# APPENDIX 12 – Funding Agreement between Ecology and Municipal Stormwater Permittees

**This Funding Agreement** is between the State of Washington, acting by and through its DEPARTMENT OF ECOLOGY, hereafter called "Ecology," and [JURISDICTION], hereafter called "[Jurisdiction]."

**Background:**
Ecology is re-issuing Phase I and western Washington Phase II Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permits with new monitoring requirements. The Stormwater Work Group, a formal stakeholder committee, recommended that Ecology require Permittees to equitably contribute funds to implement a regional stormwater monitoring program (RSMP). Furthermore, the Stormwater Work Group recommended that Ecology serve as the administrative entity to manage the pooled funds, that Ecology enter into contractual arrangements with each Permittee, and that this agreement ensure that the funds will be spent on RSMP activities in accordance with Stormwater Work Group recommendations.

The project is being jointly funded by all of the Phase I and western Washington Phase II Municipal Stormwater NPDES Permittees (approximately 91 local jurisdictions and two ports) who choose to participate in the RSMP. Dates that permittees' funding shares are due to Ecology and the amount of each permittee's share during each year of the five-year permit are defined in permit conditions S8.C.1, S8.D.1, S8.D.3, and S8.E.1. All funding partners will be formally acknowledged in reports and other publications resulting from the project.

All interested parties will have access to all of the data and information generated by the project.

**Agreement Purpose:**
The purpose of this Agreement is to provide a share of the funding required to conduct a regional stormwater monitoring program.

**Effefctive Date and Duration:**
This Agreement shall become effective on the date on which both parties have signed this Agreement. This Agreement shall expire on [end of state fiscal year following expiration date of permit]. Work covered by this agreement will be completed by [end of state fiscal year following expiration date of permit], unless terminated sooner as provided herein.

**Statement of Work:**
Ecology agrees to manage the funds, participate in an oversight committee, solicit requests for proposals, conduct an open and transparent process to rank applications, and enter into contracts with other entities to perform the activities described in **Attachment A** – **Scope of Work**, attached hereto by reference.

**Consideration:**
[Jurisdiction] agrees to pay Ecology the total sum of _____ dollars as its share for accomplishing the work required by this agreement. This sum shall be paid in annual installments of _____ dollars.

This includes the sum of _____ dollars annually as [Jurisdiction's] share for status and trends monitoring in Puget Sound receiving waters; _____ dollars annually as [Jurisdiction's] share for regional effectiveness studies; and _____ dollars annually as [Jurisdiction's] share for the Western Washington source identification and diagnostic monitoring information repository.

**Billing Procedure:**
An invoice for the consideration will be mailed on [*not more than 60 days before the payment due date established in permit conditions S8.C.1.a; S8.D.1, and S8.E.1*] to the following address:

Jurisdiction contact
[Jurisdiction]
Jurisdiction address
Jurisdiction city, WA zip

Payments will be due to Ecology on or before [*the dates specified in the permit*], mailed to the following address:

Department of Ecology
Cashiering Section
P.O. Box 47611
Olympia, WA 98504-7611

**Amendments:**
Ecology and [Jurisdiction] may mutually amend this Agreement. The terms of this Agreement shall not be waived, altered, modified, supplemented, or amended, in any manner whatsoever, except by written instrument signed by both parties.

**Access to Records:**
All records supporting every request for payment shall be maintained by Ecology in a manner which will provide an audit trail to the expenditures for which state support is provided. Original source documents shall be maintained by Ecology and made available to [Jurisdiction] or a duly authorized representative upon request.

**Cost Overruns:**
Ecology will not be responsible for cost overruns. The total project cost estimate for which [Jurisdiction]'s share has been determined includes a 10% contingency.

**Excess Funds:**
If after the completion date of this project, excess funds remain in Ecology's project account, Ecology will refund a pro-rated refunded amount to [Jurisdiction] no later than six months following the completion date of the project.

