

Letter of intent (LOI)

Interested parties should submit a Letter of Intent (LOI) on or before February 28, 2023 for each individual proposal. Letter of intent should include applicant contact information and seven questions about proposed study. More details about SAM study selection process, eligibility and funding availability can be found in SAM REF guidelines in SAM Effectiveness webpage.

The respondent's email (laurie.larson-pugh@wsu.edu) was recorded on submission of this form.

Applicant contact information

Applicant Full Name *

Laurie Larson-Pugh

Organization *

Washington Stormwater Center

Phone number *

360-271-8032

Proposed Study Information

1. Proposed Study Title *

BMP Comparison of effectiveness, costs, constructability, and maintainability

2. Which topic(s) from the SWG's priority list do you propose to address? *

The proposed study topic should be in the SWG's priority list

Create a matrix comparing the effectiveness, costs, constructability, maintainability of BMPs.

3. Select type of project being proposed *

- Survey
- Literature Review & Synthesis
- Environmental Sampling Study
- Other

4. Short Description of the Proposed Study *

250 word limit: describe how results will assess effectiveness and advance regional understanding and permittees' implementation of specific stormwater management approaches

Comparing between BMP options can be challenging because information about costs, constructability, and maintainability is not readily available. . The goal of this study is to create a matrix that Permittees could use to compare BMP effectiveness, costs, constructability, and maintainability of BMPs. To achieve this goal, we propose the following:

- o Effectiveness - The SWMMWW identifies BMPs approved to provide treatment and flow control performance goals, not all BMPs in SWMMWW have been tested to demonstrate they provide these functions. We will identify which have been rigorously tested and which have not. Effectiveness for each BMP will be defined using the approved treatment and flow control functions in SWMMWW. What is known about the BMP research will be documented and used to develop and prioritize recommendations for future research.
- o Costs –Costs for the BMPs will be determined for each item used to construct the BMP. Then a cost per BMP area will be calculated with recommended scaling factors based on construction location and the overall project size.
- o Constructability and Maintainability – Surveys/interviews with contractors, construction managers, inspectors, and maintenance staff will be conducted to collect information for each BMP: what is easy/difficult to construct; time, cost, equipment, frequency, and number of staff needed to perform maintenance; and lessons learned.

Information collected from journal articles and government documents which will be used to supplement missing data/information. The data collected will be analyzed to determine BMP lifecycle costs and to develop a matrix for comparing BMPs.

5. What type information will be collected or analyzed for this proposed study? *

If existing permittees' data are needed, specify the type, and the expected timing of a request for existing information from Permittees.

It is important to note that BMPs vary from state to state, meaning a BMP in Washington with the same name as a BMP in another state may be designed and constructed differently. As such information about BMPs from outside Washington may not be representative of BMPs identified in SWMMWW. Therefore, the data and information collected for this project will focus on what is specific to Washington BMPs. Literature about BMPs from outside Washington may be collected to supplement missing data/information.

Potential sources of information may include:

- o The Ecology Stormwater Management Manual for Western Washington (SWMMWW) and other Washington Stormwater Manuals with equivalence approval will be used to identify BMP effectiveness for regulated pollutants using the approved treatment and flow control performance and locate sources that supports this research. These manuals will also be used to identify BMP maintenance activities which will be used to develop survey and interview questions.
- o The Ecology TAPE website will be used to identify information about BMP effectiveness.
- o A review of the literature will be conducted to assess BMP effectiveness to remove pollutants of concern.
- o The WSDOT Unit Bid Analysis provides historical data about actual bid item costs for construction projects throughout Washington. It is anticipated that this will be the primary source of cost information for this project.,
- o Additional sources of cost information may include construction cost databases collected by jurisdictions or agencies such as the County Road Administration Board which administer grants from state to counties and requires feedback on cost data from grant recipients.
- o For unique items, costs that cannot be located with Washington, or if a comparison is needed, the International Stormwater BMP database costs data may also be collected.
- o For constructability surveys/interviews, we will approach the Association of General Contractors (AGC) and ask for contractors who have experience constructing BMPs to volunteer to participate. Surveys and interview questions will be developed through information collected from a review of literature regarding the constructability and maintainability of BMPs. Permittees will be notified with assistance from the Washington Stormwater Center either at regional/local stormwater meetings or through emails. Surveys may also be sent to the National Municipal Stormwater Alliance Board and the information collected may be used to assist with developing more focused surveys for Washington permittees and/or to backfill missing information.

The expected duration of this proposed project is 12-15 months from the date the contract is executed. We anticipate that the data and information needed will be collected in the first three to four months of the project.

6. What are the anticipated measurable outcomes and key deliverables that will be produced by the proposed study, and how will they be used by Permittees and the Washington State Department of Ecology? *

The outcome of this work will be to provide a user-friendly way to compare BMPs that includes:

- o A matrix will be developed that provides a scoring system for quickly comparing each BMP based on effectiveness, cost, constructability, and maintainability. The scoring will use qualitative and/or quantitative ranking systems that will be developed based on the collected and analyzed information/data.

Background information used to create the table will be developed and will include:

- o Inventory table of the raw data collected will be developed and organized by each BMPs effectiveness, cost, constructability, and maintainability.
 - o A lifecycle cost estimate will be developed that considers the cost to construct and maintain a BMP over the projected life of each BMP.
 - o A whitepaper will be developed that summarizes the work completed, guidance for using the deliverables, and recommendations for future research where data gaps were found. The whitepaper will include information about the sources of information used to develop BMP design guidance and demonstrate the BMP effectiveness and which BMPs have not been tested or rigorously tested using TAPE or similar protocols. This will provide an important source of historical knowledge that is sometimes lost with staff turnover as well as ensuring that information in SWMMWW meets AKART. Per SWMMWW, "all known available and reasonable methods (AKART) by industries and others to prevent and control the pollution of the waters of the State of Washington" are required for new development and redevelopment sites.
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7. Permittees or agencies you are proposing to coordinate with (provide staff names and contact information, if known) *

Enter "NA" if not applicable.

N/A. We anticipate including potential TAC members in the study proposal.

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