Joint Operations & System Optimization Plan (Joint Plan)

MWPAAC Engineering and Planning Subcommittee Briefing

May 5, 2016





Protecting Seattle's Waterways

Department of Natural Resources and Parks
Wastewater Treatment Division



Overview

- Why a Joint Operations and System Optimization Plan?
- Requirements in the Consent Decree
- Plan Commitments
- Benefits to WTD and SPU
- Questions/Comments

Background

- Two independently operated wastewater collection systems
- Hydraulically connected and interdependent
- Majority of flows go to West Point



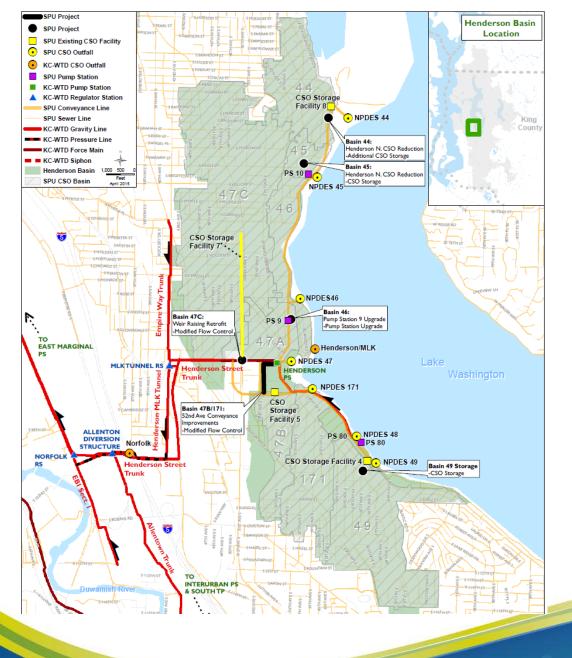
West Point Wastewater Treatment Plant Average day – 90 MGD Rainy day – 440 MGD

Joint Operations & System Optimization Plan (JOSOP)

- Consent Decree
 Requirement
 - Operations focused
 - To ensure optimal level of coordination and information sharing
 - Optimize system operations

Appendix D Joint Operations and System Optimization Plan Between The City of Seattle and King County

- While the City and King County own and operate discrete wastewater collection and conveyance systems, parts of King County's system are interconnected with the City's where the operation of one impacts the operation of the other. All of the separate and combined wastewater collected in the City's Wastewater Collection System is discharged to King County owned interceptor for transport to one of King County's wastewater treatment plants. In addition, the City owns CSO Outfalls which are located upstream and in close proximity to King County owned CSO Outfalls. The City will work with King County in jointly preparing a Joint Operations and System Optimization Plan ("Joint Plan") for the City's Wastewater Collection System and those interdependent portions of King County's regional wastewater conveyance and treatment system that are hydraulically connected to the City's system. The result of this effort is development of a Joint Plan that is consistent with both entities' operational objectives, ensures the optimal level of coordination and information sharing is maintained, and optimizes system and joint operations between both entities. The Joint Plan shall describe a procedure for operating their existing systems and will include a process for incorporating the Joint Plan into the design of new capital projects for the combined systems.
- 2. The Joint Plan shall include, but not be limited to, the following items:
 - a. Overview of those interdependent portions of King County's regional wastewater, conveyance, and treatment system and the City's Wastewater Collection System;
 - Methods to accommodate each agency's operational objectives while complying with their contractual obligations;
 - Shared operational objectives for the City and King County's combined sewer systems;
 - d. Organizational structure;
 - Modes of operation (dry, wet, transition) for identified CSO facilities;
 - Each agency's operational decision hierarchy;
 - Identified CSO facilities, if any, that may be beneficial to jointly operate and/or monitor;
 - h. Real-time communication plans/protocols;
 - Emergency and special operations protocols;
 - j. A process for incorporating the Joint Plan into the design of new capital projects for the combined system, including the City and King County CSO Long-Term Control Plans; and
 - A process for updating the Joint Plan every three years.



