



MEETING AGENDA

KELSO STORMWATER ADVISORY COMMITTEE

DATE: June 29, 2011

TIME: 4:00 pm – 5:00 pm

LOCATION: Kelso City Hall, Suite 203

Unfinished Business

- 1) March 30, 2011 meeting minutes approval

New Business

- 1) Draft permit language for 2012 permit
- 2) Education subgroup report



Kelso Stormwater Advisory Committee Meeting
June 29, 2011 @ 4:00 p.m.
City Hall Conference Room 203
203 S. Pacific Ave.

Attendees:

1. Michael Dreyer
2. Van Mckee
3. Don Long
4. Gloria Nichols
5. SM 2
6. Dan Howell
7. Tim Waters
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____



Engineering Phone 360-423-6590
Fax 360-423-6591
Operations Phone 360-423-5730
Fax 360-423-8196

CITY OF KELSO
Public Works Department
203 S. Pacific Ave., Suite 205
PO Box 819
Kelso, WA 98626

Stormwater Advisory Committee Meeting

March 30, 2011

Call to Order:

Tim Wines called the meeting to order at 4:04 p.m., at City of Kelso City Hall, 203 S. Pacific Ave., Conference Room 203.

Those present were as follows:

Advisory Committee Members:

Gloria Nichols
Steffanie Taylor
Don Lemmons
Michael Dyer
Tim Wines
Dan Howell

Staff:

Van McKay, City of Kelso
Stephanie Helem, City of Kelso

Excused Absence: Gary Fredricks

Approval of Minutes:

Don Lemmons made the motion, seconded by Gloria Nichols to approve the minutes of December 1, 2010. Motion carried, all in favor.

New Business:

1. Phase II Pass-through Grant Completion

Van McKay provided each committee member a copy of the Final Report for Grant No. G1000180, Phase II Stormwater Pass-through Grant Program. The grant total was for \$50,000. This project was to administer and implement the City's stormwater management program (SWMP). The project was to address stormwater management needs that protect water quality through a variety of activities established in the grant agreement, the Phase II municipal Stormwater Permit, and the City's SWMP. Van McKay acknowledged and expressed his gratitude to the committee member's for their participation in the Stormwater Program.

A brief overview was given of the following stormwater activities performed by the city during the grant period:

A. Public Education and Outreach Activities

It is the Mission to: Plan, Prioritize, Construct, Operate and Maintain Public Infrastructure in Order to Provide Continuous Health and Safety While Positively Impacting Citizen's Quality of Life by Efficiently and Innovatively Maximizing Available Resources Within the City so that we Provide High Quality Services for the Public.

- B. Public Involvement and Participation Activities
- C. Illicit Discharge Detection and Elimination Program Activities
- D. Activities to Support Programs to Control Runoff from New Development, Redevelopment, and Construction Sites
- E. Pollution Prevention, Good Housekeeping, , and Operation and Maintenance Program Activities

A brief discussion followed. Can grant money be used to fix existing stormwater issues/problems?

2. Annual Report

The annual 2010 Report is due to the Department of Ecology by March 31, 2011. The city is currently waiting for the next permit cycle for different flow monitoring requirements.

3. Other Business Discussed

- A. Is Kelso going to participate or be involved with Longview and have a stormwater booth for Earth Day?
- B. Industrial Permittee Workshop has been advertised. Van McKay is scheduled to attend.
- C. Public Outreach/Education Volunteers:
 - i. Leaf flyer project next fall.
 - ii. Possibility of creating an interactive stormwater presentation to present to local schools.
 - a) Main focus on particular age group of elementary/middle school students. "Educate the Young".
 - b) Forestry and/or science classes.
 - c) Diking District may have model of town.
 - d) Other firms, community groups interested in presenting.
 - e) KLTV – Develop a video/show.
 - f) Grant funds available?
 - g) Project Development – Van to work with Gloria Nichols, Steffanie Taylor, and Michael Dyer.

Next Meeting:

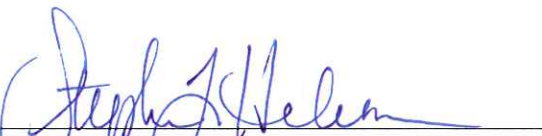
Committee discussed and agreed the next meeting shall be held June 29, 2011.

Meeting adjourned at 4:59 pm.

Approved:



Dan Howell, Chairperson



Stephanie Helem, Recording Secretary

Western Washington Phase II Municipal Stormwater General Permit

Preliminary Draft Language

Note to Reviewers:

The Department of Ecology is soliciting comments on the preliminary draft language in this document for reissuance of the Western Washington Phase II Municipal Stormwater General Permit. As the permit reissuance process moves from preliminary draft language to the formal draft permit, and then to the final permit, each version will have significant changes as a result of public comments.

The 2011 legislature passed Engrossed Substitute House Bill 1478, which is awaiting the Governor's signature as Ecology begins this informal comment period. If the bill becomes law, Ecology's proposal is to incorporate these deadlines in the Phase II draft permits in October 2011. During the current public review and comment period, Ecology is asking for feedback on these proposed deadlines for low impact development and monitoring. All the deadlines presented in this proposed preliminary draft language are based on a permit issuance date of July 1, 2012.

Low Impact Development Preliminary Draft Language

The Department of Ecology is soliciting comments on the preliminary draft language in this section intended to implement low impact development (LID) requirements in construction and post-construction runoff controls for new development and redevelopment in permitted cities and counties.

The draft language for review in this document addresses only the implementation of LID requirements in S5.C.4, and does not include draft revisions to other requirements of this program component. Proposed LID requirements are shown in line in/out format. Please limit your comments to the LID-related requirements in this section. Ecology will issue a complete draft permit with all proposed changes to permit language in October 2011 for formal public comment. The formal draft permit and final permit will require permittees to continue to implement existing program requirements, consistent with special condition S5.B.

4. Controlling Runoff from New Development, Redevelopment and Construction Sites

Each Permittee shall develop, implement, and enforce a program to reduce pollutants in stormwater runoff to a regulated small MS4 from new development, redevelopment and construction site activities. ~~This program shall be applied to all sites that disturb a land area 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale.~~ The program shall apply to private and public development, including roads. ~~The "Technical Thresholds" in Appendix 1 shall be applied to all sites 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale.~~

The minimum performance measures are:

- a. The program shall include an ordinance or other enforceable mechanism that addresses runoff from new development, redevelopment, and construction site projects. Pursuant to S5.A.2., in adopting this ordinance or other regulatory mechanism, existing local requirements to apply stormwater controls at smaller sites, or at lower thresholds than required pursuant to S5.C.4., shall be retained. The ordinance or other enforceable mechanism shall be adopted and

effective no later than ~~February 16, 2010~~December 31, 2015¹. The ordinance or other enforceable mechanism shall include, at a minimum:

- i. The Minimum Requirements, technical thresholds, and definitions in Appendix 1 or a ~~program n-equivalent~~program equivalent approved by Ecology under the NPDES Phase I Municipal Stormwater Permit, for new development, redevelopment, and construction sites. Adjustment and variance criteria equivalent to those in Appendix 1 shall be included. More stringent requirements may be used, and/or certain requirements may be tailored to local circumstances through the use of basin plans or other similar water quality and quantity planning efforts. Such local requirements shall provide equal protection of receiving waters and equal levels of pollutant control to those provided in Appendix 1.
- ii. A site planning process and BMP selection and design criteria that, when used to implement the minimum requirements in Appendix 1 (or a program equivalent approved by Ecology under the Phase I Permit) will protect water quality, reduce the discharge of pollutants to the maximum extent practicable and satisfy the State requirement under Chapter 90.48 RCW to apply all known, available and reasonable methods of prevention, control and treatment (AKART) prior to discharge. Permittees shall document how the criteria and requirements will protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and satisfy State AKART requirements.

Permittees who choose to use the site planning process and BMP selection and design criteria in the 2005² *Stormwater Management Manual for Western Washington*, or ~~an equivalent manual program~~program approved by the Department under the Phase I Permit, may cite this choice as their sole documentation to meet this requirement.

- iii. The legal authority, through the approval process for new development, to inspect private stormwater facilities that discharge to the Permittee's MS4.

¹ Deadlines are based on an issuance date of July 1, 2012.

