

CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS
Sitting as the Governing Body of Water Environment Services

Policy Session Worksheet

Presentation Date: May 4, 2021

Approximate Start Time: 3:00pm

Approximate Length: 30 Minutes

Presentation Title: Regional Infiltration & Inflow Partnership Proposal

Department: Water Environment Services

Presenter: Greg Geist, WES Director & Chris Storey, WES Assistant Director

Other Invitees: Shelli Parini, WES Business Engagement

WHAT ACTION ARE YOU REQUESTING FROM THE BOARD?

Authorization for Water Environment Services (“WES”) to pursue with regional wastewater partners an approach to reduce infiltration & inflow.

BACKGROUND & ISSUES:

Clackamas Water Environment Services (WES) provides sanitary sewer treatment to over 190,000 people in Clackamas County. We take what our community flushes down the toilet and use it to make electricity, natural fertilizer and clean water.

There are over *one thousand miles* of underground pipes that convey sewage from homes and businesses to WES’ regional wastewater treatment facilities in Oregon City and Milwaukie. Some of those pipes were installed recently and some of those pipes are at or approaching one-hundred years old. In some cases the underground sewer pipes are cracked and leaky, which allows clean groundwater to enter the system during the winter. This is called “infiltration”. In other cases there are accidental or illicit connections such as downspouts or street drains that allow rain water to enter the sanitary sewer system. This is called “inflow”. Together, this additional water is called infiltration and inflow, or by its’ industry shorthand “I/I.” In the Pacific Northwest, I/I is a significant issue during the wet season when rain is frequent and groundwater levels are high. Simply stated, there is too much rain water and groundwater seeping into our regional sanitary sewer collection systems, which then needs to be treated as if it were the same as what goes down our toilets.

Even the newest sewer systems experience some I/I. As systems age, pipe material or joints fail and settlement and damage occur, which increases the volume of I/I entering the system and the amount of water that must be conveyed. I/I continues to increase as the system ages, until the capacity of the local system, the downstream system and/or the treatment system is reached. When this happens, sewer overflows occur. Even prior to overflows, excessive I/I can result in higher-than-needed costs to the ratepayers, given that under the Clean Water Act, a treatment provider must treat every drop of water that arrives at a treatment facility as wastewater. This additional treatment capacity and effort for cleaning what is essentially rainwater or groundwater is inefficient and expensive.

Designers recognize that I/I occurs over the life of a system and some amount of future I/I is anticipated as systems are designed. The key is whether or not the amount is “excessive.” Systems are required to convey peak flows during a once in 5-year frequency storm. Generally, a ratio of 5:1 (peak flow/average flow) is considered acceptable from both a conveyance and

treatment capacity standpoint. The overall ratio of the WES system is nearly 9:1, which is to say that far more I/I is entering the system than normal. This surge of water during wet weather events are approaching the maximum peak flow capacities of the WES Tri-City and Kellogg Creek Water Resource Reclamation Facilities (“WRRF”) and that of portions of the regional collection system. The current system is not yet experiencing regular overflows, but is being stressed to and beyond design parameters. These system conditions were reviewed and presented to a regional group consisting of WES engineers, public works directors and city engineers, known as the Technical Advisory Team or “TAT.” It is clear that the regional wastewater collection system has a substantial excessive I/I problem.

To most effectively reduce excessive I/I, a regional I/I program is needed to most cost-effectively manage peak flows in the wastewater collection and treatment systems. The program is the implementation of the recommended capital improvement program outlined in the *Sanitary Sewer Master Plan for Water Environment Services* (“SSMP”) (Jacobs, 2019). The SSMP identified reduction targets throughout the regional system, not just that portion of the collection system directly managed by WES. In that evaluation of impact of peak wet weather, the study did not differentiate to whom that portion of the regional collection system belonged. The review included the I/I impacts from the collection systems managed by the cities of Gladstone, Happy Valley (operated by WES), Milwaukie, Oregon City, and West Linn. The City of Johnson City’s collection system was not evaluated but leadership for the city has been engaged on this topic. These cities, together with WES, are referred to as the “Partners” with respect to this proposal.