**Merger Clause:**
This Agreement constitutes the entire agreement between the parties. No waiver, consent, modification, or change of terms of this Agreement shall bind either party unless in writing and signed by both parties. Such waiver, consent, modification or change, if made, shall be effective only in the specific instance and

for the specific purpose given. There are no understandings, agreements, or representations, oral or written, not specified hereing regarding this Agreement. Each party, by signature below of its authorized representative, hereby acknowledge that s/he has read this Agreement, understands it, and agrees to be bound by its terms and conditions.

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| The Project officer for Ecology is: | The Project officer for [Jurisdiction] is: |
| [Ecology Project Officer Name] | [Jurisdiction Project Officer Name] |
| Water Quality Program | Division or section |
| Washington State Department of Ecology | [Jurisdiction] |
| P.O. Box 47600 | [Jurisdiction address] |
| Olympia, Washington 98504-7600 | [Jurisdiction city, WA zip] |
| Phone: (360) 407-[xxxx] | Phone: [(xxx) xxx-xxxx] |
| email: mailto:karen.dinicola@ecy.wa.gov[] | email: [] |

| | |
|---|---|
| **Approved by Ecology:** | **Approved by [Jurisdiction]:** |
| Polly Zehm<br>State of Washington<br>Department of Ecology | [Jurisdiction signature information] |
| _____ | _____ |
| Signature | Signature |
| Deputy Director | _____ |
| Title Date | Title Date |

Approved as to form only by the Attorney General's Office.

**Attachment A – Scope of Work**

The purpose of this attachment is to define the activities and products of a Regional Stormwater Monitoring Program (RSMP) that will be delivered by Ecology, through Requests for Proposals and subsequent contractual arrangements with other entities (including permittees) during the next cycle of National Pollutant Discharge Elimination System (NPDES) Permits for Municipally-owned Separate Storm Sewer Systems in Western Washington.

The Stormwater Work Group has made recommendations to Ecology in the form of *Recommendations for Municipal Permit Stormwater Monitoring*, October 2010 and subsequent letters to Ecology. The activities below will be funded by permittees' collective contributions (cost shares) and other discrete funding sources that become available. Ecology is not responsible for funding the RSMP, only for administering the funding and contracts to implement the RSMP. Cost estimates are provided herein. The tasks are separated into Ecology's administrative and RSMP management tasks and Contractors' preparation, data collection, reporting, and analysis tasks for each RSMP component.

Funds may be shifted within or among program components, and costs (including data collection, data management, and reporting) are expected to be no more than the total costs listed below:

| **RSMP task** | **Implemented by** | **Timeline** (August 2014 through August 2018 unless otherwise noted) | **Total costs** (annual costs are for four years) |
|---|---|---|---|
| 0. Program administration | Ecology | | $150,000 per year, or about 5% of the total RSMP costs |
| 1. Puget lowland small streams monitoring | Contractors | Conduct monitoring in 2016-2018 | $2,515,000 total |
| 2. Marine nearshore: sediment monitoring | Contractors | Conduct monitoring in summer 2016 | $220,000 total |
| 2. Marine nearshore: bacteria monitoring | Contractors | Conduct monitoring October 2015 through September 2016 | $66,200 total |
| 2. Marine nearshore: mussel monitoring | Contractors | Conduct monitoring in winter 2015-2016 | $618,300 total |
| 3. Regional effectiveness studies | Contractors | | $1,750,000 per year |
| 4. Source Identification and Diagnostic Monitoring Information Repository | Contractors | | $161,250 per year |

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|---|---|---|---|
| TOTAL RSMP | | | $2.97 million per year |

More detailed information about the each of the above tasks, timelines, and deliverables is included in the following. More detailed information about the cost estimates is provided in the permit Fact Sheet. Note that a Water Year is defined as beginning October 1 of the prior year and ending on September 30 (*e.g.*, Water Year 2016 begins October 1, 2015 and ends October 1, 2016).

