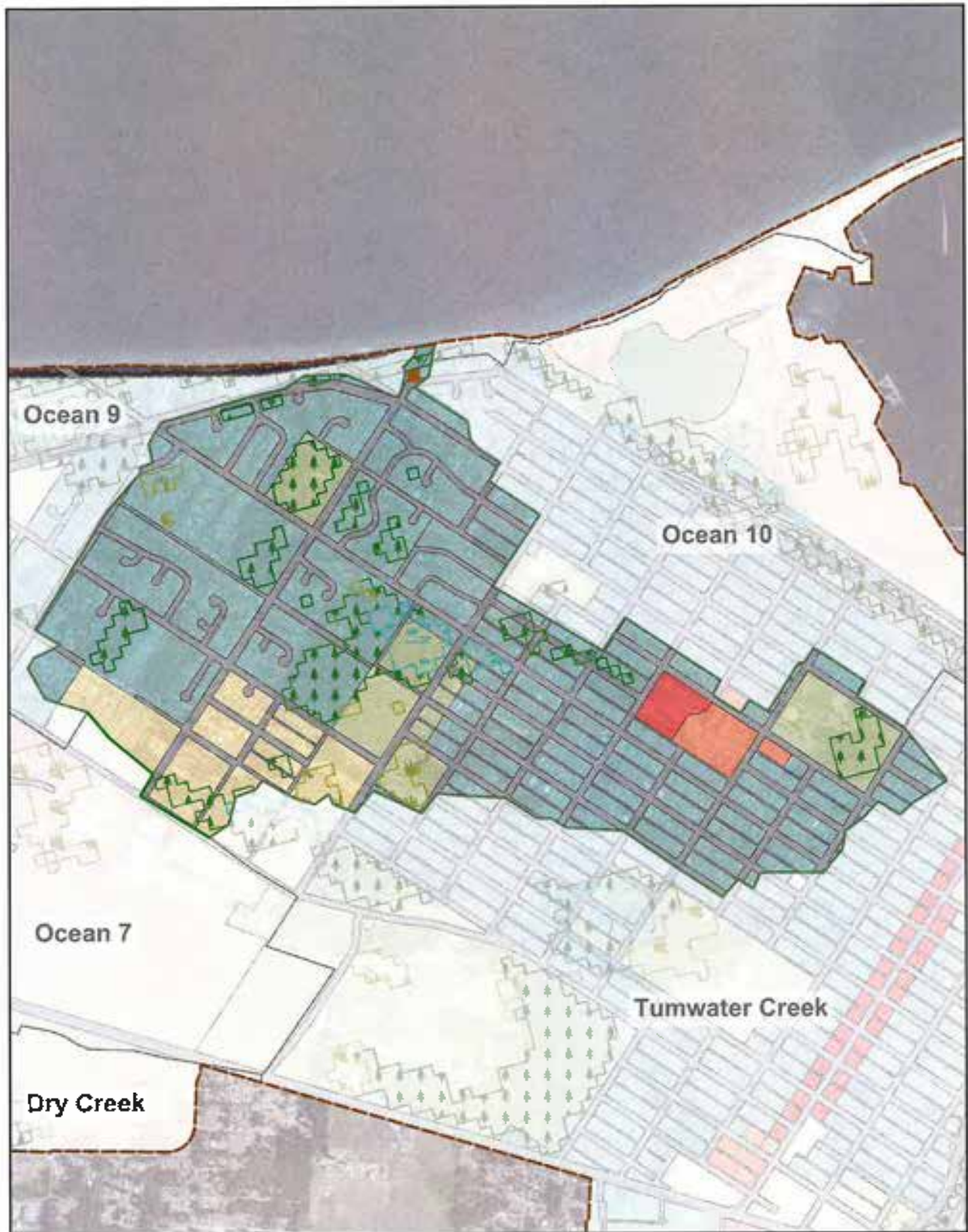
Port Angeles Basin Delineations - Ocean 7

Legend

Saltwater Basin Boundary	Land Zoning	Forest
Neighboring Basin Boundary	Industrial	Pasture
Port Angeles City Boundary	Medium Density Residential	Wetland
Fish Passage	Parks and Public Buildings	
Total Fish Passage Blockage	Single Family Residential	
	Roads	



**OSBORN
CONSULTING
INCORPORATED**



Port Angeles Basin Delineations - Ocean 8

Legend

- | | | |
|------------------------------|----------------------------|---------|
| Saltwater Basin Boundary | Land Zoning | Forest |
| Neighboring Basin Boundary | Commercial | Pasture |
| Port Angeles City Boundary | High Density Residential | Wetland |
| Fish Passage | Medium Density Residential | |
| On a Non-Fish Bearing Stream | Parks and Public Buildings | |
| | Single Family Residential | |
| | Roads | |



OSBORN
CONSULTING
INCORPORATED



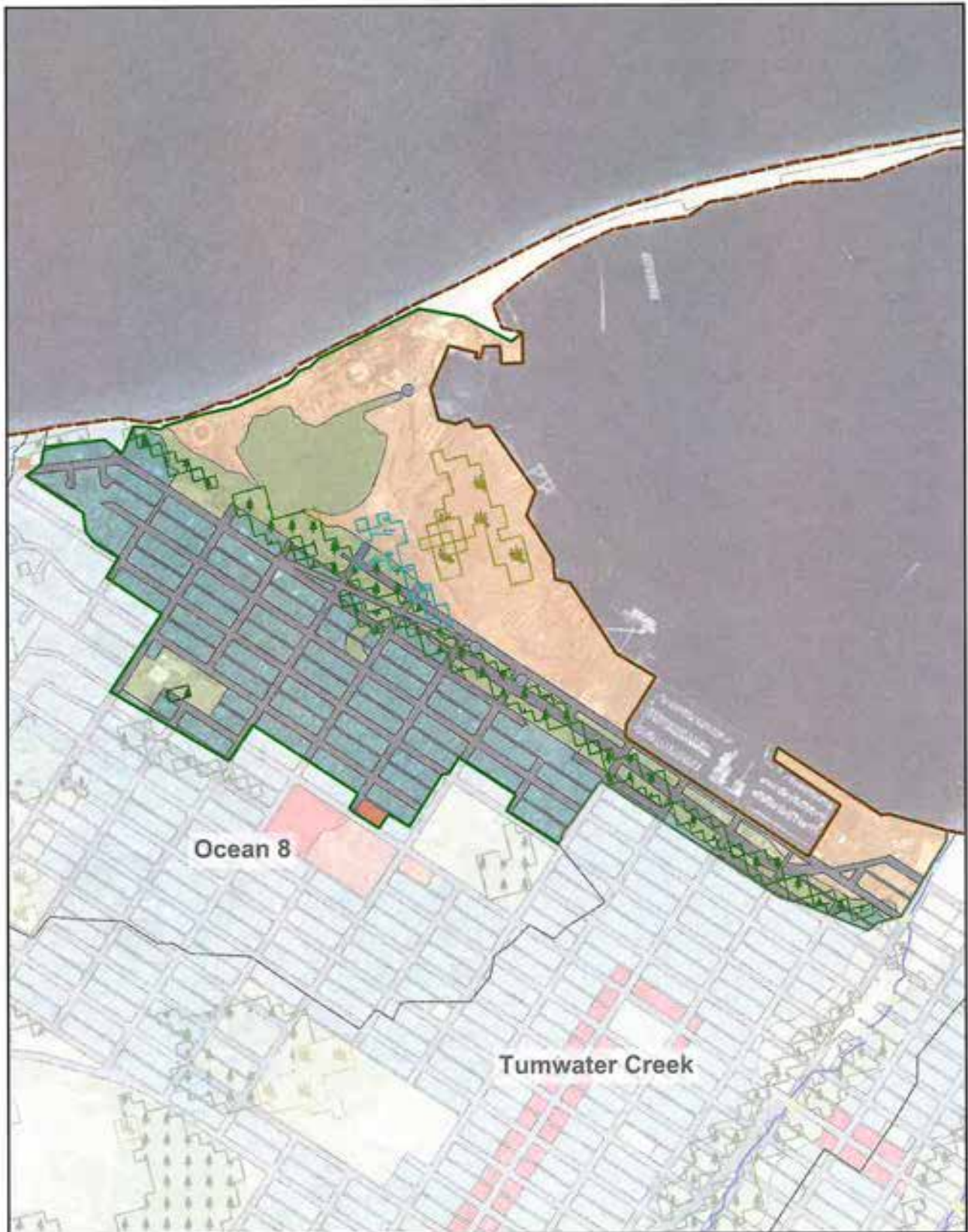
Port Angeles Basin Delineations - Ocean 9

Legend

Saltwater Basin Boundary	Land Zoning	Land Cover
Neighboring Basin Boundary	Medium Density Residential	Forest
Port Angeles City Boundary	Parks and Public Buildings	Pasture
	Single Family Residential	
	Roads	



**OSBORN
CONSULTING
INCORPORATED**



Port Angeles Basin Delineations - Ocean 10

Legend

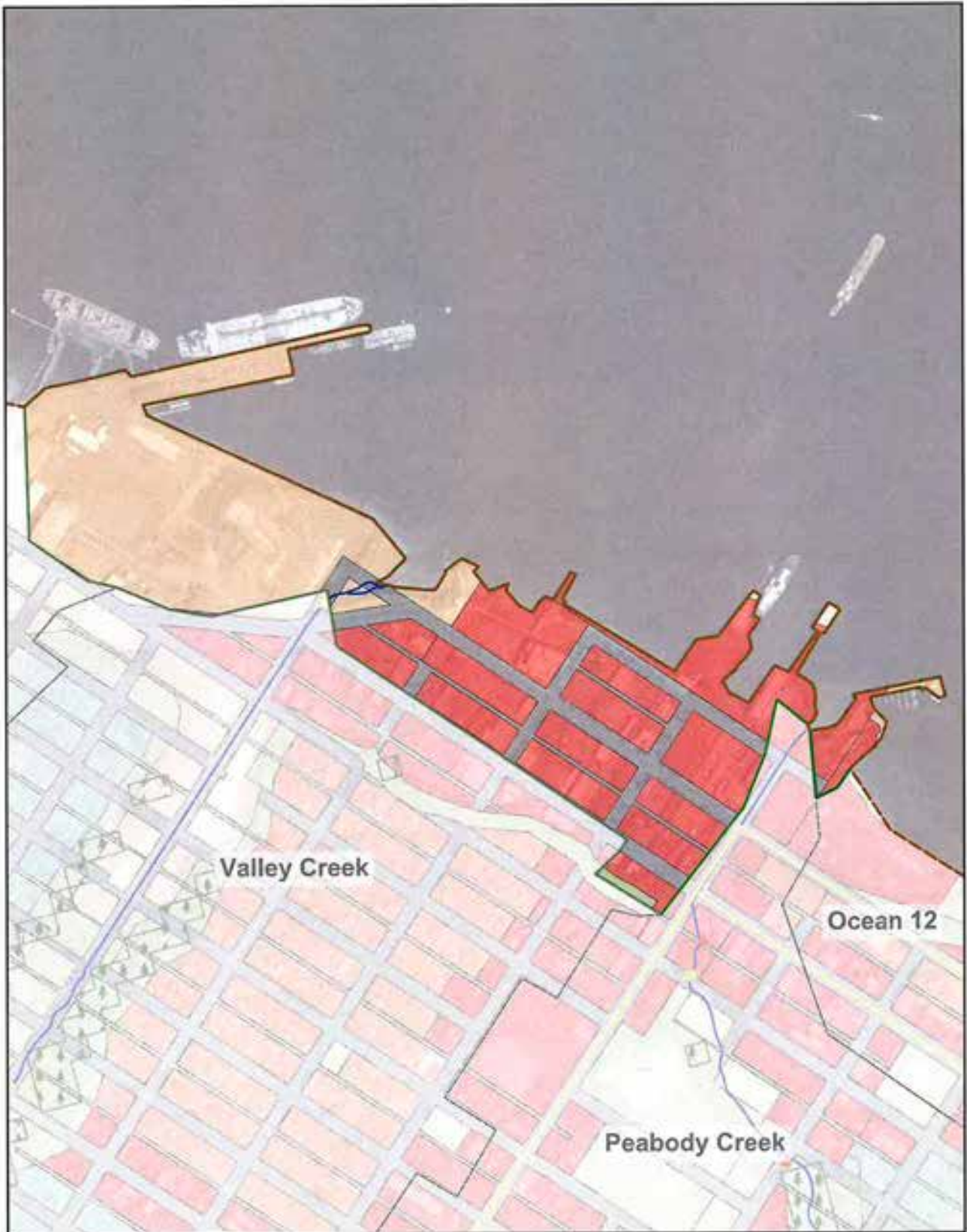
Saltwater Basin Boundary	Land Zoning	Forest
Neighboring Basin Boundary	High Density Residential	Pasture
Port Angeles City Boundary	Industrial	Wetland
Fish Passage	Parks and Public Buildings	Single Family Residential
Unknown	Roads	



0 600 1200 ft



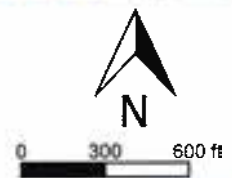
OSBORN
CONSULTING
INCORPORATED



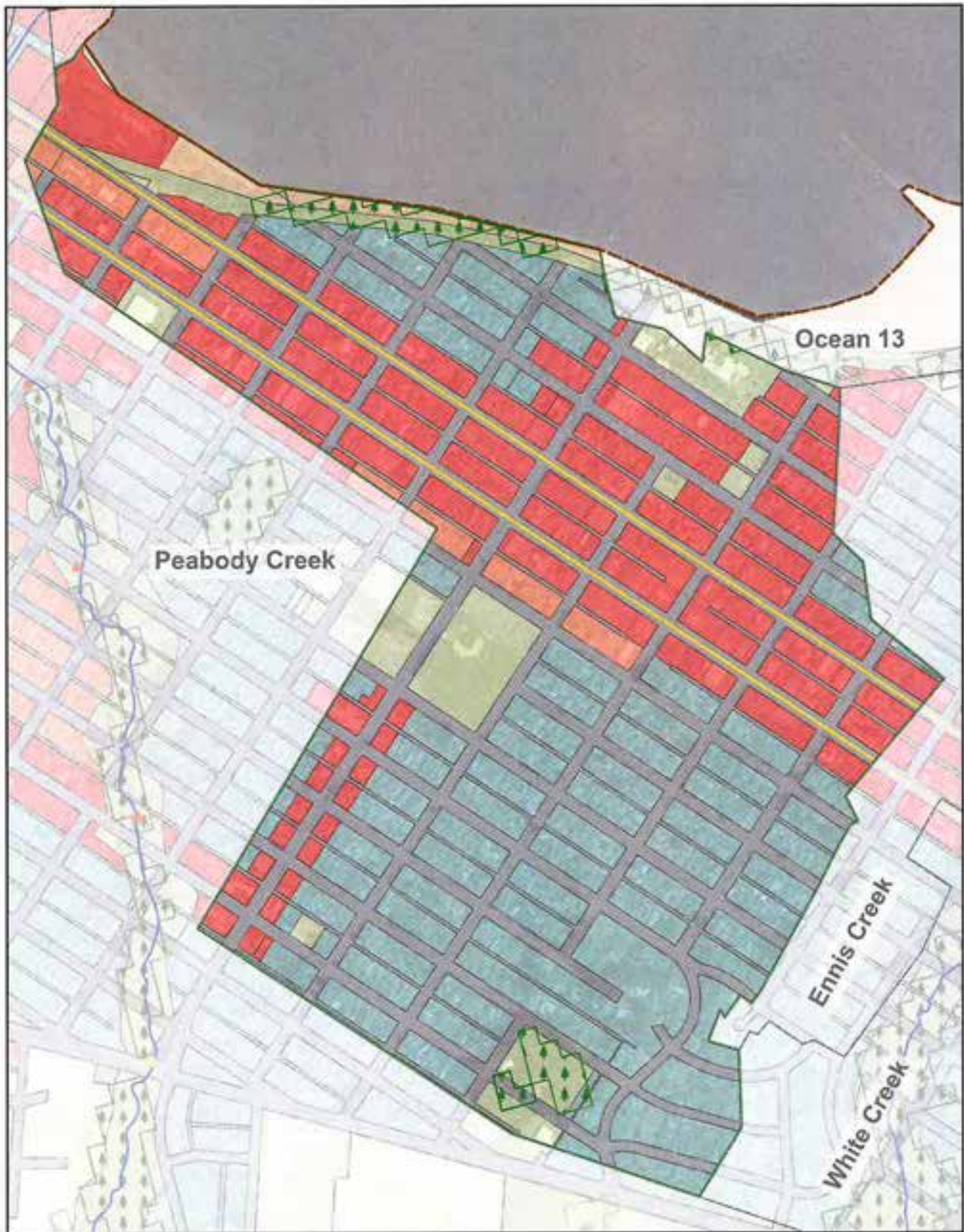
Port Angeles Basin Delineations - Ocean 11

Legend

- | | | |
|----------------------------|----------------------------|--------------------|
| Saltwater Basin Boundary | Waterbody | Land Zoning |
| Neighboring Basin Boundary | Commercial | Industrial |
| Port Angeles City Boundary | Parks and Public Buildings | Roads |



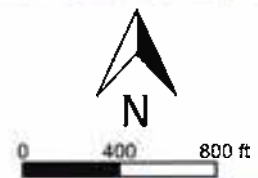
OSBORN
CONSULTING
INCORPORATED



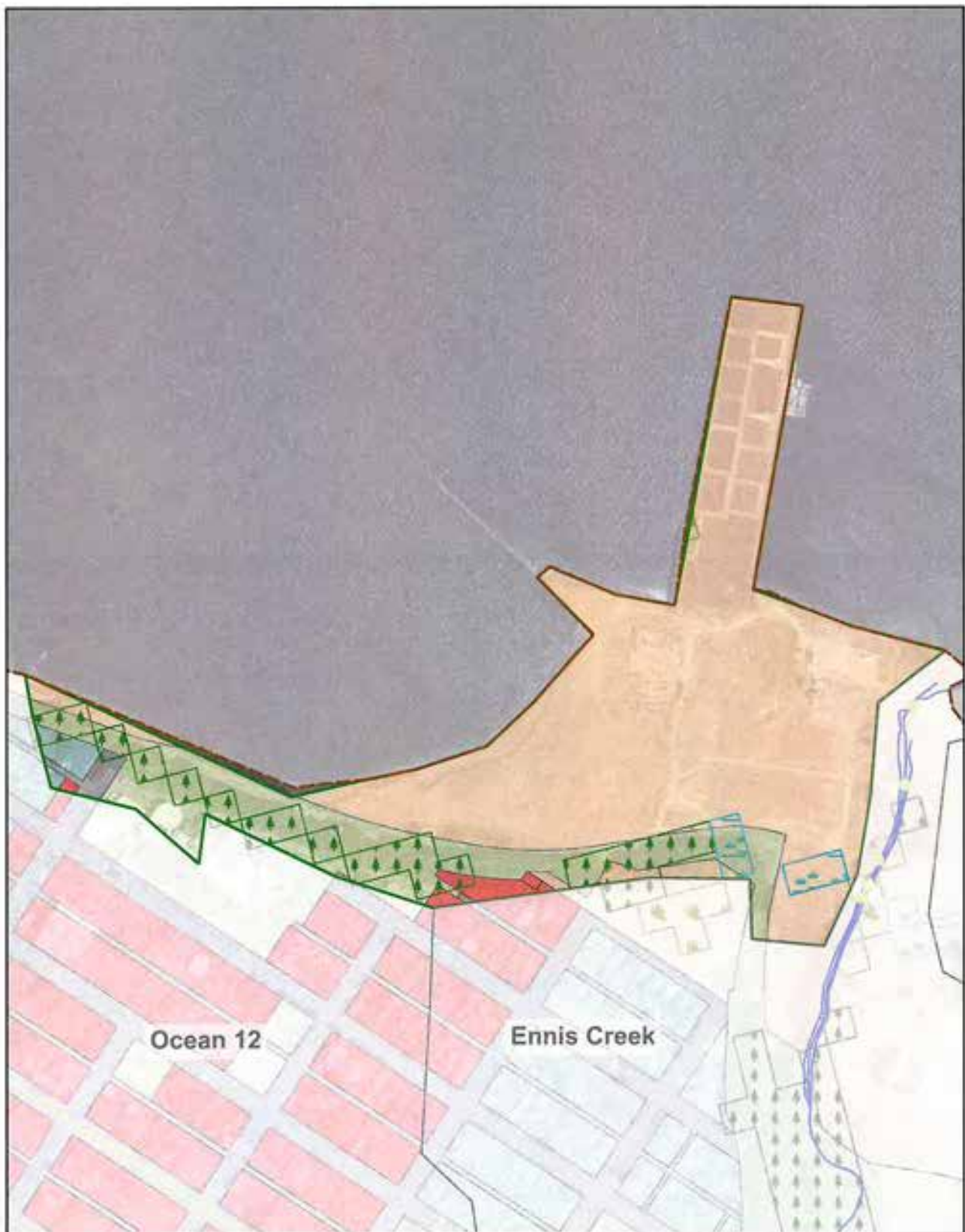
Port Angeles Basin Delineations - Ocean 12

Legend

- | | | |
|----------------------------|----------------------------|------------|
| Saltwater Basin Boundary | Land Zoning | Land Cover |
| Neighboring Basin Boundary | Commercial | Forest |
| Port Angeles City Boundary | High Density Residential | |
| State Route 101 | Industrial | |
| | Parks and Public Buildings | |
| | Single Family Residential | |
| | Roads | |



OSBORN
CONSULTING
INCORPORATED



Port Angeles Basin Delineations - Ocean 13

Legend

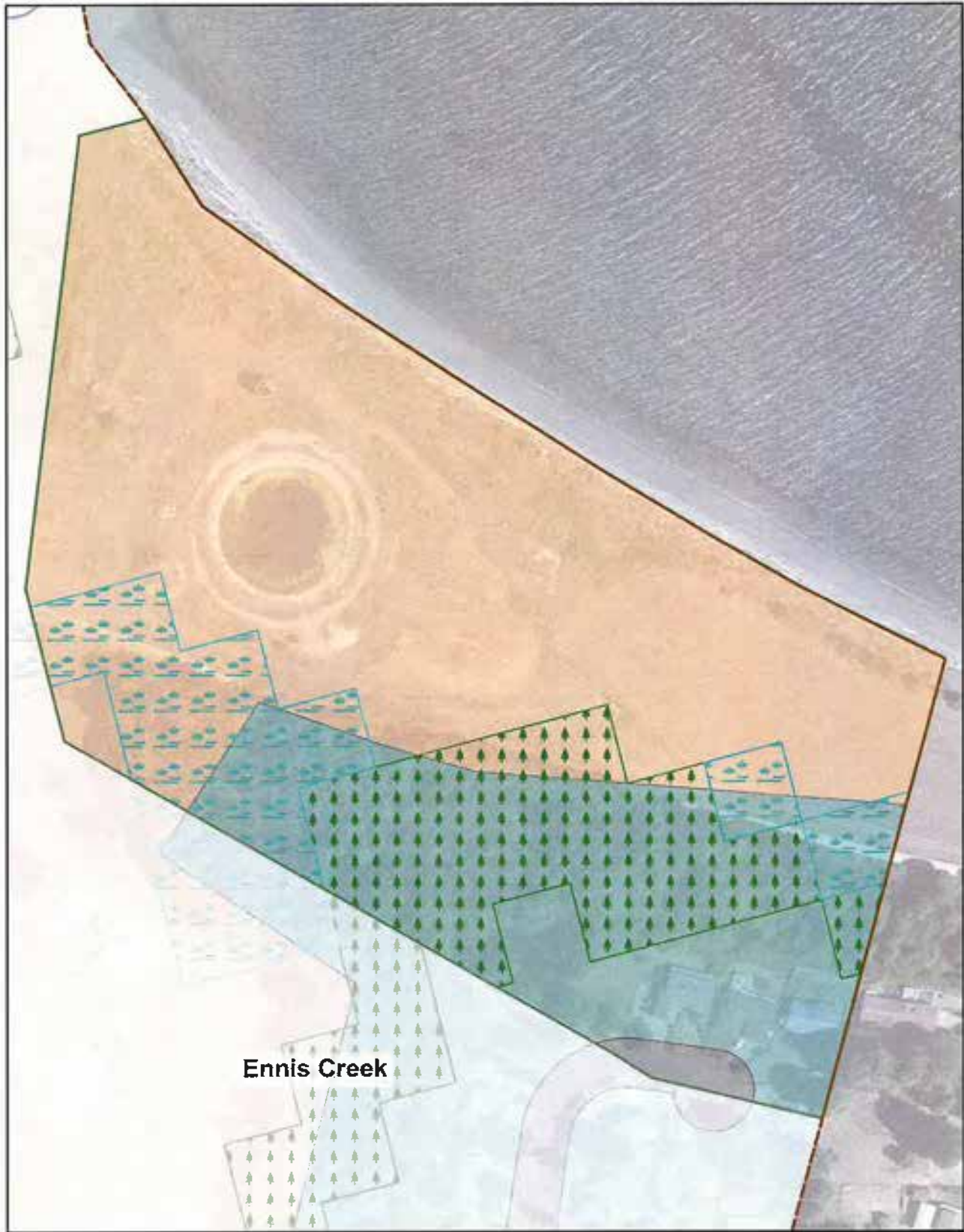
Saltwater Basin Boundary	Commercial	Forest
Neighboring Basin Boundary	Industrial	Pasture
Port Angeles City Boundary	Parks and Public Buildings	Wetland
	Single Family Residential	
	Roads	



0 200 400 ft



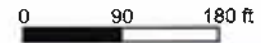
OSBORN
CONSULTING
INCORPORATED

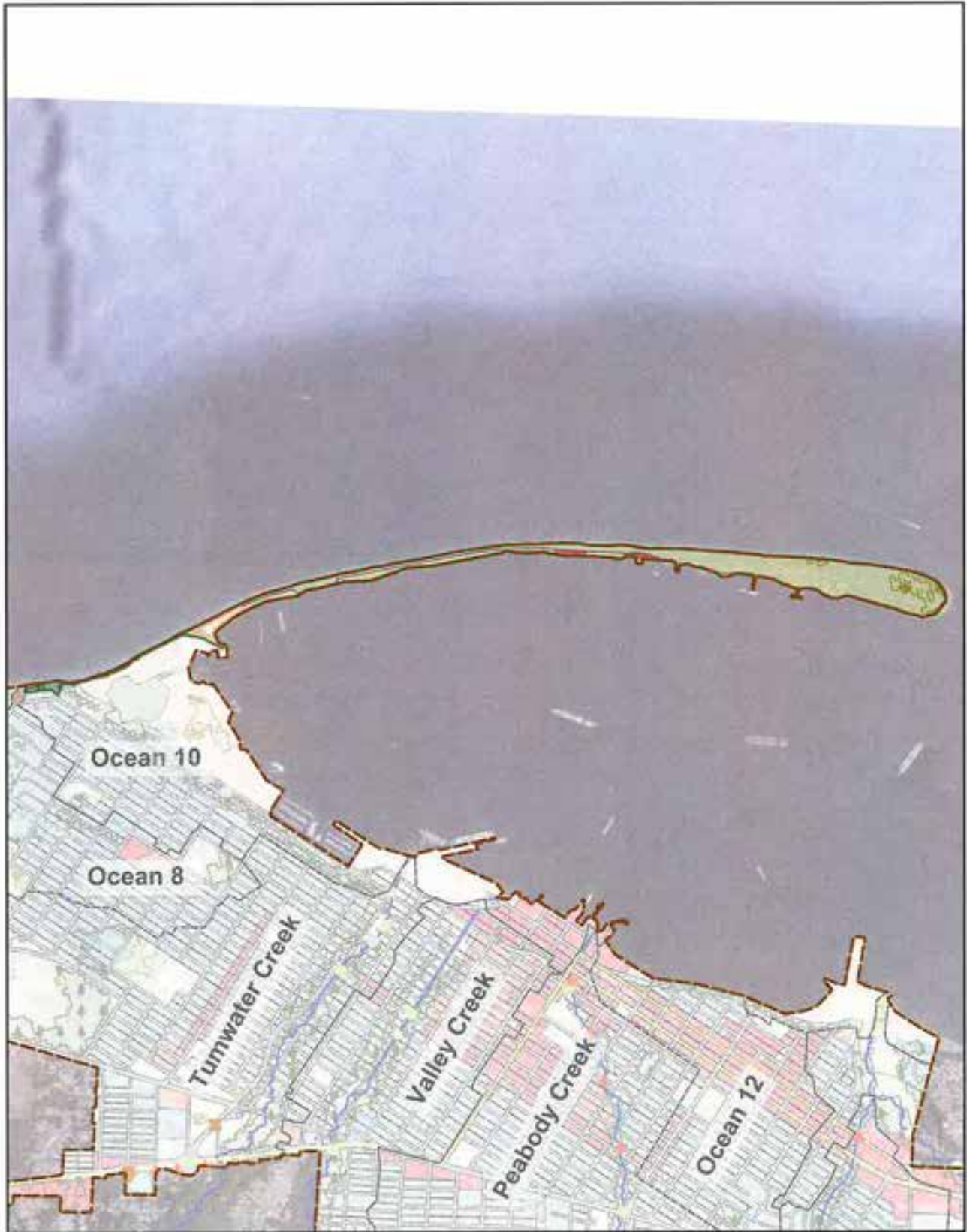


Port Angeles Basin Delineations - Ocean 14

Legend

- | | | |
|----------------------------|---------------------------|------------|
| Saltwater Basin Boundary | Land Zoning | Land Cover |
| Neighboring Basin Boundary | Industrial | Wetland |
| Port Angeles City Boundary | Single Family Residential | Roads |





Port Angeles Basin Delineations - Ocean 15

Legend

- | | | |
|----------------------------|---------------------------|----------------------------|
| Saltwater Basin Boundary | Land Zoning | Forest |
| Neighboring Basin Boundary | Commercial | Pasture |
| Port Angeles City Boundary | Industrial | Parks and Public Buildings |
| | Single Family Residential | Roads |



0 1000 2000 ft



OSBORN
CONSULTING
INCORPORATED

ATTACHMENT 2 – BASIN CHARACTERISTICS TABLE

	Dry Creek	Tumwater Creek	Valley Creek	Peabody Creek	White Creek	Ennis Creek	Ocean 7 Cemetery Basin (Strait)	Ocean 8 N Street Basin (Strait)	Ocean 9 P Street Basin (Strait)	Ocean 10 Mill and Log Yard Basin (Harbor)	Ocean 11 Ferry Terminal Basin (Harbor)	Ocean 12 Hollywood Beach Basin (Harbor)	Ocean 13 Old Rayonier Mill Basin (Harbor)	Ocean 14 Gales Addition Basin (Harbor)	Ocean 15 Ediz Hook Basin (Harbor)
Compiled 2/24/2021															
Land Zoning¹															
Commercial ²	0%	5%	3%	7%	10%	10%	0%	1%	0%	0%	40%	25%	2%	0%	2%
Industrial ³	86%	9%	1%	0%	0%	6%	78%	0%	0%	33%	45%	1%	75%	69%	21%
High Density Residential ⁴	0%	1%	7%	3%	4%	3%	0%	2%	0%	0%	0%	2%	0%	0%	0%
Medium Density Residential ⁵	0%	2%	0%	3%	0%	2%	1%	8%	23%	0%	0%	0%	0%	0%	0%
Single Family Residential	0%	30%	53%	41%	40%	30%	2%	55%	57%	28%	0%	32%	1%	30%	2%
Roads ⁶	4%	29%	22%	20%	17%	12%	6%	24%	19%	21%	15%	32%	1%	1%	2%
Parks and Public Building	10%	24%	14%	26%	29%	37%	13%	10%	1%	18%	0%	8%	21%	0%	73%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Land Cover⁷															
Barren Land	4%	0%	0%	0%	0%	0%	1%	0%	3%	3%	0%	0%	26%	0%	11%
Open Water	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	3%	0%	3%
Effective Impervious ⁸	32%	53%	48%	51%	43%	38%	50%	56%	44%	54%	85%	73%	41%	52%	30%
Landscape ⁹	13%	28%	25%	32%	26%	28%	19%	31%	24%	25%	15%	25%	18%	18%	48%
Forest ¹⁰	19%	16%	24%	15%	26%	28%	23%	9%	25%	8%	0%	2%	10%	17%	1%
Pasture ¹¹	25%	2%	3%	2%	4%	5%	6%	2%	4%	3%	0%	0%	0%	0%	7%
Wetland ¹²	7%	1%	0%	0%	1%	1%	1%	2%	0%	1%	0%	0%	2%	13%	0%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Physical Parameters															
Effective Impervious ⁸ (from Land Cover, above)	32%	53%	48%	51%	43%	38%	50%	56%	44%	54%	85%	73%	41%	52%	30%
Future Effective Impervious (built out conditions) ¹³	72%	62%	61%	58%	57%	54%	71%	62%	63%	65%	85%	74%	66%	71%	39%
Effective Impervious Percent Difference (Future - Current)	40%	9%	13%	7%	14%	16%	21%	6%	19%	11%	0%	1%	25%	19%	9%
Total Basin Area	4364	4490	2761	2336	1503	5447	561	491	199	356	72	340	42	156	134
Acres Inside City Boundary	996	928	852	1202	341	326	561	491	199	356	72	340	42	17	134
% of Basin Within City	23%	21%	31%	51%	23%	6%	100%	100%	100%	100%	100%	100%	100%	11%	100%
% of Jurisdictional Area	15%	14%	12%	18%	5%	5%	8%	7%	3%	5%	1%	5%	1%	0%	2%
Drift Cell Type ¹⁴	N/A	N/A	N/A	N/A	N/A	N/A	Right to Left	Right to Left	Right to Left	No Drift	No Drift	Left to Right	Right to Left	Left to Right	Right to Left
Environmental Parameters¹⁵															
Traffic Proximity and Volume (daily traffic count/distance to road)	20	160	300	250	360	57	21	36	18	57	340	650	-	-	3.4
Superfund Proximity (site count/km distance)	0.015	0.015	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.016	0.016	0.016	-	-	0.016
Hazardous Waste Proximity (facility count/km distance)	0.71	1.20	1.10	0.67	0.31	1.60	0.87	1.10	0.92	1.60	1.50	0.61	-	-	1.20
Demographic Parameters^{15,16}															
Demographic Index ((% minority + % low-income) / 2)	21%	28%	29%	33%	25%	25%	26%	27%	27%	25%	43%	31%	-	-	32%
People of Color Population	14%	14%	19%	18%	12%	16%	15%	14%	14%	16%	22%	18%	-	-	12%
Low Income Population	29%	42%	39%	47%	39%	35%	37%	40%	39%	35%	- ¹⁷	45%	-	-	- ¹⁷

Notes & Assumptions

- Land Zoning data was provided by the City of Port Angeles from the City's GIS database.
- The Commercial Land Zoning designation includes designations for parcels such as Central Business District, Commercial Neighborhood, Commercial Office, Commercial Shop District, and Commercial Arterial.
- The Industrial Land Zoning designation includes designations for parcels such as Industrial Heavy and Industrial Light
- The High Density Residential Land Zoning designation includes designations for parcels such as Planned Residential District and Residential High Density.
- The Medium Density Residential Land Zoning designation includes designations for parcels such as Residential Trailer Park and Residential High Density.
- The Roads designation indicates Right of Way.
- Land Cover data collected from the Multi-Resolution Land Characteristics Consortium, National Land Cover Database (2019). Data provided in raster form with 100'x100' resolution. Land Cover Data was updated using aerial imagery.
- The Developed Land Cover category was broken down into Effective Impervious and Landscape categories. The percentages for each basin were calculated predicated on literature values for percent impervious for the overlapping Land Zoning designation.
- Landscape is the area of Developed Land that is not defined as Effective Impervious. Developed Land was identified in the Land Cover dataset.
- The Forest Land Cover designation includes designations for Deciduous Forest, Evergreen Forest, and Mixed Forest.
- The Pasture Land Cover designation includes designations for Pasture/Hay, Grassland/Herbaceous, and Shrub/Scrub.
- The Wetlands Land Cover designation includes designations Woody Wetlands and Emergent Herbaceous Wetlands.
- Future Effective Impervious for built out conditions assumed impervious percentages for each land zoning category and that all land is fully developed.
- Drift Cell Types defined by the Location of outfall to Port Angeles harbor or to the Puget Sound. Locations of "No Drift" designate areas of concern for sedimentation.
- Environmental and Demographic Parameters data collected from EPA's EJSCREEN: Environmental Justice Screening and Mapping Tool. Basins Ocean 13 and Ocean 14 were smaller than a local block group and can not represent the average person within the defined basin.
- Demographic Parameters are presented as percentages relating to the demographics within each basin.
- Basin contains minimal, if any, residential zoning.

ATTACHMENT 3 – RECEIVING WATER CONDITIONS ASSESSMENT TABLE

		Basin Name													
		Dry Creek	Tumwater Creek	Valley Creek	Peabody Creek	White Creek	Ennis Creek	Ocean 7 Cemetery Basin (Strait)	Ocean 8 N Street Basin (Strait)	Ocean 9 P Street Basin (Strait)	Ocean 10 Mill and Log Yard Basin (Harbor)	Ocean 11 Ferry Terminal Basin (Harbor)	Ocean 12 Hollywood Beach Basin (Harbor)	Ocean 13 Old Rayonier Mill Basin (Harbor)	Ocean 14 Gales Addition Basin (Harbor)
Designated Uses	Aquatic Life Use	Salmonid Spawning, rearing, and migration; core summer salmonid habitat	Salmonid Spawning, rearing, and migration	Salmonid Spawning, rearing, and migration	Salmonid Spawning, rearing, and migration	Core Summer Habitat	Core Summer Habitat	No waterbody present in basin. See Downstream Water Body section.							
	Species with Documented Presence	Coho Salmon (Streams) Chum Salmon (Streams - Fall) Steelhead (Streams - Winter) Cutthroat Trout (Streams)	Coho Salmon (Streams) Chum Salmon (Streams - Fall) Steelhead (Streams - Summer & Winter) Cutthroat Trout (Streams)	Coho Salmon (Streams) Chum Salmon (Streams - Fall) Steelhead (Streams - Summer & Winter) Cutthroat Trout (Streams)	Coho Salmon (Streams) Cutthroat Trout (Streams)	Coho Salmon (Streams) Cutthroat Trout (Streams)	Chinook Salmon (Fall) Coho Salmon (Streams) Chum Salmon (Streams - Fall) Steelhead (Streams - Summer & Winter) Bull Trout (Streams - Presumed) Cutthroat Trout (Streams)	No waterbody present in basin. See Downstream Water Body section.		No waterbody present in basin. Most popular species in the Port Angeles Harbor include Chinook Salmon, Pacific Halibut, and Coho Salmon.					
	Recreation Use	Primary contact recreation						No waterbody present in basin. See Downstream Water Body section.							
	Other Uses	Water Supply Uses (Domestic, Industrial, Agricultural, Stock), and Miscellaneous Uses (Wildlife Habitat, Harvesting, Commerce/Navigation, Boating, Aesthetics)						No waterbody present in basin. See Downstream Water Body section.							
	Downstream Waterbody	Strait of Juan de Fuca Aquatic Life Use: Extraordinary quality Recreation Use: Primary contact recreation Other Uses: Shellfish Harvesting and Miscellaneous Uses	Port Angeles Harbor Aquatic Life Use: Excellent - Shall exceed requirements for all uses including, but not limited to, salmonid migration and rearing; other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning, crustacean and other shellfish rearing and spawning. Recreation Use: Primary contact recreation Other Uses: Shellfish Harvesting and Miscellaneous Uses (Wildlife Habitat, Harvesting, Commerce/Navigation, Boating, Aesthetics)				Strait of Juan de Fuca Aquatic Life Use: Extraordinary quality - Shall exceed the requirements for all uses including, but not limited to, salmonid migration and rearing; other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish rearing and spawning. Recreation Use: Primary contact recreation Other Uses: Shellfish Harvesting and Miscellaneous Uses (Wildlife Habitat, Harvesting, Commerce/Navigation, Boating, Aesthetics)		Port Angeles Harbor Aquatic Life Use: Excellent - Shall exceed requirements for all uses including, but not limited to, salmonid migration and rearing; other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning, crustacean and other shellfish rearing and spawning. Recreation Use: Primary contact recreation Other Uses: Shellfish Harvesting and Miscellaneous Uses (Wildlife Habitat, Harvesting, Commerce/Navigation, Boating, Aesthetics)						
Desired Water Quality Conditions (to support designated uses)		No 303(d) listings/ impairments													
Specific Indicator		Ecology 303(d) Listings													
Waterbody		Category 5 (water): DO, Bioassessment, Temperature Category 2 (water): pH, Bacteria, Turbidity	Category 5 (water): Bacteria	Category 5 (water): Bacteria Category 2 (water): Turbidity, DO Category 1 (water): Bioassessment	Category 5 (water): Temperature, Bacteria, Bioassessment, Turbidity Category 2 (water): pH	None	Category 5 (water): Bacteria Category 1 (water): Bioassessment	No waterbody present in basin. See Downstream Water Body section.							

	Downstream Waterbody	Category 2 (water): Bacteria	Category 1 (sediment): 18 listings [see note]	Category 1 (sediment): 23 listings [see note]	Category 5 (water): Bacteria Category 2 (water): Bacteria Category 1 (sediment): 34 listings [see note]	Category 5 (water): Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Polychlorinated Biphenyls (PCBs) Category 1 (water): 14 listings [see note] Category 5 (sediment): 31 listings [see note]	None	None	None	Category 2 (water): Bacteria Category 2 (sediment): Mercury Category 1 (sediment): 31 listings [see note]	Category 1 (sediment): 23 listings [see note]	Category 5 (water): Bacteria	Category 5 (water): Benzo(a)anthracene, Benzo(b)fluoranthene, Chrysene, Polychlorinated Biphenyls (PCBs) Category 1 (water): 16 listings [see note] Category 5 (sediment): Sediment Bioassay	Category 1 (sediment): Arsenic, Chromium, Copper, Lead, Silver, Zinc	Category 5 (water): DO Category 2 (water): Bacteria Category 5 & 2 (sediment): Mercury Category 2 (sediment): Cadmium, Zinc Category 1 (sediment): 22 listings [see note]																																	
Information available to assess extent desired conditions are met		Ecology 303(d) Listings																																														
How much growth is being directed toward this basin?		Opportunity for heavy and light industrial development.	Potential for future rezoning from residential to commercial or mixed use to provide more commercial services to the west side of the City.	R7 zoning code updates reduced minimum lot size from 5,000 SF to 3,500 creating greater potential for short plats.	Growth is not being directed to this basin.	Growth is not being directed to this basin.	Growth is not being directed to this basin.	Potential for light industrial development near the airport.	R7 zoning code updates reduced minimum lot size from 5,000 SF to 3,500 creating greater potential for short plats. Potential for future rezoning from	Potential for residential development.	R7 zoning code updates reduced minimum lot size from 5,000 SF to 3,500 creating greater potential for short plats.	Growth is not being directed to this basin.	Growth is not being directed to this basin.	Potential for heavy industrial redevelopment.	R7 zoning code updates reduced minimum lot size from 5,000 SF to 3,500 creating greater potential for short plats.	Growth is not being directed to this basin.																																
How is transportation planning likely to affect this basin?		Not likely	Not likely	Not likely	Planned transportation projects in this basin may provide flow control or water quality treatment, if requirements are triggered.	Not likely	Not likely	Not likely	Not likely	Not likely	Not likely	Not Likely	Not Likely	Not Likely	Not Likely	Not Likely																																
Are headwaters, riparian areas, and other sensitive portions of the basin likely to be protected under current zoning and plans?		Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A																																
What sources/activities are the main contributors to the pollutant load targeted for reduction?		<table border="1"> <tr> <td>Zoning</td> <td>Majority: Light-heavy industrial Minority: Parks and Public Buildings</td> <td>Majority: Single-family residential Minority: Commercial neighborhood, and Parks and Public Buildings</td> <td>Majority: Single-family and high density residential Minority: Commercial neighborhood/shopping district, and Parks and Public Buildings</td> <td>Majority: Single-family residential Minority: Parks and Public Buildings, and commercial</td> <td>Majority: Single-family and Parks and Public Buildings Minority: Commercial and industrial</td> <td>Majority: Parks and Public Buildings and single-family residential Minority: Commercial and industrial</td> <td>Majority: Industrial Minority: Parks and Public Buildings</td> <td>Majority: Single-family residential Minority: medium density residential Parks and Public Buildings</td> <td>Majority: Single-family and medium density residential Minority: None</td> <td>Majority: Single-family residential and industrial Minority: Parks and Public Buildings</td> <td>Majority: Commercial Minority: None</td> <td>Majority: Single-family residential and commercial Minority: Parks and Public Buildings</td> <td>Majority: Industrial Minority: Parks Public Buildings</td> <td>Majority: Industrial Minority: Single-family residential</td> <td>Majority: Parks and Public Buildings Minority: Industrial, Commercial</td> </tr> <tr> <td>Existing Land Cover</td> <td>Majority: Impervious and Pasture Minority: Forest, Wetland, Barren land</td> <td>Majority: Impervious Minority: Forest</td> <td>Majority: Impervious Minority: Forest</td> <td>Majority: Impervious Minority: Forest</td> <td>Majority: Impervious Minority: Forest</td> <td>Majority: Impervious Minority: Forest, Pasture</td> <td>Majority: Impervious Minority: Forest, Pasture</td> <td>Majority: Impervious Minority: Forest</td> <td>Majority: Impervious Minority: Forest, Pasture</td> <td>Majority: Impervious Minority: Forest, Pasture</td> <td>Majority: Impervious Minority: None</td> <td>Majority: Impervious Minority: None</td> <td>Majority: Impervious Minority: Barren Land, Forest, Open Water</td> <td>Majority: Impervious Minority: Wetland, Forest</td> <td>Majority: Impervious Minority: Barren Land, Pasture, Open Water</td> </tr> </table>															Zoning	Majority: Light-heavy industrial Minority: Parks and Public Buildings	Majority: Single-family residential Minority: Commercial neighborhood, and Parks and Public Buildings	Majority: Single-family and high density residential Minority: Commercial neighborhood/shopping district, and Parks and Public Buildings	Majority: Single-family residential Minority: Parks and Public Buildings, and commercial	Majority: Single-family and Parks and Public Buildings Minority: Commercial and industrial	Majority: Parks and Public Buildings and single-family residential Minority: Commercial and industrial	Majority: Industrial Minority: Parks and Public Buildings	Majority: Single-family residential Minority: medium density residential Parks and Public Buildings	Majority: Single-family and medium density residential Minority: None	Majority: Single-family residential and industrial Minority: Parks and Public Buildings	Majority: Commercial Minority: None	Majority: Single-family residential and commercial Minority: Parks and Public Buildings	Majority: Industrial Minority: Parks Public Buildings	Majority: Industrial Minority: Single-family residential	Majority: Parks and Public Buildings Minority: Industrial, Commercial	Existing Land Cover	Majority: Impervious and Pasture Minority: Forest, Wetland, Barren land	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest, Pasture	Majority: Impervious Minority: Forest, Pasture	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest, Pasture	Majority: Impervious Minority: Forest, Pasture	Majority: Impervious Minority: None	Majority: Impervious Minority: None	Majority: Impervious Minority: Barren Land, Forest, Open Water	Majority: Impervious Minority: Wetland, Forest	Majority: Impervious Minority: Barren Land, Pasture, Open Water
Zoning	Majority: Light-heavy industrial Minority: Parks and Public Buildings	Majority: Single-family residential Minority: Commercial neighborhood, and Parks and Public Buildings	Majority: Single-family and high density residential Minority: Commercial neighborhood/shopping district, and Parks and Public Buildings	Majority: Single-family residential Minority: Parks and Public Buildings, and commercial	Majority: Single-family and Parks and Public Buildings Minority: Commercial and industrial	Majority: Parks and Public Buildings and single-family residential Minority: Commercial and industrial	Majority: Industrial Minority: Parks and Public Buildings	Majority: Single-family residential Minority: medium density residential Parks and Public Buildings	Majority: Single-family and medium density residential Minority: None	Majority: Single-family residential and industrial Minority: Parks and Public Buildings	Majority: Commercial Minority: None	Majority: Single-family residential and commercial Minority: Parks and Public Buildings	Majority: Industrial Minority: Parks Public Buildings	Majority: Industrial Minority: Single-family residential	Majority: Parks and Public Buildings Minority: Industrial, Commercial																																	
Existing Land Cover	Majority: Impervious and Pasture Minority: Forest, Wetland, Barren land	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest, Pasture	Majority: Impervious Minority: Forest, Pasture	Majority: Impervious Minority: Forest	Majority: Impervious Minority: Forest, Pasture	Majority: Impervious Minority: Forest, Pasture	Majority: Impervious Minority: None	Majority: Impervious Minority: None	Majority: Impervious Minority: Barren Land, Forest, Open Water	Majority: Impervious Minority: Wetland, Forest	Majority: Impervious Minority: Barren Land, Pasture, Open Water																																	

Can these sources be addressed through BMPs found in the SWMMWW and applied through CoPA's SWMP?	Unlikely	Unlikely	Unlikely	Unlikely	N/A	Unlikely	N/A	N/A	N/A	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	
Will enhanced municipal stormwater management actions result in meeting loading targets?	Unlikely	Unlikely	Unlikely	Unlikely	N/A	Unlikely	N/A	N/A	N/A	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	
Are substantial non-stormwater actions needed to address the impairment?	Likely	Potential	Potential	Likely (Temp) Potential (Bacteria) Unlikely (Bioassessment, Turbidity)	N/A	Potential	N/A	N/A	N/A	Unlikely	Unlikely	Potential	Unlikely	Unlikely	Unlikely	
What combination of additional stormwater management actions will most effectively reduce current and future loadings?	Increase riparian buffer density to reduce temp/increase DO	E&O programs to reduce fecal matter (i.e. pet waste); develop a sampling program	E&O programs to reduce fecal matter (i.e. pet waste); develop a sampling program	Increase riparian buffer density to reduce temp/increase DO	N/A	E&O programs to reduce fecal matter (i.e. pet waste); develop a sampling program	N/A	N/A	N/A	N/A	N/A	E&O programs to reduce fecal matter (i.e. pet waste) or "Protect Drain" type signage; develop a sampling program	N/A	N/A	N/A	
Low expected level of influence (low being having both "low expected hydrologic impacts" and "low expected pollutant loadings")?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Expected hydrologic impacts from MS4s draining directly to:	No	No	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Flow-control exempt waters (per the SWMMWW)	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Ephemeral streams	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Receiving waters primarily influenced by groundwater flows	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Expected pollutant loadings from MS4s receiving runoff from only:	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Non-pollutant generating surfaces as defined in the 2019 SWMMWW	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Low density residential land uses	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Parking areas with ≤ 100 total trip ends or for ≤ 300 employees	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Roads with ADT ≤ 7,500, fully and partially controlled limited access highways with ADT ≤ 15,000	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Watershed Characterization Project	Importance	M/H or H	M	M	M, M/H or H	M	M	M	M/H or H	M/H or H	H	M/H or H, M	M/H or H	M/H or H	M/H or H	H
	Degradation	M/H or H	M/H or H	M/H or H	M/H or H, M/H or H	M/H or H	M/H or H	M/H or H	M/H or H	M/H or H	H	M/H or H, M/H or H	M/H or H	M/H or H	M/H or H	H
	Designation	Restoration	Restoration / Development	Restoration / Development	Development / Restoration	Development / Restoration	Development / Restoration	Development / Restoration	Restoration	Restoration	Highest Restoration	Restoration	Restoration	Restoration	Restoration	Highest Restoration
OCI Confirmation	Importance	H	H	H	M/H	M/H	H	M	M	M	M	M	M	M	M	M
	Degradation	M/H	M/H	M/H	H	M	M/H	M	M	M	M/H	M/H	M/H	H	M	H
	Designation	Restoration	Restoration	Restoration	Restoration	Protection	Restoration	Conservation	Conservation	Conservation	Restoration with Development	Restoration with Development	Restoration with Development	Restoration with Development	Conservation	Restoration with Development

City of Port Angeles | 2021 Education and Outreach Tracking

Table 1. Summary of Events

2021 Activities / Events	Date(s)	Location(s)	City Personnel	Target Audience	Contact Information (other groups)	Subject Area(s)	Attendance/Distribution	Educational Materials Used	Notes/Other
Virtual SW Tour: Presentation and Field Trip	January 23rd, 2021	Virtual: Peninsula College	Vince McIntyre	College Students	Vmcintyr@cityofpa.us	Urban stormwater problems and local stormwater management techniques and facilities	15 Students & 2 Faculty - Western Washington University, Huxley College on the Peninsula - ESCI 361 Fran Solomon, Ph.D & Cathy Reidy Lierman, Ph.D	Part I - 45 min. virtual presentation discussing stormwater issues and functional solutions found in Port Angeles. Part II - Virtual Field trip to 5 local sites exemplifying LID, Treatment, and Flow Control.	
KONP Home Show	March	Port Angeles High School Gymnasium	Lucio Baack, Vince McIntyre, Joey Bradley, Diana Bagwell	General Public, Developers, Landscapers, & Home Owners	Vmcintyr@cityofpa.us	IDDE Program, LID Rebate Program, Rain Gardens, Natural Yard Care	--- Canceled again Due to Covid-19 Pandemic ---	-	
Local Cinemas	Sept./Oct.	Deer Park and Lincoln Cinemas	Vince McIntyre	General Public	Vmcintyr@cityofpa.us	Pollution Prevention	Re-instated in 2021, Deer Park Cinemas	PSSH Stormwater Awareness paid advertisements	
Provided Training: LID & Rain Gardens	22-Jul-21	Fiero, Port Angeles	Vince McIntyre	Local Educators	Vmcintyr@cityofpa.us	Rain gardens	15 local educators	Outdoor presentation using handouts and details from USSG.	
Clallam County Fair	August	Clallam County Fairgrounds	Diana Bagewell, Lucio Baack, Vince McIntyre, Joey Bradley, Rachel Bowen	General Public	Vmcintyr@cityofpa.us	Focusing on pet waste awareness & natural yard care.	--- Canceled again Due to Covid-19 Pandemic ---	Distributed pet waste bag that are normally handed out at the Fair from City Hall welcome desk - see below.	
PSSH Month - handouts to community	year-round	City Hall, welcome desk	Vince McIntyre, Eric Walrath, Mike Spencer	General Public	Vmcintyr@cityofpa.us	Stormwater Impacts from: Pet Waste, Landscaping Runoff, & Car Washing	Pet Waste Bad Dispensers were distributed freely throughout the year from the City Hall welcome center and positioned next to the Spills Happen outreach banner advertising the City's IDDE Program contact information.	Materials included PSSH Campaign information directing to their website for more information.	
Stormwater Awareness Ad. Campaign - online	September	Virtual: YouTube, Facebook, Basis DSP, Instagram	Vince McIntyre	General Public	Vmcintyr@cityofpa.us	Stormwater Impacts from: Pet Waste, Landscaping Runoff, Vehicle Fluids	Large regional social media campaign facilitated by Puget Sound Starts Here (PSSH) and in partnership with the City. Stats specific to Port Angeles: 29,080 Impressions, 8,470 Initiations, 5,004 Completions, & 35 Clicks.	PSSH Stormwater Awareness online videos and paid advertisements	
Stormwater Rains Newsletter - Vol. 8	October	Mail	Vince McIntyre	General Public	Vmcintyr@cityofpa.us	General Info: What is SW, Prepare for Wet Season, Reporting Spills, Permitting, SW Projects, Reduce Pollution, Upcoming events	Physical distribution to City Residents via Utility Bill approx. 10,500	2-page flier - utility bill insert	
Business Stormwater Education	All-year	Site visits to businesses within the City	Rachel Bowen	Local Businesses	rbowen@cityofpa.us	IDDE, Pollution Prevention, Source Control	45 Local Businesses The pandemic experienced globally in 2020 and 2021 restricted in-person contact. Additionally, Rachel took a new position with the City of Poulsbo in 2021 and the position at the City has yet to be backfilled.	Targeted Pollution Prevention and reporting information for local businesses to prevent adverse downstream stormwater impacts.	

2021 Education and Outreach Summary

S5.C.2 - The City Continues to partner with The West Sound Stormwater Outreach Group (WSSOG)

S5.C.2.i. - General Awareness:

Target Audience: General Public

Subject Area: General Impacts of on Surface Waters, See tracking sheet above for 2021

Additional information is included in the WSSOG 2021 Activities Report

S5.C.2.ii. - Behavior Change:

Target Audience: Residents, Homeowners, & Landscapers

Subject Area: Natural Yard Care

Additional information is included in the WSSOG 2021 Activities Report



WEST SOUND STORMWATER OUTREACH GROUP

2021 SUMMARY OF ACTIVITIES

TABLE OF CONTENTS

WHO WE ARE	3
2021 HIGHLIGHTS	4
BEHAVIOR CHANGE PROGRAMS (S5.C.2.A.II)	5
ILLCIT DISCHARGE DETECTION AND ELIMINATION - S5.C.5.D.II	10
GENERAL AWARENESS - S5.C.2.A.I	11
STEWARDSHIP - S5.C.2.A.III	13
MAXIMIZING OUR REACH THROUGH PARTNERSHIPS	14
PLANNING FOR 2022	14
APPENDIX A: STORM ANNUAL REPORT	16
APPENDIX B: WSSOG 2022 WORK PLAN	17
APPENDIX C: C+C NATURAL YARD CARE FINAL REPORT 2021	18

WHO WE ARE

Kitsap County and the Cities of Poulsbo, Bremerton, Port Orchard and Gig Harbor have been working to jointly develop, implement and fund NPDES Municipal Stormwater Permit required outreach via interlocal agreements since 2008. With the additions of Bainbridge Island and Port Angeles in 2012, the group assumed the name of West Sound Stormwater Outreach Group (WSSOG). The US Navy participates as an informal member. Our goal is to work jointly to improve water quality, meet key requirements of the NPDES Phase II Municipal Stormwater Permit (herein referred to as permit), and serve the collective needs of our jurisdictions in promoting good stewardship and preservation of our local waterways.



2021 HIGHLIGHTS

In 2021, WSSOG focused on launching a new behavior change campaign to meet permit requirements S5.C.2.a.ii(c). WSSOG initially began working with a consultant, C+C, in 2018 to identify a new target audience and a new best management practice (BMP). Natural Yard Care became the focus and WSSOG identified residents who have either children or pets in their homes as the target audience. The BMP selected was on the use of fertilizers. WSSOG successfully implemented the strategy, per permit requirements in the spring of 2021.

In addition to launching the new behavior change campaign, the group focused on maintaining and improving existing programs including our successful Mutt Mitt program and continued to stay involved in regional collaborative efforts including local work groups and the STORM group (Stormwater Outreach for Regional Municipalities.) The group also participated in Puget Sound Starts Here Month in September.

This year saw several staff transitions on WSSOG. Teresa Smith was replaced by Sarah Wilson for the city of Bremerton and Rachel Bowen was hired for the city of Poulsbo after Anja Hart retired.

Permittee may choose to meet these requirements individually or as a member of a regional group. regional collaboration...includes permittees developing a consistent message, determining the best methods for communicating the message...and creating strategies to effect behavior change. if a permittee chooses to adopt...a regional program, the permittee should participate in the regional group and shall implement the adopted element(s) of the regional program in the local jurisdiction.

NPDES Municipal Stormwater Permit - s5.c.2

BEHAVIOR CHANGE PROGRAMS (S5.C.2.a.ii)

WSSOG endeavors in two current behavior change campaigns, the Mutt Mitt program that is ongoing and the new natural yard care campaign that was piloted in 2021 and is being expanded in 2022.

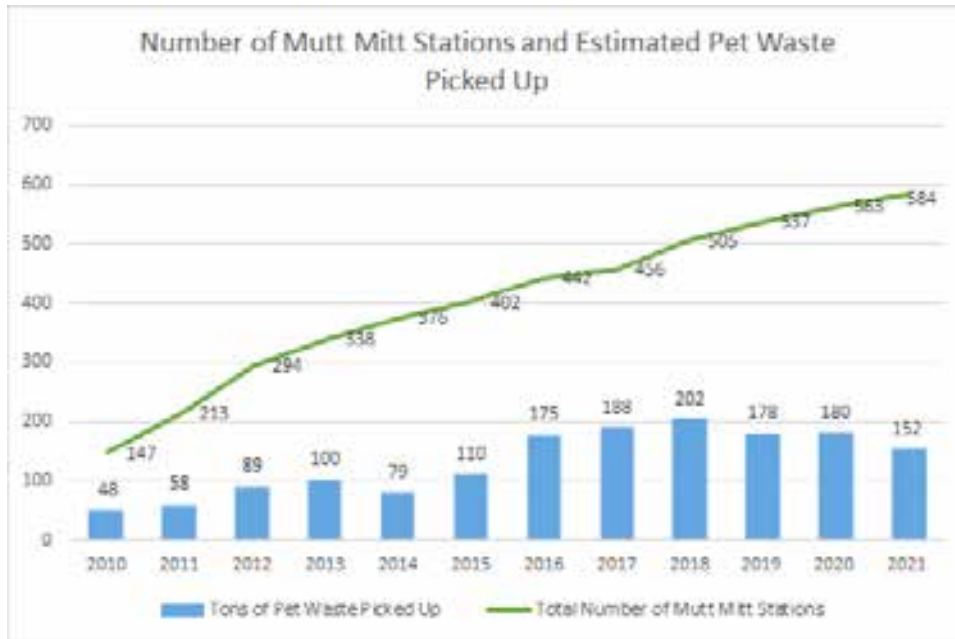
PET WASTE IN PUBLIC AREAS - MUTT MITT PROGRAM

Members of WSSOG continue to meet the requirements of S5.C.2.a.ii through the highly successful Mutt Mitt program including evaluation of the program by the July 1, 2020 permit deadline. Established in 2009, this program focuses on installing and maintaining pet waste bag stations to encourage and facilitate dog walkers to pick up after the pets when they are in public places such as parks, apartment complexes, or neighborhoods.

Adoption of the target behavior is measured in part through growth of the program. As of the end of 2021, there are a total of 584 pet waste stations distributed throughout the Kitsap Peninsula, Gig Harbor and Port Angeles. On average, 20-40 stations are added annually. In 2021, Kitsap County along with partner cities and community sponsors distributed over 925,000 pet waste bags, resulting in a reduction of 152.7 tons of pet waste into local waterways.



Dog walkers depend upon stations that are reliably stocked with bags to help them adopt this behavior. It is essential that Mutt Mitt branded stations are continuously stocked and in good working order. Kitsap County typically conducts inspections of all Mutt Mitt stations located within Bainbridge Island, Bremerton, Port Orchard and Poulsbo on an annual basis and all other stations located within the County on a biannual basis. However, to make up for limited inspections in 2020, all Mutt Mitt stations were inspected during 2021. Of the stations that were found during their inspection, 86% were stocked. Over time, some communities may take down their stations if there is no one to keep them stocked. To help ensure those station get returned in the future, stickers were placed inside all county and city Mutt Mitt stations, letting sponsors know what to do if they no longer wanted the station.



Section S5.C.2.ii(b) of the permit requires permittees to conduct a new evaluation of the effectiveness of an ongoing behavior change campaign (required under the 2013 permit) and to document lessons learned and develop a strategy and schedule to improve or expand the existing program or identify a new target audience and BMP behavior change campaign, by July 1, 2020.

In 2018, WSSOG piloted an effort to encourage people to pick up their dog’s waste at home. This effort promoted the use of a sticker placed on outdoor garbage cans at home to help set a social norm for scooping. The pilot effort used a postcard to promote the use of the sticker and importance of home scooping. Following the pilot, the group evaluated the campaign and ultimately decided not to move forward with this target audience and BMP per the permit’s behavior change requirements of S5.C2a.ii.(c)3.

In addition to discontinuing the 2018 “pet waste at home” pilot, the group felt that the existing Mutt Mitt program (pet waste in public areas) had achieved maximum rate of growth and is in a maintenance stage.

Because the evaluation of these campaigns led the group to determine not to pursue additional efforts with these BMP’s and target audience, the group chose to select a new behavior and target audience per S5.C.2.a.iic 3. WSSOG hired a communications consultant in 2018, C+C, to help coordinate the selection of a new audience and behavior change.

Through social marketing sessions and research, WSSOG identified Natural Yard Care as the new behavior change program. The target audience focuses on single family home or townhome residents with kids and/or pets who have “Do It Yourself” yards and are potentially using harmful yard care products. The selected BMP is the responsible, minimal use and storage of pesticides, fertilizers and/or other chemicals.

WSSOG’s campaign focuses on the use of traditional “weed and feed” products in single family residences or homes with lawns. The behavior campaign ask is, “In order to reduce pollutants in stormwater runoff, fertilize only with safer products, if you plan to fertilize your lawn.”

Through our market research, the cost of organic/natural fertilizers was identified as a key barrier to the preferred behavior change. A coupon for an organic/natural fertilizer was offered as part of our strategy towards addressing this barrier. The coupon was also identified as an output towards measuring the change in behavior. Additionally, the priority audience indicated that Master Gardeners are the spokespeople the audience believes most when it comes to using organic products. The group worked with the local WSU extension office to coordinate educational webinars for the target audience.

NATURAL YARD CARE CAMPAIGN STRATEGY AND SCHEDULE

The following activities were conducted through the multi-year effort:

Social Marketing Sessions (December 2018 - February 2019)



The WSSOG conducted five social marketing planning sessions to define key project elements, including the campaign’s focus on getting residents to reduce the use of chemical fertilizers on their lawns.

Initial Audience Research (December 2018)

Research was conducted to better understand the priority audience’s perceived barriers, benefits, and motivators in relation to the desired behavior. A total of 212 people responded to the survey, with 164 falling within the priority audience parameters. Some of the key high-level findings were:

When asked “have you ever considered switching to ALL organic yard care products,” 56% of the priority audience indicated they have considered making the change.

The top three concerns the priority audience had about using organics:

- 50% believe organic products cost more
- 27% do not think organic products would work as well
- 35% are not sure where they would purchase organic products



Creative Development and Testing (April-June 2019)

Based on research findings, creative concepts were developed then tested among the priority audience. The research results showed that the artwork of “Child and Puppy” performed the strongest overall and performed strong enough that no changes to the image or message were needed. The group selected this artwork for the pilot.

COVID-19 Delays the Pilot

(January - June 2020)

WSSOG was prepared to pilot the program in spring 2020 and began planning in earnest. Event dates and a retail partner had been scheduled. Due to COVID-19, the 2020 pilot was delayed to 2021. While the pilot was delayed, WSSOG used that time to conduct additional marketing research to further refine planned campaign tactics and messaging. WSSOG worked with C+C to conduct focus groups to test the ad concepts, language and the audience’s readiness for online/virtual events.

Campaign Implementation Strategy and Schedule (January 2021 -present)

The pilot behavior change campaign was conducted in Poulsbo during peak fertilizer season in spring 2021, and included webinars hosted by WSU Kitsap County Extension’s Master Gardeners; an organic fertilizer discount offered through a partnership with a local retailer; and campaign communications including a Facebook ad campaign, a postcard, and government delivery channels such as e-newsletters, organic social media, and utility bill messaging.

The WSSOG chose the City of Poulsbo for the pilot based on several factors including the availability of Master Gardener outreach channels, the city’s mix of representative demographics, and its central location within the county. With roughly 4,126 households and a population of 10,602, Poulsbo makes up just 3.9% of the population - making it an ideal fit to pilot the campaign and build toward Kitsap County-wide implementation.

Pilot by the Numbers:

- 23,131 People reached on Facebook
- 2,933 Direct mail impressions
- 1,177 Link clicks on Facebook
- 68 Webinar registrations
- 35 Webinar attendees

- 18 Coupons redeemed in-store
- Successful partnership with Master Gardeners

With the first year's campaign now behind us, WSSOG will expand the Natural Yard Care campaign throughout the rest of the participating jurisdictions in 2022. WSSOG will continue to work with Master Gardeners on coordination of several virtual workshops. Due to the flexibility of virtual events, promotions of the program will be offered throughout the entire Kitsap Peninsula, Gig Harbor and Port Angeles (WSSOG jurisdictions).

The WSSOG will continue to offer a product discount/coupon and hopes to identify additional retailers to work with.

The next key activity for the permit is evaluation and reporting no later than March 31, 2024. WSSOG is working towards this, and the campaign is being evaluated through a variety of mechanisms including pre- and post surveys, follow up phone calls made by Master Gardeners and metrics such as coupons used.

REPORTING SPILLS

All WSSOG jurisdictions have a publicly listed hotline, telephone number and/or app for reporting spills and other illicit discharges. Kitsap County and Bainbridge Island, Bremerton, Poulsbo, and Port Orchard all share the Kitsap1 phone number and SeeClickFix app.



WSSOG shares common branding and publicity through a tagline and graphics called *Spills Happen*. This catchy phrase and graphics are intended to bring awareness and encourage residents to report spills. Jurisdictions post their spills reporting phone numbers and app on their websites as well on print materials.

WSSOG utilizes outreach methods, including:

- Display of the upright *Spills Happen* banners at events, in billing offices and public spaces.
- Bainbridge Island offers free swag items at their front counter displays or upon request.
- Bremerton features the *Spills Happen* branding on their sweeper trucks.
- Gig Harbor continued distribution of their quarterly stormwater newsletter *The RunOff*, distributed in utility bills, distribution lists

and on the city website.

- Kitsap County displays the *Spills Happen* graphics on a total of three spills trailers. The phone number is also on a new spill response truck.
- Port Angeles promoted the program in their October 2021 *Stormwater Rains* newsletter.
- Port Angeles provided personal stormwater and IDDE education to 45 private business owners or managers via the city's Pollution Prevention Assistance program.
- Port Orchard handed out educational flyers and fridge magnets to interested parties, advertised the *Spills Happen* campaign on their website and posted banners within City Hall.
- Poulsbo distributed 1,100 paint sticks with the spills reporting number printed on them. Kitsap County also distributed 1,000 paint sticks in 2021.
- Poulsbo stocks field vehicles with BMP pamphlets to hand to residents when an illicit discharge is spotted.



SPILLS REPORTING CALLS

A total of 77 spill reports were called into Kitsap1 and 16 reports were entered into the SeeClickFix app in 2021. In addition, some cities also received several reports directly to their jurisdictions. (Bainbridge Island - 7, Bremerton - 27, Poulsbo - 12, Port Angeles - 7, (S5.C.3.d.ii).

TRAINING PROGRAM

Jurisdictions coordinate an ongoing training program and follow up trainings to their field staff on how to recognize, respond to and report spills (S5.C.5.d.iii). WSSOG reported the following trainings held in 2021:

- Bainbridge Island - 2 trainings held for city staff
- Bremerton - This year, an online training called "Municipal Storm Watch" consisting of a video and quiz became mandatory for all city employees. Over 100 employees successfully completed the training as of December 2021. In addition, 14 City employees completed online training "IDDE: A Grate Concern" consisting of a video and quiz.
- Gig Harbor provided an annual training to field staff through a PowerPoint presentation and discussion.
- Kitsap County - Trainings have previously been held in person. Our staff developed a new online training using a platform called Articulate. The training is being rolled out to Public Works employees.
- Port Angeles - Provided a pre-recorded, virtual staff training and over 156 employees attended.
- Port Orchard - 1 annual staff training for 18 people

GENERAL AWARENESS - S5.C.2.a.i

GENERAL AWARENESS THROUGH PUGET SOUND STARTS HERE

Puget Sound Starts Here (PSSH) is a regional effort to raise awareness about the harm to Puget Sound from polluted stormwater runoff as well as simple actions residents can take to reduce their impact (S5.C.2.a.i). Local implementation of PSSH included a variety of outreach approaches, including the promotion of Puget Sound Starts Here Month in September.



Many jurisdictions distribute branded "swag" items with the Puget Sound Starts Here logo. With events continuing to be postponed due to ongoing COVID-19 concerns, distribution of branded items remains relatively lower than previous years. Even so, WSSOG found creative new ways to help promote regional awareness.

- Leash pet waste bag holders remain a popular item to distribute. WSSOG jurisdictions distributed 375 leash bag holders. Kitsap County also distributed pet waste bag dispensers to the Humane Society. Bremerton posted displays about water quality, to include pet waste disposal and stormwater hygiene at the annual Salmon Tours event in November. They distributed pet waste bag holders as well.
- Poulsbo distributed 3,076 coffee sleeves to local businesses.
- Bainbridge Island distributed 16 stickers and reusable bags.
- Kitsap County distributed 1,375 beverage coasters to seven local restaurants.
- Port Angeles set up free pet waste bag holders next to their spills outreach banner at their service desk where people drop off utility payments in person.

PUGET SOUND STARTS HERE MONTH

The Puget Sound Starts Here Committee coordinated PSSH Month in September. The committee coordinated a regional digital marketing campaign and jurisdictions were invited to financially participate in the campaign. WSSOG members from Bainbridge Island, Kitsap County and Port Angeles invested in the campaign.



This year’s campaign focused on vehicle maintenance behaviors. As vehicles are a source of multiple contaminants of emerging concern, this regional campaign focused on behaviors such as tire inflation, car washing best practices and detecting and fixing oil leaks.

The digital campaign’s goals were to drive people to the [PSSH website landing page](#) and provide a call to action (a short quiz), highlight vehicle related behaviors that can lessen stormwater pollution, raise awareness of the PSSH brand and raise awareness of the impact of individual behaviors on preventing stormwater pollution.

The campaign’s primary audience targets were adults 18-64 in the Puget Sound region. The ads were run in English, Spanish, Korean and Vietnamese. A portion of the ad budget was allocated towards targeting overburdened communities using factors such as income, education, people of color and/or those who speak limited English.

New :30 and :15 ads were developed around the topic of “[Puget Sound Starts with Car Care.](#)” The fun, animated videos promoted top BMP’s that help prevent car pollution and were translated in four languages.

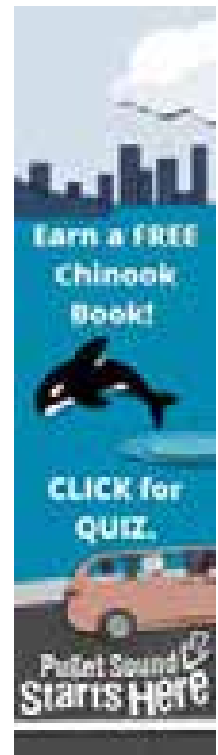
The one-month campaign resulted in an impressive 7.128 million impressions across the Basis DSP (digital ad placement platform, Facebook and [YouTube](#)). A total of 2,201 million video completion/plays/views were generated and 7,431 clicks on the videos. Lastly, the ads generated 8,697 new users to the [pugetsoundstartshere.org](#)

The complete dashboard of metrics for the campaign can be found [online](#).

Puget Sound Starts Here Digital Campaign Metrics

Jurisdiction	Impressions
Bainbridge Island	37,362
Bremerton	49,149
Gig Harbor	57,830
Kitsap County	20,755
Port Angeles	29,080
Port Orchard	42,185
Poulsbo	24,247
TOTAL IMPRESSIONS	260,608

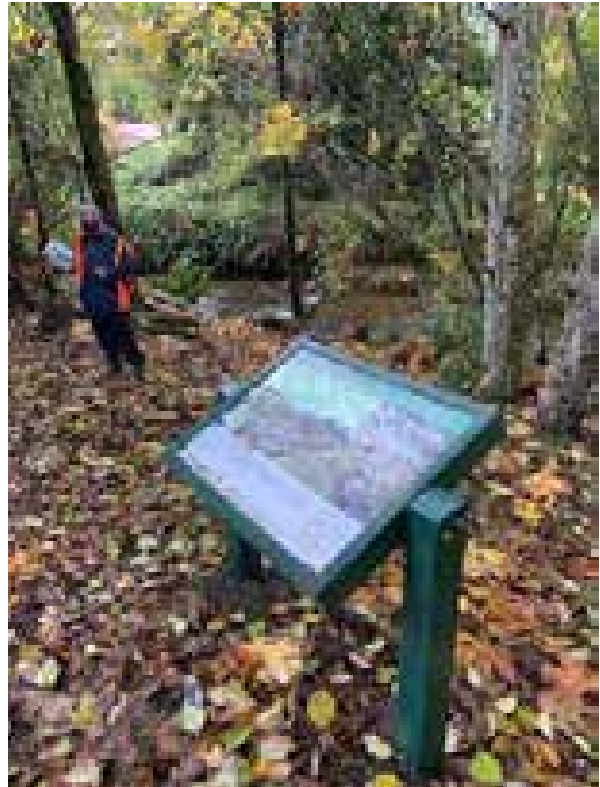
Source: Rich Marketing



CREATIVE WAYS TO ENGAGE THE PUBLIC

Jurisdictions found creative ways to maximize partnership opportunities and engage with the public while promoting existing campaigns or programs.

- Bremerton reached out to John Albers of Albers Marcovina Vista Gardens and provided him with a variety of brochures on conservation and protecting water quality for an information table at the garden tours.
- Bainbridge Island updated stormwater management related web pages, sent messages out through their Water Resources Listserv, and had a couple projects shared via the City's Manager's Weekly Report, and engaged stakeholders in Stormwater Planning efforts. City staff also attended, presented at, and advertised Bainbridge Island Watershed Council meetings which are currently held through Zoom and are publicized and open to the public.
- Gig Harbor worked with Costco and Harbor Hill neighborhoods to place over 400 catch basin markers throughout north Gig Harbor.
- Gig Harbor partnered with Key Peninsula-Gig Harbor-Islands (KGI) Watershed Council to participate in the virtual State of the Watershed forum: [Key Peninsula-Gig Harbor-Islands Watershed Council | Pierce County, WA - Official Website \(piercecountywa.gov\)](https://www.piercecountywa.gov/Key-Peninsula-Gig-Harbor-Islands-Watershed-Council)
- Gig Harbor partnered with Department of Fish & Wildlife in their *Don't Let it Loose* campaign and had 14 signs installed at stormwater ponds, providing education on the harmful effects of releasing invasive species into the wild.
- Kitsap County conducted their third annual Art for Clean Water event. An art contest was held, and five artists painted murals at the Kitsap County Fairgrounds, highlighting the connection between storm drains and Puget Sound.
- In January, Port Angeles provided a virtual annual stormwater management presentation and tour for 300 level Environmental Science students from Western Washington University's College of the Environment. It was attended by 15 students. Topics of discussion were Background of MS4, the City's current stormwater management program, a tour of actual projects and facilities that provide runoff treatment, and/or detention/retention.
- Port Angeles provided an outdoor presentation in July to 15 local educators about rain gardens - treatment, detention, & retention, and how to locate, size, and build.
- Port Orchard and Kitsap County participate in the Rain Garden Program participation via the Kitsap Conservation District.
- Port Orchard participated as Lead Entity and Local integrating Organization to promote water quality and salmon recovery.



