# 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 (**agallardo@kingcounty.gov**) was recorded on submission of this form.

## Applicant contact information

### Applicant Full Name *

Angela Gallardo

### Organization *

King County

### Phone number *

206-919-0204

## Proposed Study Information

### 1. Proposed Study Title *

Development of a catch basin model to predict sediment accumulation and clean out frequency

## 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

#4. Develop or modify a model to predict catch basin accumulation for predicting maintenance frequencies.

## 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

The objective of this study is to create and/or modify a mechanistic model to help public agencies establish an optimal cleanout frequency of sump catch basins (CBs). The work will advance our understanding of sediment dynamics in CBs and identify and/or modify existing models that capture those dynamics. The outcome will reduce downstream pollution, make cleanouts more predictable, and reduce costs for stormwater permittees.

The study will examine existing municipal records from three to five stormwater permittees to identify a consistent dataset on CB sediment accumulation and cleanouts. These CB data should cover a range of conditions including position on the pipe, land use and average annual traffic volume. Some follow-up monitoring of these CBs will be needed to fill in missing data.

We will also evaluate available models to identify the most suitable one with the least data-intensive approach. Municipal data will be enhanced with selective monitoring of several CBs for influent and effluent sediment concentrations and particle size distribution (PSD). The collected data will be used to evaluate available models and identify/modify the best one.

Identified candidate models are: 1) SHSAM - based on a laboratory study on hydrodynamic devices; 2) WinSLAMM - for drainage areas and stormwater BMPs; and 3) FLOW3D - a computational fluid dynamics approach. These models and others will be evaluated for ease of use, input needs, and accuracy based on collected data. The project outcome will be the model itself (with guidance) or a simplified method (e.g., Excel spreadsheet) subject to initial findings.

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.

Consistent dataset of sump catch basin monitoring and cleanout records from select municipal stormwater permittees. These data will be augmented by our field team with additional site visits and selected measurements.
Monitoring data for a select set of catch basin inlets and outlets that will include measurement of suspended sediment concentration (SSC), total suspended solids (TSS), settleable solids, and particle size distribution (PSD).
A technical memorandum summarizing available catch basin models with an evaluation of their advantages and disadvantages including functionality, accuracy, input requirements, ease-of-use, and costs.

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?

Compilation of a consistent municipal dataset that could support future testing of available catch basin models
Evaluation of available catch basin models for scheduling cleanouts
Prediction of maintenance frequencies that can protect downstream waters
Identification of a suitable model (with guidance) or a simplified method (e.g., Excel spreadsheet) based on simulated results

7. Permittees or agencies you are proposing to coordinate with (provide staff names and * contact information, if known)

Enter "NA" if not applicable.

Dana Deleon, City of Tacoma, ddeleon@cityoftacoma.org