Engineering and Planning Subcommittee Recommendation to MWPAAC for Implementation of Regional Best Management Practices for Inflow and Infiltration Reduction

April 28, 2021

Introduction

In 2018, the Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) in collaboration with King County Wastewater Treatment Division (WTD) recommended that three I/I reduction program concepts be further defined and evaluated for their ability to reduce inflow and infiltration (I/I) in the separated sewer portion of the regional wastewater system. I/I reduction could lead to downsized, deferred or eliminated future planned capital projects. The three program concepts include: 1) regional best management practices (BMPs), 2) an inspector training and certification program, and 3) a private side sewer inspection program with financial assistance. This document presents recommended regional BMPs to advance to implementation. Recommendations on the other two concepts will be addressed separately in the future.

Problem

- Over time, the degradation of private side sewers leads to higher I/I, which in turn will lead to increased costs for the conveyance system, treatment system, and operations.

- $1.7 billion of new regional conveyance pipe projects are planned through 2060 to account for growth and I/I. These costs are primarily driven by peak I/I assumptions.

- I/I from private side sewers accounts for roughly up to 50-70% of all I/I. The nature of private ownership and private maintenance responsibility creates challenges for agencies interested in reducing I/I from those private sources.

Recommendation of Regional BMPs

The Engineering and Planning (E&P) Subcommittee requests that MWPAAC recommend the following side sewer BMPs to WTD to enhance the Regional I/I Reduction Program. MWPAAC can accept these recommendations without change, accept the recommendations with amendments, or reject the recommendations. Once adopted by WTD, each local agency would implement these BMPs **voluntarily** to prevent side sewer degradation and gradually reduce sources of I/I from within their own systems and thus reduce the regional I/I flows.

1. Strengthen existing regulations that prohibit unauthorized connections

2. Notify customers about roots in their side sewer

3. Provide side sewer maintenance information

4. Provide illicit source disconnection public education materials

Rationale for Recommendations

- Eliminating all degraded private side sewer systems would lead to significant I/I reductions and cost savings for property owners, local agencies, and the WTD over the next 40 years.

- Customer compliance with these side sewer BMPs will help slow I/I increases due to degradation and lessen the need for future conveyance and treatment capacity projects.

- The recommended BMPs are broadly applicable to most agencies, and reasonably implementable.

- Common regulations and messages support regional coordination and cohesion and reduces customer confusion.

- Local agencies are more successful communicating directly with their customers.

- I/I reduction can be achieved only through a combination of many measures, of which the customer's side sewer maintenance and proper connections are an important first step.

Description of Side Sewer BMPs

1. <u>Strengthen regulations to prohibit unauthorized connections</u>

Description: This BMP provides example code language for adoption of legal authority, which clearly states that unauthorized connections must be removed and provides appropriate enforcement mechanisms to accomplish proper disconnection on new construction or a substantial remodel. Additionally, the example language includes provisions to ensure only one side sewer connection from each structure is made to the main sewer in accordance with applicable regulations, and that the side sewer is directly connected to the appropriate draining fixtures within the structure. This BMP can cover townhouses, apartments, shared side sewers, houses with accessory dwelling units, or similar, depending upon the local agency.

Rationale: While most jurisdictions have legal authority through code language prohibiting unauthorized connections, it is assumed that uniformly stronger language would give jurisdictions the tools needed to minimize such connections.

To increase voluntary participation by agencies, the developed materials include examples of effective and "less effective" legal language.

2. <u>Courtesy notice to property owner /occupant regarding roots in side sewer</u>

Description: Roots in side sewer connections are commonly observed during routine sewer main CCTV inspections performed by many sewer utilities and their CCTV inspection contractors. When notifying property owner/residents of this finding, the property owner can also be made aware of their responsibility for maintaining the side sewer, including the need to hire a plumber to clear roots.

Rationale: Joint separation due to age, pipe integrity degradation, and damage caused by root intrusion allows groundwater to enter through cracks in side sewers.

This measure will alert the customer to potential blockages, sewage spills, and growth of the roots into the public sewer main.

3. Side sewer maintenance guideline documents

Description: Providing side sewer maintenance guidelines to educate property owners on their responsibilities for maintaining, inspecting, and repairing their side sewers. Also provide information on resources, means, and methods for maintaining the side sewer.

Rationale: Providing these guidelines to property owners makes it more likely that side sewers are repaired, replaced, or rehabilitated, thereby reducing I/I. The information will also reinforce the interests that agencies and individuals share in having well-maintained, reliable side sewers throughout their service area.

This measure can be provided in a cost-effective manner as a bill stuffer and on the agency's public website.

4. Illicit source disconnection public education materials

Description: Provide information to educate property owners on types of illicit connections and how to disconnect those sources. Utilities that experience excessive peak I/I flows will most likely opt to address both public and private property sources of I/I.

Rationale: Private property inflow sources (roof leaders, area drains, window well drains, foundation drains, etc.) can contribute significantly to peak flows that occur during wet weather events. Property owners may be unaware of the regulations surrounding sanitary and storm sewer systems. Providing these materials will encourage property owners to remove illicit connections, thereby reducing unpermitted inflow.

This measure can be provided in a cost-effective manner as a bill stuffer and on the agency's public website.

Implementation

If MWPAAC approves these recommended BMPs and WTD accepts the recommendation, the next phase will be voluntary implementation by local agencies.

1. King County will provide a regional toolkit through the King County website with the examples of code language and customer education materials (root notification, maintenance guidelines, illicit connection information). The local agencies can tailor these materials for their service area.
2. Each local agency should identify barriers or challenges and establish processes for implementation, including:
   - The agency's legal authority/responsibility and the private property/private system owners' legal responsibilities for side sewer inspection, maintenance, and repair.

- Staffing requirements, roles, and responsibilities (note: this may include resources from outside agencies, especially for sewer districts working with one or more cities).
- Customer education and communication plan, including notice of changes in legal authority, enforcement response plan, and resources available for proper unauthorized connection disconnection/redirection compliance procedures.
- Social equity and inclusion, which may involve translation/transcreation of the customer education materials into other languages applicable to each agency's service area.
- Budget and funding impacts
- Information management system to track appropriate data and gauge effectiveness
- Approval of the agency's legal counsel and governing body (e.g., General Manager, Chief Executive Officers, Board, Directors, etc.). If needed, a written policy may be drafted to clearly delineate the limits of each party's responsibilities.