**Ecology Tasks:**

<u>0. Program Administration, Requests for Proposals, and Contracting</u>

1. Enter into and manage agreements with all permittees who choose to participate in this cost-sharing arrangement.
2. Track costs associated with all RSMP fund-sharing program components.
3. Participate in a project management oversight process pursuant to SWG recommendations from the first date of RSMP.
4. Open a competitive process to determine who will conduct each of the **Contractor Tasks** listed below for:
    a. Status and trends monitoring in small Puget Sound lowland streams and in marine nearshore areas of Puget Sound;
    b. Source identification and diagnostic information repository; and
    c. Effectiveness studies.
5. Develop detailed scopes of work to ensure contractors are qualified to conduct RSMP tasks according to approved Quality Assurance Project Plans (QAPPs).
6. Contract with successful applicants and provide project management oversight to ensure that quality data and other products are produced in a timely fashion.
7. Coordinate an annual review and reporting of results and information generated by the RSMP. In addition to the data interpretation tasks listed below:
    a. Summarize findings from all RSMP components.
    b. Cross-walk with information published by other key monitoring programs in western Washington.
    c. Recommend new standard protocols to be developed.

**Contractor Tasks:**

<u>1. Status and Trends Monitoring in Small Streams in Puget Sound Lowlands</u>

Note: The Quality Assurance Project Plan (QAPP) for this monitoring is in final draft. The QAPP is expected to be approved, in consultation with the SWG, in advance of the starting date of this cost-sharing agreement. The initial list of sampling sites has been generated. There are 100 randomly selected first, second, and third order stream sites; 50 of these sites are located inside and 50 outside of UGA boundaries in Puget Sound lowlands. A map of alternate sites has also been generated. These two maps are shown in Attachment B.

1. Prepare to conduct status and trends monitoring. Ecology expects these tasks to begin in summer 2014 and be completed in summer 2016.

a. Site confirmation and preparation for sampling.
   i. Confirm that all sites are accessible and suitable for sampling according to QAPP protocols. For each site that is not accessible or otherwise unsuitable, the next sequential site on the list of alternates will be chosen and must be confirmed.
   ii. Procure sample collection equipment necessary to produce data according to the QAPP.
b. Prepare to manage small stream status and trends monitoring data.
   i. Confirm that data management tools are available to handle all RSMP data and that all data will be quality controlled, stored and accessible to the public in a timely fashion.
   ii. Train field and lab personnel to QA/QC and report all data to the required data bases according to the QAPP.

2. Complete analysis of streamflow gauging data for Puget Sound lowland streams by summer 2016.
   i. Recommend what existing gages need to be maintained and whether new gages need to be added to the network to support status and trends monitoring.
   ii. Recommend what data management system will be needed and how best to create a collaborative system.
3. Conduct status and trends monitoring in water years 2017 and 2018 according to the approved QAPP. This task includes quality assurance and quality control (QA/QC), data reporting, and data analysis and interpretation.
   a. Collect and report monthly water quality index (WQI) and instantaneous flow monitoring:
      i. 20 reference or "sentinel" sites in water year 2017, and
      ii. 100 "RSMP" sites in water year 2018.
   b. Collect and report annual stream benthos and habitat monitoring:
      i. 20 sentinel sites in water year 2017, and
      ii. 100 RSMP sites in water year 2018.
   c. Collect and report one-time sediment monitoring and toxicity sampling:
      i. 100 RSMP sites in water year 2018.
   d. Analyze and interpretat data according to the approved QAPP:
      i. Interpret 20 sentinel site results in water years 2017-2018, and
      ii. Interpret 100 RSMP sites in a subsequent or extended agreement.