² Ecology plans to make selected edits to the 2005 *Stormwater Management Manual for Western Washington* to reflect the LID requirements incorporated into Appendix 1. Public review of the draft revisions to the manual will be available in fall 2011, overlapping with public review of the draft permit.

iv. Low Impact Development

- (1) Permittees shall review and revise their local development-related codes, rules, standards, or other enforceable documents to incorporate and require LID principles and Best Management Practices (BMPs) to the maximum extent practicable. The intent of the revisions shall be to make LID the preferred and commonly-used approach to site development. In reviewing the local codes, rules, standards, and other enforceable documents, the Permittees shall look for opportunities to ~~Provisions to allow non-structural preventive actions and source reduction approaches such as Low Impact Development Techniques (LID), measures to minimize the creation of impervious surfaces, native vegetation loss, and stormwater runoff in all types of development situations, and measures to minimize the disturbance of native soils and vegetation. Provisions for LID should take into account site conditions, access and long-term maintenance.~~ Permittees shall conduct a review and revision process similar to the steps and range of issues outlined in the following document: Integrating LID into Local Codes: A Guidebook for Local Governments (Puget Sound Partnership, 2011)
- (2) Permittees shall submit a summary of the results of the review and revision process in (iv) above with the Fourth Year annual report a summary of the results of the review and revision process, including at a minimum, a list of the parties participating, the codes, rules, standards, or other enforceable documents reviewed, and the amendments made to those documents to implement the LID requirements.

- v. If the Permittee chooses to allow construction sites to apply the “Erosivity Waiver” in Appendix 1, Minimum Requirement #2, the ordinance or regulatory mechanism shall include appropriate, escalating enforcement sanctions for construction sites that provide notice to the Permittee of their intention to apply the waiver but do not meet the requirements (including timeframe restrictions, limits on activities that result in non-stormwater discharges, and implementation of appropriate BMPs to prevent violations of water quality standards) to qualify for the waiver.
- b. The program shall include a permitting process with plan review, inspection and enforcement capability to meet the standards listed in (i) through (iv) below,

for both private and public projects, using qualified personnel (as defined in Definitions *and Acronyms*). At a minimum, this program shall be applied to all sites that meet the thresholds in S5.C.4.a.i above. At a minimum, this program shall be applied to all sites that disturb a land area 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale. The process shall be in place no later than February 16, 2010.

- i. Except as provided in S5.C.4.b.vii. below, review of all stormwater site plans for proposed development activities.
- ii. Except as provided in S5.C.4.b.vii. below, inspect, prior to clearing and construction, all known development sites 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.
- iii. Except as provided in S5.C.4.b.vii. below, inspect all known permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls. Enforce as necessary based on the inspection.
- iv. Inspect all permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater controls such as stormwater facilities and structural BMPs. Also, verify a maintenance plan is completed and responsibility for maintenance is assigned. Enforce as necessary based on the inspection.

Note to reviewers:

Ecology recognizes that reducing the one-acre threshold will significantly increase the number of site reviews, inspections, and maintenance obligations of cities and counties. The 80% compliance level in (v) below was adopted in the 2009 permit modification to address limits on local capacity during the economic downturn. Ecology is considering continuing the 80% level of effort in the 2012 permit rather than increasing it to 95% to allow for a ramping up of local capacity to meet the increased workload of the reduced threshold. Ecology welcomes input on this and other options for addressing this increased workload.

- v. Compliance with the inspection requirements in (ii), (iii) and (iv) above shall be determined by the presence and records of an established inspection program designed to inspect all sites. Compliance during this permit term shall be determined by achieving at least 80% of scheduled inspections.
 - vi. An enforcement strategy shall be developed and implemented to respond to issues of non-compliance.
 - vii. If the Permittee chooses to allow construction sites to apply the "Erosivity Waiver" in Appendix 1, Minimum Requirement #2, the Permittee is not required to review the construction stormwater pollution prevention plans as part of the site plan review in (i) above, and is not required to perform the construction phase inspections identified in (ii) and (iii) above related to construction sites which are eligible for the erosivity waiver.
- c. The program shall include provisions to verify adequate long-term operation and maintenance (O&M) of post-construction stormwater facilities and BMPs that are permitted and constructed pursuant to (b) above. These provisions shall ~~be in place no later than February 16, 2010 and shall~~ include:
- i. Adoption of an ordinance or other enforceable mechanism that clearly identifies the party responsible for maintenance, requires inspection of facilities in accordance with the requirements in (ii) through (iv) below, and establishes enforcement procedures.

Note to Reviewers:

Ecology is asking for comments on options and suggested alternatives for maintenance requirements for LID BMPs. The dispersed nature of many LID BMPs across a development site, many of which are on private property, may require a different approach to maintenance. Maintenance requirements must address both maintenance standards for engineered facilities, inspection frequency, and time interval for completing the maintenance action.

Options for maintenance standards include but are not limited to those in the *Stormwater Management Manual for Western Washington*, development of standards by Permittees, or adoption of standards already developed by another jurisdiction (for example, the City of Bellevue's 2010 Storm Maintenance Standards at http://www.ci.bellevue.wa.us/utilities_codes_standards_intro.htm).

Options for inspection frequency include those already outlined in the permit language below (annual inspections) or alternatives that reflect issues of access to private property and the reduced consequences of failure for a small dispersed facility in comparison to a large, single facility.

ii. Each Permittee shall establish maintenance standards that are as protective or more protective of facility function than those specified in Chapter 4 of Volume V of the 2005 *Stormwater Management Manual for Western Washington*. For facilities which do not have maintenance standards, the Permittee shall develop a maintenance standard.

(1) The purpose of the maintenance standard is to determine if maintenance is required. The maintenance standard is not a measure of the facilities required condition at all times between inspections. Exceeding the maintenance standard between the period of inspections is not a permit violation.

(2) Unless there are circumstances beyond the Permittee's control, when an inspection identifies an exceedence of the maintenance standard, maintenance shall be performed:

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

Circumstances beyond the Permittee's control include 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 exceedence of the required timeframe, the Permittee must document the circumstances and how they were beyond their control.

- iii. Annual inspections of all stormwater treatment and flow control facilities (other than catch basins) permitted by the Permittee according to S5.C.4.b. unless there are maintenance records to justify a different frequency. The permittee shall take appropriate maintenance actions in accordance with the adopted maintenance standards.

Reducing the inspection frequency shall be based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee 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 *G19 Certification and Signature*.

- iv. Inspections of all new flow control and water quality treatment facilities, including catch basins, for new residential developments that are a part of a larger common plan of development or sale, every 6 months during the period of heaviest house construction (i.e., 1 to 2 years following subdivision approval) to identify maintenance needs and enforce compliance with maintenance standards as needed.
- d. The program shall include a procedure for keeping 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 shall be maintained. Permittees shall keep records of all projects ~~disturbing more than one acre, and all projects~~ of any size that are part of a common plan of development or sale that is greater than one acre that are approved after the effective date of this Permit.
 - e. The program shall make available copies of the "Notice of Intent for Construction Activity" and copies of the "Notice of Intent for Industrial Activity" to representatives of proposed new development and redevelopment. Permittees will continue to enforce local ordinances controlling runoff from sites that are also covered by stormwater permits issued by Ecology.
 - f. ~~No later than February 16, 2010, e~~Each Permittee shall verify that all staff responsible for 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 shall be provided as needed to

address changes in procedures, techniques or staffing. Permittees shall document and maintain records of the training provided and the staff trained.

g. Watershed³-scale stormwater planning

i. After the effective date of this permit, Permittees shall conduct an analysis (described in ii, below) of the impacts to hydrology and water quality for the following actions, prior to taking any of these actions:

a. For counties:

- (1) A cumulative expansion of the Urban Growth Area of >80 acres within a watershed, and/or
- (2) A planned land use action⁴ that is projected to increase the total impervious surface area of a watershed by 5% of existing impervious area (e.g. from 10% to 10.5% or from 20% to 21%).

b. For cities:

- (1) A cumulative expansion of the incorporated area of the city of >80 acres within a watershed, or
- (2) A planned land use action that is projected to increase the total impervious surface area of a watershed by 5% of existing impervious area (e.g. from 10% to 10.5% or from 20% to 21%).

ii. The analysis required in S5.C.5.d(i) shall include at a minimum the following:

- (a) An assessment of the predicted water quality impacts of the proposed land use action (as outlined in (S5.C.5.g.i(a)(2) above). The assessment shall be conducted at the appropriate scale to address impacts to hydrology and water quality and shall quantify such impacts using computer modeling and other best available science.
- (b) The combination of site, structural, or managerial approaches to minimize the impacts to water quality, such as pollution prevention, treatment, and low impact development measures.
- (c) Measurable targets established to protect the water quality and aquatic habitat of the watershed.
- (d) A statement of the public benefits and costs of the proposed action, including the social, environmental, and economic benefits.

