**WORK ORDER 1**

1. **Goals, Objectives, Tasks, and Subtasks**

**Goal:** Gather information for eventual incorporation into the Minnesota Stormwater Manual. The Stormwater Manual is used by stormwater practitioners to make decisions related to stormwater management, such as selecting appropriate Best Management Practices, meeting stormwater regulatory requirements, and determining pollutant and stormwater volume reductions associated with implementation of different stormwater management practices. This work order provides information that builds on information previously delivered by the Contractor on the topic of street sweeping for water quality.

**Objective 1**: Develop information and guidance for street sweeping practitioners, to be used in designing and implementing enhanced street sweeping for water quality benefits.

**Task A: Develop a User Guide (How-to-Guide) listing and describing low-cost, simple tracking options for street sweeping**

1. Provide a brief discussion of what street sweeping tracking is and why it is important
2. Provide a list of tracking options, including but not limited to identifying the equipment needed, the purpose of tracking (e.g. TMDL compliance, asset management) and describing what information may be tracked (e.g. curb miles, pounds of pollutant).
3. Provide a discussion to accompany the list in item (b) above explaining each tracking option and the objectives, advantages, and disadvantages for each option.
4. Include high tech and low tech options for tracking, case studies or examples in use based on interviews conducted during prior Street Sweeping task orders, and a discussion how vehicle tracking by other programs (snow plowing, salt application, etc.) could be mimicked.

**Task B: Utilizing information from existing street sweeping case studies, from a survey by the MPCA on managing sweeping waste, and from the literature, summarize disposal options for street sweeping materials.**

1. Provide a list of and describe potential disposal options
2. For each disposal option, summarize costs, benefits, and limitations of each disposal option, including but not limited to testing logistics, testing requirements, regulatory requirements, and potential environmental impacts.
3. Include case studies or examples of disposal methods used by cities based on interviews conducted during prior Street Sweeping task orders.

**Task C: Provide information on sweeper cost and maintenance**

1. From information gathered for the street sweeping case studies previously conducted by the Contractor, provide a summary of costs, including but not limited to costs associated with equipment purchase and maintenance, costs associated with staff time and training, direct costs associated with sweeping (e.g. fuel, disposal, materials), and other costs associated with implementing a street sweeping program (e.g. parking enforcement).
2. As needed, supplement the above information with additional information gathered from the literature or sweeping industry necessary to provide suitable information that supports life-cycle cost analysis associated with enhanced street sweeping.

**Objective 1 Timeline:** July 2022 – December 2022

**WORK ORDER 2**

1. **Goals, Objectives, Tasks, and Subtasks**

**Goal:** Gather information for eventual incorporation into the Minnesota Stormwater Manual. The Stormwater Manual is used by stormwater practitioners to make decisions related to stormwater management, such as selecting appropriate Best Management Practices, meeting stormwater regulatory requirements, and determining pollutant and stormwater volume reductions associated with implementation of different stormwater management practices.

**Objective 1**: Update and support continued efforts to improve information on street sweeping

The Contractor will update existing information and provide new information to the Minnesota Pollution Control Agency (MPCA) Project Manager (PM) on active construction site sediment control associated with pavement sweeping and provide a brief literature summary on relationships between sweeper volume and mass. Deliverables include memos or reports and updating imagery, including but not limited to photos, schematic drawings, graphs, and plans.

**Task A**: **BMP Report on Construction Stormwater Sediment Control from Pavement Sweeping**

Submit a report that provides state of the art updated information on pavement sweeping at active construction sites. The information may include but is not limited to the following bulleted list. Include hyperlinks and references to supporting information. An example page for another sediment control practice can be found at <https://stormwater.pca.state.mn.us/index.php?title=Sediment_control_practices_-_Vehicle_tracking_BMPs>.

* + A general definition of pavement sweeping with example photos or schematics
  + A description of the purpose and function of pavement sweeping, including mechanism(s) of pollutant removal
  + Conditions where the practice applies or does not apply or has limited applicability
  + Permit applicability (identify all permit requirements fulfilled by the BMP
  + Effectiveness of pollutant removal (low, medium and high)
  + Planning considerations including but not limited to functional considerations, site accessibility, and relationship to other site practices
  + Recommendations for implementing the practice, including but not limited to sweeper type, frequency, and equipment operation and specifications. Include schematics, photos, CAD drawings, and other images as appropriate
  + If applicable, inspection and maintenance recommendations for equipment and operation
  + Estimated cost of implementation
  + List of references

**Task B: Conduct a literature review on volume-mass relationships for street sweeping**

Provide results of or links to literature describing or summarizing relationships between street sweeper volumes collected and mass of material collected.

* Compile and provide to the MPCA PM a list of literature sources (articles) that provide information describing the relationship between sweeper volume and mass collected.
* For each article in the list, provide a brief summary of the article, including but not limited to a description of what relationships were established and factors considered or encountered during the study (e.g. time of year when sweeping occurred, land use or characterization of material collected, water content of material collected, etc.).

**Objective 1 Timeline:** September 2022 – March 2023