- Port Orchard assisted Northwest Hospitality and citizen volunteers with watershed cleanup activities within the city.
- Port Orchard conducted Stormwater & Watersheds educational nature walks at Cedar Heights Middle School."

MAXIMIZING OUR REACH THROUGH PARTNERSHIPS

REGIONAL PARTNERSHIPS FOR A COMPREHENSIVE APPROACH

Kitsap staff continues to represent the County and WSSOG as partners in the larger regional efforts of STORM. In 2021, Kitsap staff provided input at STORM's quarterly meetings, within the NPDES workgroups, and at the 2021 STORM Symposium. Significant accomplishments of the STORM group are summarized in their annual report (included as Appendix A).

WORK GROUPS

Kitsap staff participated with several small work groups under STORM's umbrella in 2021 on issues of regional significance, including the Business Inspection Group (BIG). Kitsap staff also participate in work groups such as the Natural Yard Care and Pet Waste, which periodically meet as needed.

STORM STEERING COMMITTEE & PUGET SOUND STARTS HERE COMMITTEE

Kitsap County continues to represent the County and the WSSOG partnership as a member of the STORM steering committee. This committee meets twice a month on tasks that guide the regional STORM group. Notable projects by the committee in 2021 included developing governance strategies to guide STORM's future work, working with the Department of Ecology and the Washington Stormwater Center towards long-term funding solutions, planning and facilitating virtual Quarterlies and the annual Symposium.



Kitsap County also participates on the Puget Sound Starts Here Committee, which coordinates the annual PSSH Month. This year, the committee created a new Public Service Announcement (PSA) video promoting automotive BMP's, a new website landing page and online quizzes. The videos and still ads were used for PSSH Month. Kitsap County took the lead in developing the online quiz tools in four languages.

PLANNING FOR 2022

OVERVIEW

Working within the scope of the group's interlocal agreements, WSSOG members evaluated the Work Plan to guide 2022's activities (attached as Appendix B). The primary focus for the upcoming year will be to continue our work with C+C on expanding and evaluating a social marketing campaign to address the new Natural Lawn Care behavior. Due to the ongoing concerns with COVID-19, partnering with the Master Gardeners to conduct online webinars will be critical to the success of the program. Additional tasks will include maintaining the existing Mutt Mitt, *Spills Happen* and PSSH programs.

Kitsap County received a GROSS grant which includes updating the equity data tool and auditing existing WSSOG outreach programs to determine best strategies in reaching overburdened communities.

Lastly, the interlocal agreements governing the WSSOG partnership expire at the end of 2022. The group will work to update and create new 3-year agreements to take effect in 2023.

PSSH, STORM AND BEYOND

On a regional scale, WSSOG will monitor STORM's efforts to select and implement a new regional behavior change program. WSSOG will also monitor existing workgroup efforts.

WSSOG will also monitor STORM's evolution of the Puget Sound Starts Here campaign and will continue to promote local awareness. The group will participate in Puget Sound Starts Here Month through distribution of branded materials to local businesses. With an increased focus on virtual outreach, the group will continue to participate in regional digital advertising campaigns. The group will also evaluate the continued use of branded outreach materials based on supply of items and the ability to distribute items during the pandemic.

Kitsap County will continue to represent the WSSOG group as a STORM Steering Committee and PSSH Committee member. We will continue to participate in relevant workgroups and apply insights, approaches and materials gained from these workgroups as appropriate.



STORMWATER OUTREACH
FOR REGIONAL MUNICIPALITIES

2021 ANNUAL REPORT

About STORM

STORM is a coalition of city and county governments working together to improve water quality in our lakes, rivers, streams, and Puget Sound by meeting education and outreach requirements from the federal Clean Water Act and the WA Water Pollution Control Act.

STORM's Vision: People living and working in our communities take actions that protect water quality within the Puget Sound Basin.

STORM's Mission: Work together with regional partners to address polluted runoff by advancing broad-scale behavior change.

If your municipality would like to join STORM, or receive our updates, send your request to Katherine Straus, STORM Coordinator,
katherine.straus@seattle.gov

Check out the STORM Resource Reservoir at
pugetsoundstormgroup.org.

STORMers,

As we look back at 2021, let us take a moment to reflect on all of the creative and inspirational ways that the STORM network has continued to engage communities in stormwater pollution prevention throughout the pandemic. From the progress of the Dumpster Outreach Group, to the launch of Adopt a Drain, to another successful Puget Sound Starts Here Month, STORM members demonstrated the power of regional collaboration again and again.

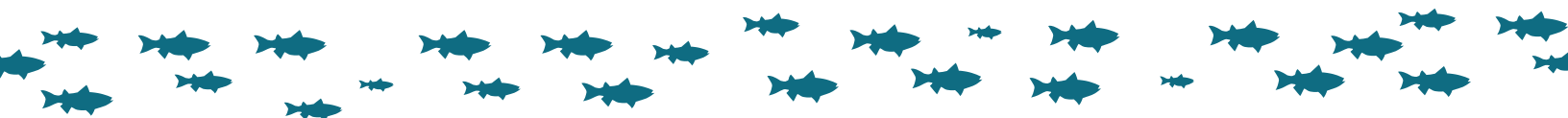
Not only did we engage with our communities and make important progress in reaching water quality goals and meeting permit requirements, but we also engaged with each other in meaningful and lasting ways. While virtual networking certainly has its drawbacks, we saw record attendance at our STORM Quarterlies and Annual Symposium. This is a testament to the value that STORM members place on learning from their peers and continuous improvement.

The STORM Steering Committee is proud of all of the work we've done in 2021 to foster regional collaboration and help permittees meet their NPDES requirements and we look forward to connecting with you all more in 2022!

Upwards and onwards folks!

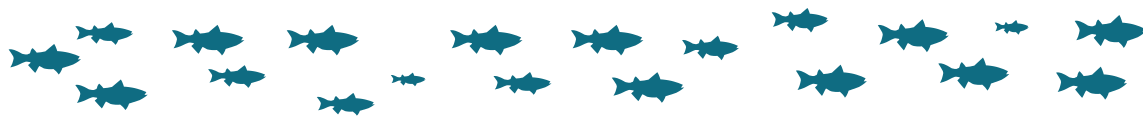
Laurie Devereaux, Bellevue
Betsy Adams, Kirkland
Mary Rabourn, King County
Kym Pleger, Kitsap County

Paige Morris, Burien
Susan McCleary, Olympia
Katherine Straus, STORM
Coordinator



Welcome, Paige!

In May 2021 we welcomed Paige Morris to the STORM Steering Committee. Paige works for the City of Burien as the City's Environmental Education Specialist. In her role she is responsible for community engagement, public education, and planning/policy support for environmental focused efforts in Burien. She is also the lead coordinator for the annual interjurisdictional StormFest event in the Highline School District.



Long Term Funding Update

2021 was a busy year for STORM's Long-Term Funding (LTF) Committee!

At the May 2021 STORM Quarterly, the LTF Committee proposed a recommended funding strategy for the STORM Coordinator and services. This strategy included a request for a directed grant from Ecology for both a 1.0 FTE STORM Coordinator and STORM's services, including trainings, outreach campaigns and programs, and website administration. It also included partnering with the Washington Stormwater Center (WSC) to receive this grant and the Coordinator becoming a WSC employee.



The proposed budget, STORM Coordinator job description, and list of STORM services were submitted to Ecology in May 2021. Many STORM members submitted letters of support for this proposal - thank you!

In August 2021, Ecology made the determination to fund a statewide Municipal Education and Outreach Coordinator (rather than a STORM Coordinator). The position will be funded through the same state funding appropriation process that funds other positions at the WSC, with initial funding available July 2022 - June 2023. This person will focus on providing technical assistance to municipal stormwater permittees to meet outreach requirements.

Ecology is providing WSC with funding to scope Municipal Permittees' education and outreach needs to inform the Coordinator's work plan. The needs assessment survey that you received at the end of 2021 was part of this process. The WSC will work through April 2022 to develop an Education and Outreach Coordinator work plan that supports Municipal Permittees across the state.

The final work plan will need to receive approval from the WSC Stormwater Advisory Group (SAG). This group is responsible for reviewing, commenting, and approving all elements of the WSC biennial workplan. In 2022, their review will include the new Municipal Education and Outreach Coordinator's work plan. Susan McCleary has joined the SAG as a representative for STORM and municipal E&O needs.

Puget Sound Started With Car Care in 2021

PSSH Month took to the roads this past September with a digital campaign focused on car care actions that can help reduce water pollution. While the 2020 campaign was focused on overall general awareness, this year we drove users to the website for specific vehicle education



information and encouraged completion of an educational quiz.

The PSSH committee hired Hand Crank Films to create short public service announcements. Additionally, we developed a new website landing page in four languages (English, Korean, Spanish, and Vietnamese), as well as an educational quiz. Rich Marketing coordinated a four-week long digital ad campaign.

The Puget Sound Starts Here regional awareness campaign collectively reached over seven

million total media impressions, which covered participating STORM consortium zip codes across digital and social media - including relevant local and national publishers to sensitive populations in all four languages.

This year's regional media campaign:

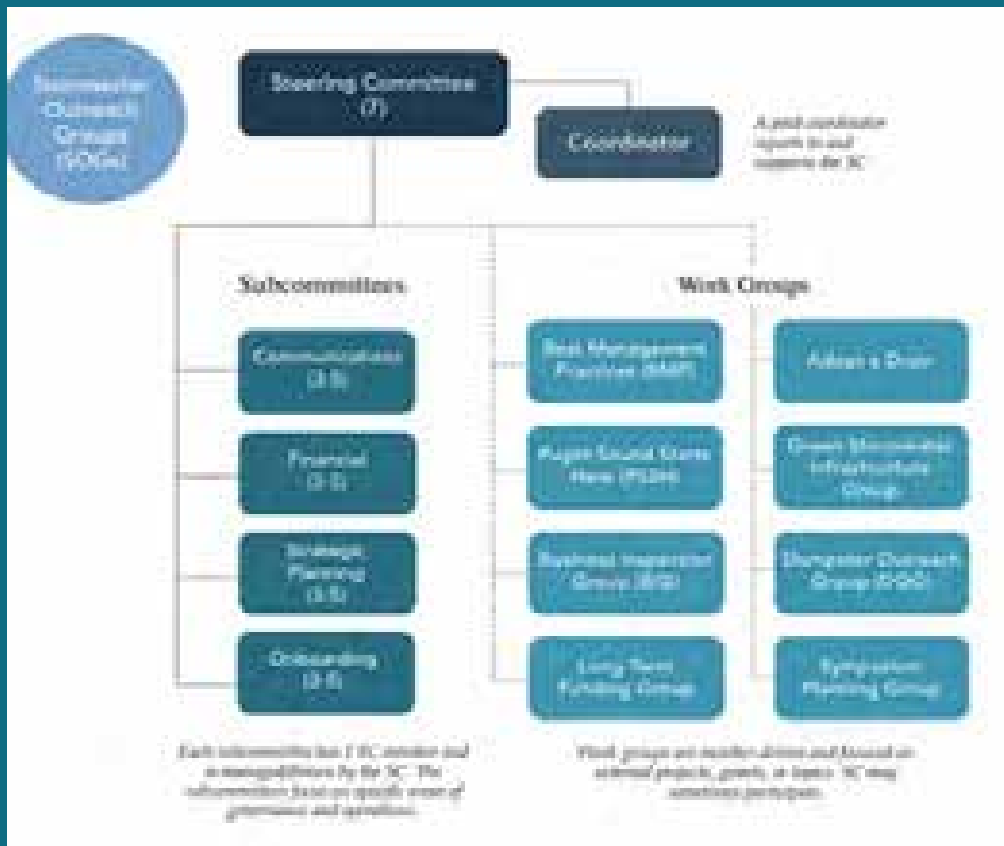
- Delivered over 13K clicks to the landing page for Car Care specific information and behavior action
- Saw a year-to-year (YTY) 46% increase in ad to website click through rate (CTR) and a YTY 40% increase in video views
- 24% of all website traffic went to additional pages on the site, which shows that residents want more information about what they can do to protect Puget Sound.
- Noted a trend that the longer a campaign runs, the more campaign reach and cost efficiencies improve, building a case to lengthen the PSSH campaign and use it as a driver for our local events over more months.
- We tested a behavior change action using a Car Care Quiz in all four languages. When completed, we sent a free digital Chinook Book to each respondent. Across the region, 271 completed our PSSH Car Care Quiz, provided their contact information, and were sent a digital Chinook Book!
- Read the [full campaign summary here](#).



STORM Governance Plan

In 2020, STORM received a National Estuary Program (NEP) grant focused on strengthening the STORM coalition. The grant provided an opportunity to develop a governance structure and document that describes a resilient, sustainable framework from which STORM members will achieve the greatest possible impact together through regional collaboration. The structure was developed with these goals in mind:

- Ensure the STORM coalition's sustainability over time
- Provide a supporting structure for the coalition's growth and change
- Support and complement a sustainable funding structure
- Sustain institutional knowledge
- Empower STORM coalition members and facilitate leadership by peers



The STORM governance structure and supporting document was developed by the Steering Committee through a planning process that began in the spring of 2020. Survey responses received from the STORM network (August 2020) informed the planning process by identifying the needs of members related to the structure, function, and governance of STORM. The document was finalized in September of 2021 after receiving feedback from STORM members on the draft document.

The Governance Document outlines STORM's organizational structure and function. The organizational structure is defined as the roles and responsibilities of the Steering Committee, Coordinator, subcommittees, and work groups. STORM's function is defined as the coalition's decision-making processes, member engagement, organizational sustainability, and the leadership pipeline. The document provides guidance for committee membership size, participation, terms of service, responsibilities, and decision-making processes.

The STORM Governance Document is a living document that will be updated as needed to accommodate growth and changes over time. To view the most up to date copy of the Governance document sign in to the [STORM Resource Reservoir](#) and search for "governance."

STORM Symposium

The STORM Symposium took place virtually this year, and once again offered the opportunity for people to attend who might not have joined us in person. With almost 200 people in attendance on day 1 and over 100 on day 2, we crushed last year's virtual attendance numbers, which hovered around 85 for both days.



In an effort to showcase more program success stories, which is something that STORM members have reported they want more of, we heard from two different panels over the two days. The first panel highlighted [different types of youth education programs](#) and the second focused on the [different ways mapping tools can be used](#) to reach overburdened communities and meet NPDES requirements.

We were also lucky enough to hear from two guest speakers, both experts in their respective fields. Dr. Crystal Hall with the UW Evans School of Public Policy presented on [how we can improve the way we approach equity in our behavior change programs](#), and Monica van der Vieran with King County Waste Water Treatment presented on [interpretation best practices](#).

STORM Resources Working for YOU

Looking for an example of a pet waste mailer? Need a ready-made post to share to social media or an image to put in your newsletter? STORM has you covered! We've been working hard to build and maintain a vast library of resources to help Western WA municipal stormwater permittees do their jobs better and more efficiently. Why re-invent the wheel when so many talented colleagues have already created amazing resources to share with our communities? Here are a couple of resources for you to check out and keep handy for the next time you're looking for inspiration:

- [Resource Reservoir](#) - STORM's public library of vetted outreach materials
- [STORM Flickr](#) - Free stormwater related images for you to use
- [Puget Sound Starts Here Events Page](#) - Create an account and share events to a wider audience
- [Puget Sound Starts Here YouTube](#)

National Estuary Program (NEP) Grants Supporting STORM

STORM currently has two active NEP grants supporting our work:

- "Strengthening STORM for Improved Local Capacity to Manage Stormwater Programs," closes June 30, 2022. This grant funds the coordinator position, and in 2021 supported our efforts to formalize STORM's structure and practices, provide training to STORM members, conduct an analysis of regional social marketing programs and best management practices, and to hear from members through surveys and impact interviews.
- The "Puget Sound Starts Here - A Regional Awareness and Behavior Change Campaign" is extended through Jan 31, 2023. An RFP to hire a social marketing and project team will go out in Q1 of 2022, and will help the team shape the 2022 campaign based on the work of the BMP analysis and the social media campaigns. If you are interested in what's happening in these projects, contact Mary.Rabourn@kingcounty.gov.

WSSOG 2022 WORK PLAN

Objectives from Exhibit "A" -
West Sound Stormwater Outreach Group Scope of Work & Budget for 2020-2022

Sustain successful efforts (Objective 2, Task 2.2)

- Continue Pet Waste outreach
 - Continue to implement Mutt Mitt E&O plan
 - Sustain Mutt Mitt program
 - Participate in the regional STORM Pet Waste workgroup as appropriate
- Continue to implement spills hotline outreach opportunities, including but not limited to:
 - Distribution of paint sticks, when feasible
 - Promotion of the See Click Fix application and spills reporting phone number in social media, print or digital

New behavior campaign development (Objective 3, 4 and 5)

- Continue Natural Yard Care campaign development
 - Expand the Natural Yard Care campaign to all jurisdictions within WSSOG. Program to include 3 workshops in partnership with the WSU Master Gardeners in spring 2022 and a product discount.
 - Coordinate efforts with WSU Master Gardeners on webinar topics, and dates
 - Coordinate follow up email outreach to be done by Master Gardeners including logistics, talking points, etc.
 - Prepare an evaluation of the campaign with specific, measurable and achievable outcomes to include webinar polling, post-event surveys and marketing metrics
- Monitor the progress of other jurisdictions' behavior change campaigns and adapt elements as appropriate
- Participate in regional STORM natural yard care work group as appropriate

Other opportunities (Objective 5, 6) – including optional activities with participation varying by jurisdiction

- Successfully develop new ILA's and Scopes of Work for 2023-2025
- Continue to participate in *Puget Sound Starts Here* outreach
 - Promote PSSH Month

- Distribute PSSH-branded merchandise, including but not limited to coasters and pet waste bag holders, when feasible
- Participate in STORM-sponsored regional ad buys and/or place local ads
- Using the GROSS grant, update the shared equity mapping tool with newly released census data
- Using the GROSS grant, hire a consultant to evaluate priority outreach programs agreed upon by WSSOG, and identify shared strategies to increase participation of underserved communities
- Provide lessons for school aged children
- Advertise via a variety of channels as appropriate: digital, print or other media
- Pilot field monitoring programs with high school and elementary students if in-person schooling resume
- Consider partnerships on stewardship opportunities as appropriate

Strengthen coalition and represent WSSOG on regional efforts (Objective 6 and 7)

- Participate on the STORM Steering Committee and PSSH committee
- Participate in STORM's regional workgroups as appropriate
- Provide STORM and PSSH support and attend Quarterly meetings
- Promote capacity building as needed
- Provide annual summary of activities and report out on programs as appropriate

WSSOG 2021 Natural Yard Care Pilot Final Report

Executive Summary

The West Sound Stormwater Outreach Group, or WSSOG, is a multijurisdictional partnership between Kitsap County, the Cities of Bainbridge Island, Bremerton, Gig Harbor, Poulsbo, Port Angeles, Port Orchard, and the US Navy. The group is working to improve water quality by reducing pollutants in stormwater runoff, which are a major source of pollution to local waterways and the Puget Sound. C+C worked with the WSSOG to develop a behavior change pilot campaign to address the issue. The following report details results and findings from the pilot to inform a large-scale campaign in the following years.

The effort satisfies the current Western Washington Phase II Municipal Stormwater NPDES permit. Planning for the program began in 2019, and the pilot occurred in 2021. The following activities were conducted through the multi-year effort:

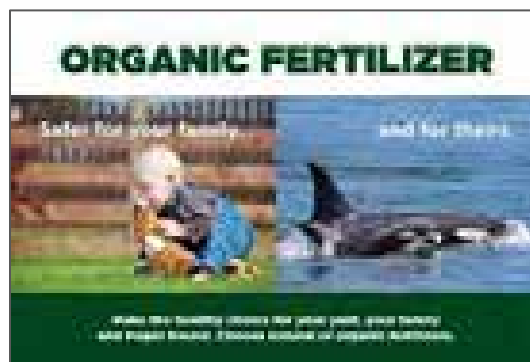
- **Social Marketing Sessions** - The WSSOG conducted five social marketing planning sessions to define key project elements, including the campaign's focus on getting residents to reduce the use of chemical fertilizers on their lawns.
- **Initial Audience Research** - Research was conducted to better understand the priority audience's perceived barriers, benefits, and motivators in relation to the desired behavior.
- **Creative Development and Testing** - Based on research findings, creative concepts were developed then tested among the priority audience.
- **COVID-19 Pivot to Research** - Due to COVID-19, the 2020 pilot was delayed to 2021. While the pilot was delayed, additional research was conducted to further refine planned campaign tactics and messaging.

Pilot

The pilot was conducted in Poulsbo during peak fertilizer season in spring 2021, and included webinars hosted by WSU Kitsap County Extension's Master Gardeners; and organic fertilizer discount offered through a partnership with a local retailer; and campaign communications including a Facebook ad campaign, a postcard, and government delivery channels such as e-newsletters, organic social media, and utility bill messaging.

Pilot by the Numbers:

- 23,131 People reached on Facebook
- 2,933 Direct mail impressions
- 1,177 Link clicks on Facebook
- 68 Webinar registrations
- 35 Webinar attendees
- 18 Coupons redeemed in-store
- Successful partnership with Master Gardeners



Campaign Planning

Social Marketing Sessions (December 2018 - February 2019)

Social marketing is a process that applies marketing principles and techniques to create, communicate, and deliver value to influence a priority audience's behaviors to benefit society. In line with social marketing best practices, the WSSOG participated in five social marketing planning sessions led by C+C Social Marketing Strategist Nancy Lee. Lee has over two decades of experience in social marketing, co-authoring 13 books on social marketing with Philip Kotler; teaching Introduction to Social Marketing at the University of Washington; and consulting with over 100 governmental agencies in Washington state.

Each of Lee's sessions included an overview and presentation of a social marketing tenet, and a corresponding workshop to design each plan element. The purpose of the campaign was defined as: To reduce pollutants in stormwater runoff by increasing the amount of safe products used in yard care and decreasing the amount of harmful products used in yard care. The five sessions were as follows:

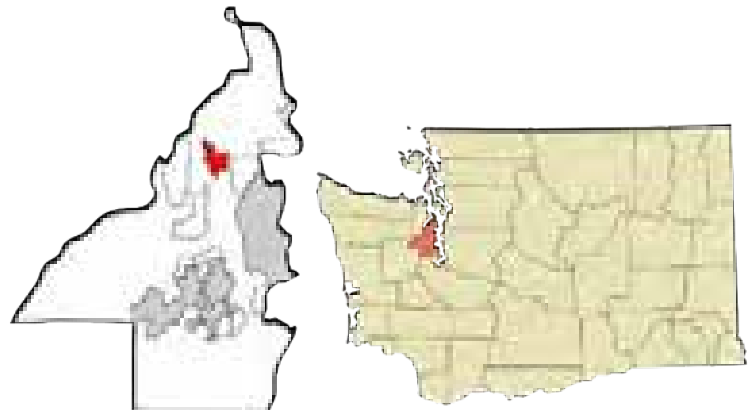
1. Background, Purpose, and Focus
2. Situation Analysis
3. Priority Audience
4. Desired Behavior Objectives & Goals
5. Priority Audience Barriers, Benefits, Motivators, Competition, and Influential Others

The end result of the workshops was a complete social marketing plan, ready for pilot development and implementation. The following key elements were chosen:

Campaign "Ask" - In order to reduce pollutants in stormwater runoff, fertilize only with safer products, if you plan to fertilize your lawn.

Campaign Audience - Single family home or townhome residents with kids and/or pets who have "Do It Yourself" yards and are currently using harmful products.

Pilot Area - The WSSOG chose the City of Poulsbo for the pilot based on a number of factors including the availability of Master Gardener outreach channels, the city's mix of representative demographics, and its central location within the county. With roughly 4,126 households and a population of 10,602, Poulsbo makes up just 3.9% of the population - making it an ideal fit to pilot the campaign and build toward Kitsap County-wide implementation.



Initial Audience Research (December 2018)

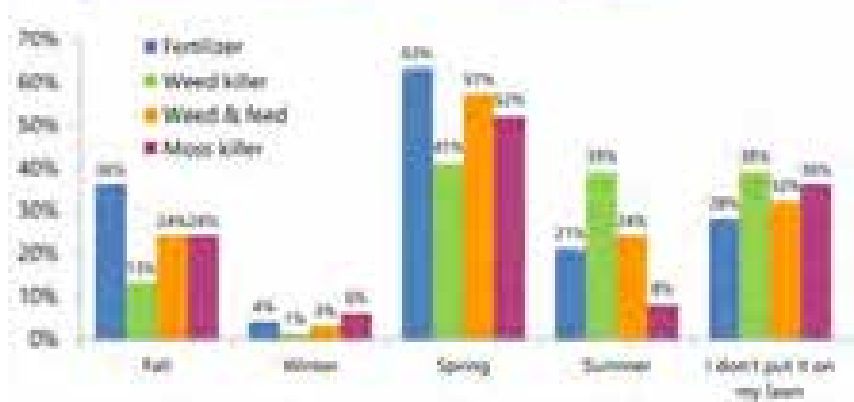
Between social marketing sessions four and five, the WSSOG and C+C worked with Hardwick Research to gain a better understanding of the priority audience. A survey was designed to identify the perceived barriers and benefits related to lawn care and fertilizer usage by Kitsap County residents. The priority audience was defined as those who:

- Live in Kitsap County, Poulsbo, Bremerton, Port Orchard, Gig Harbor, Bainbridge Island, or Port Angeles
- Own a single-family home, townhouse or duplex
- Have grass on their property
- Maintain the grass themselves
- Have at least one child under 18 years of age living in their household OR have a pet that goes out in the yard
- Uses a fertilizer on the lawn

The survey was promoted through Facebook, government delivery channels, and digital neighborhood groups such as Nextdoor. A total of 212 people responded to the survey, with 164 falling within the priority audience parameters. Some of the key high-level findings were:

- When asked “have you ever considered switching to ALL organic yard care products,” 56% of the priority audience indicated they have considered making the change.
- The top three concerns the priority audience had about using organics:
 - 50% believe organic products cost more
 - 27% do not think organic products would work as well
 - 35% are not sure where they would purchase organic products
- The priority audience said Master Gardeners are the spokespeople they believe most when it comes to using organic products. 43% believe Master Gardeners; 39% believe professional gardeners (groundskeepers, golf course managers, landscapers, etc.); 34% believe university researchers; 27% believe local nurseries or garden centers; Friends/neighbors, governments, celebrity gardeners, medical experts, major brands, veterinarians, and the internet all ranked below 17%

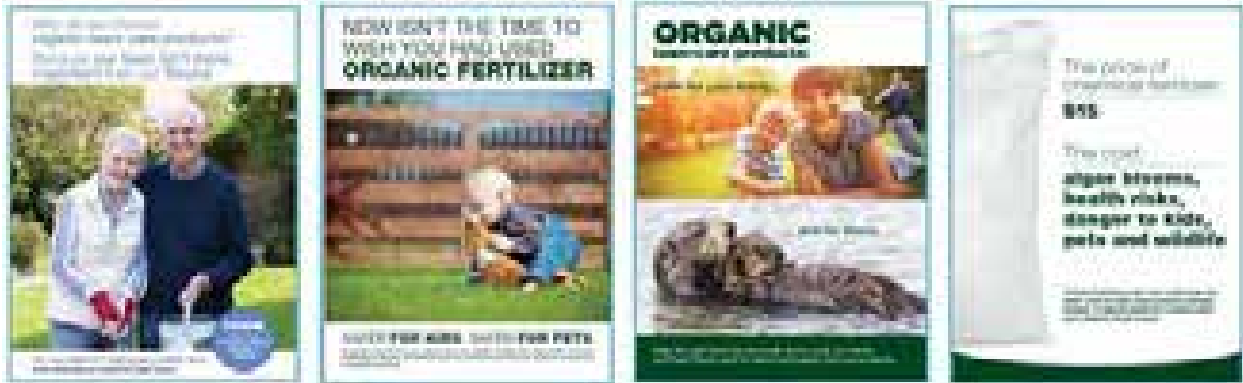
Priority Audience respondents use the following products...



- 64% of priority audience respondents thought that free or discounted organic products or a list of what products to use would make them more likely to use organic products on their lawn.
- Spring is the peak season for participants who were putting chemical products on their lawns, followed by fall.

Creative Development and Testing (April 2019 - June 2019)

Once the social marketing plan was developed, the WSSOG worked with C+C to develop campaign creative and determine the best combination of imagery and messaging to resonate with the priority audience. Message testing with the priority audience helped determine which combination of image and text would be most motivating to get them to switch from using harmful products to using safer ones. The survey was conducted using the online tool Ask Your Target Market. For this testing effort, C+C and the WSSOG developed four separate adcepts (pictured below).



Respondents answered questions to capture the following information:

- Open-ended (qualitative) questions regarding **understanding**
- Likert rating of each ad to determine success factors: **important, relevant, believable, motivating, engaging**
- Rank order from most motivating to least motivating
- Open-ended explanation of elements that contribute to most and least motivating
- Open-ended description of an ad that would be most motivating

Research Results:

- The “Child & Puppy” creative performed the strongest overall, and performed strong enough that no changes to the image and message were needed
- The “Child & Puppy” and “Otter” adcepts both scored very well in comparison to the group.
- “Otter” performed well, especially among those who already have some knowledge about the issues associated with natural yard care – as the audience becomes more aware/educated, “Otter” could be the “next generation” key message.
- All of the messages were well understood, including the nuances beyond organic is better than chemical fertilizers.
- Images with children were ranked as engaging and relevant.

With research finding the “Child & Puppy” adcept was the strongest, the WSSOG finalized the campaign creative (pictured below).

ORGANIC FERTILIZER

Safer for your family...



and for theirs.



Make the healthy choice for your yard, your family
and the Puget Sound. Choose natural or organic fertilizers.

COVID-19 Delays Outreach, Pivot to Research (January 2020 - June 2020)

Based on the results of social marketing sessions and research, in-person events with Master Gardeners at gardening supply retail stores were chosen as the main outreach tactic. Ahead of the spring fertilizing season, Master Gardeners would be on-hand to answer natural yard care questions from the priority audience, while organic fertilizer would be discounted and offered to store attendees.

Due to the impact of COVID-19, the WSSOG's natural yard care pilot campaign was postponed from spring 2020 until spring 2021. With a need to restructure pilot tactics for the pandemic, the team utilized the remainder of 2020 to conduct additional market research on the priority audience. Results and analysis from the research would be used to better inform the execution of the 2021 pilot.

Further Research - Tactics and Messaging in the COVID Environment

With the delay of the pilot campaign due to COVID-19, the WSSOG and C+C conducted additional surveying to refine the tactics within the campaign, such as interest in virtual versions of the events, and preferred descriptions for virtual events. WSSOG also sought to narrow the pilot's Facebook ad strategy by testing which topics would drive the most engagement.

Respondents were recruited by placing two Facebook ads letting Kitsap residents know the WSSOG was seeking people who do their own yard care to participate in a paid research study. Residents who were interested clicked on a link that took them to a short survey to ensure they fit the target audience profile. If they did, they received information about how to participate.

This online research was conducted using the Revelation™ platform with 13 people – or the equivalent of two focus groups. Respondents spent about 1 hour over a 2-day period participating in the research and were compensated \$80 each for their opinions. Select key insights were provided below.

Planned Pilot Insights:

- The target audience is very receptive to online Master Gardener events because they are more convenient. Although a few respondents complained of “Zoom fatigue,” most respondents were excited about the idea of having lawn care education online, provided by Master Gardeners.
- Although cost is a significant barrier to purchase, the way a campaign expresses price reduction has potential to deter people from purchasing organic products.
- Keep focusing on kid / pet health and safety as a motivator. The majority of respondents are not connecting their lawn care practices to the health of the Puget Sound. However, a number of respondents were already concerned about the negative health implication of chemicals on their kids and pets.

Facebook Ad Strategy Insights:

- The Facebook ad that highlighted Master Gardener informational events was preferred over the Facebook ad that provided a coupon. The drivers were:
 - Respondents are eager to interact with Master Gardeners, and believe they would learn useful information from them. Credibility is very high.
 - Those who said they would attend a Master Gardener event were motivated by the educational aspect. This also made some respondents believe that the ad wasn’t just an advertising gimmick.
 - Respondents liked the idea of a coupon at the Master Gardener event, but that was not a significant driver for attendance.
 - Respondents would be more likely to click either ad if it was posted by a friend or trusted source.
 - Although some people loved the idea of coupons, many felt that coupons or discounted products, especially without a familiar brand name, signal lower quality products and/or products that have been sitting around and need to be sold.
 - The ads with coupons didn’t promote a specific product, so respondents didn’t feel confident that the coupon would be worthwhile.
 - Additionally, when respondents found that they had to fill out a form to get a coupon mailed to them, they thought it wasn’t worth the effort. Others were concerned that it would just get their name on a mailing list.

Pilot Activities

The pilot was timed for spring 2021, based on survey findings showing that the majority of the priority audience fertilized their lawns in the spring.

Virtual Events

Based on the insights and recommendations from the 2020 research, Master Gardeners were featured experts. In spring 2020, the pandemic was going strong. Stay at home orders were still in place, and the Master Gardeners were not doing in-person events. The project shifted from the original plan of

tabling at lawn and garden retailers, to conducting natural yard care webinars. The events would cover the basics of natural yard care and would be led by a Master Gardener, with a WSSOG representative serving as the host. Based on the research, the events were titled “Natural Lawn Care with Master Gardeners: For Healthier Yards and Safer Families”

Dates and times were chosen based on volunteer availability, timeliness for the spring fertilizer season, and with the goal of providing options on both a weekday and weekends. Events were held:

- Thursday, March 25, 6-7pm
- Saturday, April 3, 10-11am
- Saturday, April 10, 1-2pm



Outreach Mechanisms

Facebook

A paid social campaign was used to promote the virtual events and the campaign. With roughly two-thirds of U.S. adults (68%) reporting that they are Facebook users, and roughly three-quarters of those users accessing Facebook on a daily basis, Facebook was chosen for its widespread usage, flexibility and scalability.

Two ads were created with the goal of A/B testing different images and calls-to-action for effectiveness. One ad promoted the Master Gardener virtual events, while the other promoted the coupon discount offered at Valley Nursery. The webinar ad ran from March 15-April 10, and the coupon ad ran slightly longer, continuing past the end of the webinars, from March 15-April 30. Both ads drove click-throughs to a Kitsap County landing page for the pilot program.



Retail Partnership and Product Discount

With two-thirds of the priority audience saying free or discounted products were their top motivator to try the desired behavior, the WSSOG sought to offer a discounted product. Organic lawn fertilizers range between approx. \$20-\$70 per bag or carton, so they are not a small, inexpensive “giveaway item”. Further, a small sample amount would not be a strong behavior-change incentive, since it would only cover a very small part of the lawn and would be used next to synthetic fertilizer, and organic fertilizer may take longer to get results.

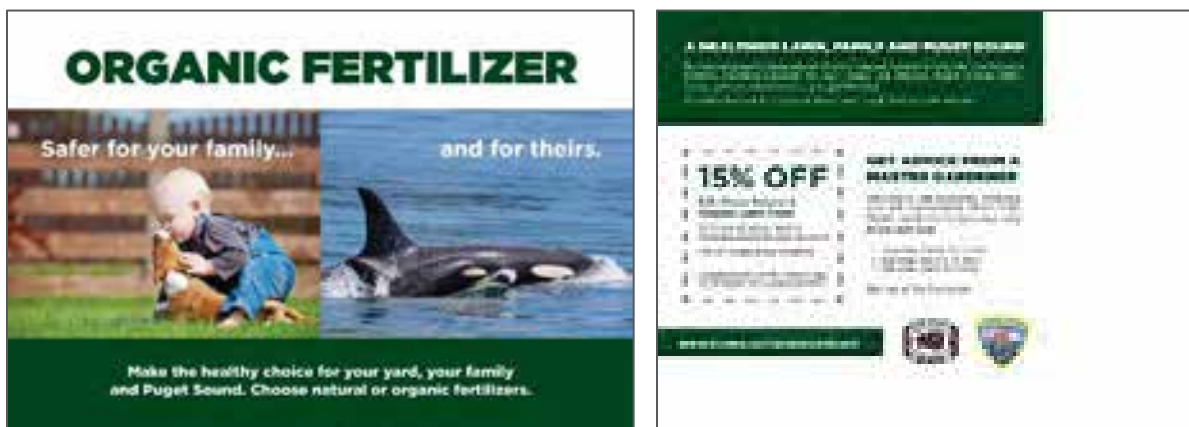


Due to these factors, the WSSOG sought a way to conduct an innovative partnership to provide free or discounted product as part of the pilot project. In order to offer a discount, Kitsap County put out a solicitation to every retailer that sells organic lawn fertilizers at a physical location in the City of Poulsbo, with the goal of onboarding one retail partner for the pilot. Valley Nursery in Poulsbo agreed to partner with the program. Residents would be able to purchase a 20 lb bag of E.B. Stone Organic Lawn Food (pictured) with a 15% discount. The WSSOG would reimburse Valley Nursery for the cost of the discount. Valley Nursery also agreed to commit to stock organic fertilizer throughout the spring season (once the discount is over), an added benefit since other [similar programs](#) in the region have found that one barrier to these programs is that retailers may not keep organic product stocked throughout the popular spring fertilizing season.



Direct Mail

A large, attention-getting 6”x9” postcard was sent to 2,933 Poulsbo households, using a mailing list provided by the city. The postcard conveyed the benefits of using safer products, encouraged residents to attend a webinar, and included the coupon.



Government Delivery Channels and County Website

The virtual events were promoted through the City of Poulsbo’s monthly E-newsletter and monthly utility bill insert. Kitsap County also hosted two web pages to serve as a central source of information about the campaign and the webinar.

Campaign Results

Facebook Results

In total, the pilot's Facebook campaign reached 23,131 people and received 1,177 link clicks - a strong showing for an audience limited to the city of Poulsville. The average cost per click (CPC) was \$2.01.

The Facebook campaign also had a high frequency, with people seeing the ads roughly 14 times on average. Research shows that a person has to see an ad around 7 times to recall it later, making this a memorable effort for the pilot area. Below is a breakdown of how the ads performed separately:

Webinar Ad (March 15, 2021 to April 10, 2021)

- 383 link clicks
- Over 98,000 appearances on people's newsfeed
- 8,559 people reached*
- \$2.26 cost per click
- This ad received 5 comments, 31 reactions, 7 shares, and was saved 6 times by Facebook users
- On average, this ad was seen ~11 times by each person

Coupon Ad (March 15, 2021 to April 30, 2021)

- 794 link clicks
- Over 239,000 appearances on people's newsfeed
- 22,363 people reached*
- \$1.89 average cost per click.
- This ad received 10 comments, 153 reactions, 25 shares, and was saved 10 times by Facebook users
- On average, this ad was seen ~10 times by each person



**"People reached" is larger than Poulsville population due to various factors in how Facebook counts this metric, including users viewing the ad on multiple devices, users accessing Facebook on multiple accounts, and users who are visiting or passing through Poulsville accessing Facebook.*

**7,791 people saw both ads leading to *23,131 total people reached*

Ad Comparison While Both Ads Were Running (March 15, 2021 to April 10, 2021)

- While both ads were running, the coupon ad had a slightly stronger performance compared to the webinar ad.
- The coupon ad drove 467 link clicks while the webinar ad drove 383 link clicks.
- The coupon ad had higher post engagement indicating it was the more relevant ad for the target audience.
- The webinar ad had a higher frequency, meaning the ad was shown more times to the same people than the coupon ad.
- Having a high frequency can negatively impact ad performance, since people may start to tune out ads that they have seen several times in their feed already.

Both the coupon and webinar ads performed well in the pilot area, though were impacted negatively by "creative fatigue", when Facebook users are seeing each ad too many times on their newsfeed. This is a common issue when the priority audience for an ad is as small as the pilot area. On average, each user saw one of the two ads on their newsfeed 14 times. Creative fatigue is demonstrated in the chart

below as link clicks peaked for both ads during the end of the first week in April - just ahead of the second webinar.

The chart also shows yard care ads perform best when they are more relevant to users planning gardening activities for the weekend, and as the weather is getting nicer. The demographic who had the most link clicks, and interacted the most with both ads, was females ages 55-65+.



Website Results

Two landing pages were hosted on the Kitsap County government website, sharing information on the virtual events, the coupon, and more information about using only natural or organic lawn care products. Both pages received strong traffic, with a total of 1,325 unique visitors from 3/1/2021 through 4/30/21.



Coupon Redemption

Valley Nursery reported that 18 coupons were redeemed over the eight weeks between March 30 and May 22. Of these, 11 were redeemed by 4/12 (during the webinar series), and seven more were redeemed by the expiration date of 5/22. All coupons redeemed were physical - residents did not show the coupon on their phone from the website. Valley Nursery reported that spring sales were busy overall. The average response rate on direct mail is .5-2%. If all coupons were from the postcard, the response rate is .6%, average for a general (non-targeted) mailing list.

Virtual Events with Master Gardeners Results

Overcoming barriers such as Zoom fatigue, COVID-19 and competing webinars from various organizations, the WSSOG saw success with 68 registrants and 35 attendees for an average of 12 attendees per webinar. Insights from the webinars:

Attendance

- 51% of people who registered attended a webinar (35 attendees, out of 68 registered).
- 63% of people who attended one of the webinars had kids or pets at home (22 out of 35 attendees).
- 54% of attendees took the post-event survey (19 of the 35 attendees).
- Of the webinar dates and times, Saturday at 10am was the most popular (18 attendees).

Event Registration & Attendance					
Webinar Date	Registered	Registrants with Pets or Kids at Home	Attended	Attendees with Pets or Kids at Home	Took the post-event survey
Thursday March 25, 6:00 p.m.	24	19	8	6	5
Saturday April 3, 10:00 a.m.	27	20	18	13	11
Saturday April 10, 1:00 p.m.	17	7	9	3	3
TOTAL	68	46	35	22	19

Registrations refers to the number of people who completed the registration form (not including panelists or event support). Attendees refers to the number of unique viewers logged into a webinar (not including panelists or event support).

While attendees came from throughout the peninsula, **35%** said that they lived in Poulso, where the majority of communications were focused. Other attendees came from around the peninsula.

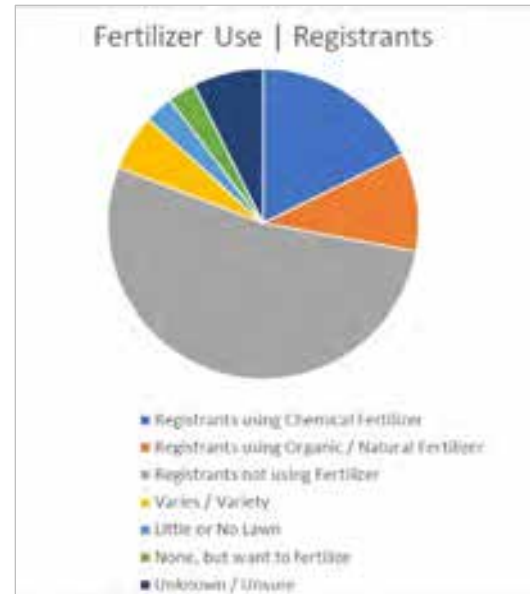
Registrant Fertilizer Use

When asked, “What kind of fertilizer(s) do you use on your lawn currently?”

- Of the 68 people who registered, at the time of registration:
 - 53% said they did not use fertilizer



- 18% said they used chemical fertilizer
- 10% said they used organic or natural fertilizer
- 6% said their fertilizer use varied
- 3% said they had little to no lawn
- 3% said they do not currently use fertilizer, but would like to in the future
- 7% were unsure what type of fertilizer they were using



From the comments about fertilizer use, two sub-groups stood out within the people not using fertilizers. The first sub-group was made up of those who may want to use fertilizer, but are wondering what to use/what to do. And the second sub-group was made up of those who don't think it's a good idea, and want other strategies.

Participant Engagement

The average time attendees spent in a webinar was 37 minutes (each webinar ran between 30-45 minutes). This is a substantial amount of time to engage with the topic – much longer than a conversation an attendee might have in a hardware store setting, and more in-depth than viewing an ad, postcard, or other communication.

Registrant Questions

Of the 68 registrants, many people asked questions pertaining to a variety of lawn and garden topics. A large segment of pre-event questions were relevant to lawn care and/or fertilizer, including:

- How to do weed control without using harsh chemicals?
- Would like to promote healthy grass, less moss, all while not impacting our cats/dog, or the Puget Sound?
- Help my grass get green. Also, getting rid of moss in my grass. Have a couple patches of moss in the front and backyard?
- I just want to learn more about caring for my yard?
- Curious about weed control?
- What are the best products to use on weeds in large rock beds?
- What is best for new flowers, shrubs, trees? Can I use the same one? Do I do it before planting or after planting (how long after)?
- How can I get grass to grow when my yard is taken over by moss?
- Would love to hear about alternatives to lawns, some other options that can be walked on, grows well in the NW and doesn't require all the maintenance and chemicals of a traditional lawn.

Another segment of the registration questions had to do with other lawn and garden topics:

- Is this only about lawn care? We're curious about everything related to gardening excluding lawns since we only have a small patch. Thank you!
- I'm definitely a beginner; however, I am interested in how best to design flower beds and

gardens using permaculture or regenerative practices.

- When can I trim my trees? My lithodora had black in the center of the plants last year, what can I do this year to keep them healthy? Is there anything that helps heather flower better, mine looked skimpy this year. When can I fertilize my lawn and my garden?

Post-Event Survey Results

19 respondents, approximately **half of attendees** took the post-event survey (54%), which showed up on-screen immediately post-event and was also emailed to attendees.

With 19 respondents, this information should be considered qualitative. That said, 42% of post-event survey participants said they would like a follow-up from a Master Gardener.

Attendees reported they were very likely to try organic fertilizer (79%) and likely to use the coupon: How likely are you to try using organic fertilizer?

- 15 said "Very Likely,"
- 3 said "Somewhat Likely"
- 0 said "Somewhat Unlikely"
- 0 said "Very Unlikely"
- 1 said "Not Sure"

How likely are you to use the coupon?

- 9 said "Very Likely"
- 4 said "Somewhat Likely"
- 1 said "Somewhat Unlikely"
- 3 said "Very Unlikely"
- 3 said "Not Sure"

Environmental health was also an influential factor in reasoning behind using organic/natural fertilizers. Of 19 surveyed, 8 mentioned the environment as a reason they would be "Very Likely" or "Somewhat Likely" to try organic fertilizer (42%). In the comment space for the post-event survey, attendees noted:

- I am currently very interested in establishing a natural lawn, garden and flower beds. I am a novice/beginner and am hopeful that I can add to my property without harming my environment.
- I don't use anything in my yard that isn't good for the environment. I try to be as natural as possible.

Post Pilot Survey

A qualitative post pilot survey was distributed via the monthly Poulsbo e-newsletter, receiving 20 individual responses.

[For those that saw the ads] Did the ad(s) cause you to consider using organic fertilizer?

- 5 yes, and I might try organics
- 1 yes, and I probably won't try organics
- 1 no, the ad(s) did not cause me to consider using organics

[For those that DID NOT see the ads] Would the ad(s) cause you to consider using organic fertilizer?

- 9 yes, and I might try organics
- 1 yes and I probably won't try organics
- 2 no the ad(s) did not cause me to consider using organics

[For those that saw the ads] Did the ad(s) cause you to consider using organic fertilizer?

- 5 yes, and I might try organics
- 1 yes, and I probably won't try organics
- 1 no, the ad(s) did not cause me to consider using organics

[For those that DID NOT see the ads] Would the ad(s) cause you to consider using organic fertilizer?

- 9 yes, and I might try organics
- 1 yes and I probably won't try organics
- 2 no the ad(s) did not cause me to consider using organics

Four respondents identified as chemical fertilizer users. Here's how they responded:

Did you see these ads?

- 3 no I haven't
- 1 yes I have (Facebook)

Would/did the ads cause you to consider using organic fertilizer?

- 4 Yes, and 1 might try organic fertilizer

What caused you to answer, "Yes, and I might try organic fertilizer"?

- *I am willing to try organic fertilizer, but it is hard to find, especially at larger stores like Home Depot. When I do find it at smaller stores (i.e. Olmsteads), it's terribly expensive.*
- *It's never too late to learn something new*
- *Recently moved to area from desert and need to learn more about what to do with lawn that doesn't harm environment*

When asked about other barriers and benefits to trying organic fertilizer, respondents noted:

- Barriers include "financial cost" and "very expensive"
- Benefits include taking care of the environment:
 - We compost, grow a garden, and have used only organic and safe products on our lawn and garden for years. Thanks for promoting it!
 - I like helping keep my community safer
 - I would only use organic that has ingredients that are safe for the environment and especially to people and pets.
 - I buy organic veggies and having had multiple chemical sensitivities it would be healthier and better for dogs and wildlife
 - Any reminder that an organic fertilizer is better for human, animal and sea life contact.

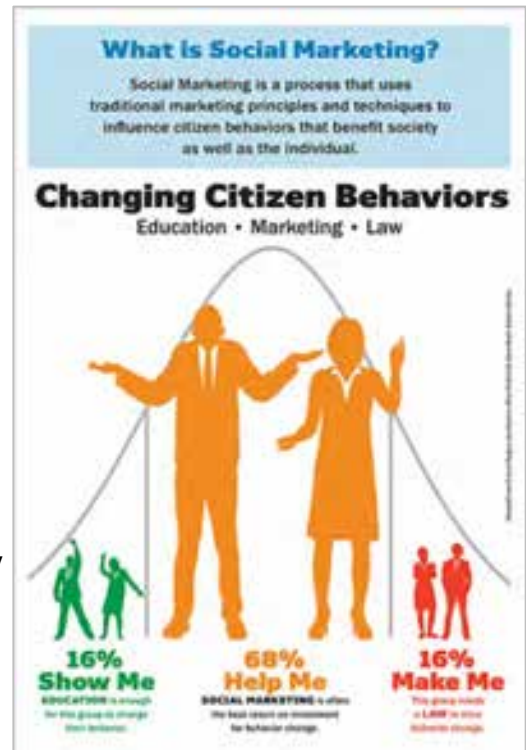
Virtual Events with Master Gardeners Insights and Recommendations

Many registrants and attendees did not know their fertilizer usage, or noted no fertilizer use, or noted "very likely" when asked post-event if they would try natural/organic fertilizer.

Based on these responses, attendees are most likely in the “**help me**” group, not the “make me” group, as defined by Social Marketing (see chart to the right). The “help me” group is the most likely to benefit from behavioral interventions like this program.

As the WSSOG considers virtual events in the future, some attendees would prefer a broader range of topics to be covered during webinars. For example, many of the submitted questions had to do with other lawn and garden topics, from moss to compost to taking care of specific plants. Two registrants mentioned that they have little to no lawn area.

When continuing with virtual events, a few other high-priority natural yard care behaviors could be included along with using organic and natural lawn fertilizers such as native plants, mulch, moss, safely getting rid of insecticides.



Post Campaign Survey Results

A post-campaign survey was announced to the general public via the City of Poulsbo’s e-newsletter; participants were entered to win a gardening kit with gloves and tools. Twenty people filled out the survey; results should be considered qualitative.

When asked about their fertilizer use:

- 4 survey participants were using chemical fertilizer
- 7 survey participants were using organic/natural
- 9 survey participants were not using fertilizer

When asked, “Have you seen either of these advertisements?”:

- 13 did not see either ad
- 2 saw webinar ad
- 6 saw coupon ad
- *1 person noted seeing both ads

[For those that saw the ads] Did the ad(s) cause you to consider using organic fertilizer?

- 5 - Yes, and I might try organics
- 1 - Yes, and I probably won’t try organics
- 1 - No, the ad(s) did not cause me to consider using organics

[For those that DID NOT see the ads] Would the ad(s) cause you to consider using organic fertilizer?

- 9 yes, and I might try organics
- 1 yes and I probably won’t try organics
- 2 no the ad(s) did not cause me to consider using organics

Looking at just the four chemical fertilizer users, their responses were as follows:

Did you see these ads?

- 3 - No I haven't
- 1 - Yes I have (Facebook)

Would/did the ads cause you to consider using organic fertilizer?

- 4 - Yes, and I might try organic fertilizer

What caused you to answer, "Yes, and I might try organic fertilizer"?

- I am willing to try organic fertilizer, but it is hard to find, especially at larger stores like Home Depot. When I do find it at smaller stores (i.e. Olmsteads), it's terribly expensive.
- It's never too late to learn something new
- Recently moved to area from desert and need to learn more about what to do with lawn that doesn't harm environment

Though these results are qualitative, it is encouraging that the four chemical fertilizer users said the ads would cause them to consider using organic fertilizer, and helpful to see their varied answers on why they'd consider it.

Extrapolated Pilot Results

Poulsbo's population makes up approximately 4% of people living in Kitsap County. If the results of this pilot were extrapolated to the full county population, the numbers would be as follows:

	Actual (Poulsbo)	Extrapolated (Kitsap County)
Workshop Attendees	35	851
Workshop Registrations	68	1,653
Coupons Redeemed	18	438

	Population ¹	Percentage of total population
Poulsbo	11,168	4%
Kitsap County	271,473	100%

¹ [U.S. Census Bureau QuickFacts: Poulsbo City, Washington](#) - Population Estimates July 1, 2019.

Though Poulsbo was chosen for its representative demographics, clearly many factors would influence this extrapolation in implementation - from variations in population demographics and psychographics, to residents' proximity to a participating nursery, to any difference in how the marketing tactics and budget were applied throughout the county.

Recommendations for Further Evaluation and Next Steps

Overall, the WSSOG's yard care campaign, which was adapted due to COVID restraints, was successful both in reaching the priority audience, and in eliciting participants for webinars— which are a much bigger time commitment than stopping by a booth while already at the hardware store.

As the WSSOG looks to implement the campaign throughout the Kitsap Peninsula in 2022, recommendations for consideration include:

Adapt to a Larger Audience. Shifting from the Poulsbo pilot area to the wider Kitsap Peninsula will mean addressing an audience that is approximately twenty-five times bigger (going from a population of 10,602 in Poulsbo to 271,473 county-wide). For wider-scale implementation, the following changes may be worth considering:

- Explore targeting the mailing list to focus in on the priority audience, if needed
- Explore adding additional retailers in order to geographically cover more of the peninsula with the coupon offer

Adapt to a Changing COVID-19 Landscape. In terms of the COVID-19 pandemic and its effect on the world, it is currently impossible to tell what winter 2021 and spring 2022 will bring. The WSSOG will need to continue to be flexible and adapt tactics to what is feasible and likely to be most successful as the environment changes. Trusted messengers like the Master Gardeners may be back to in-person events in 2022, and could be leveraged for either webinars or in-person events at that time. In-person events at retailers offer the advantage of reaching the public when lawn care is top-of-mind, and they are about to make a product purchase decision (and can immediately use a coupon). On the other hand, online events typically offer a much longer engagement time than the average in-store encounter. Each approach has its benefits.

Continue to Utilize the Research Findings. The pilot campaign was designed to reflect findings from WSSOG research with the priority audience in Kitsap County. The program utilized trusted messengers (the Master Gardeners), addressed stated barriers like price (with the coupon), and the selection of imagery and messaging was also vetted by the priority audience. While outreach tactics may need to adjust due to the changing pandemic landscape, these findings should continue to be reflected in the large scale program.

Leverage Master Gardener Insights to inform event topics and the best pathway for accessing events in 2022, such virtual vs. in-person. The virtual events received strong reception, and Master Gardeners are in the best position to inform the interest of events for 2022. Potential outreach methods could include either an online survey or focus group with Master Gardeners. Potential questions to assess the future of webinars could include:

- What topics would be of most interest?
- What are people responding to?
- Can attendees handle more than one topic at a time?
- What could we do to increase attendance?

Consider Joining an Existing Master Gardener webinar. In spring 2021, the Master Gardeners were not doing in-person events due to COVID-19, and instead conducted webinars on a variety of topics (outside of the WSSOG program). For 2022, if these continue, one tactic to consider is exploring opportunities to add the natural lawn care topic into other popular Master Gardener webinars as appropriate (for instance, if the Master Gardeners were doing a webinar on “low maintenance lawns” or addressing weeds). These events have a built-in audience and could offer an opportunity to reach even more Kitsap County residents with information on the targeted behavior.

Follow-up With Webinar Attendees. For further understanding of whether the webinars led to behavior change, the WSSOG could engage with attendees later in the 2021 yard-care season to see if behavior has changed, or if they ran into any challenges that could be addressed by the program in the future. These attendees could also be invited to join a Facebook group to share their journey with others; the group could be moderated by Master Gardeners or other experts.

Consider Additional Facebook Creative. Creative fatigue was a challenge on Facebook. This was largely due to the pilot area comprising a small audience, so the issue may be resolved by addressing a much larger audience in the larger campaign. As the campaign expands to the rest of Kitsap County, the WSSOG could also consider:

- Introducing new ad images and copy partway through the campaign to grab the attention of users who have begun to scroll past the posts.
- A/B testing with additional ad creatives to see which images/copy perform better.

Appendices

- Social Marketing Session Final Document
- Research Reports:
 - Initial Audience Research
 - Creative Testing
 - Audience Research - Tactics and Messaging



Digital & Social Media – Vehicle Education & Connection Ad Campaign Overview

Sep 20, 2021 - Oct 31, 2021

New Users
8,697

Sessions
10.1K

Total budget
\$59K



Property	Impressions	Video completions/plays/views	Clicks
1. Basis DSP	5,123,890	1,410,229	4,165
2. YouTube	1,211,627	187,394	1,662
3. Facebook/Instagram	792,959	604,323	7,431



1 - 3 / 3 < >

Line Item	Impressions	Video completions/plays/views	Clicks
1. Basis DSP DISPLAY & NATIVE ENGLISH - BT(Vehicle Age 10+/DIY Auto Maintenance/Auto Enthusiasts); CSL(Local News...	2,855,755	134,387	2,270
2. Basis DSP VIDEO SPANISH - Browser Language Targeting; DT(Low Income/HHI <\$30K/Unemployed/No HS Diploma/Et...	345,748	243,636	555
3. Basis DSP VIDEO KOREAN - Browser Language Targeting; DT(Low Income/HHI <\$30K/Unemployed/No HS Diploma/Eth...	214,754	166,891	323
4. Basis DSP VIDEO VIETNAMESE - Browser Language Targeting; DT(Low Income/HHI <\$30K/Unemployed/No HS Diplom...	195,543	140,016	166
5. Basis DSP VIDEO ENGLISH - BTVehicle Age 10+/DIY Auto Maintenance/Auto Enthusiasts); DT(Low Income/HHI <\$30K/...	1,512,090	725,299	851
6. YouTube Video English (:06, :15, :30 Creative)/Spanish/Vietnamese/Korean (:15, :30 Creative) Geo - Puget Sound Coun...	1,211,627	187,394	1,662
7. FB/IG Display & Video English (:06, :15, :30+ Image Creative)/Spanish/Vietnamese/Korean (:15, :30 Creative) Geo - Pug...	792,959	604,323	7,431

Grand total

7,128,476

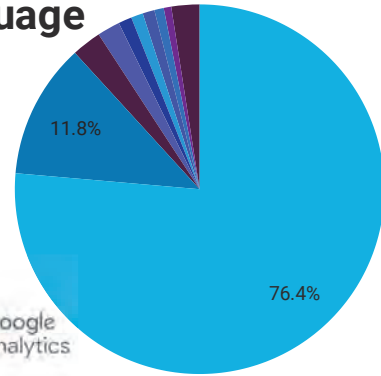
2,201,946

13,258

Please see terminology **Key** on page 6.

1 - 7 / 7 < >

Language

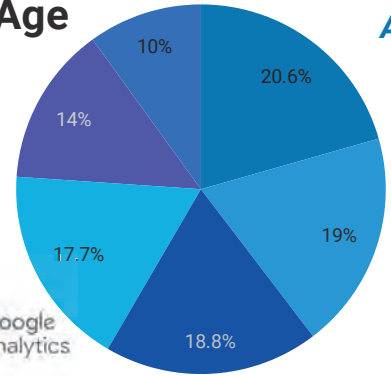


- en-us
- es-us
- vi-vn
- ko-kr
- zh-cn
- en
- es-mx
- es-419
- es-es
- others

Language Codes

en = English (All)
 en-us = English (United States)
 es = Spanish (All)
 es-es = Spanish (Spain)
 es-us = Spanish (United States)
 es-xl = Spanish (Latin America)
 es-419 = Spanish (Latin America/Caribbean)
 ko = Korean
 ko-kr = Korean (Korea)
 vi = Vietnamese
 Other = Classified as other language

Age



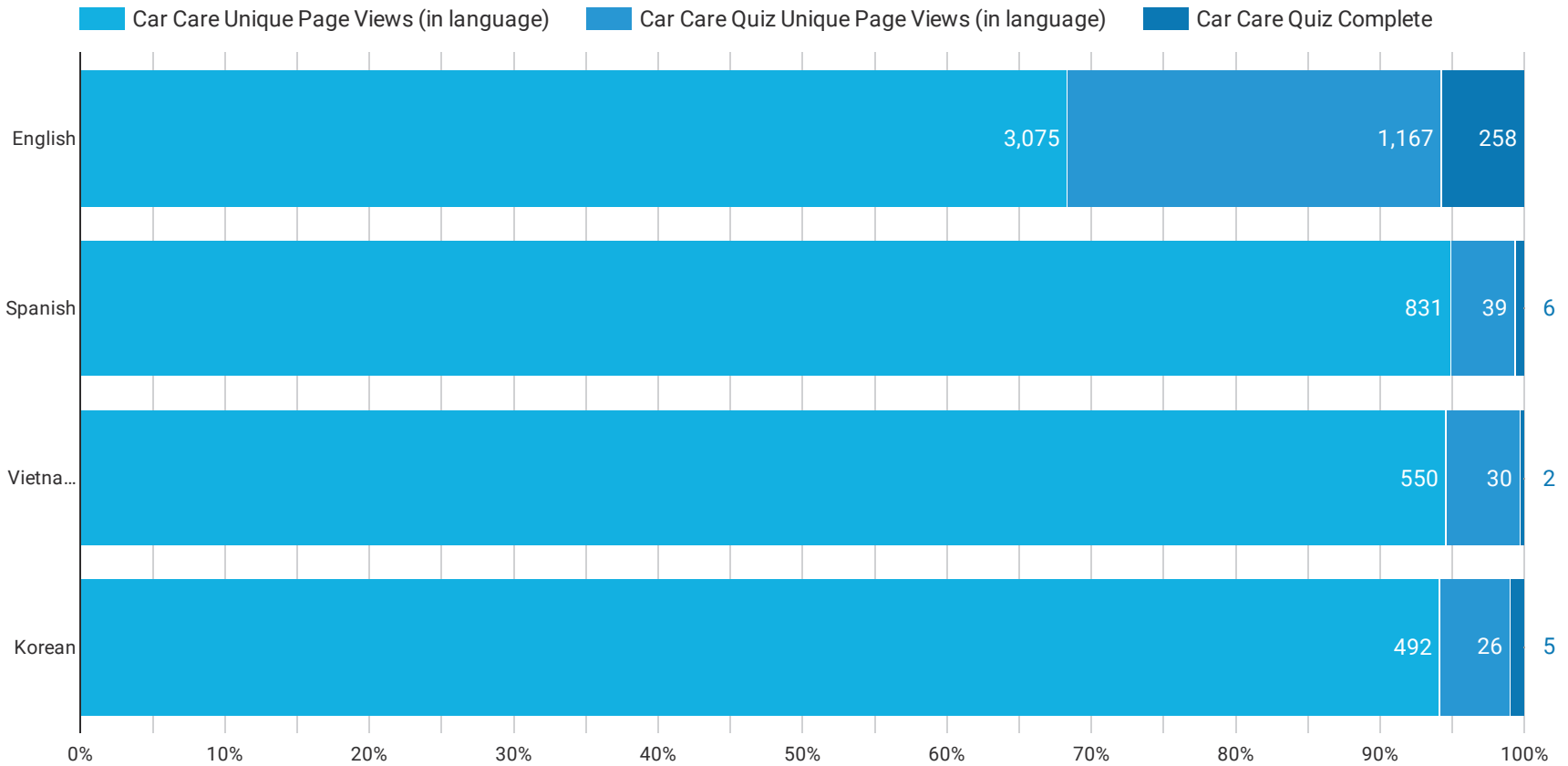
A45+ = 53.4%

- 45-54
- 35-44
- 55-64
- 25-34
- 65+
- 18-24



Digital & Social Media – Vehicle Education & Connection Ad Campaign Conversions

Digital & Social Media – Paid Media *Path to Conversion*





Digital Media Basis DSP – Vehicle Education & Connection Ad Delivery by City/Zipcode

As of October 31, 2021

	City	Zip/Postal Code	Imps. Won ▾	Audio/Video Starts	100% Complete	Clicks	CTR	Total Conversions
1.	Seattle	51	1,432,075	724,671	413,206	1,112	1.12	830
2.	Tacoma	27	278,550	138,693	84,083	208	0.37	171
3.	Bellevue	9	241,892	150,541	102,316	220	0.13	175
4.	Everett	7	189,262	96,726	59,644	140	0.12	111
5.	Olympia	10	188,036	76,783	45,677	142	0.27	118
6.	Bothell	4	148,658	74,024	43,096	97	0.09	84
7.	Kent	6	143,498	85,927	49,388	157	0.13	119
8.	Lynnwood	4	133,923	61,558	36,927	132	0.12	101
9.	Puyallup	5	130,075	60,170	32,942	85	0.11	78
10.	Renton	5	130,063	72,673	45,928	115	0.12	65
11.	Bellingham	7	127,078	53,086	34,999	100	0.15	73
12.	Kirkland	3	115,991	55,086	30,822	51	0.02	37
13.	Auburn	6	115,015	69,040	36,272	106	0.09	85
14.	Federal Way	4	104,439	47,777	27,915	84	0.07	70
15.	Redmond	6	100,456	47,836	29,065	54	0.03	35
16.	Edmonds	2	78,693	37,616	22,007	48	0.04	55
17.	Gig Harbor	3	57,830	20,927	11,243	42	0.1	43
18.	Arlington	3	53,066	19,177	10,969	56	0.02	52
19.	Kennewick	3	52,329	25,542	17,217	63	0.05	44
20.	Bremerton	5	49,149	19,529	10,803	25	0.04	21

Download a full detail list that can be sorted and selected by City/Zip code, click the download button below.

[Download Full Report](#)





Digital Media Basis DSP – Vehicle Education & Connection Ad Delivery by City/Zipcode

As of October 31, 2021

	City	Zip/Postal Code	Imps. Won	Audio/Video Starts	100% Complete	Clicks	CTR	Total Conversions
21.	Bonney Lake	1	47,791	23,985	13,191	32	0.04	33
22.	Sammamish	2	46,660	20,794	13,072	32	0.07	27
23.	Snohomish	3	45,159	17,905	9,594	31	0.17	28
24.	Marysville	2	44,195	21,071	11,566	27	0.04	14
25.	Port Orchard	2	42,185	17,858	9,729	29	0.03	23
26.	Lakewood	9	42,102	20,056	11,731	33	0.08	43
27.	Maple Valley	1	39,349	16,381	8,520	42	0.02	27
28.	Lake Stevens	3	38,951	18,905	11,021	29	0.03	31
29.	Richland	2	38,638	16,337	10,717	34	0.03	32
30.	Bainbridge Island	1	37,362	14,024	7,962	29	0.03	29
31.	Oak Harbor	2	32,507	13,908	8,319	33	0.04	26
32.	Issaquah	2	31,769	14,100	8,145	16	0.01	19
33.	Unknown	10	31,615	0	0	52	0.01	46
34.	Lacey	5	29,723	11,870	7,084	31	0.03	25
35.	Port Angeles	2	29,080	8,470	5,004	35	0.03	32
36.	Camano	1	28,502	8,869	4,994	30	0.03	39
37.	Mount Vernon	2	27,508	11,879	6,763	22	0.15	16
38.	Sequim	1	27,313	8,444	5,013	24	0.01	26
39.	Stanwood	4	26,846	8,738	4,880	31	0.01	34
40.	Poulsbo	1	24,247	10,385	5,901	19	0.02	21

Download a full detail list that can be sorted and selected by City/Zip code, click the download button below.

[Download Full Report](#)





Social Media – Vehicle Education & Connection Ad Delivery by Campaign

Sep 20, 2021 - Oct 31, 2021

Facebook Paid Ad Delivery for PSSH

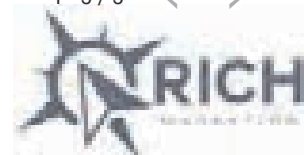
	Campaign Name	Impressions	Video Plays	Link Clicks	Clicks (All)	CTR (A...
1.	PSSH Prospecting/Awareness Reach (Video) - English 2021	169,578	107,983	100	152	0.09
2.	PSSH Prospecting/Awareness Video Views/ThruPlays - English - 2021	158,094	144,420	97	137	0.09
3.	PSSH Retargeting Campaign Engagement >> Website Traffic English 2021	135,013	89,852	1,412	2,068	1.53
4.	PSSH Vietnamese Retargeting Website Traffic - 2021	53,577	42,302	401	498	0.93
5.	PSSH Conversions >> View Content English 2021	51,606	34,666	514	1,124	2.18
6.	PSSH Conversions >> Quiz Lead English 2021	32,461	25,052	378	523	1.61
7.	PSSH Korean Retargeting Website Traffic - 2021	31,163	23,942	237	294	0.94
8.	PSSH Vietnamese Prospecting/Awareness Reach (Video) - 2021	23,113	18,571	25	40	0.17
9.	PSSH Korean Prospecting/Awareness Reach (Video) - 2021	10,349	8,305	18	32	0.31
10.	PSSH Vietnamese Prospecting/Awareness Video Views/ThruPlays - 2021	10,274	10,195	26	27	0.26
11.	PSSH Korean Prospecting/Awareness Video Views/ThruPlays - 2021	8,962	8,786	50	50	0.56
	Grand total	684,190	514,074	3,258	4,945	0.79

1 - 11 / 11 < >

Facebook Paid Ad Delivery for Verde PSSH

	Campaign Name	Impressions	Video Plays	Link Clicks	Clicks (All)	CTR (All)
1.	VPSSH Retargeting Campaign Engagement >> Website Traffic Spanish 2021	33,267	28,859	1,694	1,736	5.22
2.	VPSSH Prospecting/Awareness Reach (Video) - Spanish 2021	28,808	21,246	25	37	0.13
3.	VPSSH Conversions Website Traffic + Lookalikes >> Quiz Lead Spanish 2021	20,732	17,189	194	283	1.37
4.	VPSSH Conversions Website Traffic + Lookalikes >> View Content Spanish 2021	14,094	11,379	347	371	2.63
	Grand total	108,769	90,249	2,319	2,486	1.97

1 - 5 / 5 < >





Social Media – Vehicle Education & Connection Ad Delivery by Campaign

Sep 20, 2021 - Oct 31, 2021

YouTube Paid Ad Delivery

Ad group	Impressions	Clicks	CTR	Video views
1. Auto Korean Video Skippable	303,524	466	0.15%	46,466
2. Auto Viet Video Skippable 2021	256,530	288	0.11%	45,682
3. Auto Spanish Video Skippable	213,764	301	0.14%	36,891
4. Auto English Video Skippable 2021	176,100	101	0.06%	20,703
5. Low Income English Video Skippable	147,150	225	0.15%	18,560
6. LI Spanish Video Skippable	67,023	165	0.25%	12,087
7. LI Viet Video Skippable 2021	33,075	85	0.26%	5,133
8. LI Korean Video Skippable	14,461	31	0.21%	1,872
Grand total	1,211,627	1,662	0.14%	187,394

1 - 10 / 25 < >





Digital & Social Media – Vehicle Education & Connection Ad Campaign Key

Media Terminology Key

Impressions/Imps Won: Number of impressions won on the platform, based on the highest bid. (Reminder that Digital and Social operate in an auction environment.) The impression is the same as the number of times an ad was served to a user.

Audio/Video Starts: Number of times the video started. This metric fires when the video starts playing.

Video Plays/Views: The number of times your video plays. This is counted for each impression of a video and excludes replays.

Video Completes/100% Complete: The number of users who have viewed the video to completion.

Clicks: In Digital media, this equates to the number of times users clicked on the ad. In Social media, this equates to any click-action taken on the social media ad (eg. link clicks, click on the Page, "See More" to drop down a longer caption, click on video in ad to expand the video full-screen, etc.)

Link Clicks: The number of clicks on links within the ad that led to advertiser-specified destinations (ad URL), on or off Facebook.





VOLUME 8 | OCTOBER 2021

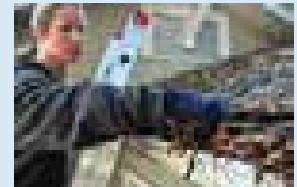
THE CITY OF PORT ANGELES STORMWATER RAINS NEWSLETTER

IMAGE PROVIDED BY MARIAN BODART

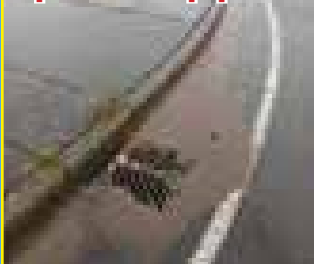
The Wet Season Approaches

The age old saying about *an ounce of prevention* applies to a lot in life and stormwater management is no exception. As the seasons change, now is the time to begin preparing for rain. Here are a few reminders:

- Check Stormwater inlets around your property. It doesn't take much for a catch basin to backup and begin to flood. This can become a safety issue for passing traffic as well as lead to property damage. Leaves, trash, and debris that can easily be removed from the surface should be disposed of in your solid waste bins. If you observe an obstruction below the grate or have reason to believe the outlet is clogged, notify Stormwater Operations Dept. at: (360) 417-4543. Please do not attempt to remove the grate as they are very heavy.
- Clean out your gutters. A blower can be handy for quickly removing dry debris from you gutters, although it does require a measure of clean-up afterwards. There are many products on the market designed to keep debris from going down into your downspout. These can be very important if your gutters flow into a below grade stormwater system like a drywell or infiltration trench.
- Collect and dispose leaves and other yard debris. As seasonal winds pick up, you'll have prevented them from being blown into the street and blocking inlets around your neighborhood. The City does not pickup leaves from your curblin so do not rake or blow your leaves out to into the ROW. Instead, they should be disposed of in your yard waste bin. If you live near a bluff or other steep slope, do not dump your yard waste at the top of a steep slope or bluff. In this case, *out of sight* can lead to serious slope failure. The deposited yard waste pile kills the vegetation below whose roots are often the only thing holding the bank in place.



Spills happen. Help us find them.



The majority of PA's stormwater inlets discharge directly to a creek or the harbor. If you see anything other than stormwater going into an inlet, **REPORT IT.** The City's Illicit Discharge Response Team will investigate and work to clean it up.

Water Pollution Hotline:
(360) 417-4745
Email:
illicitdischarge@cityofpa.us

The “N” Street Outfall Improvement Project | DR0119

The City has been working with a design team to upgrade a historic stormwater outfall at the corner of 4th and “N” Street. The current outfall discharges freely at the top of the bluff, causing erosion. The improvement will take the discharge point down to the bottom of the bluff and out towards the shoreline where it will be discharged through an engineered dispersion tee. Construction is scheduled to begin in October 2021. Be on the lookout for traffic revisions while construction is underway. For updates go to <https://www.cityofpa.us/776/Projects>.



BREAKING NEWS | Vehicle Tires, Stormwater, & Coho Salmon

Currently, more than half of the Coho Salmon that return to the Puget Sound’s urban streams die before they can spawn. For years researchers have known there is a connection between premature salmonid mortality and pollutants in stormwater runoff. In December 2020 scientists in Washington State narrowed in on a chemical called 6PPD-Quinone (6PPD-Q) as being the culprit.

6PPD-Q is a newly discovered transformation product of 6PPD that forms when 6PPD sacrificially reacts with ground level ozone. 6PPD is a preservative used in tire manufacturing to increase longevity of vehicle tires by resisting degradation and cracking. It is critical to the tire-making process as the beneficial properties of the additive directly effects passenger safety.

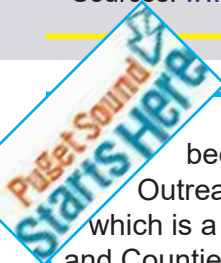
Scientists, Researchers, Legislators, and the U.S. Tire Manufacturing Association (USTMA) are working together to fill gaps in the research and put together a plan to move forward.

In the meantime, what can you do to help? – anything to prolong the life of your tires such as ensuring proper tire inflation. Under-inflated tires can impact tire safety, performance, and tread life. The USTMA recommends that consumers check their tire pressure monthly to maximize the performance and life of the tire.

On a positive note, low impact development (LID) techniques such as rain gardens and bioretention facilities have been shown to effectively filter out roadway runoff. A great example of these are the bioretention facilities the City installed at 8 intersections on the westside during a retrofit project in 2014; see picture above. These facilities receive runoff from 42 acres and are able to treat 91% of the water quality design storm before outfalling at the base of Crown Park.



Sources: www.ustires.org/6ppd-and-tire-manufacturing | www.wastormwatercenter.org/research/tiresandsalmon/

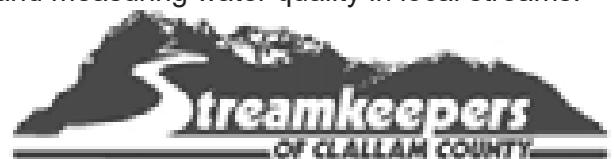


Since 2007, the City of Port Angeles has been a supporting member of Stormwater Outreach for Regional Municipalities (STORM) which is a coalition of 83 western Washington Cities and Counties working together to meet our Stormwater Permit obligations. Puget Sound Starts Here (PSSH) is an educational campaign started by the STORM group to develop and disperse water quality protection information within our communities. For more information and some great resources for kids, check out:

www.pugetsoundstartshere.org/

Local Volunteer Opportunity!

Enjoy the outdoors, water quality, and science? Go to <https://www.clallam.net/sk/> to find out more about our local Streamkeepers Group and the many ways you can participate in monitoring and measuring water quality in local streams.



Transmittal Memorandum



To: Michelle Perdue, Kitsap County
From: Vanessa Bauman, Chelsea Collinge, Stacy Thomas, Elizabeth Lowell and Jeff Hansen, HDR
Date: March 12, 2021
Subject: Stormwater Comprehensive Plan – Community Analysis Tool to Identify and Engage Overburdened Communities

Introduction

HDR is pleased to provide Kitsap County and members of the West Sound Stormwater Outreach Group (WSSOG) a tool to identify and support reaching communities recognized as “overburdened” by the County’s 2019 NPDES Phase II permit for Western Washington. This transmittal memorandum provides a link to the primary deliverable associated with this task, the online “Story Map” tool, as well as a variety of supporting materials and contextual notes.