³ For purposes of this section, "watershed" refers to a drainage of between 2 square miles and 40 square miles in size.

⁴ Ecology's proposed language is intended to refer to land use actions such as changes in zoning, UGAs, and densities, rather than site specific projects, unless the project involves a broader land use action such as a change in zoning

Minimum performance measures:

- (a) An analysis that demonstrates compliance with water quality standards in receiving waters and protection of designated beneficial uses.
- (b) Compliance with this requirement is achieved by completing the analysis and conducting a public process for review and comment. The Permittee may conduct the public process as part of the State Environmental Policy Act (SEPA) review, or under the Growth Management Act public process, or separate from other processes.

iii. Reporting

- (a) The Permittee shall submit with the annual report for the year in which the proposed land use action is taken a description of the land use action taken and the analysis completed.
- (b) The Permittee shall track progress toward meeting measurable targets established in the analysis.
- (c) Permittees shall submit with the Fifth Annual Report a report summarizing progress toward achieving these targets.

Monitoring Preliminary Draft Language

Note to Reviewers:

The Department of Ecology is soliciting comments on the preliminary draft language in this document for reissuance of the Western Washington Phase II Municipal Stormwater General Permit. The preliminary draft language in this section is intended to implement S8 Monitoring requirements.

The draft language for review in this document addresses only the implementation of monitoring requirements in S8. Please limit your comments to the monitoring-related requirements in this section. Ecology will issue a complete draft permit with all proposed changes to permit language in October 2011 for formal public comment.

S8. MONITORING

- A. All Permittees including Secondary Permittees are only required to conduct water sampling or other testing during the effective term of this permit under the following conditions:

1. Any water quality monitoring required for compliance with TMDLs, pursuant to section S7 *Compliance with Total Maximum Daily Load Requirements* and Appendix 2 of this permit; and
 2. Any sampling or testing required for characterizing illicit discharges pursuant to section S6.D.3 of this permit.
- B. All Permittees shall provide, in each annual report: a description of any stormwater monitoring or stormwater-related studies conducted by the Permittee during the reporting period. Permittees are not required to provide descriptions of any monitoring, studies, or analyses conducted as part of the regional stormwater monitoring program (RSMP) in annual reports. If other stormwater monitoring or stormwater related studies were conducted on behalf of the Permittee, or if stormwater-related investigations conducted by other entities were reported to the Permittee, a brief description of the type of information gathered or received shall be included in the annual report(s) covering the time period(s) during which the information was received.
- C. The Permittees listed in S1.D.2.a (all cities and counties currently permitted under the 2007 phase II W WA municipal stormwater permit; this section of the permit does not apply to secondary permittees or to cities or counties covered for the first time under the permit that is expected to be issued in 2012) shall pay into a collective fund and enter into an agreement with the Department to implement a regional stormwater monitoring program (RSMP). The Department will administer the collective fund and implement the monitoring program in accordance with the arrangements between the Department and each permittee. The agreement will specify the tasks and deliverables of the RSMP. Each Permittee shall pay the amounts prescribed in this section, according to the following schedule:
1. The first payment is due on August 15, 2013, and subsequent payments are due annually after that.

Note to reviewers:

The proposed payment dates above correspond roughly with SWG recommendations. How much time do local governments need to incorporate these requirements into their budgets? What month of the year works best for payment due dates for local governments?

2. The payment amounts are:

Permittee	First and Second Payments <i>(option 1)</i>	First and Second Payments <i>(option 2)</i>	First and Second Payments <i>(option 3)</i>	Third and Subsequent Payments <i>(option 1)</i>	Third and Subsequent Payments <i>(option 2)</i>	Third and Subsequent Payments <i>(option 3)</i>

Clallam Co.						
Port Angeles	\$ 7390	\$ 8901	\$ 17977	\$ 18445	\$ 31358	\$ 29032
Clark Co.						
Battleground	\$ 6554	\$ 8179	\$ 17826	\$ 9762	\$ 21119	\$ 21034
Camas	\$ 6483	\$ 8113	\$ 17820	\$ 9656	\$ 21053	\$ 20993
Vancouver	\$ 62343	\$ 59409	\$ 22386	\$ 92859	\$ 72349	\$ 52092
Washougal	\$ 5292	\$ 7020	\$ 17723	\$ 7883	\$ 19960	\$ 20313
Cowlitz Co.	\$ 15931	\$ 16790	\$ 18592	\$ 23730	\$ 29730	\$ 26390
Kelso	\$ 4437	\$ 6235	\$ 17653	\$ 6609	\$ 19175	\$ 19825
Longview	\$ 13598	\$ 14647	\$ 18401	\$ 20254	\$ 27587	\$ 25057
Grays Harbor Co.						
Aberdeen	\$ 6196	\$ 7850	\$ 17796	\$ 9229	\$ 20790	\$ 20829
Island Co.						
Oak Harbor	\$ 8931	\$ 10299	\$ 18120	\$ 22290	\$ 33980	\$ 31480
King Co.						
Algona	\$ 1058	\$ 3158	\$ 17388	\$ 2641	\$ 20585	\$ 18971
Auburn	\$ 26415	\$ 26158	\$ 19746	\$ 65928	\$ 63729	\$ 59259
Bellevue	\$ 46866	\$ 44708	\$ 21647	\$ 116971	\$ 98526	\$ 91752
Black Diamond	\$ 1598	\$ 3647	\$ 17439	\$ 3988	\$ 21503	\$ 19829
Bothell	\$ 12748	\$ 13761	\$ 18475	\$ 31817	\$ 40475	\$ 37544
Burien	\$ 17550	\$ 18117	\$ 18922	\$ 43802	\$ 48645	\$ 45174
Clyde Hill	\$ 1085	\$ 3182	\$ 17391	\$ 2708	\$ 20630	\$ 19014
Covington	\$ 6727	\$ 8300	\$ 17915	\$ 16789	\$ 30229	\$ 27978
Des Moines	\$ 11169	\$ 12329	\$ 18328	\$ 27877	\$ 37788	\$ 35036
Duvall	\$ 2284	\$ 4270	\$ 17502	\$ 5701	\$ 22671	\$ 20919
Enumclaw	\$ 4382	\$ 6172	\$ 17697	\$ 10936	\$ 26239	\$ 24251
Federal Way	\$ 33848	\$ 32899	\$ 20437	\$ 84478	\$ 76375	\$ 71067
Issaquah	\$ 10357	\$ 11592	\$ 18253	\$ 25850	\$ 36406	\$ 33746
Kenmore	\$ 7875	\$ 9341	\$ 18022	\$ 19654	\$ 32182	\$ 29801
Kent	\$ 42855	\$ 41069	\$ 21274	\$ 106959	\$ 91700	\$ 85378
Kirkland	\$ 18922	\$ 19361	\$ 19049	\$ 47226	\$ 50979	\$ 50313
Lake Forest Park	\$ 4896	\$ 6639	\$ 17745	\$ 12221	\$ 27115	\$ 25069
Maple Valley	\$ 8820	\$ 10198	\$ 18110	\$ 22014	\$ 33792	\$ 31304
Medina	\$ 1136	\$ 3229	\$ 17396	\$ 2836	\$ 20718	\$ 19096
Mercer Island	\$ 8729	\$ 10115	\$ 18101	\$ 21786	\$ 33636	\$ 31158
Newcastle	\$ 3796	\$ 5641	\$ 17643	\$ 9475	\$ 25243	\$ 23321
Normandy Park	\$ 2494	\$ 4460	\$ 17522	\$ 6225	\$ 23027	\$ 21252
Pacific	\$ 2404	\$ 4379	\$ 17514	\$ 6001	\$ 22875	\$ 21110
Redmond	\$ 20526	\$ 20816	\$ 19198	\$ 51230	\$ 53709	\$ 49902
Renton	\$ 32883	\$ 32024	\$ 20347	\$ 82070	\$ 74733	\$ 69535
Sammamish	\$ 15622	\$ 16404	\$ 18746	\$ 39089	\$ 45432	\$ 42173
SeaTac	\$ 9873	\$ 11153	\$ 18208	\$ 24641	\$ 35582	\$ 32976
Shoreline	\$ 20813	\$ 21077	\$ 19225	\$ 51947	\$ 54197	\$ 50359
Tukwila	\$ 6941	\$ 8494	\$ 17935	\$ 17323	\$ 30593	\$ 28318
Woodinville	\$ 4328	\$ 6124	\$ 17692	\$ 10802	\$ 26148	\$ 24167
Kitsap Co.	\$ 64395	\$ 60607	\$ 23277	\$ 160719	\$ 128349	\$ 119601

