

Working Draft for MWPAAC E&P Review*

RFP No. XXXXXXXXX

Professional Services for Evaluation of Inflow and Infiltration Reduction Concepts

Scope of Work

*This working draft scope of work to explore and evaluate I/I reduction concepts has been prepared for review and discussion by the MWAAC Engineering and Planning subcommittee. The I/I reduction concepts to be explored were originally identified by the MWPAAC I/I Task Force in 2015.

Introduction

This scope of work is to provide services to the King County Wastewater Treatment Division (WTD) to assist in exploration of new elements for the Regional Inflow and Infiltration (I/I) Control Program. This scope of work will build on the work that WTD has done previously and explore more comprehensive and system wide I/I reduction. The products of this scope of work will inform the region about potential new elements for the I/I Control Program, present possible frameworks for implementation of potential programs, and include an implementation plan for moving forward with new program elements.

Problem Statement

I/I is excess water that flows into sewer pipes from groundwater and stormwater. I/I in the separated regional wastewater system impacts both capital and operational costs.

WTD's Conveyance System Improvement (CSI) Program assesses capacity in the regional wastewater system and plans future projects. Capacity is assessed against a 20 year peak flow. Findings from CSI Program analysis show that about 70% of the peak flow in the separated system is I/I. The I/I results in higher capital program costs by accelerating the need for capacity improvement projects and increasing their size. Annually it is estimated that 27% of the average wastewater system flow is I/I. Transporting and treating I/I increases operation costs related to pumping, treating, and disposing of the total wastewater volume. The extra cost to build additional capacity for I/I flows, convey flows through the system, and treat the excess flows are currently spread across all customers, through WTD's utility rates.

WTD has had an I/I Control Program since 1999. The program was established as part of the Regional Wastewater Services Plan. Currently the I/I program focuses on portions of the system that have wastewater flow capacity shortages. Specifically the I/I program has developed data to assess where I/I reduction might be a more cost effective solution than increase pipe and/or pump station capacity. The program has been effective in some areas of the regional wastewater system. That said there is no comprehensive program to address I/I throughout the regional wastewater system.

Objective of Scope of Work

The overall objective of this scope of work is to evaluate concepts for I/I reduction programs to comprehensively reduce I/I through the separate portion of the regional wastewater system. The concepts to be evaluated were identified by Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) and the King County Wastewater Treatment Division (WTD) in 2015.

MWPAAC, via the Engineering and Planning (E&P) subcommittee will have a role in guiding the evaluation and reviewing the products of the evaluation. Ultimately the evaluation seeks to recommend a program or programs for implementation.

Tasks and Subtasks

Task 100 - Project Management

This task includes Consultant's work related to the management, administration, and coordination of all Consultant and subconsultant work scope activities for this Scope of Work.

Subtask 110 – Project Management Plan

This subtask is to prepare a Project Management Plan that addresses this Scope of Work.

Consultant Services

1. Prepare a draft Project Management Plan ("PMP") within 30 working days of the Notice to Proceed ("NTP") that document the Project Management Institute method that will be used for managing the project. The PMP will include:
 - A work breakdown structure ("WBS") that identifies resources and responsibilities necessary to respond to WTD-approved work scope.
 - A project schedule and resource loaded schedule.
 - A quality assurance program, communication protocols, invoicing requirements, and project procedures, such as filing systems, charge numbers, and document format.
2. Following review by WTD of the draft PMP and within 10 working days of receipt of WTD's review comments, prepare and submit a final PMP to WTD for review and approval.
3. Distribute final WTD-approved PMP to all subconsultants.
4. Update the PMP and submit to WTD at least annually, and if required by changes in project schedule, budget, or scope of work, or as requested by WTD.

Deliverables

1. Draft and final initial PMP.
2. At least two (2) and up to four (4) updates of the PMP.

Subtask 120 – Progress Reports

This task is to prepare monthly progress reports to document project progress.

Consultant Services

1. Submit a monthly progress report to WTD by the 10th of each month, or other mutually agreed-upon date.
2. Progress reports will be one (1) to two (2) pages in length and include:
 - Work completed for prior month, schedule of work for the next month, any changes in staffing, schedule updates, identification of issues that impact schedule, and proposed means to address critical issues.
 - A listing of all costs to date and a revised cost-to-complete estimate tracked at task level (not subtask level).

