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December 8, 2023

Mr. Will Stallard
Civil Engineer
City of Kingsport
Utilities Department
20 West Industry Drive
Kingsport, TN 37660

Subject: Proposal for Professional Services for Stormwater Master Plan – Phase 1

Dear Will:

Background

In 2011, the City's Stormwater Advisory Committee reached consensus on the recommendation for implementing a stormwater utility fee and enhanced stormwater management program. The Stormwater Utility is responsible for the operation, construction, maintenance, and rehabilitation of stormwater facilities; for stormwater system planning, property acquisition related to stormwater management, and for review of stormwater development plans for compliance with federal and state regulations, stormwater management ordinances, policies, procedures and manuals.

Much of the focus of the Stormwater Utility since implementation has been to address known and frequent flooding issues. To date, most of the original flooding issues have been resolved by the Utility, although sporadic instances of flooding still persist. An on-going focus of the Utility is to improve water quality within the City through regulatory compliance, reduction of known contaminants that are causing stream impairments, and working towards the de-listing of streams designated as impaired by the State.

The City wishes to embark on the development of a long-range stormwater master plan to serve as a roadmap for future initiatives. This scope and fee represent Phase 1 of this effort to include recommendations for business planning, operations, and capital needs development.

Scope of Services

Task 1 – Project Kickoff Meeting

At the project kickoff meeting, CDM Smith (CONSULTANT) will work with the City of Kingsport (CITY) staff to establish the goals and objectives of the project, review the project scope items, develop the overall project schedule, as well as discuss project data needs from the CITY. The anticipated outcome of the meeting will be the establishment of a framework for the Master Plan, which will include recommendations for Business Planning, Operational Improvements and Capital Project Development.





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The CITY will provide a primary point of contact and a listing of staff relevant to this project. The meeting will be conducted in person. CONSULTANT will provide a meeting summary with action items for team members within two weeks following the meeting.

Task 2 – Data Collection and Analysis

Following the project kickoff meeting, the CONSULTANT will work with the CITY to provide relevant information regarding the current stormwater program as well as accomplishments of the program since stormwater utility implementation. The CONSULTANT will use the reports and data from, and build upon, information provided by the CITY on existing expenditures, fiscal budgets, existing procedures and workflows, water quality needs based on NPDES and/or TMDLs and other available existing documents to help define existing and potential future program needs. The CONSULTANT will submit a request to the CITY for additional information to understand the CITY's system, the stormwater activities, and associated services currently provided by the CITY. This information may include:

- Existing NPDES Phase II permit and any correspondence from TDEC;
- Existing ordinances and studies (comprehensive plans, master plans, etc.);
- Water quality information on impairments for streams and rivers;
- CITY records documenting water quality and/or flooding complaints, such as monitoring information and work orders;
- Geographic Information System (GIS) inventories of stormwater facilities maintained by the CITY along with available condition data, parcels, sanitary sewer system, septic areas, land use, zoning, elevation data (DEM/las), Stormwater Control Measure (SCMs), greenways/parks, and current aerials;
- Most recent, parcel-level impervious area information;
- Stormwater utility billing file(s) and summaries of recent revenues from the fee;
- Stormwater program expenditures;
- Existing organizational structure and responsibilities by activities and department;
- Existing operations and maintenance (O&M) activities;
- Listing of known capital project needs and capital improvement projects for other departments (transportation, water, and sewer).



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Task 3 – Stormwater Program Operational Assessment

CONSULTANT will facilitate a meeting with appropriate CITY staff to understand current staff levels, processes and procedures to perform Operations and Maintenance on the stormwater system. This effort seeks to identify operational improvements to provide a better level of service to customers. Items to be reviewed include:

- Work order system
- Stormwater asset inventory (including plans for future development)
- Any SOPs for maintenance practices
- Policies related to level and extent of service
- Maintenance practices, including routine and reactive activities
- Staffing levels and cost of service

CONSULTANT will collaborate with CITY staff on the development of a Peer City Survey to benchmark the CITY's current operations against other similar programs. Questions will be developed to understand how other cities provide their services and to determine best practices/trends related to extent of service (such as maintenance responsibilities by departments, services outside of the ROW, etc.). CONSULTANT will survey up to 5 stormwater programs seeking responses to the identified questions. CONSULTANT will summarize the results of the survey and present to the CITY for review.

CONSULTANT will prepare a Technical Memorandum with recommended improvements for the O&M program. Topics are expected to include division of labor for maintenance responsibilities, asset management approaches, extent of service, frequency/approach to maintenance activities and programmatic changes necessary to achieve the CITY's vision.