Bainbridge Island	\$ 8916	\$ 10285	\$ 18119	\$ 22252	\$ 33954	\$ 31455
Bremerton	\$ 13801	\$ 14716	\$ 18573	\$ 34444	\$ 42265	\$ 39217
Port Orchard	\$ 4160	\$ 5972	\$ 17677	\$ 10384	\$ 25863	\$ 23900
Poulsbo	\$ 3415	\$ 5295	\$ 17607	\$ 8523	\$ 24594	\$ 22716
Lewis Co.						
Centralia	\$ 5865	\$ 7546	\$ 17769	\$ 8736	\$ 20486	\$ 20640
Pierce Co.						
Bonney Lake	\$ 6365	\$ 7971	\$ 17882	\$ 15885	\$ 29613	\$ 27402
Buckley	\$ 1764	\$ 3798	\$ 17454	\$ 4402	\$ 21785	\$ 20092
DuPont	\$ 3024	\$ 4941	\$ 17571	\$ 7547	\$ 23929	\$ 22095
Edgewood	\$ 3670	\$ 5527	\$ 17631	\$ 9161	\$ 25019	\$ 23122
Fife	\$ 3131	\$ 5038	\$ 17581	\$ 7814	\$ 24111	\$ 22264
Fircrest	\$ 2420	\$ 4393	\$ 17515	\$ 6039	\$ 22901	\$ 21134
Gig Harbor	\$ 2868	\$ 4799	\$ 17557	\$ 7157	\$ 23663	\$ 21846
Lakewood	\$ 22438	\$ 22550	\$ 19376	\$ 56002	\$ 56961	\$ 52940
Milton	\$ 2494	\$ 4460	\$ 17522	\$ 6225	\$ 23027	\$ 21252
Orting	\$ 2381	\$ 4358	\$ 17511	\$ 5944	\$ 22836	\$ 21074
Puyallup	\$ 14834	\$ 15653	\$ 18699	\$ 37023	\$ 44024	\$ 40858
Steilacoom	\$ 2402	\$ 4377	\$ 17612	\$ 5996	\$ 22872	\$ 21107
Sumner	\$ 3463	\$ 5339	\$ 24529	\$ 8642	\$ 24675	\$ 22791
University Place	\$ 12031	\$ 13111	\$ 18409	\$ 30028	\$ 39255	\$ 36405
Skagit Co.	\$ 19116	\$ 19538	\$ 19067	\$ 47712	\$ 51310	\$ 47662
Burlington	\$ 3426	\$ 5306	\$ 17609	\$ 8552	\$ 24614	\$ 22734
Anacortes	\$ 6406	\$ 8009	\$ 17886	\$ 15990	\$ 29684	\$ 27469
Mount Vernon	\$ 11829	\$ 12928	\$ 18390	\$ 29524	\$ 38911	\$ 36084
Sedro-Woolley	\$ 3829	\$ 5671	\$ 17646	\$ 9556	\$ 25298	\$ 23373
Snohomish Co.						
Arlington	\$ 6590	\$ 8175	\$ 17903	\$ 16446	\$ 29996	\$ 27760
Brier	\$ 2475	\$ 4443	\$ 17520	\$ 6177	\$ 22995	\$ 21222
Edmonds	\$ 15597	\$ 16345	\$ 18740	\$ 38927	\$ 45321	\$ 42070
Everett	\$ 39697	\$ 38205	\$ 20981	\$ 99078	\$ 86328	\$ 80361
Granite Falls	\$ 1287	\$ 3365	\$ 17410	\$ 3212	\$ 20974	\$ 19335
Lake Stevens	\$ 10170	\$ 11423	\$ 18236	\$ 25383	\$ 36088	\$ 33449
Lynnwood	\$ 13789	\$ 14705	\$ 18572	\$ 34416	\$ 42246	\$ 39198
Marysville	\$ 22133	\$ 22274	\$ 19348	\$ 55240	\$ 56442	\$ 52455
Mill Creek	\$ 7131	\$ 8666	\$ 17953	\$ 17798	\$ 30917	\$ 28620
Monroe	\$ 6361	\$ 7967	\$ 17881	\$ 15875	\$ 29607	\$ 27396
Mountlake Ter.	\$ 7993	\$ 9448	\$ 18033	\$ 19949	\$ 32384	\$ 29989
Mukilteo	\$ 7684	\$ 9168	\$ 18004	\$ 19178	\$ 31858	\$ 29498
Snohomish	\$ 3554	\$ 5422	\$ 17620	\$ 8870	\$ 24831	\$ 22937
Thurston Co.	\$ 53425	\$ 50657	\$ 22257	\$ 133342	\$ 109686	\$ 102173
Lacey	\$ 15303	\$ 16079	\$ 18713	\$ 38194	\$ 44822	\$ 41604
Olympia	\$ 17351	\$ 17936	\$ 18903	\$ 43305	\$ 48306	\$ 44857
Tumwater	\$ 6395	\$ 7999	\$ 17885	\$ 15961	\$ 29665	\$ 27451
Whatcom Co.	\$ 32508	\$ 31684	\$ 20312	\$ 81134	\$ 74095	\$ 68938
Bellingham	\$ 29573	\$ 29022	\$ 20039	\$ 73809	\$ 69101	\$ 64276

Ferndale	\$ 4275	\$ 6075	\$ 17687	\$ 10669	\$ 26057	\$ 24082
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Note to reviewers:

What do you think is the best method to equitably allocate monitoring costs among permittees, and why? The costs proposed in the **three options above** were generated by:

- *Option 1:* distributing all RSMP costs among Phase I and II permittees according to population;
- *Option 2:* evenly dividing **half** of the total costs of the Puget Sound receiving water monitoring among the permittees located in Puget Sound, and **all** of the southwest Washington receiving water monitoring costs among the permittees in southwest Washington, and then distributing the remaining RSMP costs among Phase I and Phase II western Washington permittees according to population; and
- *Option 3:* evenly dividing and distributing costs for effectiveness studies and the source identification information repository among all permittees and dividing the remaining RSMP costs according to population.

See the explanatory notes for more information.

Note to reviewers:

The SWG recommended that there be an option for permittees to decline to participate in the regional effectiveness studies component of the RSMP, but **not** the other components (the status and trends monitoring and the source identification data repository). Ecology has not included an option in this preliminary draft permit for permittees to opt out of the effectiveness study component of the RSMP.

- Do you think there should be such an option?
- If so, what would it look like?
- How would Ecology administer it?
- What would be the assurances that having some permittees opt out of the RSMP efforts would not compromise its chances for success?

Note to reviewers:

The proposed payment amounts in S8.C.2 for permittees in Clark, Cowlitz, Grays Harbor, and Lewis Counties include a placeholder for a receiving water monitoring program in southwest Washington. Ecology will work with Phase I and Phase II permittees and other stakeholders in southwest Washington to develop a receiving water monitoring program to include in the October formal draft permit. See the explanatory notes for more information.



June 28, 2011

Harriet Beale
Washington Department of Ecology
Water Quality Program
P.O. Box 47696
Olympia, WA 98504-7696

RE: City of Longview Comments – Preliminary Draft of the Phase II Municipal Stormwater NPDES Permit

Dear Ms. Beale:

We appreciate Ecology's spirit of cooperation in formulating regulatory approaches to monitoring and Low Impact Development (LID) in the next Phase II Municipal Stormwater NPDES Permit.

Monitoring

We suggest that the SW WA region, at a minimum, receive allowances similar to S8.C of the Eastern Washington permit. We perceive a double standard shown to our region with regard to the development of a regional stormwater monitoring and assessment strategy. The Puget Sound received strong support and cooperation from Ecology for over two years to get to the point they are today; and Eastern Washington, which showed no initiative on this issue, was provided extra time to develop a program. SW WA is more geographically and politically disparate than the Sound, and does not benefit from established regional entities with similar goals. 73% of the population within SW WA's permitted areas reside in just two adjacent jurisdictions and there is no common soil, rain pattern, water body, or unifying theme – except perhaps that we are not the Puget Sound.