Deliverables

1. Up to 24 monthly progress reports.

Subtask 130 – Monthly Progress Meetings

This task is to hold monthly meetings to discuss project progress.

Consultant Services

1. Conduct up to 24 monthly one-hour progress meetings with WTD PR and/or WTD PM and members of the County's Project Team, as necessary and appropriate to review:
 - Project tasks underway.
 - Time and budget tracking.
 - Work elements accomplished.
 - Work items planned for the next period.
 - Scope changes.
 - A log of decisions, time, and budget needed to complete specified portions of the project.
2. At least three (3) working days prior to each meeting, prepare and distribute draft meeting agenda (one hour effort for one person per meeting).
3. Within three (3) working days following each meeting, prepare meeting notes with decision log and action items list (two hour effort for one person per meeting). Meeting notes will include:
 - Summary of each agenda item discussed.
 - Action items that have been resolved.
 - Items which require a response by a specific Consultant or subconsultant team member, King County, or others.
 - Changes to deliverables or schedules.
 - Updates to decision log.
 - Updates to action items list.

Deliverables

1. Meeting agenda distributed electronically to participants at least three (3) working days before each meeting.
2. Draft meeting notes (including decision log and action items list) distributed electronically to participants within three (3) working days following meetings.

3. Final meeting notes (including decision log and action items list) distributed electronically to participants within three (3) working days of receiving WTD comments.

Task 200 – MWPAAC Involvement Support

This task is to support WTD staff with MWPAAC Involvement throughout completion of the Scope of Work.

Subtask 210 – MWPAAC Involvement Plan

The purpose of this subtask is work with the MWPAAC to develop a plan for collecting and sharing information as this scope of work is completed. It is assumed that MWPAAC Engineering and Planning Subcommittee will be the venue for involvement. Another venue such as a specifically formed task force is possible.

Consultant Services

- Work cooperatively with MWPAAC and WTD to develop a plan for MWPAAC Involvement in the Evaluation of Inflow and Infiltration Reduction Concepts.

Deliverables

- Written plan that presents strategies and process for involvement of MWPAAC in the Evaluation of Inflow and Infiltration Reduction Concepts.

Subtask 220 – Support to King County Staff during MWPAAC Meetings

WTD will meet with MWPAAC at least monthly to provide project briefings. This task is for consultant support at those meetings on an as needed basis.

Consultant Services

- Attend and participate in meeting with MWPAAC. Prepare presentation materials for meetings and deliver presentations.

Deliverables

- Consultant staff attendance and participation at MWPAAC meetings.
- Presentation materials for MWPAAC meetings.

Task 300 Meeting and Briefings Participation

The Consultant will participate in meeting and briefings with WTD staff and decision makers on an as needed basis.

Consultant Services

- Attend and participate in meeting and briefings. Prepare presentation materials for meetings and deliver presentations.

Deliverables

- Consultant staff attendance and participation at meetings and briefings.
- Presentation materials for meetings and briefings.

Task 400 Review of Sewer and Side Sewer Standards

The purpose of this review is to determine the extent to which existing sewer and side sewer standards meet the industry best management practices. The review will also note where existing standards are not being fully enforced. If the review shows areas where existing standards can be improved or more fully implemented they will be noted.

Subtask 410 Verify 2004 King County Final Draft Regional I/I Control Standards, Procedures, and Policies

King County in cooperation with cities and sewer districts developed proposed Engineering Standards/Procedures, Guidelines, and Standard Design Details for the design, construction, inspection and testing of sanitary sewers in 2004. The purpose of this subtask is to verify the 2004 standards remain current and can be used as a benchmark for assessing standards and procedures in place at the cities and sewer districts that discharge wastewater to King County's regional system. Other key references to consult in this process are the American Public Works Association standard specifications, and EPA Capacity, Management, Operation, and Maintenance (CMOM) program.

Consultant Services

- Assess and verify 2004 King County Final Draft Regional I/I Control Standards, Procedures, and Policies as acceptable benchmark for comparing to standards in place at cities and sewer districts.
- If needed, propose changes and update the 2004 King County Final Draft Regional I/I Control Standards, Procedures, and Policies.