Overview

In collaboration with your team and the WSSOG, HDR has developed a web-based interactive tool comprised of 23 demographic, socioeconomic and health/environment metrics (or indicators) utilizing information from nine Federal, State and private data sources. We hope this tool will empower Kitsap County and members of the WSSOG to better understand the various conditions that may indicate a person as being overburdened. Whether it be educational attainment or polluted waterways, the web-based tool allows for community exploration down to the neighborhood level.

The tool can be accessed at this link:

<https://storymaps.arcgis.com/stories/aead246c9d58409f9bd5bc9137f7b338> .

Note that the user requires an organizational AGOL account to access the tool. Alternatively, the County GIS team can make the application public so it can then be viewed by yourself or others.

Study Areas

Our team evaluated eight geographic focus areas and identified where overburdened populations live, why they are considered overburdened, and recommended communications strategies. Focus areas included:

- Kitsap County
- Unincorporated Kitsap County
- Bainbridge Island
- Bremerton
- Port Orchard
- Poulsbo
- Port Angeles
- Gig Harbor
- Tribal Lands within Kitsap County
 - Suquamish Tribe
 - S’Klallam Tribe

Exploring the Tool

Members of the WSSOG are encouraged to explore the interactive map to understand demographic, socioeconomic, health and environmental conditions at the beginning and throughout the full life of all stormwater projects. Our team recommends reviewing the “Communications Strategies” section of the web tool, to replicate how a study area is analyzed to determine overburdened populations and how to best communicate with them, as simplified in the example below:

Jurisdiction	Community Burden	Communication Tool/Strategy	Local Implementation
Bremerton	Internet access	Printed Materials	Include pre-addressed and stamped project surveys in Bremerton Foodline boxes

It should be noted that depending on the use of this tool, a review of the metrics (indicators) utilized in a given analysis should be carefully reviewed to avoid double-counting of certain factors. Some of the indices that are presented in the tool are a direct function (and/or combination) of multiple stand-alone metrics. While suitable for understanding the characteristics of a certain area or identifying appropriate communications strategies, if directly used in a quantitative manner to support efforts like a project alternatives analysis involving ranking or prioritization, the potential for double-counting could skew the analysis or results.

Supplemental Material

In addition to the online tool, the following material that accompanies this memorandum can be used to understand and compare the focus areas:

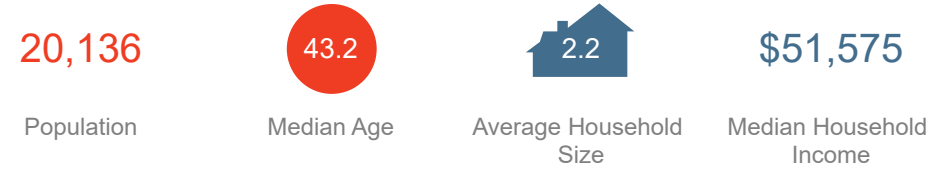
- Ten Three-page infographic reports, by study area (PDF)
- Communication Tools/Strategies (PDF)
- Summaries of Demographic and At-Risk Social Equity Comparisons (Excel)
- Two Web-based Social Media Listening Dashboards (URLs):
 - Kitsap County Community Social Impacts Excluding COVID: https://app.talkwalker.com/app/project/8d079922-8431-47fe-9345-6b76793e0b61/shared_dashboard/export_HDRInc_ihnMPlOf.html#/SHARED_DASHBOARD#co=project&cid=8d079922-8431-47fe-9345-6b76793e0b61&psid=export_HDRInc_ihnMPlOf.html&keyid=undefined&data=eyJyJlJp7lMmEiO nsiYWN0aXZlUGFnZUIkljoiMDI0YjU0OGltNjcyMi00Y2QzLTkxNzUtNTMwZWJmZmMxYTBlIn 0slmkiOiJTSEFSRURfREFTSEJPQVJElwicyl6W119fQ== .
 - Kitsap Stormwater Contamination Social Media Posts: https://app.talkwalker.com/app/project/8d079922-8431-47fe-9345-6b76793e0b61/shared_dashboard/export_HDRInc_tINSu71L.html#/SHARED_DASHBOARD#co=project&cid=8d079922-8431-47fe-9345-6b76793e0b61&psid=export_HDRInc_tINSu71L.html&keyid=undefined&data=eyJyJlJp7lMmEiO nsiYWN0aXZlUGFnZUIkljoiZjA1OGQyMTktNyZ3Ni00OGM5LTg3NjYtZjhmZDA2OWFkMzgzl n0slmkiOiJTSEFSRURfREFTSEJPQVJElwicyl6W119fQ== .

Closing

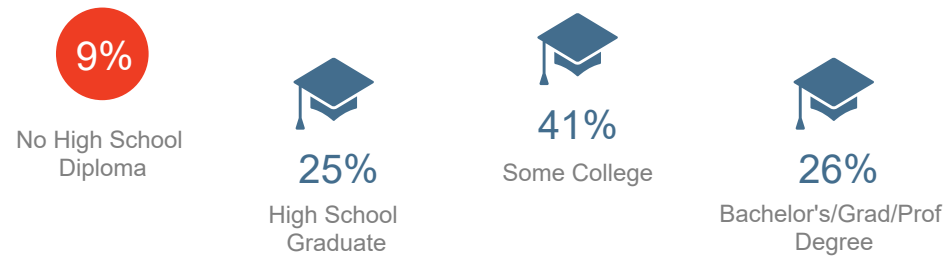
Leveraging large, dynamic datasets, this tool sheds light on those who are traditionally left out – from age, income, language barriers or other factors that impact a person’s everyday life. We are thankful for the opportunity to help Kitsap County and your partners develop an approach to expedite the understanding and planned outreach for these communities. Feel free to reach out to us if there are questions or modifications required of the tool.

Port Angeles, WA

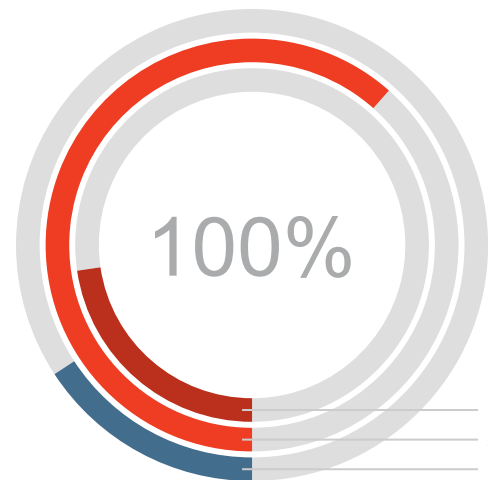
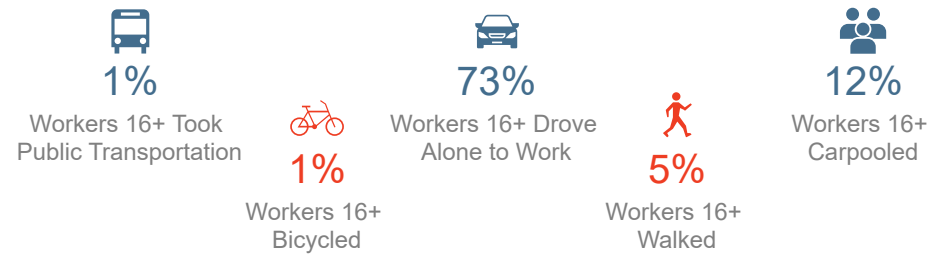
KEY FACTS



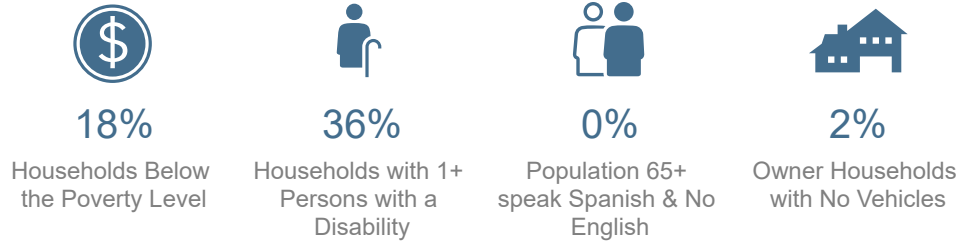
EDUCATION



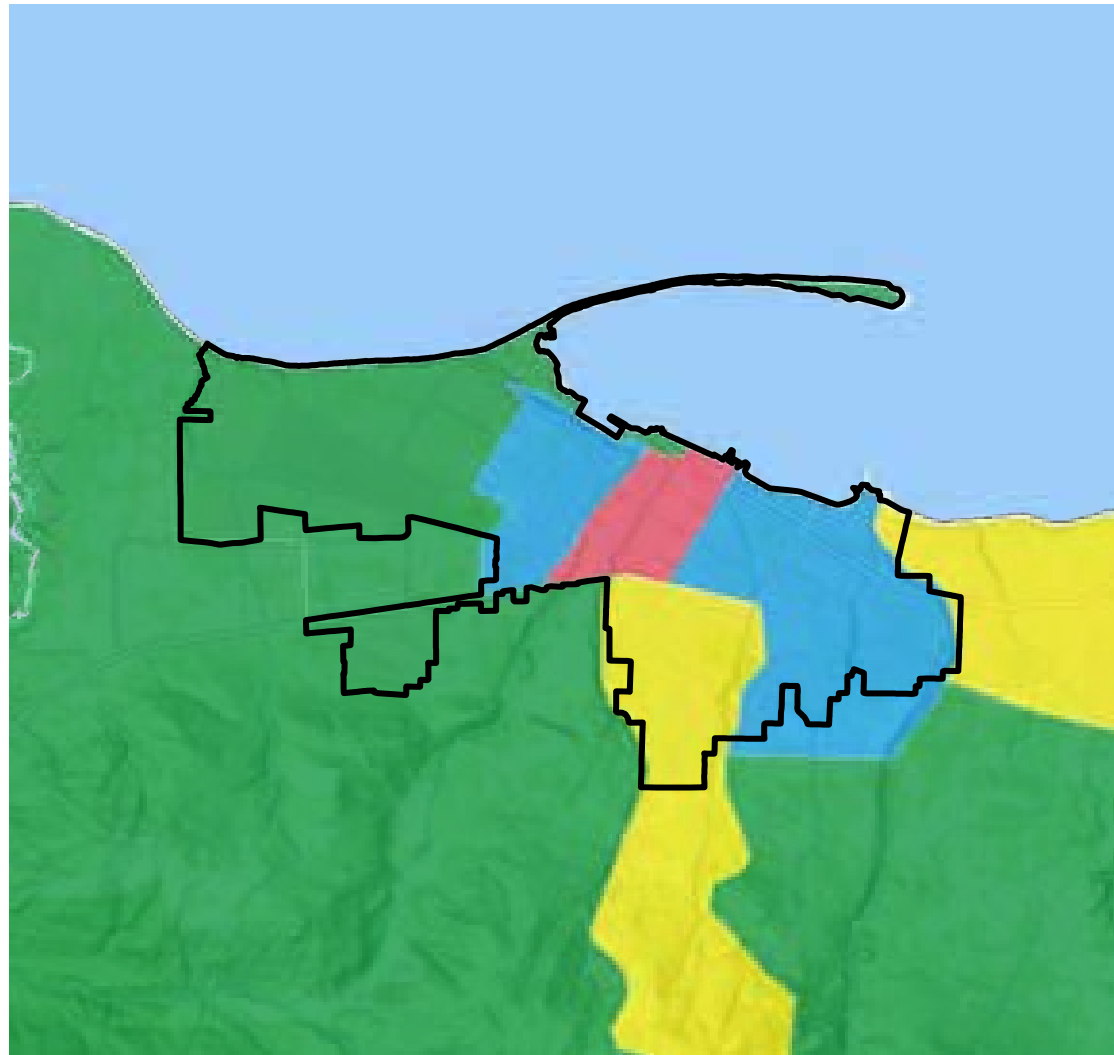
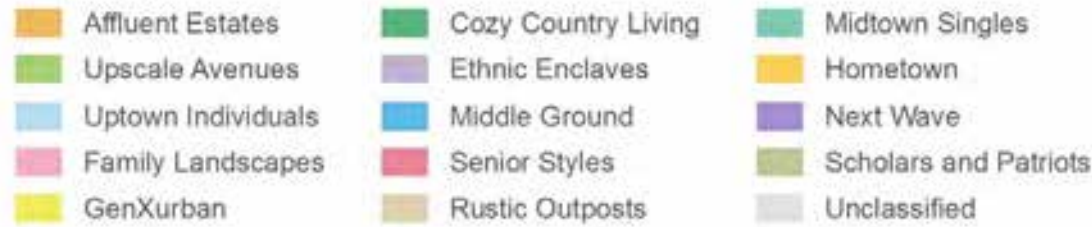
TRANSPORTATION TO WORK



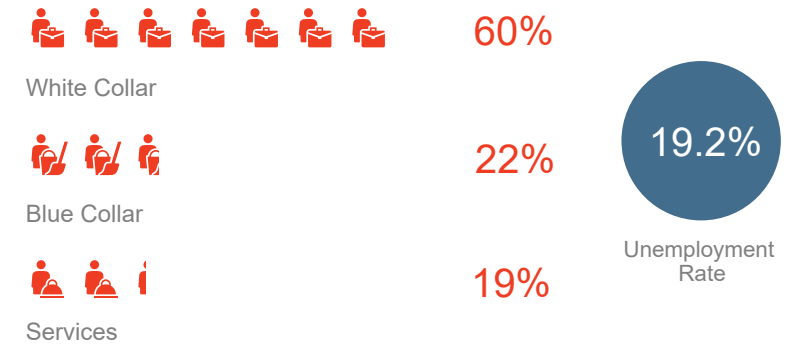
AT RISK



Tapestry LifeModes



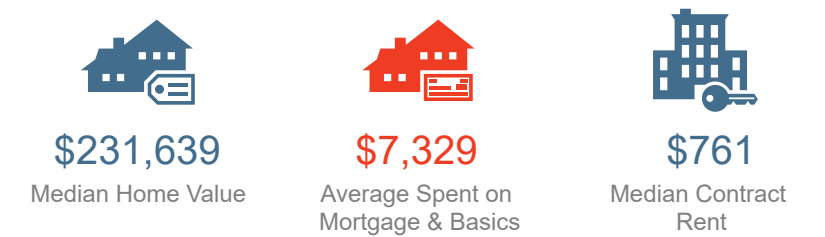
EMPLOYMENT



BUSINESS



HOUSING



TAPESTRY SEGMENTS

Tapestry Segments TOP 3

	8F Old and Newcomers 3,418 households	38.3% of Households	▼
	6C The Great Outdoors 1,329 households	14.9% of Households	▼
	5E Midlife Constants 1,082 households	12.1% of Households	▼

Port Angeles, WA

Race and Ethnicity

The largest group: White Alone (86.81)

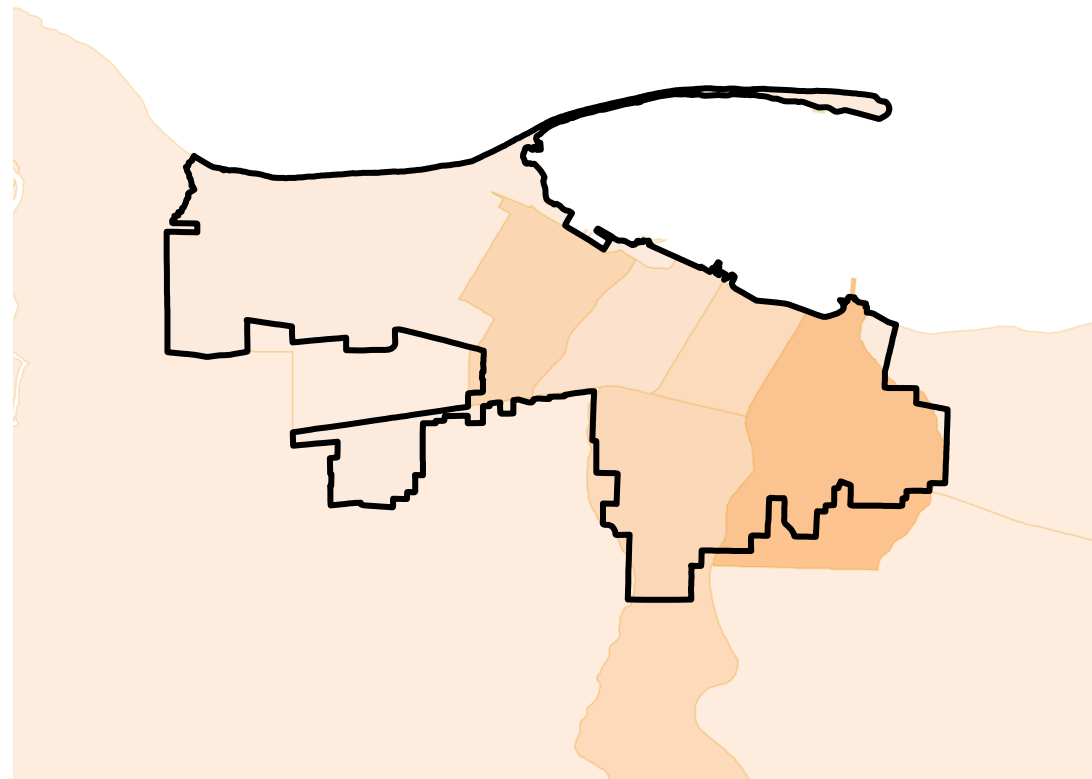
The smallest group: Pacific Islander Alone (0.23)

Indicator ▲	Value	Diff
White Alone	86.81	+2.01
Black Alone	1.18	+0.08
American Indian/Alaska Native Alone	3.17	-1.93
Asian Alone	2.41	+0.45
Pacific Islander Alone	0.23	+0.05
Other Race	1.17	-1.18
Two or More Races	5.02	+0.52
Hispanic Origin (Any Race)	5.35	-1.44



Bars show deviation from Clallam County

Percent of adults 18 years and over who have limited English ability



SPANISH ACTIVITIES



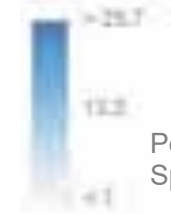
3%

Used Spanish language website in last app in last 30 days

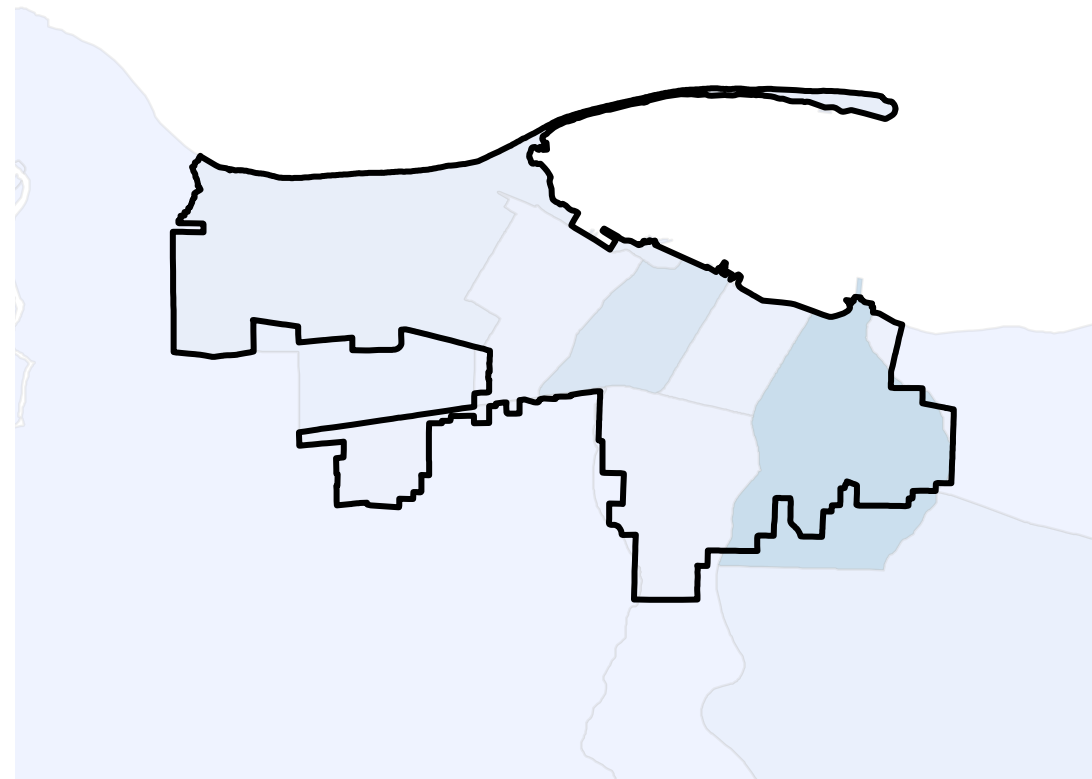


8%

Read any Spanish language magazine in last 6 months



Percent of Population Age 5+ Who Speaks Spanish at Home



LIMITED ENGLISH PROFICIENCY ADULTS 18-64

HH %

Speak Spanish & No English 0%

Speak Spanish & English Not Well 0%

Speak Indo-European & No English 0%

Speak Indo-European & English Not Well 0%

Speak Asian-Pacific Island & No English 0%

Speak Asian-Pacific Island & English Not Well 0%

Speak Other Language & No English 0%

Speak Other Language & English Not Well 0%

LIMITED ENGLISH PROFICIENCY SENIORS 65+

HH %

Speak Spanish & No English 0%

Speak Spanish & English Not Well 0%

Speak Indo-European & No English 0%

Speak Indo-European & English Not Well 0%

Speak Asian-Pacific Island & No English 0%

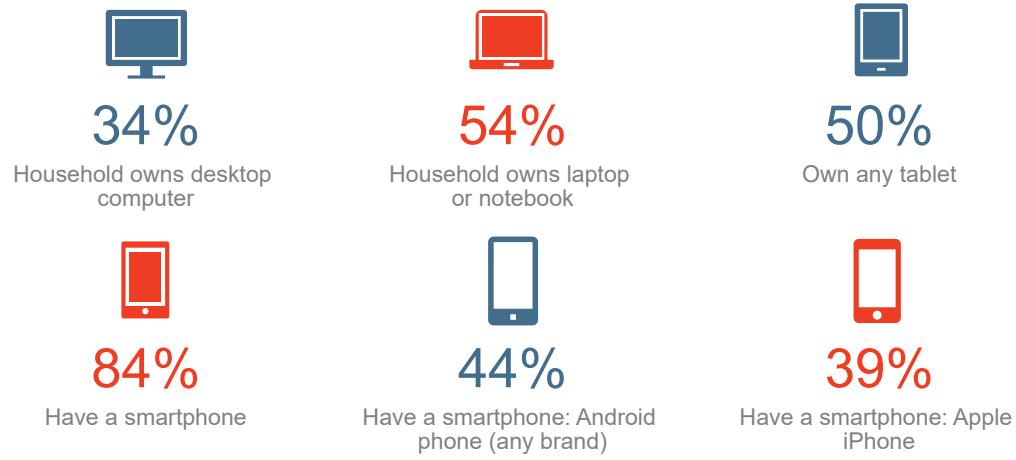
Speak Asian-Pacific Island & English Not Well 0%

Speak Other Language & No English 0%

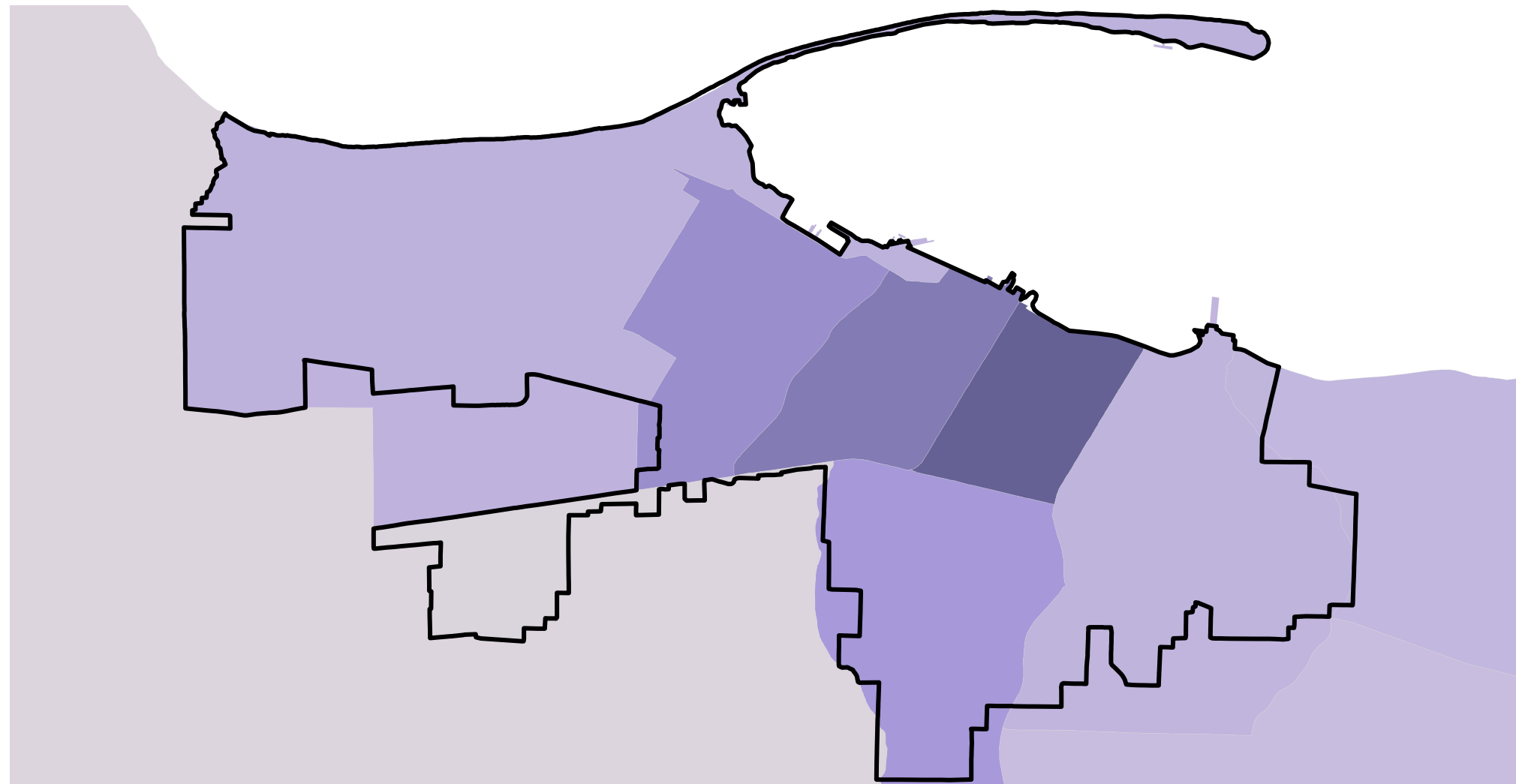
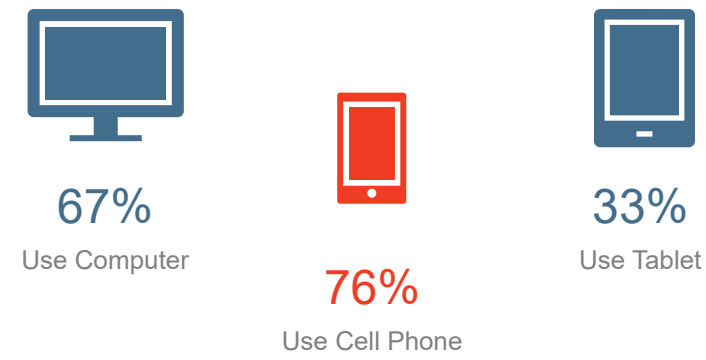
Speak Other Language & English Not Well 0%

Port Angeles, WA

DEVICE OWNERSHIP (HH)



INTERNET ACCESS (HH)



INTERNET CONNECTIVITY

HH %

2019 Have access to Internet at home (%)	89%
2019 Connect to Internet at home via cable modem (%)	49%
2019 Connect to Internet at home via DSL (%)	10%
2019 Connect to Internet at home via fiber optic (%)	11%
2019 Access Internet at home via high speed connection (%)	88%

INTERNET & SOCIAL MEDIA USAGE in Last 30 Days

HH %

Visited online blog (%)	12%
Watched TV program online (%)	20%
Used Spanish language website in last app (%)	3%
Facebook.com (%)	65%
Instagram.com (%)	29%
Linkedin.com (%)	11%
Tumblr.com (%)	4%
Twitter.com (%)	14%
Youtube.com (%)	51%
Social network used to track current events (%)	16%
Search engine: bing.com (%)	11%
Search engine: google.com (%)	81%
Search engine: yahoo.com (%)	20%

Percent of Households with No Internet Access



Municipal Stormwater Management Strategies | A Virtual Tour



Western Washington University Extension | Huxley College of the Environment
Professors: Fran Solomon, Ph.D & Cathy Reidy Liermann, Ph.D



Guest Lecturer: Vince McIntyre, P.E.
City of Port Angeles, Public Works Dept.

Jan. 23rd, 2021



Agenda

1. Introduction / Background
2. Stormwater Management in Port Angeles, WA
3. Virtual Tour of local Stormwater Facilities
 - a. Peninsula College
 - b. Green LID Alleys
 - c. POPA Biotreatment Facility
 - d. Residential Raingardens
 - e. ACTI Treatment and Detention
4. Conclusion
 - a. Upcoming Projects
 - b. Q&A

2

Background | History



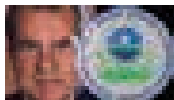
1969 Cuyahoga River Fire
Polluted from decades of industrial waste. Cleveland, OH.



1970s Hardeman County, TN
200-acre pesticide waste dump contaminated drinking water.



1970s Love Canal
School and subdivision built on chemical waste disposal site.



EPA
1970



CWA
1972



NPDES
1970s - 80's



WQ Act
1987



EPA - I & II
1990 & 1999



ECY - I & II
1995 & 2007

Background | ECY Permit

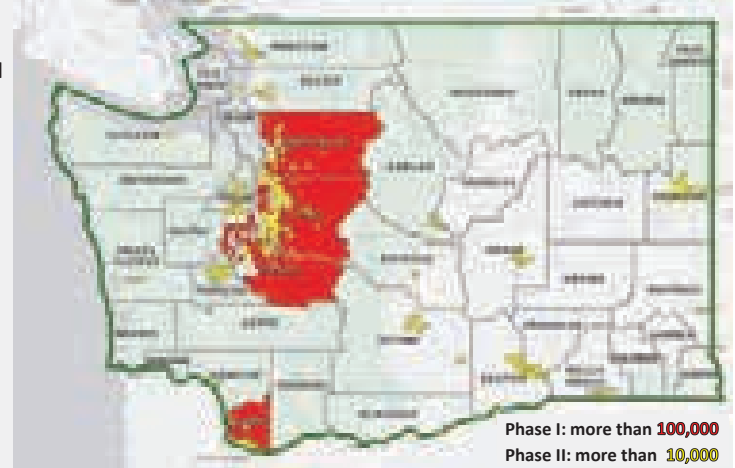
Washington State Phase I and Phase II Permittees

Source: WA Dept. of Ecology
Description: Municipal Stormwater Permit Areas (MSWPA) of Washington State, incorporating 2013 updates to combined incorporated City boundaries and unincorporated Urban Growth Areas (UGA) as defined by the Growth Management Act.

Phase 1



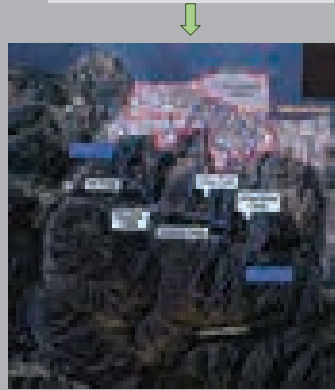
Phase 2



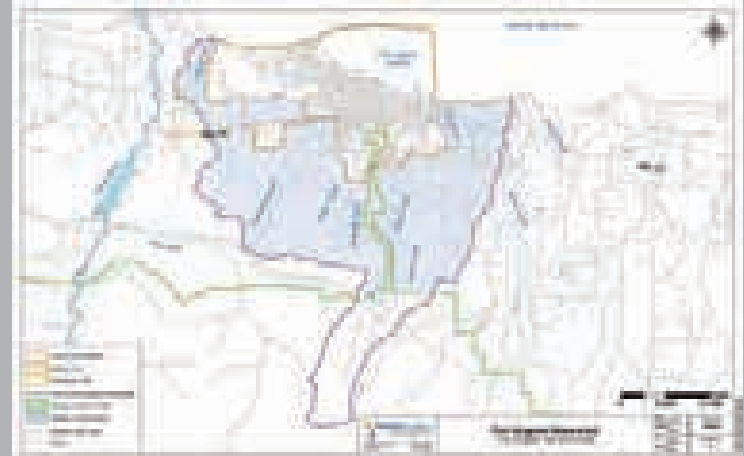
Background | Watershed



← Puget Sound Drainage Basin
Port Angeles Watershed



Background | Watershed



Background | MS4

MS4

Municipal
Separate
Storm
Sewer
System

Collect, Convey, &
Discharge SW

- Inlets / CBs
- Pipes
- Ditches
- Ponds
- Outfalls

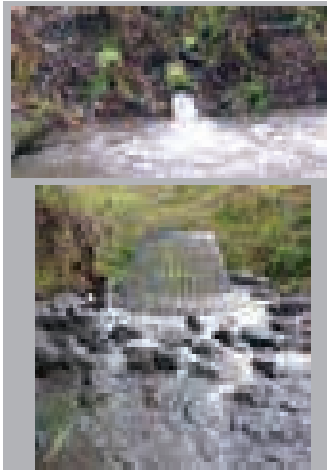
Pollution Generating Surfaces



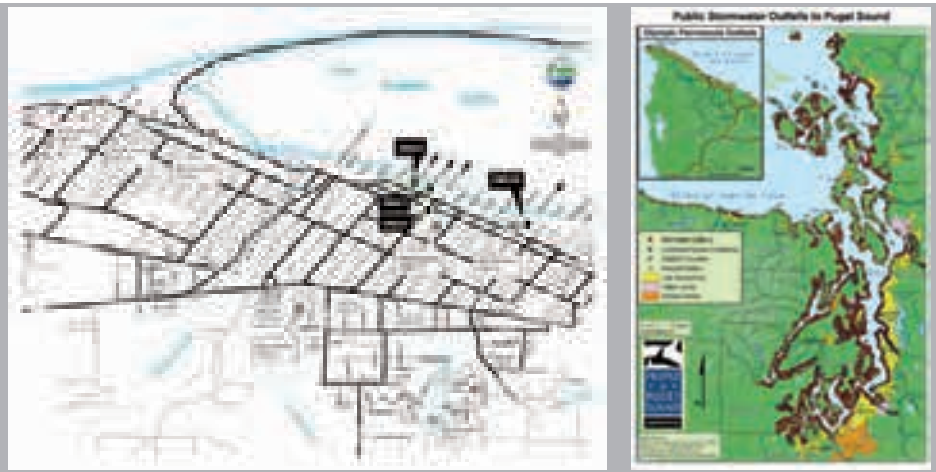
Non-Pollution Generating Surfaces



Background | MS4



Background | MS4



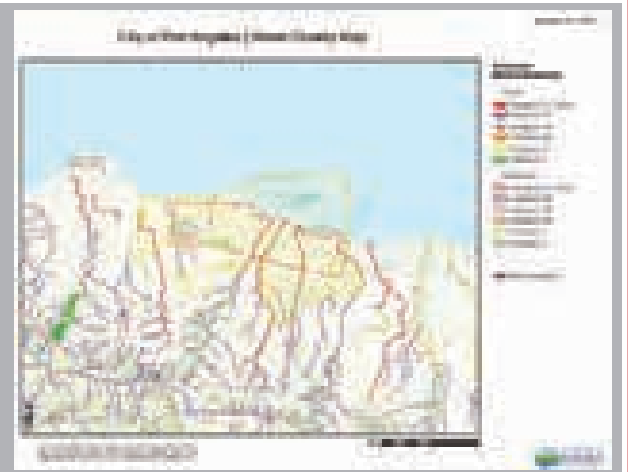
Background | Assessment

303(d) Listed:

- Dissolved Oxygen,
- Temperature,
- Bioassessment,
- Bacteria, &
- Turbidity

Less than Category 5:

- pH



Stormwater Management

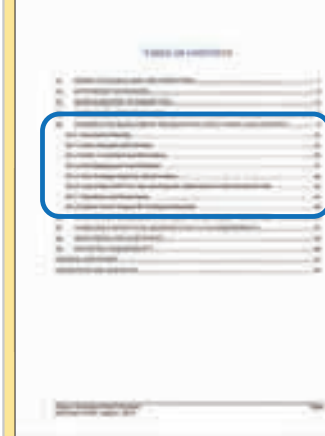
Stormwater Management Goals:

Clean Water Act: "... to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

Water Quality Parameters: Runoff Volume, Rate, and Quality



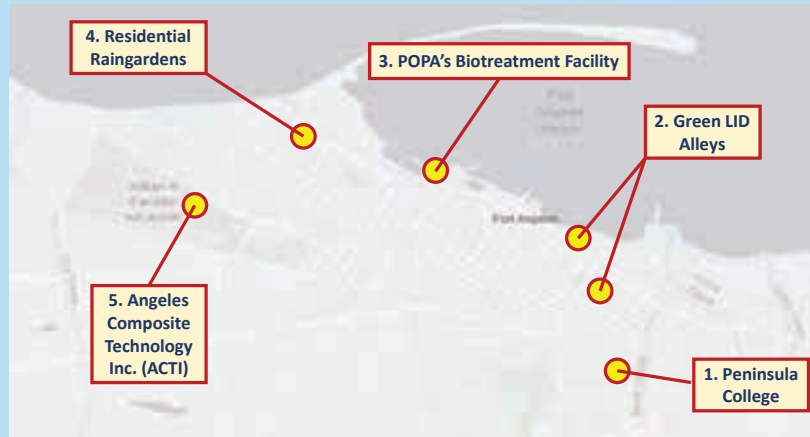
Stormwater Management



55. Stormwater Management Program for Cities, Towns, and Counties

- 55.C.1 Stormwater Planning
- 55.C.2 Public Education and Outreach
- 55.C.3 Public Involvement and Participation
- 55.C.4 MS4 Mapping and Documentation
- 55.C.5 Illicit Discharge Detection and Elimination
- 55.C.6 Controlling Runoff from New Development, Redevelopment, and Construction Sites
- 55.C.7 Operations and Maintenance
- 55.C.8 Source Control Program for Existing Development

Virtual Tour

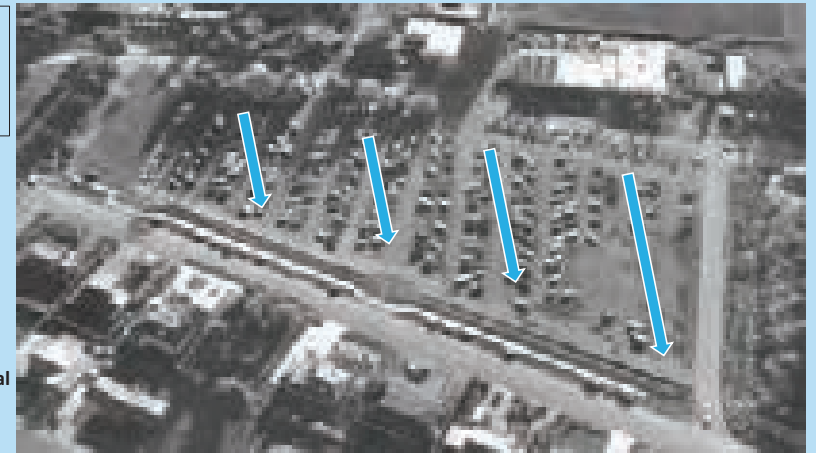


Virtual Tour | PC

Peninsula Community College Parking Lot
Dec. 2000

- 4.9 Acres
- PGIS
- Peabody Creek
- 2 yr Runoff
Qp = 180 gpm
V = 129,263 gal

Untreated



Virtual Tour | PC

Peninsula Community College Parking Lot
2010-2011

- 4.9 Acres
- PGIS
- Peabody Creek
- 2 yr Runoff
Qp = 180 gpm
V = 129,263 gal

Slower & Treated

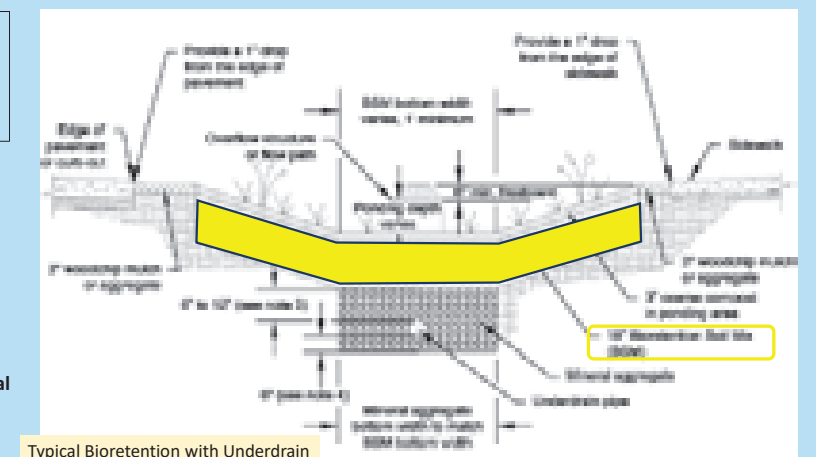


Virtual Tour | PC

Peninsula Community College Parking Lot
2010-2011

- 4.9 Acres
- PGIS
- Peabody Creek
- 2 yr Runoff
Qp = 180 gpm
V = 129,263 gal

Slower & Treated



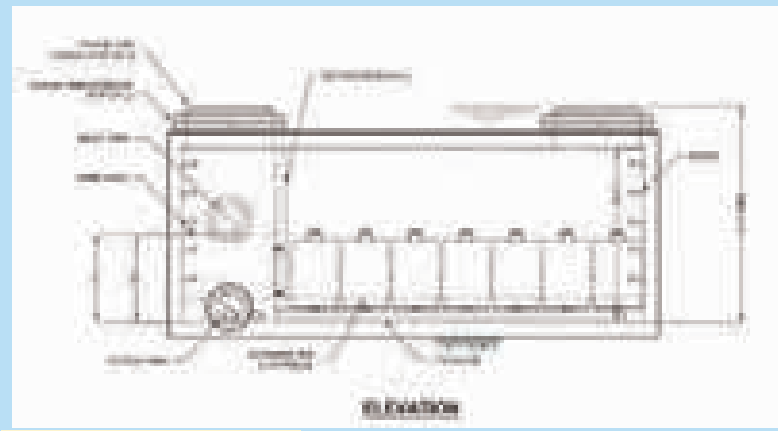
Typical Bioretention with Underdrain

Virtual Tour | PC

Peninsula Community College Parking Lot 2010-2011

- 4.9 Acres
- PGIS
- Peabody Creek
- 2 yr Runoff
Qp = 180 gpm
V = 129,263 gal

Slower & Treated



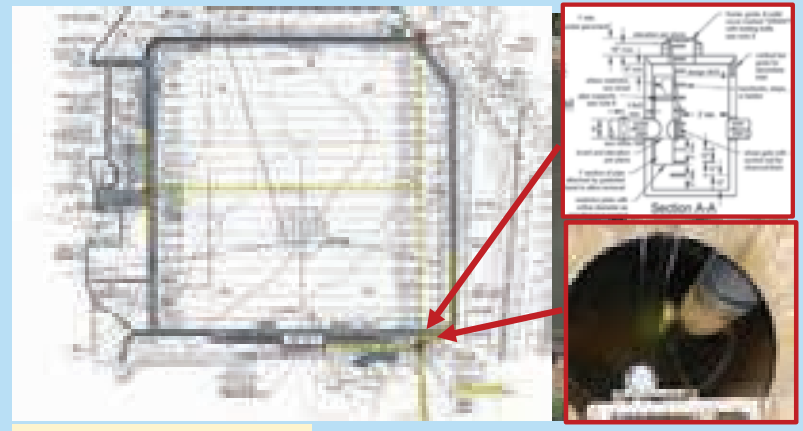
CONTECH Storm Filter Vault

Virtual Tour | PC

Peninsula Community College Soccer Field 2010-2011

- 2.9 Acres
- NPGIS
- Peabody Creek
- 2 yr Runoff
Qp = 107 gpm
V = 76,997 gal

Flow Control



Engineered Composite Track & Field

Virtual Tour | PC

Peninsula Community College Allied Health Bldg. 2016

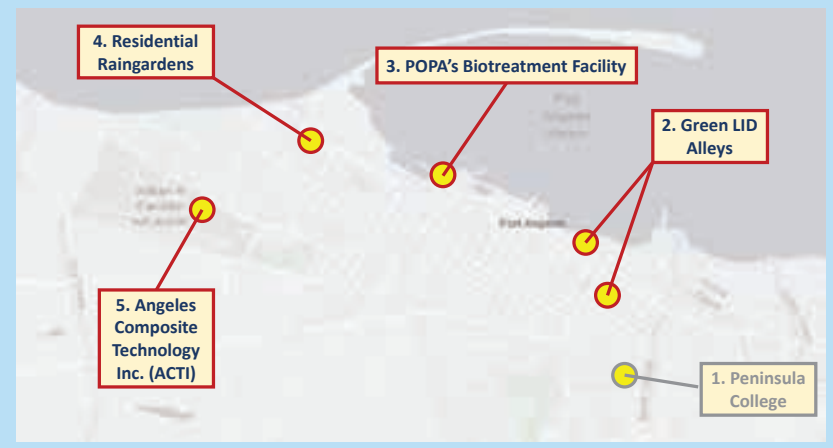
- ± 1 Acre
- NP & PGIS
- Peabody Creek
- 2 yr Runoff
Qp = ___ gpm
V = ___ gal

Flow Control & Treatment



Bioretention Facility

Virtual Tour

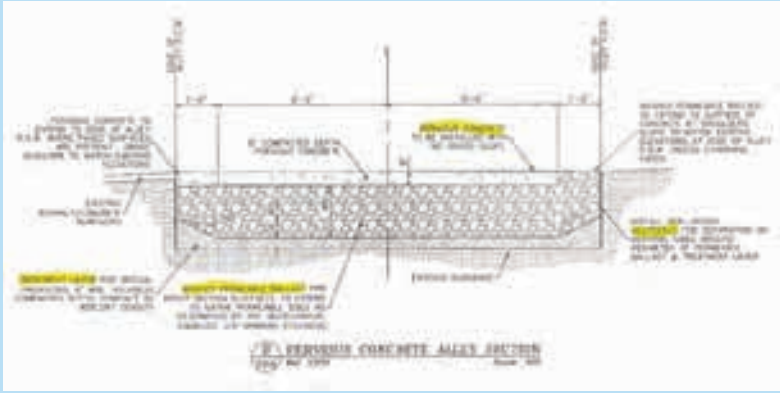


Virtual Tour | LID Alley

**Green LID
Alley Project:
Porous
Concrete
2016**

- Grant Funded
- PGIS
- Commercial
- PA Harbor

Volume &
Treatment



Virtual Tour | LID Alley

**Green LID
Alley Project:
Porous
Concrete
2016**

- Grant Funded
- PGIS
- Commercial
- PA Harbor

Volume &
Treatment



Virtual Tour | LID Alley

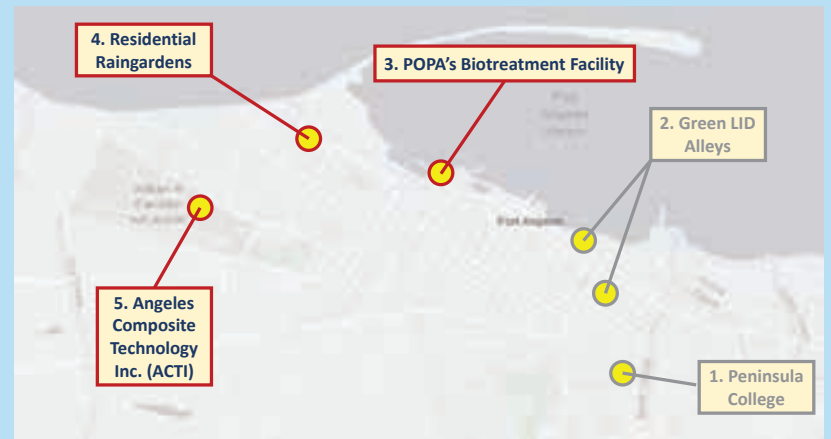
**Green LID
Alley Project:
Pervious
Asphalt
2016**

- Grant Funded
- PGIS
- Residential
- PA Harbor

Volume &
Treatment



Virtual Tour



Virtual Tour | Biotreatment

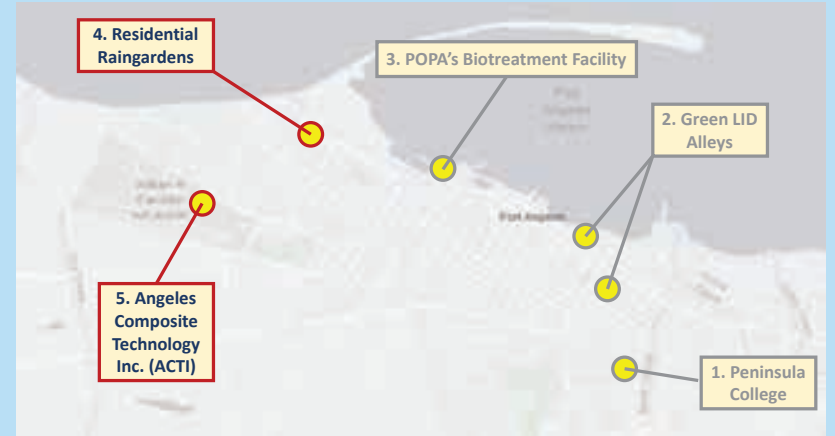
POPA Cargo Surge Area Project 2016

- 6.5 Acres
- Industrial
- PGIS
- PA Harbor

Treatment
(Zn & Cu)



Virtual Tour



Virtual Tour | Rain Garden

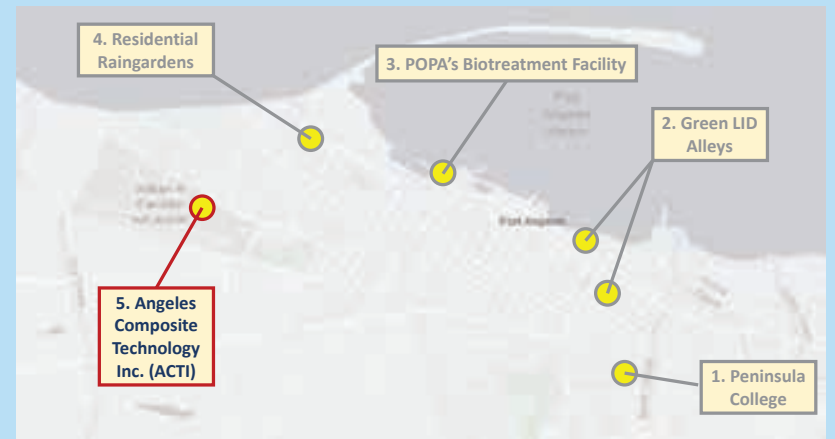
4th Street Stormwater Improvement Project 2014

- 134 Acres
- Residential
- PGIS
- PA Harbor

Detention &
Treatment



Virtual Tour



Virtual Tour | ACTI

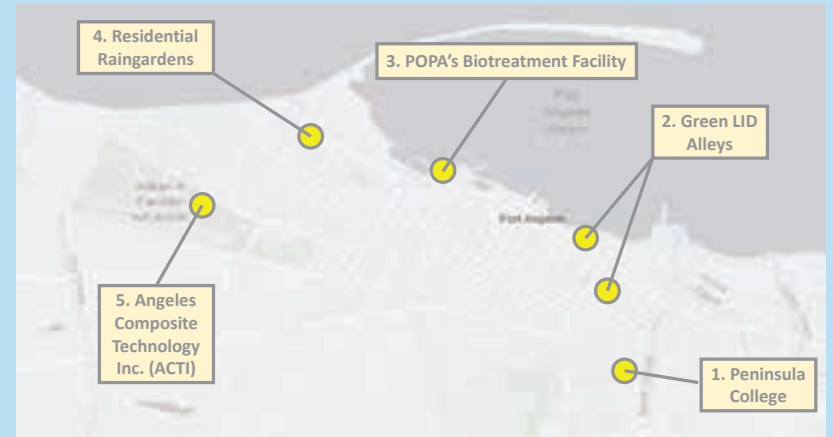
Angeles Composite Technology Inc. (ACTI)
2012

- 7.6 Acres
- Commercial
- NP & PGIS
- Strait of Juan de Fuca

Detention & Basic Treatment



Virtual Tour



Conclusion

QUESTIONS?



Thank You!

Rain Gardens | Design & Construction



Photo: Rod Gilbert



WATERSHED EDUCATION TRAINING

Vince McIntyre, P.E.
July 22, 2021



Source: Bob Simmons, WSU Master Gardener



Nonpoint Pollution



Diagram courtesy King County Department of Natural Resources

Low-Impact Development Principles

- Manage stormwater close to where rain falls.



Rain Gardens!



Photo: Erica Guttman, WSU

- Beautiful landscape feature
- Sized to fit your yard
- Captures & filters polluted runoff

Why Rain Gardens?

Protect Streams & the Straits

Prevent drainage problems

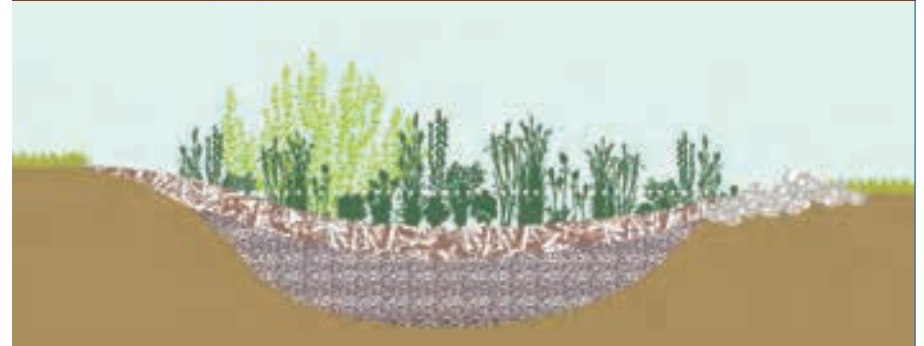
Habitat

Filter pollution

Recharge Groundwater



Anatomy of a rain garden



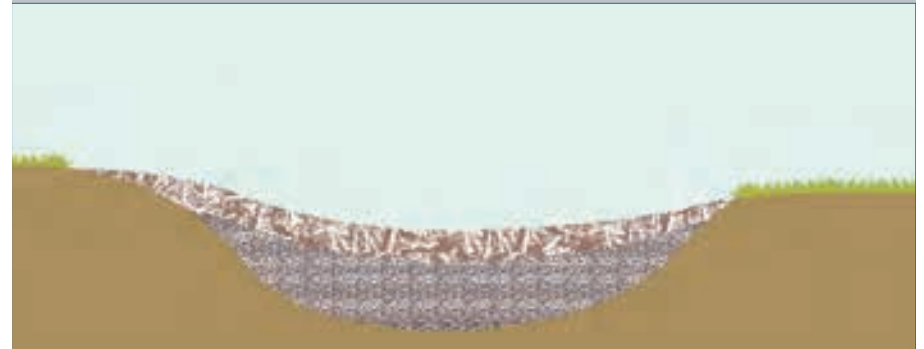
Graphic: Stacey Gianas, Stewardship Partners

Excavation



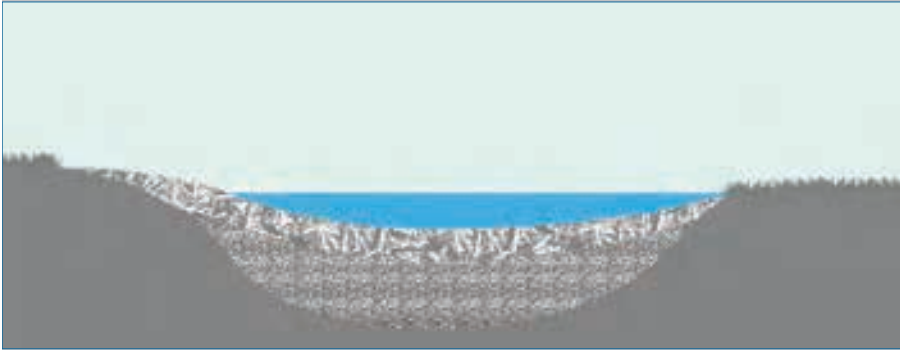
Graphic: Stacey Gianas, Stewardship Partners

Rain garden mix and mulch layer



Graphic: Stacey Gianas, Stewardship Partners

Ponding depth



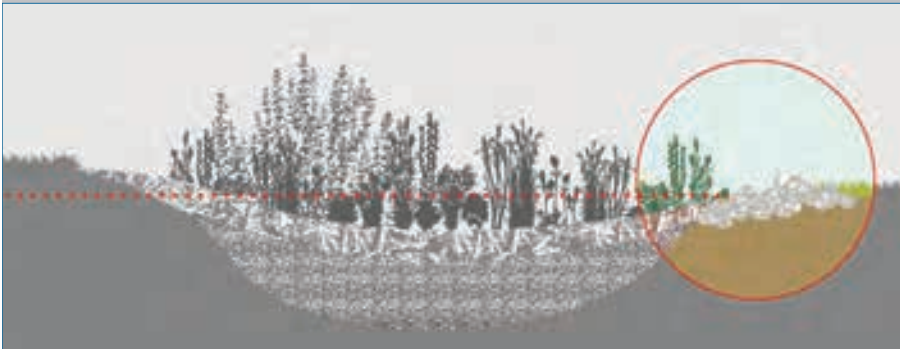
Graphic: Stacey Gianas, Stewardship Partners

Inflow



Graphic: Stacey Gianas, Stewardship Partners

Overflow



Graphic: Stacey Gianas, Stewardship Partners



Planting the Rain Garden

Planting the Rain Garden



Costs

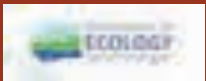
- Depends on many factors (size, plants, equipment)
- Average is \$400-800 for do-it-yourself project
- For professional design & installation, about \$4-5K



WASHINGTON STATE UNIVERSITY
EXTENSION

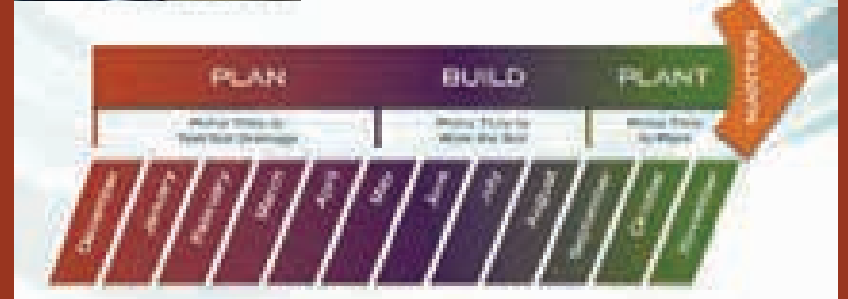
Photo: Linda Andrews, Patterns In Nature

Rain Garden Design Specifics



<https://fortress.wa.gov/ecy/publications/SummaryPages/1310027.html>

Rain Garden Design Specifics



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where to Locate a Rain Garden

DO LOCATE YOUR RAIN GARDEN WHERE:

- It improves the appearance of your home.
- Provide attractive visual buffers from roads or neighboring homes.
- You have enough space.
- Water flows to the garden by gravity.
- Water can be directed safely away from your home and neighboring properties.



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where NOT to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

Within 10 feet of a building or neighboring property line
 – to avoid water getting into basements and crawl spaces.



<http://crawl-space-king.com/crawl-space-waterproofing/>

Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where NOT to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

Over Utilities – to prevent extra expenses and hazardous conditions, make sure to have all utilities located and marked before digging.

Online City Utility Map

Contact the City:
 Planning Dept.
 Public Works



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where NOT to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

Over Utilities

Utility Locates
 CALL BEFORE YOU DIG!
 1-800-424-5555 (or 811)



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where NOT to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

Near the edge of a steep Slope or bluff – the additional water soaking into the ground can cause destabilization resulting in landslides or unwanted settling.

Placement: $\leq 10\%$ grade

Proximity: At least **50 ft.** from slope greater than **10%.**



Photo: Hugh Shipman

Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where NOT to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

- Near the edge of a steep slope or bluff

If you want to place a rain garden on or near a slope greater than **10%**, consult a qualified professional such as a geotechnical engineer.



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where NOT to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

Near a septic tank, septic drainfield or reserve drainfield area.

Uphill of a septic system
At least **50 ft.** setback

Downhill of a septic system
At least **10 ft.** setback



Rain Garden Design Specifics

PLAN

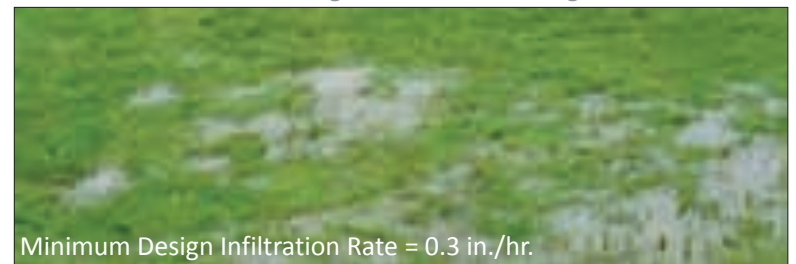
Site Suitability | Infiltration | Contributing Area | Site Constraints

Where NOT to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

In low spots that do not drain well

- poorly draining depressions will not support rain garden plant very well and will not have storage for new rain during the winter months.



Minimum Design Infiltration Rate = 0.3 in./hr.

Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where **NOT** to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

In areas with high seasonal groundwater
– a rain garden will not drain or function properly.



Minimum Depth to groundwater is **1 ft. below** the excavated depth of your facility.

<https://shannonbrewster.wordpress.com/>

Rain Garden Design Specifics

PLAN

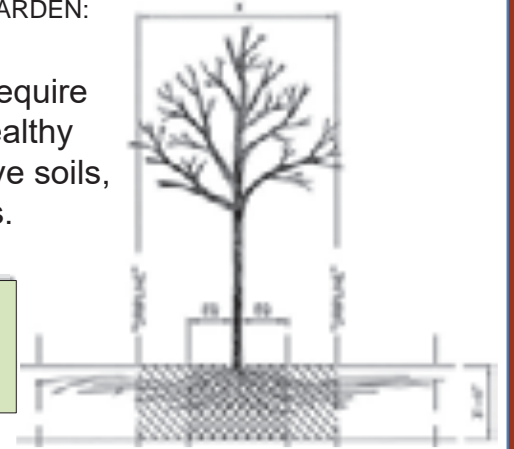
Site Suitability | Infiltration | Contributing Area | Site Constraints

Where **NOT** to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

In areas that would require disturbing already healthy and established native soils, vegetation, and trees.

Take care not to damage existing trees when excavating. When in doubt, **consult an arborist.**



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where **NOT** to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

Near Wells

Your rain garden should be set back a minimum of **100 ft.** from drinking water wells.



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Where **NOT** to Locate a Rain Garden

DON'T LOCATE YOUR RAIN GARDEN:

In areas known to have soil or groundwater contamination



<https://fortress.wa.gov/ecy/neighborhood/>

Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Data Collected:

- Onsite and proximal utilities located
- Measured Onsite Slopes
- Consider existing vegetation and setbacks
- No standing water
- Proximity to critical areas, hazard areas, and contaminated areas
- Proximity to wells and septic systems



NEXT STEP → Onsite Soils Investigation

Rain Garden Design Specifics

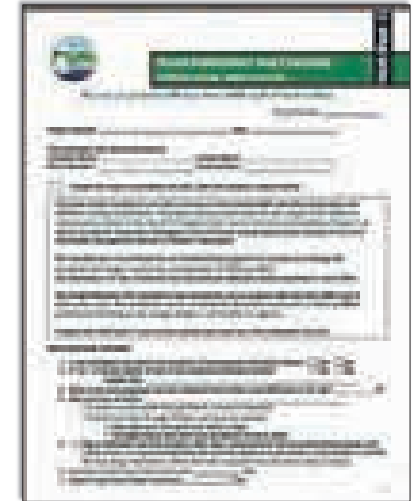
PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Soils Testing

PURPOSE:

- Evaluate soils
- Measure infiltration
- Ensure sufficient depth to groundwater or other impermeable layer



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Dig your test pit

BEST PERFORMED IN THE WINTER MONTHS



Dimensions: 2 ft. deep x 2 ft. in diameter



Clay Soil vs. Sandy Soil

- Evaluate the soil texture.
- Describe the aggregate size and distribution.
- Describe soil layers
- Check root depth
- Look for water seeping in

Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Fill your test pit

BEST PERFORMED IN THE WINTER MONTHS



Pre-soak Period

1. Maintain 12" depth for 30 mins.
2. Stop adding water
3. Record change in depth over the next hour. Establish measurement interval. ($\geq 3'' = 15$ mins.)

Testing Period (2 times in Dry Season)

1. Refill to the 12" depth
2. Monitor and record water depth (Take at least 6 measurements)
3. Calculate average infiltration rate (inches per hour)

Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Underlying Soils

BEST PERFORMED IN THE WINTER MONTHS

While you're waiting.... Dig another hole.

- ± 5 ft. from your test pit hole
- 1 ft. deeper
- Wide enough at the top to see the bottom

Check for:

1. Water seeping into the hole
2. Impermeable layer (i.e. Glacial Till or "hardpan")



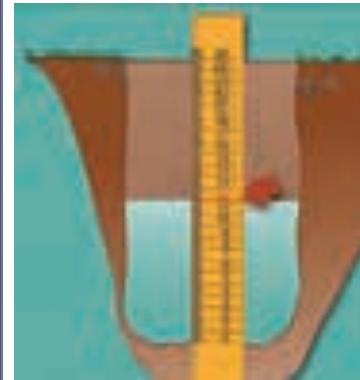
Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Calculate Infiltration Rate | EXAMPLE

BEST PERFORMED IN THE WINTER MONTHS



Start of Testing Period

Recording Interval = 30 mins

Time	Depth	Rate (in/hr)
10:00	12"	-
10:30	11"	2.0
11:00	10.5"	1.0
11:30	10"	1.0
12:00	9.75"	0.5
12:30	9.5"	0.5
1:00	9.25"	0.5

Average = 0.92 inches per hour

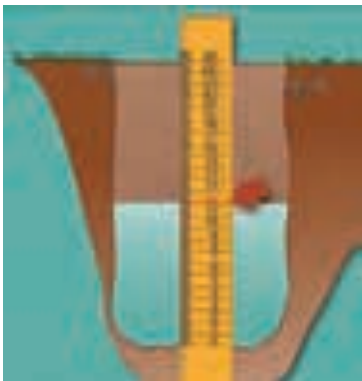
Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Calculate Infiltration Rate | EXAMPLE

BEST PERFORMED IN THE WINTER MONTHS



Start of Testing Period

Recording Interval = 30 mins

Time	Depth	Rate (in/hr)
10:00	12"	-
10:30	11"	2.0
11:00	10.5"	1.0
11:30	10"	1.0
12:00	9.75"	0.5
12:30	9.5"	0.5
1:00	9.25"	0.5

Average = 0.92 inches per hour

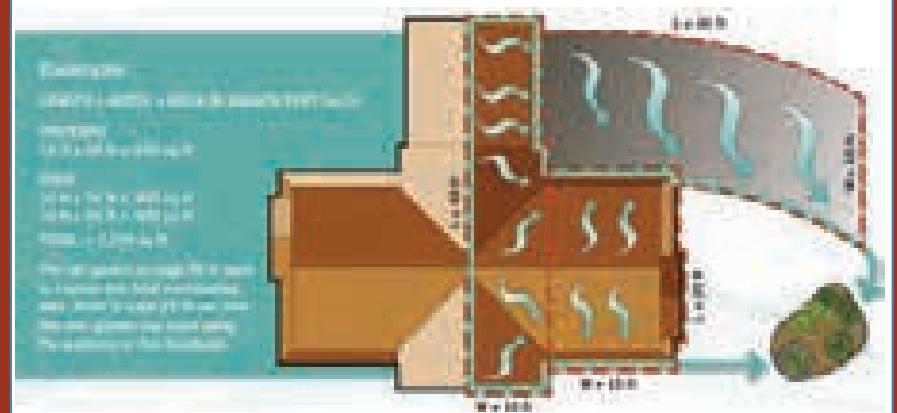
Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

SUMMATION OF THE CONTRIBUTING SURFACE AREAS



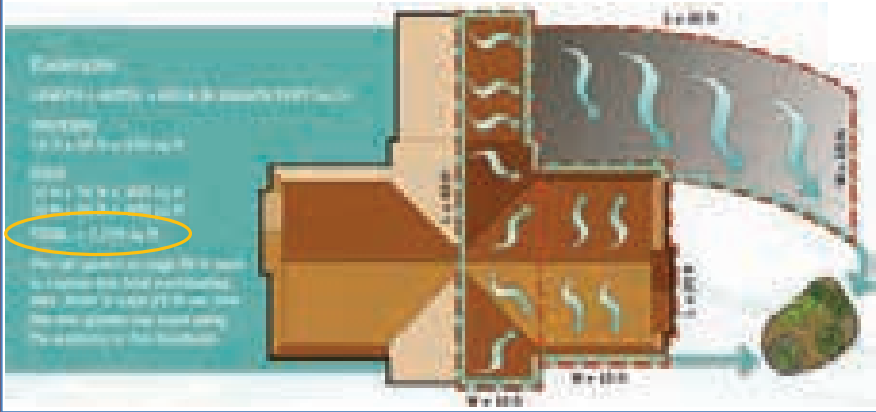
Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

SUMMATION OF THE CONTRIBUTING SURFACE AREAS



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

RAINFALL REGIONS FOR WESTERN WASHINGTON



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

RAINFALL REGIONS FOR WESTERN WASHINGTON



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

PUTTING IT ALL TOGETHER - RAIN GARDEN SIZING CHART



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

PUTTING IT ALL TOGETHER - RAIN GARDEN SIZING CHART



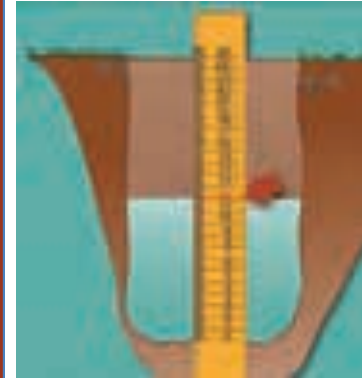
Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Calculate Infiltration Rate | EXAMPLE

BEST PERFORMED IN THE WINTER MONTHS



Start of Testing Period

Recording Interval = 30 mins

Time	Depth	Rate (in/hr)
10:00	12"	-
10:30	11"	2.0
11:00	10.5"	1.0
11:30	10"	1.0
12:00	9.75"	0.5
12:30	9.5"	0.5
1:00	9.25"	0.5

Average = **0.92** inches per hour

Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

PUTTING IT ALL TOGETHER - RAIN GARDEN SIZING CHART



Infiltration Rate = 0.92 in./hr.

Location = Region 1



Sizing Factor = 8% or 0.08

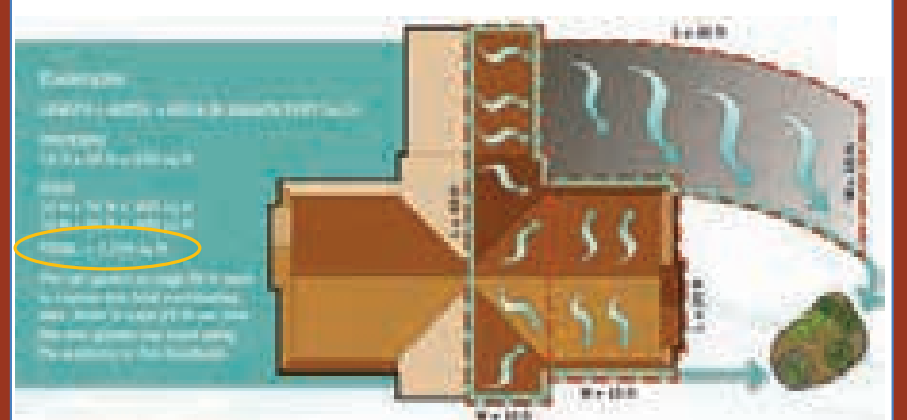
Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

SUMMATION OF THE CONTRIBUTING SURFACE AREAS



Rain Garden Design Specifics

PLAN Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

PUTTING IT ALL TOGETHER - RAIN GARDEN SIZING CHART

Parameter	Value
Infiltration Rate	0.92 in./hr.
Location	Region 1
Contributing Area	1,150 sq. ft.
Sizing Factor	8% or 0.08

Infiltration Rate = 0.92 in./hr.

Contributing Area = 1,150 sq. ft.

Location = Region 1

$$\frac{1,150 \text{ sq. ft.} \times 0.08}{1,150 \text{ sq. ft.}} = 0.08$$

Sizing Factor = 8% or 0.08

Rain Garden Design Specifics

PLAN Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

PUTTING IT ALL TOGETHER - RAIN GARDEN SIZING CHART

Parameter	Value
Infiltration Rate	0.92 in./hr.
Location	Region 1
Contributing Area	1,150 sq. ft.
Sizing Factor	8% or 0.08
Ponding Area	92 sq. ft.

Infiltration Rate = 0.92 in./hr.

Contributing Area = 1,150 sq. ft.

Location = Region 1

$$\frac{1,150 \text{ sq. ft.} \times 0.08}{1,150 \text{ sq. ft.}} = 0.08$$

Sizing Factor = 8% or 0.08

Ponding Area

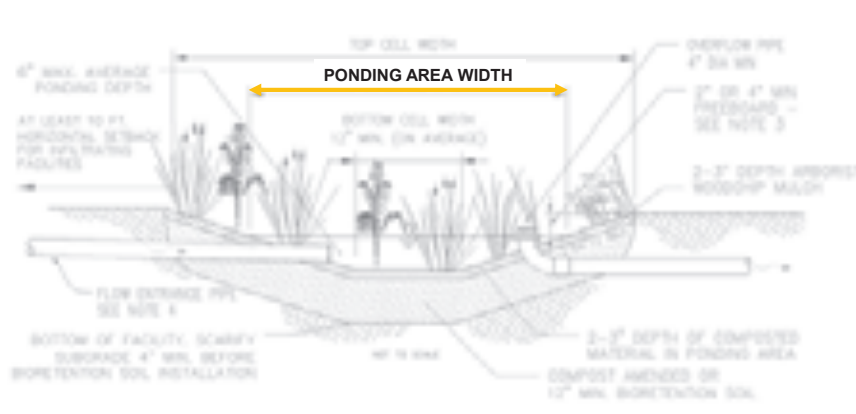
92 sq. ft.

Rain Garden Design Specifics

PLAN Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

PUTTING IT ALL TOGETHER - RAIN GARDEN SIZING CHART

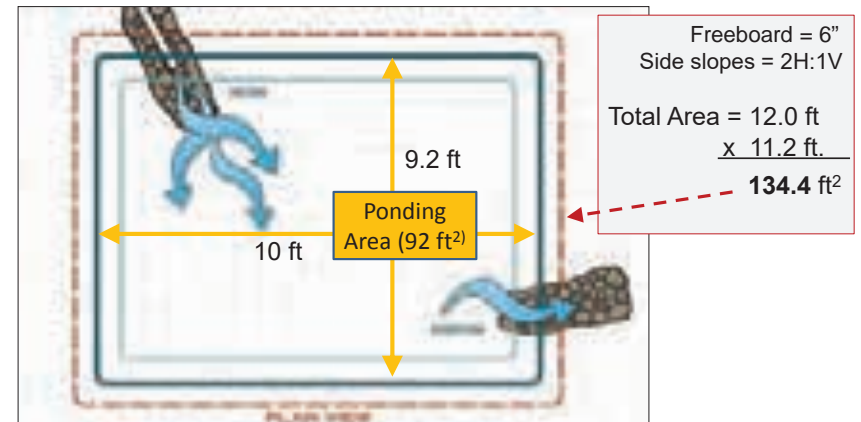


Rain Garden Design Specifics

PLAN Site Suitability | Infiltration | Contributing Area | Site Constraints

Sizing the Facility

PUTTING IT ALL TOGETHER - RAIN GARDEN SIZING CHART



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Site Constraints

FITTING THE RAIN GARDEN ON THE PROPERTY

- Site is Suitable
- Good Infiltration = 0.92 in/hr
- Contributing Roof Area = 1,150 ft²
- Total Rain Garden Area = 135 ft²

Site Constraints

- 10 ft. away from buildings
- 10 ft. away from property lines



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Site Constraints

FITTING THE RAIN GARDEN ON THE PROPERTY

- Site is Suitable
- Good Infiltration = 0.92 in/hr
- Contributing Roof Area = 1,150 ft²
- Total Rain Garden Area = 135 ft²

Site Constraints

- 10 ft. away from buildings
- 10 ft. away from property lines



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Site Constraints

FITTING THE RAIN GARDEN ON THE PROPERTY

- Site is Suitable
- Good Infiltration = 0.92 in/hr
- Contributing Roof Area = 1,150 ft²
- Total Rain Garden Area = 135 ft²

Site Constraints

- 10 ft. away from buildings
- 10 ft. away from property lines



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Site Constraints

FITTING THE RAIN GARDEN ON THE PROPERTY

- Site is Suitable
- Good Infiltration = 0.92 in/hr
- Contributing Roof Area = 1,150 ft²
- Total Rain Garden Area = 135 ft²

Site Constraints

- 10 ft. away from buildings
- 10 ft. away from property lines



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

Site Constraints

FITTING THE RAIN GARDEN ON THE PROPERTY

- Site is Suitable
- Good Infiltration = 0.92 in/hr
- Contributing Roof Area = 1,150 ft²
- Total Rain Garden Area = 135 ft²

Site Constraints

- 10 ft. away from buildings
- 10 ft. away from property lines



Rain Garden Design Specifics

PLAN

Site Suitability | Infiltration | Contributing Area | Site Constraints

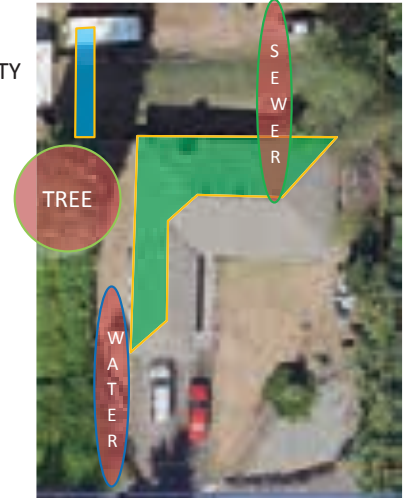
Site Constraints

FITTING THE RAIN GARDEN ON THE PROPERTY

- Site is Suitable
- Good Infiltration = 0.92 in/hr
- Contributing Roof Area = 1,150 ft²
- Total Rain Garden Area = 135 ft²

Site Constraints

- 10 ft. away from buildings
- 10 ft. away from property lines



Rain Garden Design Specifics

Rain Garden Design Specifics

BUILD

Layout | Excavate | Amend Soils | Grade | Inflow & Overflow | Edging

Layout

MARK YOUR RAIN GARDEN EXTENTS

OPTIONS: ROPE, STRING, HOSE, GROUND PAINT, STAKES AND TWINE, BUILDER'S CHALK, ETC.