Low Impact Development

1. Wherever possible, LID must be encouraged and administered locally.
2. To reduce the severity of the inevitable backlash to these requirements among voters and contractors, give jurisdictions (at least those below 50,000 residents) the option to implement a program comparable to that proposed in the permit [...and to fund the increased oversight that this may necessitate, Ecology could retain a portion of the Phase II capacity grants from smaller jurisdictions]. Changes to the preliminary draft language are suggested below:

S5.C.4.a(i): The Minimum Requirements, technical thresholds, and definitions in Appendix 1 or a program approved by Ecology under the NPDES Phase I Municipal Stormwater Permit, for new development, redevelopment, and construction sites. Adjustment and variance criteria equivalent to those in Appendix 1 shall be included. ~~More stringent~~ Alternative requirements may be used, and/or

certain requirements may be tailored to local circumstances through the use of basin plans or other similar water quality and quantity planning efforts. Such local requirements shall provide comparable equal protection of receiving waters and equal levels of pollutant control to those provided in Appendix 1.

Recognizing that it is a diked city with impaired waters, Longview has regulated stormwater at the 5,000 square feet threshold for over a decade. In order to encourage LID and better protect surface water, significant effort and political capital was invested into the 2009 revisions of the Longview and Kelso stormwater manuals and municipal codes (visit www.cleanstormwater.org). The preliminary draft permit obviates that entire effort and replaces it with Appendix I of the Stormwater Management Manual for Western Washington (SMMWW). Unfortunately, Appendix I is too onerous and rigid for small developments in Cowlitz County. 'Mom and Pop' don't have contractors locally who can step them through the 13 Elements of Erosion Control and write a SWPPP. For 'minor' projects adding / replacing 5,000 square feet of hard surface, 'Joe Contractor' is not bidding for the engineering required by Ch.3 of the SMMWW to satisfy the Nine Minimum Requirements. Proponents of Improvements that replace a mere 2,000 square feet of hard surface, will struggle to find local professional or craftsman expertise for soils, rain gardens, and permeable pavements – not to mention the engineering to meet the LID performance standards.

3. The 80% compliance level in S5.4.b(v) should be eliminated this permit cycle (as it was for post-construction). In the 'Note to Reviewers' box at the bottom of Page 5, Ecology recognizes that "reducing the one-acre threshold will significantly increase the number of site reviews, inspections, and maintenance obligations of cities." Indeed, small projects (5,000 square feet of new impervious) outnumber the larger ones (1-acre disturbed) easily by 10:1.
4. In order to promote and accommodate the major transition to LID called for in this draft permit language, please consider the following (underlined) exemptions from post-construction inspection requirements during this permit cycle:

S5.C.4.c(iii): Annual inspections of all stormwater treatment and flow control facilities (other than catch basins, BMPs not required by S5.C.4, and the onsite BMPs required by MR #5) permitted by the Permittee according to S5.C.4.b. unless there are maintenance records to justify a different frequency.

We thank Ecology for releasing the preliminary draft monitoring and LID requirements for informal review. We look forward to cooperation with Ecology to protect surface water in a way that is both affordable and effective. Feel free to contact me at 360 442-5210 or josh.johnson@ci.longview.wa.us.

Sincerely,



Josh Johnson, PE
Street / Stormwater Manager
City of Longview

2012 Phase I and II Municipal Stormwater NPDES Permit Status and Trends Monitoring Proposal for SW Washington

Background

Ecology is planning to implement status and trends monitoring as part of the requirements of the proposed 2012 phase I and phase II municipal stormwater permits for Western Washington.

Ecology has promoted an effort in the Puget Sound to develop recommendations for a regional status and trends monitoring program that could be incorporated into the 2012 permits. This effort is coordinated through the Puget Sound Stormwater Work Group (SWG), which includes a number of permittees and stakeholders from the Puget Sound region.

Clark County initiated a status and trends program for unincorporated Clark County in October 2001. This program includes traditional water quality monitoring, macroinvertebrate sampling, and periodic physical habitat monitoring at 10 locations. These locations are defined as index stations, selected to be representative of Clark County conditions and located in areas where data is needed for making management decisions. Continuous stream flow gages are operated at seven of these stations.

Status and trends monitoring in SW Washington and NW Oregon is a topic of several ongoing regional efforts aimed at developing representative and efficient data gathering frameworks, protocols, and partnerships. Among these are the Lower Columbia Fish Recovery Board's (LCFRB) Research Monitoring and Evaluation Program (RME), the Washington Department of Ecology's Status and Trends Monitoring for Watershed Health and Salmon Recovery, and the Pacific Northwest Aquatic Monitoring Partnership's (PNAMP) strategy for coordinating monitoring.

Purpose

Southwest Washington Phase I and II permittees will develop a status and trends monitoring proposal similar in purpose to the SWG proposal. The proposed program will deviate from the Puget Sound program to account for differences in the geographic scale of permitted areas in SW Washington. The program will also leverage an ongoing program put in place by Clark County, and incorporate other ongoing monitoring programs.

Scope

This is a preliminary proposal for discussion.

Participants

This proposal assumes participation by all phase I and II permittees in Southwest Washington; including: Aberdeen, Battle Ground, Camas, Centralia, Clark County, Cowlitz County, Kelso, Longview, Vancouver, and Washougal. One or more permittees could opt to perform monitoring on their own or contribute to the Puget Sound regional effort.

Geographic Area

Status and trends monitoring under this proposal is limited to the SW Washington NPDES permit areas, which are city boundaries, unincorporated Clark County and the limited area of Cowlitz County in the 2000 Census-designated urban area for Longview and Kelso. There is the potential that suitable sites in the vicinity of Kelso/Longview and Aberdeen may fall outside of the current permit areas.

Monitoring Approach

Consideration of Regional Monitoring Plans and Programs

Regional organizations and Ecology have developed monitoring plans or are conducting some level of stream monitoring in Southwest Washington. This proposal focuses on needs for status and trends monitoring under the NPDES permit, but will consider recommendations and actions by other monitoring plans and programs.

Use of Index Stations

The SW Washington phase I and II status and trends project will measure change over time using a set of fixed monitoring stations chosen to represent significant streams and locations of interest to permittees for stormwater management.

The Lower Columbia Fish Recovery Board's proposed monitoring plan and other regional efforts acknowledge that no single experimental design is adequate to answer the range of status and trends questions related to habitat and water quality (LCFRB, 2010). In particular, the Fish Recovery Board plan advises that trend monitoring is often more effective when stations are selected to represent areas that are sensitive to change or located in areas where significant change is likely (e.g. streams in rapidly urbanizing areas), as opposed to a probabilistic sampling design.

The limited geographic extent of NPDES permit coverage in SW Washington also suggests NPDES stations can and should be targeted to provide data at locations that are best suited to answering regional stormwater management questions rather than a generalized regional characterization.

Leverage Existing Programs

Clark County operates a set of fixed status and trends monitoring stations covering much of the SW Washington permit area. The program began in water year 2002 (October 2001) and has operated continuously since then. The existence of robust, long-term index monitoring datasets in the phase I permit area of Clark County provides an opportunity to leverage 10 years of water quality and biological data. Expanding the existing project to include stations within the jurisdictions of phase II municipalities will provide new information about their streams and the means to measure trends at locations where the municipal permit applies.

The Clark County program collects data to calculate standard Pacific Northwest metrics that include Oregon DEQ Water Quality Index and the Benthic Macroinvertebrate Index of Biological Integrity. Other metrics such as the Washington Department of Ecology Water Quality Index or other benthic macroinvertebrate metrics can be calculated using the existing project data or can be accommodated in the future with minor changes.

Clark County also operates 11 stream flow and 8 precipitation gages with periods of record ranging from 5 to 8 years. These will be evaluated and possibly modified considering needs of status and trends monitoring and data needs for future basin planning. Additional flow gages are operated by Ecology, USGS, and Clark Public Utilities, for a total of approximately 17 operating flow gages within the Clark County area of WRIs 27 and 28.

Proposed Status and Trends Program

Monitoring stations:

Twenty wadeable stream monitoring stations (see attached maps) will be selected to include representative, significant streams and locations of interest for stormwater management in Southwest Washington. Proposed stations are distributed as follows:

Clark County -- 15 stations.

- Ten existing stations in unincorporated Clark County with 2001-2011 period of record
- One new station within unincorporated Clark County
- One new station for each Phase II permittee within Clark County (Vancouver, Camas, Washougal, Battle Ground)

Cowlitz County -- 3 stations.

- One new station for each Phase II permittee within Cowlitz County (Kelso, Longview, and the urbanized areas of Cowlitz County around the two cities)

Centralia -- 1 station.

Aberdeen -- 1 station.