<u>2. Status and Trends Monitoring in Marine Nearshore Areas of Puget Sound</u>

1. Prepare to conduct status and trends monitoring. Ecology expects these tasks to begin in summer 2014 and be completed in summer 2016.
   a. QAPP development and approval.
      i. Write a complete QAPP or QAPPs and have it/them reviewed and approved by Ecology in consultation with the SWG. The QAPP(s) will include: site selection; sampling protocols for bacteria sampling, sediment sampling, and mussel tissue sampling; quality assurance and control procedures; laboratory analytical methods; data storage; and data analysis.

b. Confirm sites and prepare for sampling.
    i. Confirm that all sites are accessible and suitable for sampling according to QAPP protocols. For each site that is not accessible or otherwise unsuitable, the next sequential site on the list of alternates will be chosen and must be confirmed.
    ii. Conduct volunteer trainings and procure equipment necessary to collect data according to the QAPP.
c. Conduct a Mussel Watch laboratory comparison to ensure that data will be comparable with historic, nationally-collected data.
d. Prepare to manage monitoring data.
    i. Confirm that data management tools are available to handle all RSMP data and that all data will be quality controlled, stored and accessible to the public in a timely fashion.
    ii. Train field and lab personnel to QA/QC and report all data to the required data bases according to the QAPP.

2. Conduct one round of sediment chemistry sampling at 50 randomly selected sites at 0-2m depth during summer 2016 according to the approved QAPP. Interpret and report the results.
    a. Archive samples for future analysis of benthos and additional chemical parameters if funds become available.
3. Conduct one round of mussel tissue sampling at 50 sites during winter 2015-2016 according to the approved QAPP. Interpret the results and make recommendations for future status and trends monitoring.
4. Conduct monthly bacteria sampling at 50 sites during the 2016 water year according to the approved QAPP. Interpret and report the results.

<u>3. Regional Effectiveness Studies</u>

1. Conduct studies on topics that have been recommended through the process and using criteria pursuant to SWG recommendations; identify and develop needed SOPs; and make peer-reviewed results and findings available to the public. See Attachment C for the SWG-recommended list of study topics and questions.
2. The number of studies to be conducted will be determined through the RFP process. Ecology expects that at least four to six studies and perhaps as many as 15-20 studies will be conducted depending on the complexity of the studies selected.
3. These studies will be conducted from August 2014 through August 2018.
4. Some studies may not be completed by the expiration date of this agreement; appropriate interim deliverables will be defined.

<u>4. Source Identification and Diagnostic Monitoring Information Repository</u>

1. Develop an Illicit Discharge Detection and Elimination (IDDE) Manual for Western Washington, including:
    a. A QAPP library with data quality objectives and report templates,
    b. An information repository to evaluate current source identification programs and enable permittees to share information, and

c. Standard operating procedures (SOPs) and protocols for source identification and diagnostic monitoring.

2. Design and develop a database and propose reporting requirements to support regional-scale analyses to identify problems that will be better addressed by broad source control, education, or policy initiatives rather than by individual efforts at the local government level.