<http://uca.nr.edu/logs/blog/core/postdetail.cfm?postnum=1790>

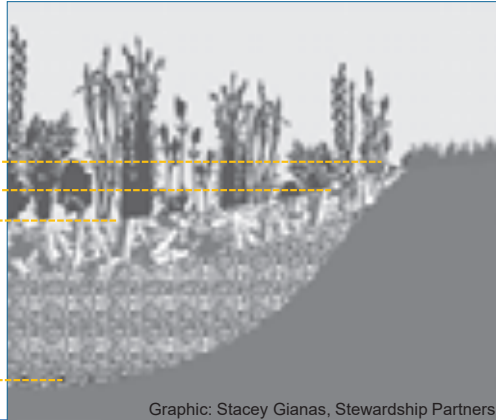
Rain Garden Design Specifics

BUILD | Layout | Excavate | Amend Soils | Grade | Inflow & Overflow | Edging

Excavate On Flat Ground

Total Depth = 24" – 42"

- 6" freeboard
- 6-12" ponding
- 12-24" Mulch Layer & Soil Mix
- Native Soil (scarify)



Graphic: Stacey Gianas, Stewardship Partners

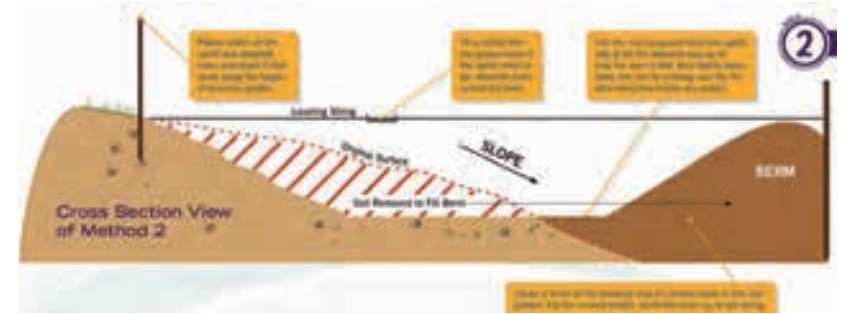
Rain Garden Design Specifics

BUILD | Layout | Excavate | Amend Soils | Grade | Inflow & Overflow | Edging

Excavate on Sloped Ground

Excess soil can be used to build a berm. Some suggestions:

1. Use soils in higher clay content
2. Pack the berm in lifts
3. Plant the berm with fast growing groundcovers



Rain Garden Design Specifics

BUILD | Layout | Excavate | Amend Soils | Grade | Inflow & Overflow | Edging

Amend Soils

Option 1: Excavate and Replace Soil

Excavate the soil completely and replace with new rain garden soil mix.

Conditions: Poor quality soils, high clay content

Option 2: Excavate and Amend Soil for Reuse

Excavate the soil, amend by mixing it with compost, and then replace.

Mix: 65% Excavated Soil to 35% Compost

Option 3: Amend Soil in Place

After excavating to proper depth, till in compost to your existing soils.

Technique: Excavate 3" below the finished pond bottom. Add in 3" of compost. Till in to a depth of 4 to 6 inches.

Rain Garden Design Specifics

BUILD | Layout | Excavate | Amend Soils | Grade | Inflow & Overflow | Edging

Create a Flat, Level Bottom

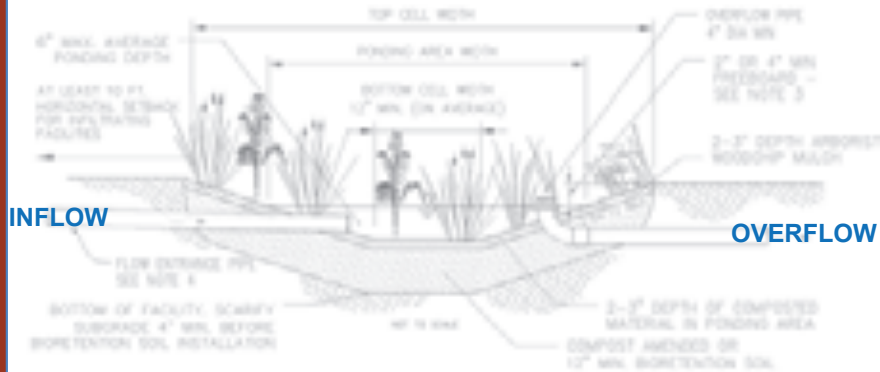


<http://agpro.com/laser-level/>

Rain Garden Design Specifics

BUILD | Layout | Excavate | Amend Soils | Grade | Inflow & Overflow | Edging

Connect the Inflow & Overflow



HOT TIP: Test your connections before burying!

Rain Garden Design Specifics

BUILD | Layout | Excavate | Amend Soils | Grade | Inflow & Overflow | Edging

Connect the Inflow & Overflow

Protect inlets and outlets with armoring



Rain Garden Design Specifics

BUILD | Layout | Excavate | Amend Soils | Grade | Inflow & Overflow | Edging

Edging (*optional)

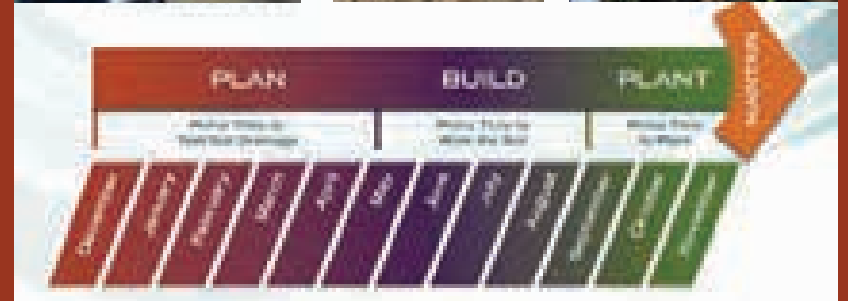
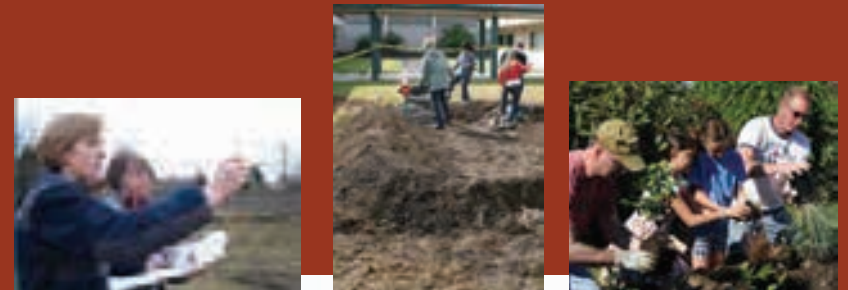
Installing edging can:

1. Reduce lawn encroachment
2. Facilitate maintenance
3. Provide access into RG
4. Provide aesthetic appeal



<http://www.diyenetwork.com/made-and-remade/learn-it/rain-gardens-design-ideas>

Rain Garden Design Specifics



Rain Garden Design Specifics

PLANT | Plant Selection | Mulch | Rain Garden Zones | Maintain

Plant Selection

- Not appropriate for growing edibles
- Perennials
- Keep their eventual size in mind
- Attract desirable insects and animals
- Native Plants take less maintenance
- Seasonal Color
- Consider placing a few large rocks

<http://www.wolfcreekcompany.com/rain-garden/>

Rain Garden Design Specifics

PLANT | Plant Selection | Mulch | Rain Garden Zones | Maintain

Plant Selection

- Review the Rain Garden Handbook Appendix
- Consult a local Master Gardener

Plant Name	Height	Color	Season	Notes
Black-eyed Susan	3-4 ft	Yellow	Summer	Attracts butterflies
Red Hot Poker	3-4 ft	Red	Summer	Attracts butterflies
Black-eyed Susan	3-4 ft	Yellow	Summer	Attracts butterflies
Black-eyed Susan	3-4 ft	Yellow	Summer	Attracts butterflies
Black-eyed Susan	3-4 ft	Yellow	Summer	Attracts butterflies

Rain Garden Design Specifics

PLANT | Plant Selection | Mulch | Rain Garden Zones | Maintain

The Benefits of Mulch

- Keeps the soil moist
- Replenishes organic material in the soil
- Prevents erosion
- Discourages weeds

Recommended Application

Spread 2 – 3 inches of shredded or chipped wood mulch all throughout your rain garden.

Mulch should NOT be: grass clippings or pure bark / beauty bark

Rain Garden Design Specifics

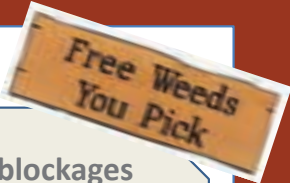
PLANT | Plant Selection | Mulch | Rain Garden Zones | Maintain



Rain Garden Design Specifics

PLANT | Plant Selection | Mulch | Rain Garden Zones | Maintain

Maintain your Rain Garden



- Keep the water flowing – remove any blockages
- Prevent erosion – cover bare soils
- Prevent scour – add more rock to splash pads
- Maintain healthy plant cover
- Don't forget to water during dry spells
- Replenish mulch when needed

Rain Garden Realization

PLAN → BUILD → PLANT → MAINTAIN

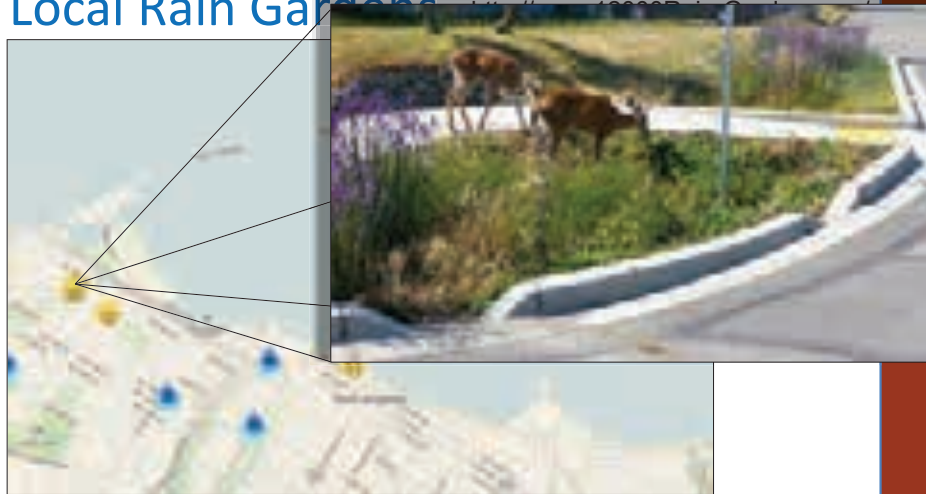
Local Rain Gardens <http://www.12000RainGardens.org/>



Rain Garden Realization

PLAN → BUILD → PLANT → MAINTAIN

Local Rain Gardens <http://www.12000RainGardens.org/>



Rain Garden Realization

PLAN → BUILD → PLANT → MAINTAIN

Resources

Rain Garden Rebates
Up to \$1,000 reimbursement for cost of materials

Rain Garden Handbooks



Rain Garden Realization

PLAN → BUILD → PLANT → MAINTAIN

Questions?

Contact Info.



Vince McIntyre, PE
Civil Engineer II
Office: (360) 417-4701
Email: Vmcintyr@cityofpa.us

**INTERLOCAL AGREEMENT
BETWEEN KITSAP COUNTY AND
THE CITY OF PORT ANGELES
FOR THE WEST SOUND STORMWATER OUTREACH GROUP**

I. PREAMBLE

This Interlocal Agreement (hereafter "AGREEMENT") is by and between Kitsap County (hereafter "COUNTY") whose principal offices are located at 614 Division Street, Port Orchard, Washington 98366 and the City of Port Angeles (hereafter "CITY") whose principal offices are located at 321 East 5th Street, Port Angeles, Washington 98362.

II. RECITALS

Whereas, the Washington State Department of Ecology requires owners or operators of a municipal separate storm sewer system to obtain coverage under a Western Washington NPDES Phase II Municipal Stormwater Permit; and

Whereas, mutual benefits will accrue to the parties hereto and the people which each serves in the cooperative implementation of the West Sound Stormwater Outreach Group. The Interlocal Cooperation Act, chapter 39.34 RCW, further authorizes the parties hereto to enter into this AGREEMENT; and

Whereas, Permittees are required by Permit Section S5.C.1 to provide stormwater education and outreach programs designed to achieve measurable reductions in behaviors that cause or contribute to adverse stormwater impacts; and

Whereas, coordination among Permittees with adjoining or shared geographic areas is encouraged by Washington State Department of Ecology and enhances access to federal, state, and other financial and technical support, and

Whereas, West Sound residents share media sources and would benefit from consistent messaging across city and county boundaries; and

Whereas, municipal resource efficiency is increased and cost savings are realized through sharing expertise, expenses, and staff time to gain economies of scale and avoid duplication; and

Whereas, Kitsap County and the cities of Poulsbo, Bremerton, Port Orchard, Gig Harbor, Bainbridge Island, and Port Angeles desire to continue to work together as the West Sound Stormwater Outreach Group to coordinate joint development and implementation of stormwater education and outreach programs.

NOW THEREFORE, the parties mutually agree as follows:

III. AGREEMENT

- A. The Recitals set forth above are expressly incorporated into the AGREEMENT by this reference.
- B. This AGREEMENT consists of the following documents:
1. Interlocal Agreement
 2. EXHIBIT A: West Sound Stormwater Outreach Group Scope of Work and Budget
- C. **Purpose:** The purpose of the AGREEMENT is to provide a mechanism through which COUNTY and CITY voluntarily collaborate in the development, implementation, and funding of stormwater education and outreach messages, materials, activities, and program assessment tools for the general public, businesses, and other target audiences as required by the NPDES Phase II Permit.
- D. **Payment and Funding:** CITY will provide COUNTY funds in an amount not to exceed a total of \$12,209 per year, totaling \$36,627 for the years 2020 through 2022. In accordance with Section I below, COUNTY agrees to send invoices to CITY representative for reimbursement of allowable expenses incurred as defined in EXHIBIT A.
- E. **Scope of Work:** COUNTY and CITY shall perform duties and services as are listed in EXHIBIT A, attached hereto and incorporated herein by this reference. Said services shall be performed in accordance with the approved Scope of Work and Budget specified in EXHIBIT A, and as provided for in Section I of this AGREEMENT.
- F. **COUNTY and CITY Administrators:**

The "West Sound Stormwater Outreach Group" is a collective of local jurisdictions and is not a separate legal entity. Accordingly, Michelle Perdue, Stormwater Monitoring & Outreach Manager, 614 Division Street, MS-26A, Port Orchard, Washington 98366 shall represent COUNTY in all matters pertaining to the services rendered under this AGREEMENT. All requirements of the CITY pertaining to the services and materials to be rendered under this AGREEMENT shall be coordinated through the COUNTY representative.

Joey Bradley, Engineering Technician, 321 East 5th Street, Port Angeles, Washington 98362, shall represent the CITY in all matters pertaining to the services and materials to be rendered under this AGREEMENT. All requirements of the COUNTY pertaining to the services or materials to be rendered under this AGREEMENT shall be coordinated through the CITY representative.

Following a change of representative, COUNTY and CITY will inform the other party in writing within ten (10) working days.

- G. **Reporting:** By January 31st of each year this AGREEMENT is in effect, COUNTY and CITY will jointly report the results of work conducted under this AGREEMENT in a manner that is mutually useful in the fulfillment of NPDES Permit reporting requirements for public education activities, as specified in Permit Section S9.E.2.c.
- H. **Responsibilities of the Parties:** It is mutually understood that CITY will provide COUNTY with the following:
- Up to \$36,627 over the duration of this AGREEMENT for development of educational materials, professional service fees, partial reimbursement of COUNTY administrative costs, and other expenses related to tasks as described in EXHIBIT A. CITY will also contribute staff time to attend meetings, provide input, conduct pertinent research, and participate in program development.

It is mutually understood that COUNTY will provide CITY with the following:

COUNTY will provide administrative services and act as financial manager for this AGREEMENT and associated professional service contracts. COUNTY will also contribute staff time to facilitate meetings, provide input, conduct pertinent research, and participate in program development.

- I. **Reimbursement:** CITY shall reimburse COUNTY for actual incurred costs upon presentation of a properly executed invoice. Costs shall be charged and funding reimbursed based upon appropriate program elements as defined in EXHIBIT A. COUNTY may exceed line item amounts within individual program element budgets, but shall not exceed the total budget for each individual program element without written approval of CITY. Reimbursement requests shall not be made to CITY more frequently than once a month. CITY shall reimburse COUNTY within thirty (30) days of receipt of a properly executed COUNTY invoice.
- J. **Property:** Title to property purchased by COUNTY, the cost of which COUNTY has been reimbursed as a direct item of cost under this AGREEMENT, shall pass to and vest to COUNTY. Property purchased with funds delivered pursuant to this AGREEMENT may be used only for the performance of this AGREEMENT and shall be purchased in accordance with applicable state law and COUNTY purchasing policies.
- K. **Assignment:** COUNTY may assign or subcontract any portion of the services provided within the terms of the AGREEMENT. All terms and conditions of the AGREEMENT shall apply to any approved subcontract or assignment related to this AGREEMENT.
- L. **Indemnity:** Both COUNTY and CITY shall accept responsibility for any and all liability arising from acts of its own officers, employees, agents, and contractors to the extent provided by law. Additionally, each party agrees to indemnify, defend, and hold harmless the other party, and its officers, agents, and employees for all claims (including demands, suits, penalties, losses, damages, or costs of any kind whatsoever) including costs, expenses, and reasonable attorney's fees, to the

extent such a claim arises or is caused by the indemnifying party's own negligence or that of its officers, agents, or employees in performance of this AGREEMENT.

Nothing contained in this section of this AGREEMENT shall be construed to create a liability or a right of indemnification in any third party.

This section shall survive the expiration of this AGREEMENT.

- M. **Amendments:** The parties hereby further agree that this AGREEMENT cannot be amended or modified without the written concurrence of both parties.
- N. **Termination:** Either party to this AGREEMENT may elect to terminate this AGREEMENT for any reason by delivering a sixty (60) day written notice of intent to terminate to the other party. In the event of such termination, COUNTY shall be compensated for the actual costs incurred prior to the time of written notification of contract termination.
- O. **Duration:** This AGREEMENT shall commence on the date of execution, and shall remain in effect through December 31, 2022.
- P. **Recording:** Pursuant to RCW 39.34.040, this AGREEMENT shall be filed with the Kitsap County Auditor.
- Q. **Waiver:** A failure by either party to exercise its rights under this agreement shall not preclude that party from subsequent exercise of such rights and shall not constitute a waiver of any other rights under this AGREEMENT unless stated to be such in a writing signed by an authorized representative of the party and attached to the original AGREEMENT.
- R. **Governing Law:** This AGREEMENT shall be governed by and construed in accordance with the laws of the State of Washington.
- S. **Venue:** The venue for any action to enforce or interpret this AGREEMENT shall lie in the Superior Court of Washington for Kitsap County, Washington.
- T. **Multiple Originals:** This AGREEMENT may be executed in multiple copies, each of which shall be deemed an original.
- U. **Severability:** If any provision of this AGREEMENT or any provision of any document incorporated by reference shall be held invalid, such invalidity shall not affect the other provisions of the AGREEMENT which can be given effect without the invalid provision, if such remainder conforms to the requirements of applicable law and the fundamental purpose of this agreement, and to this end the provisions of this AGREEMENT are declared to be severable.

IN WITNESS WHEREOF, this AGREEMENT was executed by the parties on the dates hereinafter indicated.

DATED this 10th day of November, 2019

CITY OF PORT ANGELES



Nathan West, City Manager

DATED this 13 day of January, 2020

BOARD OF COUNTY COMMISSIONERS
KITSAP COUNTY, WASHINGTON



CHARLOTTE GARRIDO, Chair

ATTEST:



ROBERT GELDER, Commissioner



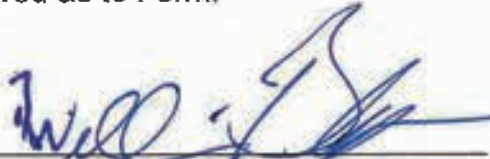
Karin Lindquist
City Clerk



EDWARD E. WOLFE, Commissioner

Approved as to Form:

ATTEST:



City Attorney



Dana Daniels, Clerk of the Board



EXHIBIT A:
WEST SOUND STORMWATER OUTREACH GROUP
Scope of Work & Budget for 2020–2022

Kitsap County and the Cities of Poulsbo, Bremerton, Port Orchard, and Gig Harbor have been working to jointly develop, implement, and fund NPDES Municipal Stormwater Permit-required outreach via interlocal agreements since 2008. With the additions of Bainbridge Island and Port Angeles in 2012, the group assumed the name of West Sound Stormwater Outreach Group (WSSOG), to represent the regional scope and to align with other similar groups across Puget Sound under the Stormwater Outreach for Regional Municipalities (STORM) umbrella.

A. GOALS, OBJECTIVES, AND TASKS

Goals:

1. Work cooperatively to help meet the requirements for compliance with NPDES Phase II Municipal Stormwater Permit Section S5.C.1, Public Education and Outreach, through the Implementation of “education and outreach program[s] designed to:
 - o Build general awareness about methods to address and reduce impacts from stormwater runoff;
 - o Effect behavior change to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts;and, when possible,
 - o Create stewardship opportunities that encourage community engagement in addressing the impacts from stormwater runoff.”¹
2. Realize cost savings and increase municipal resource efficiency by sharing expertise, expenses, and staff time to gain economies of scale and avoid duplication.
3. Jointly work to help fulfill education and outreach requirements of local Total Maximum Daily Loads (TMDLs), also known as Water Pollution Cleanup Plans.
4. Benefit citizens of the West Sound region by providing consistent outreach and messaging.
5. Gain enhanced access to federal, state, and other financial and technical support through coordination among Permittees with adjoining or shared geographic areas.

Objectives & Tasks:

Objective 1 Develop and adhere to an annual work plan for each year of this interlocal agreement.

Task 1.1 Jointly develop a work plan for each year by January 31 of 2020, 2021, and 2022.

¹ Washington State Department of Ecology, *Western Washington Phase II Municipal Stormwater Permit* (2019) p.14.

Objective 2 Build on existing successful efforts by maintaining elevated awareness levels and environmentally positive behavior trends for one target audience and behavior selected during the previous Permit term (pet owners/proper disposal of pet waste).

Task 2.1 Review available survey results to determine impact of existing outreach efforts.

Task 2.2 Continue to achieve sustained awareness and practice of proper pet waste management.

- Continue to implement the Pet Waste in Public Places campaign, including a strategy for continued awareness and behavior adoption for the current Permit term using adaptive management as necessary, promoting maintenance of the Mutt Mitt Program and supporting growth where indicated.
- Encourage home scooping through distribution of the “We Scoop” stickers at select events. When appropriate, run ads that encourage scooping at home.

Objective 3 Design a social marketing campaign with built-in evaluation protocols for one new target audience and behavior (DIY homeowners with kids or pets/using safer yard care products).

Task 3.1 Develop a campaign strategy based on previously performed or locally available and applicable research that includes an evaluation plan with specific, measurable, and achievable outcomes. Revise as necessary based on emerging issues, opportunities, and evaluation results.

Objective 4 Implement the social marketing campaign designed in Objective 3.

Task 4.1 Test the campaign strategy on a small segment of the population, using focus groups and/or pilot studies to refine and reevaluate the strategy.

Task 4.2 Implement the campaign across the community, assessing effectiveness at proper intervals, documenting progress, and changing the campaign strategy as necessary to achieve defined outcomes.

Task 4.3 Continue the program at an appropriate level once measurements indicate increased adoption of the behavior in the target audience.

Objective 5 Use adaptive management to refine programs and direct education and outreach resources most effectively.

Task 5.1 Take advantage of mutually beneficial outreach opportunities that fall within the NPDES Permit-required scope of audiences and behaviors, regardless of prioritization ranking.

Task 5.2 Seek opportunities to share among member jurisdictions the existing outreach efforts to audiences not prioritized within the WSSOG activities, such that these efforts are beneficial to all members.

Task 5.3 Pursue grants and other funding opportunities as available and appropriate.

Objective 6 Represent the WSSOG on larger regional stormwater outreach efforts through participation as a contributing member of STORM and the Puget Sound Starts Here (PSSH) campaign development team.

Task 6.1 Help implement the STORM Strategic Plan and annual Work Plan to achieve results of use and benefit to the WSSOG.

Task 6.2 Promote capacity building among STORM and WSSOG members to raise the caliber of collective outreach in the region.

Task 6.3 Support development and implementation of the PSSH awareness campaign in conjunction with on the ground local behavior change programs.

Task 6.4 Participate in regional work groups on targeted behaviors (e.g.: Pet Waste, Natural Yard Care, Mobile Businesses, etc.)

Objective 7 Track and maintain records of education and outreach activities. Publish an annual summary of activities that is suitable for use in NPDES reporting.

B. BUDGET

Table 1 shows the annual budget for years 2020 through 2022. The annual Staff Time budget of \$56,198 is for 0.5 FTE of a Kitsap County Education & Outreach Coordinator's time to administer the Interlocal Agreement and manage outreach programs identified in the annual work plan on behalf of the WSSOG. This funding also includes coordination with STORM, the Puget Sound Starts Here campaign development team, ECO Nets, and all associated travel expenses; as well as administrative duties such as financial tracking and management. The annual staff time budget will be shared by all WSSOG jurisdictions in proportion to their relative population size, as shown in Table 1.

The annual Outreach Base Programs budget of \$82,599 will be used to implement joint programs prioritized by the group and agreed upon for inclusion in the WSSOG annual work plan. This may include activities such as implementation of the Mutt Mitt Program, backyard pet waste outreach, natural yard care outreach, reporting hotline promotion, advertising, local implementation of the Puget Sound Starts Here campaign, outreach collateral development and production, other priority behavior change programs, evaluation/surveys/focus groups/studies, and/or professional services to achieve any of these activities or tasks. The WSSOG will make every effort to minimize actual costs by selecting competitive bids for professional services, and by pursuing grants and other funding sources as available and appropriate.

The annual Supplemental Programs Budget was added to accommodate several jurisdictions that expressed a desire for additional outreach support. This allows flexibility for jurisdictions to customize a suite of outreach options to meet the needs of their communities. Rates for elementary classroom lessons were based on County staff time for lesson preparation, teaching time, and travel. Cinema ad rates were based on real charges incurred for similar advertising in 2019. To meet the needs of jurisdictions who utilize biennial budget cycles, year 2020 and years 2021-22 were calculated on separate charts.

Table 1. Annual budget for all program elements - 2020.

Jurisdiction	Population Est. 2019 (OFM)	Relative Population	Staff Time Budget	Base Programs Budget			Suppl. Programs Budget	Annual Cost per Jurisdiction
				Programs	PSSH & Mutt Mitt	BPB Total		
Unincorp. KC	177,930	59.2%	\$33,277	\$41,626	TBD	\$41,626	\$0	\$74,903
Bremerton	42,080	14.0%	\$7,870	\$9,845	\$2,500	\$12,345	\$0	\$20,214
Bainbridge Island	24,520	8.2%	\$4,586	\$5,736	\$2,500	\$8,236	\$0	\$12,822
Port Angeles	19,620	6.5%	\$3,669	\$4,590	\$1,750	\$6,340	\$2,200 ¹	\$12,209
Port Orchard	14,390	4.8%	\$2,691	\$3,367	\$2,550	\$5,917	\$860 ²	\$9,468
Poulsbo	11,180	3.7%	\$2,091	\$2,616	\$1,965	\$4,581	\$2,750 ³	\$9,421
Gig Harbor	10,770	3.6%	\$2,014	\$2,520	\$500	\$3,020	\$3,900 ⁴	\$8,934
TOTAL	300,490	100.0%	\$56,198	\$70,299	\$11,765	\$82,064	\$9,710	\$147,971

PSSH & Mutt Mitt column represents a budget guideline for these two items per jurisdiction.

¹ Includes funding for 3 months of cinema ads in Port Angeles.

² Includes funding for 4 elementary school classroom lessons at \$215 each in Port Orchard.

³ Includes funding for 6 elementary school classroom lessons at \$275 each, and cinema ads in Poulsbo.

⁴ Includes funding for 3 months of cinema ads in Gig Harbor.

Table 2. Annual budget for all program elements – 2021 & 2022.

Jurisdiction	Population Est. 2019 (OFM)	Relative Population	Staff Time Budget	Base Programs Budget			Suppl. Programs Budget	Annual Cost per Jurisdiction
				Programs	PSSH & Mutt Mitt	BPB Total		
Unincorp. KC	177,930	59.2%	\$33,277	\$41,626	TBD	\$41,626	\$0	\$74,903
Bremerton	42,080	14.0%	\$7,870	\$9,845	\$2,500	\$12,345	\$0	\$20,214
Bainbridge Island	24,520	8.2%	\$4,586	\$5,736	\$2,500	\$8,236	\$0	\$12,822
Port Angeles	19,620	6.5%	\$3,669	\$4,590	\$1,750	\$6,340	\$2,200 ¹	\$12,209
Port Orchard	14,390	4.8%	\$2,691	\$3,367	\$2,550	\$5,917	\$860 ²	\$9,468
Poulsbo	11,180	3.7%	\$2,091	\$2,616	\$2,500	\$5,116	\$2,750 ³	\$9,956
Gig Harbor	10,770	3.6%	\$2,014	\$2,520	\$500	\$3,020	\$3,900 ⁴	\$8,934
TOTAL	300,490	100.0%	\$56,198	\$70,299	\$12,300	\$82,599	\$9,710	\$148,506

PSSH & Mutt Mitt column represents a budget guideline for these two items per jurisdiction.

¹ Includes funding for 3 months of cinema ads in Port Angeles.

² Includes funding for 4 elementary school classroom lessons at \$215 each in Port Orchard.

³ Includes funding for 6 elementary school classroom lessons at \$275 each, and cinema ads in Poulsbo.

⁴ Includes funding for 3 months of cinema ads in Gig Harbor.

Stormwater Management Program | Annual Report to ECY


S5.C.2.a.iii. - List of Stewardship Opportunities provided in 2021

1. Streamkeepers of Clallam County

The City has long-partnered with Streamkeepers of Clallam County in support of their water Quality monitoring program that utilizes trained volunteers to collect water quality data. The City intends to draft and execute a new 5-year Inter-local Agreement with Streamkeepers in 2022. See attached 2017-2021 ILA.

2. Eagle Scout Project, H. Hughes

The City worked with a local high school student looking to fulfill his Eagle Scout requirements by developing a project to arrange and install stormwater catch basin placards throughout multiple drainage basins in the City. The City provided the materials, training, and safety gear to the Scout who then trained and led the multi-group effort. See attached final project report.




Clallam County, Washington

Search




Home Departments Services & Features Maps Contact Us Index A-Z

You are here: Home > Streamkeepers > Streamkeepers Home Page



We monitor streams, and we do it well.

- [What is Streamkeepers?](#)
- [Newsletters](#)
- [Volunteer Intake](#)
- [Volunteer Handbook](#)
- [Data sheets, Forms, and Tools](#)
- [Quality Assurance](#)
- [Teams, Sites, and Watersheds](#)
- [Studies and Data](#)
- [Program Planning](#)
- [Monitoring Services](#)
- [Citizen Involvement](#)
- [Calendar](#)
- [Disclaimer](#)



[Contact Us](#)

101-17-002

2c
1/24

**INTER-LOCAL AGREEMENT
BETWEEN
CITY OF PORT ANGELES
AND
CLALLAM COUNTY
FOR STREAM WATER QUALITY MONITORING**

This Inter-Local Agreement is between the City of Port Angeles (herein after referred to as "the City") and the Clallam County (herein after referred to as "the County") for the purpose of volunteer recruitment, training and coordination for water quality monitoring, and associated data storage and reporting. Funding for this work is through the City of Port Angeles.

WHEREAS, the Inter-Local Cooperation Act, RCW 39.34, provides that any two public agencies of the state having separate authority to exercise a particular power may enter into an agreement for cooperative or joint exercise of that power; and

WHEREAS, the City is a municipal corporation of the State of Washington, and the County is a political subdivision of the State of Washington, and each party has the authority to contract for water quality monitoring services under Article XI § 11 of the Washington State Constitution; Chapter 17.10 RCW; Chapter 36.89 RCW; Chapter 85.15 RCW; and

WHEREAS, the City desires to monitor levels of fecal coliform bacteria and other water quality issues in the streams and harbor of Port Angeles, in a systematic and scientific manner,

WHEREAS, the City would like to use the services of the County's Streamkeepers program.

It is mutually agreed that:

A. The County's Responsibilities:

1. Recruit and train volunteers through the County's Streamkeepers program to perform water-quality sampling in the Port Angeles area.
2. Devise a sampling plan in conjunction with the City. Sampling sites, parameters, and periodicity will be agreed upon by Streamkeepers and the City. Sites will have safe access. Where a sampling site is not accessible from a public road or other easement, the City will obtain the landowner's permission for Streamkeepers' staff and/or volunteers to access the site. Baseline sampling is expected to include monthly sampling for fecal coliform in fresh water streams and fecal coliform and enterococci in marine waters, as well as annual sampling for benthic macroinvertebrates. The sampling plan will depend upon funding and laboratory costs.
3. Submit samples to laboratories for analysis:
 - a. Bacterial and other water-quality samples to the County Environmental Health Lab or, when the County Environmental Health Lab is unable to perform the analysis, another state accredited lab as defined in RCW 43.21A.230 and WAC 173-50-040.
 - b. Benthic macroinvertebrate samples to professional taxonomy laboratories for identification and verification.

4. Gather data not requiring laboratory analysis, either on-site or using a facility of the County's choosing, using standard Streamkeepers protocols and quality-control measures.
5. Record, confirm, and analyze all results, and report them to the City as soon as possible but no later than 30 days following collection via the standard reporting/recordkeeping formats as used by the County's Streamkeepers program.
6. Produce and submit to the City a monthly and yearly report summarizing water quality data collected.

B. The City's Responsibilities:

1. Provide direction as to overall sampling design, including sites, parameters, and periodicity.
2. In the instance that a sampling site is not accessible from a public road or other easement, obtain landowner permission to access the site for sampling purposes.
3. Arrange with analytical laboratories for payment, as appropriate. Expected laboratory services include:
 - a) Water samples for pollutant analysis. The 2017 lab fees at the Clallam County Environmental Health Laboratory are \$26.00 per sample for membrane-filter fecal coliform tests and \$35.00 per sample for enterococci bacterial tests. Payment of lab fees will be based on current year sample rates as set by the Clallam County Environmental Health Laboratory. If other parameters, methods, or laboratories are used, fees will vary.
 - b) Benthic macroinvertebrate samples for taxonomic analysis per the Benthic Index of Biological Integrity (B-IBI). Laboratory fees cannot be determined in advance, but the City will use the same taxonomist(s) the County uses and will pay the same rate, including pro-rated costs for Quality Assurance laboratory analysis.
4. The City will pay for staff time and costs (described in "A." above) at the staff billing rate and actual cost of incidental material. The County will invoice the City monthly, and the City will pay within 30 days. The ~~2016~~²⁰¹⁷ staff billing rate is ~~\$42.40~~^{\$41.88} per labor hour. Subsequent years will be billed at the established staff billing rate set by Clallam County.
5. City's maximum obligation: The total cost of services for the above tasks, including payments to Streamkeepers and laboratories, will not exceed \$16,000 for each calendar year, totaling \$80,000 for the years 2017 through 2021.

C. General Conditions:

1. Duration: Unless terminated by either party, this agreement shall commence on the date of execution, and shall remain in effect through December 31, 2021.
2. Modification: This Agreement may be amended or altered only by written agreement of the designated representatives of both the City and the County upon the signature of such representatives. The amendment shall explicitly state that it is an amendment to this Agreement.

3. **Termination:** This Agreement may be terminated by either party sixty (60) days after receipt of written notice of intent to terminate; PROVIDED that either party may immediately terminate this Agreement for public convenience or in the event of a financial emergency. If this contract is terminated or expires, the City is obligated to reimburse the County for all costs incurred in performance of the Agreement prior to its termination or expiration.
4. **Property:** The parties do not intend to purchase or acquire any real or personal property in performance of this Agreement, other than the consumables necessary to perform this Agreement. However, should any property be purchased or acquired in performance of this Agreement, it will remain with the purchasing party upon termination or expiration of this Agreement.
5. **Ownership of Items Produced:** All writing, programs, data, public records or other materials prepared by the County and/or its consultants, subcontractors, or volunteers, in connection with performance of this Agreement will be entered into the Clallam County Water Resources database, and then delivered to the City. The parties recognize and acknowledge that all such information is available to the public.
6. **Non-Discrimination:** The County shall not discriminate against any person on the basis of race, creed, political ideology, color, national origin, sex, marital status, sexual orientation, age, or the presence of any sensory, mental or physical handicap.
7. **Defense, Indemnity, Hold Harmless:** The County shall defend, indemnify, and hold the City harmless from and against any liability for any/all injuries to person or property arising from the sole negligent act or omission of the County or its elected officials, department heads, agents, or employees in performance of this Agreement.

The City shall defend, indemnify, and hold the County harmless from and against any liability for any/all injuries to person or property arising from the sole negligent act or omission of the City or its elected officials, department heads, agents, or employees in performance of this agreement.

8. **Administration:** This Agreement will be administered by the County's Streamkeepers program.

The County's contact is: Ed Chadd, Associate Planner, Clallam County, 223 E. 4th Street, Suite 6, Port Angeles, WA 98362, (360) 417-2281, Streamkeepers@co.clallam.wa.us.

The City's contact is: Jonathan Boehme, Stormwater Engineer, City of Port Angeles, 321 E. 5th Street, Port Angeles, WA 98362, (360) 417-4811, jboehme@cityofpa.us.

IN WITNESS HEREOF, this Agreement is executed by Clallam County and by the City of Port Angeles, Washington.

CITY OF PORT ANGELES

CLALLAM COUNTY BOARD OF COMMISSIONERS



Dan McKeen, City Manager



Chair

Dated this 30th day of January 2017.

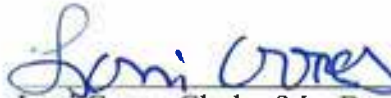
Dated this 24th day of January 2017.

Attest:

Attest:



Jennifer Veneklasen, City Clerk



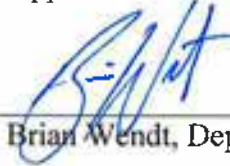
Loni Gores, Clerk of the Board

Approved As To Form:

Approved As To Form:



William E. Bloor, City Attorney



Brian Wendt, Deputy Prosecuting Attorney



PROJECT PROPOSAL



BOY SCOUTS OF AMERICA

Eagle Scout candidate's full legal name

Please give a name to your project

Instructions for Preparing Your Proposal

I create the project - they give to BSA. I give you the plan.

Meeting the Five Tests of an Acceptable Eagle Scout Service Project

Your proposal must be prepared first. It is an overview, but also the beginnings of planning. It must show your Unit leader, unit committee, and council or district that your project can meet the following tests:

1. *It provides sufficient opportunity to meet the Eagle Scout service project requirement.* You must show that planning, development, and leadership will take place; and how the three factors will benefit a religious institution, a school, or your community.
2. *It appears to be feasible.* You must show the project is realistic for you to carry out.
3. *Safety issues will be addressed.* You must show you have an understanding of what must be done to guard against injury, and what will be done if someone gets hurt.
4. *Action steps for further detailed planning are included.* You must make a list of the key steps you will take to make sure your plan will have enough details so it can be carried out successfully.
5. *You are on the right track with a reasonable chance for a positive experience.*

When completing your proposal you only need enough detail to show a reviewer that you can meet the tests above. If showing that you meet the tests requires a lengthy and complicated proposal, your project might be more complex than necessary. Remember, the proposal is only the beginnings of planning. Most of your planning will come with the next step, preparation of your project plan.

If your project does not require materials or supplies, etc., simply mark those spaces "not applicable." As a reminder, do not begin any work, or raise any money, or obtain any materials, until your project proposal has been approved.

Consider also, that if you submit your proposal too close to your 18th birthday, it may not be approved in time to finish planning and executing the project.

Working with Your Project Beneficiary

On the last two pages of this workbook there is an information sheet called, "Navigating the Eagle Scout Service Project." This is for you to print and give to the religious institution, school, or community that will benefit from your efforts. You should do this as part of your first meeting with your beneficiary and use the sheet to help explain how the Eagle Scout service project works. Be sure to read it carefully so you can explain what it says.

"Navigating the Eagle Scout Service Project" will help you communicate a number of things to your beneficiary. For example, it provides thanks and congratulations for accepting the project, and it gives some background, discusses the requirements, and points out the responsibilities connected with approving your project proposal. It also explains that the beneficiary has the right to review, and also to require changes in your project plan.

Again, be sure to read carefully "Navigating the Eagle Scout Service Project" so you will have a full understanding of the role of your beneficiary.

Next Step: Your Project Plan

Once your proposal is approved, you are strongly encouraged to prepare your project plan using the form in this workbook. Doing so increases the likelihood your project will be approved at your Eagle Scout board of review. As you begin preparing it, you should meet with a project coach. Check with the person who handled the approval of your project proposal to learn how coaches are designated in your community.

Your designated coach can help you avoid the common pitfalls associated with Eagle Scout service projects and be a big part of your success. You may also want to talk to your unit leader. There may be adults in your troop who are experts in conducting the kind of project you are planning. It's OK for you to work with them as well. The more coaching you get, the better your results will be.

Beginning Work on Your Project

Once your proposal has been fully approved and you have finished your project planning, only then may you begin work on your project.

Contact Information

Eagle Scout candidates should know who is involved, but contact information may be more important to unit leaders and others in case they want to talk to each other. While it is recognized that not all the information will be needed for every project, Scouts are expected to provide as much as reasonably possible. Approval representatives must understand, however, that doing so is not part of the service project requirement.

Eagle Scout Candidate

Name: <u>Henry Hughes</u>	Birth date: [Redacted]
Email Address: [Redacted]	BSA PID number:
Address: <u>1 Sequim</u>	State: <u>WA</u> Zip: <u>98382</u>
Preferred telephone(s):	Life Board of Review date:

Current Unit Information

Check One: <input checked="" type="radio"/> Troop <input type="radio"/> Crew <input type="radio"/> Ship	Unit Number: <u>90</u>
Name of District: <u>Mt. Olympus</u>	Name of Council: <u>Chief Seattle</u>

Unit Leader Check One: Scoutmaster Crew Advisor Skipper

Name: <u>Ken Nadon</u>	Preferred telephone(s): [Redacted]
Address: [Redacted] <u>Sequim</u>	State: <u>WA</u> Zip: <u>98382</u>
Email Address: [Redacted]	

Unit Committee Chair

Name: <u>DALE HALVERSON</u>	Preferred telephone(s): [Redacted]
Address: [Redacted] <u>Sequim</u>	State: <u>WA</u> Zip: <u>98382</u>
Email Address: [Redacted] <u>mail.com</u>	

Unit Advancement Coordinator (If your unit has one)

Name: <u>SACY HALVERSON</u>	Preferred telephone(s): [Redacted]
Address: [Redacted] <u>Sequim</u>	State: <u>WA</u> Zip: <u>98382</u>
Email Address: [Redacted] <u>mail.com</u>	

Project Beneficiary - City PA (Name of religious institution, school or community)

Name: <u>City PA / Sequim</u>	Preferred telephone(s):
Address:	City: State: Zip:
Email Address:	

Project Beneficiary Representative (Name of contact person for the project beneficiary)

Name: <u>Joel G. Vance M</u>	Preferred telephone(s): <u>325-8779 / 47-4701</u>
Address: <u>223 E 4th St / 321 E 5th St</u>	City: <u>PA</u> State: <u>WA</u> Zip: <u>98362</u>
Email Address: <u>stephenkeeper@coastalwa.us / vmcintyre@cityofpa.us</u>	

Your Council Service Center

Contact Name: <u>Chief Seattle Council BSA</u>	Preferred telephone(s):
Address:	City: State: Zip:
Email Address:	

Council or District Project Approval Representative (Your unit leader, unit advancement coordinator, or council or district advancement chair may help you learn who this will be.)

Name: <u>Debbie Gilliam</u>	Preferred telephone(s): [Redacted]
Address: [Redacted] <u>Sequim</u>	State: <u>WA</u> Zip: <u>98382</u>
Email Address: [Redacted]	

Project Coach (Your council or district project approval representative may help you learn who this will be.)

Name: <u>Van Mannisto</u>	Preferred telephone(s): [Redacted]
Address: [Redacted] <u>Sequim</u>	State: <u>WA</u> Zip: <u>98382</u>
Email Address: [Redacted] <u>gmail</u>	

Joel Vance - head project

Project Description and Benefit

Briefly describe your project

Installing storm drain placards to increase awareness that drains go straight to streams, rivers, and the ocean, and that the water is not processed or cleaned before getting back into waterways ~~and~~ where wildlife live.

Include images on an additional document.

Tell how your project will be helpful to the beneficiary. Why is it needed?

The city of P.A. doesn't have placards on new construction and have 300 available placards. They will be getting service that uses supplies they already have, but have not used recently.

It will benefit the Clallam county Streamkeepers since their primary purpose is to improve the water quality in local waterways. This would improve awareness and the health of the watershed.

When do you plan to begin carrying out your project?

July 10

When do you think your project will be completed?

Aug ~~10~~ 28

Giving Leadership

Approximately how many people will be needed to help on your project?

12-20

Where will you recruit them (unit members, friends, neighbors, family, others)?

Troop - Scouts + Leaders
Friends - from school, church
Family

What do you think will be most difficult about leading them?

Since they will be far apart, there is a lot of happening at once that is out of my control, so I need to be thorough in my explanation of how to do it, etc.

Materials

Materials are things that become part of the finished project, such as lumber, nails and paint.

What types of materials, if any, will you need? You do not need a detailed list or exact quantities, but you must show you have a reasonable idea of what is required. For example, for lumber, use basic dimensions such as 2x4 or 4x4.

Pledge's adhesive
Safety vest

Supplies

Supplies are things you use up, such as food and refreshments, gasoline, masking tape, tarps, safety supplies and garbage bags.

What types of supplies, if any, will you need? You do not need a detailed list or exact quantities, but you must show you have a reasonable idea of what is required.

Granola bar
Water
Gas
Maps
First Aid Kit
Garbage bag

Tools

Include tools, and also equipment, that will be borrowed, rented, or purchased.

What tools or equipment, if any, will you need? You do not need a detailed list, but you must show you have a reasonable idea of what is required.

Scrapper - if we need to remove old sign
Brush - to apply adhesive -

Other Needs

Items that don't fit the above categories; for example, parking or postage, or services such as printing or pouring concrete, etc..

What other needs do you think you might encounter?

Permits and Permissions

Note that property owners should obtain and pay for permits.

Will permissions or permits (such as building permits) be required for your project? Who will obtain them? How long will it take?

None needed

Preliminary Cost Estimate

You do not need exact costs yet. Reviewers will just want to see if you can reasonably expect to raise enough money to cover an initial estimate of expenses. Include the value of donated materials, supplies, tools, and other items. It is not necessary to include the value of tools or other items that will be loaned at no cost. Note that if your project requires a fundraising application, you do not need to submit it with your proposal.

Enter your estimated expenses below
(include sales tax if applicable)

Materials:	0
Supplies:	50
Tools:	0
Other:	0
Total Costs:	50
	100

Fundraising: Explain how you will raise the money to pay for the total costs. If you intend to seek donations of actual materials, supplies, etc., then explain how you plan to do that too.

Books donated by family.
Materials donated by city

Project Phases

Think of your project in terms of phases, and list what they might be. The first may be to prepare your project plan. Other phases might include fundraising, preparation, execution and reporting. You may have as many phases as you want, but it is not necessary to become overly complicated, brief, one-line descriptions are sufficient. If you have more than 10 phases, attach a separate page with your continued phase list.

1	Planning w/ Beneficiaries
2	Mapping out areas we will go
3	Completing plan
4	Choosing day for project
5	Spreading word of the project
6	Confirm participant attendance
7	Complete project work
8	Report on project - reflect on good + bad
9	
10	

Logistics

How will you handle transportation of materials, supplies, tools, and helpers?

I will pick up placards and adhesive + JAGTS from the city. Helpers will meet at a central location and will split up with leaders in groups of 4-5 and will drive around installing signs in the locations assigned on the map I give them.

Safety Issues

The Guide to Safe Scouting is an important resource in considering safety.

Describe the hazards and safety concerns of which you and your helpers should be aware.

Read the "Age Guidelines for Tool Usage" at Scouting.org

We will be on sidewalks/pavement where status
driving and. Cats are the biggest safety
concern.

If we need to go through with old gear,
there is a lot of concern about safety but it
could happen if you don't forget.
-glasses - work/exam

We could park the car in a lot or where
we are installing the project. We will have
to use the equipment & solution. We will
to have the adult read the manual. The
kids will help a lot with this.

Project Planning

You do not have to list every step, but it must be enough to show you have a reasonable idea of how to prepare you.

List some action steps you will take to prepare your project plan. For example, "Complete a more detailed set of drawings."

- Create map of area
- Prepare to meet with group
- Find out what you need
- Work out enough details
- Choose leaders
- Meet with leaders

Candidate's Promise*

Sign below before you seek the other approvals for your proposal.

On my honor as a Scout, I have read this entire workbook, including the "Message to Scouts and Parents or Guardians" on page 4. I promise to be the leader of this project, and to do my best to carry it out for the maximum benefit to the religious institution, school, or community I have chose as beneficiary.

Signed *Alvin Hughes* Date 7/13/21

* Remember: Do not begin any work on your project, or raise any money, or obtain any materials, until your project has been approved.

Unit Leader Approval*

I have reviewed this proposal and discussed it with the candidate. I believe it provides impact worthy of an Eagle Scout service project, and will involve planning, development and leadership. I am comfortable the Scout understands what to do, and how to lead the effort. I will see that the project is monitored, and that adults or others present will not overshadow him.

Signed *Ben Nason* Date 7/15/2021
 Name (Printed) BEN NASON

Unit Committee Approval*

This Eagle Scout candidate is a Life Scout, and registered in our unit. I have reviewed this proposal, I am comfortable the project is feasible, and I will do everything I can see that our unit measures up to the level of support we have agreed to provide (if any). I certify that I have been authorized by our unit committee to provide its approval for this proposal.

Signed *Dale Halverson* Date 7/19/21
 Name (Printed) DALE HALVERSON

Beneficiary Approval*

This service project will provide significant benefit, and we will do all we can to see it through. We realize funding on our part is not required, but we have informed the Scout of the financial support (if any) to which we have agreed. We understand any fund raising the Scout conducts will be in our name and that funds left over will come to us if we are allowed to accept them. We will provide receipts to donors as required.

Our Eagle Candidate has provided us a copy of "Navigating the Eagle Scout Service Project, Information for Project Beneficiaries."

Yes No

Signed *Vivian M. Entner* Date 7.17.2021
 Name (Printed) VIVIAN M. ENTNER, P.E.

Council or District Approval

I have read topics 9.0.2.0 through 9.0.2.15, regarding the Eagle Scout service project, in the Guide to Advancement, No. 33088. I agree on my honor to apply the procedures as written, and in compliance with the policy on "Unauthorized Changes to Advancement." Accordingly, I approve this proposal. I will encourage the candidate to prepare a project plan and share it with the designated project coach.

Signed *Debra A. Gilliam* Date 7-21-21
 Name (Printed) Debra A Gilliam

* While it makes sense to obtain approvals in the order they appear, there shall be no required sequence for the order of obtaining those approvals marked with an asterisk (*). Council or district approval, however, must come after the others.







Stormwater Management Program

The Stormwater Management Plan (SWMP) is a comprehensive plan designed to reduce the discharge of pollutants from the City of Port Angeles separate stormwater system in order to protect local waters.

View the [Stormwater Management Program planning document \(PDF\)](#).

The plan addresses six minimum control measures, as identified by the EPA and required by the City NPDES Phase II Municipal Stormwater Permit. The minimum control measures are as follows:

1. Public Education and Outreach

Provides informative information to the general public, environmental groups and nonprofits including:

- Information booths at the KONP Home Show and Clallam County Fair
- Distribution of the *Stormwater Rains* newsletter via utility bill mailers
- Providing grade school stormwater education in partnership with Feiro Marine Life Center
- Presentations to local community groups - schedule your group today!

2. Public Participation / Involvement

We want to hear from you! Take a moment to complete our [stormwater plan survey](#).

3. Illicit (illegal) Discharge Detection and Elimination

Identify and reduce spills to protect the environment. Learn more about illicit discharges and how to [report a spill](#), or view [Appendix B of the SWMP \(PDF\)](#) to learn about how the City responds to illicit discharges.

4. Construction Site Runoff Control

Utilizing a permitting process to address runoff from new development and redevelopment.

5. Post-Construction Runoff Control

Maintain and clean new stormwater controls.

6. Pollution Prevention / Good Housekeeping

Yearly inspection of all City stormwater controls such as filter units and detention facilities. The City cleans over 1500 catch basins and sweeps about 10,000 miles of streets each year.

Current Stormwater Regulations

In 1987, Congress amended the Clean Water Act to include stormwater discharges in the National Pollutant Discharge Elimination System (NPDES) permit program. The Environmental Protection Agency (EPA) developed rules to implement the new stormwater requirements in two phases. The Washington Department of Ecology implements the stormwater rules through municipal stormwater permits. The City of Port Angeles was issued a NPDES Phase II permit on January 17, 2007, authorizing the City to discharge stormwater into receiving water bodies.



Form Center

By [signing in or creating an account](#), some fields will auto-populate with your information and your submitted forms will be saved and accessible to you.

Comment on the Stormwater Management Program

The Stormwater Management Plan outlines how the City plans to make stormwater cleaner. Your input on how to improve this plan is valued.

For more information about the:
[Stormwater Management Program](#)

What would you like to see incorporated in the Stormwater plan?

What Stormwater pollution topics would you like to see discussed during outreach events?

Other Stormwater Comments

If you would like to receive a response please provide your contact information.

Email address:

Phone Number:

Name:

Receive an email copy of this form.

Email address

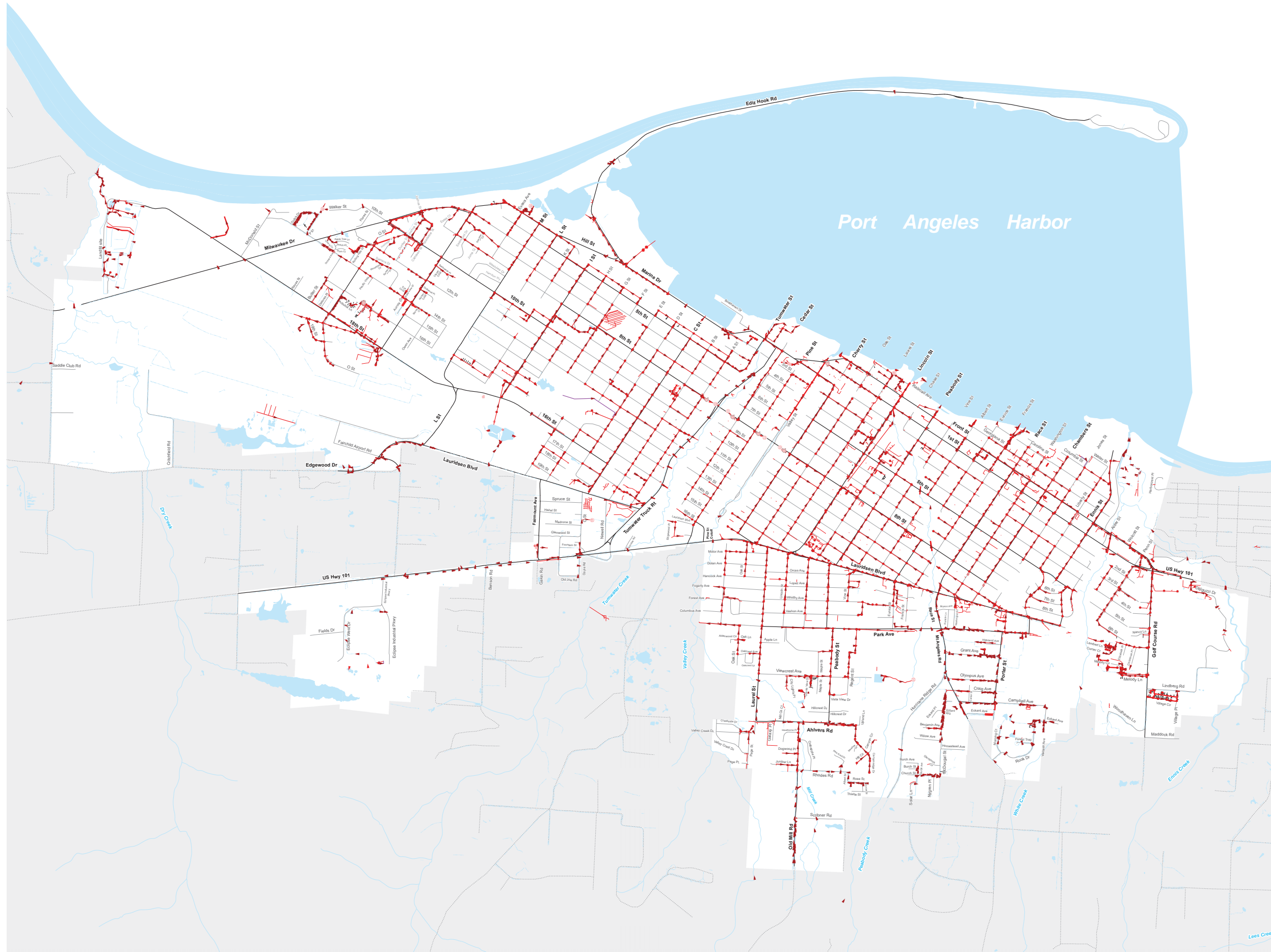
This field is not part of the form submission.



825
Feet

Vertical Datum = NAVD 88
Horizontal Datum = NAD 83/91

Storm Water Map



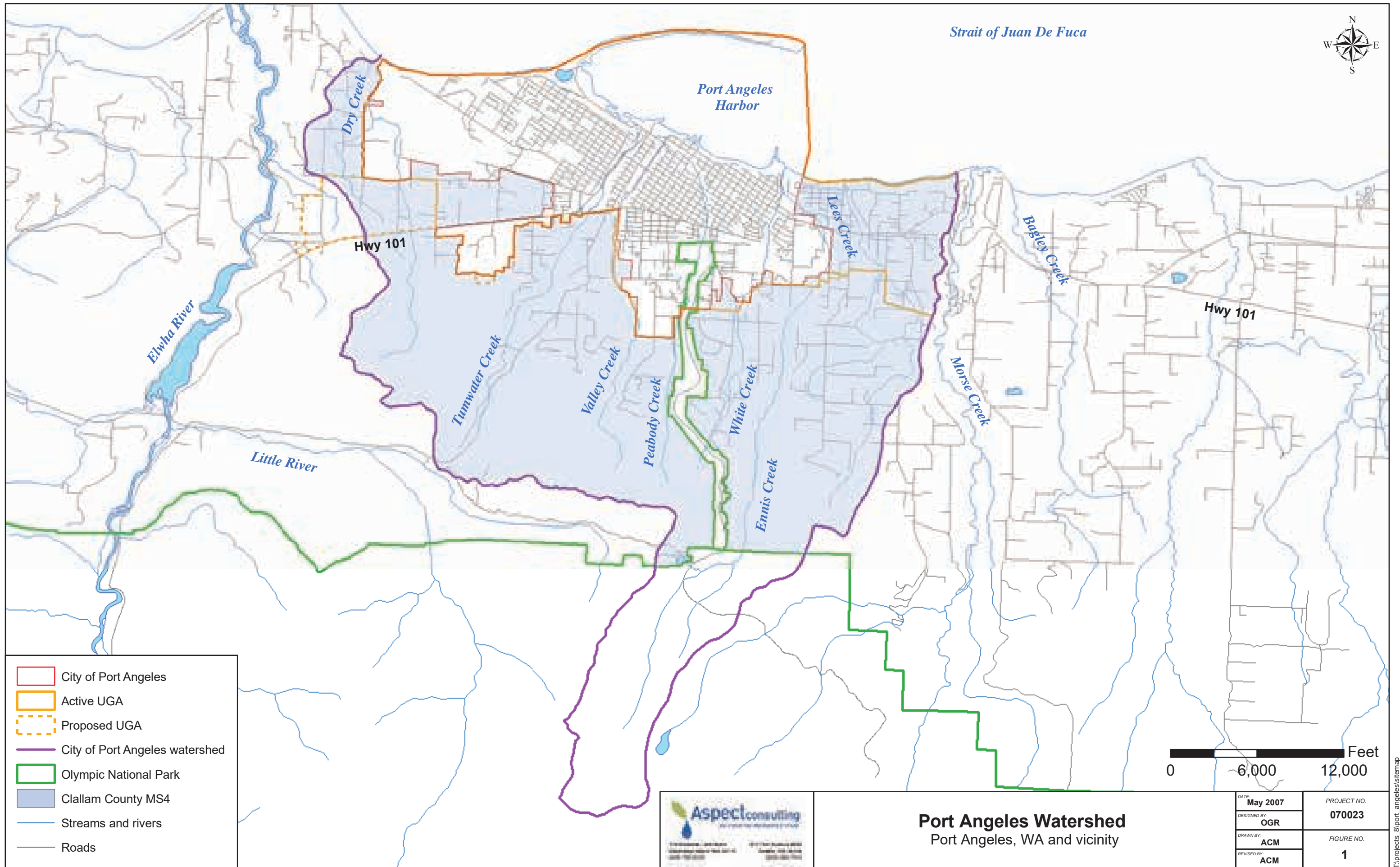
Map legend

- Ditches and drainage
- River and creek
- Ponds and marshes
- Saltwater
- City arterial
- City side street
- County road
- County jurisdiction

Storm utility legend

- Chamber
- <all other values>
 - DAquaswirl
 - DDiversionChamber
 - DDryWell
 - DEnergyDissipator
 - DFilterChamber
 - DVortech
 - DWetWell
 - SystemValve
 - ControlValve
 - Manhole
 - Ponds
 - Lateralline
 - DOther active mains
 - DDitches
 - DOverflow
 - DInterceptor
 - DMain
 - DCulvert
 - DInlineStorage
 - DCollector
 - DOutfall
 - PressurizedMain

This map is not intended for use as a legal description. Locations of features are approximate only. Topographic features are +/- feet of actual locations. This map is produced by the City of Port Angeles for its own use and purposes. Any other use of this map is the responsibility of the user.



Strait of Juan De Fuca



Port Angeles Harbor

Dry Creek

Lees Creek

Bagley Creek

Hwy 101

Hwy 101

Elwha River

Tumwater Creek

Valley Creek

Peabody Creek

White Creek

Ennis Creek

Morse Creek

Little River

- City of Port Angeles
- Active UGA
- Proposed UGA
- City of Port Angeles watershed
- Olympic National Park
- Clallam County MS4
- Streams and rivers
- Roads



Port Angeles Watershed
Port Angeles, WA and vicinity

DATE May 2007	PROJECT NO. 070023
DESIGNED BY OGR	FIGURE NO. 1
DRAWN BY ACM	
REVISED BY ACM	

T:\projects_8\port_angeles\stemap

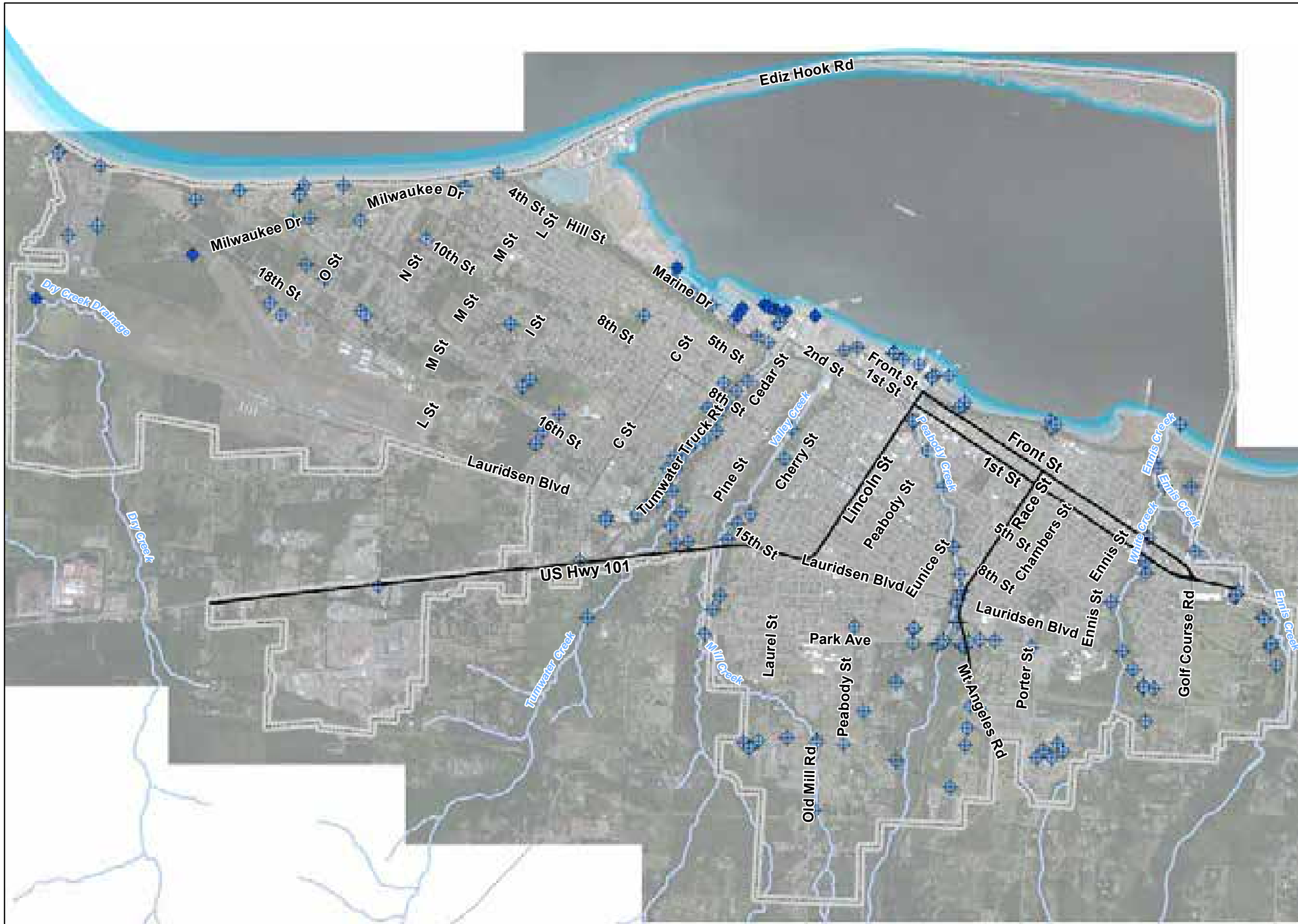


Outfall Discharge Map






1,600
Feet

Vertical Datum = NAVD 88
Horizontal Datum = NAD 83/91

Printed: 3/12/2020



Legend

-  COPA Outfall
-  POPA Outfall
-  City boundary
-  Creek
-  River

This map is not intended for use as a legal description. Locations of features are approximate only. Topographic/Map features are +/- 5 feet of actual locations. This map/drawing is produced by the city of Port Angeles for its own use and purposes. Any other use of this map/drawing shall not be the responsibility of the City.