The total investment for each alternative considered in the SSMP included the present worth value of capital costs to reduce I/I, increase capacity to transport remaining flows, and expand treatment capacity and operation and maintenance costs over a 60 year life. This included the cost of rehabilitating a partner city’s system so the totality of system expenses would be considered. The plan found the most cost-effective alternative for all parties was 65-percent I/I reduction in 19 sub-basins throughout the region by 2040. Removal of 65% over the time period study of 2020-2040 is considered ambitious within the industry and will take a significant amount of investment to reach. However, this yields to lowest cost for ratepayers, resulting in a net savings for the regional system of approximately **\$120 million** in avoided capital and operational expenditures during the next 20 years, with the cost savings growing larger in the outer years.

The 19 sub-basins were identified as priority investment areas due to both the high rate of I/I present, the cost of conveying the peak flow downstream and ultimately treating it. They are located throughout the regional wastewater network, in both the WES-owned system and in city-owned collection systems. Therefore, to achieve the lowest cost solution for ratepayers, each of the Partner cities will also need to implement I/I reduction. It should be noted that each of the sub-basins may be unique as to the cause of its high I/I and reduction may include an effective approach other than rehab of the mainline and laterals, e.g. a single or series of major pipe defects.

In 2019, this recommendation was presented to the TAT, which broadly agreed that a focus on 65% level of I/I removal, balanced with other necessary improvements in the collection and treatment systems, is the most cost-effective regional solution to managing peak flows. The WES Advisory Committee agreed that these targets should be the baseline for the regional discussion in 2019. Please note that the I/I reduction, even when achieved, does not eliminate the necessity of constructing additional capacity in the conveyance system and peak wet weather capacity at the Tri-City WRRF. However, investment in I/I removal does reduce the amount of overall investment necessary to protect public health and the environment.

PROPOSAL:

The WES Advisory Committee discussed the best approach to address the regional I/I challenge over multiple meetings spanning mid-2020 to March 2021. The proposal described below is the recommendation of the WES Advisory Committee to the BCC on how to approach this challenge.

In essence, the proposal is based on recognizing that the regional savings of ~\$120 million is for the same ratepayers but shows up in lower WES rates, while the cost to implement the needed improvements may fall on the city Partners. Therefore, the proposal is for WES to offer monetary support to city Partners for I/I projects to incentivize early and substantial improvement to the overall effectiveness of the collection system by supporting projects/programs in one or more of the 19 identified sub-basins (“Partnership Proposal”). This Partnership approach would be codified in an intergovernmental agreement between the Partners with an initial term of 3 years, with options to extend if the proposal is effective. The Proposal, at a high level, would consist of:

Cost Sharing Level: WES would fund thirty-three percent (33%) of all qualifying projects undertaken by the Partner jurisdictions from revenues received via the collective wholesale sewer rate. The amount WES is contributing reflects the mutual savings to ratepayers with respect to wholesale sewer expenditures through regional collective action. Note that these contributions are intended to supplement, not replace, collection system service charges already being charged by WES or Partner cities. A qualifying project is defined below.

Pilot Funding Commitment: WES staff has evaluated the proposed I/I projects in the near term (5 year) capital planning horizon for the Partners and believe that WES’ current and anticipated levels of capital funding are sufficient to meet that commitment of 33% for **all** anticipated projects for the next three (3) years. Therefore WES is recommending that the commitment for funding under the Partnership Proposal not be capped at any specific level during a pilot period of 3 years. With respect to the possibility of funding challenges, none are anticipated at this time but the necessary level of commitment and possibility of adjustment can be addressed as part of the annual budget process with the Advisory Committee and the Budget Committee.