Proposed locations for new stations are tentative. Site selection was based on review of aerial photography, land use data, and National Hydrography Dataset stream lines. Locations were selected that appear to have permanent surface water with significant stormwater influence. All new station locations and alternate locations require field verification and review prior to final selection.

Of the 20 proposed stations, six have drainage areas that are entirely within a urban area (unincorporated urban growth area or city), four have drainage areas that are entirely rural (outside of any UGA or city), and ten have drainage areas that are a mix of rural and urban (outside UGA, in UGA and city).

Sampling program:

The proposed sampling parameters are compatible with those endorsed by the Puget Sound Stormwater Work Group and are compatible with both Lower Columbia Fish Recovery Board regional Research Monitoring and Evaluation Program priorities and ongoing data collection at the 10 Clark County index stations. The proposed sampling program is summarized in Table 1 and described below.

In general, the 11 Phase I index sites will be monitored every year as part of Clark County's ongoing status and trends program. Phase II sites will be monitored once during the permit term, except that Phase II permittees may choose to pay for additional years of monitoring at the annual rate.

Water quality

Water quality analysis will include monthly monitoring at the 20 index stations for the following:

Total solids	Temperature
Nitrate-Nitrite as N	Conductivity
Total phosphorus	Dissolved oxygen
Ammonia	pH
Fecal coliform	Turbidity

Oregon Water Quality Index (OWQI) and/or Washington Water Quality Index scores will be calculated for monthly and annual data.

During the permit term, Phase I sites will be monitored monthly for 5 years and Phase II sites will be monitored monthly for 1 year.

Stream Temperature

Continuous temperature data will be collected annually at the 11 Phase I index stations from May through September. Data analysis will include calculation of metrics for comparison to state water temperature criteria.

Stream temperature monitoring will not be conducted at the Phase II sites as part of this proposal; however, Clark County will provide temperature monitoring equipment for use by Phase II permittees on request.

Benthic macroinvertebrates and Habitat

Benthic macroinvertebrate and habitat analysis will include sample collection and habitat measurements at the 20 index stations and calculation of the Benthic Macroinvertebrate Index of Biological Integrity (B-IBI). All macroinvertebrate data will be submitted to the collaborative King County macroinvertebrate database.

During the permit term, Phase I sites will be sampled annually for 5 years and Phase II sites will be sampled one time.

Sediment chemistry

Sediment chemistry monitoring will be performed at the 20 index stations once during the permit term utilizing the same suite of parameters used by the Puget Sound permittees.

Table 1. Summary of SW Washington Regional NPDES Status and Trends monitoring proposal

Component	# of sites	Phase I Frequency	Phase II Frequency
WQ Index	20	Monthly at 11 sites (5 years/permit)	Monthly at 9 sites (1 year/permit)
Continuous temperature (May-September)	11	Annually (5 years/permit)	n/a
Benthic Macroinvertebrates and Habitat	20	Annually (5 years)	Annually (1 year/permit)
Sediment Chemistry	20	1 time/permit	1 time/permit

Program Operation and Management

Clark County proposes to operate and manage the NPDES Status and Trends monitoring effort in Southwest Washington. Clark County will be responsible for overall project management and reporting.

Data Management and Reporting

Clark County will store and manage data for the permittees, write and submit required NPDES monitoring reports to Ecology, oversee laboratory contracts, and be responsible for overall program completion.

Field Sampling

We anticipate most of the field sampling will be conducted by Clark County or our designees. Individual phase II permittees may choose to perform field sampling to achieve cost savings or meet individual program needs.

Intergovernmental Agreements

Intergovernmental agreements between permittees are required to define and assign responsibilities and provide full cost recovery for services performed.

Budget

While it is very early in the process, it is possible to make a preliminary budget estimate based on the proposed monitoring program and expense history for the county programs.

Preliminary draft budgets for two possible scenarios are shown in Tables 2 and 3. These and other scenarios may be considered.

- 1) Under Scenario One, Clark County would provide all work related to the project.
- 2) Under Scenario Two, the phase II permittees would arrange to collect monthly water quality samples on their own and arrange for timely delivery to the Columbia Analytical Laboratory in Kelso. Clark County would provide all other field work and any necessary training for phase II permittee monitoring staff.

Table 2. Estimated annual expenses Scenario One -- Clark County performs entire program.

	CC 11 stations	Vancouver 1 station	Camas 1 station	Washougal 1 station	Battle Ground 1 station	Kelso 1 station	Longview 1 station	Cowlitz Co 1 station	Centralia 1 station	Aberdeen 1 station
WQ Monitoring										
field hours*	16	3	3	3	3	3	4	4	5	5
# staff	2	2	2	2	2	2	2	2	2	2
rate	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72
annual trips	12	12	12	12	12	12	12	12	12	12
lab cost per trip	\$1,430.00	\$130.00	\$130.00	\$130.00	\$130.00	\$130.00	\$130.00	\$130.00	\$130.00	\$130.00
mileage cost per trip**	\$51.00	\$12.75	\$12.75	\$12.75	\$12.75	\$12.75	\$30.00	\$30.00	\$75.00	\$75.00
labor subtotal	\$30,996	\$5,812	\$5,812	\$5,812	\$5,812	\$5,812	\$7,749	\$7,749	\$9,686	\$9,686
lab subtotal	\$17,160	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560
mileage subtotal	\$612.00	\$153.00	\$153.00	\$153.00	\$153.00	\$153.00	\$360.00	\$360.00	\$900.00	\$900.00
WQ Monitoring Total	\$48,768	\$7,525	\$7,525	\$7,525	\$7,525	\$7,525	\$9,669	\$9,669	\$12,146	\$12,146
Bugs										
field hours*	90	6	6	6	6	6	6	6	10	10
# staff	2	2	2	2	2	2	2	2	2	2
rate	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72
annual samples	11	1	1	1	1	1	1	1	1	1
lab cost per sample	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00
mileage cost per annual	\$260.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$45.00	\$140.00
labor subtotal	\$8,072	\$989	\$989	\$989	\$989	\$989	\$989	\$989	\$1,614	\$1,614
lab subtotal	\$2,750	\$250	\$250	\$250	\$250	\$250	\$250	\$250	\$250	\$250
mileage subtotal	\$250.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$45.00	\$140.00
Bug Monitoring Total	\$11,072	\$1,234	\$1,234	\$1,234	\$1,234	\$1,234	\$1,234	\$1,234	\$1,909	\$2,004
Soilment										
field hours*	12	3	3	3	3	3	4	4	8	8
# staff	2	2	2	2	2	2	2	2	2	2
rate	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72
lab cost during permit term	\$5,500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
mileage cost per permit term**	\$200	\$25	\$25	\$25	\$25	\$25	\$30	\$30	\$150	\$150
labor subtotal	\$1,937	\$484	\$484	\$484	\$484	\$484	\$646	\$646	\$1,292	\$1,292
mileage subtotal	\$200	\$25	\$25	\$25	\$25	\$25	\$30	\$30	\$150	\$150
lab subtotal	\$5,500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Sediment Monitoring Total	\$7,637	\$1,009	\$1,009	\$1,009	\$1,009	\$1,009	\$1,176	\$1,176	\$1,942	\$1,942
Annual cost over permit term	\$1,527	\$202	\$202	\$202	\$202	\$202	\$235	\$235	\$388	\$388
Data Management										
office hours	100	20	20	20	20	20	20	20	20	20
rate	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72
Data management total	\$8,072.00	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40
Reporting										
office hours	100	20	20	20	20	20	20	20	20	20
rate	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46
Reporting Total	\$9,746.00	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20
TOTAL S and T	\$79,186	\$12,524	\$12,524	\$12,524	\$12,524	\$12,524	\$14,702	\$14,702	\$18,103	\$18,103
15% Program Admin/Mgmt	\$11,878	\$1,879	\$1,879	\$1,879	\$1,879	\$1,879	\$2,205	\$2,205	\$2,791	\$2,791
TOTAL Annual S and T cost by permittee	\$91,064	\$14,403	\$14,403	\$14,403	\$14,403	\$14,403	\$16,907	\$16,907	\$20,709	\$20,818
Annual Overall Program Cost	\$240,921									

*Field hours includes trip prep, field time, and sample processing
 ** mileage rate \$0.51/mile

Table 3. Estimated annual expenses Scenario Two -- Phase II permittees collect monthly grab samples and arrange sample delivery to lab in Kelso. Clark County performs remainder of program.