AssetID	LegacyID	Jurisdiction	Administration	InstallDate	Status	SubType	Diameter	Elevation	DataSource	Condition	ConditionDate	ConditionNotes	Notes	Name	Project	Location	Street	Intersection	NE XStreet	SW XStreet	Material
1	1	COPA	COPA	1/1/1968	Active	DOutfallCk	<Null>	117	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	14th St	<Null>
2	2	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	90	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	13th St	<Null>
3	3	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	24	Inspection	<Null>	<Null>	<Null>	Outfall to Dry creek. Pipe outlet with rip rap.	Dry Creek Outfall	16-May	Dry Creek	Landfill site	<Null>	<Null>	<Null>	<Null>
4	3135	Cnty	COPA	<Null>	Active	DOutfallCk	<Null>	246	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Reservoir Rd	<Null>	Davis St	<Null>	<Null>
5	3146	COPA	COPA	1/1/1996	Active	DOutfall	<Null>	358	<Null>	<Null>	<Null>	<Null>	Outlet to ditch	<Null>	<Null>	<Null>	Melody Ln	<Null>	Melody Cir	<Null>	<Null>
6	3147	COPA	Private	1/1/1988	Active	DOutfallCk	<Null>	465	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	Mill Ck Ct	<Null>	Ahlvers Rd	<Null>	<Null>
7	3155	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	104	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	15th St	<Null>
9	3158	COPA	COPA	1/1/1995	Active	DOutfall	<Null>	129	<Null>	<Null>	<Null>	<Null>	Top of bluff outfall	<Null>	<Null>	<Null>	McDonald St	<Null>	<Null>	<Null>	<Null>
10	3074	COPA	COPA	1/1/1929	Active	DOutfallHarbor	30	10	<Null>	<Null>	<Null>	<Null>	<Null>	Culvert discharge	<Null>	South east corner of boat harbor.	Marine Dr	<Null>	<Null>	B St	<Null>
11	3075	COPA	COPA	1/1/1971	Active	DOutfall	<Null>	230	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	6th St	<Null>	E St	<Null>	<Null>
12	3076	COPA	COPA	1/1/1978	Active	DOutfall	<Null>	250	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	Reyes St	<Null>	19th St	<Null>	<Null>
13	3077	COPA	COPA	1/1/1955	Active	DOutfallHarbor	36	8	<Null>	<Null>	<Null>	<Null>	<Null>	Culvert discharge	<Null>	Boat harbor.	Marine Dr	<Null>	<Null>	D St	<Null>
14	3079	COPA	COPA	1/1/1955	Active	DOutfallHarbor	15	6	<Null>	<Null>	<Null>	<Null>	<Null>	Culvert discharge	<Null>	Boat harbor.	Marine Dr	<Null>	<Null>	E St	<Null>
15	3082	COPA	COPA	1/1/1956	Active	DOutfallCk	<Null>	131	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	9th St	<Null>	Cherry St	Valley St	<Null>
17	3084	COPA	COPA	1/1/1961	Active	DOutfallCk	24	14	Inspection	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	Rayonier parking lot.	Ennis St	<Null>	<Null>	Water St	<Null>
18	3087	COPA	COPA	1/1/1954	Active	DOutfallHarbor	18	0	<Null>	<Null>	<Null>	<Null>	Outlet for old County sanitary sewer.	<Null>	<Null>	Northwest of Francis St park.	Francis St	<Null>	<Null>	Georgiana St	Concrete
19	3088	COPA	Private	1/1/1993	Active	DOutfall	6	16	Plan	<Null>	<Null>	<Null>	OUTFALL	Pipe discharge	<Null>	Runs over the bluff from Albert St. Discharges to ditch parallel to harbor.	Albert St	<Null>	<Null>	Georgiana St	PolyE
20	3089	COPA	Private	1/1/1993	Active	DOutfall	4	16	Plan	<Null>	<Null>	<Null>	OUTFALL	Pipe discharge	<Null>	Runs over the bluff from Albert St. Discharges to ditch parallel to harbor.	Albert St	<Null>	<Null>	Georgiana St	PVC
21	07A	COPA	COPA	1/1/1927	Active	DOutfallHarbor	84	12	Plan	<Null>	<Null>	<Null>	See main for inspections and photos. Field note locates N end of storm culvert	CSO discharge site 8	<Null>	Peabody creek outfall west of the City pair parking lot.	Lincoln St	<Null>	<Null>	Railroad Ave	Concrete
22	3096	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	21	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater St	<Null>	3rd St	<Null>	<Null>
23	3100	COPA	COPA	1/1/1995	Active	DOutfall	<Null>	218	<Null>	<Null>	<Null>	<Null>	Outfall	<Null>	<Null>	<Null>	Butler St	<Null>	<Null>	16th St	<Null>
24	3101	COPA	COPA	<Null>	Active	DOutfall	<Null>	222	<Null>	<Null>	<Null>	<Null>	<Null>	Lincoln park Big Boys pond outfall.	<Null>	South west edge of Big Boys pond.	14th St	<Null>	<Null>	I St	<Null>
25	3104	COPA	COPA	1/1/1995	Active	DOutfall	<Null>	248	<Null>	<Null>	<Null>	<Null>	STORM OUTFALL.	<Null>	<Null>	<Null>	16th St	<Null>	O St	16th St	<Null>
26	09A	COPA	COPA	1/1/1961	Active	DOutfall	<Null>	8	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos.	<Null>	<Null>	<Null>	Tumwater St	<Null>	<Null>	Marine Dr	<Null>
27	05A	COPA	COPA	1/1/1952	Active	DOutfallCk	<Null>	45	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos. Outfall to Peabody creek	<Null>	<Null>	<Null>	Peabody St	<Null>	3rd St	4th St	<Null>
28	08A	COPA	COPA	1/1/1957	Active	DOutfallHarbor	54	16	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos. Valley creek culvert outfall to harbor	Culvert discharge	<Null>	Valley creek estuary.	Valley St	<Null>	<Null>	Marine Dr	<Null>
29	3640	COPA	COPA	5/1/2006	Active	DOutfall	<Null>	162	<Null>	<Null>	<Null>	<Null>	4ft x 4ft quarry spall	<Null>	Rolling Hills plan-set	<Null>	O St	<Null>	<Null>	<Null>	<Null>
30	3387	COPA	COPA	9/15/2016	Active	DOutfallHarbor	12	12	AsBuilt	Good	9/15/2016	New installation during project.	Outfall to Harbor. This outfall is first shown on the 1970 City storm map. However I think it is much older than that. Exact install date unknown.	See sheet SD-1 (pg 17)	Project WW10-08 (06-01 Phase 2)	Valley creek estuary	Marine Dr	<Null>	<Null>	Front St	<Null>
31	3394	COPA	COPA	4/1/2001	Active	DOutfall	<Null>	24	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Francis St Park Impvts	<Null>	Francis St	<Null>	<Null>	<Null>	<Null>
32	3395	COPA	COPA	4/1/2001	Active	DOutfall	<Null>	24	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Francis St Park Impvts	<Null>	Francis St	<Null>	<Null>	<Null>	<Null>
33	3396	COPA	COPA	1/1/1915	Active	DOutfallHarbor	24	0	<Null>	<Null>	<Null>	<Null>	CSO outfall.	CSO discharge site 10 east.	<Null>	Northeast of Francis St park.	Francis St	<Null>	<Null>	Georgiana St	Concrete
34	01A	COPA	COPA	<Null>	Active	DOutfall	<Null>	260	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos. Culvert outfall	<Null>	<Null>	<Null>	Park Ave	<Null>	Race St	Eunice St	<Null>
35	02A	COPA	COPA	<Null>	Active	DOutfall	<Null>	120	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos. Culvert outfall	<Null>	<Null>	<Null>	8th St	<Null>	Francis St	Eunice St	<Null>
36	03A	COPA	COPA	<Null>	Active	DOutfall	<Null>	120	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos. Culvert outfall	<Null>	<Null>	<Null>	8th St	<Null>	Francis St	Eunice St	<Null>
37	04A	COPA	COPA	<Null>	Active	DOutfall	<Null>	83	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos. Culvert outfall	<Null>	<Null>	<Null>	5th St	<Null>	Albert St	Vine St	<Null>
38	06A	COPA	COPA	1/1/1914	Active	DOutfall	<Null>	32	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos. 2nd St St culvert outfall	<Null>	<Null>	North side of 2nd St culvert in trailer park.	2nd St	<Null>	<Null>	Lincoln St	<Null>
39	10A	COPA	COPA	<Null>	Active	DOutfall	<Null>	120	<Null>	<Null>	<Null>	<Null>	See main for inspections and photos. Culvert outfall	<Null>	<Null>	<Null>	Front St	<Null>	Penn St	Alder St	<Null>
40	3561	COPA	COPA	<Null>	Active	DOutfall	<Null>	244	<Null>	<Null>	<Null>	<Null>	Also see fieldbooks T47-2 and T47A	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	Lauridsen Blvd	<Null>
41	3562	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	104	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	A St	<Null>
42	3563	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	92	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	A St	<Null>

AssetID	LegacyID	Jurisdiction	Administration	InstallDate	Status	SubType	Diameter	Elevation	DataSource	Condition	ConditionDate	ConditionNotes	Notes	Name	Project	Location	Street	Intersection	NE_XStreet	SW_XStreet	Material
43	3564	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	150	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	10th St	<Null>	<Null>	Tumwater Truck Rt	<Null>
44	3619	COPA	COPA	10/1/2005	Active	DOutfall	<Null>	313.82	<Null>	<Null>	<Null>	<Null>	<Null>	Park Ave Impvts	4-Apr	<Null>	Park Ave	<Null>	<Null>	Washington St	<Null>
45	3620	COPA	COPA	10/1/2005	Active	DOutfall	<Null>	308.36	<Null>	<Null>	<Null>	<Null>	<Null>	Park Ave Impvts	4-Apr	<Null>	Park Ave	<Null>	<Null>	Washington St	<Null>
46	2329	COPA	COPA	1/1/1985	Active	DOutfallCk	<Null>	200	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	US Hwy 101	<Null>	<Null>	Delguzzi Dr	<Null>
47	2330	Cnty	COPA	1/1/1970	Active	DOutfallCk	<Null>	76	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	Ennis Creek Rd	<Null>	<Null>	<Null>	<Null>
48	2319	COPA	COPA	1/1/1964	Active	DOutfallCk	<Null>	158	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	South side of Lauridsen Blvd bridge.	Lauridsen Blvd	<Null>	Race St	<Null>	<Null>
49	2322	COPA	COPA	1/1/1952	Active	DOutfallCk	<Null>	156	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	9th St	<Null>	Race St	Francis St	<Null>
50	2323	COPA	COPA	1/1/1970	Active	DOutfallCk	<Null>	226.61	<Null>	<Null>	<Null>	<Null>	Outfall to Whites creek. 18inx12in tee in ditch.	<Null>	<Null>	<Null>	Alder St	<Null>	<Null>	5th St	<Null>
51	2213	Cnty	COPA	1/1/1976	Active	DOutfallCk	<Null>	262	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	Park Ave	<Null>	Cherry St	<Null>	<Null>
52	2214	COPA	COPA	1/1/1962	Active	DOutfallCk	<Null>	290	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	Fogarty Ave	<Null>	Cherry St	<Null>	<Null>
53	2217	COPA	COPA	1/1/1956	Active	DOutfallCk	<Null>	219	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	14th/15th Alley	<Null>	Cherry St	<Null>	<Null>
54	2218	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	148	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Edgewood Pl	<Null>	Lauridsen Blvd	<Null>	<Null>
55	2219	COPA	COPA	1/1/1956	Active	DOutfall	<Null>	208	<Null>	<Null>	<Null>	<Null>	PIPE OUTLET AT TOP OF BANK.	<Null>	<Null>	<Null>	13th/14th Alley	<Null>	Cherry St	<Null>	<Null>
56	2221	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	200	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	Lauridsen Blvd	<Null>
57	2224	COPA	COPA	1/1/1968	Active	DOutfall	<Null>	204	<Null>	<Null>	<Null>	<Null>	OUTFALL	Tumwater creek outfall	<Null>	<Null>	15th St	<Null>	A St	<Null>	<Null>
58	2225	COPA	COPA	1/1/1989	Active	DOutfallCk	<Null>	235	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	Delguzzi Dr	<Null>	US Hwy 101	<Null>	<Null>
59	2238	COPA	COPA	1/1/1977	Active	DOutfall	<Null>	504	<Null>	<Null>	<Null>	<Null>	OUTLET	<Null>	77-2	<Null>	Glenbrook Cir	<Null>	McDougal St	McGill Ave	<Null>
60	2239	COPA	COPA	1/1/1974	Active	DOutfallCk	<Null>	470	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	Canyon Cir	<Null>	<Null>	Canyonedge Dr	<Null>
61	2248	COPA	COPA	1/1/1974	Active	DOutfall	<Null>	476	<Null>	<Null>	<Null>	<Null>	PIPE OUTLET FROM MH APO12.	Ahlvers Rd	<Null>	<Null>	Ahlvers Rd	<Null>	Peabody St	<Null>	<Null>
62	2249	COPA	COPA	1/1/1971	Active	DOutfallCk	<Null>	476	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	Ahlvers Rd	<Null>	Peabody St	Old Mill Rd	<Null>
63	2251	COPA	COPA	1/1/1980	Active	DOutfallCk	<Null>	468	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	Ahlvers Rd	<Null>	Peabody St	Old Mill Rd	<Null>
64	2252	COPA	COPA	1/1/1991	Active	DOutfallCk	<Null>	482	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	Ahlvers Rd	<Null>	<Null>	Galaxy Pl	<Null>
65	2254	COPA	COPA	1/1/1978	Active	DOutfall	<Null>	476	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	McDougal St	<Null>	<Null>	Benjamin Ave	<Null>
66	2257	COPA	COPA	1/1/1976	Active	DOutfall	<Null>	448	<Null>	<Null>	<Null>	<Null>	OUTLET OF PIPE FROM CB UP038.	<Null>	<Null>	<Null>	Regent St	<Null>	Viewcrest Ave	Vista View Dr	<Null>
67	2268	COPA	COPA	1/1/1986	Active	DOutfallCk	<Null>	404	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	McDougal St	<Null>	Mt Angeles Rd	<Null>	<Null>
68	2273	COPA	COPA	1/1/1986	Active	DOutfall	<Null>	412	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	Mt Angeles Rd	<Null>	Craig Ave	<Null>	<Null>
69	2278	COPA	COPA	1/1/1996	Active	DOutfall	<Null>	362	<Null>	<Null>	<Null>	<Null>	Outlet to ditch	<Null>	<Null>	<Null>	Melody Ln	<Null>	Melody Cir	<Null>	<Null>
70	2279	COPA	Private	1/1/1993	Active	DOutfall	<Null>	346	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	93-13	<Null>	Lauridsen Blvd	<Null>	Currier Ct	Lambert Ln	<Null>
71	2283	COPA	COPA	1/1/1989	Active	DOutfallCk	<Null>	242	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	Delguzzi Dr	<Null>	US Hwy 101	<Null>	<Null>
72	2287	COPA	COPA	1/1/1965	Active	DOutfall	<Null>	336	<Null>	<Null>	<Null>	<Null>	PIPE OUTLET	<Null>	<Null>	<Null>	Porter St	<Null>	Park Ave	Highland Ave	<Null>
73	2288	COPA	COPA	1/1/1954	Active	DOutfallCk	<Null>	260	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	Park Ave	<Null>	Race St	Eunice St	<Null>
74	2289	COPA	COPA	1/1/1973	Active	DOutfall	<Null>	266	<Null>	<Null>	<Null>	<Null>	OUTLET	<Null>	<Null>	<Null>	Eunice St	<Null>	<Null>	Vashon Ave	<Null>
75	2290	COPA	COPA	1/1/1973	Active	DOutfall	<Null>	266	<Null>	<Null>	<Null>	<Null>	OUTLET	<Null>	<Null>	<Null>	Eunice St	<Null>	<Null>	Vashon Ave	<Null>
76	2301	COPA	COPA	1/1/1983	Active	DOutfallCk	<Null>	231	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	Race St	<Null>	Bryson Ave	<Null>	<Null>
77	2304	COPA	COPA	1/1/1989	Active	DOutfallCk	<Null>	226	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	Delguzzi Dr	<Null>	US Hwy 101	<Null>	<Null>
78	2309	COPA	COPA	1/1/1989	Active	DOutfallCk	<Null>	184	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	Delguzzi Dr	<Null>	US Hwy 101	<Null>	<Null>
79	2310	COPA	COPA	1/1/1989	Active	DOutfallCk	<Null>	170	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	Delguzzi Dr	<Null>	US Hwy 101	<Null>	<Null>
80	2317	COPA	COPA	1/1/1952	Active	DOutfallCk	<Null>	190	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	10th St	<Null>	Race St	<Null>	<Null>
81	2334	COPA	COPA	1/1/1972	Active	DOutfallCk	<Null>	112	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	Harborcrest Pl	<Null>	<Null>	<Null>	<Null>
82	2336	COPA	COPA	1/1/1976	Active	DOutfallCk	<Null>	148	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	US Hwy 101	<Null>	15th St	<Null>	<Null>
83	2337	COPA	COPA	1/1/1955	Active	DOutfallHarbor	42	6	<Null>	<Null>	<Null>	<Null>	Outfall	Culvert discharge	<Null>	Boat harbor.	Marine Dr	<Null>	<Null>	C St	<Null>
84	2339	COPA	COPA	1/1/1968	Active	DOutfall	<Null>	168	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	13th St	<Null>	Tumwater Truck Rt	A St	<Null>
85	2341	COPA	COPA	1/1/1968	Active	DOutfall	<Null>	210	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	14th St	<Null>	Tumwater Truck Rt	A St	<Null>
86	2342	COPA	COPA	1/1/1978	Active	DOutfall	<Null>	294	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	F St	<Null>	17th St	18th St	<Null>
87	2343	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	80	<Null>	<Null>	<Null>	<Null>	Outfall from 11th St to Tumwater creek	<Null>	<Null>	East of Tumwater Truck Rt.	11th St	<Null>	Tumwater Truck Rt	<Null>	<Null>
88	2345	COPA	COPA	1/1/1978	Active	DOutfall	<Null>	290	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	F St	<Null>	16th St	17th St	<Null>
89	3466	COPA	COPA	1/1/1953	Active	DOutfallHarbor	6	7.3	Plan	<Null>	<Null>	<Null>	I.E. determined with hand level. The install date is probably older than 1953.	CSO discharge site 6	<Null>	Discharges at the end of Oak St.	Railroad Ave	<Null>	Oak St	Cherry St	Concrete
90	3117	COPA	COPA	1/1/1967	Active	DOutfall	<Null>	310	<Null>	<Null>	<Null>	<Null>	OUTFALL	<Null>	<Null>	<Null>	Vashon Ave	<Null>	<Null>	Peabody St	<Null>
91	3119	COPA	COPA	1/1/1979	Active	DOutfall	<Null>	238	<Null>	<Null>	<Null>	<Null>	OUTLET OF PIPE	<Null>	<Null>	<Null>	11th/12th Alley	<Null>	K St	<Null>	<Null>
92	3121	COPA	COPA	1/1/1996	Active	DOutfall	<Null>	362	<Null>	<Null>	<Null>	<Null>	Outlet to ditch	<Null>	<Null>	<Null>	Melody Ln	<Null>	Melody Cir	<Null>	<Null>
93	3122	COPA	COPA	1/1/1994	Active	DOutfall	<Null>	282	Plan	Good	1/1/1994	New installation.	Outfall	Clallam County Transit	Clallam Transit site improvements	Clallam Transit site	Lauridsen Blvd	<Null>	Tumwater Truck Rt	Newell Rd	<Null>
94	3123	COPA	COPA	1/1/1994	Active	DOutfall	<Null>	280	<Null>	<Null>	<Null>	<Null>	Outfall	<Null>	<Null>	<Null>	Newell Rd	<Null>	<Null>	<Null>	<Null>

AssetID	LegacyID	Jurisdiction	Administration	InstallDate	Status	SubType	Diameter	Elevation	DataSource	Condition	ConditionDate	ConditionNotes	Notes	Name	Project	Location	Street	Intersection	NE_XStreet	SW_XStreet	Material
95	3124	COPA	COPA	1/1/1994	Active	DOutfall	<Null>	260	Plan	Good	1/1/1994	New installation.	Outfall	Clallam County Transit	Clallam Transit site improvements	Clallam Transit site	Lauridsen Blvd	<Null>	Tumwater Truck Rt	Newell Rd	<Null>
97	3127	COPA	COPA	1/1/1978	Active	DOutfall	<Null>	258	<Null>	<Null>	<Null>	<Null>	outlet to detention	<Null>	<Null>	<Null>	19th St	<Null>	<Null>	<Null>	<Null>
98	3332	COPA	COPA	1/1/2002	Active	DOutfall	<Null>	294	<Null>	<Null>	<Null>	<Null>	Outfall	<Null>	<Null>	<Null>	15th St	F St and 15th St	<Null>	F St	<Null>
99	3334	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	200	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	16th St	<Null>	Cedar St	<Null>	<Null>
100	3477	COPA	COPA	<Null>	Active	DOutfall	<Null>	50	<Null>	<Null>	<Null>	<Null>	Located by Mike Szatlocky. Baffled outlet.	<Null>	<Null>	<Null>	McDonald St	<Null>	McDonald St	18th St	<Null>
101	3511	COPA	COPA	<Null>	Active	DOutfall	<Null>	450	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Rook Dr	<Null>	Rook Dr	Forest Trail	<Null>
102	3565	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	62	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	9th St	<Null>	<Null>
103	3566	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	49	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	8th St	<Null>	<Null>
104	3567	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	41	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	8th St	<Null>
105	3568	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	38	<Null>	<Null>	<Null>	<Null>	Outfall to Tumwater creek	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	8th St	<Null>
106	3569	COPA	COPA	<Null>	Active	DOutfall	<Null>	126	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	7th St	<Null>	<Null>	A St	<Null>
107	3570	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	36	<Null>	<Null>	<Null>	<Null>	Outfall to Valley creek	<Null>	<Null>	<Null>	Valley St	<Null>	<Null>	8th St	<Null>
108	3571	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	250	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	Park Ave	<Null>	Race St	Eunice St	<Null>
109	3572	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	260	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	Park Ave	<Null>	Race St	Eunice St	<Null>
110	3573	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	284	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	Park Ave	<Null>	Race St	Eunice St	<Null>
111	3574	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	292	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	Mt Angeles Rd	<Null>	Park Ave	<Null>	<Null>
112	3575	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	294	<Null>	<Null>	<Null>	<Null>	Outfall to Peabody creek	<Null>	<Null>	<Null>	Mt Angeles Rd	<Null>	Park Ave	<Null>	<Null>
113	3576	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	16	<Null>	<Null>	<Null>	<Null>	Outfall to Ennis creek	<Null>	<Null>	<Null>	Rayonier Access Rd	<Null>	<Null>	Rayonier Access Rd	<Null>
114	3617	COPA	COPA	10/1/2005	Active	DOutfall	<Null>	295.32	<Null>	<Null>	<Null>	<Null>	<Null>	Park Ave Impvpts	4-Apr	<Null>	Park Ave	<Null>	<Null>	Mt Angeles Rd	<Null>
115	3646	COPA	COPA	6/1/2006	Active	DOutfall	12	170	Inspection	<Null>	<Null>	<Null>	<Null>	<Null>	The Orchards Subdivision	<Null>	14th St	Milwaukee Dr and 14th St	Milwaukee Dr	<Null>	<Null>
117	3653	COPA	COPA	6/1/2006	Active	DOutfall	<Null>	160	<Null>	<Null>	<Null>	<Null>	Outfall to detention pond	<Null>	The Orchards Subdivision	<Null>	Orchard Ave	<Null>	<Null>	Apple Tree Ln	<Null>
118	3658	COPA	COPA	6/1/2006	Active	DOutfall	<Null>	464	<Null>	<Null>	<Null>	<Null>	Quarry spall discharge	<Null>	Green Crow-Reidel phase2	<Null>	Forest Trail	<Null>	Rook Dr	Forest Trail	<Null>
119	3679	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	28	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	2nd St	<Null>	<Null>	Lincoln St	<Null>
120	3587	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	410	<Null>	<Null>	<Null>	<Null>	Outfall to Whites creek	<Null>	<Null>	<Null>	Woodhaven Dr	<Null>	<Null>	<Null>	<Null>
121	3588	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	352	<Null>	<Null>	<Null>	<Null>	Outfall to Whites creek	<Null>	<Null>	<Null>	Currier Ct	<Null>	Lambert Ln	<Null>	<Null>
122	3589	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	150	<Null>	<Null>	<Null>	<Null>	Outfall to Whites creek	<Null>	<Null>	<Null>	2nd St	<Null>	<Null>	Wolcott St	<Null>
123	3590	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	162	<Null>	<Null>	<Null>	<Null>	Outfall to Whites creek	<Null>	<Null>	<Null>	1st/2nd Alley	<Null>	Wolcott St	Alder St	<Null>
124	3591	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	162	<Null>	<Null>	<Null>	<Null>	Outfall to Whites creek	<Null>	<Null>	<Null>	1st/2nd Alley	<Null>	Wolcott St	Alder St	<Null>
125	3592	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	115	<Null>	<Null>	<Null>	<Null>	Outfall to Whites creek	<Null>	<Null>	<Null>	Front St	<Null>	Wolcott St	Alder St	<Null>
126	3839	COPA	COPA	12/1/2006	Active	DOutfall	<Null>	238	<Null>	<Null>	<Null>	<Null>	extend pipe to daylight.	<Null>	15th street and I	<Null>	15th St	<Null>	H St	I St	<Null>
127	3848	COPA	COPA	<Null>	Active	DOutfall	<Null>	315	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	US Hwy 101	<Null>	Tumwater Truck Rt	Doyle Rd	<Null>
129	3997	COPA	COPA	<Null>	Active	DOutfall	<Null>	8	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Tumwater St	<Null>	<Null>	Marine Dr	<Null>
130	3833	COPA	COPA	12/1/2006	Active	DOutfall	<Null>	452.96	<Null>	<Null>	<Null>	<Null>	Outfall to pond	<Null>	Green Crow phase 3	<Null>	Morning Ct	<Null>	Rook Dr	Forest Trail	<Null>
131	2281	COPA	COPA	1/1/1993	Active	DOutfallCk	<Null>	218	<Null>	<Null>	<Null>	<Null>	Diffuser. Outfall to Whites creek	<Null>	93-13	<Null>	Penn St	<Null>	6th St	Lambert Ln	<Null>
132	4230	COPA	COPA	<Null>	Active	DOutfall	<Null>	244	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Tumwater Truck Rt	<Null>	<Null>	Lauridsen Blvd	<Null>
133	4226	COPA	COPA	<Null>	Active	DOutfall	<Null>	476.2	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Ahlvers Rd	<Null>	Laurel St	Creekside Dr.	<Null>
134	4104	COPA	COPA	1/29/2009	Active	DOutfall	<Null>	472	<Null>	<Null>	<Null>	<Null>	Flow dispersion structure.	<Null>	Reserve at Valley Creek plan set 2009	<Null>	Crestside Dr.	<Null>	Ahlvers Rd	Valley Creek Dr.	<Null>
135	4121	COPA	COPA	1/29/2009	Active	DOutfall	<Null>	474	<Null>	<Null>	<Null>	<Null>	Flow dispersion structure.	<Null>	Reserve at Valley Creek plan set 2009	<Null>	Creekside Dr.	<Null>	Ahlvers Rd	Valley Creek Dr.	<Null>
136	4166	COPA	COPA	2/26/2019	Active	DOutfall	<Null>	441	AsBuilt	Good	2/26/2019	New installation	<Null>	<Null>	Campbell Ave PRD Phase 2	Near lot 32 and 33	Rook Dr	<Null>	Eckard Ave	<Null>	<Null>
137	3659	COPA	COPA	6/1/2006	Active	DOutfall	<Null>	452	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Green Crow-Reidel phase2	<Null>	Rook Dr	<Null>	Rook Dr	Forest Trail	<Null>
138	4206	COPA	Private	<Null>	Active	DOutfallCk	<Null>	340	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Lauridsen Blvd	<Null>	<Null>	Ennis St	<Null>
139	3140	COPA	COPA	1/1/1996	Active	DOutfall	<Null>	270	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	16th St	<Null>	N St	Maloney Ct	<Null>
140	3141	COPA	COPA	1/1/1996	Active	DOutfall	<Null>	270	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	16th St	<Null>	N St	Maloney Ct	<Null>
142	3150	COPA	COPA	1/1/1985	Active	DOutfall	<Null>	208	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Delguzzi Dr	<Null>	US Hwy 101	<Null>	<Null>
143	3151	COPA	COPA	1/1/1985	Active	DOutfall	<Null>	202	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Delguzzi Dr	<Null>	US Hwy 101	<Null>	<Null>
144	3153	COPA	COPA	1/1/1925	Active	DOutfall	<Null>	376	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Viewcrest Ave	<Null>	<Null>	<Null>	<Null>

AssetID	LegacyID	Jurisdiction	Administration	InstallDate	Status	SubType	Diameter	Elevation	DataSource	Condition	ConditionDate	ConditionNotes	Notes	Name	Project	Location	Street	Intersection	NE_XStreet	SW_XStreet	Material
145	2215	COPA	COPA	1/1/1987	Active	DOutfall	<Null>	246	<Null>	<Null>	<Null>	<Null>	LOCATED FROM AERIALS AND AS-BUILT "PINE ROAD VILL	<Null>	<Null>	<Null>	Edgewood Dr	<Null>	Pine St	US Hwy 101	<Null>
146	2216	COPA	COPA	1/1/1987	Active	DOutfall	<Null>	246	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Edgewood Dr	<Null>	Pine St	US Hwy 101	<Null>
147	2256	COPA	COPA	1/1/1977	Active	DOutfall	<Null>	445	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Pinebrook Sub Eckard Pl water wwater	<Null>	McDougal St	<Null>	Craig Ave	Eckard Ave	<Null>
148	2291	COPA	COPA	1/1/1954	Active	DOutfall	<Null>	308	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Park Ave	<Null>	Race St	Eunice St	<Null>
150	2347	COPA	COPA	1/1/1968	Active	DOutfall	<Null>	150	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	9th St	<Null>	Tumwater Truck Rt	A St	<Null>
152	3113	COPA	COPA	1/1/1955	Inactive	DOutfallHarbor	8	14	Inspection	<Null>	<Null>	<Null>	Valve that activates this outflow is in the off condition.	CSO inactive	<Null>	Daishowa lagoon	Marine Dr	<Null>	Hill St	Ediz Hook Rd	Concrete
153	3726	COPA	COPA	<Null>	Proposed	DOutfall	<Null>	322	<Null>	<Null>	<Null>	<Null>	Outfall to ditch. 6 in quarry spall.	<Null>	<Null>	<Null>	Highland Ave	<Null>	Park Ave	Grant Ave	<Null>
154	3931	COPA	COPA	<Null>	Active	DOutfall	<Null>	38	<Null>	<Null>	<Null>	<Null>	Energy dissipater. See plans for detail.	<Null>	Juan De Fuca Bluffs plan set	<Null>	P St	<Null>	Walker St	Dutch Dr	<Null>
155	4093	COPA	COPA	1/29/2009	Active	DOutfall	<Null>	474	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Reserve at Valley Creek plan set 2009	<Null>	Creekside Dr.	<Null>	Ahlvers Rd	Valley Creek Dr.	<Null>
156	<Null>	COPA	COPA	1/1/2006	Active	DOutfall	<Null>	130	<Null>	<Null>	<Null>	<Null>	Overflow storm water discharge from Walker Subd to ditch that flows to Strait outfall.	<Null>	<Null>	<Null>	P St	<Null>	Walker St	Dutch Dr	<Null>
157	<Null>	COPA	COPA	1/1/2006	Active	DOutfall	<Null>	130	<Null>	<Null>	<Null>	<Null>	Storm water discharge from Walker Subd to ditch that flows to Strait outfall.	<Null>	<Null>	<Null>	P St	<Null>	Walker St	Dutch Dr	<Null>
159	<Null>	COPA	COPA	<Null>	Active	DOutfallCk	12	546	<Null>	<Null>	<Null>	<Null>	Creek outfall to Mill Creek.	<Null>	<Null>	<Null>	Old Mill Rd	<Null>	Rhodes Rd	<Null>	<Null>
160	<Null>	COPA	COPA	<Null>	Active	DOutfallCk	<Null>	30	Inspection	<Null>	<Null>	<Null>	Overflow	Dry Creek Diversion Outfall	16-May	Landfill site along Dry Creek.	Landfill site	<Null>	<Null>	<Null>	<Null>
161	<Null>	COPA	COPA	<Null>	Active	DOutfall	<Null>	184	<Null>	<Null>	<Null>	<Null>	Outfall to parking lot ditch.	Wal mart superstore	<Null>	Wal mart superstore parking lot	US Hwy 101	<Null>	Masters Rd	<Null>	<Null>
166	<Null>	COPA	COPA	1/1/1953	Active	DOutfall	15	12	Plan	<Null>	<Null>	<Null>	Originally installed before 1953 and upgraded since. The pond is tidal influenced.	Culvert discharge	<Null>	East of Red Lion motel. Over the bluff from Front St then discharges to pond.	Peabody St	<Null>	<Null>	Front St	Concrete
167	<Null>	COPA	COPA	1/1/1915	Active	DOutfallHarbor	12	6	<Null>	<Null>	<Null>	<Null>	Installation date is approximate and coincides with the building of the Railroad. Many improvements have been made over the years.	Culvert discharge	<Null>	East of Red Lion motel from pond culvert complex.	Peabody St	<Null>	<Null>	Front St	PVC
168	<Null>	COPA	COPA	<Null>	Active	DOutfall	<Null>	174	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	North of MRWF pond and east of gun range.	Landfill site	<Null>	<Null>	<Null>	<Null>
171	<Null>	COPA	COPA	<Null>	Active	DOutfall	<Null>	184	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Landfill site	<Null>	<Null>	<Null>	<Null>
174	174	COPA	COPA	1/1/1979	Active	DOutfallHarbor	12	9.54	Plan	<Null>	<Null>	<Null>	<Null>	Culvert discharge	78-2 PA Municipal Pier	Rip rap north of the City pier parking lot and near the Peabody Creek outfall	Railroad Ave	<Null>	<Null>	Lincoln St	Concrete
177	<Null>	COPA	COPA	<Null>	Active	DOutfallHarbor	<Null>	14	Inspection	<Null>	<Null>	<Null>	<Null>	Pipe discharge	<Null>	Discharges at the end of Lincoln St. to the west of Peabody Ck culvert.	Lincoln St	<Null>	<Null>	Railroad Ave	<Null>
178	<Null>	COPA	COPA	1/1/1937	Abandoned	DOutfallHarbor	15	0	<Null>	<Null>	<Null>	<Null>	Destroyed during graving yard construction (2002) and inactive prior to that.	Old CSO discharge site	<Null>	Near graving yard area.	Marine Dr	<Null>	<Null>	Hill St	Steel
179	<Null>	COPA	COPA	<Null>	Active	DOutfall	<Null>	30	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	On beach north of old pump station one location.	4th St	<Null>	Evans Ave	<Null>	<Null>
180	<Null>	COPA	COPA	<Null>	Active	DOutfall	<Null>	122	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Discharges near top of bluff and flows to beach	4th St	<Null>	<Null>	<Null>	<Null>
181	<Null>	COPA	COPA	<Null>	Abandoned	DOutfallCk	<Null>	512	<Null>	<Null>	<Null>	<Null>	Old CSO outfall to seasonal creek	Old CSO	<Null>	<Null>	Church St	<Null>	McDougal St	<Null>	<Null>
182	<Null>	COPA	COPA	1/1/1950	Abandoned	DOutfallHarbor	<Null>	0	<Null>	<Null>	<Null>	<Null>	Historical outfall per study 95-09 Marine environment near Rayonier. Shown on a 1963 aerial photo but the install date was probably much earlier due to the maturity of the structures in the photograph. Unknown pipe data.	Historical site E	<Null>	Rayonier site south west side of pier	Ennis St	<Null>	<Null>	<Null>	<Null>
183	<Null>	COPA	COPA	1/1/1950	Abandoned	DOutfallHarbor	<Null>	0	<Null>	<Null>	<Null>	<Null>	Historical outfall per study 95-09 Marine environment near Rayonier. Shown on a 1963 aerial photo but the install date was probably much earlier due to the maturity of the structures in the photograph. Unknown pipe data.	Historical site A	<Null>	Rayonier site west side of pier	Ennis St	<Null>	<Null>	<Null>	<Null>

AssetID	LegacyID	Jurisdiction	Administration	InstallDate	Status	SubType	Diameter	Elevation	DataSource	Condition	ConditionDate	ConditionNotes	Notes	Name	Project	Location	Street	Intersection	NE_XStreet	SW_XStreet	Material
184	<Null>	COPA	COPA	1/1/1950	Abandoned	DOutfallHarbor	<Null>	0	<Null>	<Null>	<Null>	<Null>	Historical outfall per study 95-09 Marine environment near Rayonier. Shown on a 1963 aerial photo but the install date was probably much earlier due to the maturity of the structures in the photograph. Unknown pipe data.	Historical site B	<Null>	Rayonier site south end of pier	Ennis St	<Null>	<Null>	<Null>	<Null>
185	<Null>	COPA	COPA	1/1/1950	Abandoned	DOutfallHarbor	<Null>	0	<Null>	<Null>	<Null>	<Null>	Historical outfall per study 95-09 Marine environment near Rayonier. Shown on a 1963 aerial photo but the install date was probably much earlier due to the maturity of the structures in the photograph. Unknown pipe data.	Historical site C	<Null>	Rayonier site east side of pier	Ennis St	<Null>	<Null>	<Null>	<Null>
186	<Null>	COPA	COPA	1/1/1950	Abandoned	DOutfallHarbor	<Null>	0	<Null>	<Null>	<Null>	<Null>	Historical outfall per study 95-09 Marine environment near Rayonier. Shown on a 1963 aerial photo but the install date was probably much earlier due to the maturity of the structures in the photograph. Unknown pipe data.	Historical site D	<Null>	Rayonier site east side of pier at Ennis creek outfall	Ennis St	<Null>	<Null>	<Null>	<Null>
166	<Null>	COPA	COPA	1/1/1970	Active	DOutfall	4	28	Cards	<Null>	<Null>	<Null>	The pond is tidal influenced. This pipe shows up on the 1970 storm map but I think it is much older.	Culvert discharge	<Null>	Over the bluff from Front St then to Red Lion motel parking lot then discharges to pond.	Peabody St	<Null>	<Null>	Front St	PVC
188	<Null>	COPA	POPA	4/1/1996	Active	DOutfallHarbor	12	7.94	Plan	<Null>	<Null>	<Null>	See pdf page 11 of the primary image plan set. End of pipe is fitted with tide flex valve.	Culvert discharge	<Null>	Westport Marine area.	Cedar St	<Null>	<Null>	Marine Dr	Ductile Iron
189	<Null>	COPA	COPA	1/1/1979	Active	DOutfallHarbor	12	0	<Null>	<Null>	<Null>	<Null>	<Null>	Pipe discharge	<Null>	City pier east of the stage area in rip rap.	Railroad Ave	<Null>	<Null>	Lincoln St	Concrete
190	<Null>	COPA	COPA	<Null>	Active	DOutfallHarbor	<Null>	12	<Null>	<Null>	<Null>	<Null>	<Null>	Pipe discharge	<Null>	Near entrance to the City Pier parking lot.	Railroad Ave	<Null>	<Null>	Lincoln St	<Null>
191	<Null>	COPA	COPA	1/1/1979	Abandoned	DOutfallHarbor	12	0	<Null>	<Null>	<Null>	<Null>	See pdf page 12 of the plan set. This culvert has been removed.	Historical site	<Null>	Rayonier mill site near the old clarifier tank.	Ennis St	<Null>	<Null>	<Null>	Concrete
192	<Null>	COPA	POPA	<Null>	Abandoned	DOutfallHarbor	<Null>	14	OrthoPhoto	<Null>	<Null>	No plans but assume abandoned during pump station construction.	Outfall of Tumwater creek	Tumwater Creek	<Null>	Near the POPA pier	Tumwater St	<Null>	<Null>	Marine Dr	<Null>
193	<Null>	COPA	COPA	<Null>	Active	DOutfallHarbor	<Null>	0	OrthoPhoto	<Null>	<Null>	<Null>	<Null>	Ennis Creek	<Null>	Ennis creek outfall east of the Rayonier pier	Elwha St	<Null>	<Null>	<Null>	<Null>
194	<Null>	COPA	Private	<Null>	Active	DOutfall	4	447.6	Inspection	<Null>	<Null>	<Null>	Outfall with drain rock.	<Null>	<Null>	West side of house.	Rook Dr	<Null>	<Null>	<Null>	<Null>
196	<Null>	COPA	COPA	<Null>	Active	DOutfall	<Null>	15	Inspection	<Null>	<Null>	<Null>	Outfall to ditch that runs toward Marine dr.	<Null>	<Null>	South side of 3rd street to ditch	3rd St	<Null>	Tumwater St	Marine Dr	<Null>
200	<Null>	COPA	COPA	12/31/2018	Active	DOutfall	48	185	AsBUILT	Excellent	12/31/2018	Installed per TR-11-00	See sheet 56/59 for details and 16/59 for plan. Beehive outfall structure.	<Null>	TR-11-00	NW corner	N St	N St and 10th St	Seamount Dr	10th St	Conc
201	<Null>	COPA	COPA	<Null>	Active	DOutfall	<Null>	120	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Walker St	<Null>	10th St	<Null>	<Null>
206	<Null>	COPA	COPA	1/5/2012	Active	<Null>	<Null>	420	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	US HWY 101	Airport Rd and US Hwy 101	Airport Rd	Eclipse Industrial Pkwy	<Null>
207	<Null>	COPA	COPA	<Null>	Active	<Null>	<Null>	28	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Near the culvert inlet	2nd St	<Null>	Peabody st	Lincoln st	<Null>
208	<Null>	COPA	COPA	<Null>	Active	DOutfall	<Null>	33	<Null>	<Null>	<Null>	<Null>	Sample point for CSO SWPPP permit.	DC-3	<Null>	CSO site	Ennis St	<Null>	Water St	Columbia St	<Null>
214	<Null>	COPA	PCC	<Null>	Active	DOutfallCk	12	355	AsBUILT	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	College campus	Alder St	<Null>	Melody Cir	<Null>	<Null>
216	<Null>	COPA	COPA	1/1/2012	Active	DOutfallHarbor	<Null>	10	Plan	<Null>	<Null>	<Null>	<Null>	<Null>	Waterfront Phase 2	<Null>	Railroad Ave	<Null>	Laurel St	Oak St	<Null>
217	<Null>	COPA	COPA	1/1/2013	Active	DOutfallHarbor	<Null>	8	Plan	<Null>	<Null>	<Null>	<Null>	<Null>	Waterfront Phase 2	Harbor side through rip rap.	Oak St	<Null>	<Null>	Railroad Ave	<Null>
3018	<Null>	COPA	POPA	4/9/2009	Active	DOutfallHarbor	<Null>	8.27	Plan	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	West boat harbor parking lot.	Marine Dr	<Null>	<Null>	<Null>	<Null>
3418	<Null>	COPA	COPA	1/1/2014	Active	DOutfallCk	24	158	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Lauridsen bridge replacement project BRM-7568-001	Peabody creek along the north side of Lauridsen Blvd bridge	Lauridsen Blvd	<Null>	Race St	Lauridsen Ct	<Null>
4618	<Null>	COPA	COPA	9/14/2016	Active	DOutfall	12	30	Plan	Good	9/14/2016	New installation.	Outfall to the Strait of Juan De Fuca	SW02-12 Landfill cell stabilization	SW02-12	North cell of the City landfill.	18th St	<Null>	Milwaukee Dr	<Null>	DI
5022	<Null>	COPA	COPA	<Null>	Active	DOutfallCk	24	311	Inspection	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	West end of Forest Ave.	Forest Ave	Cherry St and Forest Ave	Cherry St	<Null>	<Null>
5418	<Null>	COPA	POPA	7/1/2019	Proposed	DOutfallHarbor	<Null>	12	Plan	Good	7/1/2019	<Null>	Marina outfall	Outfall 4	POPA Storm treatment	West of the Marine Boathaven intersection.	Boathaven Dr	<Null>	Marine Dr	<Null>	<Null>
5419	<Null>	COPA	POPA	7/1/2019	Proposed	DOutfallHarbor	<Null>	12	Plan	Good	7/1/2019	<Null>	<Null>	Outfall 3	POPA Storm treatment	West of the Marine Boathaven intersection.	Boathaven Dr	<Null>	Marine Dr	<Null>	<Null>
5818	<Null>	COPA	POPA	<Null>	Active	DOutfallHarbor	<Null>	14	Plan	<Null>	<Null>	<Null>	Existing structure prior to this project. Link for refrence only.	<Null>	<Null>	West of Tumwater bridge.	Tumwater St	<Null>	<Null>	Marine Dr	<Null>

AssetID	LegacyID	Jurisdiction	Administration	InstallDate	Status	SubType	Diameter	Elevation	DataSource	Condition	ConditionDate	ConditionNotes	Notes	Name	Project	Location	Street	Intersection	NE_XStreet	SW_XStreet	Material
6218	<Null>	COPA	POPA	<Null>	Abandoned	DOutfallHarbor	<Null>	14	Plan	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	POPA site west of tumwater bridge.	Tumwater St	<Null>	<Null>	Marine Dr	<Null>
6219	<Null>	COPA	POPA	<Null>	Abandoned	DOutfallHarbor	<Null>	14	Plan	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	POPA site west of tumwater bridge.	Tumwater St	<Null>	<Null>	Marine Dr	<Null>
6618	<Null>	COPA	Private	8/1/2019	Proposed	DOutfall	<Null>	412	Plan	<Null>	8/1/2019	New install	Outfall to ditch	<Null>	<Null>	<Null>	Campbell Ave	Porter St and Campbell Ave	<Null>	Porter St	<Null>
7018	<Null>	COPA	Private	2/26/2019	Active	DOutfall	<Null>	430	AsBuilt	Good	2/26/2019	New installation	Quarry spill outfall	<Null>	Campbell Ave PRD Phase 2	Just south of Campbell Ave	Campbell Ave	Wabash Ave and Campbell Ave	Rook Dr	<Null>	<Null>
7019	<Null>	COPA	Private	2/26/2019	Active	DOutfall	<Null>	422	AsBuilt	<Null>	<Null>	<Null>	<Null>	<Null>	Campbell Ave PRD Phase 2	<Null>	Campbell Ave	<Null>	<Null>	<Null>	<Null>
7418	<Null>	COPA	Private	2/26/2019	Active	DOutfall	<Null>	440	AsBuilt	Good	2/26/2019	New installation	Quarry spill outfall	<Null>	Campbell Ave PRD Phase 2	The pond near lots 19 and 20	Rook Dr	Wabash Ave and Campbell Ave	Rook Dr	Morning Ct	<Null>
7818	<Null>	COPA	POPA	<Null>	Active	DOutfall	<Null>	202	Plan	<Null>	<Null>	<Null>	Discharge to MS4	Outfall B	<Null>	<Null>	Milwaukee Dr	<Null>	18th St	<Null>	<Null>
7819	<Null>	COPA	POPA	<Null>	Active	DOutfall	<Null>	168	Plan	<Null>	<Null>	<Null>	Sample location	Outfall A	<Null>	<Null>	Kaycee Wy	<Null>	<Null>	Lower Elwha Rd	<Null>
96	3126	COPA	COPA	1/1/1994	Active	DOutfall	<Null>	262	Plan	Good	1/1/1994	New installation.	Outfall	Clallam County Transit	Clallam Transit site improvements	Clallam Transit site	Lauridsen Blvd	<Null>	Tumwater Truck Rt	Newell Rd	<Null>
176	<Null>	COPA	COPA	1/1/1967	Active	DOutfallHarbor	24	10	Plan	<Null>	<Null>	<Null>	This discharge site is indirectly referenced in 67-4 and is not shown on the 1953 storm map. Install date is approximate.	CSO discharge site 7	<Null>	Discharges on the east side of the Blackball ferry dock.	Railroad Ave	<Null>	Lincoln St	Laurel St	Concrete



IDDE Screening Strategy:

For the City to comply with the 2013-2018 NPDES phase II permit, which dictates that all permittees shall complete field screening for at least 40% of the MS4 system no later than December 31, 2017, the City of Port Angeles elected to screen on average 12% of its MS4 system beginning in 2014. Screening basins were divided up by number of catch basins within the right of way; the summation of catch basins in the first five screening areas resulted in 83% of the cities total catch basins, meeting the 40% minimum screening goal set for 2013-2018 Phase II NPDES permittee.

This requirement is also reflected in the current 2019-2023 Permit:

All Permittees shall complete field screening for an average of 12% of the MS4 each year.

Permittees shall annually track total percentage of the MS4 screened beginning August 1, 2019.

The City's existing methodology requires no change to meet these requirements.

In order to use the cities resources as efficiently as possible a mix of residential and commercial zoning in each year's screening area was preferred; to take advantage of an existing business inspection program. The City's Pollution Prevention Specialist inspects businesses within the screening basin boundary for potential illicit connections or discharges, and provides education to the business owners and staff on pollution prevention. Streams and creeks within the yearly screening area are inspected for the purpose of verifying outfall locations, identifying previously unknown outfalls, and detecting illicit discharges. Primary catch basins within the screening area are inspected for odor, color, and floatables that are indicative of illicit discharges. Results of the catch basin inspection and in office basin investigation are used to select monitoring nodes, typically manholes. During dry weather primary indicator testing is performed at these manhole locations, and at the basins primary outfalls. If Primary indicator thresholds are exceeded, the area upstream from the monitoring site is flagged for further investigation; if no indicators are found then areas of the screening basin can quickly be eliminated from further screening. When a discharge has been detected and traced back to a specific branch of the MS4 network, methods such as die testing, smoke testing, or video inspections are employed to trace the discharge to its source.

2021 – Field Screening I Street/Eclipse Industrial, Basin 6:

Basin 6 spans approximately 1,200 acres and consist of primarily of residential properties with some notable exceptions like Eclipse Industrial Park, Clallam County Fair Grounds, McKinley Mill, Ediz Hook, and the western-most section of Highway 101. To better facilitate the inspection and field screening, this IDDE basin was split into 2 Zones, a north and south section separated by Lauridsen Boulevard. There was no creek-walk associated with this basin screening.

Starting from the outfalls along Marine Drive, Stormwater Operations and Engineering staff worked their way south in search of potential illicit discharges. Primary conveyance lines were inspected for dry-weather flow and used to guide inspectors toward potential sources from tributary conveyances. Samples were taken when flow was encountered, otherwise, visual and olfactory techniques were used.

to search for IDDEs. Along the way, observed maintenance and repair needs were documented and added to Operations CityWorks database for Work Order generation and assignment. Samples were submitted to the Clallam County Water Testing Lab for fecal coliform testing.

Additionally, these efforts are coordinated with the Pollution Prevention Specialist to increase focus on business inspections in IDDE Basin #6 throughout the year.

Table 1. IDDE Basins

Year Insp.	Basin #:	Description:	Catch Basins (%):	Running Total (%)	19-24 Permit (S5.C.5.d.i) Total (%)
2014	1	Urbanized Peabody Basin	14.8	14.8	-
2015	7	Lauridsen Blvd. Basin	9.4	24.2	-
2016	2	Tumwater/Valley Basin	11.7	35.9	-
2017	8	West/Airport Basin	15.5	51.4	-
2018	3	Francis/Ennis Basin	15.1	66.5	-
2019	5	A St. Basin	12.0	78.5	12.0
2020	4	Southeast Basin	13.4	91.9	25.4
2021	6	I St./Eclipse Industrial	8.1	100.0	33.5
2022	1	Urbanized Peabody Basin	14.8	100.0	48.3

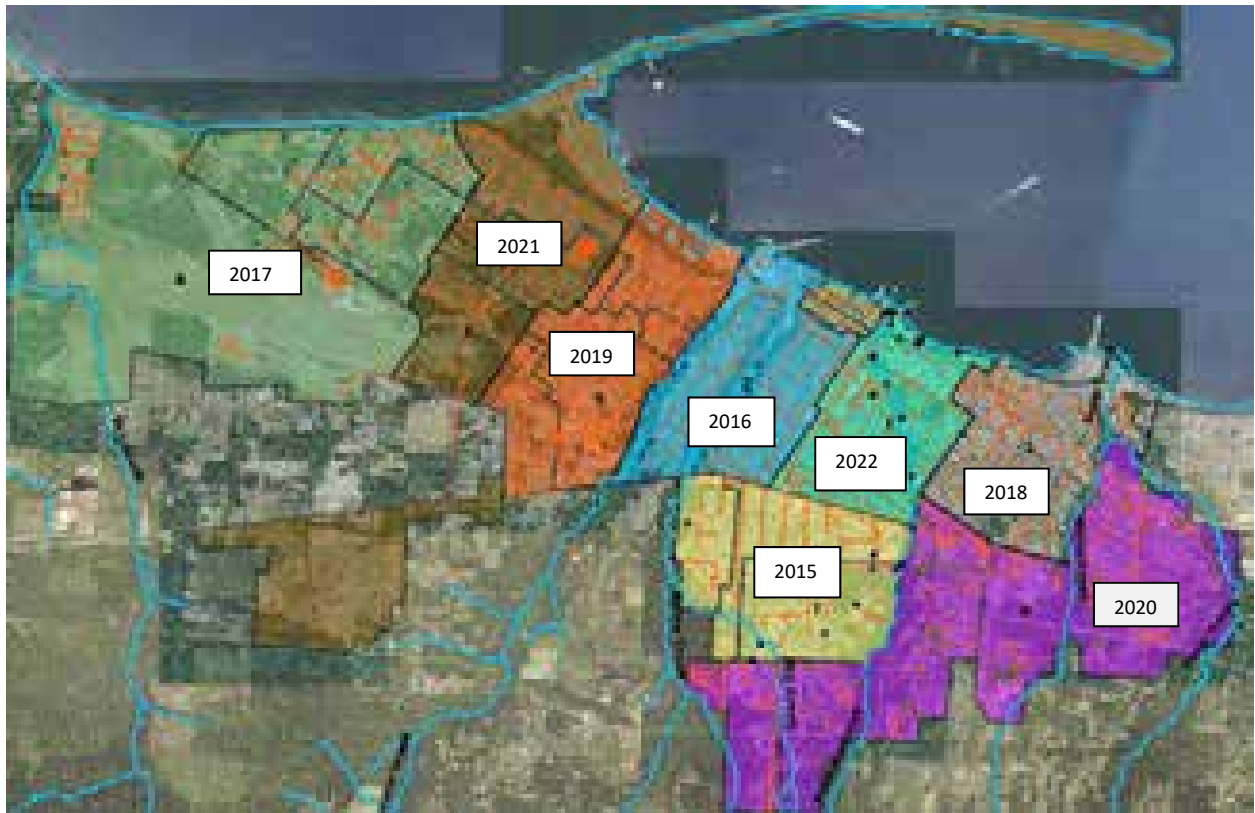


Figure 1. IDDE basin boundaries and inspection years.

Basin #1, consisting of the northern section of town surrounding Peabody Creek, is scheduled for screening in 2022. It was last inspected in 2014 and will include a creek-walk of Peabody Creek.

Additionally to note and in the same vein, a comprehensive inspection and photo-documentation of the City's various culverts was last performed in August 2020. This is scheduled to occur every 3-4 years.



2021 Illicit Discharge Detection and Elimination (IDDE) Tracking Spreadsheet
2019-2024 NPDES Stormwater Phase II Permit, per 55.C.5 and Appendix 12

0	1	2	3	4	5	6	7a	7b	8	9	10	11	12
Count	Jurisdiction name and permit number	Date incident discovered or reported to you	Date of beginning your response	Date of end of your response	How was the incident discovered or reported to you? (select all that apply)	Discharge to MS4? (select one)	Incident Location (address or Lat.Long)		Pollutants Identified (select all that apply)	Source or Cause (select all that apply)	Source tracing approach(es) used (select all that apply)	Correction/elimination methods used (select all that apply)	Field notes, explanations, and/or other comments
EXAMPLE	City of Port Angeles, WAR045028	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY	Pollution hotline (phone, web, app)	Yes – allowable or conditionally allowable	123 Fake St. Port Angeles, WA 98362	48.114397, -123.432281	Unconfirmed, unspecified, or not identified	Other commercial/industrial activity	Observation (color/sheen/turbidity/floatables/odor)	Add or modify operational source control BMP	
1	City of Port Angeles, WAR045028	1/2/2021	1/2/2021	1/4/2021	Staff referral	Yes – notified DOH and Ecology	2043 W. 4th St. Port Angeles, WA 98363	48.132533, -123.475511	Sewage/septage/pet waste/human waste	Other accident/spill	Not applicable	Clean-up, Other (Explanation required)	SSO due to heavy rain event. Domestic wastewater directed to MS4 to protect human health and property. ERTS #702841. S4F Notice Submitted 5.27.2021. Clean up & remediation consisted of immediate, short-term, and capital improvements.
2	City of Port Angeles, WAR045028	1/3/2021	1/4/2021	1/5/2021	Pollution hotline (phone, web, app)	No – cleaned up before reached MS4	101 E. 5th St. Port Angeles, WA 98362	48.115853, -123.436176	Fuel and/or vehicle related fluids	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Education/technical assistance, Referred to other agency or department	Code Enforcement, ongoing NOV and Voluntary abatement, case #20-0004.
3	City of Port Angeles, WAR045028	2/5/2021	2/5/2021	2/5/2021	Staff referral	No – cleaned up before reached MS4	702 S. Pine St, PA, 98362	48.070052, 123.264797	Sewage/septage/pet waste/human waste	Other accident/spill	Not applicable	Clean-up, Other (Explanation required)	People living in trailer parked on city road had blackwater tank break, police enforced removal after city staff clean up was finished.
4	City of Port Angeles, WAR045028	3/25/2021	3/25/2021	3/25/2021	Direct report to your staff	No – cleaned up before reached MS4	Intersection of Marine Drive and Cedar St.	48.072130, 123.264150	Fuel and/or vehicle related fluids	Other accident/spill	Not applicable	Clean-up	
5	City of Port Angeles, WAR045028	4/1/2021	4/1/2021	4/1/2021	Pollution hotline (phone, web, app)	No – cleaned up before reached MS4	Intersection of W. 2nd St and S. Cherry St. in uphill lane on blind corner	48.071252, 123.262165	Paint	Intentional dumping	Not applicable	Clean-up	On going police investigation (COPA) as these paint can drops on public roads in the greater area have been repeated several times since the summer of 2020.
6	City of Port Angeles, WAR045028	8/21/2021	8/25/2021	8/25/2021	Direct report to your staff	Yes – did not notify	201 E. Front St. Port Angeles, WA 98362	48.119345, -123.430231	Other wastewater	Food-related business	Not applicable	Education/technical assistance	
7	City of Port Angeles, WAR045028	9/20/2021	9/21/2021	9/25/2021	Staff referral	No – cleaned up before reached MS4	2321 W. 18th St. Port Angeles, WA 98363	48.122773, -123.492211	Fuel and/or vehicle related fluids	Intentional dumping	Not applicable	Clean-up, Education/technical assistance	
8	City of Port Angeles, WAR045028	10/20/2021	10/20/2021	10/20/2021	Staff referral	Yes – did not notify	4th and Laurel St., SW Corner	48.116474, -123.436154	Sewage/septage/pet waste/human waste	Intentional dumping	Not applicable	Clean-up, Education/technical assistance	
9	City of Port Angeles, WAR045028	10/21/2021	10/21/2021	10/21/2021	Direct report to your staff	No – none found	306 E. 5th St., Port Angeles, WA 98362	48.113609, -123.433371	Other (Explanation required)	Other (Explanation required)	Observation (color/sheen/turbidity/floatables/odor)	Other (Explanation required)	Turned out not to be an IDDE, rather, a blocked downspout that suddenly released ponded water.
10	City of Port Angeles, WAR045028	10/25/2021	10/25/2021	10/26/2021	Construction inspection	Yes – notified Ecology	4th & N St. intersection	48.132533, -123.475809	Sediment/soil	Construction activity	Field indicator measurements	Clean-up, Education/technical assistance, Add or modify operational source control BMP, Add or modify structural source control BMP	ERTS #710175
11	City of Port Angeles, WAR045028	10/28/2021	10/28/2021	11/4/2021	Staff referral	No – cleaned up before reached MS4	1700 Block of W. 11th St.	48.124091, -123.475309	Sediment/soil	Construction activity	Field indicator measurements	Clean-up, Education/technical assistance, Add or modify operational source control BMP, Add or modify structural source control BMP	Discharged into 10th & N St. quarry; empty settling pond. No discharge to MS4 past quarry and no outfall to receiving water.
12	City of Port Angeles, WAR045028	11/15/2021	11/15/2021	11/17/2021	Staff referral	Yes – notified DOH and Ecology	Pump Station #3, base of Hill St. & Marine Dr.	48.128906, -123.463378	Sewage/septage/pet waste/human waste	Other accident/spill	Not applicable	Clean-up, Education/technical assistance, Add or modify operational source control BMP, Add or modify structural source control BMP	ERTS #710709, SSO due to heavy rain event and capacity constraints in downstream sanitary conveyance.
13	City of Port Angeles, WAR045028	11/15/2021	11/15/2021	11/16/2021	Staff referral	Yes – notified DOH and Ecology	2101 W. 4th St. Port Angeles, WA 98363	48.132482, -123.475334	Sewage/septage/pet waste/human waste	Other accident/spill	Not applicable	Clean-up, Education/technical assistance, Add or modify operational source control BMP, Add or modify structural source control BMP	ERTS #710713, SSO due to heavy rain event and capacity constraints in downstream sanitary conveyance.

2021 IC/ID Tracing Program Streamkeepers/COPA Response													
0	1	2	3	4	5	6	7a	7b	8	9	10	11	12
Count	Jurisdiction name and permit number	Date incident discovered or reported to you	Date of beginning your response	Date of end of your response	How was the incident discovered or reported to you? (select all that apply)	Discharge to MS4? (select one)	Incident Location (address or Lat.Long)		Pollutants Identified (select all that apply)	Source or Cause (select all that apply)	Source tracing approach(es) used (select all that apply)	Correction/elimination methods used (select all that apply)	Field notes, explanations, and/or other comments
14	City of Port Angeles, WAR045028	3/25/2021	3/29/2021	6/24/2021	Other agency referral	Yes – did not notify	Outfall to Peabody creek culvert at Peabody & 3rd St.	48.114800, -123.426116	Sewage/septage/pet waste/human waste	Other (Explanation required)	Analytical laboratory indicators	Other (Explanation required)	Ongoing high fecal count issue. Sample test narrowed down the source to a specific storm main. Cameraing the line discovered a rat community nesting and living in a sewer lateral to the main.
15	City of Port Angeles, WAR045028	3/25/2021	3/29/2021	ongoing	Other agency referral	No – none found	Misc. locations along Peabody Creek	48.120207, -123.429931	Sewage/septage/pet waste/human waste	Unconfirmed, unspecified, or not identified	Analytical laboratory indicators	Referred to other agency or department	Ongoing issue of high fecal counts downstream of homeless camps. No discharge to MS4. Open defecation in creek bed. Referred to Code Enforcement.

2021 Water Main Break / Repair - Cityworks Tracking Report (query date: 3/22/2022)													
0	1	2	3	4	5	6	7a	7b	8	9	10	11	12
Count	Jurisdiction name and permit number	Date incident discovered or reported to you	Date of beginning your response	Date of end of your response	How was the incident discovered or reported to you? (select all that apply)	Discharge to MS4? (select one)	Incident Location (address or Lat.Long)		Pollutants Identified (select all that apply)	Source or Cause (select all that apply)	Source tracing approach(es) used (select all that apply)	Correction/elimination methods used (select all that apply)	Field notes, explanations, and/or other comments
16	City of Port Angeles, WAR045028	1/1/2021	1/1/2021	1/3/2021	Staff referral	Yes – allowable or conditionally allowable	802 E 6th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
17	City of Port Angeles, WAR045028	1/9/2021	1/9/2021	1/11/2021	Staff referral	Yes – allowable or conditionally allowable	1123 Village Place Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
18	City of Port Angeles, WAR045028	1/22/2021	1/22/2021	1/24/2021	Staff referral	Yes – allowable or conditionally allowable	903 S Peabody St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
19	City of Port Angeles, WAR045028	1/24/2021	1/24/2021	1/26/2021	Staff referral	Yes – allowable or conditionally allowable	1216 Woodhaven Dr. Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
20	City of Port Angeles, WAR045028	1/25/2021	1/25/2021	1/27/2021	Staff referral	Yes – allowable or conditionally allowable	330 Vashon Ave. Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
21	City of Port Angeles, WAR045028	2/1/2021	2/1/2021	2/3/2021	Staff referral	Yes – allowable or conditionally allowable	3524 Galaxy Pl Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
22	City of Port Angeles, WAR045028	2/4/2021	2/4/2021	2/4/2021	Staff referral	Yes – allowable or conditionally allowable	1755 E 6th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.

0	1	2	3	4	5	6	7a	7b	8	9	10	11	12
Count	Jurisdiction name and permit number	Date incident discovered or reported to you	Date of beginning your response	Date of end of your response	How was the incident discovered or reported to you? (select all that apply)	Discharge to MS4? (select one)	Incident Location (address or Lat.Long)		Pollutants Identified (select all that apply)	Source or Cause (select all that apply)	Source tracing approach(es) used (select all that apply)	Correction/elimination methods used (select all that apply)	Field notes, explanations, and/or other comments
EXAMPLE	City of Port Angeles, WAR045028	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY	Pollution hotline (phone, web, app)	Yes – allowable or conditionally allowable	123 Fake St. Port Angeles, WA 98362	48.114397, -123.432281	Unconfirmed, unspecified, or not identified	Other commercial/industrial activity	Observation (color/sheen/turbidity/floatables/odor)	Add or modify operational source control BMP	
23	City of Port Angeles, WAR045028	2/12/2021	2/12/2021	2/14/2021	Staff referral	Yes – allowable or conditionally allowable	916 E Lauridsen Blvd. Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
24	City of Port Angeles, WAR045028	2/17/2021	2/17/2021	2/19/2021	Staff referral	Yes – allowable or conditionally allowable	239 W 7th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
25	City of Port Angeles, WAR045028	2/18/2021	2/18/2021	2/18/2021	Staff referral	Yes – allowable or conditionally allowable	1023 S Peabody St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
26	City of Port Angeles, WAR045028	2/19/2021	2/19/2021	2/21/2021	Staff referral	Yes – allowable or conditionally allowable	215 W 5th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
27	City of Port Angeles, WAR045028	2/23/2021	2/23/2021	2/25/2021	Staff referral	Yes – allowable or conditionally allowable	1203 S Cherry St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
28	City of Port Angeles, WAR045028	3/2/2021	3/2/2021	3/4/2021	Staff referral	Yes – allowable or conditionally allowable	708 S Race St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
29	City of Port Angeles, WAR045028	3/3/2021	3/3/2021	3/5/2021	Staff referral	Yes – allowable or conditionally allowable	1803 E Lauridsen Blvd Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
30	City of Port Angeles, WAR045028	3/9/2021	3/9/2021	3/9/2021	Staff referral	Yes – allowable or conditionally allowable	829 Caroline St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
31	City of Port Angeles, WAR045028	3/12/2021	3/12/2021	3/14/2021	Staff referral	Yes – allowable or conditionally allowable	1930 W 5th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
32	City of Port Angeles, WAR045028	5/7/2021	5/7/2021	5/9/2021	Staff referral	Yes – allowable or conditionally allowable	1740 W 5th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
33	City of Port Angeles, WAR045028	7/1/2021	7/1/2021	7/3/2021	Staff referral	Yes – allowable or conditionally allowable	506 S Francis St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
34	City of Port Angeles, WAR045028	8/16/2021	8/16/2021	8/18/2021	Staff referral	Yes – allowable or conditionally allowable	321 S Chambers St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
35	City of Port Angeles, WAR045028	8/27/2021	8/27/2021	8/29/2021	Staff referral	Yes – allowable or conditionally allowable	820 E 2nd St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
36	City of Port Angeles, WAR045028	10/14/2021	10/14/2021	10/16/2021	Staff referral	Yes – allowable or conditionally allowable	3124 S Peabody St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
37	City of Port Angeles, WAR045028	10/18/2021	10/18/2021	10/20/2021	Staff referral	Yes – allowable or conditionally allowable	3835 Canyon Edge Dr. Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
38	City of Port Angeles, WAR045028	11/4/2021	11/4/2021	11/6/2021	Staff referral	Yes – allowable or conditionally allowable	1534 W 5th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
39	City of Port Angeles, WAR045028	12/8/2021	12/8/2021	12/10/2021	Staff referral	Yes – allowable or conditionally allowable	2121 S Oak St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
40	City of Port Angeles, WAR045028	12/9/2021	12/9/2021	12/17/2021	Staff referral	Yes – allowable or conditionally allowable	805 S D St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
41	City of Port Angeles, WAR045028	12/10/2021	12/10/2021	12/12/2021	Staff referral	Yes – allowable or conditionally allowable	1704 E 4th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.
42	City of Port Angeles, WAR045028	12/21/2021	12/21/2021	12/23/2021	Staff referral	Yes – allowable or conditionally allowable	1627 E 5th St Port Angeles, WA		Sediment/soil	Other accident/spill	Observation (color/sheen/turbidity/floatables/odor)	Clean-up, Referred to other agency or department	Water Main Break. Operations staff responded, isolated the damaged main or service lateral, made repairs, restored service, cleaned up deposits from gutterline and roadway, and stabilized disturbed areas.



2021 Stormwater Development Review Tracking Sheet

Count	Public or Private?	Permit Type	Permit # or Project #	Address, Area, or Parcel Number	Project Name	MR Triggered	Plan Review Date(s)	Initials	Appendix 7 (Risk / Site Visit Date)	Initials	Pre-Con ESC Insp. Date(s)	Initials	Const. Started?	During Construction ESC Insp. Date(s)	Initials	Current ESC Status	Final Completion Inspection Date	Initials	Number of Structural BMPs Inspected	Maintenance Agreement Recorded?	As-buits recieved?	Inspection Notes:	
EX.	Private	BP	20-001	123 W. Fake St. or Edgewood Rd. btwn Dry Creek & Airport Rds. or PN:07000063520	Lake Angeles Parking Lot Improvements 2020	MR 1-9	1/1/2018 1/29/2018	JD JD	Low / NA	JD	2/4/2018 2/5/2018	JD JD	Yes	2019: 11/6, 12/19, 2020: 1/5, 3/4	JD	In Compliance	4/1/2018	JD	4	Yes	Yes	Concrete washout in ditchline (12/19). Appendix 8.1 filed. Education provided to sub-contractor and contractor - JD	
1	Private	BP	21-0058	1115 O St.	Ace Michaels	MR 1-5	2.2.21	JTB	Low / NA	JTB	7/15/2021	RV	Yes	2021: 7/13		In Compliance	8/16/2021	RV	-	NA	NA		
2	Private	BP	21-0040	1311 Rook Dr.	Jason Demott	MR 1-9	2.1.21	JTB	Low / NA	JTB	4/20/2021	RV	Yes			In Compliance	ongoing		-	NA	NA		
3	Private	BP	21-0061	839 Milwaukee Dr	Ace Michaels	MR 1-5	2.9.21	JTB	Low / NA	JTB	3/5/2021	RV	Yes	2021: 8/16	RV	In Compliance	9/14/2021	RV	-	NA	NA		
4	Private	BP	21-0107	622 DelGuzzi Dr.	Green Crow	MR 1-5	3.1.21	JTB	Low / NA	JTB	8/13/2021	MSA	Yes	2021: 8/13	MSA	Not In Compliance	?	-	-	NA	NA	Project final'd by JLL 9/17/2021. No PWKS final.	
5	Private	BP	21-0122	1119 Walker St.	Joel Elliot	MR 1-5	3.1.21	JTB	Low / NA	JTB			No										
6	Private	BP	21-0123	1016 Walker St.	Robbins/Zenovic	MR 1-5	3.1.21	JTB	Low / NA	JTB	6/4/2021	RV	Yes	2021: 12/3	RV	In Compliance	1/28/2022	MA	-	NA	NA		
7	Private	BP	21-0124	1313 Rolling Hills	Joel Elliot	MR 1-5	3.1.21	JTB	Low / NA	JTB	3/22/2021	EW	Yes	2021: 3/31, 5/14	EW, RV	In Compliance	7/21/2021	RV	-	NA	NA		
8	Private	BP	21-0109	1409 Rook Dr.	Green Crow	MR 1-5	3.1.21	JTB	Low / NA	JTB	4/29/2021	MA	Yes	2021: 7/26,	RV	In Compliance	9/28/2021	EW	-	NA	NA		
9	Public	BP	20-0636	1707 A Street	COPA Light Ops. Building	MR 1-9	6/19/2020 12/23/2020	V. Mac V. Mac V. Mac	High / 6.22.2019	V. Mac			No										
10	Private	BP	21-0082	625 DelGuzzi Dr.	Brown	MR 1-5	3.11.21	JTB	Low / NA	JTB			No										
11	Private	BP	21-0262	1430 Rook Dr.	Green Crow	MR 1-5	3.15.21	JTB	Low / NA	JTB	9/17/2021	MA	Yes	2021: 9/17, 10/15	MSA	In Compliance	11/10/2021	MA	-	NA	NA		
12	Private	BP	21-0071	1618 W 11th St.	Taylor	MR 1-5	3.15.21	JTB	Low / NA	JTB	4/27/2021	MA	Yes	2021: 4/27	MSA	In Compliance	7/27/2021	MA	-	NA	NA	Infiltration trench	
13	Private	BP	21-0131	830 Church Ave	Cozi Homes	MR 1-5	3.22.2021 3.29.2021	JTB	Low / NA	JTB	4/23/2021	RV	Yes			In Compliance	ongoing						
14	Private	BP	21-0090	304 E. Park St.	PAHS Accessibility Project	MR 1-5	4.7.2021	VM	High / 2.6.2019	VM	?		Yes			Not In Compliance	?		-	NA	NA	Work Complete. No calls for inspections.	
15	Private	BP	21-0072	1622 W 11th St.	Jack Taylor SFR	MR 1-5	4.12.21	JTB	Low / NA	JTB	7/12/2021	RV	Yes	2021: 7/16	RV	In Compliance	9/21/2021	RV	-	NA	NA		
16	Private	BP	21-0133	2329 W 18th St.	Serenity House/Zenovic	MR 1-5	4.12.21	JTB	Low / NA	JTB	?		Yes			Not In Compliance	12/16/2021	MSA	-	NA	NA	No calls to PWKS for Pre or During const. Insp.	
17	Private	BP	21-0370	918 Madeline St.	Chase Botero	MR 1-5	4/02/2021 4/12/2021	JTB	Low / NA	JTB	5/7/2021	RV	Yes	2021: 4/23	RV	In Compliance	9/29/2021	RV	-	NA	NA		
18	Public	NA	NA	Race St. btwn Olympus Ave. & 8th St.	Race St. Complete Streets (60% Review) (90% Design Review)	MR 1-9	10.15.2020 4.13.2021	VM VM	High / 4.14.2021	VM			No										
19	Public	BP	21-0504	3501 W. 18th St.	PAPD Range Improvement	MR 1-5	4.30.2021	VM	Low / NA	VM	?		Yes			Not In Compliance	?		-	NA	NA	Work Complete. No calls for inspections.	
20	Private	BP	21-0342	1402 Morning Ct.	Jones SFR	MR 1-9	5.6.2021	VM	Low / NA	VM	9/17/2021	RV	Yes			In Compliance	ongoing					Project triggers MR 1-9, however, does not exceed 6, 7, 8, or 9 thresholds. SW addressed at subdivision level.	
21	Private	BP	21-0290	1504 Bldg 900 Fairchild Airport	New Hanger "F"	MR 1-9	5.7.2021	VM	Low / NA	VM	9/9/2021	RV	Yes	2021: 12/6	MSA	In Compliance	ongoing					Concrete wash out required 9/9/21 RV	
22	Private	BP	21-0349	1310 O St.	SFR Joel Elliot	MR 1-5	5.17.21	JTB	Low / NA	JTB	7/21/2021	RV	Yes	2021: 10/22, 10/29	MSA	In Compliance	12/6/2021	MSA	-	NA	NA		
23	Private	BP	21-540	1412 Rook Dr.	Green Crow Spec - SFR	MR 1-5	5.21.2021	VM/MA	Low / NA	VM	7/19/2021	RV	Yes	2021: 12/21	MSA	In Compliance	12/29/2021	MSA	-	NA	NA		
24	Private	BP	21-704	1410 Rook Dr.	Green Crow Spec - SFR	MR 1-5	6.16.21	MA	Low / NA	MA	8/6/2021	RV	Yes	2021: 8/24	MSA	In Compliance	ongoing						
25	Public	BP	21-745	302 Race St.	COPA Parks & Rec., DreamPlayground II	MR 1-5	6.16.2021	VM	Low / NA	VM	6.17.2021	VM	Yes			In Compliance	8/19/2021	RV	-	NA	NA	Permit Conditions Apply., Follow up 11.1.2021	
26	Private	BP	21-724	1403 Rook Dr.	Green Crow Spec - SFR	MR 1-5	6.25.21	MA	Low / NA	MA	11/10/2021	MA	Yes	2021: 11/12, 12/10	MSA	In Compliance	ongoing						
27	Private	BP	21-725	1405 Rook Dr.	Green Crow Spec - SFR	MR 1-5	6.25.21	MA	Low / NA	MA	8/26/2021	MA	Yes	2021: 9/28,	MSA	In Compliance	3/9/2022	RV	-	NA	NA		
28	Private	BP	21-0753	1407 Rook Dr.	Green Crow Spec - SFR	MR 1-5	6.28.21	MA	Low / NA	MA	7/14/2021	MA	Yes	2021: 12/14, 2022: 1/11	MA	In Compliance	1/20/2022	MA	-	NA	NA		
29	Private	C&G	21-0766	10th between M & Evans Ave.	Lang Subdivision	MR 1-9	7.8.2021 --/--	VM	Incomplete Submittal				No										
30	Public	BP	21-767	302 Race St.	COPA Parks & Rec., Pump Track	MR 1-9	8/19/2021 8/26/2021	VM	Low / NA	VM			No										
31	Private	SP	20-0008	3rd & Ennis	Juni's Short Plat, Ralston - 3rd. Submittal	MR 1-9	8.20.2021	VM	Low / NA	VM			No										
32	Private	C&G	21-1702	2710 W. 14th St.	Milwaukee Trails PRD, Phase 1, 2 & 14th St. Improvements	MR 1-9	6/29/2021 1/20/2022 5/15/2022 -/ /2022	VM	High / 3.14.2022	VM			No										Work associated with other permits - C&G 20-0490
33	Private	BP	21-754	1202 Dutch Dr.	Mill Cr. Construction SFR	MR 1-9	6/29/2021 8.31.2021	VM	Low / NA	VM	10/4/2021	RV	Yes	2021: 10/25	MA	In Compliance	ongoing						
34	Private	BP	21-842	706 Del Guzzi Dr	North Pointe Const.	MR 1-5	7/26/2021	MA	High / 7.19.21	MA	8/10/2021	RV	Yes	2021: 9/8, 9/14 2022: 3/24	RV	In Compliance	ongoing						
35	Private	BP	21-816	707 S. Chase St.	Demo Permit - Skating Rink -> Kidney Center	MR 1-9	9.14.2021	VM															
36	Private	BP	21-0776	707 S. Chase St.	Const. Permit - NW Kidney Center	MR 1-9	9.15.2021 9.21.2021 10/29/2021	VM	High / 9.16.2021	VM	2/23/2022	RV	Yes	2022: 2/28	RV	In Compliance	ongoing						
37	Private	BP	21-0749	1802 W 13th St	Lindberg-Shrode	MR 1-5	7.15.21	MA	Low / NA	MA	?	-	Yes			Not In Compliance	ongoing						Const. active - No call for PWKS pre-insp. Foundation Insp. by JLL on 10/25/2021.
38	Private	C&G	21-0744	1402 Fairchild airport rd	Port of Port Angeles	MR 1-5	8.13.21	MA	Low / NA	MA			No										
39	Private	BP	21-1109	3601 Page St	Sage Homes	MR 1-5	9.17.21	MA	Low / NA	MA	3/16/2022	RV	Yes			In Compliance	ongoing						
40	Private	BP	21-1110	108 Valley Creek Dr	Sage Homes	MR 1-5	9.20.21	MA	Low / NA	MA			No										
41	Private	BP	21-1218	903 Milwaukee Dr	McKnight	MR 1-5	10.4.21	MA	Low / NA	MA			No										
42	Private	BP	21-1230	2710 W 14th St - LOT 1	Northpoint	MR 1-5	10.5.21	MA	Low / NA	MA			No										
43	Private	BP	21-1251	2419 W 10th Str	McKnight	MR 1-5	10/12/2021 10/14/2021	MA	Low / NA	MA	11/24/2021	MA	Yes	2022: 2/18	RV	In Compliance	ongoing						
44	Private	BP	21-0076	1626 W 11th St	Taylor Built Homes	MR 1-5	8.26.21	MA	Low / NA	MA	10/22/2021	MA	Yes	2022: 2/17	RV	In Compliance	ongoing						
45	Private	BP	21-1343	1408 Rook Dr	North Point	MR 1-5	10.28.21	MA	High / 10.29.21	MA			No										
46	Private	BP	21-1334	1308 Rook Dr	North Point	MR 1-5	10.26.21	MA	Low / NA	MA	12/15/2021	MA	Yes	2022: 3/1, 3/7,	RV	In Compliance	ongoing						
47	Private	BP	21-0068	1602 W 11th St	Taylor Built Homes	MR 1-5	2.2.21	JTB	Low / NA	JTB			No										
48	Private	BP	21-0705	2710 W 14th St - LOT 2	NorthPoint	MR 1-5	6/23/2021 7/9/2021	MA	Low / NA	MA	1/20/2022	MA	Yes			In Compliance	ongoing						
49	Private	BP	21-0954	601 Del Guzzi Dr	Yager	MR 1-5	8.19.21	MA	Low / NA	MA			No										
50	Private	BP	21-1005	1402 Rook Dr	Green Crow	MR 1-5	8.30.21	MA	Low / NA	MA			No										
51	Private	BP	21-1006	1406 Rook Dr	Green Crow	MR 1-5	8.30.21	MA	Low / NA	MA			No										
52	Private	BP	21-1370	1404 Rook Dr	NorthPoint	MR 1-5	11.2.21	MA	High / 11.3.21	MA			No										
53	Private	BP	21-1111	3607 Page St	Sage Homes	MR 1-5	11.3.21	MA	Low / NA	MA	1/12/2022	MA	Yes	2022: 1/17, 3/22	RV	In Compliance	ongoing						
54	Private	BP	21-1129	120 Valley Creek Dr	Sage Homes	MR 1-5	11.3.21	MA	Low / NA	MA			No										
55	Private	BP	21-1196	3613 Page St	Sage Homes	MR 1-5	11.3.21	MA	Low / NA	MA	1/12/2022	MA	Yes	2022: 1/17, 3/22		In Compliance	ongoing						
56	Private	BP	21-1354	3614 Page St	Sage Homes	MR 1-5	11.3.21	MA	Low / NA	MA	1/24/2022	MA	Yes	2022: 2/16		In Compliance	ongoing						
57	Private	BP	21-1356	3619 Page St	Sage Homes	MR 1-5	11.4.21	MA	Low / NA</														

2021 End of Year Statistics Phase II Municiple SW Permit, WAR045028			
Category	Count	Percent	SS.C.6
Total plans reviewed for SW Review	141	100%	c.i.
Appendix 7 sites	8	-	c.ii.
Appendix 7 inspections	8	100%	c.ii.
Pre-Const. Insp. (# of sites)	41	-	-
Pre-Const. Insp. (# of insp.)	37	90%	-
During Const. Insp. (# of total sites)	41	-	c.iii.
During Const. Insp. (# of sites inspd.)	37	90%	c.iii.
During Const. Insp. (total # of insp.)	76	-	-
(under IDDE program) Enforcement (# of insp.)	2	100%	-
Final Inspections Total	15	-	c.v.
Final Inspections Performed	14	93%	c.v.
(excluding MR #2-only) Projects on-going	23	-	-
(excluding MR #2-only) Projects not started	27	-	-
Total SW Inspections Performed	100	-	-
Total Inspections Required	66	-	-
Of Req'd, Total Inspections Achieved	61	92%	c.vi.

*In compliance with Permit by achieving at least 80% of required inspections
** During Const. Insp. includes Pre-const. erosion & sed. Control insp.

