

## **Handouts for I/I Discussion at the April 2016 MWPAAC E&P Subcommittee Meeting**

The attached handouts are for discussion at the April 2016 MWPAAC E&P Subcommittee Meeting. The handouts are:

- MWPAAC I/I Task Force - Summary of Regional I/I Control Program Approaches to Investigate: This handout is being provided as background. The handout summarizes a list of I/I control approaches brainstormed by MWPAAC members in 2015.
- Working Draft Scope of Work - Evaluation of I/I Reduction Concepts: This handout is a very preliminary draft scope of work for evaluation of I/I control approaches identified by MWPAAC I/I Task Force.

Copies of these items will also be available at the April 7 meeting.

**June 2015**  
**MWPAAC I/I Task Force**  
**Summary of Regional I/I Control Program Approaches to Investigate**

In May of 2015 a group of Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) members met with King County Wastewater Treatment Division Staff to brainstorm I/I programs that may benefit the regional wastewater system. This group was referred as the MWPAAC I/I Task Force. Two meetings occurred. Meeting summaries are available for each meeting. This document summarizes the results of the Task Force Brainstorming.

The Task Force recommended the items listed below be given further consideration as options for future Regional I/I Control Program actions.

**1. Standardized Inspection Program:**

Develop and administer a side sewer inspection training and certification program, organized by King County, to assure proper side sewer installations. All member agency inspectors would be required to enroll in the training and become certified. This could be a contract requirement.

**2. Audit of Local Agencies' Specifications:**

Perform an audit of all local agencies to review their status with meeting draft design standards, guidelines, procedures, and policies developed jointly by the County and local agencies in 2005 for use in long-term I/I control. The draft design standards, guidelines, procedures, and policies can be accessed at <http://www.kingcounty.gov/services/environment/wastewater/ii/resources.aspx>. See appendix B of the Executive's Recommended Regional Infiltration and Inflow Control Program Report.

**3. Best Practices Assessment and Report Card:**

Adopt existing best practice standards (such as from APWA, WEF or EPA CMOM) or create best practices standards, review all member agencies relative to the standards, and develop a report card format to inform local agencies of their performance with respect to the standards and to other member agencies.

**4. Matching Grant Program for Local Agency Projects on Local Mains:**

Set up a matching grant program for local agency collection system projects that would benefit the region by reducing I/I volumes to wastewater treatment. In the grant application, the local agency would show how the project would contribute value to the system. Develop grant criteria and create an annual grant fund. A potential example project is the City of Bellevue's I/I investigation and reduction program.

**5. Side Sewer Remodel Replacement Program:**

Explore a program to require side sewer inspections, and replacement if needed, which is triggered by a remodel threshold, for example by dollar value or square footage of the remodel.

**6. Title Transfer Side Sewer Inspection Program:**

Have a conversation about the approach, potential issues, and ways to address. The program could be narrowed down to potentially pre-198x pipe. A title transfer program would require state-wide legislation. It might be similar to certified fireplaces where standards are brought up to date. Title transfers occur slowly so change would occur incrementally over a long time, but could avoid large I/I capital projects. A grant program or cost-share could be considered for low-income homeowners. The City of Seattle member

noted that a similar program is being considered for their FOG program, and they are finding logistical difficulties.

**7. Review and Present 2000-2004 I/I Reduction Program work, and Discuss Follow-up:**

Educate newer MWPAAC representatives and re-teach everyone about the previous I/I reduction program work which led up to the current I/I Program Review. Include information based on questions raised at the I/I Task Force meetings, for example, information on rapid flow response versus less-rapid response which could indicate inflow as opposed to infiltration. Discuss previous items that were tabled.

**8. Additional Demonstration Projects:**

Explore the possibility of developing a mechanism for the region to partner with local agencies on demonstration projects, and a mechanism to nominate new demonstration projects. The City of Bellevue's demonstration pilot project is an example of a potential new and partnered project.

**9. Side Sewer insurance Program with Rehabilitation by Local Agencies:**

Local agencies could carry side sewer insurance and perform (or contract out) the rehabilitations, which could be more cost-effective than private insurance. Customers might pay an annual rate. The City of Kenmore reportedly supports private insurance for its customers. Legal aspects of insurance could be reviewed by an attorney.