CC	Vancouver	Camas	Washougal	Battle Ground	Kelso	Longview	Cowlitz Co	Centralia	Aberdeen
11 stations	1 station	1 station	1 station	1 station	1 station	1 station	1 station	1 station	1 station
WQ Monitoring									
field hours* # staff	16 2	3 2	3 2	3 2	3 2	3 2	3 2	3 2	3 2
rate	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72
annual trips	12	12	12	12	12	12	12	12	12
lab cost per trip	\$1,430.00	\$1,430.00	\$1,430.00	\$1,430.00	\$1,430.00	\$1,430.00	\$1,430.00	\$1,430.00	\$1,430.00
mileage cost per trip	\$71.00	\$71.65	\$71.65	\$71.65	\$71.65	\$71.65	\$71.65	\$71.65	\$71.65
labor subtotal	\$30,996	\$5,812	\$5,812	\$5,812	\$5,812	\$5,812	\$5,812	\$5,812	\$5,812
lab subtotal	\$17,160	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560	\$1,560
mileage subtotal	\$612.00	\$91.80	\$91.80	\$91.80	\$91.80	\$91.80	\$91.80	\$91.80	\$91.80
WQ Monitoring Total	\$48,768	\$7,464	\$7,464	\$7,464	\$7,464	\$7,464	\$7,464	\$7,464	\$7,464
Bugs									
field hours* # staff	50 2	6 2	6 2	6 2	6 2	6 2	6 2	6 2	6 2
rate	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72
annual samples	11	1	1	1	1	1	1	1	1
lab cost per sample	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00	\$250.00
mileage cost per annual**	\$250.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
labor subtotal	\$8,072	\$969	\$969	\$969	\$969	\$969	\$969	\$969	\$969
lab subtotal	\$2,750	\$250	\$250	\$250	\$250	\$250	\$250	\$250	\$250
mileage subtotal	\$250.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
Bug Monitoring Total	\$11,072	\$1,234	\$1,234	\$1,234	\$1,234	\$1,234	\$1,234	\$1,234	\$1,234
Sediment									
field hours* # staff	12 2	3 2	3 2	3 2	3 2	3 2	3 2	3 2	3 2
rate	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72
lab cost during permit term	\$5,500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
mileage cost per permit term**	\$200	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$25
labor subtotal	\$1,937	\$484	\$484	\$484	\$484	\$484	\$484	\$484	\$484
mileage subtotal	\$200	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$25
lab subtotal	\$5,500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Sediment Monitoring Total	\$7,637	\$1,009	\$1,009	\$1,009	\$1,009	\$1,009	\$1,009	\$1,009	\$1,009
Annual cost over permit term	\$1,527	\$202	\$202	\$202	\$202	\$202	\$202	\$202	\$202
Data Management									
office hours	100	20	20	20	20	20	20	20	20
rate	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72	\$80.72
Data management total	\$8,072.00	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40	\$1,614.40
Reporting									
office hours	100	20	20	20	20	20	20	20	20
rate	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46	\$97.46
Reporting Total	\$9,746.00	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20	\$1,949.20
TOTAL S and T	\$79,186	\$12,463	\$12,463	\$12,463	\$12,463	\$12,496	\$12,496	\$13,325	\$13,420
15% Program Admin/Mgmt	\$11,878	\$1,869	\$1,869	\$1,869	\$1,874	\$1,874	\$1,874	\$1,999	\$2,013
TOTAL Annual S and T cost by permittee	\$91,064	\$14,332	\$14,332	\$14,332	\$14,370	\$14,370	\$14,370	\$15,324	\$15,433
Annual Overall Program Cost	\$222,260								

*Field hours includes trip prep, field time, and sample processing
 ** mileage rate \$0.51/mile

Subject/Question	Mapping	Public Involvement and Participation	New Development/Redevelopment (LID/GSI)	Structural Stormwater Controls	Source Control	IDDF	O&M	Education and Outreach	BMP Monitoring	Water Quality Monitoring	Program Effectiveness	Monitoring	Other category	Comments	Similar studies from Ecology list
How well has the 1992 Puget Sound Manual flow control standard controlled runoff?											x		x	The level of success controlling runoff tells us much about the need for, and relative benefits of, retrofits in these areas	
How well does the 1992 Puget Sound Manual basic treatment standard protect surface water quality?										x	x			The level of success controlling runoff tells us much about the need for, and relative benefits of, retrofits in these areas. Continuous turbidity, temperature, and conductivity monitoring.	
How well do flows from small catchments match flows predicted by the WWHM?			x											Data collected for stormwater Characterization at the rural catchment (current NPDES permit) will be used to verify model accuracy and recommend changes to model parameters	
How effective are rain-garden retrofits in an established neighborhood at reducing flows and providing water quality treatment?			x						x	x				20 rain-gardens will be installed as a retrofit in an existing development. Runoff will be monitored before and after retrofit installation.	25, 37, 42, 55, 134, 146, 152
Source Control Inspection Effectiveness: A) What is the overall rate (%) of compliance? B) What is the success rate (%) in bringing out-of-compliance businesses into compliance? C) What is the rate of relapse (%) between routine visits?														Clark County staff visit approximately 500 qualifying businesses per year. The relative need for this activity, efficacy of the approach, and permanence of behavior change are relevant to programmatic improvement, resource allocation, and prioritization of source control activities	8, 56, 102, 110, 122
Is the Clark County O&M Program ensuring that public/private facilities are maintained according to permit standards?														There are ~900 public and ~900 private stormwater facilities in Clark County. Maintenance Management System data has not been available until recently. MMS data will be used to calculate rate of compliance for the three permit-defined maintenance categories: typical maintenance; capital maint <25K; capital maint/repair >25K.	52

Subject/Question	Mapping	Public Involvement and Participation	New Development/Redevelopment (LID/GSI)	Structural Stormwater Controls	Source Control	IDDE	O&M	Education and Outreach	BMP Monitoring	Water Quality	Program Effectiveness	Monitoring	other category	Comments	Similar studies from Ecology list
Where are catch basins "full" at each annual inspection, and where not?							x							Catch basin cleaning is resource intensive. MMS data will be used to identify and map areas where a single cleaning per year is not effective, effective, or excessive.	26, 35, 53, 61, 63, 67, 69, 70, 74, 121, 123, 144, 147, 153, 174
Are cattail monocultures in treatment wetlands a problem for water quality treatment?							x			x				Cattail monocultures often establish after several years regardless of original planting. The SWMMWW suggests that cattails are an issue for dissolved oxygen due to fall die-back, but does not provide a basis for the statement	
To what extent does the combined impact of treatment facilities, O&M, and Source Control visits protect water quality					x		x			x	x			A study catchment will be subjected to increasing degrees of programmatic influence to determine relative impacts from various program components	113
What are the sources of non-storm flows in a commercial catchment having numerous potential pollutant generating sources?					x					x				The commercial catchment from current Characterization monitoring will be monitored for non-storm flows and water quality. Targeted source tracking will follow monitored events.	

Subject/Question	Mapping	Public Involvement and Participation	New Development/Redevelopment (UD/GSI)	Structural Stormwater Controls	Source Control	IDDE	O&M	Education and Outreach	BMP Monitoring	Water Quality Monitoring	Program Effectiveness Monitoring	Other category	Comments	Similar studies from Ecology list
How effective is the Integrated Pest Management Plan (IPM) at controlling pesticides in stormwater runoff from City-owned properties?													Phase II annual report	Longview and Kelso (104, 85) 120
Does the construction stormwater management component of Longview's SWMP improve turbidity of runoff from construction sites citywide?													Phase II annual report	Longview and Kelso (105, 86) 40, 46, 73, 88, 137, 141, 142, 151, 155, 158
How effective is the city's catch basin stenciling program in reducing nutrient and fecal coliform bacteria concentrations in a targeted residential basin?													Phase II annual report	Vancouver (159) 34
How effective is targeted IDDE source control outreach and inspection in improving water quality in an urban stream receiving stormwater discharge from a predominantly commercial land-use basin?													Phase II annual report	Vancouver (160) 131, 163

