

# Letter of Intent to Submit an NPDES Effectiveness Study Proposal

*All fields must be completed*

1. Proposed Study Title: Effectiveness of City of Covington's Stormwater Infiltration Program and Implications for
2. Short Description of Proposed Study:

This study would evaluate current conditions and the effectiveness of the City of Covington's program to install stormwater infiltration facilities as part of new construction, redevelopment, and retrofit projects. This study would evaluate how well existing infiltration facilities are functioning relative to design standards, based on drainage area to the facility and stormwater inflow to the facilities, size and shape of the facility, and soil conditions. A comparison of facility designs to those developed using the Western Washington Continuous Simulation Hydrology Model (WWHM) will be conducted to assess whether design requirements can be modified to allow for smaller facilities that are effective at infiltration stormwater, easy to maintain, less expensive to build, and viewed as positive amenities by the public. Better sizing information from the WWHM would assist others in justifying smaller infiltration facilities than required by the 2012 Stormwater Management Manual for Western Washington (amended in 2014, SWMMWW). This study would focus on such facilities constructed in the City of Covington at new developments and at sites scheduled retrofit. An evaluation of stormwater infiltration potential in Western Washington based on soil characteristics will also be conducted. This study would address the following questions:

- How well are these facilities performing?
- How can design and performance be optimized for each facility, as a function of infiltration rates, size of land available and volume needed to capture and infiltrate?
- How does this smaller and more public accessible design influence the aesthetics and ease and cost of maintenance?

2. What specific Stormwater Management Program condition(s) or other permit condition(s) in the NPDES W. WA. Phase I and/or Phase II Municipal Stormwater Permit does your study address?

Phase I Permit:      • Special Conditions S5.C.4 and S5.C.5

Phase II Permit:     • Special Conditions S5.C.4 and S5.C.5

3. How will this study inform, assess effectiveness and/or support implementation of the specified NPDES permit conditions (e.g., project goal) and future permit conditions?

This study would inform the region stormwater managers on performance of smaller sized infiltration facilities (based on site specific data). The proposed study will address the questions in Section 1 above through the following tasks:

#### A. Facility Performance

##### Policy Review

- SWMMWW

- WWHM

- City of Covington's Covington Stormwater System Ordinance, Comprehensive Plan, and Comprehensive Stormwater Plan Update

Historical Data Review - Receive and review the City of Covington's system inventory, design specifications, inspection reports, facility performance or other related data collected. In addition, nearby precipitation, surface water and groundwater data may be reviewed.

Field Work - Install field gauges to measure continuous surface water inflow rates and capture volumes; measure infiltration rates at facilities; install gauges to measure surface water levels and shallow wells to measure groundwater levels at and near facilities; and test for soil properties at and near facilities.

Data Analysis - Analyze data collected to compare inflow rates with infiltrated volumes, in addition to reviewing rainfall, surface water and groundwater levels.

GIS analysis - Evaluate land that can infiltrate water within the city limits, potential future cost savings and possible infiltration volumes to the underlying sediment.

#### B. Aesthetics

Assess land use and impacts of setting - GIS will be used to evaluate land use changes and a review of how design difference impacts setting.

Community survey - Conduct survey with simple questionnaires to assess public and user acceptance and opinions before and after construction as well as annually to assess long term views.

Access, Safety and Use Review - Perform a study of the use of each facility

C. Construction and Maintenance Costs

Engineering costs - Review and compare design, construction and maintenance costs for designs with comparisons of costs savings.

D. Design Optimization

WWCSH Model Review - Comparison of results of model to smaller sized infiltration facilities results.

Recommendations

A report will be prepared to include history, physical setting, geographical data, methods, data and survey results, summary and discussion. Lessons learned and next steps will be presented related to administrative and other actions needed to achieve more LID implementation.

4. What are the anticipated measurable outcomes or deliverables of this proposed study?

If the data analysis finds strong correlations between cost effectiveness and timing and volume of stormwater infiltrated, this study will provide information to revise/refine the infiltration facilities design requirements in the NPDES permit, SWMMWW and suggest methods to address use of the WWHM. In addition, this study will provide an assessment of all Puget Lowlands areas that may be appropriate for this design in order to give guidance on site identification and improved performance.

5. How does this study advance regional understanding for stormwater management?

This study would increase the likelihood of using these facilities across the region. Recommended improvements to the SWDM design requirements for infiltration facilities would influence regional stormwater management by:

- Simplifying design criteria
- Reducing design, construction and maintenance costs
- Easing design justification for future locations
- Increasing ease in maintenance
- Increasing facility capture
- Building positive relationships with users and public
- Improving neighborhood aesthetics
  - Maximizing land use for public access and government use

6. Applicant(s) Contact Information:

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7. Permittees you are coordinating with (Provide contact information):

**City of Covington - Public Works, Ben Parrish (Surface Water Management Program Coordinator); 253-480-2465**

8. Select Stormwater Work Group study category (select all that apply):

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Source Control | <input checked="" type="checkbox"/> Retrofits | <input type="checkbox"/> Education & Outreach |
| <input checked="" type="checkbox"/> LID | <input checked="" type="checkbox"/> O&M       | <input type="checkbox"/> Other:               |

Submit LOI to Brandi Lubliner (WA Department of Ecology) via email at [Brandi.Lubliner@ecy.wa.gov](mailto:Brandi.Lubliner@ecy.wa.gov)