# 1 Attachment B – Stream sampling site locations

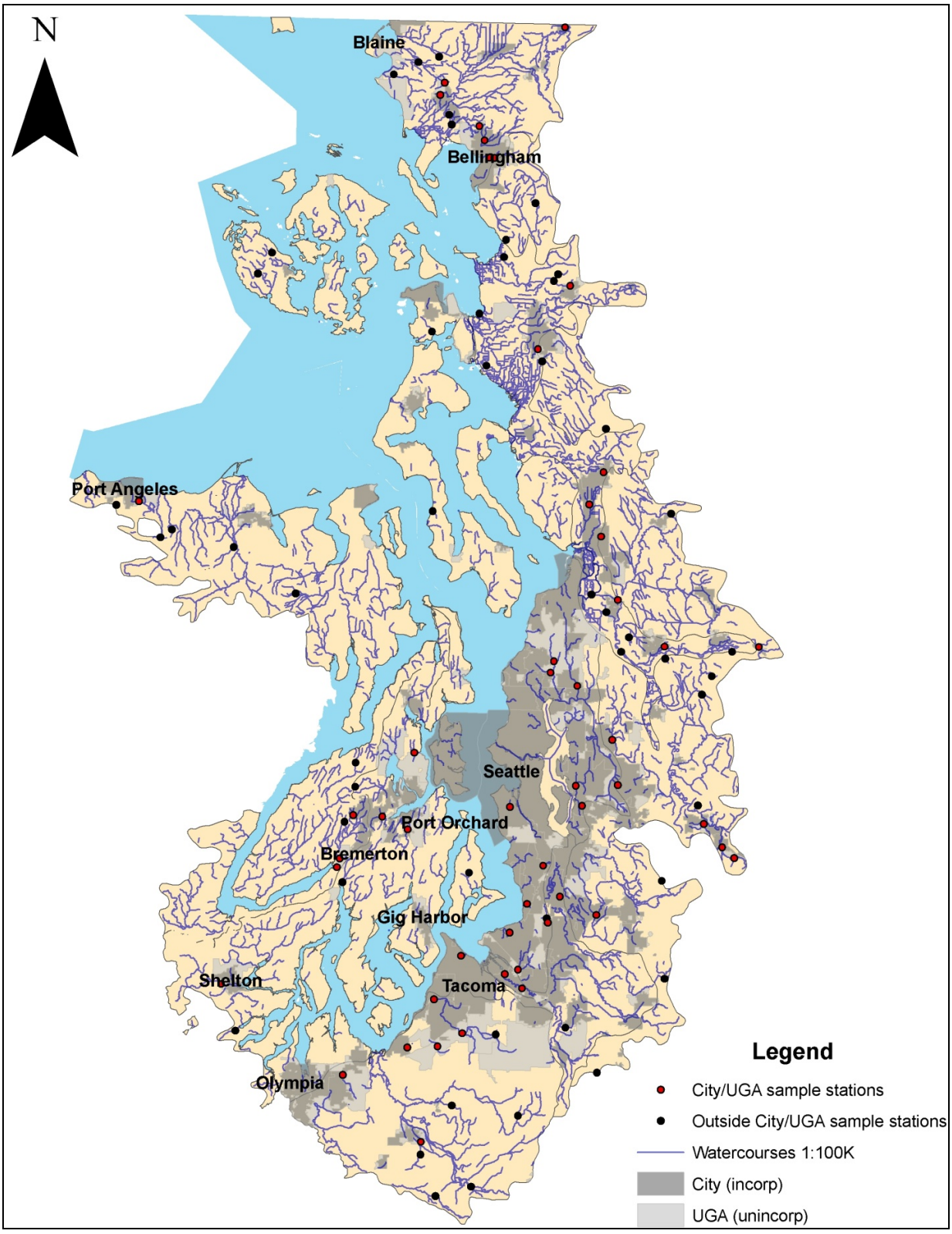


Figure B1. Initial 100 candidate wadeable stream site locations for the Puget Sound assessment region with 50 sites

in each of its component assessment regions: inside and outside Urban Growth Area (UGA) boundaries.