**10. Private Side Sewer Low-Interest Grant or Loan Program:**

A grant or loan program for low-income housing to pay for side sewer issues was suggested.

**11. Present a Long-Term Flow Monitoring Strategy:**

There is interest in seeing long-term data and tracking long-term trends instead of occasional modeling analyses. Long-term data would be used to support large-cost decisions. Funding of long-term flow monitoring could be discussed with MWPAAC.

When investigating the items listed above or other options the Task Force recommended the following key questions be included.

- Is the I/I control strategy cost-effective?
- Who (i.e. King County or local agency) implements a strategy?

Task Force members recommended setting aside the concept of a wastewater flow related I/I surcharge program. Members agreed that this idea had been thoroughly vetted previously and did not need additional consideration.

**Working Draft\***

**RFP No. XXXXXXXXX**

**Professional Services for Evaluation of Inflow and Infiltration I/I Reduction Concepts**

**Scope of Work**

\*This document has been prepared to facilitate discussion with MWPAAC E&P regarding the scope of work to explore and evaluate I/I Reduction Concepts identified by the MWPAAC I/I Task Force in 2015. The Scope of Work is expected to be revised as WTD works with E&P to further define the work.

**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. I/I is excess water that flows into sewer pipes from groundwater and stormwater. The capacity needs of the separated portion of the WTD regional wastewater conveyance system are primarily driven by I/I. 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. This scope of work is to build on the work that has been 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 Regional I/I Control Program, present possible framework for implementation of potential programs, and include an implementation plan for moving forward with new program elements.

**Objective of Scope of Work**

The overall objective of this scope of work is to evaluate I/I reduction concepts. 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**

To be completed.

**Subtask 110 – Project Management Plan**

To be completed.

**Subtask 120 – Progress Reports**

To be completed.

**Subtask 130 – Monthly Progress Meetings**

To be completed.

**Task 200 – MWPAAC Support**

To be completed.

**Subtask 210 – Support to King County Staff during MWPAAC Meetings**

To be completed.

**Subtask 220 – Supplemental Research in Response to MWPAAC Requests**

To be completed.

**Task 300 Management Briefings and Presentations**

To be completed.

**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 in place and not being fully enforced. If the review shows areas where existing standards can be improved or more fully implemented they will be noted. The need for routine review of standards will be assessed. A framework for implementing consistent sewer and side sewer standards throughout the regional wastewater service area and conducting routine review of City and Sewer District standards will be prepared.

**Subtask 410 – Assessment of Existing Local Agency Sewer and Side Sewer Standards as compared to Industry and Regionally Recognized Best Practices**

The purpose of this subtask is to assess local agency sewer and side sewer standards as compared to recognized best management practices. Utilizing a variety of references the consultants will review sewer and side sewer standards used by Cities and Sewer Districts within the King County regional wastewater service area. At a minimum references utilized in the assessment will include 2004 King County Final Draft Regional I/I Control Standards, Procedures, and Policies, American Public Works Association standard specifications, and EPA Capacity, Management, Operation, and Maintenance (CMOM) program.

Consultant Services

1. Acquire local agency sewer and side sewer standards.
2. Define industry and regionally recognized best practices.
3. Work with WTD and the Cities and Sewer Districts to develop a series of questions to guide the assessment. The questions below should be included in the evaluation:

- 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?
- Are there sewer and side sewer standards that exist that are not being enforced or fully enforced?
- ....\*\*\*insert additional questions to be included in the evaluation
- ....

4. Provide a written summary of the findings of the review that at a minimum addresses the key questions.

#### Deliverables

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

#### **Subtask 420 – Framework for Program to Conduct Routine Review of Local Agency Sewer and Side Sewer Standards**

The purpose of this subtask is to develop a framework for routine reviews of local agency sewer and side sewer standards. The framework should reflect the findings of Subtask 410.

#### Consultant Services

1. Prepare framework for an ongoing program to conduct routine review of local agency sewer and side sewer standards. The framework should include the following elements:
  - Timing for each review.
  - Entity that will conduct the review.
  - Reporting mechanism for the review findings.
  - Funding sources for review.
  - Staffing needed to complete the review.
  - The mechanism(s) to formalize the routine inspections.
  - Mechanisms to enforce recommendation(s) of the review.
  - ....\*\*\*insert additional items to be included in the framework
  - ....