Task 4 – Stormwater Utility Review

CONSULTANT will facilitate a meeting with CITY staff to review the stormwater utility billing practices and billing file information obtained in Task 2. CONSULTANT seeks to understand the current process for billing, how billing file updates are made and what triggers them, what resources the CITY has available to perform updates, and determine recommended improvements to the process.

CONSULTANT will summarize relevant information from the SESWA Stormwater Utility Survey and the Western Kentucky Stormwater Utility Survey to demonstrate trends in the industry to determine if the CITY's current rate structure can/should be modernized.



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CONSULTANT will perform a review of the CITY's existing stormwater utility billing file to determine if gaps exist from lack of routine updates. This review will include a visual assessment using GIS to determine if impervious area information matches recent aerials. CONSULTANT will also cross check information provided from the CITY regarding new development to validate if appropriate information is populated into the billing file. CONSULTANT will summarize any identified gaps but will not update the billing file through this scope of work.

CONSULTANT will summarize the results of the Stormwater Utility Review into a Technical Memorandum, which will include recommendations for Business Process Improvements.

Task 5 – Watershed Prioritization and Master Plan Framework Development

The CONSULTANT will review available information provided in Task 2 and perform preliminary analyses to develop a watershed prioritization to be used for study in future phase of this initiative.

Task 5.1 Hydrologic Evaluation

CONSULTANT will delineate the City into appropriately-sized subcatchments using existing GIS data, existing land use and automated tools within ArcPro to determine baseline estimated flows for each subcatchment throughout the City. The subcatchments will be delineated primarily along blue-lined streams and at major junction points in the system. The subcatchments will also account for significant changes in landuse. The resulting analysis will not be a detailed hydrologic model of the system, but will form the basis for comparison between subcatchments for prioritization purposes. This model will be enhanced in future phase of work when the City's GIS inventory can be incorporated. The following steps will be included in this analysis:

- Daily streamflow records from relevant USGS gauges will be reviewed for incorporation into the model database. These data will support the development of model boundary conditions and be used as validation of model performance.
- Topographic data, such as LiDAR or contours, will be used to delineate subcatchments. Discretization level will vary depending on local drainage conditions, with a target size of 40 acres per subcatchment.
- The 2016 National Land Cover Database (NLCD; www.mrlc.gov/data/nlcd-2016-percent-developed-imperviousness-conus), released in 2019, specifies percent imperviousness in urban areas at 30-m pixel resolution based on imagery with an average 2016 date. These data will be used to calculate imperviousness across the model domain. If the City has updated or more detailed Land Use data, that data will be reviewed and used as needed to develop runoff parameters.
- The Natural Resources Conservation Service (NRCS) Soil Survey Geographic database (SSURGO) will be used to estimate surficial infiltration parameters. Surficial infiltration will generally be estimated from near-surface data (e.g., 0-15 cm, the first 6 inches).



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- This scope assumes no field data verification will be required by the CONSULTANT. If available and appropriate, pipe locations and sizes from the City's existing GIS will be used to incorporate major drainage features.

CONSULTANT will develop SWMM runoff parameters for each subcatchment based on topography and land use. These include subcatchment width (hydrograph shape), initial abstraction, roughness and slope. The model will be sufficient to compare flow generation throughout the CITY. Development of a full hydraulic model to assess channel and pipe capacity is not included in this level of effort.

Task 5.2 Water Quality Evaluation

CONSULTANT will perform a desktop assessment of water quality conditions in Kingsport to identify potential pollutants of concern, sources and trends. Water quality information will be gleaned from existing CITY and/or State data, such as the NDPEs permit, TMDL reports, State water quality reports, available monitoring data and available stream assessment reports. GIS will be utilized to organize the data and perform the assessments within a spatial framework. Up to 6 parameters will be considered for data capture and assessment, including such items as land use, undeveloped land, impervious area, stream/drainage density, impaired stream listings, TMDLs, density of highly visible pollutant sources (HVPSs) and industrial facilities, density of environmentally sensitive lands, and existing water quality. CONSULTANT will seek concurrence from the CITY on the list of parameters before proceeding with the work.

CONSULTANT will prepare a summary table and graphics using associated GIS files of watersheds with statistics on the parameters above. The results will be used to complete Task 5.3.