City of Port Angeles | Private Stormwater Facility Annual Inspections - 2021

Count	Development Title	Annual Inspection Due Date	Inspection Date(s)	Initials	Maintenance Plan? Yes or No	Number of Structural BMPs Inspected?	Private Facility Submitted Check List Complete? Yes or No	Deficiencies found? Yes or No	Enforcement	Enforcement Resolution	Site Address	Contact Person responsible for maintenance	Contact Information	Notes:
1	Maloney Heights	Aug-21		MA/VM	Yes	13					Between N and O and 16th and 18th Streets			
	Habitat for Humanity	Aug-21	11.5.2021	VM	Yes	7	Yes	No	NA	NA	Off 16th St.	Colleen Robinson	Colleen@habitatclallam.org	2 lots under construction
	Serenity House	Aug-21	12.1.21	VM	Yes	6	Yes	No	NA	NA	2321 W. 18th St.	Habitat For Humanity Donny Tyler	donny.tyler@serenityhouseclallam.org (360) 215-0476	Site fully established, Yearly Inspections
2	Port of Port Angeles - ACTI Site	Oct-21	10.20.21	MA	Yes	36	Yes	Yes	email sent 11.1.21	POPA performing monthly Insp. of tenants to verify corrected behavior	2200 W 18th ST	Jesse Waknitz	jessew@portofpa.com	Site stabilized, no new construction. Yearly inspections
3	Family Medicine	Aug-21	10.25.2021	MA/VM	Yes	12	Yes	No	NA	NA	240 W Front St	Tammy Reid Kirby Hawn	Khawn@nohn-pa.org 360-460-3292	Site fully established, Yearly Inspections
4	Peninsula College Parking Lot and Soccer Fields	Dec-21	10.29.21	MA/VM	Yes	9	Yes	Yes	email sent 11.1.21	90% complete - reported 12/8/2021	1502 E Lauridsen Blvd	JD Smith / Kevin Field	jsmith@pencil.edu	Site fully established, Yearly Inspections
5	Peninsula College Allied Health Building	Dec-21	10.29.21	MA/VM	Yes	10	Yes	Yes	email sent 11.1.21	90% complete - reported 12/8/2022	1503 E Lauridsen Blvd	JD Smith / Kevin Field	360-460-3292 jsmith@pencil.edu	Site fully established, Yearly Inspections
6	Pendley Estates	Oct-21	10.14.2021	MA/VM	Yes	15	No	Yes	email sent 11.1.21	Forwarded to Legal Dept. for Enforcement.	Southside of West 14th Street, across from Samara Drive	Peninsula Housing Authority	aourouke@peninsulapha.org 360-452-7631 ext. *841	Site fully established, Yearly Inspections
7	Olympic Medical Center Parking Lots Columbia St, Medical Expansion	Sep-21	11.10.2021	MA/VM	Yes	10	Yes	No	NA	NA	Columbia St and Caroline St	Rockie Lee	Phone: 360-417-7235 rlee@olympicmedical.org	Site fully established, Yearly Inspections
8	Olympic Medical Center -Medical Office Building, 3 parking lots	Oct-21	11.10.2021	MA/VM	Yes	25	Yes	No	NA	NA	907 Georgiana St.	Rockie Lee	rlee@olympicmedical.org	Site fully established, Yearly Inspections
9	Around Again (POPA) **3 YR Interval**	Jul-22	Next in 2022	NA	Yes	3			NA	NOTE: No Use. Revised Insp. Schedule for 2020 and beyond	2604 W. 18th St.	POPA - Jesse Waknitz	jessew@portofpa.com	Site fully established, Yearly Inspections
10	Blackball Ferry Terminal West Pier Replacement	Jul-21	11.5.21	MA/VM	No	6	Yes	No	NA	NA	101 Railroad Ave.	Rian Anderson	randerson@cohoferry.com	Site fully established, Yearly Inspections
11	Peninsula Behavioral Health 2016 Parking Lot	Aug-21	10.5.2021	VM MA	Yes	12	Yes	No	NA	NA	118 E. 8th St.	Wes Zimmer	(360) 461-7386 wesz@peninsulabehavioral.org	Site fully established, Yearly Inspections
12	North Olympic Library System	Dec-21	12.8.21	VM	Yes	2	Yes	No	NA	NA	401 Orcus Ave	Brian Phillips	bphillips@nols.org	Site fully established, Yearly Inspections
13	Clallam County Courthouse Raingarden Retrofit	Dec-21	12.13.21	VM	Yes	10	Yes	No	NA	Note: Ongoing issue with P. Pave. Working to remove from maint. Req. as built incorrectly - runoff.	223 E. 4th St.	Joel Winborn	jwinborn@co.clallam.wa.us	Site fully established, Yearly Inspections
14	McDonalds	May-21	11.9.21	VM	Yes	12	No	Yes	Untimely. Drafting a Notice of Non-Compliance	BayFilter found submerged. Forced cycling indicates the filter may not be the issue. Possible flow control issue. Ongoing issue.	1706 E. Front St.	Doug Fenwick Director of Operations Peninsula McDonald's Rest.	doug@peninsulamcdonalds.com 360-271-8582	Site fully established, Yearly Inspections NOTE: Never met initial insp. Req.
15	Green Crow, Campell Ave. PRD Phase 2A	Jun-21	7.1.2021	VM	Yes	17	Yes	No	NA	NA	Rook Drive	Bruce Emery	bruce@greencrow.com 360-417-3669	Site fully established, Final'd 6/28/2018
	Phase 2B	Jul-21	12.14.21	MA	Yes		Yes	No	NA	NA	Rook Drive	Bruce Emery	bruce@greencrow.com 360-417-3669	Site fully established, Final'd July 2021
16	POPA - Marine Terminal SW Treatment Facility & Marine Trades Area Wash-down Facility	Oct-20	10.20.21	VM MA	Yes	12	Yes	Yes	email sent 11.1.21	Resolved 11.3.2021	615 Marine Drive	Jesse Waknitz	jessew@portofpa.com	Site fully established, Final'd 10/25/2018
17	Collegiate Housing International (CHI)	Jun-21	11.30.2021	VM	Yes	16	No	Yes	Nonresponsive. NOV being drafted	Ongoing (Failed Filterra unit and Skimmer issues)	1134 E. Park Ave	Joel Crosby Curtis Brackett	crosbycommercial@gmail.com (415) 662-0750	Site fully established, Final'd 6/12/2019
18	Cook-Ainscough SFR	Jul-21	11.15.2021	VM	Yes	5	Yes	No	NA	NA	844 Willow Ave.	Kerri Cook	(360) 333-5042 upriversoul@hotmail.com	Site fully established, Final'd 7/26/2019
19	Shore Aquatic Center	April-21	5.12.2021	VM & MA	Yes	13	Yes	Yes	Resolved upon 2nd Insp.	Resolved 10.13.2021	225 East 5th St.	Steve Burke	steve@sacpa.org 360.460.3526	6 mo. Inspections Final'd Oct. 2020
20	Boys and Girls Club	April-22	3.3.2021	VM	Yes	14	Yes	No	NA	NA	2301 S. Francis St.	Mary Budke	mbudke@bgc-op.org (360) 477-2641, (360) 683-8095	1 yr. bond inspection scheduled for 4/20/2022
21	Critchfield Industrial Site	Permit not finalized	11.23.2021	VM	No	unknown	No	No	Referred to E. Walrath	NA	Critchfield Dr & Edgewood Dr.	Alan Escuredo	aescuredo@delhur.com (360)775-9422	Permit expired. No call for Final Inspection. - Referred to E.W.
22	Mt Angeles View Phase 1	Ongoing Construction	11.22.2021	VM	No	unknown	Yes	Yes	Communicated to PHA	Not passed final insp. - issues bonded to gain use.				Waiting on O&M agreement to be recorded.
23	Port Angeles Waterfront Center	Project in Suspension	11.30.2021	MA VM	No	4	No	No	NA	NA	Front & Oak	Chris Fidler / Dan McNay	chris@fieldhallevents.org (206) 556-6888	
24	LEKT Downtown Hotel	Project in Suspension	3/27/2020	-										
Year end Stats:		Scheduled	Achieved				Passed 1st time	Deficient Sites	Resolved	Progressive enforcement ongoing	Compliant sites			
		26	26				17/26	9/26	5/9	4/9	22/26			
		100%					65%	35%	56%	44%	85%			

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:	
2021								
Bioretention Cells (77)								
5th and H, NW Corner	928, 929, 930	2/10/2021	6929	yes	3/1/21 thru 11/19/21	7021	Several hours were spent at this intersection's bioretention cells weeding, removing garbage, water trees, trimming vegetation, power sweeping and blowing the permeable sidewalks, and blowing the curblines.	
5th and H, NE Corner	921, 922	2/10/2021	6929	yes	3/1/21 thru 11/19/21	7021		
5th and H, SE Corner	923, 924	2/10/2021	6929	yes	3/1/21 thru 11/19/21	7021		
5th and H, SW Corner	925, 926, 927	2/10/2021	6929	yes	3/1/21 thru 11/19/21	7021		
5th and K, NW Corner	897, 898	2/10/2021	6930	yes	3/1/21 thru 11/19/21	7022		
5th and K, NE Corner	904	2/10/2021	6930	yes	3/1/21 thru 11/19/21	7022		
5th and K, SE Corner	901, 902, 903	2/10/2021	6930	yes	3/1/21 thru 11/19/21	7022		
5th and K, SW Corner	899, 900	2/10/2021	6930	yes	3/1/21 thru 11/19/21	7022		
5th and L, NW Corner	889	2/10/2021	6931	yes	3/1/21 thru 11/19/21	7023		
5th and L, NE Corner	896, 895	2/10/2021	6931	yes	3/1/21 thru 11/19/21	7023		
5th and L, SE Corner	892, 893, 894	2/10/2021	6931	yes	3/1/21 thru 11/19/21	7023		
5th and L, SW Corner	890, 891	2/10/2021	6931	yes	3/1/21 thru 11/19/21	7023		
6th and H, NW Corner	936, 937, 938	2/10/2021	6932	yes	3/1/21 thru 11/19/21	7024		several hours were spent at this intersection's bioretention cells weeding, adding medium fir bark dust, planting additional plants, removing garbage, water trees, trimming vegetation, power sweeping and blowing the permeable sidewalks, and blowing the curblines.
6th and H, NE Corner	931, 932	2/10/2021	6932	yes	3/1/21 thru 11/19/21	7024		
6th and H, SE Corner	933	2/10/2021	6932	yes	3/1/21 thru 11/19/21	7024		
6th and H, SW Corner	934, 935	2/10/2021	6932	yes	3/1/21 thru 11/19/21	7024		
6th and K, NW Corner	910, 911	1/26/2021	6933	yes	3/1/21 thru 11/19/21	7025		
6th and K, NE Corner	905, 906	1/26/2021	6933	yes	3/1/21 thru 11/19/21	7025		
6th and K, SE Corner	907, 908	1/26/2021	6933	yes	3/1/21 thru 11/19/21	7025		
6th and K, SW Corner	909	1/26/2021	6933	yes	3/1/21 thru 11/19/21	7025		
6th and M, NE Corner	883, 884	2/10/2021	6934	yes	3/1/21 thru 11/19/21	7026		
6th and M, SW Corner	887	2/10/2021	6934	yes	3/1/21 thru 11/19/21	7026		
6th and M, SE Corner	885, 886	2/10/2021	6934	yes	3/1/21 thru 11/19/21	7026		
6th and M, NW Corner	888	2/10/2021	6934	yes	3/1/21 thru 11/19/21	7026		
7th and H, NW Corner	943, 944	2/10/2021	6935	yes	3/1/21 thru 11/19/21	7027	several hours were spent at this intersection's bioretention cells weeding, removing garbage, water trees, trimming vegetation, power sweeping and blowing the permeable sidewalks, and blowing the curblines.	
7th and H, NE Corner	939, 940	2/10/2021	6935	yes	3/1/21 thru 11/19/21	7027		
7th and H, SE Corner	941	2/10/2021	6935	yes	3/1/21 thru 11/19/21	7027		
7th and H, SW Corner	942	2/10/2021	6935	yes	3/1/21 thru 11/19/21	7027		
7th and K, NW Corner	912	2/10/2021	6936	yes	3/1/21 thru 11/19/21	7028		
7th and K, NE Corner	919, 920	2/10/2021	6936	yes	3/1/21 thru 11/19/21	7028		
7th and K, SE Corner	915, 917, 918	2/10/2021	6936	yes	3/1/21 thru 11/19/21	7028		
7th and K, SW Corner	913, 914	2/10/2021	6936	yes	3/1/21 thru 11/19/21	7028		
Waterfront Park Phase #2 near Oak St. (west cell)	5707	2/10/2021	6937	yes	3/1/21 thru 11/19/21	7029		
Waterfront Park Phase #2 near Oak St. (east cell)	5708	2/10/2021	6938	yes	3/1/21 thru 11/19/21	7029		
Railroad Ave., furthest west	70	2/9/2021	6960	yes	3/1/21 thru 11/19/21	7030		several hours were spent at this intersection's bioretention cells weeding, adding medium fir bark dust, planting additional plants, removing garbage, water trees, trimming vegetation, power sweeping and blowing the permeable sidewalks, and blowing the curblines.
Railroad Ave., 2nd from the west	71	2/9/2021	6960	yes	3/1/21 thru 11/19/21	7030		
Railroad Ave., 3rd from the west	72	2/9/2021	6960	yes	3/1/21 thru 11/19/21	7030		
Railroad Ave., 4th from the west	73	2/9/2021	6960	yes	3/1/21 thru 11/19/21	7030		
Railroad Ave., 5th from the west	74	2/9/2021	6960	yes	3/1/21 thru 11/19/21	7030		
Railroad Ave., 6th from the west	75	2/9/2021	6960	yes	3/1/21 thru 11/19/21	7030		
Railroad Ave., 7th from the west	76	2/9/2021	6960	yes	3/1/21 thru 11/19/21	7030		
Oak St., furthest north and west	77	2/9/2021	6961	yes	3/1/21 thru 11/19/21	7031		
Oak St., furthest north and east	78	2/9/2021	6961	yes	3/1/21 thru 11/19/21	7031		
Oak St., furthest south and west	79	2/9/2021	6961	yes	3/1/21 thru 11/19/21	7031		
Oak St., furthest south and east	80	2/9/2021	6961	yes	3/1/21 thru 11/19/21	7031		
Pump Station #4	3298, 3301, 3302	9/30/2021	6962	yes	3/1/21 thru 11/19/21	7032	" "... by WW and water dept. crew members.	
Stormwater Facilities- 2021								
Catch Basins REBUILT (4)								
	17735	7/23/2021			8/25/2022	7048		
	18060	11/8/2021			11/8/2021	7048		
	16801	9/3/2021			9/8/2021	7048		
	17160	9/3/2021			9/8/2021	7048		
Stormwater Facilities- 2021								
CAVFS (7)								
C St. Ext.	6759	11/4/2021	6849	yes	3/1/21 thru 11/19/21	6904		
C St. Ext.	6760	11/4/2021	6849	yes	3/1/21 thru 11/19/21	6904		
C St. Ext.	6761	11/4/2021	6849	yes	3/1/21 thru 11/19/21	6904		
C St. Ext.	6762	11/4/2021	6849	yes	3/1/21 thru 11/19/21	6904		
C St. Ext.	6763	11/4/2021	6849	yes	3/1/21 thru 11/19/21	6904		
C St. Ext.	6764	11/4/2021	6849	yes	3/1/21 thru 11/19/21	6904		
C St. Ext.	6751	11/4/2021	6849	yes	3/1/21 thru 11/19/21	6904		
Stormwater Facilities- 2021								
ConTech Filters (5)								
8th and A St.	20	6/7/2021	6898	yes	9/21/2021	6903		
8th and Cedar	17	6/7/2021	6899	no				
8th and Pine	15	6/7/2021	6900	no				
8th and Cherry	13	6/7/2021	6901	no				
16th and Maloney	26	6/7/2021	6902	no				
Stormwater Facilities- 2021								
Culvert (LARGE) Annual Summer Inspection- walk thru with engineering dep. rep.								
Whites Creek	721, 2673, 2847, 4344	did not occur						
6th and Valley	337, 338	did not occur						
Marine Dr. and Tumwater St.	4340	did not occur						
Peabody RV Park to Harbor	4346, 3380, 4345, 4025	did not occur						
5th and Peabody	1909	did not occur						

3rd and Peabody 1911 did not occur
 8th and Francis 1930, 1910 did not occur
 Park St. at dip just west of Race St. 910 did not occur

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:
Detention Pipes (Dgravity or DInline Storage) & Flow Control (33)	pipe#/flow control#	Date of Inspection(s)	Cityworks WO#	Maint. Required?			
8th and A	6136/18409	3/10/2021	6905	no			
8th and Cedar	6130/na	3/10/2021	6905	no			
8th and Cherry	6116/na	3/10/2021	6905	no			
8th and Pine	6124/na	3/10/2021	6905	no			
O St. on W. side, just S. of 10th (adjacent to house # 1002)	266/18223	3/10/2021	6905	no			
O St. on W. side, S. of 10th (south of #266)	267/18223	3/10/2021	6905	no			
Heritage Ct. (~100' west of Heritage Ct on priv. prop.)	1987/846	3/10/2021	6905	no			
14th on S. side, just E. of N St.	1363/504	3/10/2021	6905	no			
14th on S. side, just W. of Aurora Ct.	1064/17937	3/10/2021	6905	no			
Aurora Ct on W. side	299/17937	3/10/2021	6905	no			
Aurora Ct on E. side	300/17937	3/10/2021	6905	no			
15th on N. side, between H St. and I St.	4528/18062	3/10/2021	6905	no			
16th on N. side, bordering W. side of house #2239	1058/17905	3/10/2021	6905	no			
16th on N. side, bordering S. side of house #2239	1057/17905	3/10/2021	6905	no			
16th on N. side across from Maloney Ct.	6343/18482	3/10/2021	6905	yes	3/17/2021	6907	
16th on N. side across from Maloney Ct.	6342/18482	3/10/2021	6905	no			
16th on N. side across from Maloney Ct.	6341/18482	3/10/2021	6905	no			
Lauridsen Blvd Bridge	15205/25898	3/10/2021	6905	no			
Cathleen St. on westside, just S. of 10th St.	4660/18093	3/10/2021	6905	no			
Cathleen St. on eastside, just S. of 10th St.	2803/18093	3/10/2021	6905	no			
Jeri Lynn St., near Joshua	1067/818	3/10/2021	6905	no			
Milwaukee Dr. (between 10th and Renee Ln.)	2099/18041	3/10/2021	6905	no			
Milwaukee Dr. (between Renee and Joshua)	46/18041	3/10/2021	6905	no			
Pendley Ct	6804/18704	3/10/2021	6905	no			
Pendley Ct	6805/18704	3/10/2021	6905	no			
Pendley Ct	6806/18704	3/10/2021	6905	no			
Rolling Hills Ct.	303/16728	3/10/2021	6905	no			
Rolling Hills Dr., W. side	304/16728	3/10/2021	6905	no			
Rolling Hills Dr., E. side	247/16728	3/10/2021	6905	no			
Eckard on N. side, just west of Porter	1942/na	3/10/2021	6905	no			
Eckard on S. side, just west of Porter	1943/na	3/10/2021	6905	no			
Porter on E. side, just S. of Campbell	115/18082	3/10/2021	6905	no			
Juniper Ln, N. side from 201 to 217	224/18111	3/10/2021	6905	no			

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:
EcoStorm Filter Plus (Block Media Filter) (2)							
Eco Storm Plus (Front and Valley)	25	3/19/2021	7034	yes	3/19/2021	7035	replacement of filters by COPA SW Crew
Eco Storm Plus (Front and Valley)	25	9/2/2021		yes	9/2/2021	7035	
Eco Storm Plus (old PS#4)	2433	3/19/2021	7036	yes	3/19/2021	7037	
Eco Storm Plus (old PS#4)	2433	9/2/2021	7038	yes	9/2/2021	7039	

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:
Energy Dissapators (Ddischargepoint- 'Storm Vortech, ... misc.)							
Under the 8th St Bridge over Valley St.	14 (west)	4/26/2021	6908	no			
Under the 8th St Bridge over Valley St.	16 (east)	4/26/2021	6908	no			
Under the 8th St Bridge over Tumwater Truck Rt.	19 (west)	4/26/2021	6908	no			
Under the 8th St Bridge over Tumwater Truck Rt.	18 (east)	4/26/2021	6908	no			
Bottom of ravine at Cemetary	100	4/26/2021	6908	no			
Under Lauridsen Blvd. Bridge	3418	4/26/2021	6908	no			
Crown Park Aquaswirl	21	4/26/2021	6908	no			
10th and N (NW corner)	200	4/26/2021	6908	no			

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:
Filterra Units (2x's per year INSPECT) (17)							
Lauridsen Blvd Bridge - 817 E Blvd	1234	1/25/21 and 10/25/21	6852 and 6853	yes	3/1/21 thru 11/19/21	6886	
10th and Race St.(north)	1235	1/25/21 and 10/25/21	6854 and 6855	yes	3/1/21 thru 11/19/21	6886	
10th and Race St.(south)	1236	1/25/21 and 10/25/21	6856 and 6857	yes	3/1/21 thru 11/19/21	6886	
SW Corner of 6th and Francis	840	1/25/21 and 10/25/21	6858 and 6859	yes	3/1/21 thru 11/19/21	6886	
SW Corner of 4th and Francis	838	1/25/21 and 10/25/21	6860 and 6861	yes	3/1/21 thru 11/19/21	6886	
NE Corner of 4th and Francis	837	1/25/21 and 10/25/21	6862 and 6863	yes	3/1/21 thru 11/19/21	6886	
NW Corner of 4th and Francis	839	1/25/21 and 10/25/21	6864 and 6865	yes	3/1/21 thru 11/19/21	6886	
SW corner of 2nd and Francis	836	1/25/21 and 10/25/21	6866 and 6867	yes	3/1/21 thru 11/19/21	6886	
NE Corner of 4th and Albert	835	1/25/21 and 10/25/21	6868 and 6869	yes	3/1/21 thru 11/19/21	6886	
SW Corner of 3rd and Albert	833	1/25/21 and 10/25/21	6870 and 6871	yes	3/1/21 thru 11/19/21	6886	
SE Corner of 2nd and Albert	834	1/25/21 and 10/25/21	6872 and 6873	yes	3/1/21 thru 11/19/21	6886	
10th and M (new install spring 2019)	6434	1/25/21 and 10/25/21	6874 and 6875	yes	3/1/21 thru 11/19/21	6887	
10th and Westview Dr. (new install spring 2019)	6038	1/25/21 and 10/25/21	6876 and 6877	yes	3/1/21 thru 11/19/21	6887	
10th and Seamount Dr. (south side)(new install spring 2019)	6037	1/25/21 and 10/25/21	6878 and 6879	yes	3/1/21 thru 11/19/21	6887	
10th and Seamount Dr. (north side)(new install spring 2019)	6036	1/25/21 and 10/25/21	6880 and 6881	yes	3/1/21 thru 11/19/21	6887	
10th and N St. (south side)(new install spring 2019)	6034	1/25/21 and 10/25/21	6882 and 6883	yes	3/1/21 thru 11/19/21	6887	
10th and N St. (north side)(new install spring 2019)	6035	1/25/21 and 10/25/21	6884 and 6885	yes	3/1/21 thru 11/19/21	6887	

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:
Permeable Surfaces (45)							
5th and H St. (sidewalks)	1309, 1310, 1311, 1312	2/9/2021	6909	yes	7/27/2021	6923	moss cleaned by greg haskins
5th and K St. (sidewalks)	1700, 1701, 1702	2/9/2021	6910	yes	7/27/2021	6923	moss cleaned by greg haskins
5th and L St. (sidewalks)	1703, 1704, 1705	2/9/2021	6911	yes	7/27/2021	6923	moss cleaned by greg haskins
6th and H St. (sidewalks)	1313, 1314, 1315	2/9/2021	6912	yes	7/27/2021	6923	moss cleaned by greg haskins
6th and K St. (sidewalks)	1697, 1698, 1699	2/9/2021	6913	yes	7/27/2021	6923	moss cleaned by greg haskins

6th and M St. (sidewalks)	1706, 1707, 1708	2/9/2021	6914	yes	7/27/2021	6923	moss cleaned by greg haskins
7th and H St. (sidewalks)	1316, 1317	2/9/2021	6915	yes	7/27/2021	6923	moss cleaned by greg haskins
7th and K St. (sidewalks)	1318, 1319, 1320	2/9/2021	6916	yes	7/27/2021	6923	moss cleaned by greg haskins
Solar Lane	2097	5/5/2021	6917	yes	10/4/2021	6924	cleaned once a month by vacuum sweeper
18th St. sidewalk, west of N ST.	5704	2/10/2021	6918	yes	10/4/2021	6924	
Dunker Dr. sidewalk on west side of road	5697-5702	2/10/2021	6919	yes	10/4/2021	6924	
1st and Race St.	1299, 1300, 1301, 1302	2/10/2021	6920	no			
1st and Race St.	1304, 1305, 1306, 1307	2/10/2021	6920	no			
1st and Race St.	1308	2/10/2021	6920	no			
Race St. between 1st and 2nd St.	1297, 1298	2/10/2021	6920	no			
4/5 Alley Chambers-Washington	2897	2/10/2021	6921	no	10/4/2021	6924	cleaned once a month by vacuum sweeper
Front-Georgiana, Francis-Eunice	2898	2/10/2021	6922	no	10/4/2021	6924	cleaned once a month by vacuum sweeper

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:
-----------------------------	------------	-----------------------	---------------	------------------	------------------------	------------------	--------

Ponds and bioswales (4)

Airport Corners - East of Access Rd	51	2/5/2021	6888	yes	3/1/21 thru 11/19/21	6897	
Airport Corners - West of Access Rd - South Pond	50	2/5/2021	6889	yes	3/1/21 thru 11/19/21	6897	
Airport Corners - West of Access Rd - North Pond	481	2/5/2021	6890	yes	3/1/21 thru 11/19/21	6897	
Red Lion Motel - East of Parking Area	18	2/5/2021	6891	yes	3/1/21 thru 11/19/21	6897	

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:
-----------------------------	------------	-----------------------	---------------	------------------	------------------------	------------------	--------

Pump Stations

Stevens School Pumpstation	2	11/16/2021	6925	no			
----------------------------	---	------------	------	----	--	--	--

Stormwater Facilities- 2021	Asset ID #	Date of Inspection(s)	Cityworks WO#	Maint. Required?	Date(s) of Maintenance	Cityworks WO#(s)	NOTES:
-----------------------------	------------	-----------------------	---------------	------------------	------------------------	------------------	--------

Swirl Concentrator (3)

Crown Park Aquaswirl	9	11/4/2021	6850	yes			
1100 Walker St. Vortech (by Contech)	22	11/18/2021	7040	no			
Blackball Ferry Vortech (by Contech)	12	11/4/2021	6851	yes			

Catch Basins: (2681 total as of 3/3/20)

Catch Basins Inspected 2249
Catch Basins Cleaned 2067

All catchbasins were inspected and cleaned the same day. Inspections and cleanings occurred between 8/25/21 to 12/31/21, by GH and MP.
 All CB's were cleaned by Mike Poats, Scott Henke, and or Greg Haskins with the Vactor.

Catch Basins:

	MAINTENANCE GRID	# Inspected	Inspect WO#	# Cleaned	Clean WO#	NOTES:
	16	18	6964	16	6965	(2) could not be located
	17	11	6964	11	6965	
	18	35	6964	35	6965	
	19	177	6966	152	6967	(2) sewer lids, (5) landscape plaza yard drains, (18) could not locate
	20	66	6968	57	6969	(7) could not locate, (1) offline, (1) inside Marine Science building
	21	115	6968	114	6969	(1) could not locate
	22	74	6968	72	6969	(2) could not locate
	23	45	6968	42	6969	(3) detention pipe lids
	24	51	6964	46	6965	(5) detention pipe lids not cb's
	25	76	6964	66	6965	(2) could not locate, (8) Bioretention cell overflows not needing cleaning
	26	123	6964	65	6965	(1) could not locate, (2) manholes not cb's, (55) bioretention cell overflow beehives not needing cleaning
	27	102	6966	97	6967	(5)inside Shane Park, yard drains, not accessible, parks departments responsibility
	28	113	6966	109	6967	(2) could not locate, (2) vaults, not cb's
	29	111	6972	107	6973	(4) vaults, not cb's
	30	116	6970	114	6971	(1) could not locate, (1) police department's parking lot
	31	100	6970	100	6971	
	32	63	6970	63	6971	
	34	4	6972	2	6973	(2) no access in the cemetery's yard
	35	77	6972	60	6973	(12) could not locate, (5) detention pipe covers not cb's
	36	27	6972	24	6973	(3) could not locate
	37	58	6972	54	6973	(1) could not locate, (1) manholes not cb's, (2) not needing cleaning
	38	88	6972	88	6973	
	39	92	6972	89	6973	(1) could not locate, (2) in COPA Light Ops transformer storage yard
	40	69	6972	63	6973	(6) could not locate
all	41	36	6974	36	6975	
all	44	14	6974	12	6975	(2) could not locate
all	46	1	6974	1	6975	
all	47	13	6974	12	6975	(1) could not locate
all	51	12	6974	10	6975	(2) vaults in ponds at Airport corners not needing cleaning at this time
all	52	4	6974	4	6975	
all	54	5	6974	5	6975	
all	55	9	6974	9	6975	
all	57	56	6974	56	6975	
all	58	82	6974	77	6975	(5) could not locate
all	59	35	6974	34	6975	(1) could not locate
all	60	27	6974	26	6975	(1) could not locate
all	61	16	6974	16	6975	
all	62	45	6974	45	6975	
all	63	10	6974	7	6975	(1) overflow inside reservoir not a cb, (2) National Park Visitor Center

priority	64	1	6976	1	6977	
all	65	24	7019	24	7020	
all	66	1	7019	1	7020	
all	67	21	7019	19	7020	(2) Detention pipe covers
priority	68	11	6976	11	6977	
priority, night	90	14	6976	14	6977	
priority	91	1	6976	1	6977	
TOTALS:		2249		2067		

Crown Park Aquaswirl water testing (twice: (1) winter storm event and (1) summer storm event)

10 Year Storm Event (if occurs)

3/22/2021 9/22/2021
 na na

Corp Yard- SWPPP inspections

wet weather 1st quarter	2/22/2021	na	yes	October - June
wet weather 2nd quarter	4/9/2021	na	yes	October - June
dry weather 3rd quarter	8/9/2021	na	yes	July - September
wet weather 4th quarter	12/20/2021	na	yes	October - June

2021 Stormwater Treatment Facilities - TOTAL AMOUNT: based on individual asset #'s	
Flow Control BMP's	###
Biofiltration Cells	77
CAVFS	7
ConTech Filters Chambers	5
Detention Pipes (DGravity)	33
Eco Storm Plus Block Media Filter Chambers	2
Filterra Units	17
Permeable Surfaces	45
Ponds and bioswales	4
Swirl Concentrator	3

CITY OF PORT ANGELES

Stormwater Education Tracking for IDDE

Date:	Address:	Contact Name:	Business Name	Business/ Residential:	Method of Contact:	City Staff:	Type of Education:	IDDE Basin:
1/7/2021	402 Marine Drive	Janelle	Marine Drive Chevron	business	email	Bowen, Rachel	Talked about drum clean up and stormwater ordinances	5
1/14/2021	205 East 8th Street STE A	Karli Wheeler	Grayson's	business	in person	Bowen, Rachel	talked about stormwater ordinances; only rain down the drain	1
1/20/2021	221 North Lincoln	Petr	Crab House/ Red lion	business	email	Bowen, Rachel	talked about grease interceptor maintenance and SW pollution	8
1/21/2021	3318 East Acorn Lane	Janet Urfer	Klahhane Gymnastics	business	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	4
1/25/2021	304 East Parke Avenue	Dwayne Johnson	Port Angeles High School Athletics	school	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	7
1/26/2021	738 Marine Drive	Nathan Blomgren	Marine Drive Chevron	business	email	Bowen, Rachel	talked about stormwater pollution with abandoned drums on Chevron marine drive property	5
1/27/2021	113 West 1st Street	Jacob Oppelt	Next Door Gastropub	business	email	Bowen, Rachel	talked about grease recycler BMPs and stormwater ordinances	8
1/29/2021	104 West 11th Street	Tim Summers	barbecue.	business	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
2/2/2021	224 East 1st Street	Nicole	The Coffee Box	business	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	1
2/3/2021	602 East 1st Street	Craig Heath	Swains	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	3
2/3/2021	728 East Front Street	Kim Van Vorst	Habitat for Humanity	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	3
2/4/2021	128 West Railroad Ave	Larry White	The Rail	business	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
2/19/2021	902 East Front Street	Janet	Jack in the Box	business	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	3
3/31/2021	3111 East Highway 101	Dean	Hartnagels Building Supply	business	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	4
3/31/2021	1127 West Highway 101	Reynaldo	Fairmount Restaurant	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	6
4/2/2021	1137 West Highway 101	Samuel Lee	Fairmount Market and Gas Station	business	in person	Bowen, Rachel	Talked about stormwater ordinances and maintenance of his SW catch basins	6
4/12/2021	802 South C street	Jim Gossard	Grandview Grocery	business	in person	Bowen, Rachel	talked about stormwater ordinances and catch basin maintenance	5
4/13/2021	124 West Railroad Ave	Jackie	Barhop Brewing	business	Phone Call	Bowen, Rachel	talked about stormwater ordinances and spills; only rain down the drain	8
4/13/2021	2506 West 19th Street	Josh	Hangar 19	business	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
4/16/2021	1001-A East 1st Street	Cammy Cromer	Just rewards espresso	business	phone call	Bowen, Rachel	talked about stormwater ordinances and proper WW disposal to avoid IDDE	3
4/21/2021	802 South C street	Wendy	Grandview Grocery	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	5
4/21/2021	1520 East Front Street	Larry Peters	Frugals	business	phone call	Bowen, Rachel	talked about stormwater ordinances in relation to washing of their food truck; only rain down the drain	3
4/22/2021	1105 East Front Street	Rose Dixon	Fogtown Coffee Bar	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	3
4/22/2021	902 East Front Street	Janet	Jack in the Box	business	Phone Call	Bowen, Rachel	talked about stormwater ordinances; only rain down the drain	3
4/30/2021	403 South Lincoln Street	Joe Matthews	Bella Rosa	business	phone call	Bowen, Rachel	talked about GI maintenance and SSO causing SW pollution	1
5/1/2021	2506 West 19th Street	Josh Blue	Hangar 19	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
5/3/2021	1137 US 101	Samuel Lee	Fairmount Market and Gas Station	business	email	Bowen, Rachel	talked about stormwater catch basin maintenance	6
5/21/2021	802 South C street	Jim Gossard	Grandview Grocery	business	phone call	Bowen, Rachel	talked about stormwater catch basin maintenance	5
7/6/2021	1111 Columbia Street	Krystal Matthews	Eleven Eleven Dental	business	Phone Call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	3
7/8/2021	806 East 8th Street	Brooks Williams	Angel Mantchev DDS	business	phone call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	1
7/8/2021	618 South Peabody Street STE A	Jaylean Dalman	Swenson Dental	business	phone call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	1
7/9/2021	3111 US 101	Danny Steiger	Hartnagels Building Supply	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	4
7/9/2021	3111 US 101	Josh Bergesen	Hartnagels Building Supply	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	4
7/27/2021	113 West 1st Street	Lauren	Next Door Gastropub	business	phone call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
7/27/2021	113 West 1st Street	Jacob Oppelt	Next Door Gastropub	business	phone call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
8/2/2021	2321 West 18th Street	Donny Taylor	The Serenity House	business	phone call	Bowen, Rachel	stormwater and Grease Interceptor maintenance to prevent stormwa	8
8/3/2021	115 East Railroad Ave STE 209	Tony	The Roosevelt at the Wharf	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	1
8/19/2021	112 West Lauridsen Blvd	Toga Herzog	Toga's International Cuisine	business	in person	Bowen, Rachel	talked about stormwater ordinances; only rain down the drain	6
8/20/2021	107 East 1st Street	Shaina	First Street Haven	business	in person	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
8/25/2021	201 East Front Street	Ed Owens	Coyote BBQ Pub	business	phone call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
8/30/2021	221 North Lincoln	Petr Karpuk	Red Lion Hotel	business	phone call	Bowen, Rachel	SW pollution	8
9/3/2021	118 E. 1st Street	Neil Conklin	Bella Italia	business	phone call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
9/24/2021	134 West Front Street	Istna Fauzy	Songoku Hibachi	business	phone call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
9/24/2021	132 East Front Street	Cory	Turnip the Beet	business	phone call/ email	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	8
9/28/2021	1601 South C Street	Melissa	Angeles Millwork	business	in person	Bowen, Rachel	talked about stormwater ordinances; provided spill kit	
9/29/2021	336 East 8th Street	Trisha Fontana	The Blackbird Coffee Shop	Business	phone call	Bowen, Rachel	Talked about stormwater ordinances; only rain down the drain	



POLLUTION PREVENTION ASSISTANCE PARTNERSHIP

2019–2021 BIENNIUM REPORT



DECEMBER 2021
ECOLOGY PUBLICATION 21-04-049





CONTENTS

MEET THE PARTNERSHIP	2
WHAT IS PPA?	3
PARTNER JURISDICTIONS	4
INDUSTRIES SPECIALISTS SERVE	6
ISSUES SPECIALISTS CAN HELP WITH	7
ISSUES AND RESOLUTION	8
TRAINING FOR PPA SPECIALISTS	9
SECONDARY CONTAINMENT & SPILL KITS	10
PARTNER SUCCESS STORIES	14
RESPONDING TO THE COVID-19 PANDEMIC	25
PRODUCT REPLACEMENT PROGRAM	27
A LOOK FORWARD	28

MEET THE PARTNERSHIP

In 2007, the Washington State Legislature allocated funding to establish the Local Source Control Partnership, a pollution prevention assistance program that helps small businesses reduce and manage potential wastes to protect water, soil, and air quality.

Local Source Control was rebranded as Pollution Prevention Assistance (PPA) in 2016. This new name was part of an effort to emphasize the benefits of the program to the public and businesses.

The partnership uses a unique team approach involving local, regional, and state staff with the expertise to solve pollution problems through source control.

Through interagency agreements with the Department of Ecology, local jurisdictions get funding to provide free, one-on-one technical assistance to small businesses. Specialists in these jurisdictions show businesses how to manage their wastes properly and help diagnose and fix stormwater-related issues. Specialists can also offer businesses help with complicated regulatory issues.

WHAT IS PPA?

The PPA Partnership is comprised of local governments including cities, counties, and health districts.

PPA: A technical assistance program that helps small businesses prevent pollution.

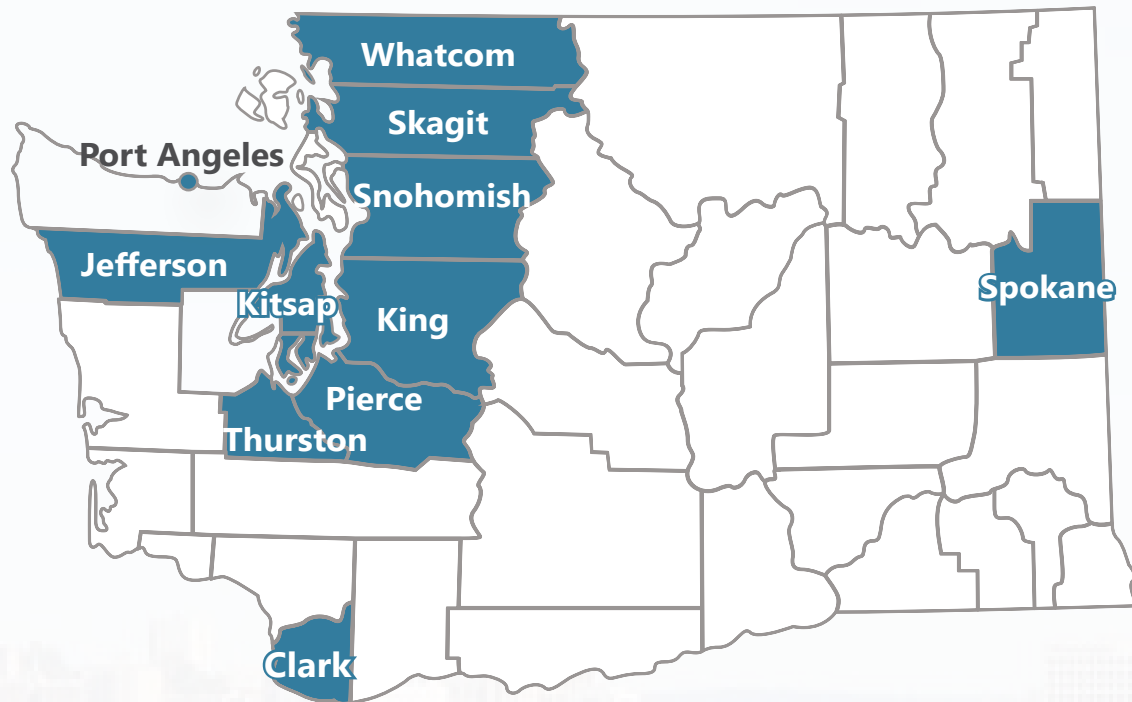
The problem: Small businesses typically have limited access to expertise on stormwater management or hazardous waste handling and disposal. Hands-on assistance and regulatory advice can be hard to come by.

The solution: PPA specialists in participating jurisdictions offer free, onsite technical assistance to help small businesses identify and resolve possible causes of pollution. This assistance and regulatory advice reduces health risks for employees and prevents polluted runoff from harming Washington's rivers and streams, as well as Puget Sound.

Thanks to Pollution Prevention Assistance, businesses:

- Adopt safer material-handling and storage practices.
- Manage interior and exterior drainage systems to reduce impacts to stormwater.
- Plan for spill prevention and preparedness.
- Use fewer toxics in their processes or replace toxic chemicals with safer alternatives.

PARTNER JURISDICTIONS



During the 2019–2021 biennium, the partnerships consisted of 42 specialists from 22 jurisdictions. PPA Partners were located in three critical areas: Puget Sound, the Columbia River Basin, and the Spokane River Basin.

2019–2021 PARTNER JURISDICTIONS

Clallam County

City of Port Angeles

Clark County

Clark County Department of
Public Works

Clark County Public Health
City of Vancouver

Jefferson County

Jefferson County Public Health

King County

City of Bothell
City of Issaquah
City of Kirkland
City of Redmond
City of Shoreline
King County Water and Land
Seattle Public Utilities

Kitsap County

Kitsap Public Health District

Pierce County

City of Puyallup
City of Sumner
Tacoma-Pierce County Health
Department

Skagit County

Skagit County Department of
Public Health

Snohomish County

Snohomish Health District

Spokane County

Spokane Regional Health District

Thurston County

Thurston County Public Health

Whatcom County

City of Bellingham
Whatcom County Health
Department

INDUSTRIES SPECIALISTS SERVE

Specialists can **serve most industries**. During the 2019–2021 biennium, some of the most common industries served included:

- Restaurants, cafes, and bars.
- General automotive repair facilities.
- Commercial and personal laundry services.
- Gas stations with convenience stores.
- Hotels (except casino hotels) and motels.
- Supermarkets and other grocery stores.
- Landscaping companies.
- Elementary and secondary schools.

ISSUES SPECIALISTS CAN HELP WITH

Specialists conduct onsite visits to address possible causes of pollution at businesses that generate small quantities of dangerous waste.

Specialists look closely at business practices, offer solutions to practices that could pollute the environment, and suggest alternatives to the hazardous materials that businesses use, store, and dispose of every day. Recommendations often contribute to a safer environment for employees and customers and can save the business money.

Their goal is to help businesses make changes to limit or eliminate potential pollution and reduce impacts to state waters. Specialists encounter many different types of wastes and sometimes draw on Ecology and other regulatory agency staff for their expertise in dealing with those wastes.

Partner jurisdictions attempt to resolve pollution problems locally, but in some cases, specialists refer the business to Ecology or another regulatory program for additional assistance.

ISSUES AND RESOLUTION

In the 2019–2021 biennium, PPA specialists made 5,322 visits to small businesses. Those businesses with complex or high-priority issues received one or more follow-up visits from specialists. Specialists found a total of 2,811 issues. By the end of the biennium, they helped resolve 75 percent (2,122) of the issues. Despite business closure and physical-distancing restrictions resulting from the COVID-19 pandemic, our PPA specialists made significant strides in reducing and preventing pollution.

The eight most common issues found during the 2019–2021 biennium:

- No or Inadequate Spill Response Materials — 431 Issues (15% of all issues)
- No or Inadequate Spill Response Procedures — 352 Issues (13%)
- Other Stormwater Related Issues — 210 (7%)
- Improper Housekeeping — 191 (7%)
- Lack of Spill Response Plan – 190 (7%)
- Improper Maintenance of Storm Drains — 185 (7%)
- Universal Waste Management Issues — 160 (7%)
- Secondary Containment for dangerous waste — 136 (5%)

During the 2019–2021 biennium, none of the eight most common issues listed above were considered high priority issues. In total, high-priority issues represented 20 percent of all issues found during business visits this biennium.

The top five most common high-priority issues found during the 2019–2021 biennium:

- Improper Storage of Products/Wastes — 113 (5%)
- Improperly Stored Dangerous Waste — 127 (5%)
- Waste Not Disposed of Properly — 97 (3%)
- Discharge of Process Wastewaters to Storm Drains — 85 (3%)
- Improperly Stored Containerized Materials — 65 (2%)

TRAINING FOR PPA SPECIALISTS

Specialists must be aware of and communicate the regulatory requirements for handling many types of wastes and processes while understanding best management practices that apply to a wide range of businesses.

To support new and veteran PPA specialists, Ecology provides regular trainings. Semi-annual all-staff trainings give specialists a chance to learn about best management practices and regulatory updates. Ecology also facilitates eight to nine webinars per year. These webinars keep specialists up to date on changing regulations and introduce them to new topics. Partner jurisdictions or other agencies will often give presentations during the webinars, which allow for a wide array of learning topics and points of view.

In response to COVID-19 pandemic restrictions, we redesigned our annual New Specialist Training, which was previously held over two days in person. We also made the change to be able to offer training to new specialists in a timely manner. For the 2020 training and beyond, Ecology (with the help of the PPA training committee for new specialists), developed a self-paced online modular training system for new specialists. In addition to the training modules, new specialists must participate in six live discussion panels held every other month. These discussion panels allow new trainees to ask questions and discuss various scenarios they may encounter with Ecology and our more experienced specialists.

Additionally, all specialists around the state have access to Ecology staff expertise, creating a broad system of information exchange and enhancing assistance to businesses. Specialists also have access to each other. Ecology provides contact information for all the specialists and happily facilitates these conversations. Communication between partners and Ecology allows for collaboration across the partnership between new and experienced specialists. No specialists are on their own—we are one big team!

SECONDARY CONTAINMENT & SPILL KITS

SECONDARY CONTAINMENT

Secondary containment is a very important part of spill prevention. Maybe you've seen secondary containment around but didn't know its purpose. Most often, it's the yellow pallet below drums of waste—it could also be the 5-gallon bucket used to collect smaller waste items. Secondary containment helps protect both the environment and businesses. Businesses that spend money on preventing spills and contamination up front are less likely to be involved in very expensive cleanup operations in the future. An ounce of prevention is worth a pound of waste, and a business may be able to get one of these pallets for free by working with their local PPA specialist.

PPA specialists can help businesses by providing secondary containment, free of charge, in a couple of different ways. Specialists often provide pallets as seen in the photos below. These pallets are designed to capture any spills when wastes are being added to or removed from containers, or to collect any overflow if the containers become too full. Containing spills and catching overflow prevents dangerous waste from impacting the ground or surface water, and protects employees, customers, and the public from these wastes.

Seattle Public Utilities

Here's an example of secondary containment provided by Seattle Public Utilities. In King County, businesses can apply for a voucher to help with the cost of purchasing secondary containment pallets and other items and services.



Before: Without secondary containment, any oil spilled during adding/removing materials from the drums would spill to the ground, causing soil contamination.



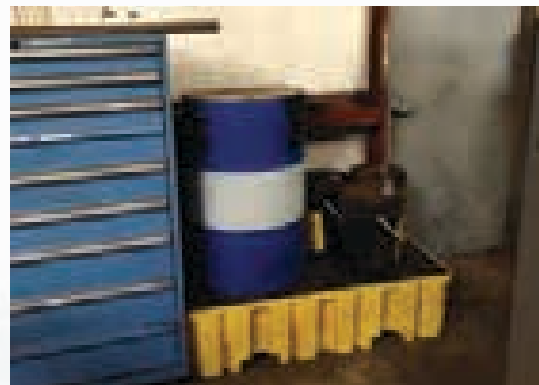
After: With secondary containment, even if there is a spill or overflow, any spilled materials will be captured with the secondary containment pallet and can be properly managed.

City of Redmond

Sometimes it takes a little persistence. The next example comes from our specialists with the City of Redmond. They worked with a business to get secondary containment pallets for their hydraulic waste oil. The waste oil was next to their back door—an easy place for things to go wrong! City staff returned to visit with the business five times, for six total visits, but in the end, the business began using the secondary containment, protecting themselves, the environment, and their community.



Before: With containers of used oil and other wastes located next to the back external door, there was plenty of opportunity for spills. People and vehicles coming in and out of the door could cause the oil and other waste to spill.



After: Containers moved to the other side of the door and placed on secondary containment pallet. Now, if there's a spill or overflow, any extra materials will be captured by the secondary containment pallet.

Skagit County

Our specialists in Skagit County worked with a local tire shop to address some spill and containment issues with secondary containment pallets.



Before: The area lacked secondary containment. These drums were located next to stairs leading to the pit below. Spills in this area would be extra difficult to clean up.



After: With secondary containment, the chances of the oil spilling to the stairs and needing to be cleaned up is reduced.

City of Shoreline

City of Shoreline specialists also had the opportunity to work with an auto shop in their area to address secondary containment and storage of used oil.



Before: They stored several drums of used oil outside without cover or secondary containment. Just asking for trouble!



After: Drums of used oil placed on secondary containment pallets and moved inside under cover. This is a cleaner and safer way to store used oil.

Tacoma-Pierce County Health Department

Our specialists from the Tacoma-Pierce County Health Department helped a small vehicle repair shop address their used oil waste. The shop used a container that was too large for how much used oil they generated. Specialists helped the facility find appropriately sized containers and provided secondary containment for the new containers. They also provided a drum drain top to make adding used oil to containers easier and less likely to result in a spill.

These are just a few of the examples from the last biennium that show how our specialists help businesses with waste storage and secondary containment.

SPILL KITS

Partners also help businesses with best management practices to avoid and respond to spills. During the 2019–2021 biennium partner jurisdictions distributed over 400 spill kits to businesses. Once the business has completed a spill response plan, specialists review the plan with the business and set up a date and time to drop off the spill kit.

A scenic photograph of a rocky coastline. The foreground is dominated by large, flat rocks covered in vibrant green moss. A small stream flows over these rocks, creating white foam. In the background, a steep, mossy cliffside meets a dense forest of evergreen trees. The sky is a clear, deep blue. A white rectangular box is overlaid on the upper portion of the image, containing the title text.

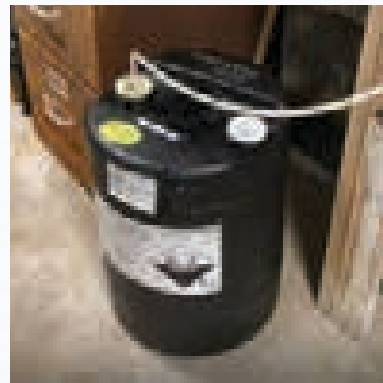
PARTNER SUCCESS STORIES

CLARK COUNTY

Since industrial and commercial businesses faced many challenges due to the COVID-19 pandemic restrictions, PPA specialists in Clark County focused on increased collaboration with other public health programs. Recreational Water Safety, a division of Clark County Public Health, routinely inspects water quality, safety equipment and the physical conditions of all public swimming pools, spas, float tank facilities and recreational water features in Clark County.

At a local athletic club, an inspector noted that there was excessive corrosion of metal surfaces and electrical equipment in the chemical storage room. The corrosion was believed to be due to excessive fugitive emissions from the muriatic acid handling and feed system. The facility manager was referred to PPA to get help improving their chemical management practices.

Repairing the room ventilation system was too expensive, so the management decided to install a separate acid-resistant storage shed and move their containers into it. PPA specialists helped find better vapor-tight connectors for the acid drum feed lines. They also provided spill containment pallets to place the drums inside the shed. This solution provided proper containment and segregation between incompatible wastes.



After: The new vapor-tight connector from the acid drum to the feed line.



After: The new covered storage with secondary containment for chemical management.

SPOKANE

What is a rage room? We got to find out, while also providing a bit of technical assistance to an emerging business model. Rage rooms are business locations that provide space and equipment to their customers to break various household items to relieve stress or frustration. Some business provide the items to be broken, while others let customers bring in their own items.

Our team responded to a complaint submitted to Ecology by a concerned citizen. They were worried that a new business in Spokane was allowing the public to break electronics as part of its rage room business model, which could potentially expose customers and employees to heavy metals and gas vapors.

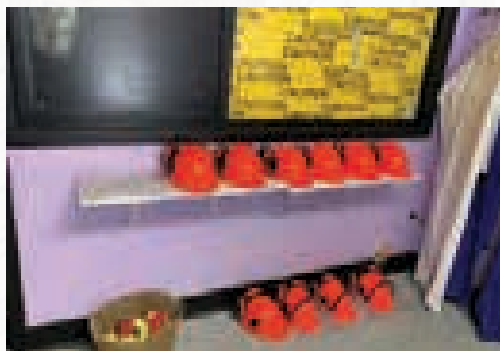
Ecology asked Spokane Regional Health District (SRHD) to follow up with the facility on behalf of the PPA Partnership, and provide technical assistance to the business regarding waste management.

The timing worked out great in this instance. The business was just getting started and had not broken electronics at the time that SRHD followed up with them. The business was getting ready to purchase 172 televisions to break at their facility. Fortunately, they were advised against this by our PPA specialist and decided not to purchase them after our visit.

After speaking to our specialist and learning about the concerns and issues related to destroying electronics, the business owner updated their list of approved items and removed the listing of televisions and electronics. The owner also agreed to update the information on their website related to what items are acceptable and what items are not acceptable, removing TV's and any other

electronics. Additionally, the owner is going to stock a supply of Spokane-Kootenai Waste & Recycle Directory flyers so that when folks bring in items that are not allowed to be smashed, she can supply them with informational flyers about the waste directory to find an appropriate disposal options for prohibited items brought to the business.

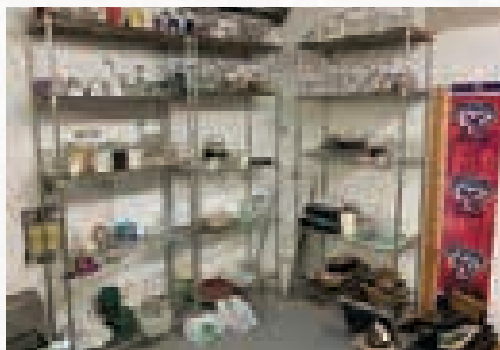
Working with our specialists from SRHD, this business was able to prevent pollution and learn about the proper management of any waste they produce. Good timing, professional conduct, and a passion for pollution prevention led to this success story. Thank you Spokane Regional Health District!



Personal Protective Equipment (PPE) provided by the business for customers to wear to protect themselves from flying debris.



Additional PPE provided by the business. Coveralls, hard hats, closed toe shoes (not provided by the business), and gloves are required before breaking items.



Room of breakable items for customers to choose from.



A room with debris left over from a rage room break session.

JEFFERSON COUNTY MARINAS

Since much of Jefferson County is rural they rely on ditches, swales, and limited catch basin systems to transport stormwater. Isolating contaminants and tracking them back to their source can be difficult, yet Jefferson County and the majority of its citizens make every effort to limit stormwater pollution.

One such effort in reducing pollution involved a unique cooperative effort between three agencies that resulted in four successful technical assistance visits to Jefferson County marinas. Our PPA specialists at Jefferson County Public Health worked with the Puget Soundkeeper Alliance, and Washington Sea Grant, as part of the Clean Marina program. Together, they visited four marinas located in Jefferson County.

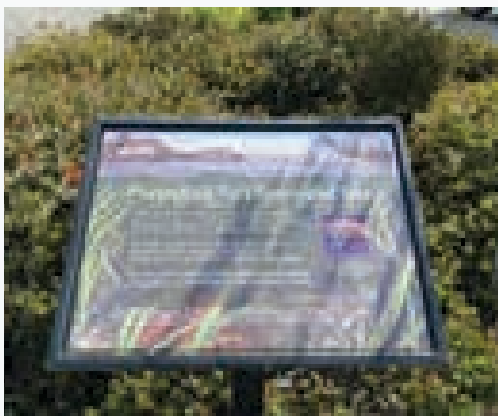
The highlight of the collaborative fieldwork was working with a marina that had been unable to comply with water quality benchmarks for several years, but is now making great strides to address this issue.

Our specialists advised the marina in question to move oil collection away from the waterfront to a more centralized location. Oil collection is now covered, locked, and has an oil/water separator to capture stormwater runoff. Bilge water is collected and stored next to the oil collection and is stored in intermediate bulk containers (also called totes) with a covered funnel.

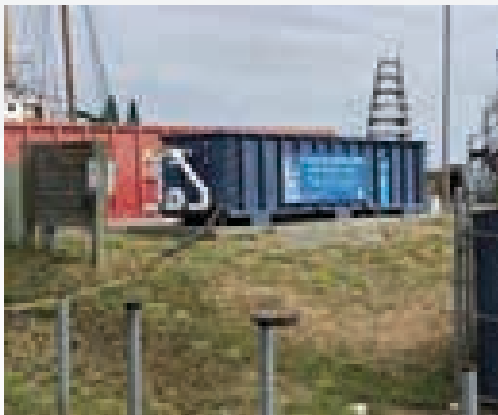
Specialists found other minor issues at the remaining three marinas. The representatives at these locations were receptive to our feedback and suggestions and were eager to bring their

marinas into compliance. They fixed many of the issues within a matter of days.

All in all, it was an incredible collection of like-minded entities working together to ensure that our Pacific Northwest waterways are as healthy as possible. Our specialists look forward to working with these groups again in the future to help only rain go down the drain.



Signage posted near marinas in Jefferson County. Signs help educate the public about the impacts to the water from debris, dust, and spill-related issues.



Centralized oil collection location. Putting all the oil collection and management devices in one location lessens the impact from oil sitewide and means that there is only one place to worry about when it comes to oil management.

KING COUNTY

Our King County partner worked with several businesses over the last year on proper management, storage, and disposal of used cooking oil and grease. Improper management of this waste can contaminate the environment, lead to clogged pipes, and create a public health issue.

King County performed an initial pollution prevention visit at a local restaurant in February 2021. The specialist saw that the restaurant's used cooking oil container was full and there were grease spills nearby. The restaurant owner had placed uncovered 5-gallon buckets nearby to store even more used cooking lard. King County discussed the observations with the business owner and provided education on proper grease management. The business owner expressed difficulty in communicating with the grease vendor, who was, at the time, picking up grease from the property approximately every 2 weeks and not emptying the used cooking oil container during each visit. The business owner asked the vendor for more frequent pickups but was not receiving this service. King County and the owner agreed that King County would call the vendor to ask for more frequent pick-ups.

Over the following month, both King County and the business owner communicated with the grease vendor about more frequent pick-ups. Ultimately, the business owner decided to change grease vendors to improve the management of their grease. King County and the owner continued to communicate with the existing grease vendor to coordinate clean-up of the grease spills and removal of the existing used cooking oil container. All grease spills were cleaned up and

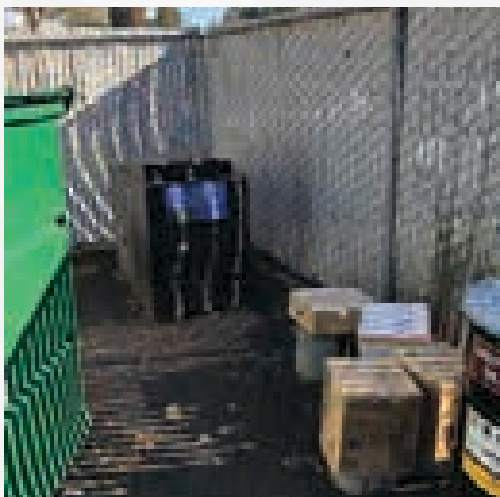
the business owner is now able to better manage his restaurant's used cooking lard, keeping this material off the ground and out of the stormwater system.



Before: Fats, oils, and greases (F.O.G) being stored in open-top 5-gallon buckets. This type of storage increases the likelihood of spills to the environment. In this photo, you can see spilled F.O.G. next to the containers.



Before: Same photo from a different angle. You can see the clear signs of spillage on the container itself and the ground next to the container.



After: The F.O.G. collection container has been cleaned up, and the spill next to the container has been cleaned up.



After: The F.O.G. is now being collected in larger containers with securely fastened lids, greatly reducing the chances of spills or improper management.

BOTHELL VIRTUAL WORKSHOP CASE STUDY

The City of Bothell used some of their funding to hold a pollution prevention workshop for local businesses. When the COVID-19 Stay at Home order went into effect, it became clear that there would be new challenges associated with this workshop.

Taking advantage of additional office time available during the quarantine, specialists focused on the development of the workshop content. They chose landscapers as their audience and proper use and disposal of dangerous wastes and products as the content focus. Our specialists also decided to pursue both an online option (rather than an in-person workshop) as well as in-language translation for attendees that didn't speak English as a first language. Outreach to possible attendees began in June of 2020. Specialists contacted landscapers via phone for any business that had business listings in Bothell, as well as those that worked in Bothell.

The Bothell PPA team scheduled a virtual workshop for March 12, 2021. The workshop had five businesses in attendance and a total of seven attendees. Of those who attended, one participant spoke Spanish as a first language and another spoke Vietnamese. Each of those attendees were able to enter a breakout room in Zoom to receive the same training in their respective languages. Specialists felt like the workshop was successful and worth their time to offer, but due to the unique challenges of the COVID-19 pandemic, it took creative thinking and networking to execute it fully.



RESPONDING TO THE COVID-19 PANDEMIC

The COVID-19 pandemic had a significant impact on when and how the PPA Partners worked with businesses on pollution prevention measures. For approximately 97% of this biennium, field work was curtailed due to the Governor's Stay-Home Stay-Healthy Proclamation followed by the continuing need to physical distance after the proclamation was lifted.

Additionally, our Partners needed to consider the impacts to the businesses they may visit. Businesses closed, lost revenue, and lost staff, so a visit from their local PPA specialist often wasn't their primary interest. However, despite this our PPA partners were still able to complete 89% of their proposed business technical assistance visits.

Many of our PPA Partners are local health jurisdictions, so they had to redirect their PPA staff to pandemic response duties such as COVID-19 contact tracing and business health and safety outreach. These partners found that the skills and experience developed through their PPA outreach transferred well to their pandemic outreach. For example, Skagit County Public Health developed and implemented a "COVID Business Assistance Program" to assist schools, workplaces, and other community organizations prevent and reduce further spread of COVID-19. Skagit's program used many of the same approaches and skills that are used to perform PPA visits.

During our work from home time, the partnership took on several projects to strengthen our future. Taking advantage of the extra time out of the field, we:

- Developed new education and outreach materials;
- Improved the look, branding, and message consistency throughout the partnership;
- Excelled at transitioning our training meetings to a virtual format;
- Utilized over 80% of our budget.

“The events of the past several months have taught us the need to be innovative and flexible as we reprioritized our resources and worked within the limitations brought about by the pandemic.”

—Spokane Regional Health

PRODUCT REPLACEMENT PROGRAM

Our Product Replacement Program (PRP) is a cutting-edge, preventative program designed to identify and address the most problematic chemicals impacting our state. Through this program, we can proactively address these problems before they become much bigger and more costly. It provides:

- Reimbursement funding
- Collection and disposal services
- Opportunities for businesses to transition to less toxic options

PPA partners are critical to PRP success. They support PRP efforts by providing the ground assistance to these businesses and organizations, answering questions about the program, explaining the project terms and conditions, assisting with the filling out of needed paperwork, and providing technical assistance and advice on process changes.

Over the past biennium, PPA reps made more than 100 PRP-related contacts and calls to businesses and organizations. These contacts helped raise awareness of the PRP programs and drive up participation.

During the 2019–2021 biennium, the PRP made significant strides in protecting the environment and public health from the “worst of the worst” product/chemical combinations. Specifically, the PRP converted 52 dry cleaners to safer technologies during this biennium, 43 of which switched to professional wet cleaning, the preferred technology. Nine dry cleaners switched to high flash hydrocarbon. A follow-up survey to the owners of these businesses gave the program a satisfaction rating of 4.4 out 5. This program will continue to operate and provide reimbursements until June 30, 2023, or until funding runs out.

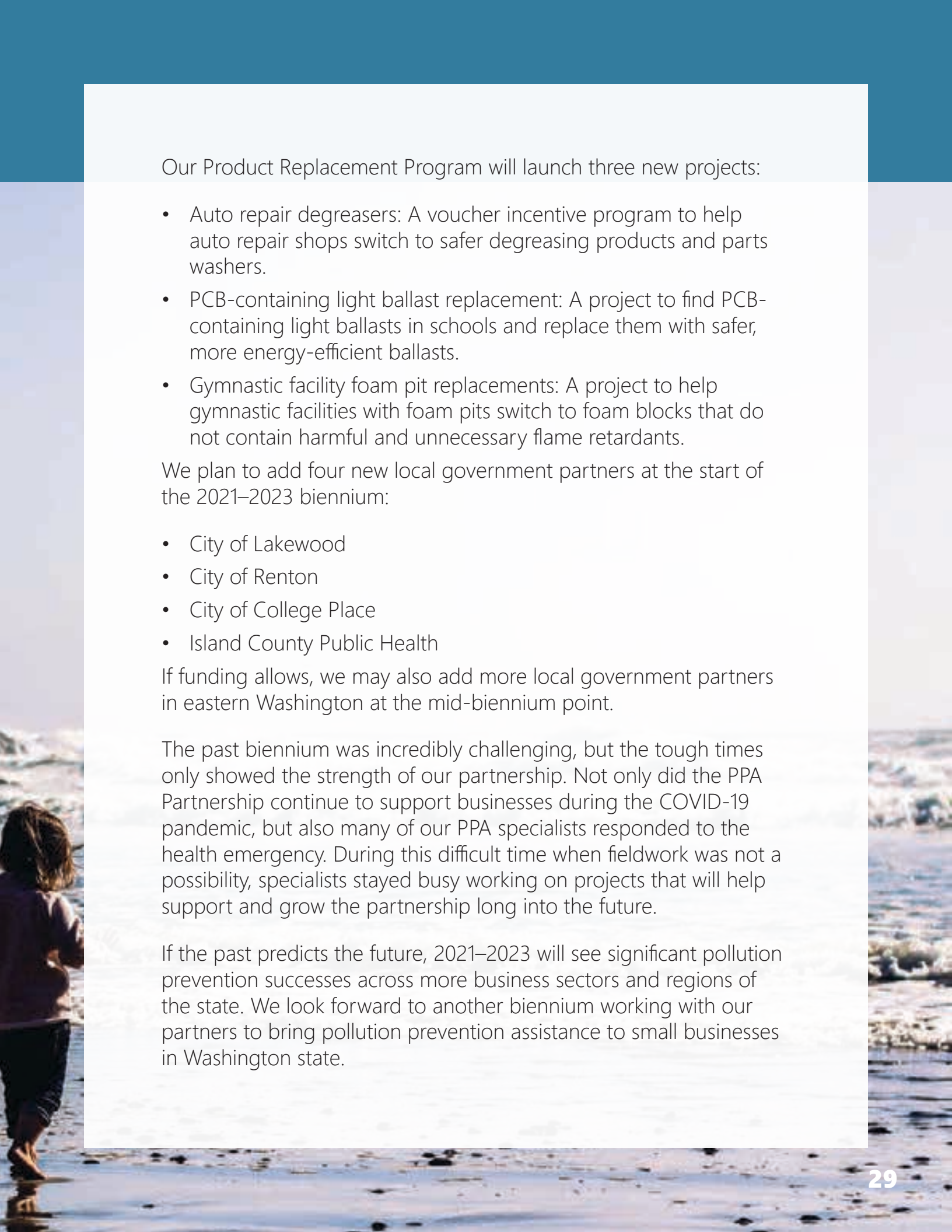
Meanwhile, nearly 90 fire departments around the state signed up to safely dispose of roughly 30,000 gallons of firefighting foam that contains highly toxic PFAS chemicals. In addition, more than half of Washington’s commercial airports are participating in our test equipment reimbursement program, which allows airports to test their firefighting equipment without having to dispense PFAS containing firefighting foam to the ground.

A person wearing a wetsuit and boots is standing on a beach, looking out at the ocean. The person is holding a pair of black gloves. The background shows waves crashing onto the shore under a clear blue sky. The scene is brightly lit, suggesting a sunny day.

A LOOK FORWARD

During the 2021–2023 biennium, a committee will develop outreach videos to show examples of pollution prevention activities and best management practices businesses can use to reduce their environmental impact. The videos will be developed in multiple languages to ensure increased equity in our outreach.

To help businesses with the financial costs of implementing pollution prevention measures, we are also developing a “small changes” voucher program. This voucher, which is part of our Product Replacement Program, will reimburse businesses for some of the cost for materials and services such as secondary containment, spill kits, and catch basin cleaning.



Our Product Replacement Program will launch three new projects:

- Auto repair degreasers: A voucher incentive program to help auto repair shops switch to safer degreasing products and parts washers.
- PCB-containing light ballast replacement: A project to find PCB-containing light ballasts in schools and replace them with safer, more energy-efficient ballasts.
- Gymnastic facility foam pit replacements: A project to help gymnastic facilities with foam pits switch to foam blocks that do not contain harmful and unnecessary flame retardants.

We plan to add four new local government partners at the start of the 2021–2023 biennium:

- City of Lakewood
- City of Renton
- City of College Place
- Island County Public Health

If funding allows, we may also add more local government partners in eastern Washington at the mid-biennium point.

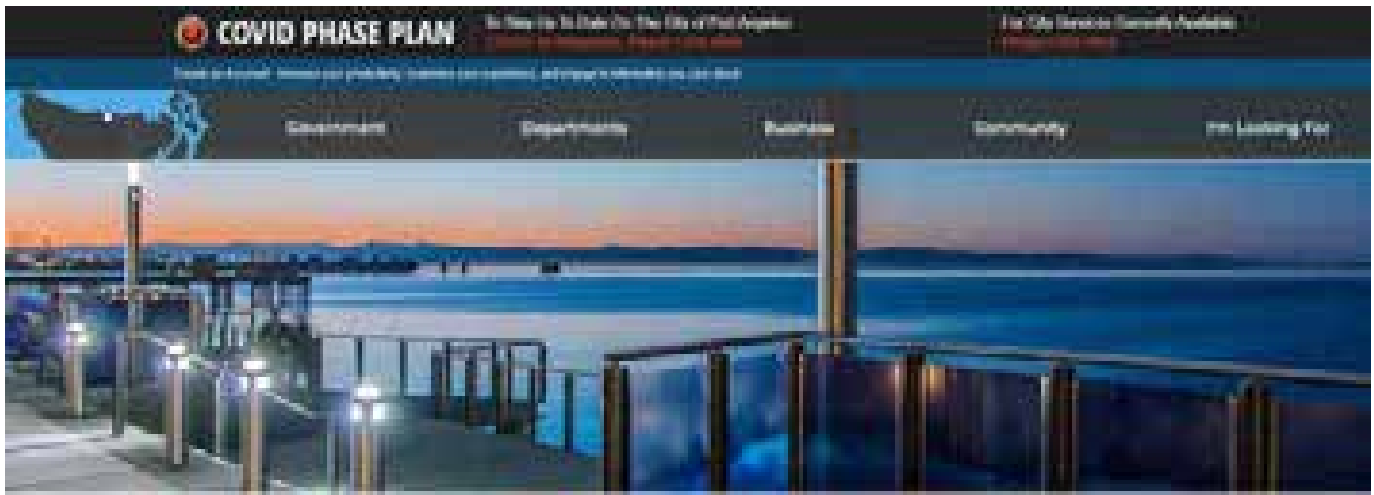
The past biennium was incredibly challenging, but the tough times only showed the strength of our partnership. Not only did the PPA Partnership continue to support businesses during the COVID-19 pandemic, but also many of our PPA specialists responded to the health emergency. During this difficult time when fieldwork was not a possibility, specialists stayed busy working on projects that will help support and grow the partnership long into the future.

If the past predicts the future, 2021–2023 will see significant pollution prevention successes across more business sectors and regions of the state. We look forward to another biennium working with our partners to bring pollution prevention assistance to small businesses in Washington state.



ACCESSIBILITY

To request materials in a format for the visually impaired, contact the Hazardous Waste and Toxics Reduction Program at 360-407-6700 or hwtrpubs@ecy.wa.gov. Persons with impaired hearing may call Washington Relay Service at 711. Persons with a speech disability may call TTY at 877-833-6341.



Pollution Prevention

Overview

Pollution prevention is reducing or eliminating waste at the source by modifying production processes, promoting the use of non-toxic or less-toxic substances, implementing conservation techniques, and re-using materials rather than putting them into the waste stream.

The City of Port Angeles received a grant from the Washington Department of Ecology to provide no-charge, on-site advice to small businesses that generate dangerous wastes.



The goal of this grant funded program is to help Port Angeles businesses avoid polluting local waters, reduce the impacts of stormwater pollution, and eliminate potential sources of toxic materials and dangerous waste.

Pollution Prevention Specialist - Ready to Assist

The City's Pollution Prevention Specialist is visiting local businesses in order to demystify regulations about dangerous waste and help implement pollution prevention practices. The goal of this program is to protect water quality and help businesses deal with pollution at its source, before it pollutes local waters.

This approach not only protects our city's water quality and standard of living, but it is also expected to save businesses money through conservation of resources, improved worker safety, reduction and avoidance of risk, possible decrease in insurance premiums, and an increase in business efficiencies.

This position is 100% grant funded through the Washington State Department of Ecology's Local Source Control Partnership. This partnership gives the City's Pollution Prevention Specialist access to the resources and expertise of twenty-five partner jurisdictions around Puget Sound and the Spokane River Basin.

Qualified Businesses

This program is for businesses that:

- Accumulate less than 2,200 pounds of most dangerous wastes
- Create less than 220 pounds of most dangerous wastes per month
- Would like to avoid paperwork, mandatory inspections, and emergency plans

You'll be provided with:

- Inspection of dangerous waste handling and storage facilities
- List of licensed dangerous waste recyclers / haulers
- No charge, on-site dangerous waste evaluation
- Recommendations to fix any issues we find

What to expect:

- The inspector is available Monday through Friday, from 7:00 a.m. to 3:30 p.m.
- Most evaluations will take 15 to 45 minutes

Businesses within Port Angeles city limits and its urban growth areas are welcome to participate in the voluntary program.

RESOURCES

Please click on the following tabs for more information.

Preventing Water Pollution

Port Angeles is home to a very unique environment with the majestic Olympic Mountains nestled alongside the Strait of Juan de Fuca. Many mountain-fed streams run right through our city as they make their way to the Strait, picking up pollution from our storm drains in the process. As a result, stormwater pollution has become a serious problem for both the wildlife and citizens that use these waterways for fishing, boating, and swimming. [This beautifully drawn flier \(PDF\)](#) explores sources of local water pollution and offers ways for eliminating the pollution from our streams and waterways. Feel free to print it out and post it in your business.

Answers to Basic Questions

[This brochure \(PDF\)](#) answers the most basic questions about your waste. How do I know if my waste is hazardous? How do I handle hazardous waste? Will I be regulated? Do I need to file any special documentation with the government? Where do I go for help?

Shop Guide for Dangerous Waste

Do you run a maintenance shop? Auto body shop? Auto repair shop? If so, [this is the guide \(PDF\)](#) for you. It discusses proper waste management for common shop items such as aerosol cans, antifreeze, used oil, towels and rags, batteries, waste storage regulations and more.

Safer Choice Products

Have you ever wondered if there are less hazardous chemicals available that can do the same job? The EPA Safer Choice label helps consumers and businesses find products that are less hazardous to human health and the environment. Safer Choice products must pass category specific performance standards so you can trust that the Safer Choice products perform as well as their more hazardous counterparts. [Click here](#) to find over 2,000 safer alternatives for your home and business.

Fat Oil and Grease Program

Cost Analysis

Port Angeles has a big grease problem. Fats, oils, and grease (FOG) are clogging the City's sewers and costing us all a lot of money each year to respond to and clear these grease-clogged pipes. FOG waste from cooking and cleaning equipment hardens and builds up inside our drain and sewer pipes, constricting water flow the way cholesterol affects blood flow in arteries. In 2010, the City adopted a FOG control ordinance to address these problems. [This document \(PDF\)](#) clearly states the steps restaurants must take to be in compliance with local laws and help reduce grease clogged sewers.

Pollution prevention can save money on the costs involved in an industrial production process, as well as provide new sources of revenue. Many pollution prevention opportunities cost very little to carry out, and can be quite profitable,

while others must be analyzed carefully to weigh their profitability. [This analysis \(PDF\)](#) involves identifying all the major costs involved in a current process and possible pollution prevention alternatives, and then comparing the costs and savings.

Contact Us

Pollution Prevention Specialist

[Email Pollution Prevention Specialist](#)

Phone: 360-417-4693

Quick Links

- [Hazardous Waste Service Provider Search](#)
- [Best Practices for Businesses](#)
- [Pollution Prevention Assistance](#)

[View All](#)



Location

Port Angeles, WA

321 E 5th Street
Port Angeles, WA
98362

Phone: 360-457-
0411

Quick Links

[Bids & RFPs](#)

[City Budget](#)

[Meetings &
Agendas](#)

[Municipal Code](#)

[Sign Up for
Notifications](#)

[Frequently Asked
Questions](#)

Facebook

[Official City Page](#)

[Fire Department](#)

[Parks & Recreation
Department](#)

[Police Department](#)

[Public Works &
Utilities](#)

Helpful Links

[Accessibility](#)

[Contact Us](#)

[Copyright](#)

[Notices](#)

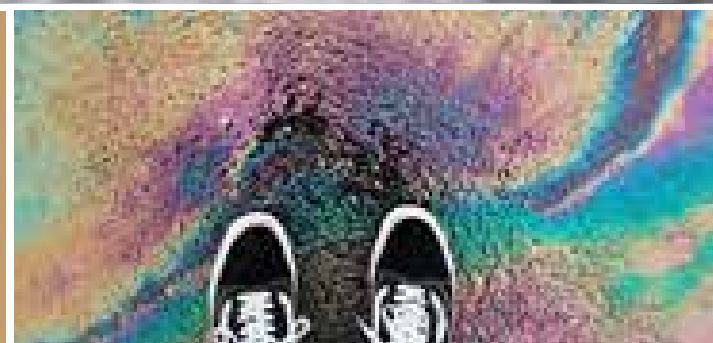
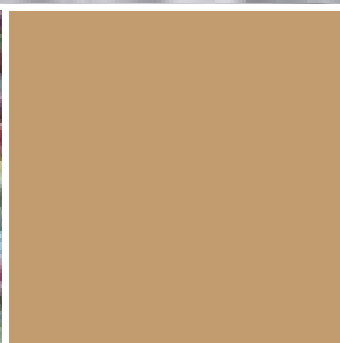
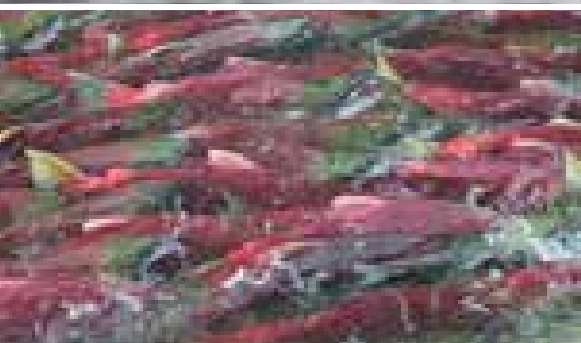
[Home](#)

[Privacy Policy](#)

[Site Map](#)



What is pollution prevention assistance?



Hands-on assistance for Washington businesses

Small businesses typically have limited access to expertise on stormwater management and hazardous waste handling and disposal. Ecology's Local Source Control Partnership program funds jurisdictions throughout Washington to offer pollution prevention assistance to local businesses.

Specialists in participating jurisdictions offer free, on-site technical assistance to help small businesses identify and resolve possible causes of pollution. This hands-on assistance and regulatory advice reduces health risks for employees and prevents polluted runoff from harming Washington's streams, rivers, and Puget Sound.

As a result of pollution prevention assistance, Washington businesses:

- Adopt safer materials handling and storage practices.
- Manage interior and exterior drainage systems to reduce impacts to stormwater.
- Create a plan for spill prevention and preparedness.
- Use fewer toxics in their processes or replace toxic chemicals with safer alternatives.



Top 5 problems specialists find during visits

[Based on data collected July 2015–June 2017]

- 1 No or inadequate spill response procedures.
- 2 No or inadequate spill response materials.
- 3 Employees need proper training.
- 4 Other hazardous waste issues.
- 5 Need to implement proper housekeeping.

Since the program began in 2008



More than
26,000
Completed visits



More than
32,000
Problems found



90%
Problems resolved

Top 5 business sectors where specialists find problems

[Based on data collected July 2015–June 2017]



Auto repair shops



Restaurants



Construction contractors



Gas stations



Auto dealers

Current partner jurisdictions

Partners funded through the July 2017–June 2019 biennium are located in three critical areas—the Columbia River, Puget Sound, and the Spokane River.



Clallam

City of Port Angeles

Clark

Clark County Environmental Services
Clark County Public Health

Jefferson

Jefferson County Public Health

King

City of Bothell
City of Issaquah
City of Kirkland
City of Redmond

City of Shoreline

King County Water and Land
Seattle Public Utilities

Kitsap

Kitsap Public Health District
(includes Mason County)

Pierce

City of Puyallup
City of Sumner
Tacoma-Pierce County Health Department

Skagit

Skagit County Department of Public Health

Snohomish

Snohomish Health District

Spokane

Spokane Regional Health District

Thurston

Thurston County Public Health

Whatcom

City of Bellingham
Whatcom County Health Department

Visit ecology.wa.gov/PollutionPreventionAssistance to learn more about this program.

To request ADA accommodation including materials in a format for the visually impaired, call Ecology at 360-407-6700 or visit <https://ecology.wa.gov/accessibility>. People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at 877-833-6341.



Does your business produce hazardous waste?

WHAT IS "HAZARDOUS WASTE"?