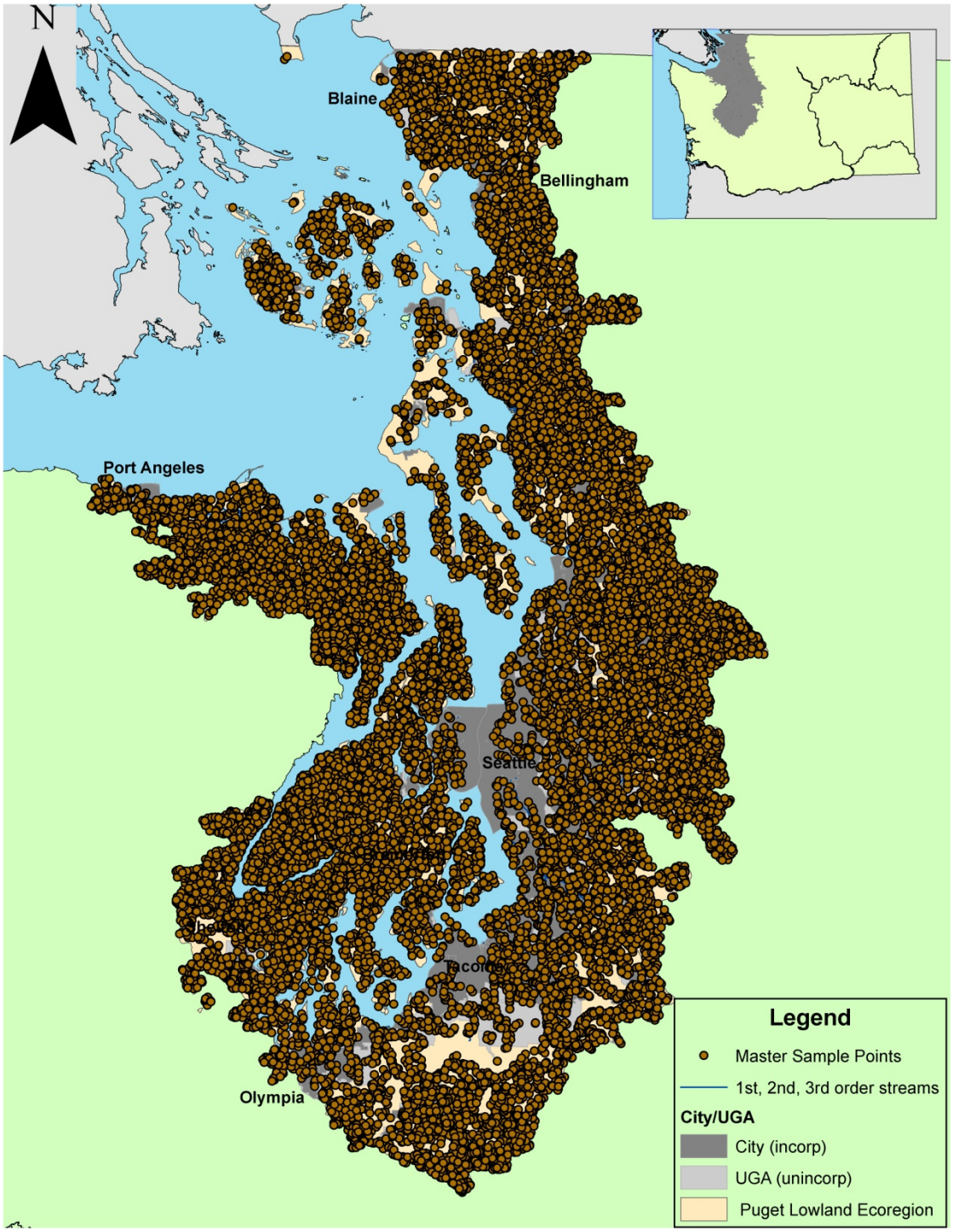


Figure B2. All one million candidate stream site locations for the Puget Sound assessment region.

**Attachment C – Recommended list of stormwater effectiveness study topics and questions submitted to Ecology by the Stormwater Work Group in September 2011**