Deliverables

- Technical memorandum summarizing assessment and verification of 2004 King County Final Draft Regional I/I Control Standards, Procedures, and Policies.
- If needed, proposed revisions and updates of the 2004 King County Final Draft Regional I/I Control Standards, Procedures, and Policies.

Subtask 420 – Assessment of Existing Local Agency Sewer and Side Sewer Standards

The purpose of this subtask is to assess local agency sewer and side sewer standards as compared to recognized best management practices established in subtask 410. This subtask will include the use of phone or in person interviews to collect information on the standards, specifications, and practices in place at each of the cities and sewer districts that discharge wastewater to King County's regional system. To the extent practical information on city and sewer district standards available on the internet or in sewer comprehensive plans will be reviewed to collect information prior to sending questionnaires or scheduling interviews with cities and sewer districts.

Consultant Services

- Interview 34 cities and sewer districts to collect information on and acquire sewer and side sewer standards.
- Assess standards in place at cities and sewer districts to determine if they meet the best management practices established in subtask 410. Questions to be addressed in the assessment include but are not limited to:
 - Are sewer and side sewer standards consistent throughout the regional wastewater service area?
 - Do the standards being applied in the regional wastewater service area meet industry wide best management practices?
 - What improvements could be made to sewer and side sewer standards through the regional wastewater service area to reduce I/I?
 - Are there sewer and side sewer standards that exist that are not being enforced or fully enforced (e.g., installations in the field do not meet specifications)?
 - Are there specific practices being implemented that are resulting in a disproportionately high risk of I/I?
 - Does the agency have a rehabilitation/replacement program? What is the extent of the program?
- Provide a written summary of the findings of the review that summarizes the assessment of the sewer and side sewer standards in place at the cities and sewer districts.

Deliverables

1. Technical memorandum that presents the findings of assessing of existing local agency sewer and side sewer standards as compared to best management practices.

Subtask 430 – Develop an Approach to Achieve Common Sewer and Side Sewer Standards

The purpose of this subtask is to develop an approach to achieve common sewer and side sewer standards throughout the regional wastewater service area. Should the result of subtask 420 show irregularities in sewer and side sewer standards amongst the cities and sewer districts this subtask will explore and identify approaches to addressing those irregularities.

Consultant Services

1. Research policy and legal issues associated with achieving common side sewer and side sewer standards in place throughout the regional wastewater service area.
2. If needed, develop template tools, practices, procedures or other materials to assist cities and sewer districts in addressing any irregularities in sewer and side sewer standards amongst the cities and sewer districts.

Deliverable

1. Draft and Final documentation that present the approach to achieving common sewer and side sewer standards.

Task 500 - Standardized Regional Sewer and Side Sewer Inspection Program

The purpose of this task is to assess sewer and side sewer inspection programs in the cities and sewer districts in the regional wastewater service area. The assessment will examine the potential for a standardized regional

inspection program. The consultant will collect information on current sewer and side sewer inspection programs at 34 cities and sewer districts in the King County regional wastewater service area. The inspection programs will be evaluated against industry standard programs. Based on the evaluation areas where inspection programs can be improved will be noted. The findings of the evaluation will be used to develop an outline for a regional sewer and side sewer inspection training program.

Subtask 510 - Evaluation of Current Inspection Programs at Cities and Sewer Districts

The purpose of this subtask is to evaluate sewer and side sewer inspection programs throughout the regional wastewater service area. This evaluation will occur simultaneously with Subtask 410. As is the case for Subtask 410 the evaluation will be done using phone or in person interviews.

Utilizing a variety of references the consultants will identify best practices for a sewer and side sewer inspection program. The references will include American Public Works Association standard specifications, EPA CMOM, and others identified as examples of best management practices.

Consultant Services

1. Identify best practices for a sewer and side sewer inspection program.
2. Acquire details on inspection programs at 34 cities and sewer districts.
3. Work with WTD and the cities and sewer districts to develop a series of questions to guide the evaluation of inspections programs. The questions below should be included in the evaluation:
 - Do inspection programs meet industry standards?
 - Are there consistent inspection programs at the cities and sewer districts in the Regional Wastewater Service Area that comply with King County Code? At a minimum, the following questions should be explored with each city or sewer district in addressing inspection program consistency:
 - How many inspectors are there per capita in the city or sewer district service areas?
 - On average how many building permits are issued?
 - On average how many side sewer permits are issued?
 - Is there a formal training program for inspectors?
 - What is the range of experience amongst inspectors?
 - What is the extent of side sewer inspections (e.g., is the entire length of side sewer inspected)?
 - Are inspections done upon completion or throughout construction?
 - What type of inspection (e.g. pressure test) is done?
4. Work with WTD to assess WTD review of inspection data that is submitted by the cities and sewer districts.
5. Provide a written summary of the findings of the evaluation.