In Washington, a waste is "hazardous" if:

- It is *listed* (discarded products and sources; [WAC 173-303-080](#)),
- Meets *characteristics* (ignitability, corrosivity, reactivity, or toxicity; [WAC 173-303-090](#)), or
- Meets *criteria* (environmental persistence or toxicity; [WAC 173-303-100](#))

Common materials that are hazardous waste:

- Paints, thinners, solvents, pesticides, or cleaning fluids
- Products with a warning label such as "flammable," "caustic," "danger," "hazardous," or "poison" or contain any hazard pictograms like those shown on the right



HAZARDOUS WASTES REQUIRE SPECIAL HANDLING

Hazardous wastes cannot be put in the dumpster, poured down the drain or evaporated. They cannot be taken to the transfer station or municipal landfill. They must be transported by a licensed waste service provider unless your business is a small quantity generator (see below). Regardless of generator status, all businesses MUST:

- Identify and designate all hazardous wastes and how much is generated each month
- Keep wastes stored in containers that are in good condition with proper hazard labels
- Assure proper disposal, treatment and/or recycling of their hazardous waste
- Comply with regulations, no matter how little hazardous waste they generate
- Follow all required procedures for your generator status (small, medium, or large quantity generator)

LESS WASTE= FEWER REGULATIONS

Small quantity generators are exempt from most state and federal regulations. To be exempt, they must stay within the legal generation and accumulation limits and they must manage and dispose of their waste in a way that does not pose a threat to human health or the environment.

A Small Quantity Generator, or SQG, is a business that:

- Creates less than 220 pounds (about 27 gallons) per month of hazardous waste and
- Stores less than 2,200 pounds (about five 55-gallon drums) of hazardous waste and
- Creates and stores less than 2.2 pounds (about a quart) of *acutely hazardous waste* per month



REGULATED GENERATORS

Businesses that produce larger amounts of hazardous waste must comply with extensive regulations and periodic reporting. While Ecology provides compliance assistance to all generators, medium and large quantity generators are also subject to regulatory inspections from Ecology. Small quantity generators can receive non-regulatory pollution prevention assistance through the Local Source Partnership. Contact the City of Port Angeles's Pollution Prevention Specialist for more information.



DESIGNATING HAZARDOUS WASTE



"Waste designation" is the process of determining if a certain waste is hazardous and selecting the applicable dangerous waste codes. Designation often involves identifying the chemical ingredients or contaminants in the waste. This helps ensure that the waste is properly labeled and handled. Washington's Department of Ecology provides guidance for designating waste according to the dangerous waste regulations ([LINK](#)).

To find out more information about the hazardous chemicals a product may contain, refer to the product's Safety Data Sheet (SDS). Chemical suppliers and manufacturers are required to have SDS for all their products. They can often be found with the product or on the manufacturer's website.

A "waste profile" describes the chemical ingredients and the dangerous waste numbers assigned to the waste. Firms that transport, broker, reclaim or dispose of hazardous waste need a waste profile so that they can manage the waste safely and legally. Most private companies and solid waste landfills require a profile or other identification before accepting potentially hazardous wastes. Businesses should retain receipts for waste removal as well as any waste profiles produced.

WASTE TESTING

Hazardous waste may need to be tested if the waste is unknown or may contain other hazardous materials. For example, used oil is often field-tested to detect chlorinated solvents. Containerized wastes, such as aerosol cans, do not need to be tested and are designated according to the hazardous chemicals listed on their SDS. Most waste handlers will profile a waste and can arrange to have it tested, if necessary. Use the following guidelines to help waste service providers develop an accurate waste profile as well as save your business money:

- Explain how the waste was created
- Provide the chemical ingredients from container labels and SDS sheets
- List anything that was mixed with the material including water, solvents or potential contaminants
- Only run tests on chemicals that have a possibility of being in your sample
- Do not run tests on containerized products that are no longer being used or have expired. Look up the product's SDS to find hazardous characteristics

Though waste handlers will help a business develop a waste profile, the business is ultimately responsible for the proper disposal of the waste it produces.

~Example~

A shop mixes concentrated cleaner with water and uses the solution to clean oily, corroded auto parts. The shop's waste management firm suggests testing the solution for solvents and heavy metals. In the preceding year the shop had eliminated all solvents from its cleaning process. The shop shows the material safety data sheets to the waste management firm and explains its "no solvent" policy. The firm agrees that solvent testing is unnecessary. Because parts are corroded before cleaning, it is a good idea to test for heavy metals.



Rachel Bowen
Pollution Prevention Specialist
rbowen@cityofpa.us
360-417-4693



Southwest Regional Office
300 Desmond Drive
Lacey, WA 98503
360-407-6300

other resources:

[Dept. of Ecology Hazardous Waste Program](#)
[Clallam County Hazardous Waste Program](#)
[Dept. of Ecology Dangerous Waste Regulations](#)
[City of Port Angeles Pollution Prevention Program](#)

Do You Want *Clean Water* in Your Community?

Making simple choices prevents water pollution

Everyday activities can lead to water pollution.

When water from irrigation and rain washes over yards and streets, it collects fertilizers, pesticides, soap, oil, pet waste, and other pollutants. The runoff flows into storm drains untreated and ends up polluting the nearest stream, lake, or wetland.



Water used inside—kitchens, bathrooms, laundry areas—drains to the sanitary sewer where it is treated before being released into Puget Sound.

For clean water in your community, make these simple choices:

- Take your car to a commercial car wash.
- Have car oil leaks fixed and recycle used motor oil.
- Scoop the poop, bag it, and put it in the garbage.
- Practice Natural Yard Care, and avoid using pesticides and chemical fertilizers.

Water outside drains to the nearest storm drain untreated and then flows to a stream, lake, or wetland.

Remember, it's **illegal** to pollute waterways in Washington State.

Thank you for keeping our shared waters healthy for people, fish, and wildlife.





Fats, Oil, and Grease

Best Management Practices Manual

Pollution Prevention and Compliance Information for
Kitchens, Restaurants, and other Business Owners and
Managers in the City of Port Angeles, Washington

*This manual was developed from a BMP Manual originally published by
the Oregon Association of Clean Water Agencies*

Table of Contents



Chapter 1

Introduction 1



Chapter 2

Frequently Asked Questions about Fats, Oil, and Grease 2



Chapter 3

Best Management Practices 5



Chapter 4

Prohibitions Relating to Discharge of Fats, Oil, and Grease . . 18



Chapter 5

How Grease Interceptors Work 20



Chapter 6

Grease Interceptor Maintenance 24



Chapter 7

Fats, Oil, and Grease Haulers and Recyclers 28



Appendix A

City of Port Angeles Ordinance No. 3397,
Section 13.06.030 – 13.06.039 A-1



Important Telephone Numbers:

- Sewer backups on city streets or alleys (360) 417-0190
or
(360) 461-0111
or
(360) 460-3976
- Water pollution or spill hotline (360) 417-4745
- Wastewater treatment plant (360) 417-4845
- City permit center (360) 417-4817



Chapter 1 Introduction

Fats, oil, and grease — also called FOG in the wastewater business — can have negative impacts on wastewater collection and treatment systems. Most wastewater collection system blockages can be traced to FOG. Blockages in the wastewater collection system are serious, causing sewage spills, manhole overflows, or sewage backups in homes and businesses.

Two types of FOG pollutants are common to wastewater systems. Petroleum-based oil and grease (non-polar concentrations) occur at businesses using oil and grease, and can usually be identified and regulated by municipalities through local limits and associated pretreatment permit conditions. Animal and vegetable-based oil and grease (polar concentrations) are more difficult to regulate due to the large number of restaurants and fast-food outlets in every community.

This manual is written to provide Port Angeles kitchen, restaurant and fast food business managers and owners — along with City of Port Angeles staff — information about animal and vegetable-based oil and grease pollution prevention techniques focused on their businesses, effective in both reducing maintenance costs for business owners, and preventing oil and grease discharges to the sewer system.

Many of the nation's fast-food restaurant chains participate in FOG recycling programs. Ensuring that grease interceptors are properly installed — and most importantly, properly maintained — is more difficult. This manual focuses on proper maintenance of grease interceptors.

Knowledgeable municipal staff, working with business owners, can effectively prevent oil and grease buildup, and associated problems, for both the sewerage agency and the restaurant owner.



Chapter 2

Frequently Asked Questions about Fats, Oil, and Grease

Is grease a problem?

In the sewage collection and treatment business, the answer is an emphatic YES! Grease is singled out for special attention because of its poor solubility in water and its tendency to separate from the liquid solution.

Large amounts of oil and grease in wastewater cause trouble in the collection system pipes. It decreases pipe capacity and, therefore, requires that piping systems be cleaned more often and/or some piping to be replaced sooner than otherwise expected. Oil and grease also hamper effective treatment at the wastewater treatment plant.

Grease in a warm liquid may not appear harmful. But as the liquid cools the grease or fat congeals and causes nauseous mats on the surface of settling tanks, digesters, and the interior of pipes and other surfaces which may cause a shutdown of wastewater treatment units.

Problems caused by wastes from restaurants and other grease-producing establishments have served as the basis for ordinances and regulations governing the discharge of grease materials to the sanitary sewer system. This type of waste has forced the requirement of the installation of preliminary treatment facilities, commonly known as grease interceptors.

The City of Port Angeles adopted Ordinance No. 13.06.030(B) that regulates the discharge of FOG into the City's sewer system. The ordinance requires pretreatment devices in new construction and retrofit of existing facilities as necessary to comply with the City's FOG discharge limit.

What is a grease interceptor and how does it work?

A grease interceptor is a reservoir built into the wastewater piping downstream from the grease producing area. Baffles in the reservoir retain the wastewater long enough for the grease to congeal and rise to the surface. The grease can then be removed and disposed properly. See *How Grease Interceptors Work* (Chapter 5) for a description of how the various components of grease interceptors function.

What types of grease interceptors exist?

A *hydro-mechanical* grease interceptor is a small (20 – 50 gallons) tank usually located inside a food service establishment, under a counter or sink. A *gravity* grease interceptor is a vault with a minimum capacity of 500 – 750 gallons that is located on the exterior of the building. The vault includes a minimum of two compartments, and flow between each compartment is through a 90° fitting designed for grease retention. The capacity of the *gravity* grease interceptor provides adequate residence time so that the wastewater has time to cool, allowing any remaining grease not collected by any *hydro-mechanical* grease interceptors time to congeal and rise to the surface where it accumulates until it is cleaned. See *How Grease Interceptors Work* (Chapter 5) for a description of how the various components of a grease interceptor function.

How do I clean my grease interceptor?

Refer to *Maintenance of Grease Interceptors* (Chapter 6).

Can you recommend a grease interceptor maintenance schedule?

Hydro-mechanical grease interceptors (20 – 50 gallons), must be cleaned weekly. *Gravity* grease interceptors (500 + gallons) should be cleaned at least every 90 days. If the grease interceptor requires more frequent cleaning than these intervals to remain effective, the owner should consider installing a larger interceptor.

Do I have a grease interceptor?

If the establishment is uncertain whether it has a grease interceptor, the owner should contact the City of Port Angeles Wastewater Treatment Plant at (360) 417-4845 for a no-charge consultation and site visit.

Do I need a grease interceptor?

Per Sewer Use Ordinance No. 3397, Sections 13.06.032 and 13.06.033, all new and existing Food Service Establishments (FSEs) and Non-FSE FOG Dischargers (NFDs) shall be required to install and maintain a properly sized and functioning Grease Removal System (GRS).

Is my grease interceptor adequate?

The Uniform Plumbing Code (UPC) requires that no grease trap have a capacity less than 20 gallons per minute (GPM) or more than 55 GPM. The size of the interceptor depends upon the size, type, and number of fixtures connected to it. The size will also depend largely upon the maintenance schedule. If a grease interceptor is not maintained regularly it will not provide the necessary grease removal. The establishment should work out a specific cleaning schedule that is right for them. All grease interceptors need to have the grease cleaned out periodically and no one likes to do it- it's a dirty job. Running extremely hot water down the drain only moves the problem down stream. It does not go away. Catch the grease at the source! This is the most economical way to reduce all costs.

What if I don't install a grease interceptor?

If the establishment uses grease and oil in food preparation, it will eventually encounter a maintenance problem with a plugged building sewer line. The blockage can create a sewer backup and ultimately a potential health problem in the establishment. Someone will have to pay for removing the blockage. If the problem is in the building sewer line, then the establishment has direct responsibility for paying for the maintenance. If the blockage or restriction is in the public sewer main and it can be proven that the establishment is the cause of the blockage, then the establishment may have to pay for the public sewer to be maintained. The City of Port Angeles ordinance gives the City the authority to recover costs for repairs to the City sewer system due to failure to comply with the City requirements. Blocking a sanitary sewer line is also a violation of the federal Clean Water Act.

Who determines if I need a grease interceptor?

When waste pretreatment is required by the City of Port Angeles, an approved grease interceptor shall be installed according to the currently adopted plumbing code. The City of Port Angeles prohibits the discharge of materials that can solidify and create blockages in the wastewater collection system or treatment plants. The Clallam County Health Department makes periodic inspections to see that no health problems exist due to improperly maintained grease interceptors. City of Port Angeles staff may periodically inspect to ensure proper grease interceptor maintenance. These rules will be enforced if a problem exists.

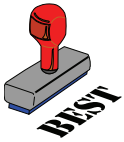
How can I get in compliance?

The establishment should contact the City of Port Angeles. The establishment will be asked to purchase a permit for the grease trap. This will enable the City of Port Angeles to assist the establishment in cleaning schedules and advise them of a problem showing up in the wastewater collection system. A grease interceptor permit is required regardless of whether the establishment has an existing interceptor or is installing a new one.

What are the criteria for inspecting grease interceptors?

All food service establishment grease interceptors will be inspected. In general, grease interceptors should not have more than $\frac{1}{4}$ (25%) of the tank depth filled with floating grease and/or settled solids (or a combination of them).

If the floating grease and/or settled solids level exceeds $\frac{1}{4}$ (25%) of the tank depth, the establishment is advised to keep an eye on the maintenance schedule. The cleaning frequency may need to be increased. If the sediment level exceeds $\frac{1}{2}$ of the tank depth, the establishment may be issued a compliance order to have it cleaned immediately. The establishment may be required to contact the city within 30 days to verify that the grease interceptor has been properly cleaned.



Chapter 3

Best Management Practices

Fats, oil, and grease (FOG) can be managed effectively in the food service industry to minimize adverse impacts on municipal wastewater systems and the environment. Municipal pretreatment staff and food service industry workers have developed Best Management Practices (BMPs) that, when implemented, will minimize the adverse impacts of FOG. This chapter summarizes these BMPs, and other important information, including the reason for BMPs, the benefit of BMPs to the food service industry, and inspection tips for City of Port Angeles staff to determine if the BMPs are being implemented.

Train kitchen staff	6
Post “No Grease” signs	6
Use water temperatures less than 140° F	7
Use a three-sink dishwashing system	7
Recycle waste cooking oil	8
“Dry wipe” pots, pans, and dishware prior to dishwashing	8
Don’t put food waste down the drain	9
Witness all grease interceptor cleaning and maintenance	10
Keep a maintenance log	10
Clean hydromechanical grease interceptors weekly	11
Pump and clean gravity grease interceptors routinely	12
Cover outdoor grease and oil storage containers	13
Locate grease dumpsters and storage containers away from storm drain catch basins.	14
Use absorbent pads or other material in storm drain catch basins	15
Use absorbent pads or other material to clean up spilled material	16
Routinely clean kitchen exhaust system filters	17

Train kitchen staff

BMP	Train kitchen staff and other employees about how they can help ensure BMPs are implemented.
Reason For	People are more willing to support an effort if they understand the basis for it.
Benefit to food service establishment	All of the subsequent benefits of BMPs will have a better chance of being implemented.
Pretreatment inspection tips	Talk to the establishment manager about the training program that he/she has implemented.

Post “No Grease” signs

BMP	Post “No Grease” signs above sinks and on the front of dishwashers.
Reason For	Sign serves as a constant reminder for staff working in kitchens.
Benefit to food service establishment	These reminders will help minimize grease discharge to the interceptors and reduce the cost of cleaning and disposal.
Pretreatment inspection tips	Check appropriate locations for “No Grease” signs.

Use water temperatures less than 140° F

BMP	<p>Use water temperatures less than 140° F in all sinks, especially the pre-rinse sink before the mechanical dishwasher.</p> <p>The mechanical dishwasher requires a minimum temperature of 160° F, but the UPC prohibits discharging the dishwasher to grease interceptors.</p>
Reason For	<p>Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal or solidify in the sanitary sewer system as the water cools.</p>
Benefit to food service establishment	<p>The food service establishment will reduce its costs for the energy – gas or electric – to heat the water.</p>
Pretreatment inspection tips	<p>Check boiler or hot water heater discharge temperature.</p> <p>Measure the temperature of the hot water being discharged from the closest sink.</p>

Use a three-sink dishwashing system

BMP	<p>Use a three-sink dishwashing system, which includes sinks for washing, rinsing, and sanitizing in a 50 to 100-pip bleach solution. Water temperatures are less than 140° F.</p>
Reason For	<p>The three-sink system uses water temperatures less than 140° F where a mechanical dishwasher requires a minimum temperature of 160° F.</p> <p>Note: The UPC prohibits the discharge of mechanical dishwasher water to grease interceptors.</p>
Benefit to food service establishment	<p>The food service establishment will reduce its costs for the energy – gas or electric – to heat the water for the mechanical dishwasher and to run it.</p>
Pretreatment inspection tips	<p>Measure the temperature of the hot water at the three-sink system.</p>

Recycle waste cooking oil

BMP	Recycle waste cooking oil.
Reason For	There are many waste oil recyclers throughout Washington. This is a cost recovery opportunity.
Benefit to food service establishment	The food service establishment may be paid for the waste material and will reduce the amount of garbage it must pay to have hauled away.
Pretreatment inspection tips	Obtain the name of the recycler used. Review recycling records. Confirm records with the recycler.

“Dry wipe” pots, pans, and dishware prior to dishwashing

BMP	“Dry wipe” pots, pans, and dishware prior to dishwashing.
Reason For	The grease and food that remains in pots, pans, and dishware will likely go to the landfill. By “dry wiping” and disposing in garbage receptacles, the material will not be sent to the grease interceptors.
Benefit to food service establishment	This will reduce the amount of material going to grease interceptors, which will require less frequent cleaning, reducing maintenance costs.
Pretreatment inspection tips	Observe dishwashing practices.

Don't put food waste down the drains- recycle or trash it

BMP	Dispose of food waste by recycling and/or solid waste removal.
Reason For	Some recyclers will take food waste for animal feed. In the absence of such recyclers, the food waste can be disposed as solid waste in landfills by solid waste haulers.
Benefit to food service establishment	Recycling food wastes will reduce the cost of solid waste disposal. Solid waste disposal of food waste will reduce the frequency and cost of grease interceptor cleaning.
Pretreatment inspection tips	Inspect grease interceptors for food waste accumulation. Confirm the recycler or solid waste removal company with the establishment manager.

Witness all grease interceptor cleaning and maintenance

BMP	Witness all grease interceptor cleaning and maintenance activities to ensure that the device is properly operating.
Reason For	A few grease interceptor cleaners and recyclers may take shortcuts. If the establishment manager watches the cleaning operation and ensures it is consistent with the procedures in <i>Grease Interceptor Maintenance</i> (Chapter 6) they are more likely to get full value for their money.
Benefit to food service establishment	The establishment will ensure it is getting value for the cost of cleaning the grease trap or interceptor. Otherwise the establishment may be paying for cleaning more often than necessary.
Pretreatment inspection tips	None.

Keep a maintenance log

BMP	Keep a maintenance log of the grease interceptor.
Reason For	The maintenance log serves as a record of the frequency and volume of cleaning the interceptor. It is required by the City of Port Angeles to ensure that grease interceptor maintenance is performed on a regular basis.
Benefit to food service establishment	The maintenance log serves as a record of cleaning frequency and can help the establishment manager optimize cleaning frequency to reduce cost.
Pretreatment inspection tips	Inspect maintenance log. Provide the establishment with a sample maintenance log if it does not have one. Confirm the maintenance log with the grease hauler identified.

Clean hydro-mechanical grease interceptors weekly

BMP

Clean hydro-mechanical grease interceptors weekly.
 If grease interceptors are more than 25% full with grease and/or solids when cleaned weekly, the cleaning frequency needs to be increased.

Reason For

Hydro-mechanical grease interceptors have less volume than gravity grease interceptors.
 Weekly cleaning of hydro-mechanical grease interceptors by the establishment's own maintenance staff will reduce the cost of cleaning the establishment's gravity grease interceptor.
 If the establishment does not have a gravity grease interceptor, the hydro-mechanical grease interceptor is the only means of preventing grease from entering the sanitary sewer system. If the hydro-mechanical grease interceptor is not providing adequate protection, the local sewer agency may require installation of a gravity grease interceptor.

Benefit to food service establishment

This will extend the length of the cleaning cycle for any gravity grease interceptors that the establishment maintains.

Pretreatment inspection tips

Visually inspect the contents of the hydro-mechanical grease interceptor.
 Inspect cleaning records.

Pump and clean gravity grease interceptors routinely

BMP

Clean gravity grease interceptors at least every 90 days.

Reason For

Gravity grease interceptors must be cleaned routinely to ensure that grease accumulation does not cause the interceptor to operate poorly.

The cleaning frequency is a function of the type of establishment, the size of the interceptor, and the volume of flow discharged by the establishment.

Benefit to food service establishment

Routine cleaning will prevent plugging of the sewer line between the food service establishment and the sanitary sewer system. If the line plugs, the sewer line may back up into the establishment, and the business will need to hire someone to unplug it.

Pretreatment inspection tips

No more than 25% of the total liquid depth should be grease, solids, or a combination of the two.

Cover outdoor grease and oil storage containers

BMP

Cover outdoor grease and oil storage containers.

Reason For

Uncovered grease and oil storage containers can collect rainwater. Since grease and oil float, the rainwater can cause an overflow onto the ground. Such an overflow will eventually reach the stormwater system and nearby streams.

The discharge of grease and oil to the storm drain system will degrade the water quality of receiving waters by adding biological and chemical oxygen demand to the water.

Benefit to food service establishment

Establishment can avoid legal penalties or fines that might result from discharge of grease and oil to the storm drain.

Pretreatment inspection tips

Observe storage area for signs of oil and grease.
Inspect containers for covers.

Open covers to ensure containers have not overflowed and do not have excess water.

Locate grease dumpsters and storage containers away from storm drain catch basins

BMP

Locate grease dumpsters and storage containers away from storm drain catch basins.

Be aware of oil and grease dripped on the ground while carrying waste to the dumpster, as well as oil and grease that may “ooze” from the dumpster

Reason For

The farther away from the catch basin, the more time someone has to clean up spills or drainage prior to it entering the storm drain system.

The discharge of grease and oil to the storm drain system will degrade the water quality of receiving waters by adding biological and chemical oxygen demand to the water.

Benefit to food service establishment

Establishment can avoid legal penalties or fines that might result from discharge of grease and oil to the storm drain.

Pretreatment inspection tips

Observe storage area for signs of oil and grease.

Inspect the closest catch basin for signs of accumulated grease and oil.

Use absorbent pads or other material in storm drain catch basins

BMP

Use absorbent pads or other material in the storm drain catch basins if grease dumpsters and containers must be located nearby. The City of Port Angeles stormwater engineer may assist in implementation of this BMP.

Do not use free flowing absorbent materials such as “kitty litter” or sawdust.

Reason For

Absorbent pads and other materials can serve as an effective barrier to grease and oil entering the storm drain system.

The discharge of grease and oil to the storm drain system will degrade the water quality of receiving waters by adding biological and chemical oxygen demand to the water.

Benefit to food service establishment

Establishment can avoid legal penalties or fines that might result from discharge of grease and oil to the storm drain.

Pretreatment inspection tips

Check the nearest catch basin and drainage paths for signs of grease and oil.

Require absorbent pads if the basin is within 20 feet of grease dumpsters or containers, or if there are signs of grease in the catch basin at any distance.

Do not permit the use of free flowing absorbent material such as “kitty litter” or sawdust.

Use absorbent pads or other material to clean up spilled material

BMP

Use absorbent pads or other material to clean up spilled material around outdoor equipment, containers or dumpsters.

Do not use free flowing absorbent materials such as “kitty litter” or sawdust that can be discharged to the storm drain system.

Reason For

Absorbent pads or materials can help clean up grease and oil that is spilled on the ground and prevent it from flowing to the storm drain system.

The discharge of grease and oil to the storm drain system will degrade the water quality of receiving waters by adding biological and chemical oxygen demand to the water.

Benefit to food service establishment

Establishment can avoid legal penalties or fines that might result from discharge of grease and oil to the storm drain.

Pretreatment inspection tips

If grease and oil are observed on the ground in the storage area, recommend the use of absorbents to minimize movement of the grease and oil.

Do not permit the use of free flowing absorbent material such as “kitty litter” or sawdust.

Routinely clean kitchen exhaust system filters

BMP

Routinely clean kitchen exhaust system filters.

Reason For

If grease and oil escape through the kitchen exhaust system, it can accumulate on the roof of the establishment and eventually enter the storm drain system when it rains.

The discharge of grease and oil to the storm drain system will degrade the water quality of receiving waters by adding biological and chemical oxygen demand to the water.

Benefit to food service establishment

Establishment can avoid legal penalties or fines that might result from discharge of grease and oil to the storm drain.

Pretreatment inspection tips

Inspect roof (if safely accessible) for signs of oil and grease.

Require a maintenance schedule and records for cleaning exhaust filters. Cleaning is usually by washing, which will discharge the grease to the interceptor where it can be controlled.



Chapter 4 Prohibitions Relating to Discharge of Fats, Oil, and Grease

Certain activities relating to discharge of fats, oil, and grease are prohibited. These activities, if allowed, would interfere with the proper operation of grease interceptors and potentially have an immediate, negative effect on the municipal wastewater system or the environment. This chapter provides a list of prohibited activities and the basis for each prohibition.

Prohibitions	Basis
Do not discharge fats, oil, and grease in concentrations that will cause an obstruction to the flow in a sewer, or pass through or cause interference at a wastewater treatment facility.	Grease can solidify and trap other solid particles to completely plug the wastewater collection system.
Do not discharge grease, improperly shredded garbage, animal guts or tissues, paunch manure, bones, hide, hair, fleshings, or entrails.	These materials in combination or alone can cause blockages and other operations and maintenance problems in the wastewater collection and treatment system.
Do not discharge wastewater with temperatures in excess of 140° F to any hydro-mechanical grease interceptors. This includes water from mechanical dishwashers that have a minimum required temperature of 160° F.	<p>Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages farther downstream in the sanitary sewer collection system as it cools.</p> <p>Note: High temperature water, such as from a mechanical dishwasher, is discharged to the remotely located gravity grease interceptor, if there is one. The remote location and the high volume of the gravity grease interceptor allows the water time to cool so that there is not a problem with dissolving grease and moving it farther downstream. The high volume also provides dilution of the detergents in the dishwasher waste.</p>
Do not discharge waste from a food waste disposal unit to any grease interceptor.	The food waste will greatly reduce the capacity of the grease interceptor for retaining grease and can cause worse problems with blockages.

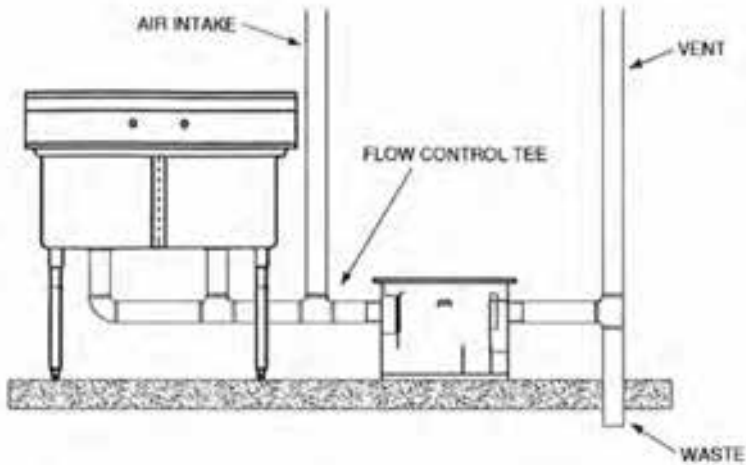
Prohibitions	Basis
Do not discharge caustics, acids, solvents, or other emulsifying agents.	<p>Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system.</p> <p>Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be hazardous to those working in the wastewater collection system.</p>
Do not discharge fats, wax, grease or oils containing substances that will become viscous between 32° F (0°C) and 150°F (65°C).	The temperatures shown are temperatures that can occur in the wastewater collection and treatment system. If these substances congeal, solidify, or become too viscous, they can cause blockages and other operations and maintenance problems.
Do not utilize biological agents for grease remediation without permission from the sewerage agency receiving the waste.	The biological agents may disrupt the biological treatment process at the wastewater treatment plant.
Do not clean equipment outdoors in an area where water can flow to the gutter, storm drain, or street.	Grease and dirt will be washed off the equipment and enter the storm drain system and flow to nearby streams.



Chapter 5

How Grease Interceptors Work

Understanding how treatment devices work improves operation and maintenance. The chapter uses a graphic of each device, with a description keyed to each element of the graphic. The description is designed to follow the flow of wastewater through the grease interceptor.



Typical installation of a hydro-mechanical grease interceptor.

What Size Grease Interceptor Does My Business Need?

The City of Port Angeles requires food service establishments and other affected businesses to size pretreatment devices in accordance with the currently adopted plumbing code and State-adopted amendments.

Essentially, the size of the grease interceptor is determined by the volume of water and other material that can be discharged to it at any one time, and the period of time required to drain the fixtures, equipment, and appliances that drain to the interceptor.

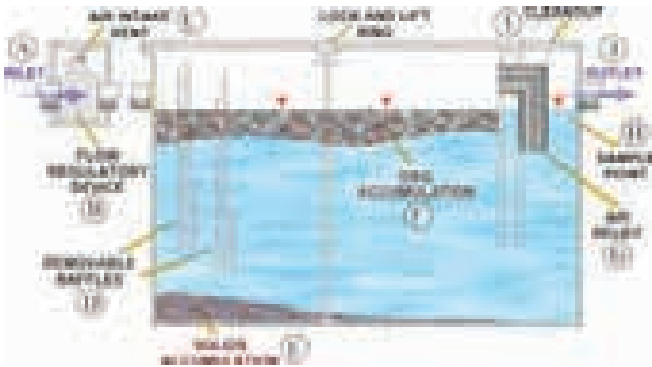
Grease interceptor sizes are expressed in terms of their incoming flow rate (in gallons per minute- GPM), or their rated capacity (in pounds- lbs.), which is twice the GPM. For example, a grease interceptor with a 25 GPM incoming flow rate has a rated capacity of 50 lbs. of grease storage.

To determine the proper permitting, sizing, and installation of your grease interceptor, consult with the Port Angeles Building Department @ (360) 417-4817, a licensed commercial plumber, and/or the currently adopted plumbing code and State-adopted amendments.

(In the 2009 Uniform Plumbing Code, refer to Tables 7-3, 7-5, 10-2, and 10-3, as well as Section 1014.0 Grease Interceptors. Please note these references may change in later-adopted or -revised versions of the plumbing code.)

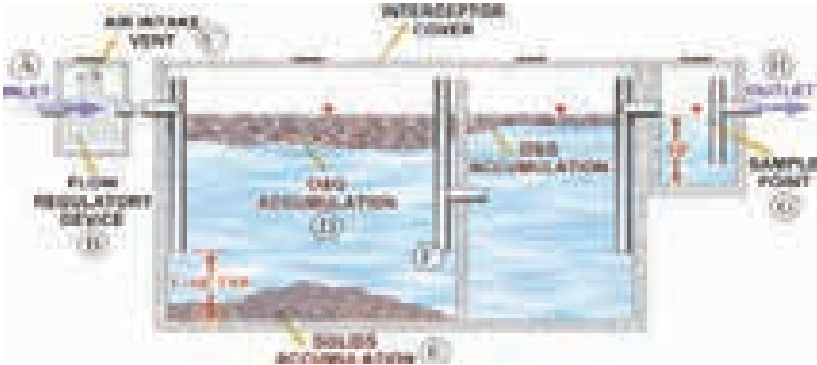
- A **hydro-mechanical** grease interceptor is a small (20 – 50 gallons) tank usually located inside a food service establishment, under a counter or sink.
- A **gravity** grease interceptor is a vault with a minimum capacity of 500 – 750 gallons that is located on the exterior of the building.

How Hydro-mechanical Grease Interceptors Work



Item	Description
A	Flow from four or fewer kitchen fixtures enters the hydro-mechanical grease interceptor.
B	An approved flow control or restricting device is installed to restrict flow to the grease interceptor to its rated intake capacity.
C	An air intake valve allows air into the open space of the grease interceptor to prevent siphoning and backpressure.
D	Baffles help to retain grease toward the upstream end of the grease interceptor since grease floats and will generally not go under the baffle. This helps to prevent grease from leaving the grease interceptor and moving farther downstream where it can create blockages.
E	Solids in the wastewater that do not float will be deposited on the bottom of the grease interceptor and will need to be removed during routine grease interceptor cleaning.
F	Oil and grease floats on the water surface and accumulates behind the baffles. The oil and grease will be removed during routine grease interceptor cleaning.
G	Air relief is provided to maintain proper air circulation within the grease interceptor.
H	Some grease interceptors have a sample point at the outlet end of the trap to sample the quality of the effluent.
I	A cleanout is provided at the outlet or just downstream of the outlet to provide access into the pipe to remove any blockages.
J	The water exits the grease interceptor through the outlet pipe and continues on to a gravity grease interceptor or the sanitary sewer system.

How Gravity Grease Interceptors Work



Item	Description
A	Flow from hydro-mechanical grease interceptors or directly from plumbing fixtures enters the gravity grease interceptor. The UPC requires that all flow entering the gravity grease interceptor enter through the inlet pipe.
B	An approved flow control or restricting device is installed to restrict the flow to the grease interceptor to its rated intake capacity.
C	An air intake valve allows air into the open space of the grease interceptor to prevent siphoning and backpressure.
D	Oil and grease floats on the water surface and accumulates behind the grease retaining fittings and the wall separating the compartments. The oil and grease will be removed during routine grease interceptor cleaning.
E	Solids in the wastewater that do not float will be deposited on the bottom of the grease interceptor and will need to be removed during routine grease interceptor cleaning.
F	Grease retaining fittings extend down into the water to within 12 inches of the bottom of the interceptor. Because grease floats, it generally does not enter the fitting and is not carried into the next compartment. The fittings also extend above the water surface to provide air relief.
G	Some grease interceptors have a sample box so that inspectors or employees of the establishment can periodically take effluent samples. Having a sample box is recommended by the UPC but not required.
H	Flow exits the grease interceptor through the outlet pipe and continues on to the sanitary sewer system.



Chapter 6

Grease Interceptor Maintenance

Grease interceptors must be cleaned on a regular basis to ensure that they work properly. Regular cleaning can improve their efficiency and effectiveness. This chapter describes step-by-step maintenance actions that can be used to clean these devices.

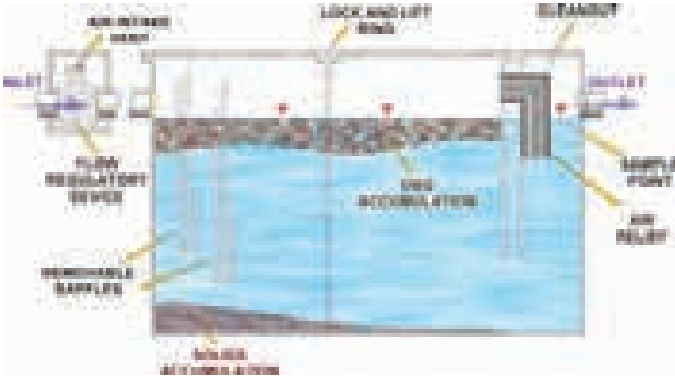
Maintenance staff, or other employees, usually perform hydro-mechanical grease interceptor maintenance. Gravity grease interceptor maintenance, which is usually performed by permitted haulers or recyclers (See *Fats, Oil, and Grease Haulers and Recyclers* (Chapter 7)), consists of removing the entire volume (liquids and solids) from the gravity grease interceptor and properly disposing of the material in accordance with all Federal, State, and/or local laws. When performed properly and at the appropriate frequency, grease interceptor maintenance can greatly reduce the discharge of FOG into the wastewater collection system.

The required maintenance frequency for grease interceptors depends greatly on the amount of FOG a facility generates as well as any BMPs implemented to reduce FOG discharges. In many cases, an establishment that implements BMPs may save money by extending their grease interceptor maintenance intervals. Refer to *Best Management Practices* (Chapter 3) for examples of BMPs that FOG generating establishments can implement.

WARNING!

Do not use hot water, acids, caustics, solvents, or emulsifying agents when cleaning grease traps and interceptors.

Hydro-mechanical Grease Interceptor Maintenance



Item	Description
1	Dip the floating grease out of the interceptor and deposit in a watertight container.
2	Remove baffles if possible.
3	Bail out any water in the interceptor to facilitate cleaning. Store it in a separate container temporarily.
4	Scrape the sides, the lid, and the baffles with a putty knife to remove as much of the grease as possible. Add this grease and the settled solids to the grease in the watertight container.
5	Record the volume of grease and solids removed on the maintenance log.
6	Replace the baffles and refill the interceptor with clean cold water. Close the lid securely.
7	Dispose of the “dirty” water in a toilet, or upstream of the grease interceptor via a mop sink, but NEVER via a food preparation or hand washing sink.
8	Dispose of the grease and solids, in the closed container, with your solid waste.

Gravity Grease Interceptor Maintenance

Gravity grease interceptors, due to their size, are usually cleaned by grease haulers or recyclers. Licensed septic haulers can also pump out grease interceptors and haul the waste to the treatment plant. A proper maintenance procedure for a gravity grease interceptor is outlined below:

Since the establishment is liable for the condition of their pretreatment devices, the establishment owners/representatives should witness all cleaning/maintenance activities to verify that the interceptor is being fully cleaned and properly maintained.

SAFETY NOTE: Because of their large volume and limited access, some gravity grease interceptors could pose special confined space hazards (drowning, hazardous atmospheres). NEVER enter a confined space- contact a qualified professional.



Item	Description
1	Contact a grease hauler or recycler for cleaning. See <i>Fats, Oil, and Grease Haulers and Recyclers</i> (Chapter 7).
2	Ensure that all flow is stopped to the interceptor by shutting the isolation valve in the inlet piping to the interceptor.
3	Remove the lid and dip the accumulated grease out of the interceptor and deposit in a watertight container.
4	Remove baffles if possible.
5	Bail or pump out any water in the interceptor to facilitate cleaning. The water should be discharged to the sanitary sewer system.
6	Pump out the settled solids and any remaining liquids.
7	Scrape the sides, the lid, and the baffles to remove as much grease as possible, and deposit it into a watertight container.
8	Replace the baffles and the lid.
9.	Record the volume of grease removed on the maintenance log.



Chapter 7 Fats, Oil, and Grease Haulers and Recyclers

Regular cleaning of grease interceptors requires that the accumulated fats, oil, and grease be physically removed from the interceptor and properly disposed or recycled. This chapter provides a list of FOG hauling and recycling businesses that serve the North Olympic Peninsula. Phone numbers and acceptance criteria are provided for each business.

NOTE: Only Clallam County licensed septic haulers may pump grease interceptors in Port Angeles, so please check with Clallam County Environmental Health if your pumper does not appear on this list, which was updated in November 2012.

Septic Haulers	Phone number	Acceptance criteria
Acme Portable Toilets LLC Port Angeles, WA	360-457-8766	Pumps out grease interceptors.
Arrow Septic Port Angeles, WA	360-457-8481 360-683-3810	Pumps out grease interceptors.
Goodman Septic Services Port Angeles, WA	360-457-5596	Pumps out grease interceptors.
Good Man, Inc. Port Angeles, WA	360-385-7155 1-800-743-2515	Pumps out grease interceptors.
Northwest Cascade, Inc. Puyallup, WA	253-848-2371	Pumps out grease interceptors.
On-Site Monitoring and Inspections (O.M.I.) Port Angeles, WA	360-457-9438	Pumps out grease interceptors.
Peninsula Drain & Septic Port Angeles, WA	360-928-9583 360-457-5494	Pumps out grease interceptors.

Grease Recyclers	Phone number	Acceptance criteria
Baker Commodities	206-242-7387	Picks up and recycles cooking oil. Provides storage container for oil. Renders meat trimmings and “BBQ slop.”
Darling International	800-524-2401	Picks up and recycles cooking oil. Provides storage container for oil.
Encore Oils (also known as SeQuential Pacific & Standard Biodiesel)	206-999-8501	Picks up and recycles cooking oil. Provides storage container for oil.
Evergreen Sanitation, Inc.	800-433-1678	Picks up and recycles cooking oil. Provides storage container for oil.
General Biodiesel	206-932-1600	Clear vegetable oils only. Provides storage container for oil.
Rainier Rendering	206-938-2061	USDA-approved scraps ONLY. No dead livestock or roadkill.

Acknowledgements

The authors gratefully acknowledge the input and review provided by the members of the Oregon Association of Clean Water Agencies Industrial Pretreatment Committee and the material contributed by the Unified Sewerage Agency of Washington County, Oregon and the City of Woodburn Oregon.



Appendix A

Port Angeles Sewer Use Ordinance No. 3397

Sections 13.06.011, 13.06.012, & 13.06.030 through 13.06.039 (4/30/2010)

Chapter 13.06 – INDUSTRIAL WASTEWATER PRETREATMENT

13.06.011 - Definitions.

13.06.012 - Abbreviations.

13.06.030 - Discharge prohibitions.

13.06.031 - Fats, oil and grease (FOG).

13.06.032 - New construction.

13.06.033 - Existing construction.

13.06.034 - Grease removal system maintenance.

13.06.035 - Grease removal system additives.

13.06.036 - Solids interceptor.

13.06.037 - Grease removal system sizing.

13.06.038 - Flow controls.

13.06.039 - Record keeping.

13.06.011 - Definitions.

Unless a provision explicitly states otherwise, the following terms and phrases, as used in this chapter, shall have the meanings hereinafter designated:

- A. *“Act”* - The Clean Water Act (33 U.S.C. 1251 et seq.), as amended.
- B. *“Additive”* - Any material put into a grease removal system (GRS) or any drain lines or appurtenances discharging to a GRS intended in any way to modify the operation of the GRS.
- C. *“AKART”* - All known available and reasonable treatment technology.
- D. *“Applicable Pretreatment Standards”* - For any specified pollutant, the City’s prohibitive discharge standard, the City’s specific limitations on discharge, the State of Washington pretreatment standards, or the National Categorical Pretreatment Standards (when effective), whichever standard is most stringent.
- E. *“Authorized or duly authorized representative of the user”* -
 - 1. If the user is a corporation:
 - a. The president, secretary, treasurer, or a vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
 - b. The manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital

- investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for control mechanism requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
2. If the user is a partnership or sole proprietorship: a general partner or proprietor, respectively.
 3. If the user is a Federal, State, or local governmental facility: a director or highest official appointed or designated to oversee the operation and performance of the activities of the regulated facility, or their designee.
 4. The individuals described in paragraphs 1. through 3., above, may designate another authorized representative if the authorization is in writing, the authorization specifies the individual or position responsible for the overall operation of the facility from which the discharge originates or having overall responsibility for environmental matters for the company, and the written authorization is submitted to the City.
- F. *“Automatic grease removal system (AGRS)”* - A GRS that has provision to automatically remove separated FOG and/or settled solids from the tank and collect them for disposal.
- G. *“Biochemical oxygen demand or BOD”* - The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures for five days at 20 degrees centigrade, usually expressed as a concentration (e.g., mg/l).
- H. *“Best Management Practices or BMPs”* - means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to implement the prohibitions listed in section 13.06.030.A. and B. [40 CFR 403.5(a)(1) and (b)]. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage.
- I. *“Categorical Pretreatment Standard or Categorical Standard”* - Any regulation containing pollutant discharge limits promulgated by EPA in accordance with Sections 307(b) and (c) of the Act (33 U.S.C. Section 1317) which apply to a specific category of users and which appear in 40 CFR Chapter I, Subchapter N, Parts 405-471.
- J. *“Categorical Industrial User”* - An industrial user subject to a Categorical Pretreatment Standard or Categorical Standard.
- K. *“City”* - City of Port Angeles, Washington.
- L. *“Composite sample”* - A composite of several samples taken throughout the period of a day when a regulated discharge is occurring. Several brands of electric samplers, some with a refrigerated sample collection area, may be used. Approvable composite samplers may either use a flow paced or time paced algorithm.
- M. *“Daily limit or daily maximum limit”* - The maximum allowable discharge of a pollutant over a calendar day or equivalent representative 24-hour period.
- N. *“Director”* - The City of Port Angeles’ Public Works and Utilities Director. The term also means a duly authorized representative of the Director. Whenever in this chapter the Director is given authority to establish limits, extend or shorten time, make a determination or finding, or make other decisions, he shall do so within the bounds of applicable local, state, and federal law and in accordance with BMPs.

- O. *“Discharge authorization”* - A wastewater discharge permit authorizing users to discharge wastewater to the Port Angeles POTW. These permits would be for users other than minor industrial dischargers but still requiring a control mechanism.
- P. *“Discharger”* - Any non-residential user who, by any means, discharges an effluent into a POTW.
- Q. *“Environmental Protection Agency”* - The U.S. Environmental Protection Agency or, where appropriate, the Regional Water Management Division Director, the Regional Administrator, or other duly authorized official.
- R. *“Existing source”* - Any source of discharge subject to Categorical Standards that does not meet the definition of a “new source.”
- S. *“Fats, oils, and grease (FOG)”* - The term fats, oils, and grease shall mean those components of wastewater amenable to measurement by the methods described in Standard Methods for the examination of water and wastewater, latest approved edition or other methods approved by 40 CFR136. For the purposes of this chapter, the term fats, oils and grease shall include polar fats, oils, and grease and other components extracted from wastewater by these methods, excluding the non-polar fraction.
- T. *“Food service establishment (FSE)”* - Any establishment, commercial or noncommercial, primarily engaged in the preparing, serving, or otherwise making available for consumption foodstuffs in or on a receptacle that requires washing more than two days per week and that discharges to the POTW.
- U. *“Grab sample”* - A sample which is taken from a wastestream without regard to the flow in the wastestream and over a period of time not to exceed 15 minutes.
- V. *“Grease interceptor/interceptor/interceptor-style GRS”* - Any relatively large in- ground or above-ground tank, generally, but not always, of precast concrete, with internal plumbing and baffling intended to act as a GRS or AGRS to serve one or more fixtures and that is remotely located.
- W. *“Grease removal system (GRS)”* - Any device designed for, and intended for, separating, collecting, and removing waterborne FOG and settleable solids prior to discharging to the POTW. This includes any AGRS.
- X. *“Grease trap/trap/trap-style GRS”* - Any relatively small appurtenance, generally, but not always, of cast iron or fabricated steel, with internal configuration and internal or external flow control, intended to function as a GRS or AGRS. All trap-style grease removal systems must be PDI or IAPMO approved.
- Y. *“Indirect discharge”* - The discharge or the introduction of pollutants into the POTW from any non-domestic source regulated under Section 307(b) (c) or (d) of the Act.
- Z. *“Industrial waste”* - Solid, liquid or gaseous waste resulting from any industrial, manufacturing, trade or business process or from the development, recovery or processing of natural resources.
- AA. *“Instantaneous maximum discharge limit”* or *“instantaneous limit”* - The maximum concentration of a pollutant allowed to be discharged at any time, determined from the analysis of a discrete sample. Where a user is required to take a grab sample for purposes of determining compliance with local limits, this standard is the same as the daily maximum standard. For pollutants for which users are required to take composite samples, (or for metals if no permit has been issued) the instantaneous limit shall be twice the daily limit.

- BB. *“Interference”* - A discharge which causes (either by itself or in combination with other discharges) a violation of the City’s NPDES permit or prevents the intended sewage sludge use or disposal by inhibiting or disrupting the POTW, including its collection systems, pump stations, and wastewater and sludge treatment processes. An example is a discharge from a user which causes a blockage resulting in a discharge at a point not authorized under the City’s NPDES permit.
- CC. *“Local limits”* - Effluent limitation developed for users by the director to specifically protect the POTW from the potential of pass through, interference, vapor toxicity, explosions, sewer corrosion, and contaminations of biosolids. Such limits shall be based on the POTW’s site-specific flow and loading capacities, receiving water considerations, and reasonable treatment expectations for non-domestic wastewater.
- DD. *“May”* - Is permissive (see “shall”).
- EE. *“Medical waste”* - Isolation wastes, infectious agents, human blood and blood products, pathological wastes, sharps, body parts, contaminated bedding, surgical wastes, potentially contaminated laboratory wastes, and dialysis wastes.
- FF. *“Minor industrial user (MIU)”* - A non-categorical industrial or commercial user of the POTW that does not qualify as a significant industrial user, but that operates facilities that:
1. Have some discharges of wastewater that could cause detectably elevated concentrations of metals or toxics in the pretreatment quarterly analysis; or
 2. Have a discharge of small quantities of dangerous waste to the POTW which have been excluded from regulation under Chapter 173-303 WAC, or its successors, through the domestic sewage exclusion; or
 3. Have a potential to discharge or spill chemicals to the POTW.
- GG. *“Monthly average”* - The arithmetic mean of the effluent samples collected during a calendar month or specified 30-day period. Where the control authority has taken a sample during the period, it must be included in the monthly average if provided in time. However, where composite samples are required, grab samples taken for process control or by the control authority are not to be included in a monthly average.
- HH. *“Monthly average limit”* - The limit to be applied to the monthly average to determine compliance with the requirements of this chapter (see section 13.06.045 for listing).
- II. *“Natural outlet”* - Any outlet, including storm sewer overflows, into a watercourse, pond, ditch, lake or other body of surface or ground water.
- JJ. *“New source”* -
1. Any building, structure, facility, or installation from which there is (or may be) a discharge of pollutants, the construction of which commenced after the publication of proposed pretreatment standards under Section 307(c), or its successors, of the Act which will be applicable to such source if such standards are thereafter promulgated in accordance with that section, provided that:
 - a. The building, structure, facility, or installation is constructed at a site at which no other source is located; or
 - b. The building, structure, facility, or installation totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

- c. The production or wastewater generating processes of the building, structure, facility, or installation are substantially independent of an existing source at the same site. In determining whether these are substantially independent, factors such as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source, should be considered.
2. Construction on a site at which an existing source is located results in a modification rather than a new source if the construction does not create a new building, structure, facility, or installation meeting the criteria of subsection (1)(b) or (c) above but otherwise alters, replaces, or adds to existing process or production equipment.
 3. Construction of a new source has commenced if the owner or operator has:
 - a. Begun, or caused to begin, as part of a continuous onsite construction program:
 - i. Any placement, assembly, or installation of facilities or equipment; or
 - ii. Significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or
 - b. Entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts that can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under this paragraph.
- KK. “*Non-FSE FOG discharger (NFD)*” - Any establishment, such as a church, synagogue, worship hall, banquet facility, or meeting space, with a commercial-style kitchen that is used for preparing, serving, or otherwise making available for consumption foodstuffs in or on a receptacle that requires washing two days a week or less and that discharges to the POTW.
- LL. “*NPDES*” - National Pollutant Discharge Elimination System Permit program as administered by the USEPA or State.
- MM. “*O and M*” - Operation and maintenance.
- NN. “*Other wastes*” - Decayed wood, sawdust, shavings, bark, lime, refuse, ashes, garbage, offal, oil, tar, chemicals and all other substances except sewage and industrial wastes.
- OO. “*Pass through*” - A discharge that exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the [City]’s NPDES permit, including an increase in the magnitude or duration of a violation.
- PP. “*Person*” - Any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity, or any other legal entity; or their legal representatives, agents, or assigns. This definition includes all Federal, State, and local governmental entities.
- QQ. “*pH*” - A measure of the acidity or alkalinity of a solution, expressed in standard units.
- RR. “*POTW (public owned treatment works)*” - A treatment works, as defined by Section 212 of the Act (33 U.S.C. Section 1292), that is owned by the City. This definition includes any devices or systems used in the collection, storage, treatment, recycling, and reclamation of sewage or industrial wastes of a liquid nature and any conveyances, that convey wastewater to a treatment plant.

- SS. *“Pollutant”* - Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, medical wastes, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, municipal, agricultural and industrial wastes, and certain characteristics of wastewater (e.g., pH, temperature, TSS, turbidity, color, BOD, carbonaceous oxygen demand, toxicity, or odor).
- TT. *“Pretreatment”* - The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to, or in lieu of, introducing such pollutants into the POTW. This reduction or alteration can be obtained by physical, chemical, or biological processes; by process changes; or by other means, except by diluting the concentration of the pollutants unless allowed by an applicable pretreatment standard.
- UU. *“Sewage”* - Water-carried human wastes or a combination of water-carried wastes from residence, business buildings, institutions and industrial establishments, together with such ground, surface, storm or other waters as may be present.
- VV. *“Sewer”* - Any pipe, conduit, ditch or other device used to collect and transport sewage or storm water from the generating source.
- WW. *“Shall”* Is mandatory.
- XX. *“Significant industrial user (SIU)”* - Except as provided in paragraph (3) below, a significant industrial user is:
1. A user subject to categorical pretreatment standards; or
 2. A user that:
 - a. Discharges an average of 25,000 gpd or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blowdown wastewater);
 - b. Contributes a process wastestream which makes up five percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or
 - c. Is designated as such by the City on the basis that it has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement.
 3. Upon a finding that a user meeting the criteria in paragraph (2) above has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the City may at any time, on its own initiative or in response to a petition received from a user, and in accordance with procedures in 40 CFR 403.8(f) (6), or its successors, determine that such user should not be considered a significant industrial user.
- YY. *“Slugload”* or *“slug discharge”* - Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass through, or in any other way violate the POTW's regulations, local limits or permit conditions. This includes discharges at a flow rate or concentration that could cause a violation of the prohibited discharge standards of section 13.06.030 of this chapter.
- ZZ. *“Storm water”* - Any flow occurring during or following any form of natural precipitation, and resulting from such precipitation, including snowmelt.
- AAA. *“Suspended solids”*- The total suspended matter that floats on the surface of, or is suspended in, water, wastewater, or other liquid, and that is removable by laboratory filtering.

- BBB. *“Toxic pollutants”* - Those substances, and any other pollutant or combination of pollutants listed as toxic in regulations promulgated by the Administrator of the Environmental Protection Agency under Section 307, or its successors, of the Clean Water Act.
- CCC. *“Upset”* - An exceptional incident in which a discharger unintentionally and temporarily is in a state of noncompliance with the standards set forth in this chapter due to factors beyond the reasonable control of the discharger, and excluding noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation thereof.
- DDD. *“User or industrial user”* - A source of indirect discharge.
- EEE. *“Wastewater”* - Industrial waste, or sewage or any other waste including that which may be combined with any ground water, surface water or storm water, that may be discharged to the POTW.

(Ord. 3397, 4/30/2010)

13.06.012 - Abbreviations.

- A. AGRS - Automatic grease removal system.
- B. BOD - Biochemical oxygen demand.
- C. BMP - Best Management Practice.
- D. CFR - Code of Federal Regulations.
- E. CIU - Categorical Industrial User.
- F. DOE - Department of Ecology.
- G. EPA - U.S. Environmental Protection Agency.
- H. FSE - Food Service Establishment.
- I. FOG - Fats, oils and greases.
- J. gpd - gallons per day.
- K. GRS - Grease removal system.
- L. mg/l - milligrams per liter.
- M. MIU - Minor industrial user.
- N. NFD - Non-FSE FOG discharger.
- O. NPDES - National Pollutant Discharge Elimination System.
- P. POTW - Publicly owned treatment works.
- Q. RCRA - Resource Conservation and Recovery Act.
- R. SIU - Significant industrial user.
- S. TSS - Total suspended solids.
- T. USC - United States Code.

(Ord. 3397, 4/30/2010)

13.06.030 - Discharge prohibitions.

- A. No user shall introduce or cause to be introduced into the POTW any pollutant or wastewater that causes pass through or interference. These general prohibitions apply to all users of the POTW whether or not they are subject to Categorical Pretreatment Standards or any other National, State, or local pretreatment standards or requirements.
- B. No user shall introduce or cause to be introduced into the POTW the following pollutants, substances, or wastewater:
 - 1. Pollutants that either alone or by interaction may create a fire or explosive hazard in the POTW, a public nuisance or hazard to life, or prevent entry into the sewers for their maintenance and repair or are in any way injurious to the operation of the system or operating personnel. This includes waste streams with a closed-cup flashpoint of less than 140 degrees F (60 degrees C) using the test methods specified in 40 CFR 261.21, or its successors.
 - 2. Any soluble waste or wastes having a pH lower than 5.0 or higher than 10.0 or having any other corrosive property that reasonably could be hazardous to structures, equipment, or personnel of the City, such as, but not limited to, battery or plating acids and wastes, copper sulfate, chromium salts and compounds, or salt brine.
 - 3. Solid or viscous substances in amounts that may cause obstruction to the flow in the sewer or other interference with the operation of the system. In no case shall solids greater than one-quarter inch (0.64 cm) in any dimension be discharged.
 - 4. Pollutants, including oxygen-demanding pollutants (BOD, etc.), released in a discharge at a flow rate and/or pollutant concentration that, either singly or by interaction with other pollutants, will cause interference with the POTW.
 - 5. Wastewater having a temperature that will interfere with the biological activity in the system, has detrimental effects on the collection system, or prevents entry into the sewer. In no case shall wastewater be discharged that causes the wastewater temperature at the treatment plant to exceed 104 degrees F (40 C).
 - 6. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin, in amounts that will cause pass through or interference.
 - 7. Pollutants that result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.
 - 8. Trucked or hauled pollutants, except at discharge points designated by the Director in accordance with section 13.06.051 of this chapter.
- C. The following classes of discharge are prohibited unless approved by the Director because of extraordinary circumstances, such as lack of direct discharge alternatives due to combined sewer service or need to augment sewage flows due to septic conditions:
 - 1. Noncontact cooling water in significant volumes.
 - 2. Stormwater, or other direct inflow sources.
 - 3. Wastewaters significantly affecting system hydraulic loading that do not require treatment or would not be afforded a significant degree of treatment by the system.
 - 4. New discharges of stormwater, surface water, ground water, artesian well water, roof runoff, subsurface drainage, condensate, deionized water, noncontact cooling water, and unpolluted wastewater, unless specifically authorized by the Director.

5. Sludges, screenings, or other residues from the pretreatment of industrial wastes, unless specifically authorized by the Director.
 6. Medical wastes, except as specifically authorized by the Director in a wastewater discharge permit.
- D. Noxious or malodorous liquids, gases, solids, or other wastewater that either singly or by interaction with other wastes, are sufficient to create a public nuisance or a hazard to life, or to prevent entry into the sewers for maintenance or repair.
 - E. Wastewater that imparts color that cannot be removed by the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions, that consequently imparts color to the treatment plant's effluent, thereby violating the City's NPDES permit.
 - F. Wastewater containing any radioactive wastes or isotopes except in compliance with applicable State or Federal regulations.
 - G. Wastewater causing, alone or in conjunction with other sources, the treatment plant's effluent to fail toxicity test.
 - H. Detergents, surface-active agents, or other substances that may cause excessive foaming in the POTW.
 - I. Wastewater causing two readings on an explosion hazard meter at the point of discharge into the POTW, or at any point in the POTW, of more than ten percent or any single reading over 20 percent of the lower explosive limit based on an explosivity meter reading.
 - J. Pollutants, substances, or wastewater prohibited by this section shall not be processed or stored in such a manner that an unintended discharge to the sanitary sewer or the storm sewer could occur.

(Ord. 3397, 4/30/2010)

13.06.031 - Fats, oil and grease (FOG).

- A. No user shall discharge more than 100 mg/l of fats, oils or greases into the sewer system at any instant. The City may sample and inspect grease traps of commercial establishments to ensure they are being maintained to reduce buildup of grease in the sewer system. The City recognizes that preventative measures are necessary to control discharges containing FOG that might cause wastewater treatment plant interference. The City may require commercial establishments to initiate Best Management Practices (BMPs) to control and maintain grease interceptors or traps.
- B. All FSEs and NFDs shall have an adequate grease removal system installed and exercise proper kitchen best management practices to ensure that excess concentrations of FOG are not discharged to the POTW. The property owner shall maintain all grease interceptors or traps in accordance with manufacturer recommendations.
- C. In the event that the City cleans a sewer main blocked by FOG originating from a commercial establishment, the commercial establishment shall reimburse the City for those costs.

(Ord. 3397, 4/30/2010)

13.06.032 - New construction.

- A. Prior to construction of a new FSE or NFD, a building permit shall be obtained from the appropriate jurisdiction. Plan submittals shall include kitchen fixture plan views and kitchen waste plans showing all potential grease discharging lines, all GRSs, and connecting piping. The application shall be routed to the Director or his designee for review and approval prior to connecting new construction to the POTW.
- B. All new single occupancy food service establishment buildings shall be constructed with properly sized grease removal systems. All kitchen drains and any other drains that may carry grease-laden waste shall be connected to a GRS. A dishwasher shall not be connected to trap-style grease removal systems. If a trap-style GRS is installed, the kitchen may not have a garbage disposal/garbage grinder/macerator or similar unit connected to it.
- C. All new construction, multiple occupancy, and food service establishment buildings, shall include a separate waste line for all leasable spaces that discharge to a common 2,000 gallon or larger interceptor. This waste line shall be permanently marked to identify it as required by the Director. When a space is leased, sold, or rented to a FSE or NFD, all kitchen drains and any other drains that may carry grease-laden waste shall be connected to this waste line; no domestic sewage may be connected to this line. The property owner shall be responsible for proper maintenance of this interceptor in accordance with the provisions of this chapter.
- D. All new single occupancy non-FSE FOG discharger buildings shall install a properly sized GRS. Interceptor-style GRSs are recommended, but trap-style GRSs are permissible. All kitchen drains and any other drains that may carry grease-laden waste shall be connected to this GRS (except the dishwasher if a trap-style GRS is installed). If a trap-style GRS is installed, the kitchen may not have a garbage disposal/garbage grinder/macerator or similar unit installed.
- E. Any FSE or NFD undertaking a substantial remodel will be considered to be new construction for the purposes of this chapter.

(Ord. 3397, 4/30/2010)

13.06.033 - Existing construction.

- A. Every person owning or operating an FSE without a functional GRS shall be required to install a functional GRS. The type of GRS required will be determined by the Director, taking into account cost, available space and gradient, and any other pertinent information. Where feasible, all kitchen drains and any other drains that may carry grease-laden waste shall be connected to the GRS. Dishwashers shall not be connected to trap-style grease removal systems. If a trap-style GRS is installed, the kitchen may not have a garbage disposal/garbage grinder/macerator or similar unit installed.
- B. Any existing NFD without a functional GRS may be required to install one. The type of GRS required will be determined by the Director, taking into account cost, available space and gradient, whether the user is in a grease impact area, and any other pertinent information. Where feasible, all kitchen drains and any other drains that may carry grease-laden waste shall be connected to this GRS (except the dishwasher if a trap-style GRS is installed). If a trap-style GRS is installed, the kitchen may not have a garbage disposal/garbage grinder/macerator or similar unit installed.

(Ord. 3397, 4/30/2010)

13.06.034 - Grease removal system maintenance.

- A. All grease removal systems shall be maintained to ensure proper operation. At a minimum, interceptor-style GRSs shall be cleaned at least once every 90 days and trap-style GRSs cleaned at least once per week. These required frequencies may be extended with the approval of the Director. Grease removal systems must be cleaned whenever the combined thickness of the floating greases and settled solids is equal to, or greater than, 25 percent of the total liquid depth in the GRS.
- B. When cleaned, an interceptor-style GRS must be completely pumped out, all solids removed, solidified grease scraped from the interior and the structure and all internal plumbing inspected for damage and corrosion. The GRS shall be refilled with water prior to being placed back into operation. If repairs are required, they shall be performed within seven days.
- C. When cleaned, a trap must have surface grease and oil removed, settled solids removed, all sides scraped, removable parts removed and cleaned, be inspected for damage and corrosion, and be properly reassembled. If repairs are required, they shall be performed within seven days.
- D. The material that is removed in the process of cleaning a GRS shall not be discharged back into the GRS, any part of the POTW, any private sewer, any drainage piping, or storm sewer system. All materials removed shall be handled and disposed of in accordance with Federal, State, County and Local laws, rules and regulations.
- E. In addition to the maintenance required above, automatic grease removal systems shall be maintained in accordance with the manufacturers' guidelines.

(Ord. 3397, 4/30/2010)

13.06.035 - Grease removal system additives.

No additive may be introduced to the plumbing system that would reduce the effectiveness of the GRS.

(Ord. 3397, 4/30/2010)

13.06.036 - Solids interceptor.

If a garbage disposal/garbage grinder/macerator or similar unit is installed in a kitchen, it must discharge to the GRS through a solids interceptor plumbed immediately after the garbage disposal/garbage grinder/macerator or similar unit. The solids interceptor shall be maintained in proper operating condition at all times.

(Ord. 3397, 4/30/2010)

13.06.037 - Grease removal system sizing.

Trap-style grease removal systems shall be sized in accordance with the standards in the currently adopted Plumbing Code.

(Ord. 3397, 4/30/2010)

13.06.038 - Flow controls.

All trap-style grease removal systems shall have an internal or external flow control installed to ensure that wastewater flow through the trap does not exceed the manufacturer's design flow rating. This flow control shall be maintained in operating condition at all times.

(Ord. 3397, 4/30/2010)

13.06.039 - Record keeping.

Users subject to this chapter shall document all cleaning and maintenance activities performed on their GRS. These records shall be maintained for a minimum of three years and be available for inspection and copying by the Director or his representative. This period shall be automatically extended for the duration of any litigation concerning the user or the POTW, or where the user has been specifically notified of a longer retention period required by the Director.

(Ord. 3397, 4/30/2010)



321 East 5th Street - P.O. Box 1150 / Port Angeles, WA 98362

360-417-4800

Email: publicworks@cityofpa.us

www.cityofpa.us/publicworks.htm



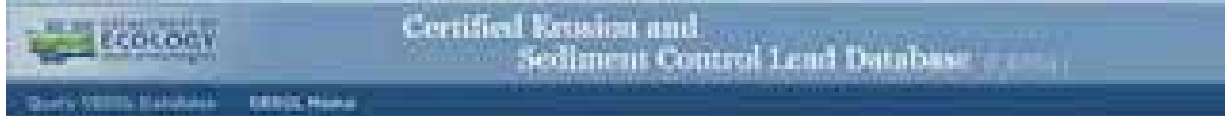
Count	Department	Division	Name	Date Viewed
1	Public Works & Utilities	Administration	Diana Bagwell	12/21/2020
2	Public Works & Utilities	Engineering	Jonathan Boehme	12/23/2020
3	Public Works & Utilities	Engineering	Roger Vess	2/26/2021
4	Public Works & Utilities	Engineering	Jeremy Pozernick	12/31/2020
5	Public Works & Utilities	Engineering	Eric Walrath	1/11/2021
6	Public Works & Utilities	Light Operations	Tim Amiot	2/12/2021
7	Public Works & Utilities	Light Operations	Alan Oman	2/12/2021
8	Public Works & Utilities	Light Operations	Lisa Hainstock	2/12/2021
9	Parks & Recreation	Parks	Leon Leonard	2/12/2021
10	Parks & Recreation	Parks	Jim Breitbach	2/12/2021
11	Parks & Recreation	Parks	Darryl Anderson	2/12/2021
12	Parks & Recreation	Parks	Brooke Keohokalole	2/12/2021
13	Parks & Recreation	Parks	Elijah Hammel	2/12/2021
14	Parks & Recreation	Parks	Lukas Cox	2/12/2021
15	Public Works & Utilities	Stormwater	Greg Haskins	2/12/2021
16	Public Works & Utilities	Solid Waste	Jason Paynter	2/12/2021
17	Public Works & Utilities	Light Operations	Bruce Raymond	2/12/2021
18	Public Works & Utilities	Wastewater	Rachel Bowen	2/12/2021
19	Public Works & Utilities	Stormwater	Michael Poats	2/12/2021
20	Public Works & Utilities	Water	Tim Wright	2/12/2021
21	Public Works & Utilities	Electrical Engineering	Richard Smith	2/12/2021
22	Public Works & Utilities	Water	Dennis Edgington	2/12/2021
23	Public Works & Utilities	Water	Eric Johnson	2/13/2021
24	Police Department	Investigations	Joshua Powless	2/16/2021
25	Police Department	Records	Carla Jacobi	2/16/2021
26	Public Works & Utilities	Water	Benjie Flores	2/16/2021
27	Parks & Recreation	Parks	Brian Flores	2/16/2021
28	Parks & Recreation	Ocean View Cemetery	Tom Morse	2/16/2021
29	Public Works & Utilities	Light Operations	George Drake	2/17/2021
30	Public Works & Utilities	Light Operations	Jim Shay	2/17/2021
31	Public Works & Utilities	Light Operations	Logan Deane	2/17/2021
32	Public Works & Utilities	Light Operations	Brent Robinson	2/17/2021
33	Public Works & Utilities	Light Operations	Mike Smith	2/17/2021
34	Public Works & Utilities	Light Operations	Brian Van Ness	2/17/2021
35	Public Works & Utilities	Light Operations	Sean Glenn	2/17/2021
36	Public Works & Utilities	Wastewater	David Freed	2/17/2021
37	Finance	Accounting	Jason Jones	2/17/2021
38	Public Works & Utilities	Wastewater	Gary Richmond	2/17/2021
39	Public Works & Utilities	Wastewater	Tyler White	2/18/2021
40	Public Works & Utilities	Water	Jason Holbrook	2/18/2021
41	Public Works & Utilities	Administration	Michelle Hale	2/18/2021
42	Parks & Recreation	Recreation	Richard Foster	2/17/2021
43	Parks & Recreation	Recreation	Matthew Cook	2/17/2021
44	Public Works & Utilities	Water/Wastewater	Jeff Groves	2/19/2021
45	Public Works & Utilities	Street/Stormwater	Cody Romero	2/19/2021
46	Public Works & Utilities	Wastewater	Nathan Gaul	2/19/2021
47	Police Department	PenCom	Dennis Laboy	2/22/2021
48	Public Works & Utilities	Streets	Jad Groves	2/22/2021
49	Public Works & Utilities	Streets	Steve Rutz	2/22/2021
50	Public Works & Utilities	Streets	Travis Trukenmiller	2/22/2021
51	Public Works & Utilities	Streets	Jarod Bridges	2/22/2021
52	Finance	Accounting	Melody Schneider	2/23/2021
53	Public Works & Utilities	Streets	Dave Cameron	2/23/2021
54	Public Works & Utilities	Streets	Gavin Medley	2/23/2021
55	Police Department	Administration	Brian S. Smith	2/23/2021
56	Finance	Customer Service/Meter Reader	Steven Saiz	2/23/2021
57	Finance	Utility Service Coordinator/ CSR	Teresa Owen	2/23/2021
58	Finance	Accounts Payable	Julie Powell	2/23/2021
59	Police Department	Records	Katie Butler	2/23/2021
60	Fire Department	Administration	Ken Dubuc	2/23/2021



Count	Department	Division	Name	Date Viewed
61	Public Works & Utilities	Administration	Yvette Nichols	2/24/2021
62	Fire Department	Administration	Mike Sanders	2/24/2021
63	Community & Economic Development	Building	Pat Bartholick	2/24/2021
64	Public Works & Utilities	Water	RQ Meyer	2/24/2021
65	Police Department	Investigations	Kori Malone	2/11/2021
66	Public Works & Utilities	Light Operations	Trent Peppard	2/24/2021
67	City Manager's Office	IT Division	Todd Weeks	2/24/2021
68	Public Works & Utilities	Engineering	Sondya Moriarity	2/24/2021
69	Finance	Customer Service/Meter Reader	Luke Anderson	2/24/2021
70	Fire Department	Firefighter/ Paramedic	Tyler Gage	2/24/2021
71	Fire Department	Firefighter/ Paramedic	Dayvid Rypinski	2/24/2021
72	Fire Department	Firefighter/ paramedic	Michael Stroobant	2/24/2021
73	Police Department	PAPD	Kevin Miller	2/24/2021
74	Public Works & Utilities	Engineering	Lucy Hanley	2/24/2021
75	Public Works & Utilities	Solid Waste	Bruce Dorcy	2/24/2021
76	Public Works & Utilities	Solid Waste	Jordan Sage	2/24/2021
77	Public Works & Utilities	Solid Waste	Kevin Schmidt	2/24/2021
78	Public Works & Utilities	Solid Waste	Jeff Heustis	2/24/2021
79	Public Works & Utilities	Solid Waste	Nick Scott	2/24/2021
80	Parks & Recreation	Parks	Tim Tucker	2/24/2021
81	Police Department	Administration	Jason Viada	2/24/2021
82	Parks & Recreation	Administration	Tim Tucker	2/24/2021
83	Public Works & Utilities	Wastewater	Jeff Gagnon	2/24/2021
84	Public Works & Utilities	Wastewater	Josh Borte	2/24/2021
85	Public Works & Utilities	Wastewater	Rick Hartley	2/25/2021
86	Public Works & Utilities	Water	Luke Leonard	2/24/2021
87	Public Works & Utilities	Water	Josh Roening	2/24/2021
88	Public Works & Utilities	Water	Hunter Heckenlaible	2/24/2021
89	Fire Department	Operations	Keith Bogues	2/25/2021
90	Community & Economic Development	Building	Jim Lierly	2/25/2021
91	Finance	Administrative Analyst	Nicole Blank	2/25/2021
92	Public Works & Utilities	Equipment Services	Brian Coburn	2/25/2021
93	Public Works & Utilities	Equipment Services	Robert Lane	2/25/2021
94	Public Works & Utilities	Equipment Services	Brian Shimko	2/25/2021
95	Public Works & Utilities	Equipment Services	Jeff Long	2/25/2021
96	Public Works & Utilities	Equipment Services	Darren Voyles	2/25/2021
97	Fire Department	Lt./Paramedic	Mark Karjalainen	2/25/2021
98	Public Works & Utilities	Engineering	Rob Feller	2/25/2021
99	Public Works & Utilities	Electric Utility	Shailesh Shere	2/26/2021
100	Police Department	PAPD	Bruce Fernie	2/26/2021
101	Public Works & Utilities	Wastewater	Richard Ballard	2/26/2021
102	Public Works & Utilities	Wastewater	Randy Raymond	2/26/2021
103	Public Works & Utilities	Wastewater	Larry Waldron	2/26/2021
104	Finance	Cost and Capital	MarySue French	2/26/2021
105	Fire Department	Community Paramedics	Brian Gerdes, Daniel Montana	2/26/2021
106	City Manager's Office	IT Division	Joe Matthews	2/26/2021
107	Finance	Customer Service/Utility Billing	Tracy Rooks	2/26/2021
108	Fire Department	Lt./Paramedic	Travis McFarland	2/26/2021
109	City Manager's Office	N/A	Nathan West	2/26/2021
110	Fire Department	Medic 1	Bruce Symonds	2/26/2021
111	Fire Department	Captain/Paramedic	Jeremy Church	2/28/2021
112	Fire Department	FF/EMT	Chad Schoonhoven	2/28/2021
113	Police Department	Code Enforcement	Kyle Buchanan	2/28/2021
114	Police Department	Detectives	David Arand	3/1/2021
115	Police Department	Detectives	Trevor Dropp	3/1/2021
116	Police Department	Detectives	Jeffery Ordona	3/1/2021
117	Police Department	Detectives	Erik Smith	3/1/2021
118	Police Department	PenCom	Tom Bock	3/1/2021
119	Police Department	PenCom	Susan Craig	3/1/2021
120	Police Department	PenCom	Karl Hatton	3/1/2021



Count	Department	Division	Name	Date Viewed
121	Police Department	PenCom	Jodi Simmons	3/1/2021
122	Police Department	PenCom	Mary Rife	3/1/2021
123	Police Department	PenCom	Jeff Christopher	3/1/2021
124	Police Department	PenCom	Jessica Connor	3/1/2021
125	Police Department	PenCom	Mike O'Connor	3/1/2021
126	Police Department	PenCom	Olivia Hatton	3/1/2021
127	Police Department	PenCom	Chelsea Jensen	3/1/2021
128	Police Department	PenCom	Ryan Bell	3/1/2021
129	Police Department	Code Enforcement	Erin Brown	3/1/2021
130	Public Works & Utilities	Electrical Engineering	Angel Torres	3/1/2021
131	City Manager's Office	Administrative	Sherry Curran	3/1/2021
132	Police Department	Patrol	Jared Tait	3/1/2021
133	Police Department	Patrol	Swift Sanchez	3/1/2021
134	Fire Department	Lieutenant / FF / Paramedic	Andrew Cooper	3/1/2021
135	Fire Department	FF/EMT	Tyler Carlson	3/1/2021
136	Police Department	Patrol	Brian Stamon	3/1/2021
137	Police Department	Patrol	Harold Balderson	3/1/2021
138	Police Department	Patrol	Elizabeth Hollis	3/1/2021
139	Police Department	PenCom	Brooke Pucciarelli	3/2/2021
140	Police Department	PenCom	Deb Homan	3/2/2021
141	Police Department	PenCom	Dennis Laboy	3/2/2021
142	Police Department	PenCom	Cody Brooks	3/2/2021
143	Police Department	PenCom	Gabrielle Dumler	3/2/2021
144	Fire Department	Firefighter/Paramedic	Tyler Jacobson	3/2/2021
145	Fire Department	Firefighter/EMT-B	Ryan Gonzales	3/3/2021
146	Police Department	Reords	Joanne Droz	3/3/2021
147	Fire Department	Firefighter/EMT-B	Todd German	3/3/2021
148	City Manager's Office	IT Division	Elizabeth Strait	3/3/2021
149	Fire Department	Firefighter/Paramedic	Doug Eaton	3/3/2021
150	Fire Department	Firefighter/Paramedic	Chase Laubach	3/4/2021
151	Police Department	Patrol	Sean Ryan	3/6/2021
152	Police Department	Patrol	Clay Rife	3/6/2021
153	Public Works & Utilities	Engineering	Lucio Baack	3/8/2021
154	Public Works & Utilities	Power Resources	Joey Currie	3/9/2021
155	City Manager's Office	iT Division	James Harper	3/11/2021
156	Fire Department	firefighter/Paramedic	John Hall	3/11/2021



Certified Erosion and Sediment Control Lead (CESCL) Certification Information

Web address: <https://apps.ecology.wa.gov/wqcescl/QueryResults.aspx>

Export Date: 3.29.2022

First Name	Last Name	Company	City	CESCL #	Expired	Status	Training Provider
Rob	Feller	City of Port Angeles	Port Angeles	CWT18-1752	1/9/2023	Current	CWT
Caleb	Adams	City of Port Angeles	Port Angeles	CWT21-1156	4/8/2024	Current	CWT
Zachery	Alderson	City of Port Angeles	Port Angeles	CWT21-1168	4/14/2024	Current	CWT
Maurice	Armstrong	City of Port Angeles	Port Angeles	CWT21-1167	4/14/2024	Current	CWT
Leyton	Evans	City of Port Angeles	Port Angeles	CWT21-1154	4/8/2024	Current	CWT
Jeffery	Groves	City of Port Angeles	Port Angeles	CWT21-1166	4/14/2024	Current	CWT
Hunter	Heckelaible	City of Port Angeles	Port Angeles	CWT21-1159	4/8/2024	Current	CWT
Luke	Leonard	City of Port Angeles	Port Angeles	CWT21-1171	4/14/2024	Current	CWT
Joshua	Roening	City of Port Angeles	Port Angeles	CWT21-1157	4/8/2024	Current	CWT
Angel	Torres	City of Port Angeles	Port Angeles	CWT21-1170	4/14/2024	Current	CWT
Travis	Truckenmiller	City of Port Angeles	Port Angeles	CWT21-1155	4/8/2024	Current	CWT
Tim	Tucker	City of Port Angeles	Port Angeles	CWT21-1158	4/8/2024	Current	CWT
Lucio	Bacck	City of Port Angeles	Port Angeles	CWT21-1183	4/9/2024	Current	CWT
Jonathan	Boehme	City of Port Angeles	Port Angeles	CWT21-1184	4/9/2024	Current	CWT
Rob	Feller	City of Port Angeles	Port Angeles	CWT21-1185	4/9/2024	Current	CWT
Vincent	McIntyre	City of Port Angeles	Port Angeles	CWT21-1186	4/9/2024	Current	CWT
Roger	Vess	City of Port Angeles	Port Angeles	CWT21-1187	4/9/2024	Current	CWT
Eric	Walrath	City of Port Angeles	Port Angeles	CWT21-1188	4/9/2024	Current	CWT
Jason	Paynter	City of Port Angeles	Port Angeles	CWT21-1189	4/9/2024	Current	CWT
Jordan	Sage	City of Port Angeles	Port Angeles	CWT21-1190	4/9/2024	Current	CWT
Greg	Haskins	City of Port Angeles	Port Angeles	CWT21-1191	4/9/2024	Current	CWT
Michael	Poats	City of Port Angeles	Port Angeles	CWT21-1192	4/9/2024	Current	CWT
Andrew	Reandeau	City of Port Angeles	Port Angeles	CWT21-1193	4/9/2024	Current	CWT
Jad	Groves	City of Port Angeles	Port Angeles	CWT21-1194	4/9/2024	Current	CWT
Richard	Hartley	City of Port Angeles	Port Angeles	CWT21-1195	4/9/2024	Current	CWT
Pat	Bartholick	City of Port Angeles	Port Angeles	CWT21-1196	4/9/2024	Current	CWT
Leon	Leonard	City of Port Angeles	Port Angeles	CWT21-1197	4/9/2024	Current	CWT
Jeremy	Pozernik	City of Port Angeles	Port Angeles	CWT21-1198	4/9/2024	Current	CWT
Timothy	Wright	City of Port Angeles	Port Angeles	CWT21-1203	4/15/2024	Current	CWT
James	Lierly	City of Port Angeles	Port Angeles	CWT21-1204	4/15/2024	Current	CWT
Cody	Romero	City of Port Angeles	Port Angeles	CWT21-1205	4/15/2024	Current	CWT
Gavin	Medley	City of Port Angeles	Port Angeles	CWT21-1206	4/15/2024	Current	CWT
Steven	Rutz	City of Port Angeles	Port Angeles	CWT21-1207	4/15/2024	Current	CWT
Jared	Bridges	City of Port Angeles	Port Angeles	CWT21-1208	4/15/2024	Current	CWT
Joshua	Borte	City of Port Angeles	Port Angeles	CWT21-1209	4/15/2024	Current	CWT
Jeffery	Gagnon	City of Port Angeles	Port Angeles	CWT21-1210	4/15/2024	Current	CWT
Dennis	Edgington	City of Port Angeles	Port Angeles	CWT21-1211	4/15/2024	Current	CWT



November 8th, 2019

Angela Vincent
Department of Ecology
Southwest Regional Office
Water Quality Program
PO Box 47775
Olympia, WA 98504-775

RE: S8. Monitoring and Assessment | 2019-24 Western WA Phase II Municipal Stormwater Permit (WAR045028)

Dear Angela Vincent,

This letter is to serve as official written notification of the City's intent to meet the requirements of Section S8 of our 2019-2024 Phase II Municipal Stormwater Permit with Ecology.