Program Structure: The Partnership Proposal contemplates that a Partner would identify a project and ask that it be deemed a qualified proposal. A “qualified proposal” means a project that meets the base threshold of being designed for I/I reduction purposes and occurring within the designated areas of need as identified in the Technical Memos of the SSMP. WES would need sufficient notice to include the cost sharing contribution in the relevant fiscal year. A proposal would generally include the following items:

- Project description
- Project area/bounds
- Flow metering results if available (I/I rates)
- Rehabilitation method, if applicable
- Project Statistics (i.e. lf of pipe, # of manholes, # of laterals)
- Construction schedule
- Anticipated improvement in I/I flow reduction

The TAT would be the venue for evaluation of the proposals for eligibility to ensure any funded project meets the agreed to criteria and goals that were established in the ultimate agreement joined by the Partners.

Potential Projects: The following non-exhaustive list of activities that could be eligible for support:

- Flow metering studies
- Consulting services to analyze flow metering results
- I/I source identification
- Rehab design
- Rehab construction
- Post-construction flow monitoring

Regional Evaluation: The Proposal contemplates that the final IGA will require and provide for an annual report to the WES Advisory Committee on proposals approved, projects in progress, and projects completed along with discussion of effectiveness at both an individual project and regional goal level.

From a process standpoint, the Proposal was vetted through the WES Advisory Committee on several occasions and then further with City Managers and Public Works Directors. If approved in concept by the Board, WES staff would engage with the various City Councils and Commissions over the summer, with the goal of bringing back a near-finalized IGA for BCC approval by September 2021.

FINANCIAL IMPLICATIONS:

WES currently budgets capital expenditures of \$1 million per year for I/I reduction work. Initial funding of the IGA may increase this slightly next year and is anticipated at \$1.5 to \$2 million per year in Proposal years 2 and 3.

Are these items in your current budget? YES NO

What is the funding source? WES wholesale wastewater rate. No general fund dollars will be used for WES efforts.

To the extent necessary under the IGA, WES can amend its budget to effectuate the agreement. WES' current construction fund contingency has sufficient monies to meet all anticipated requirements under the Proposal.

STRATEGIC PLAN ALIGNMENT

This aligns with several Strategic Goals:

1. WES' Performance Clackamas plan includes a goal of achieving high performance in the "Ten Attributes of Effectively Managed Utilities" which includes "Infrastructure Strategy and Performance" and "Operational Optimization."
2. The BCC's Build a Strong Infrastructure goal of "By 2026, 100% of County residents and businesses - where served - have access to safe and affordable infrastructure: multimodal transportation including roads, sewer and broadband services" is supported by improved sewer infrastructure.

LEGAL/POLICY REQUIREMENTS:

Implementation would require an intergovernmental agreement between the Partners.

PUBLIC/GOVERNMENTAL PARTICIPATION: Discussed with WES Advisory Committee on multiple occasions, culminating in March 2021 with permission to move this recommended proposal forward to the BCC as the governing body of WES. WES staff has also discussed the Proposal with the City Managers, Public Works Directors and/or City Engineers of our Partner cities and they are generally open to and/or supportive of the proposal. Once adopted, the Partnership Proposal will be a key element of WES' long term strategic communications.

Qualifying projects would be undertaken as normal by the various Partners, and each would entail the appropriate level of public engagement around such projects, ranging from notices to extensive public outreach.

OPTIONS:

Option A: Direct WES staff to move forward with discussing the Proposal with the Partner City Councils/Commissions with the goal of developing an IGA for BCC and City Council/Commission review that codifies the Proposal.

Option B: Direct WES staff to revise the Proposal and bring it back to the BCC.

Option C: Direct WES staff to cease work on the Proposal.

RECOMMENDATION:

Option A: Direct WES staff to move forward with discussing the Proposal with the Partner City Councils/Commissions with the goal of developing an IGA for BCC and City Council/Commission review that codifies the Proposal.

ATTACHMENTS:

SUBMITTED BY:

Division Director/Head Approval _____

Department Director/Head Approval _____

County Administrator Approval _____

For information on this issue or copies of attachments, please contact Lauren Haney at 503-742-4591
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