| RANK | Stormwater Management Program Element | Effectiveness Study Topic Null Hypothesis ($H_o$) | Potential Questions for Request for Proposals |
|---|---|---|---|
| 1 | Source Control | Construction site inspections are not effective at controlling sediments and turbidity from permitted construction sites. | • Are the temporary erosion and sediment control Best Management Practices (BMPs) required during development or redevelopment adequate to control erosion and sediment from construction sites?<br>• Are the temporary erosion and sediment control BMPs used at construction sites effective at reducing turbidity/TSS for compliance with water quality standards?<br>• What frequency of construction erosion and sediment control inspections are most effective for achieving compliance with codes/ordinance requirements at new development and redevelopment project sites? |
| 2 | Source Control | Education and inspection of private stormwater facilities does not affect water quality. | • Do more frequent site visits and contact with private facility owners improve compliance with operation and maintenance (O&M) requirements?<br>• What is the optimum frequency of inspections to maintain the functionality of private stormwater facilities? |
| 3 | Public Education | Permit-required public education programs do not result in decreased levels of pollutants in stormwater. | • Are fecal coliform levels in stormwater reduced after an extensive pet waste education program?<br>• Are nutrient levels in stormwater reduced following an extensive natural yard care education program?<br>• Are pesticide concentrations and number of hits reduced in an urban stream following general awareness?<br>• Does establishing a spill hotline result in reduced stormwater pollutants?<br>• Does a fundraiser car washing education program result in reduced surfactants in stormwater? |
| 4 | Illicit Discharge Detection and Elimination (IDDE) | IDDE program components are not effective at reducing pollutants. | • Which combination of methods; smoke testing, dye testing, CCTV, flow monitoring and outfall screening (wet and dry season) work best for detection of illicit connections?<br>• How effective is wet weather screening as a tool to detect illicit connections?<br>• Which parameters should be measured during dry weather screening to improve the ability to detect illicit connections? |

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| 5 | O&M-Pollution Prevention | Frequency of inspecting and cleaning catch basins is not dependent on land use or road size. | • Do catch basins on arterial streets require more frequent cleaning vs. non-arterial streets?<br>• Can land use or road size/type be used to set an optimal frequency for inspection and cleaning catch basins?<br>• Does the land use surrounding a catch basins influence the rate of sediment accumulation in catch basins?<br>• Can catch basin maintenance frequency be determined by land use surrounding the catch basin? |
| 6 | Low Impact Development (LID) | LID measures are not effective at reducing storm flows in retrofits and new development. | • Which LID measures are most effective at reducing flow from developed areas?<br>• Will installing porous pavement in alleys and road rights-of-way with rain gardens substantially reduce runoff?<br>• Does amending landscapes with compost significantly reduce flows during small and medium storms?<br>• Is LID more effective than traditional BMPs for improving hydrology at the basin scale?<br>• Will a developed basin with a high density of LID measures have measurable differences in hydrology and pollutant loads compared to a similar basin with a low density of LID measures?<br>• How well can a calibrated and verified stormwater model (*e.g.*, SUSTAIN and EPA SWMM5) function as a replacement for a control in a paired watershed study design? |
| 7 | LID | LID measures are not effective at reducing pollutant loads in retrofits and new development. | • Does the installation of bioretention, bioinfiltration, biofiltration, rain gardens, and other LID measures have a measurable effect on water quality?<br>• Which LID measures are most effective at improving water quality from developed areas?<br>• Can compost mixes and plant species be tailored to enhance removal of specific pollutants (*i.e.*, phosphorus, metals, bacteria)?<br>• Is LID more effective than traditional BMPs for improving water quality at the basin scale?<br>• Will a developed basin with a high density of LID measures have measurable differences in pollutant loads compared to a similar basin with a low density of LID measures?<br>• Does bioretention treat runoff sufficiently to allow for infiltration without violating groundwater quality standards?<br>• What type and frequency of maintenance is needed to ensure the long-term performance of bioretention facilities? |