In lieu of conducting our own stormwater discharge monitoring program, the City intends to continue participating in the regional Stormwater Action Monitoring (SAM) program for both Status and Trends Monitoring (S8.A.2.a) and SWMP Effectiveness and Source Identification Studies (S8.B.2.a). It is understood that partnership in this regional effort requires an annual payment into a collective fund.

If you have any questions, please contact the City's Stormwater Engineer, Vince McIntyre, at (360) 417-4701.

Sincerely,

Thomas Hunter
Director of Public Works and Utilities

"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 gathered and evaluated 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 willful violations."

CC: Nathan West, City Manager
Jonathan Boehme, City Engineer
Vince McIntyre, Stormwater Engineer

Phone: 360-417-4800 / **Fax:** 360-417-4542

Website: www.cityofpa.us / **Email:** publicworks@cityofpa.us

321 East Fifth Street / Port Angeles, WA 98362-0217



INVOICE

STORMWATER ACTION MONITORING

CITY OF PORT ANGELES

VINCE MCINTYRE

321 E 5TH ST
PORT ANGELES, WA 98362
USA

Invoice date 5/15/2021
Invoice number RS-000000202
Due date 8/15/2021
Amount due 9,059.00
Reference WAR045028 Special Condition S8.A & S8.B

Description	Line amount
Puget Sound Status and Trends (F92AA500)	3,204.00
Effective Studies and Source ID (F92AB500)	5,855.00
Total	9,059.00

Pay online

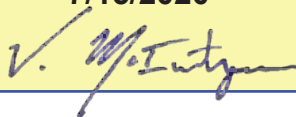
Pay by credit card (Visa/Mastercard/Discover) or bank account (electronic check) at <https://ecology.wa.gov/EcoEPay>.
Please have your invoice number ready: RS-000000202

Pay by mail

Detach the bottom of this invoice and send check or money order payable to:
Department of Ecology, Cashiering Unit, PO Box 47611 Olympia, WA 98504-7611 USA

Questions about your bill?

Invoice amounts are from the MS4 permits. For questions about SAM see ecy.wa.gov/SAM

INVOICE RECIEVED: 5/25/2021
BUDGET CODE: 406-7412-538-4990
LINE ITEM: ECY Monitoring & Assess. Fee
DEPT/DIV APPROVAL: PW/Engineering/SW
DATE: 7/15/2020
SIGNATURE: 

DETACH HERE

Detach and return this portion with your check/money order. Please write the invoice number on your check.

DO NOT SEND CASH

STORMWATER ACTION MONITORING

Total amount due \$9,059.00 by 08/15/2021

Invoice number RS-000000202
Reference WAR045028 Special Condition S8.A & S8.B

Mail payment to

CITY OF PORT ANGELES
 VINCE MCINTYRE
 321 E 5TH ST
 PORT ANGELES, WA 98362
 USA

PO BOX 47611
 OLYMPIA, WA 98504-7611
 USA

Stormwater Action Monitoring

2020 Annual Report

May 2021



This is the sixth annual report from the Washington State Department of Ecology (Ecology) on implementation of Stormwater Action Monitoring (SAM), a collaborative program funded by more than 90 Western Washington cities and counties, the ports of Seattle and Tacoma, and the Washington State Department of Transportation (WSDOT). Ecology manages SAM's revenues, expenditures, agreements, and communication of findings.



Stormwater Action Monitoring (SAM) is the regional stormwater monitoring program for the municipal stormwater permits.

The goal of SAM is to improve stormwater management, reduce pollution, improve water quality, and reduce flooding. We do this by measuring stormwater impacts on the environment and evaluating the effectiveness of stormwater management techniques.

All jurisdictions, large and small, can benefit from SAM projects that are designed to produce regionally transferable findings. All permittees can implement SAM findings to protect local lakes, rivers, streams, and Puget Sound.

Ecology maintains approximately 20 webpages for SAM communication and transparency. Individual project pages exist for each of the active SAM studies. Completed projects are summarized, in the accordions, under Effectiveness Studies Source Identification and Status & Trends.

<https://ecology.wa.gov/SAM>

Highlights for 2020:

We adapted in many ways to continue administration of the SAM program while working full time remotely.

Round 3 SAM study selection workshop

Solicitation for new SAM study ideas, reviews, stakeholder meetings, and the September 16th Study Selection Workshop were held virtually. Considerable effort was made by AWC and Ecology to ensure easy registration, available materials in advance, and valuable presentations. The workshop was well attended by MS4 permittees and stakeholders and fortunately was a glitch free!

Some but not all contracts were impacted by the global pandemic

Field work was still accomplished but more slowly this year for the streams, mussels, and few of the effectiveness studies. Delayed laboratory analysis of samples is still affecting some projects. The effectiveness studies that provided workshops and trainings last year were able to adapt to the virtual platform.

Flexible and committed partnerships are key

We successfully completed projects thanks to the flexibility of SAM contract amendments, an engaged oversight committee, and dedication from our project teams. Recorded presentations and trainings reached more permittees than originally anticipated.

Program Management

Stormwater Work Group

The Stormwater Work Group (SWG) of the Puget Sound Ecosystem Monitoring Program (PSEMP) is a coalition of representatives of local, state, and federal governments, environmental and business organizations, public ports, tribes, and agriculture. The SWG formed in 2008 to develop a strategic, coordinated, and integrated approach to monitor the stormwater problem in Western Washington and effectiveness of stormwater practices and management activities.

The SWG welcomes participation on the group's subcommittees and caucuses. All meetings are open to the public. See the SWG website:

<https://sites.google.com/site/pugetsoundstormwaterworkgroup/>

What is the connection between SAM and the SWG?

All SAM projects are selected and approved by the SWG. The SWG sets priorities and makes recommendations to support SAM implementation and other stormwater-related monitoring.

Permittees, state and federal agencies, and university faculty provide funding and/or leadership on SAM projects. Ecology serves as the administrative entity that manages SAM funds and executes SAM contracts.

The Pooled Resources Oversight Committee (PRO-C), a subgroup of SWG, oversees Ecology's administration of SAM. The PRO-C approves all SAM contracting decisions and spending and also reviews each project scopes of work and amendments. Both the SWG and PRO-C are formal committees whose members represent stakeholder groups.

Communications



SAM has worked the Association of Washington Cities for years to develop the SAM name, logo, templates for fact sheets and presentations, SAM's communication strategy, multiple SAM workshops, and many highly valued communication products. The products are on the SAM Communications webpage include; the bioretention storymap, four SAM videos, 23 completed study fact sheets, 11 newsletters, two City Vision articles, and the SAM Booklet on the work done during since 2014. Thanks to Andy Meyer and many talented staff at AWC!

SAM funded projects planned to be featured at MuniCon, Green Stormwater Infrastructure Summit, local APWA stormwater managers meetings, PSEMP Freshwater and Toxics workgroup and other meetings in 2020-21.

Staff

Ecology is committed to the success of SAM and continues to fund staff for the SWG. In 2020, Emma Trewthitt (not pictured) began training to provide future Ecology staffing of SWG. Ecology assumes this role to ensure SWG meets all stakeholders needs to work together to set priorities for SAM studies as part of the municipal stormwater general permits.

SAM staff (Brandi and Keunyea) manage the program at Ecology and work with project leads to develop detailed scopes of work, review deliverables, approve project invoices, and maintain the website for transparency to permittees and SWG stakeholders.

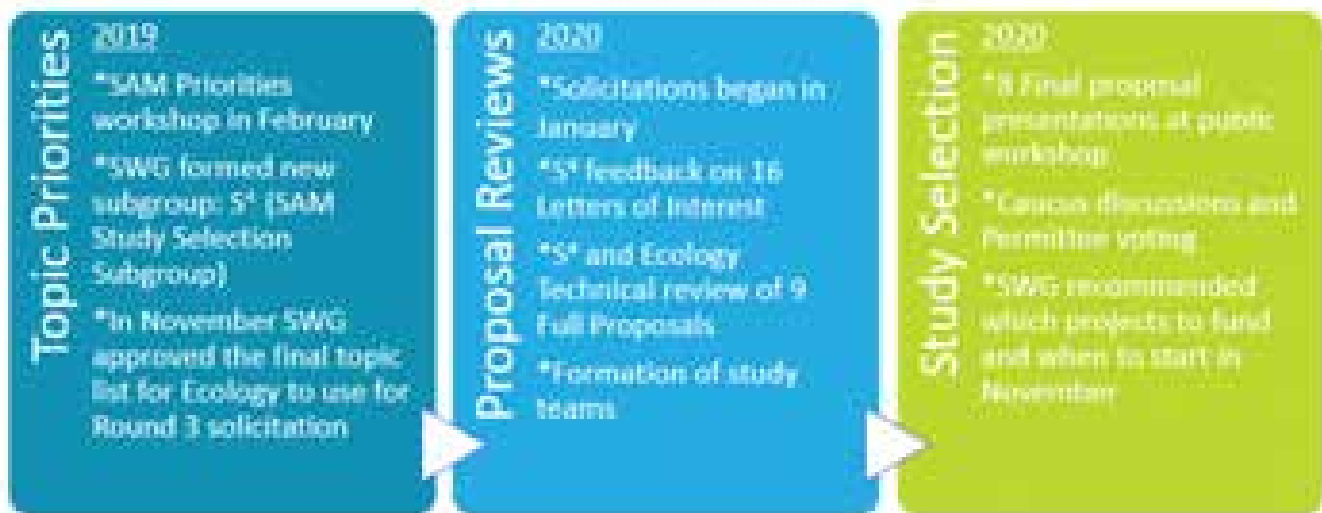


Brandi Lubliner, SAM Coordinator; Keunyea Song, SAM Scientist; and Karen Dinicola, SWG Project Manager

SAM 2020 Annual Report

Round 3 SAM study solicitation

SAM's Round 3 Effectiveness Study Solicitation was released in January, and we received 16 Letters of Interest (LOIs). SAM Staff coordinated the S⁴ (SAM Study Solicitation Subgroup), a temporary subgroup of the SWG, to review both the LOIs and Full Proposals (FP). By May, nine FPs were received and reviewed by SAM staff and Ecology staff on relevance to the stormwater permits and/or manual implementation, and to provide suggestions to make them most useful to permittees and Ecology. Additional reviews and scoring was done by the S⁴ according to the rubric set forth in the solicitation. All of this work was completed and provided back to the study proponents to make adjustments to their proposals before their pitches at the September 16th workshop.



While initially planned to be in-person, the SAM Study Selection Workshop was transitioned online and was attended by 70 non-Ecology participants. In October, permittees voted on the eight proposals showcased at the workshop. Based on the results of the permittee votes and reviewing the summary of caucus discussions in November, the SWG decided to fund all eight projects as SAM income and staff capacity allows. SAM will have adequate funding to cover the estimated budgets in the 2019-2024 permit term. In November, Ecology received the following SWG recommendations for the contracting timeframe.

Winter 2020-21:

- FP2 Guidance for evaluating the effectiveness of public education and outreach programs
- FP5 Developing and refining source control inspection programs for businesses
- FP6 Mobile businesses, illicit discharges, and multi-jurisdiction coordination

Summer 2021:

- FP3 The role of ditches in pollutant management and how cleaning impacts their biogeochemical function
- FP7 Stormwater BMPs maintenance conditions evaluation

Thereafter, as staff capacity becomes available:

- FP1 Tools and strategies to determine the most effective BMP depending on pollutant type and source
- FP4 Replacement and lifecycle costs of permeable pavements compared with conventional pavements
- FP8 Evaluation of the influence of bioretention soil infiltration performance rate and safety factors on facility sizing and maintenance

SAM 2020 Annual Report

SAM Stream Monitoring Studies in Western Washington

Puget Small Streams (PSS)

U.S. Geological Survey (USGS) successfully completed summer field monitoring at 33 urban gradient sites and two reference (least-disturbed) sites successfully. This monitoring includes water, sediment, macroinvertebrate sampling and physical habitat assessment. Water level and temperature using sensors were monitored continuously throughout the year.

Restrictions related to the pandemic slowed down chemical analysis, reporting, site evaluation and sensor deployment. Site evaluation of the 2021 sampling sites and sensor deployment began but are behind schedule, resulting in a couple months of missed water level data. The annual report for water year 2020 due in November 2021, will likely be delayed and be combined with the second report in 2022.

Lower Columbia Urban Streams (LCUS)

Clark County in partnership with Cowlitz County, Cities of Battle Ground, Camas, Kelso, Longview, Vancouver, and Washougal, and the Washington State Department of Transportation (WSDOT) finalized the Quality Assurance Project Plan (QAPP) in October 2020.

Level loggers were deployed in 2020 for continuous monitoring of water level, temperature and conductivity for a full water year. Summer field sampling will begin in 2021.



Effectiveness Studies

How well are required or innovative stormwater management practices working?

SAM is measuring the effectiveness of BMPs and stormwater management actions to reduce negative hydrologic impacts and the discharge of pollutants to receiving waters. The following studies were active in 2020.



◆ *Hydrologic benefit of individual trees (Photo on the right)*

Washington Department of Natural Resources and Washington Stormwater Center (WSC) are quantifying the hydrologic benefits of retaining mature trees during development. Sensors are monitoring water used (transpiration), through fall, and other hydrologic components of individual native evergreen and deciduous trees at two locations in Western Washington. The report is expected in late 2021.

◆ *Oyster shell retrofits in catch basins:* King County is evaluating the effectiveness of dissolved metals treatment by adding crushed oyster shells in catch basins on Mercer Island. The report is expected in 2021.



Effectiveness Studies (cont'd)

Two effectiveness studies were completed in 2020. All final reports, scopes of work, and other key deliverables are available on the SAM websites under completed studies. SAM staff and the study lead co-author a two-page fact sheet for each final report.

Bioretention amendment with fungi and plants

SAM Fact Sheet #19, February 2021

U.S. Fish & Wildlife Service (USFWS) and the Washington Stormwater Center (WSC) quantified the effectiveness of fungal inoculated mulch in bioretention mesocosms to treat urban runoff. While plants pull moisture from the bioretention soil for growth, the establishment of soil mycelia helped retain water in the soil for plant availability. Bioretention mesocosms effectively remove metals, bacteria, solids and organic compounds from urban runoff, regardless of the presence of plants or fungi.

The fungi treatments showed remarkable reductions of ortho-phosphorus in the outflow from the compost layer within the first year, but the effect diminished in the second year of the study. Other water quality and toxicology parameters showed no differences between the fungi mesocosms and the controls.



Fungal colonization will occur in any mulch layer over time. Because fungi improve soil moisture content, provide favorable conditions for plants, and reduces phosphorus export during the establishment year, stormwater managers may consider fungal inoculated mulch for bioretention facilities.

Hydrologic performance of current design bioretention BMPs

SAM Fact Sheet #20, March 2021

The City of Olympia evaluated the hydrologic performance of ten new bioretention facilities; five were retrofits. All were designed and built in accordance with the 2012 *Stormwater Management Manual for Western Washington*.



Conclusions from the first phase of this study (pre-2012 bioretention designs) were reaffirmed and some new findings are specific to the retrofit facilities monitored in this study on “current design” bioretention facilities.

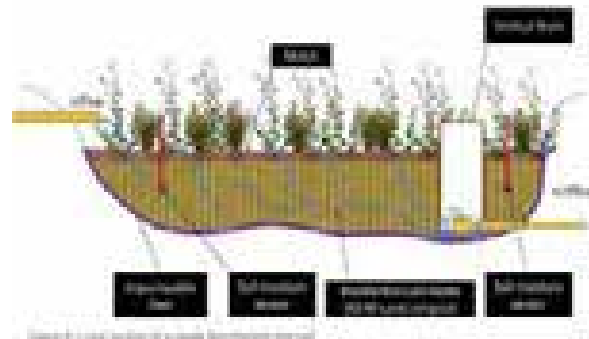
While Ecology does not require retrofit facilities to fully meet the design criteria as new and redeveloped facilities, the designers were successful at maximizing the hydrologic control of runoff flows.

- Geotechnical findings: bioretention facilities tend to be built with coarser soils than recommended, allowing rapid infiltration. This infiltration primarily occurs near inflow locations potentially affecting vegetation survival farther from the inflow.
- Hydrology model inputs: infiltration rates, safety factors, and top area of the bioretention facility were found to be improperly set up in the Western Washington Hydrology Model (WWHM). Better review of a few key WWHM settings by local reviewers is needed.
- Vegetation: plantings reflected the designs; however most of the water-loving herbaceous plants cannot tolerate the well drained soils in bioretention. Hardier species are more successful.

The authors provided specific recommendations to more than 260 practitioners to address findings. Development and utilization of a review checklist for BMP designers and jurisdictional reviewers will ensure function of future bioretention facilities.

Effectiveness Studies (cont'd active studies)

- ◆ **Mulch choices for bioretention (Figure to right):** WSC is evaluating impacts of three types of mulch on stormwater treatment: bark mulch (fir), shredded bark mulch (cedar), and arborist wood chips. The QAPP was finalized in early 2020 but the project incurred minor field sampling and lab analysis delays due to the pandemic. A project extension may be needed in 2021.



- ◆ **Orifice control of bioretention for water quality treatment:** WSC is evaluating impacts of smaller orifices on underdrains to treat stormwater quality and water quantity. First-phase results are expected in early 2022.
- ◆ **Longevity of bioretention soil mix for toxicity reduction:** USFWS and WSC started this project to learn how long bioretention treatment of toxicity lasts and what soil media depths effectively reduce toxicity. USFWS terminated the contract in December 2020 and WSC will continue the study under a new contract in 2021. The report is expected in 2022.
- ◆ **Watershed scale retrofit and restoration (Map to the left):** The City of Redmond is actively monitoring seven sites in a paired watershed design. This watershed-scale study will continue for several more years. An interim report was published in 2020 (SAM Fact Sheet #23, March 2021). Not many trends were evident yet; however street sweeping is emerging as an effective practice for improving water quality.

Source Identification Projects

What are the common sources of illicit discharges and best ways to reduce them?

SAM Source Identification projects identify common problems and propose regional actions on source control to prevent transport of pollutants in stormwater. The following studies were active in 2020. Completed studies are shown in the blue boxes.



2020 Illicit connection and illicit discharge (IC/ID) field screening manual

SAM Fact Sheet #21, Feb 2021

King County led this project to update methods to detect, identify, and trace sources of pollutants in stormwater. Eight trainings on the updated IC/ID manual held in 2020 reached over 200 municipal staff. The final manual, six new training videos, and recorded manual overview training are available from the WSC webpage for IC-ID and on their YouTube Channel.

www.wastormwatercenter.org/permit-assistance/municipal/permit-assistance-2/ic-id/

Source Identification (cont'd)

- ◆ **Spill hotline feasibility:** King County published the final report in late 2020 on the feasibility of a regional spill hotline to improve response and inter-jurisdictional communication. A local presentation is all that remains for 2021.

Administration

Contracts and Agreements

In 2020, four Effectiveness Study or Source Identification project contracts were amended from delays or changes due to the pandemic. Two new Status and Trends contracts were made.

By late 2020, the SAM Coordinator began contract scopes of work for three Round 3 SAM proposals:

- ◆ *Building a business source control & inspection program (WSC led)*
- ◆ *Evaluating your stormwater education & outreach program (WSU led)*
- ◆ *Coordination on Mobile Businesses and Source Control (King County led)*

SAM Budget

The SAM Coordinator spent time covering other duties at Ecology in late 2020 and therefore administration charges to the SAM accounts were half the normal rate for the third and fourth quarters of 2020.

PRO-C oversees SAM's budgets and the Round 3 studies approved for SAM funds will spend down the old Source Identification account and from the now combined Effectiveness Studies and Source Identification account. By 2023 there will be enough revenue available to support another call for proposals for new Effectiveness studies and Source Identification projects.

The anticipated annual revenue for the 2019-2024 permit term is \$1.4M for Effectiveness and Source Identification, \$750K for Puget Sound Status and Trends in streams and nearshore. Starting in 2020, projected annual revenue for Lower Columbia Urban Streams study is \$136K.

Ecology manages permittees' annual funding receipts in PARIS: <https://apps.ecology.wa.gov/paris>.

STAY INVOLVED AND UP TO DATE!

<https://listserv.ecology.wa.gov>

SWG and SAM want your involvement. Stay aware of meetings and activities by joining the listservs!

STORMWATER-ACTION-MONITORING: a newsletter announcing SAM study findings and upcoming workshops.

SWG-REPORTER: four issues per year to hear about study findings and the process for prioritizing and selecting studies.

STORMWATER-WORK-GROUP: meeting agendas, materials, summaries, and announcements related to our work.

Brandi Lubliner

SAM Coordinator

brandi.lubliner@ecy.wa.gov

Keunyea Song

SAM Scientist

keunyea.song@ecy.wa.gov

Karen Dinicola

SWG Project Manager

karen.dinicola@ecy.wa.gov

Emma Trehwitt

SWG Coordinator

emma.trehwitt@ecy.wa.gov

Special accommodations

To request materials in a format for the visually impaired, visit <https://ecology.wa.gov/accessibility>, or call Ecology at (360) 407-6600, Relay Service 711, or TTY (877) 833-6341.

SAM is annually funded by Cities, Counties, Ports, and US Navy; has received in-kind funds from cities, business and agencies:

Cities: Aberdeen, Algona, Anacortes, Arlington, Auburn, Bainbridge Island, Battle Ground, Bellevue, Bellingham, Black Diamond, Bonney Lake, Bothell, Bremerton, Brier, Buckley, Burien, Burlington, Camas, Centralia, Clyde Hill, Covington, Des Moines, DuPont, Duvall, Edgewood, Edmonds, Enumclaw, Everett, Federal Way, Ferndale, Fife, Fircrest, Gig Harbor, Granite Falls, Issaquah, Kelso, Kenmore, Kent, Kirkland, Lacey, Lake Forest Park, Lake Stevens, Lakewood, Longview, Lynden, Lynnwood, Maple Valley, Marysville, Medina, Mercer Island, Mill Creek, Milton, Monroe, Mount Vernon, Mountlake Terrace, Mukilteo, Newcastle, Normandy Park, Oak Harbor, Olympia, Orting, Pacific, Port Angeles, Port Orchard, Poulsbo, Puyallup, Redmond, Renton, Sammamish, SeaTac, Seattle, Sedro-Woolley, Shoreline, Snohomish, Snoqualmie, Steilacoom, Sumner, Tacoma, Tukwila, Tumwater, University Place, Vancouver, Washougal, Woodinville. **Counties:** Clark, Cowlitz, King, Kitsap, Pierce, Skagit, Snohomish, Thurston, Whatcom. **Ports:** Tacoma and Seattle. **State:** Washington Department of Transportation, Washington Department of Ecology, Washington Department of Agriculture, Washington Department of Fish and Wildlife. **Federal:** United States Geological Survey **Business:** Penn Cove Shellfish, Cedar Grove.

An S4F1 notification was made to Department of Ecology on January 4, 2011. Sampling activities for bacteria continue through an Inter Local Agreement with Streamkeepers of Clallam County (PSA-2017-07). Sampling for fecal coliform is conducted monthly in Peabody and Tumwater Creeks. A larger sampling of sites in Port Angeles is conducted quarterly for both dry and wet weather conditions. Sample results are analyzed monthly and compared against the City IDDE Response Policy. This work has resulted in the identification (2016) and disconnection (2017) of a broken subsurface side sewer line leaking into a Storm main which was discharging into Peabody Creek. Attached is the 2018 sampling plan. This plan was also utilized in 2019, 2020, & 2021.

A new 5-yr. ILA with Streamkeepers is expected to be drafted and executed in 2022 to facilitate the continuance of local stream monitoring and assesment.

City of Port Angeles project: Streamkeepers Grab-Sample Plan, revised 4/30/18

Include Precip (24 hr) readings or multi-day retrospectives of preceding wet and dry periods, based on a reliable local weather station

- Organize sampling tours around volunteer/lab availability; min. 2 volunteers needed, and lab is generally available M-Th before 2 PM.
- Try for 50% monthly wet-weather tours during the year, where "wet" is defined as ≥ 0.15 " of rain-equivalent within the prior 24 hours.
- If 50% wet-weather tours have not been taken as the year progresses, conduct a wet-weather tour if volunteers are available even if a dry-weather tour has already been conducted that month.
- Conduct two "storm" (defined as ≥ 1 " of rain-equivalent within the prior 24 hours) tours per year, preferably in different seasons, with or without volunteers, even if a sample has already been taken that month.
- If volunteers are available, precede "storm" sampling tours with pre-storm tours, preferably the day prior to the storm.
- If a "storm" tour has been conducted during a month, no further tours will be conducted that month.
- If two "storm" tours have not been conducted by the end of November, consider relaxing the 1" criterion in December.
- For "wet-weather" or "storm" sampling, use best judgment to label each visit as Baseflow; First-Flush; Rising-Curve; Peak; or Post-Peak, considering storm intensity, turbidity, flow velocity, and stream stage relative to what it was pre-storm. The storm may iterate back and forth through multiple stages during a sampling tour.

Monthly Samples--Organize around volunteer availability; Aim for 6 dry-weather and 6 wet-weather samples	Additional sites for storm sampling (see above)--aim for 1 pre-storm and 1 during-storm or just-after-storm sample (preferably on consecutive days) 2x/yr if possible (preferably in different seasons)
Peabody 0.0 (when possible)	C Peabody 2.9 (Coyote Run Lane off Scrivner Rd)
Peabody 0.2 (just u/s of final culvert; include stage reading)	Tumwater 0.1 (d/s of storm pipe)
Peabody 0.2 rep	W Tumwater 0.1b (LB storm drain input @ 3rd St.)
Peabody 0.2a (pipe d/s of trailer park office)	Tumwater 0.1a (@ 3rd St. u/s of LB storm drain input)
Peabody 0.2b (u/s of pipe)	Tumwater 1.5a (u/s of Hwy 101, u/s of storm input from west)
Peabody 0.4b (u/s of trailers, d/s of plunge pool below culvert)	Tumwater 1.5b (u/s of Hwy 101, storm channel from west)
Peabody 0.4 (u/s of Peabody St.)	Tumwater 4.4 (3142 Black Diamond Rd)
W Peabody 0.4a (storm input under Peabody St.)	Valley 0.0 (when possible)
Peabody 0.9 (beneath water pipe, d/s of kids' play area)	Valley 0.4 (u/s of final culvert @ 6th St)
Peabody 1.2 (beneath Lauridsen, u/s of stormwater flume)	Valley 0.4 rep
Peabody 1.2c (beneath Lauridsen, stormwater flume)	Valley 0.7 (@ 12th St., near end of Valley Street)
C Peabody 1.4 (National Park loop trail, u/s of u/s crossing)	Valley 1.0 (u/s of "flatbed" bridge @ 14th St)
Tumwater 0.0 (across from Westport side door)	Valley 1.2 (d/s of Hwy 101)
Tumwater 0.0 rep	Valley 1.4 (Vern Samuelson Trail ~0.1 mile u/s of Hwy 101)
Tumwater 0.8 (d/s of storm input below Tumwater Truck Rt)	Semi- Annual Marine Samples--fecal + entero (big 500 mL bottles)
Tumwater 0.8d (storm pipe below Tumwater Truck Route)	PA Harbor @Hollywood west
Tumwater 0.8e (u/s of storm input below Tumwater Truck Rt)	PA Harbor @Hollywood central
Tumwater 1.5 (u/s of Hwy 101, d/s of storm input from west)	PA Harbor @Hollywood east
	PA Harbor @Peabody mouth
	PA Harbor @Peabody mouth rep

Selected Water-Quality Parameters From: 1/1/21 To: 1/31/21

Project: City of Port Angeles

Watershed: All

SITE				Air	Water	DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Peabody 0.2	Peabody @ 2nd St, above final culvert													
51971	1/12/2021	10:27		7.1	6.6	12	94	0	EST 59.5 ProDSS		203			
Peabody 0.2a	Peabody input - storm pipe d/s of RV park office													
51972	1/12/2021	10:32		11							36			
Peabody 0.2b	Peabody u/s of storm pipe d/s of RV Park office													
51973	1/12/2021	10:29		9							240			
Peabody 0.4	Peabody @u/s end of Peabody St culvert													
51975	1/12/2021	11:00		7.1	7.1	12	111	0	EST 51.5 ProDSS		172			1.08
Peabody 0.4a	Peabody input - storm pipe inside culvert @ Peabody St.													
51987	1/12/2021	11:10		11							518			
Peabody 0.4b	Peabody ~80' d/s of Peabody St. culvert													
51974	1/12/2021	10:39		7							282			
52267	1/12/2021	10:39		7.2	6.9	12.1	102	0	EST 56.5 ProDSS					
Peabody 0.9	Peabody u/s of 8 St.													
51977	1/12/2021	11:36		7.1	7.3	12	115	0	EST 40 ProDSS		182			
Peabody 1.2	Peabody u/s of storm pipe outfall @Lauridsen Blvd													
51978	1/12/2021	11:54		7.1	7.1	12	115	0	EST 40.5 ProDSS		140			
Peabody 1.2c	Peabody storm flume d/s of Lauridsen Blvd LB													
51979	1/12/2021	11:57		8.6	7	11.7	106	0	EST 12 ProDSS		404			
Peabody 1.4	Peabody @ ONP Visitor Ctr													
51980	1/12/2021	12:19		7.1	7.1	12	112	0	EST 33.5 ProDSS		78			
Tumwater 0.0	Tumwater d/s of Marine Dr													
51981	1/12/2021	12:45		7.8	7.4	11.9	120	0.1	50 ProDSS		52 J			
Tumwater 0.1	Tumwater u/s of Marine Dr, d/s of LB stormwater drain input													
51982	1/12/2021	12:42												1.3

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/6/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)					Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity		Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8															
51983	1/12/2021	13:04													
				Tumwater nr. 11 St., d/s of storm outflow channel											
				7.5	7.4	11.9	120	0.1	45.5	ProDSS		62	J		
Tumwater 0.8d															
51984	1/12/2021	13:05													
				Tumwater input - storm outfall pipe into Tumwater @ 11 St.											
				8								140			
Tumwater 0.8e															
51985	1/12/2021	13:11													
				Tumwater u/s of 11 St. storm outfall											
				7.6	7.3	11.9	119	0.1	44.5	ProDSS		64	J		
Tumwater 1.5															
51986	1/12/2021	13:36													
				Tumwater d/s of runoff ditch from SW side of Hwy 101											
				7.7	7.4	11.8	119	0.1	37.5	ProDSS		52	J		

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/6/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Selected Water-Quality Parameters From: 2/1/21 To: 2/28/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water	DO	Specific (25°C)			Fecal	Enterococci			Flow	Stage
Visit_ID	Date	Start Time	Temp (°C)	Temp (°C)	pH	Concentration (mg/L)	Conductivity (uS)	Salinity (pss)	Turbidity (NTU)	type	Precip24 (in)	Coliform (Colonies/100ml)	Flow (cfs)	Stage
Peabody 0.2	Peabody @ 2nd St, above final culvert													
51953	2/23/2021	11:01		5.3	7.8	12.9	173	0.1	6	ProDSS		37		0.96
Peabody 0.2a	Peabody input - storm pipe d/s of RV park office													
51955	2/23/2021	11:12		9	7.8	56.5	170	0.1	6	ProDSS		12		
Peabody 0.2b	Peabody u/s of storm pipe d/s of RV Park office													
51956	2/23/2021	11:15										36		
Peabody 0.3	Peabody d/s of trailer park laundry													
52278	2/23/2021	11:28		5.4		12.9	167	0.1	15	ProDSS				
Peabody 0.4	Peabody @u/s end of Peabody St culvert													
51958	2/23/2021	11:51		5.1		12.9	168	0.1	6	ProDSS		18		0.54
Peabody 0.4b	Peabody ~80' d/s of Peabody St. culvert													
51957	2/23/2021	11:30										150		
Peabody 0.9	Peabody u/s of 8 St.													
51960	2/23/2021	12:15		5.5	7.8	12.7	147	0.1	41	ProDSS		488		
Peabody 1.2	Peabody u/s of storm pipe outfall @Lauridsen Blvd													
51961	2/23/2021	12:19		4.9	7.8	12.9	150	0.1	11	ProDSS		168		
Peabody 1.2c	Peabody storm flume d/s of Lauridsen Blvd LB													
51962	2/23/2021	12:25		7.1	7.4	12.3	72	0	EST	128.5	ProDSS	544	G	
Peabody 1.4	Peabody @ ONP Visitor Ctr													
51963	2/23/2021	12:52		4.8	7.8	12.9	148	0.1	7	ProDSS		4		
Tumwater 0.0	Tumwater d/s of Marine Dr													
51964	2/23/2021	13:19		5.8	7.9	56.6	177	0.1	8.5	ProDSS		30		
Tumwater 0.1	Tumwater u/s of Marine Dr, d/s of LB stormwater drain input													
51965	2/23/2021	13:30												0.61
Tumwater 0.8	Tumwater nr. 11 St., d/s of storm outflow channel													
51966	2/23/2021	13:47		5.8	8	12.7	173	0.1	8	ProDSS		20		

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8d				Tumwater input - storm outfall pipe into Tumwater @ 11 St.										
51967	2/23/2021	13:40		14							86			
Tumwater 0.8e				Tumwater u/s of 11 St. storm outfall										
51968	2/23/2021	13:53		5.8	8	12.7	173	0.1	6 ProDSS		16			
Tumwater 1.5				Tumwater d/s of runoff ditch from SW side of Hwy 101										
51969	2/23/2021	14:24			8	12.5	85	0.1	7 ProDSS		20			

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Selected Water-Quality Parameters From: 3/1/21 To: 3/31/21

Project: City of Port Angeles

Watershed: All

SITE				Air	Water	DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Peabody 0.2				Peabody @ 2nd St, above final culvert										
51915	3/25/2021	9:39		7.2	7.6	12.2	111		21.5	ProDSS		610 G		0.96
Peabody 0.2a				Peabody input - storm pipe d/s of RV park office										
51916	3/25/2021	9:35		11							9999 G			
Peabody 0.2b				Peabody u/s of storm pipe d/s of RV Park office										
51917	3/25/2021	9:41		8	7.5	12.2	116	0 EST	19	ProDSS		552 J		
Peabody 0.4				Peabody @u/s end of Peabody St culvert										
51919	3/25/2021	10:19		7.2	7.7	12.3	142	0.1	13	ProDSS		284		0.42
Peabody 0.4a				Peabody input - storm pipe inside culvert @ Peabody St.										
51920	3/25/2021	10:22									516			
Peabody 0.4b				Peabody ~80' d/s of Peabody St. culvert										
51918	3/25/2021	9:55		8	7.4	12.2	126	0.1	15	ProDSS		360		
Peabody 0.9				Peabody u/s of 8 St.										
51921	3/25/2021	10:41		6.9	8	12.3	160	0.1	10	ProDSS		218		
Peabody 1.2				Peabody u/s of storm pipe outfall @Lauridsen Blvd										
51922	3/25/2021	10:57			8	12.4	85	0.1	9	ProDSS		170		
Peabody 1.2c				Peabody storm flume d/s of Lauridsen Blvd LB										
51923	3/25/2021	11:01		8.3	7.8	11.6	101	0 EST	21	ProDSS		1000 G		
Peabody 1.4				Peabody @ ONP Visitor Ctr										
51924	3/25/2021	11:22		6.2	7.9	12.3	157	0.1	10	ProDSS		124		
Tumwater 0.0				Tumwater d/s of Marine Dr										
51925	3/25/2021	11:52		7.3	8.2	12.5	205	0.1	4	ProDSS		0 N		
Tumwater 0.1				Tumwater u/s of Marine Dr, d/s of LB stormwater drain input										
51926	3/25/2021	11:45												0.46
Tumwater 0.8				Tumwater nr. 11 St., d/s of storm outflow channel										
52279	3/25/2021	12:10		7	8.3	12.4	198	0.1	4	ProDSS		58		

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8d				Tumwater input - storm outfall pipe into Tumwater @ 11 St.										
51927	3/25/2021	12:10									58			
51928	3/25/2021	12:10		9							96			
Tumwater 0.8e				Tumwater u/s of 11 St. storm outfall										
51929	3/25/2021	12:16		7	8.3	57.2	200	0.1	3	ProDSS	34			
Tumwater 1.5				Tumwater d/s of runoff ditch from SW side of Hwy 101										
51930	3/25/2021	12:46		6.9	8.3	12.3	194	0.1	4	ProDSS	72			

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Selected Water-Quality Parameters From: 4/1/21 To: 4/30/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	type	(in)	(Colonies/100ml)	(cfs)	
Peabody 0.0														
52268	4/26/2021	11:02		Peabody @ mouth	9.7	7.8	11.2	293	0.1	0	ES T	ProDSS	92	
Peabody 0.2														
52269	4/26/2021	11:16		Peabody @ 2nd St, above final culvert	9.6	7.7	11.4	219	0.1	0	ES T	ProDSS	31	0.68
Peabody 0.2a														
52270	4/26/2021	11:20		Peabody input - storm pipe d/s of RV park office	13								36	
Peabody 0.2b														
52271	4/26/2021	11:22		Peabody u/s of storm pipe d/s of RV Park office	9.6	7.7	11.5	211	0.1	2		ProDSS	20	
Peabody 0.3														
52280	4/26/2021	11:27		Peabody d/s of trailer park laundry	9.4	7.7	11.4	209	0.1	1		ProDSS		
Peabody 0.4														
52273	4/26/2021	11:47		Peabody @u/s end of Peabody St culvert	9.6	7.6	11.4	209	0.1	2		ProDSS	20	0.14
Peabody 0.4a														
52274	4/26/2021	11:52		Peabody input - storm pipe inside culvert @ Peabody St.	13								162	
Peabody 0.4b														
52272	4/26/2021	11:27		Peabody ~80' d/s of Peabody St. culvert									18	
Peabody 0.9														
52275	4/26/2021	12:05		Peabody u/s of 8 St.	9.2	7.9	11.6	206	0.1	1		ProDSS	6	
Peabody 1.4														
52282	4/26/2021	12:37		Peabody @ ONP Visitor Ctr	8.4	7.8	11.5	185	0.1	1		ProDSS	6	
Tumwater 0.0														
52283	4/26/2021	13:00		Tumwater d/s of Marine Dr	9	7.8	11.6	234	0.1	1		ProDSS	33	
Tumwater 0.1														
52284	4/26/2021	13:06		Tumwater u/s of Marine Dr, d/s of LB stormwater drain input										0.31
Tumwater 0.8														
52285	4/26/2021	13:22		Tumwater nr. 11 St., d/s of storm outflow channel	9.3	8.2	11.5	227	0.1	1		ProDSS	40	

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8d				Tumwater input - storm outfall pipe into Tumwater @ 11 St.										
52286	4/26/2021	13:20		12							26			
Tumwater 0.8e				Tumwater u/s of 11 St. storm outfall										
52287	4/26/2021	13:27		9.3		11.5	227	0.1	0	ES T	ProDSS	34		
Tumwater 1.5				Tumwater d/s of runoff ditch from SW side of Hwy 101										
52288	4/26/2021	13:52		9.2	8.2	11.6	223	0.1	0	ES T	ProDSS	60		

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Selected Water-Quality Parameters From: 5/1/21 To: 5/31/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	(in)	(Colonies/100ml)		(cfs)	
Peabody 0.0														
52294	5/26/2021	10:00									182			
Peabody 0.2														
52295	5/26/2021	12:04		11	7.7	11.3	261	0.1	2.2	ProDSS	165			
52296	5/26/2021	14:30												0.54
Peabody 0.2a														
52297	5/26/2021	12:10		12							4	U		
Peabody 0.2b														
52298	5/26/2021	12:12		10.9	7.9	11.6	250	0.1	1	ProDSS	208			
Peabody 0.4														
52300	5/26/2021	11:41		10.6	7.7	10.9	247	0.1	1	ProDSS	224			0.08
Peabody 0.4a														
52301	5/26/2021	11:40									294			
Peabody 0.4b														
52299	5/26/2021	12:25		10.7	7.8	11.2	250	0.1	1	ProDSS	170			
Peabody 0.9														
52302	5/26/2021	11:19		10.3	7.9	11.1	244	0.1	1	ProDSS	44			
Peabody 1.2														
52303	5/26/2021	10:58		10	7.9	11.2	230	0.1	1	ProDSS	18			
Peabody 1.2c														
52304	5/26/2021	11:02		12.3	7.6	10.4	283	0.1	1	ProDSS	30			
Peabody 1.4														
52305	5/26/2021	10:30		9.8	7.8	11	220	0.1	1	ProDSS	2	U		
Tumwater 0.0														
52289	5/26/2021	13:58		10.7	8	11.1	269	0.1	4	ProDSS	41			0.2

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8														
52290	5/26/2021	13:34												
Tumwater 0.8d														
52291	5/26/2021	13:35												
Tumwater 0.8e														
52292	5/26/2021	13:38												
Tumwater 1.5														
52293	5/26/2021	13:01												

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Selected Water-Quality Parameters From: 6/1/21 To: 6/30/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	(in)	(Colonies/100ml)		(cfs)	
Peabody 0.0				Peabody @ mouth										
52306	6/21/2021	11:46		15.2	7.9	9.3	436	0.2	3	ProDSS				
Peabody 0.2				Peabody @ 2nd St, above final culvert										
52307	6/21/2021	11:06		15.5	7.7	10	272	0.1	2	ProDSS				0.48
Peabody 0.2a				Peabody input - storm pipe d/s of RV park office										
52308	6/21/2021	11:10									16			
Peabody 0.2b				Peabody u/s of storm pipe d/s of RV Park office										
52309	6/21/2021	11:17		15.6	7.9	10.3	257	0.1	1	ProDSS				
Peabody 0.4				Peabody @u/s end of Peabody St culvert										
52311	6/21/2021	10:50		14.7	7.6	9.4	252	0.1	1	ProDSS				0.06
Peabody 0.4a				Peabody input - storm pipe inside culvert @ Peabody St.										
52312	6/21/2021	10:47		14							384			
Peabody 0.4b				Peabody ~80' d/s of Peabody St. culvert										
52310	6/21/2021	11:27		14.7	7.8	9.8	257	0.1	1	ProDSS				
Peabody 0.9				Peabody u/s of 8 St.										
52313	6/21/2021	10:32		14	7.8	9.9	250	0.1	1	ProDSS				
Peabody 1.2				Peabody u/s of storm pipe outfall @Lauridsen Blvd										
52314	6/21/2021	10:14		13.4	7.9	10.1	237	0.1	1	ProDSS				
Peabody 1.2c				Peabody storm flume d/s of Lauridsen Blvd LB										
52315	6/21/2021	10:17		13.6	7.7	10.1	284	0.1	2	ProDSS				
Peabody 1.4				Peabody @ ONP Visitor Ctr										
52316	6/21/2021	9:53		12	7.7	10.1	228	0.1	1	ProDSS				
Tumwater 0.0				Tumwater d/s of Marine Dr										
52317	6/21/2021	12:12		13.6	8.1	10.2	280	0.1	3	ProDSS				
Tumwater 0.1				Tumwater u/s of Marine Dr, d/s of LB stormwater drain input										
52318	6/21/2021	12:08												0.14

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8														
52319	6/21/2021	12:33												
Tumwater 0.8d														
52320	6/21/2021	12:30												
Tumwater 0.8e														
52321	6/21/2021	12:38												
Tumwater 1.5														
52322	6/21/2021	13:04												

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Selected Water-Quality Parameters From: 7/1/21 To: 7/31/21

Project: City of Port Angeles

Watershed: All

SITE				Air	Water	DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	(in)	(Colonies/100ml)		(cfs)	
Peabody 0.0														
52323	7/19/2021	10:25		13.6	7.8	9.6	828	0.4	3	ProDSS	300			
Peabody 0.2														
52324	7/19/2021	12:05		15.3	7.7	10.1	282	0.1	7.5	ProDSS	482			0.45
Peabody 0.2a														
52325	7/19/2021	12:10		14							10			
Peabody 0.2b														
52326	7/19/2021	12:12		16	8	10.6	259	0.1	2	ProDSS	128			
Peabody 0.4														
52328	7/19/2021	11:46		14.4	7.7	9.5	254	0.1	2	ProDSS	480			0.12
Peabody 0.4a														
52329	7/19/2021	11:45									20			
Peabody 0.4b														
52327	7/19/2021	12:24		14.3	7.9	10	259	0.1	2	ProDSS	388			
Peabody 0.9														
52330	7/19/2021	11:26		14.2	7.9	9.6	272	0.1	2	ProDSS	170			
Peabody 1.2														
52331	7/19/2021	11:10		13.3	7.9	10.2	239	0.1	1	ProDSS	334			
Peabody 1.2c														
52332	7/19/2021	11:11		14.5	7.8	9.8	282	0.1	4	ProDSS	30			
Peabody 1.4														
52333	7/19/2021	10:49		12.7	7.9	10.1	231	0.1	1	ProDSS	390			
Tumwater 0.0														
52334	7/19/2021	13:28		13.5	8.1	10.3	288	0.1	3	ProDSS	79			
Tumwater 0.1														
52335	7/19/2021	12:42												0.1

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8														
52336	7/19/2021	13:08						0.1	2	ProDSS		38		
Tumwater 0.8d														
52337	7/19/2021	13:08										2		
Tumwater 0.8e														
52338	7/19/2021	13:14						0.1	2	ProDSS		36		
Tumwater 1.5														
52339	7/19/2021	13:41						0.1	1	ProDSS		20		

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Selected Water-Quality Parameters From: 8/1/21 To: 8/31/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water			DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage	
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	type	(in)	(Colonies/100ml)	(cfs)		
Peabody 0.0															
52396	8/25/2021	12:00		12.9	8	9.6	957	0.5	6	ProDSS		276			
Peabody 0.2															
52397	8/25/2021	12:13		14	7.8	10	290	0.1	4	ProDSS		483		0.45	
Peabody 0.2a															
52398	8/25/2021	12:16		15								26			
Peabody 0.2b															
52399	8/25/2021	12:17		13								462			
Peabody 0.4															
52401	8/25/2021	11:38		13	7.7	9.8	257	0.1	1	ProDSS		454		0.1	
Peabody 0.4a															
52402	8/25/2021	12:03		13	7.9	10.3	263	0.1	1	ProDSS		110			
Peabody 0.4b															
52400	8/25/2021	12:27		12.9	7.9	10.3	263	0.1	1	ProDSS		394			
Peabody 0.9															
52403	8/25/2021	11:20		13.1		10.1	256	0.1	0	ES T ProDSS		118			
Peabody 1.2															
52404	8/25/2021	11:05		12.3	8	10.3	242	0.1	0	ES T ProDSS		42			
Peabody 1.2c															
52405	8/25/2021	11:02		15	7.7	9.3	295	0.1	1	ProDSS		48			
Peabody 1.4															
52406	8/25/2021	10:45		12	7.9	10.2	232	0.1	1	ProDSS		18			
Tumwater 0.0															
52407	8/25/2021	12:49		12.2	8.2	10.7	294	0.1	2.5	ProDSS		61			
Tumwater 0.1															
52408	8/25/2021	12:56												0.07	

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8														
52409	8/25/2021	13:08						0.1	0					
									ES		44			
									T					
Tumwater 0.8d														
52410	8/25/2021	13:06												
											2	U		
Tumwater 0.8e														
52411	8/25/2021	13:14						0.1	1					
									ProDSS		90			
Tumwater 1.5														
52412	8/25/2021	13:39						0.1	0					
									ES		48			
									T					

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Page 2 of 2

Selected Water-Quality Parameters From: 9/1/21 To: 9/30/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water			DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage	
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	type	(in)	(Colonies/100ml)	(cfs)		
Peabody 0.0				Peabody @ mouth											
52489	9/21/2021	10:18		11.5	7.6	9.7	785	0.4	1	ProDSS		136			
Peabody 0.2				Peabody @ 2nd St, above final culvert											
52490	9/21/2021	12:07		12.3	7.5	10.5	268	0.1	2.5	ProDSS		281			0.46
Peabody 0.2a				Peabody input - storm pipe d/s of RV park office											
52500	9/21/2021	12:03		16								12			
Peabody 0.2b				Peabody u/s of storm pipe d/s of RV Park office											
52491	9/21/2021	12:14		12.6	7.9	10.7	246	0.1	2	ProDSS		178			
Peabody 0.4				Peabody @u/s end of Peabody St culvert											
52493	9/21/2021	11:41		11.8	7.6	10.1	236	0.1	2	ProDSS		176			0.1
Peabody 0.4a				Peabody input - storm pipe inside culvert @ Peabody St.											
52501	9/21/2021	11:43		16								928			
Peabody 0.4b				Peabody ~80' d/s of Peabody St. culvert											
52492	9/21/2021	12:02		11.8	7.8	10.7	247	0.1	2	ProDSS		234			
Peabody 0.9				Peabody u/s of 8 St.											
52494	9/21/2021	11:25		11.9	7.9	10.5	250	0.1	2	ProDSS		230			
Peabody 1.2				Peabody u/s of storm pipe outfall @Lauridsen Blvd											
52495	9/21/2021	11:10		10.9	7.9	10.8	238	0.1	1	ProDSS		134			
Peabody 1.2c				Peabody storm flume d/s of Lauridsen Blvd LB											
52496	9/21/2021	11:05		16.1	7.6	9.7	231	0.1	0	ES TProDSS		8			
Peabody 1.4				Peabody @ ONP Visitor Ctr											
52497	9/21/2021	10:43		10.4	7.8	10.6	224	0.1	0	ES TProDSS		2			
Tumwater 0.0				Tumwater d/s of Marine Dr											
52485	9/21/2021	12:40		11	8.1	11	297	0.1	2	ProDSS		31			
Tumwater 0.1				Tumwater u/s of Marine Dr, d/s of LB stormwater drain input											
52498	9/21/2021	12:43													0.09

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)					Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity		Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8															
52486	9/21/2021	13:02													
Tumwater 0.8d															
52499	9/21/2021	13:00													
Tumwater 0.8e															
52487	9/21/2021	13:06													
Tumwater 1.5															
52488	9/21/2021	13:39													

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Selected Water-Quality Parameters From: 10/1/21 To: 10/31/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water	DO		Specific (25°C)				Fecal	Entero-	Flow	Stage
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	(cfs)	
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	(in)	(Colonies/100ml)			
Peabody 0.2														
52475	10/25/2021	12:07		11	7.7	10.4	235	0.1	2	ProDSS	73			0.56
Peabody 0.2a														
52483	10/25/2021	12:08		14							12			
Peabody 0.2b														
52476	10/25/2021	12:13		10.8	7.7	10.5	226	0.1	2	ProDSS	68			
Peabody 0.4														
52478	10/25/2021	11:46		10.5	7.7	10.2	227	0.1	1	ProDSS	52			0.14
Peabody 0.4a														
52484	10/25/2021	11:45		15							836			
Peabody 0.4b														
52477	10/25/2021	12:29		10.8	7.8	10.6	227	0.1	2	ProDSS	80			
Peabody 0.9														
52479	10/25/2021	11:21		10.5	7.9	10.4	228	0.1	1	ProDSS	84			
Peabody 1.2														
52480	10/25/2021	11:03		9.7	7.9	10.7	226	0.1	1	ProDSS	128			
Peabody 1.2c														
52481	10/25/2021	10:57		15	7.9	9.6	81	0.1	0.5	ProDSS	148			
Peabody 1.4														
52482	10/25/2021	10:33		9.2	8	10.8	217	0.1	1	ProDSS	4	U		
Tumwater 0.1														
52469	10/25/2021	12:59		10	7.8	10.5	287	0.1	2	ProDSS	912			0.2
Tumwater 0.8														
52470	10/25/2021	13:28		11	7.9	10.5	104	0.1	30	ProDSS	776			
Tumwater 0.8d														
52471	10/25/2021	13:29		13.4	7.6	9.8	67	0	EST	80	ProDSS	0	G	

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8e				Tumwater u/s of 11 St. storm outfall										
52472	10/25/2021	13:36		9.6	7.9	10.9	285	0.1	2	ProDSS		132		
Tumwater 1.5				Tumwater d/s of runoff ditch from SW side of Hwy 101										
52473	10/25/2021	14:07		9.6	7.9	10.8	274	0.1	4	ProDSS		116		

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/5/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Page 2 of 2

Selected Water-Quality Parameters From: 11/1/21 To: 11/30/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU)	(in)	(Colonies/100ml)		(cfs)	
Peabody 0.2														
52546	11/22/2021	12:17		7	7.7	12.1	161	0.1	7	ProDSS	43			0.98
Peabody 0.2a														
52563	11/22/2021	11:53		12							4			
Peabody 0.2b														
52547	11/22/2021	12:26		6.9	7.7	12.2	158	0.1	7	ProDSS	54			
Peabody 0.4														
52549	11/22/2021	11:49		8.4	7.6	12.2	156	0.1	7	ProDSS	48			0.32
Peabody 0.4a														
52556	11/22/2021	11:43		7							428			
Peabody 0.4b														
52548	11/22/2021	12:36		6.9	7.7	12.2	159	0.1	6	ProDSS	68			
Peabody 0.9														
52550	11/22/2021	11:21		6.4	7.7	12.3	152	0.1	7	ProDSS	48			
Peabody 1.2														
52551	11/22/2021	10:56		6	7.8	12.4	146	0.1	7	ProDSS	12			
Peabody 1.2c														
52552	11/22/2021	11:00		10.9	7.4	10.9	69	0	EST	10	ProDSS	8		
Peabody 1.4														
52553	11/22/2021	10:32		5.7	7.7	12.4	139	0.1	7	ProDSS	20			
Tumwater 0.0														
52542	11/22/2021	12:54		7	7.8	12.2	168	0.1	6	ProDSS	17			0.64
Tumwater 0.8														
52543	11/22/2021	13:20		6.7	7.8	12.1	163	0.1	8	ProDSS	152			
Tumwater 0.8d														
52554	11/22/2021	13:15		10							36			

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/16/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8e				Tumwater u/s of 11 St. storm outfall										
52544	11/22/2021	13:28		6.7	7.8	12.2	162	0.1	6	ProDSS		54		
Tumwater 1.5				Tumwater d/s of runoff ditch from SW side of Hwy 101										
52545	11/22/2021	13:54		6.8	7.8	12.1	158	0.1	6	ProDSS		34		

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

12/16/2021

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Page 2 of 2

Selected Water-Quality Parameters From: 12/1/21 To: 12/31/21

Project: City of Port Angeles

Watershed: All

SITE			Air	Water	DO		Specific (25°C)				Fecal	Enterococci	Flow	Stage
Visit_ID	Date	Start Time	Temp (°C)	Temp (°C)	pH	Concentration (mg/L)	Conductivity (uS)	Salinity (pss)	Turbidity (NTU)	type	Precip24 (in)	Coliform (Colonies/100ml)	cfs	
Peabody 0.2	Peabody @ 2nd St, above final culvert													
52585	12/21/2021	11:19		4.1	8.2	13.2	153	0.1	22	ProDSS		24		1
Peabody 0.2a	Peabody input - storm pipe d/s of RV park office													
52586	12/21/2021	11:18		12								2		
Peabody 0.2b	Peabody u/s of storm pipe d/s of RV Park office													
52587	12/21/2021	11:26		4.1	8.3	13.2	150	0.1	30	ProDSS		26		
Peabody 0.4	Peabody @u/s end of Peabody St culvert													
52589	12/21/2021	10:29		3.8	7.9	13.2	148	0.1	38	ProDSS		18		
Peabody 0.4a	Peabody input - storm pipe inside culvert @ Peabody St.													
52590	12/21/2021	10:40		9								166		
Peabody 0.4b	Peabody ~80' d/s of Peabody St. culvert													
52588	12/21/2021	11:47		4.1	8.2	13.2	150	0.1	34	ProDSS		34		
Peabody 0.9	Peabody u/s of 8 St.													
52591	12/21/2021	9:59		3.7	8	13.2	143	0.1	45	ProDSS		26		
Peabody 1.2	Peabody u/s of storm pipe outfall @Lauridsen Blvd													
52592	12/21/2021	14:26		4.2	8.1	13	140	0.1	13	ProDSS		14		
Peabody 1.2c	Peabody storm flume d/s of Lauridsen Blvd LB													
52593	12/21/2021	14:32		8	7.9	12	211	0.1	2	ProDSS		232		
Peabody 1.4	Peabody @ ONP Visitor Ctr													
52594	12/21/2021	9:27		3.7	7.8	13.1	134	0.1	57	ProDSS		22		
Tumwater 0.0	Tumwater d/s of Marine Dr													
52579	12/21/2021	12:24		4.5	8.5	13	153	0.1	6	ProDSS		16		1
Tumwater 0.8	Tumwater nr. 11 St., d/s of storm outflow channel													
52580	12/21/2021	12:59		4.6	8.3	12.9	149	0.1	7	ProDSS		14		
Tumwater 0.8d	Tumwater input - storm outfall pipe into Tumwater @ 11 St.													
52581	12/21/2021	12:57		4								36		

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

2/10/2022

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

SITE			Air	Water		DO	Specific (25°C)				Fecal	Entero-		
Visit_ID	Date	Start Time	Temp	Temp	pH	Concentration	Conductivity	Salinity	Turbidity	Precip24	Coliform	cocci	Flow	Stage
			(°C)	(°C)		(mg/L)	(uS)	(pss)	(NTU) type	(in)	(Colonies/100ml)		(cfs)	
Tumwater 0.8e				Tumwater u/s of 11 St. storm outfall										
52583	12/21/2021	13:14		4.6	8.5	12.9	150	0.1	8 ProDSS		14			
Tumwater 1.5				Tumwater d/s of runoff ditch from SW side of Hwy 101										
52584	12/21/2021	13:47		4.8	8.5	12.7	147	0.1	6 ProDSS		30			

Parameters reported here are limited to the following Groups (see Parameter_Method_Combos table): Bacteriological; Conventional WQ; Flow/Stage; Nutrients; Weather.

Results for Parameters not reported here will have to be retrieved by query; one such query is named _Basic_Data_Tables.

Readings for a given Batch & then Visit are averaged; if multiple methods were used, results are reported only for the best QA compliance & most reliable method.

2/10/2022

Values are rounded to the number of decimals deemed appropriate for the method and reported as recorded, even if below listed reporting or detection limits (available on request).

DATA-QUALITY CODES: 1 = Full QA compliance; 2 = Estimate-level, with QA compliance incomplete, but QA officer deems the data to be reasonably representative.

Unacceptable data are not reported here. Non-detects are reported at the Reporting Limit.

Page 2 of 2

GRAB SAMPLE DATA SHEET - STREAMKEEPERS OF CLALLAM COUNTY - PORT ANGELES, WASHINGTON, USA - 360-417-2281

Revised 10/24/18

Project: *City of Port Angeles / Tour descriptor: Grab Tours / Period: Monthly*

Date: 02/23/21 (Incl. last name + all initials:) Sampler in charge: S. Nattinger

Tour ID (from database entry): _____

Other samplers: J Green

Episode ID (if tour is an entire episode): _____

Check sampling plan to determine projects and sites for samples & replicates; enter each bottle-grab on a separate line (so sample + replicate = 2 lines)

Complete in lab:

Bottle #	Lab delivery temperatures:		Bottle #	Temperature °C	Enter "FR" if a field replicate	Time of fecal sample collection (military)	Sample collector (all initials)	Water temp (°C)	Tour-wide comments: In cells below, make Visit comments: Precip(24 hr) / Other comments: (precip from Lincoln HS unless noted)	Lab #	Sample/ Lab Rep (LR) fecal reading (colonies per 100 mL)	EIM Qualifier
	Earliest:	Latest:	116	8.0								
	Site name	Site description										
X	Peabody 0.0	Peabody @ mouth				JG			high tide			
116	Peabody 0.2	Peabody @ 2nd St.								083	46	
57	Peabody 0.2	Peabody @ 2nd St.			FR		11:2			084	34/30	
X	Peabody 0.2	STAGE GAGE ON d/s SIDE OF BRIDGE					11:5	X	Stage (ft): 0.96			
103	Peabody 0.2a	Peabody storm pipe d/s of RV park office					11:2	12°		085	12	
112	Peabody 0.2b	Peabody u/s of storm pipe d/s of RV office					11:5			086	36	
42	Peabody 0.4b	Peabody trailer park 30' d/s of culvert under Peabody St.					1:30		turbidity higher - rain	087	150	
	Peabody 0.4	Peabody u/s end Peabody St. culvert								088	18	
X	Peabody 0.4	STAGE GAGE ON RB CULVERT WING						X	Stage (ft): .54			
131	Peabody 0.4a	Peabody storm pipe inside culvert					11:55	6		089	sediment no count	N
32	Peabody 0.9	Peabody u/s of 8th St.					12:14			090	488	
34	Peabody 1.2	Peabody u/s of storm flume @Lauridsen					12:01			091	168	
57	Peabody 1.2c	Peabody storm flume d/s of Lauridsen					11:59		231 12:14 fr. Lauridsen	092	544	G
58	Peabody 1.4	Peabody @ ONP Visitor Ctr					12:50			093	4	

GRAB SAMPLE DATA SHEET - STREAMKEEPERS OF CLALLAM COUNTY - PORT ANGELES, WASHINGTON, USA - 360-417-2281

Revised 10/24/18

Project: City of Port Angeles / Tour descriptor: GrabTours / Period: Monthly

Date: 04/26/21 (Incl. last name + all initials:) Sampler in charge: S. B. NITTINGER

Tour ID (from database entry):

Other samplers: G. C. BYRNES

Episode ID (if tour is an entire episode):

Check sampling plan to determine projects and sites for samples & replicates; enter each bottle-grab on a separate line (so sample + replicate = 2 lines)

Complete in lab:

Bottle #	Lab delivery temperatures:		Bottle #	Temperature °C	Enter "FR" if a field replicate	Time of fecal sample collection (military)	Sample collector (all initials)	Water temp (°C)	Tour-wide comments: In cells below, make Visit comments: Precip(24 hr) / Other comments: (precip from Lincoln HS unless noted)	Lab #	Sample/ Lab Rep (LR) fecal reading (colonies per 100 mL)	EIM Qualifier
	Earliest:	Latest:										
66			66	5.4		1100	GCB			515	92	
37			52	8.8		1110	GCB			516	32	
74			145	4.5		1111	GCB			517	24/36	
X						1135	GCB	X	Stage (ft): 0.68			
134						1120	GCB	13		518	36	
138						1125	GCB			519	20	
42						1127	SBN			520	18	
103						1146	GCB			521	20	
X						1148	GCB	X	Stage (ft): 0.14			
145						1152	GCB	13		522	184/140	*
90						1203	SBN		WG 1206	523	6	
									} inaccessible due to cuttings for powerline			
23						1237	SBN			524	6	
									#145 * # Peabody, 0.4 a 25 ml + 10 ml dilution			

GRAB SAMPLE DATA SHEET - STREAMKEEPERS OF CLALLAM COUNTY - PORT ANGELES, WASHINGTON, USA - 360-417-2281

Revised 10/24/18

Project: City of Port Angeles / Tour descriptor: GrabTours / Period: Monthly

Date: 09/21/21 (Incl. last name + all initials:) Sampler in charge: SB

Tour ID (from database entry):

Other samplers: GC Byrnes

Episode ID (if tour is an entire episode):

Check sampling plan to determine projects and sites for samples & replicates; enter each bottle-grab on a separate line (so sample + replicate = 2 lines)

Complete in lab:

Bottle #	Lab delivery temperatures:		Bottle #	Temperature °C	Enter "FR" if a field replicate	Time of fecal sample collection (military)	Sample collector (all initials)	Water temp (°C)	Tour-wide comments: In cells below, make Visit comments: Precip(24 hr) / Other comments: (precip from Lincoln HS unless noted)	Lab #	Sample/ Lab Rep (LR) fecal reading (colonies per 100 mL)	EIM Qualifier
	Earliest:	Latest:										
29			29	2.6		1017	SBN	11.5		850	136	
31			21	11.2		1210	SBN			851	256	
43			53	7.5		1111	SBN			852	272/316	
X							GCB		Stage (ft): 46			
5						1203	GCB	16		853	12	
6						1207	GCB	13		854	178	
138						1202				855	234 834	
44						1140	SBN	11		856	176	
X									Stage (ft):			
16						1143	GCB	14		857	928	
17						1120	GCB	11.9		858	230	
74						1109	SBN	10.7		859	134	
53						1106	SBN	16.1		860	8	
66						1043	GCB	10.7		861	2	

CITY OF

**PORT ANGELES**

WASHINGTON, U. S. A.

Public Works & Utilities Department

May 27, 2021

Angela Vincent
Municipal Stormwater Permit Planner
SWRO WQ Watershed Resource Unit
WA State Dept. of Ecology
PO Box 47775
Olympia, WA 98504-7775

RE: Phase II Stormwater Permit (WAR045028) | S4.F.1 Notification – Jan. 2nd SSO into MS4.

Dear Angela Vincent,

On January 2nd, 2021, the City's domestic wastewater system experienced a Sanitary Sewer Overflow (SSO) onto private property and into the residence at 2101 W. 4th Street. The cause of the event was heavy precipitation that overwhelmed the conveyance capacity of the City's wastewater infrastructure. In response to the immediate threat to human health and property, City staff redirected the overflow into the City's nearby MS4 which conveyed and discharged the overflow into the Port Angeles Harbor. The discharge event spanned approximately 12 hours; over which time, an estimated 282,000 gallons of SSO was discharged into the Harbor via the City's stormwater outfall below Crown Park. More details of the event and the City's response can be found in the City's G3 Notification to Ecology (ERTS #702841) and the 5-Day Spill Report to Ecology submitted on Jan. 4th under the City's Municipal Wastewater Permit.

In response to the notification, Ecology expressed concern about the event's downstream water quality impact based on the SSO discharge volume. In an effort to confirm or alleviate that concern, the City applied the State's Water Quality Standards (WAC 173-201A) to the event. The WAC defines adverse impact to be based on concentration, exposure time, detectable impacts to aesthetic values, restrictions to the designated use, and fluctuations to pH, turbidity, temperature, and dissolved oxygen outside of the allowable range specific to the receiving water. On February 3rd, the City submitted a detailed report to Ecology that confirmed the event most likely did not exceed any water quality standard due to the event's dilute concentration, brevity, and isolate occurrence. Regardless, on April 28th, the City received notification from your office that this event, "*... meets the bar of a likely violation of water quality standards*" and requires an S4.F.1 notification in order to maintain permit compliance.

Therefore, the intent of this notification letter is to satisfy Ecology's request and ensure maintained compliance with the Phase II Permit.

Despite this submittal, the City has previously shown Ecology's expressed reasoning for requiring this S4.F.1 notification to be unsubstantiated by the State's own Water Quality Standards (WAC 173-

201A). Nowhere in the WAC is a volumetric threshold cited. Rather, numeric and narrative standards reference concentration and exposure time as being the quantitative parameters of significance. Additionally, language in RCW 90.48 and S4 of the Permit do not support Ecology's determination that diluted sewage inherently fits the description of "polluting matter" and therefore "unlawful" to discharge. The definition of pollution in RCW 90.48.020 is contingent upon having an adverse impact in the receiving water such as, "create a nuisance or render waters harmful, detrimental, or injurious." Such an impact would be determined by applying the standards set forth in WAC 173-201A. S4.A of the Permit prohibits the discharge of toxicants to waters of the State *which would violate* any water quality standard – not all toxicant discharges; just those that violate WAC 173-201A. Therefore, to date, Ecology has not provided the City with any basic, clear, relevant, or accurate guidance in support of applying WAC 173-201A and the City remains unaware of any credible site-specific information that would warrant an S4.F.1 notification in relation to the Jan. 2nd SSO event.

Semantics aside, the City's goal is to protect downstream water quality by preventing or reducing all illicit, non-stormwater discharges into and out of the City's MS4. This is evident by the City's robust IDDE program and by the immediate, provisional, and long-term actions taken by the City to reduce the likelihood of an SSO reoccurrence at this location.

Immediate action items consisted of activating the City's IDDE response team, notification of the event to the State and County Health Dept., clean-up of the area and all impacted infrastructure after the peak flow subsided, and inter-departmental after-action review, analysis, and capital planning.

In the days after the event, provisional action items were developed by City Operations and Engineering Staff to put any readily available measures into effect that would reduce the reoccurrence risk in the short-term while more permanent solutions were developed. The following list of provisional action items were developed and completed within 2 weeks after the Jan. 2nd event.

1. Temporary Storage Upstream - An alarm threshold, based on rain gauge depth, was established at the City-owned Transfer Station; which is upstream from the overflow location. When triggered during a significant rain event (0.75"), City Staff will now divert pumped wastewater from the wastewater conveyance system into an unused City-owned storage pond for temporary storage and release after the peak flow has subsided. The approximate available storage volume is 350,000 gallons.
2. Redirect Competing Flow - A new weir plate was installed in a key wastewater junction manhole in the Crown Park wastewater basin. This weir now fully redirects a significant portion of competing wastewater flow down Hill Street and away from the infrastructure that overflowed on Jan. 2nd.
3. Reduce Stormwater Inflow – The Jan 2nd rain event was intense enough to also overwhelm the stormwater system in some places along Marine Drive and caused localized flooding in the street around Pump Station #3; which is directly downstream from the SSO location. The ponded water entered into the sanitary sewer system through manhole lids and contributed to overwhelming Pump Station #3 and backing up the upstream sanitary

system. To alleviate this issue, the City installed gasketed sanitary sewer lids to keep floodwater out of the sanitary system during intense rain events, thus allowing for more wastewater conveyance capacity.

Prior to this event and over a period of several years, the City had performed wastewater flow monitoring along W. 4th St. and in the Crown Park Basin and several projects already were established on the City's Capital Facility Plan (CFP) to improve service, address aging and outdated infrastructure, and increase capacity. After this event, the City re-evaluated the priority of scheduled wastewater CFP projects and some project schedules were accelerated in-part due to the Jan. 2nd event. The following is a list of funded CFP projects that will directly improve the wastewater conveyance along W. 4th Street either through analysis and design or by construction.

1. Pump Station #3 Replacement (WW0308) – This \$1.48M project upgraded the Pump Station directly downstream from the SSO location on Marine Drive. The new higher-capacity Pump Station was commissioned shortly after the SSO event occurred and is now fully operational. The higher flow capacity will reduce backwatering effects upstream under similar conditions.
2. Wastewater Comprehensive Plan (WW0319) – This \$300K analysis and planning effort is currently underway and includes a task specific to evaluating the Crown Park Wastewater Basin. Results of the effort will be used to prioritize and budget future capital improvement projects in the area to ensure the highest benefit is achieved.
3. West 4th Street Capacity Improvement Project (WW0220) – Design is scheduled for 2021 with \$75K being budgeted for design improvements on the conveyance infrastructure along W. 4th Street. Following the design, an additional \$425K has been budgeted for construction in 2022.
4. Pump Station 3 Force Main Replacement Project (WW0120) – Improvements to the conveyance infrastructure between Pump Station #3 and #4 are scheduled for design in 2022 (\$250K) and construction in 2023 (\$2M). This effort is expected to significantly improve wastewater conveyance capacity from the westside of town; specifically including the W. 4th Street line.

As such, with a thorough evaluation of the event evident herein, the discharge being an isolate occurrence with no remaining source to the MS4, and the exceptional provisional and long-term response already in-effect to reduce the threat of reoccurrence; the City understands the issue to be resolved via the implementation of our ongoing Stormwater Management Program elements and an adaptive management response will not be required, per S4.F.2(b).

As stated above, the City believes this letter satisfies Ecology's request to file an S4.F.1 notification for the Jan. 2nd SSO discharge event, meets all minimum requirements described therein, and therefore permit compliance is fully maintained.

Any questions or concerns can be communicated to the City's Stormwater Engineer, Vince McIntyre, at Vmcintyr@cityofpa.us or at (360) 417-4701.

Sincerely,

DocuSigned by:

BA38094FC0F7482...

Thomas Hunter

Director of Public Works and Utilities
City of Port Angeles

"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 gathered and evaluated 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 willful violations."

CC: Nathan West, City Manager
Bill Bloor, City Attorney
Jonathan Boehme, City Engineer
Vince McIntyre, Stormwater Engineer

Phone: 360-417-4800 / **Fax:** 360-417-4542

Website: www.cityofpa.us / **Email:** publicworks@cityofpa.us

321 East Fifth Street Port Angeles, WA 98362-0217



Port Angeles Landfill (PALF) Stormwater Best Management Practices during heavy rain events

Purpose

Establish a practice for diverting flow from Pump Station 17, located at PALF, to an onsite retention pond during heavy rainstorms in order to reduce the downstream impact on the sewer collections system. The collections system is over capacity during heavy rain events. Diversion of PALF flow will prevent, or significantly reduce the volume, of an overflow should one occur along west 4th Street.

Steps

1. PALF PS17 rain gauge is tied into the WWTP SCADA system. WWTP On-Call Operator will receive an alarm call-out should the rain at this location exceed 0.75 inches in a 24hr period. On Call Operator will notify PALF Staff and Wastewater Collection staff.
2. PALF staff will arrive onsite and began diverting flow from PS17 to Retention Pond using a trash pump.
3. While flow is being diverted PALF staff turns off PS17 pumps' so they no longer discharge to City collections system. Reducing flows to the downstream system by \approx 300gpm.
4. Wastewater Collections staff will monitor downstream conveyance system along West 4th Street.
5. When rain event subsides, and downstream flows have reduced, diversion to retention pond can be ceased. PS17 pumps are put back into Auto.
6. In the following days, as weather allows, retention pond is emptied, via trash pump, back into the PS17 wet well. Flow will be returned in a controlled manner that limits the likelihood of exceeding PALF Industrial Discharger daily maximum flow.

Contacts and Workflow

Contact info for each divisions' designated staff is listed below. Superintendents will be the main contacts for their respective crews should staff have a need for additional direction or consultation. The **City of Port Angeles Operations On-Call Procedure** still serves as the main reference for after- hours response protocol.

Name	Division	Title	After Hours Phone Number
Tyler White	WWTP	Superintendent	360-461-7022
Plant On-Call Operator	WWTP	Plant Operator	360-461-0111
Jason Paynter	Solid Waste	Transfer Station Supervisor	360-461-1482
Meggan Uecker	Solid Waste	Superintendent	360-477-7167
Jeff Groves	WW Collections	Superintendent	360-461-6794
Corp Yard On-Call	Public Works	Maintenance Worker	461-9261