#### Deliverable

1. Draft and Final documentation that presents the framework routine review of local agency 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 and examine the potential for a standardized regional inspection

program. The consultant will collect information on current sewer and side sewer inspection programs at 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 a framework for a regional sewer and side sewer inspection 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. Utilizing a variety of references the consultants will review sewer and side sewer standards used by Cities and Sewer Districts. The references will include American Public Works Association standard specifications, EPA CMOM, and others identified as examples of best management practices.

##### Consultant Services

1. Acquire details on inspection programs at Cities and Sewer Districts.
2. 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:
  - Define industry standards for sewer and side sewer inspection program.
  - Do inspection programs meet industry standards?
  - Are there consistent inspection programs at the Cities and Sewer Districts in the Regional Wastewater Service Area?
  - What improvements could be made to inspection programs in the regional wastewater service area?
  - Do inspectors receive adequate training?
  - What improvements could be made to the training of inspectors?
  - ....\*\*\*insert additional questions to be included in the evaluation
  - ....
3. Provide a written summary of the findings of the evaluation that at a minimum addresses the key questions.

##### Deliverables

Technical memorandum that presents the findings of evaluating current inspection programs at place in the Cities and Sewer Districts that are part of the regional wastewater treatment system.

#### **Subtask 520 - Framework for a Standardized Regional Inspection Program**

The purpose of this subtask is to develop a standardized regional sewer and side sewer inspection program and any needed training to support the program. The framework should reflect the findings of Subtask 510.

##### Consultant Services

1. Prepare framework for a program to train staff conducting sewer and side sewer inspections in the regional wastewater service area. The framework should include the following elements:
  - Entity responsible for developing content for 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.
- ....\*\*\*insert additional items to be included in the framework
- ....

#### Deliverable

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

#### **Task 600 – Private Side Sewer Programs**

Private side sewer programs are established to create conditions where private side sewers are routinely 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 and examine the potential for use of those programs in the King County regional wastewater service area.

This task will summarize the programs 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.

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

The purpose of this subtask is to summarize these types of programs so that they can be evaluated in later subtasks. WTD has identified inspection, insurance, enforcement, and financial aid side sewer programs that should 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?
  - ....\*\*\*insert additional questions to be included in the evaluation
  - ....
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 Program**



The purpose of this subtask is to evaluate and explore the application of a side sewer inspection 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 program. The questions below should be included in the evaluation:
  - What mechanism will trigger a side sewer inspection?
  - What action(s) 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 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 costs and funding mechanisms of the program?
  - What methods are available to assess effectiveness of the program at reducing I/I?
  - ....\*\*\*insert additional questions to be included in the evaluation
  - ....
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:
  - Identification of legal authority for program.
  - Program incentives and penalties.
  - ....\*\*\*insert additional items to be included in the framework
  - ....

#### Deliverables

1. Technical memorandum that summarizes evaluation of the side sewer inspection 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 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?
  - Are there any positive or negative environmental impacts associated with the program?
  - What are the costs and funding mechanisms of the program?
  - What methods are available to assess effectiveness of the program at reducing I/I?
  - ....\*\*\*insert additional questions to be included in the evaluation
  - ....
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:
- Identification of legal authority for program.
  - Identification of insurance provider (e.g. utility, private company).
  - Identification of funding mechanism(s).
  - Program incentives and penalties.
  - ....\*\*\*insert additional items to be included in the framework
  - ....

#### 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?
  - Are there any positive or negative environmental impacts associated with the program?
  - What are the costs and funding mechanisms of the program?
  - What methods are available to assess effectiveness of the program at reducing I/I?
  - ....\*\*\*insert additional questions to be included in the evaluation
  - ....

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:
  - Identification of legal authority for program.
  - Identification of grant or loan provider.
  - Program incentives and penalties.
  - ....\*\*\*insert additional items to be included in the framework
  - ....

#### 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 a Work Plan for Implementation of Selected Program(s)**

To be completed.