Deliverables

1. Technical memorandum that presents the findings of evaluating current inspection programs in place at the cities and sewer districts that are part of the regional wastewater treatment system.

Subtask 520 – Outline for a Standardized Regional Inspection Training Program

Should the results of Subtask 510 show the need for a standardized regional inspection program this subtask will develop an outline for such a program. The outline should reflect the findings of Subtask 510.

Consultant Services

1. Prepare outline for a program to train staff conducting sewer and side sewer inspections in the regional wastewater service area. The outline should include the following elements:
 - Identification of improvements needed to inspection programs in the regional wastewater service area.
 - Identification of improvements needed in training of inspectors.
 - Content for inspector training.
 - Entity that will conduct the training.
 - Requirements to complete the training.
 - Funding sources for the training.
 - Methods to assess effectiveness of the program at reducing I/I.

Deliverable

1. Draft and Final documentation that presents the outline for a standardized regional inspection program.

Task 600 – Private Side Sewer Programs

Private side sewer programs could be established to create conditions where private side sewers are routinely inspected, maintained, or replaced so that I/I is minimized or reduced. The purpose of this task is to identify the types of programs that are utilized by other utilities across the nation and examine the potential for use of those programs in the King County regional wastewater service area. Should new concepts for private side sewer programs be identified during completion of this SOW those concepts could be explored as well.

This task will summarize the program types in order to orient WTD and the cities and sewer districts to them. With the program types summarized a framework for implementation of each type of program will be prepared. Some of the greatest challenges to establishing a private side sewer program are legal and policy issues. Therefore, it is critical that the consultant team address the identify legal and policy issues during all Task 400 work.

Subtask 610 – Identification of the Types of Private Side Sewer Programs

The purpose of this subtask is to summarize the types of programs so that they can be evaluated in later subtasks. WTD has identified inspection, insurance, enforcement, and financial aid side sewer programs to be included in the summary. Other programs identified by the consultants should also be included.

Consultant Services

1. Research private side sewer programs.

2. Work with WTD and the cities and sewer districts to develop a series of questions to guide the private side sewer programs research. The questions below should be included in the evaluation:
 - What are the strengths of each program?
 - What are the weaknesses of each program?
 - Have any programs been determined to be more successful than others? What were the conditions that contribute to success? How was success determined?
 - What methods are available to determine the costs and benefits of these programs?
3. Provide a written summary of the research that at a minimum addresses the key questions.

Deliverable

Technical memorandum that summarizes the types of private side sewer programs.

Subtask 620 – Evaluation of and a Framework for Side Sewer Inspection and Certification Program

The purpose of this subtask is to evaluate and explore the application of a side sewer inspection and certification program in the King County regional wastewater service area.

Consultant Services

1. Work with WTD and the cities and sewer districts to develop a series of questions to guide the evaluation of a private side sewer inspection and certification program. The questions below should be included in the evaluation:
 - What mechanism (e.g. real estate transaction) will trigger a side sewer inspection?
 - What action(s) (e.g. documentation of results, documentation of results and repair of defects) will be taken based on the result of the inspection?
 - What is the legal authority to implement the program in a City and Sewer District local government setting?
 - What regulatory/legislative changes at local, county, and state level would be needed to implement the program?
 - What is the potential for the program to be effective in reducing I/I in the regional wastewater system?
 - Are there any positive or negative environmental impacts associated with the program?
 - What are the potential costs and funding mechanisms of the program?
 - What methods are available to assess effectiveness of the program at reducing I/I?
 - What private sector entities would be involved in the program? What type of outreach to these entities is needed?
2. Based on the findings of the evaluation the consultant will develop a framework for implementation of a private side sewer inspection program in the King County regional wastewater service area. The framework will include optional features for consideration. The framework will include:
 - Description of the program.
 - Identification of legal authority for program.
 - Complete list of program procedures.