SUMMARY OF SW WA REGIONAL STORMWATER MONITORING IDEAS JUNE 23, 2011

TABLE 1 – Cost estimates by Jurisdiction

	Clark	Vancouver	Camas	Washougal	BattleGrnd	Kelso	Longview	Cowlitz	Centralia	Aberdeen
S&T First Idea	\$78,028	\$61,002	\$6,286	\$5,143	\$6,360	\$4,391	\$13,354	\$4,487	\$5,774	\$6,096
S&T Preliminary Draft	\$123,426	\$96,493	\$9,943	\$8,136	\$10,060	\$6,945	\$21,123	\$7,098	\$9,133	\$9,643
S&T Clark County	\$91,064	\$14,332	\$14,332	\$14,332	\$14,332	\$14,370	\$14,370	\$14,370	\$15,324	\$15,433
Effectivness, SourceID	\$90,111	\$70,448	\$7,259	\$5,940	\$7,345	\$5,071	\$15,421	\$5,182	\$6,668	\$7,040

book

Clark County's idea has the most promise. It expands upon a successful program that already benefits half of SW WA's jurisdictions. It is by far the best option economically for Clark Co. and Vancouver, which represent >70% of the funding needed to make the regional monitoring viable. Also, the cheapest option (the first one) is run by Ecology, making it more vulnerable to scope creep (i.e. more \$\$). For Cowlitz County, all estimates use the population of only the permitted area. Ecology estimates are modified accordingly. Ecology's preliminary draft permit underestimate costs: 1) Ecology had significant errors in its spreadsheet (e.g. they only used half of their stated \$302K/year estimate for SW WA S&T. 2) Ecology considers the Effectiveness funding level to be a "starting point." 3) Ecology's cost allocation Options #2 & 3 significantly increase burden to small jurisdictions (>2X for some). The two probabilistic estimates include a 20% contingency (Clark County estimates do not, and are admittedly still quite preliminary at this point. Their travel hours / mileage to Centralia & Aberdeen seem low).

TABLE 2 – Comparison of Concepts

	<u>SWG: Puget Sound</u> Ecology Proposal in Preliminary Draft	Collyard/LV. [First idea, using updated data ¹]	<u>Southwest Washington</u> Ecology Proposal in Preliminary Draft	Clark County Phase II Phase I	
# Sites	150 (50-Rural, 50-Urban, 50-Nearshore)	75	30	9	11
Type	Probabilistic	Probabilistic	Probabilistic	Traditional	Traditional
Variability at 90% Confidence Level (50% Impairment)	± 8%	±10%	±16%	Statistical trends are not possible at this funding level. ²	See 2010 Clark Co. Stream Health Report, for info.
WQ Index	Monthly	1X / Permit	Mnthly for 1yr/Permit	Mnthly for 1yr/Permit	Monthly
Bugs & Habitat	Annual	1X / Permit	1X / Permit	1X / Permit	Annually
Sediment	1X / Permit	1X / Permit	1X / Permit	1X / Permit	1X / Permit
Continuous Temp	No	No	No	No	Yes
Instantaneous Flow	Monthly	N/A	Mnthly for 1yr/Permit	Mnthly for 1yr/Permit	N/A
Flow Gauging	TBD	No	No	No	Yes
Nearshore	Yes	No	No	No	No
Cost: Source ID	\$18K	\$18K	\$18K	\$18K	
Cost: Effectiveness	\$1,500K	\$202K	\$202K	\$202K ⁵	
Cost: Status & Trends	\$2,134K / Year	\$191K / Year	\$302K / Year	\$131K / Year	\$91K / Year
Cost / Citizen – S&T	0.62	0.39	0.59	0.431 ³	0.433
Cost / Citizen – Total	1.05	0.80	1.01	0.86 ³	0.86
Question	Same; but with additional urban vs. rural, and nearshore status and trends.	What % of urban small Wadeable stream mi. in region's permitted areas meet designated uses?	Same	WQ snapshots in sensitive areas where significant change is likely.	What is status & trends of county watersheds at key index stations?
Risk of triggering a Cat 5 303(d) listing?	Yes	No	Yes	Yes	Yes
Administration	Ecology	Ecology	Ecology	Clark County	Clark County
Compliance	Contract (Guaranteed)	Contract (Guaranteed)	Contract (Guaranteed)	Interlocal (Secure) ⁴	Self
Assessment	? or TBD	? or TBD	? or TBD	Details forthcoming	Stream health report
JRJ Summary	N/A	Easiest, Statistical value	Costly, Useless, Risky	Best Overall. Not as useful for Phase II	

¹ An interesting idea from Scott Collyard of Ecology is to capture all the small, Wadeable streams in urbanized areas in SW WA (i.e. not just those in permitted areas). 50 sites would be non-permitted (very small urban areas), and 50 would be in the 10 permitted jurisdictions. Its advantages include: Thurston, Peirce, and/or Kitsap counties could fund a significant portion of such an effort (making it the cheapest option), there would be fewer sample sites in within our jurisdictions to risk a 303(d) Category 5 impairment listing, and it would represent total coverage of urbanized areas in what Ecology considers to be SW WA.

² For an extra \$9-10K/year (using their own labor), jurisdictions can collect enough traditional data (i.e. monthly WQ Index) to ascertain trends, as is seen their Stream Health Report. <http://www.clark.wa.gov/water-resources/stream.html>.

³ This is an average value and it assumes jurisdictions do their own monthly grab sampling. The annual cost per citizen ranges from \$0.09 for Vancouver (165K pop.) to \$1.19 for Cowlitz County (12K pop.).

⁴ While Clark County cannot guarantee compliance, it has an impressive, well-established monitoring program. Any risk of non-compliance liability is far out-weighted by the savings from cooperation with them.

⁵ In his 06/17/11 comments to Ecology, Vancouver PW Director suggests that it could be done for a lot less money, in SW WA maybe?

- Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents. The Permittee shall reduce these discharges through, at a minimum, public education activities (see section S5.C.1.) and/or water conservation efforts. To avoid washing pollutants into the MS4, Permittees must minimize the amount of street wash and dust control water used. At active construction sites, street sweeping must be performed prior to washing the street.
- Other non-stormwater discharges. The discharges shall be in compliance with the requirements of a stormwater pollution prevention plan reviewed by the Permittee, which addresses control of such discharges.

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- iii. The Permittee's SWMP shall, at a minimum, address each category in ii above in accordance with the conditions stated therein.
 - iv. The SWMP shall further address any category of discharges in i or ii above if the discharges are identified as significant sources of pollutants to waters of the State.
 - v. The ordinance or other regulatory mechanism shall include escalating enforcement procedures and actions.
 - vi. The Permittee shall develop an enforcement strategy and implement the enforcement provisions of the ordinance or other regulatory mechanism.
- c. Each Permittee shall develop and implement an ongoing program to detect and address non-stormwater discharges, including spills, and illicit connections, into the Permittee's municipal separate storm sewer system. The program shall be fully implemented no later than 180 days prior to the expiration date of this Permit and shall include:

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- i. Procedures for locating priority areas likely to have illicit discharges, including 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.
- ii. Field assessment activities, including visual inspection of priority outfalls identified in i, above, during dry weather and for the purposes of verifying outfall locations, identifying previously unknown outfalls, and detecting illicit discharges.
 - Receiving waters shall be prioritized for visual inspection no later than three years from the effective date of this Permit, with field assessments of three high priority water bodies made no later than four years from the effective date of this Permit. Field assessments on at least one high priority water body shall be made each year thereafter.
 - Screening for illicit connections shall be conducted using: Illicit Discharge Detection and Elimination: A Guidance Manual for Program

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Development and Technical Assessments, Center for Watershed Protection, October 2004, or another methodology of comparable effectiveness.

- iii. Procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges found by or reported to the Permittee. Procedures shall include detailed instructions for evaluating whether the discharge must be immediately contained and steps to be taken for containment of the discharge.

Compliance with this provision shall be achieved by investigating (or referring to the appropriate agency) within 7 days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge, including spills, and immediately investigating (or referring) problems and violations determined to be emergencies or otherwise judged to be urgent or severe.

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- iv. Procedures for tracing the source of an illicit discharge; including visual inspections, and when necessary, opening manholes, using mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures.

- v. Procedures for removing the source of the discharge; including notification of appropriate authorities; notification of the property owner; technical assistance for eliminating the discharge; follow-up inspections; and escalating enforcement and legal actions if the discharge is not eliminated.

Compliance with this provision shall be achieved by initiating an investigation within 21 days of a 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 the illicit nature of a storm drain connection, Permittees shall use their enforcement authority in a documented effort to eliminate the illicit connection within 6 months.

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- d. Permittees shall inform public employees, businesses, and the general public of hazards associated with illegal discharges.

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- i. No later than 180 days prior to the expiration date of this Permit, distribute appropriate information to target audiences identified pursuant to S5.C.1.
- ii. No later than two years from the effective date of this Permit, publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges. Keep a record of calls received and follow-up actions taken in accordance with S5.C.3.c.ii. through v. above; include a summary in the annual report (see section S9 Reporting and Record Keeping Requirements).

- e. Permittees shall adopt and implement procedures 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

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