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| 8 | Source Control | Business inspection and outreach are not effective source control techniques. | • Are businesses that receive an in-person visit/inspection more likely to implement source control BMPs?<br>• What frequency of business inspections is most effective for implementing and maintaining source control requirements/BMPs at businesses? |
| 9 | Public Education | Permit-required public education programs promoting behavior change do not result in increased awareness and behavior change. | • What is the increase or decrease over time of various target audiences willing to make a simple change in their daily lives to help Puget Sound?<br>• What is the increase or decrease over time of various target audiences willing to invest over $1,000 to make a change in their property to help Puget Sound?<br>• What is the increase or decrease over time of car owners to fix leaks?<br>• What is the increase or decrease in stormwater drain awareness of various business sectors involved in commercial property maintenance inspections?<br>• Does a fundraiser car wash education program decrease the number of fundraiser car wash events? |
| 10 | Traditional BMPs | Retrofitting using water quality treatment devices does not reduce pollutant loads. | • Which combinations of retrofit BMPs in a basin are most effective at reducing pollutants to receiving waters?<br>• To what extent does retrofitting using water quality treatment devices reduce urban stormwater pollution to receiving water bodies?<br>• Once installed, do model predicted quantities of stormwater controls in a basin reduce stormwater impacts enough to support the receiving water's designated beneficial uses? |
| 11 | LID | LID measures are not feasible in areas with tight soils or shallow groundwater. | • What, if any, LID measures are feasible in areas with tight soils?<br>• What, if any, LID measures feasible in areas with shallow groundwater? |
| 12 | Traditional BMPs | Reducing the size of a filter strip does not alter its effectiveness at reducing pollutant concentrations. | • Are existing sizing criteria for vegetative filter strips (based on bioswales) overly conservative?<br>• Which combinations of length, width, slope, soil types and vegetation types result in greatest removal of sediment by vegetative filter strips? |
| 13 | LID | Permeable pavement will fail on high-speed roads. | • Is permeable pavement feasible over the long-term for applications on high-speed roads? |
| 14 | LID | Recycled concrete cannot be used to provide storage under permeable pavement. | • Can recycled concrete be used as storage under permeable pavement? |

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| 15 | O&M-Pollution Prevention | Catch basins do not contribute sufficient fecal coliform bacteria to exceed water quality standards. | • Are catch basins a significant source of fecal coliform or other pollutants?<br>• What frequency of catch basin maintenance is needed to reduce the level of fecal coliform to meet Total Maximum Daily Load (TMDL) requirements? |
| 16 | Public Education | Public Education of lake property owners about residential pollutants will not reduce summer algae blooms. | • Are summer algae blooms due to excess runoff or recycling of nutrients?<br>• Can education and prevention of phosphorus loads from runoff influence the frequency and duration of lake algae blooms? |
| 17 | Public Education | Storm drain stenciling does not raise awareness about where stormwater goes or that it is not treated. | • What is the level of awareness of adjacent land owners to storm drain stencils compared to landowners with no storm drain stencils? |
| 18 | Traditional BMPs | There are no differences in ecological or intrinsic human benefits derived from maintained versus unmaintained stormwater ponds. | • Are water quality benefits increased by letting ponds take a more natural, successional path rather than continual maintenance?<br>• Do humans value the unmaintained pond for the "wildness" it can introduce to their neighborhood (trees, shrubs, wildlife, etc.) |
| 19 | Source Control | Nutrient and Integrated Pest Management (IPM) programs do not improve water quality in receiving water bodies. | • Does implementation of nutrient management result in the reduction of nutrients in stormwater?<br>• Does implementation of IPM result in the reduction of pesticides in stormwater? |
| 20 | Traditional BMPs | Toxics are not transferred to the nearshore from uplands by stormwater infrastructure. | • Will installation of devices to restrict tidal influence on stormwater systems reduce the transfer of toxics to Puget Sound? |
| 21 | Traditional BMPs | Oil/water separators are not effective in driveway applications. | • What is the lowest threshold of paved surface that makes it cost/treatment effective to install an oil/water separator?<br>• Are there other methods (*i.e.*, LID) that would be as effective in improving water quality as oil/water separators? |

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| 22 | IDDE | Receiving water body sampling does not confirm removal of an illicit connection or successful IDDE program. | • How well does receiving water body sampling confirm the elimination of illicit connections?<br>• Are there measurable differences in the concentration of fecal coliform in a receiving water body when illicit connections are removed? |

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