- Program incentives and penalties.
- Partners for implementing the program.
- Estimate costs for the program and potential funding sources.
- Method for assessing program effectiveness over time.

Deliverables

1. Technical memorandum that summarizes evaluation of the side sewer inspection and certification program.
2. Draft and Final documentation that presents the framework for a standardized regional inspection program.

Subtask 630 – Evaluation of and a Framework for Private Side Sewer Insurance Programs

The purpose of this subtask is to evaluate and explore the application of a side sewer insurance program in the King County regional wastewater service area.

Consultant Services

1. Work with WTD and the cities and sewer districts to develop a series of questions to guide the evaluation of a private side sewer insurance program. The questions below should be included in the evaluation:
 - What are the options for making private side sewer insurance available to property owners?
 - What is the legal authority to implement insurance programs in a City and Sewer District local government setting?
 - What is the potential for the program to be effective in reducing I/I in the regional wastewater system?
 - Are there any positive or negative environmental impacts associated with the program?
 - What are the potential costs and funding mechanisms of the program?
 - Will the program need public funding/staffing to be effective?
 - What methods are available to assess effectiveness of the program at reducing I/I?
2. Based on the findings of the evaluation the consultant will develop a framework for implementation of a private side sewer insurance program in the King County regional wastewater service area. The framework will include:
 - Description of the program.
 - Identification of legal authority for program.
 - Complete list of program procedures.
 - Identification of insurance provider(s) (e.g. utility, private company).
 - Identification of funding mechanism(s).
 - Program incentives and penalties.
 - Method for assessing program effectiveness over time.

Deliverables

1. Technical memorandum that summarizes evaluation of the side sewer insurance program.
2. Draft and Final documentation that presents the framework for a standardized regional insurance program.

Subtask 640 – Evaluation of and a Framework for Grant or Loan Programs for Private Side Sewers

The purpose of this subtask is to evaluate and explore the application of a side sewer grant or loan programs in the King County regional wastewater service area.

Consultant Services

1. Work with WTD and the cities and sewer districts to develop a series of questions to guide the evaluation of private side sewer grant or loan programs. The questions below should be included in the evaluation:
 - What are the options for making private side sewer grants or loans available to property owners?
 - What is the legal authority to implement the program in a City and Sewer District local government setting?
 - What is the potential for the program to be effective in reducing I/I in the regional wastewater system?
 - What levels of property owner participation in the program could be expected?
 - Are there any positive or negative environmental impacts associated with the program?
 - What are the costs and funding mechanisms of the program?
 - What criteria should be established for funding eligibility?
 - What methods are available to assess effectiveness of the program at reducing I/I?
2. Based on the findings of the evaluation the consultant will develop a framework for implementation of a private side sewer insurance program in the King County regional wastewater service area. The framework will include:
 - Description of the program.
 - Identification of legal authority for program.
 - Complete list of program procedures.
 - Identification of grant or loan provider.
 - Program incentives and penalties.
 - Method for assessing program effectiveness over time.

Deliverables

1. Technical memorandum that summarizes evaluation of the side sewer grant or loan program.
2. Draft and Final documentation that presents the framework for a standardized regional side sewer grant or loan program.

Task – 700 Prepare an Implementation Plan of Recommended Program Element(s)

The purpose of this task is to develop an implementation plan for establishing recommended new element(s) of the regional I/I control program. The scope of this task is dependent on the results of earlier tasks. It is assumed that this task will be scoped as part of a contract amendment.

Consultant Services

- Services have not been identified at this time.

Deliverables

- No deliverables are defined at this time.

Task – 800 Unplanned, Urgent and/or Critical Work

This task is to provide other consultant services, which are unplanned, urgent and/or critical to maintaining the project schedule and progress of the work. The Consultant shall provide services as requested and directed. No activities are defined at this time. However, examples of the types of work that may be required under this task are supplemental technical, policy, and legal research. When the need for services is identified, the consultant will prepare a letter describing the scope, deliverables, level of effort, and schedule. Upon written authorization by the County's PR, a new subtask will be established for the defined activities.

Consultant Services

Services have not been identified at this time.

Deliverables:

1. No deliverables are defined at this time. Deliverables associated with the respective additional activities that arise will be defined for each respective subtask.