Task 5.3 Watershed Prioritization and Framework Development

CONSULTANT will develop a framework for master plan development using information collected as part of Task 2 along with the initial analysis performed as part of Task 5 and knowledge gained from Task 3 and 4. The framework will address data gaps determined from Task 2 and include an outline of the proposed approach for both water quantity and quality modeling along with process for project identification and prioritization based on analysis and information collected from previous Tasks along with discussions with the CITY staff.

It is anticipated that the master planning process will be implemented in a phased process. To aid with this implementation, CONSULTANT will perform a watershed prioritization using the results of the previous two sub-tasks. The criteria used for the prioritization will be discussed and agreed upon with CITY staff. The purpose of the prioritization is to identify the scope and scale of future watershed planning efforts under the City's Master Planning program. This prioritization will be used in conjunction with and to inform the framework to chart a path forward that will allow the CITY to implement a consistent citywide approach that is customized to meet the community needs.



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Task 6 – Summary Report

The CONSULTANT will prepare a final draft report in “pdf” format summarizing the efforts defined in previous tasks and submit to the CITY for review. The report will summarize the contents of the Technical Memorandums identified above and provide recommendations for future phases of work to complete the Master Plan.

Following the review by the CITY, a meeting will be held to discuss the CITY’s comments. The CONSULTANT will incorporate the comments received on the final draft report into a final report to deliver to the CITY. The CONSULTANT will provide two bound hard-copies and one electronic copy in “pdf” format delivered on a flash drive.

Task 7 - Project and Quality Management and Meetings

Subtask 7.1 - Project Progress Meetings

The CONSULTANT will attend up to 3 progress meetings with the CITY to discuss the progress of the project. Key team members will attend in person while others may participate remotely. The CONSULTANT will prepare meeting notes of each meeting as appropriate. This task also includes internal team meetings.

Subtask 7.2 - Project Quality Management

The CONSULTANT maintains a quality management system (QMS) on all of CITY projects. An internal project planning and scope review meeting will be conducted at the start of the project. This action is required by CONSULTANT’s QMS guidelines. Technical specialist reviews are budgeted for and will be performed to review various submittals.

Subtask 7.3 - Project Schedule and Status Reports

The CONSULTANT will prepare and submit a project schedule identifying major tasks, duration, and task relationships. A schedule will be prepared for discussion at the kickoff meeting. A final project schedule shall be submitted within ten (10) days after the kickoff meeting. The CONSULTANT’s project manager will prepare and submit a monthly written status report and invoice for the anticipated duration of the project.

Data or Coordination Assistance Provided by the CITY

- 1.** The CITY shall designate individuals who will be responsible to coordinate information and schedule necessary meetings to facilitate transfer of information.
- 2.** The CITY will meet with the CONSULTANT as identified in the Tasks above to discuss program elements and initiatives.



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Assumptions

1. Requests by the CITY for the CONSULTANT to update the stormwater utility billing file, impervious area files(s), or stormwater utility related ordinances are not included in this scope of services.
2. CONSULTANT will rely upon existing GIS data provided by the CITY to represent the stormwater system within the models. Field data collection efforts are not included in this scope of services.

Deliverables

The CONSULTANT will provide the following deliverables to the CITY:

1. Project notes and action items list from meetings.
2. Two Technical Memorandums summarizing the work completed in Task 3 and Task 4.
3. One digital copy of the Draft Report in "pdf" format.
4. Two bound hard-copies and one electronic copy in "pdf" format delivered on a flash drive of the Final Report.

Time of Completion

It is anticipated that the project will take 8 months to complete, starting within 10 days of receipt of a formal NTP and assuming all requested data is received within 60 days of the NTP. A detailed schedule will be submitted to the CITY within 14 days after receiving the NTP.

Payment and Compensation

The City of Kingsport shall compensate the CONSULTANT for providing services set forth herein in accordance with the terms of the Agreement. Invoicing for the work shall be monthly on a lump sum percentage of work completed basis. A status report will accompany each progress invoice.



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The project total upper limit shall not exceed \$167,500 without written amendment to this authorization. An estimated breakdown of cost by task is provided for informational purposes below.

Task	Description	Budget
1	Kickoff Meeting	\$ 8,900
2	Data and Analysis	\$ 16,000
3	Operational Review	\$ 24,600
4	Utility Review	\$ 37,600
5	Prioritization	\$ 38,400
6	Report	\$ 30,700
7	Project Management	\$ 11,300
Project Total		\$ 167,500

CDM Smith looks forward to working with the City of Kingsport for the first phase of the Stormwater Master Plan project. Please contact me with any questions or need for any additional information.

Sincerely,

Daniel Unger, PE, PMP
Client Service Leader
CDM Smith Inc.