Example of Interconnected Systems Henderson Basin

Upstream

- 7 SPU CSO Outfalls
- 3 SPU existing CSO projects
- 5 SPU new CSO projects

Downstream

- WTD's Henderson Pump Station
- WTD's Henderson MLK
 Treatment Tunnel
- 2 WTD CSO outfalls

Deliverables

- Final plan due to **EPA & Ecology** March 2016
- Plan submitted and under review
- Update in 2019

Protecting Seattle's Waterways



Department of Natural Resources and Parks
Wastewater Treatment Division

work together to develop a single Joint Operations & System Optimization Plan (Plan). The pertinent language regarding development of the Plan can be found in Appendix F of SPU's Consent Decree and Appendix D of the WTD's Consent Decree.

In accordance with the reporting requirements for our respective consent decrees, we are pleased to submit this 2013 Annual Progress Report (Report) for the Plan. The Report addresses the joint progress made by both agencies to improve our understanding of the interconnectedness of each agency's systems and each agency's operable facilities, and begin to identify the greatest areas for joint optimization opportunities.

As you will see, significant progress was made in 2013. Accomplishments include:

- · Completed 10 educational activities that included facility tours and technical presentations of key operable facilities within each agency's system that advanced our mutual understanding of how our respective interconnected systems function.
- Developed and approved shared operational objectives, which satisfies a Consent Decree requirement for each agency.
- · Divided our combined wastewater system into 13 planning basins for joint operations analysis. The basin analysis to be conducted will help to identify joint optimization
- Developed and approved two early actions that were implemented in 2013 formation of a Joint System Event Debrief Committee, and formation of a Joint Operations Information Sharing Team (JOIST).

More detail on each of these accomplishments is included in the Report.

Thank you for your review of the Joint Operations & System Optimization Plan 2013 Annual Progress Report. We believe the accomplishments described in the Report demonstrate our collective commitment to improving operational coordination between our respective wastewater utilities. If you have any questions or would like additional information, please contact either one of us. Our contact information is: Pam Elardo at 206-477-4530, or pam.elardo@kingcounty.gov; and Nancy Ahern at 206-733-9191, or nancy.ahern@seattle.gov.

Nancy Ahern, Deputy Director Utility Systems Management Branch

CSO Program Director

Enclosure

evelopment ch agency's

elers), and he course of entations of

which for King (SPU's)

planning ogic and e facilities.

of a Joint nation

date for are nents

Page 1 of 7

King County Wastewater Treatment Division

High Level Project Flow Chart

- 2013 SPU and WTD developed common system understanding
- 2014/15 Evaluated operational alternatives
- 2016 Submitted final plan to EPA & Ecology

- 2013-2016 Launched early actions
- 2019 Next update due



Evaluation of Operational Improvements

- Identified facilities with active controls
- Focused on 4 basins with most opportunity for optimization
 - Montlake, University, SODO, Duwamish
 - Examined operational performance under various storm conditions
- Developed basin specific and multi-basin operational improvements



Early Actions

- Joint Event Debrief Committee
 - To discuss pre- wet season and post storm performance for operational improvements
- Joint Operations Information Sharing team (JOIST)
 - To coordinate activities and share operational information
- SCADA Data Sharing Pilot
 - Real time data sharing pilot in one basin
- Joint Modeling Coordination Committee

Joint Commitments in Plan

- Joint System Debrief Committee
- Joint Modeling Coordination Committee
- Data Sharing
 - Joint Operations Information System Team (JOIST)
 - Data Sharing Protocols
 - Real Time Data Sharing Pilot
 - Rainfall Data for Forecasting
- Startup/Commissioning Coordination of CSO Control Facilities
- Real Time CSO Notification
 - Onsite Notification
 - Website Notification
- Reduce Saltwater Intrusion

Benefits of Joint Plan Effort

- Operational Coordination
 - More effective use of capacity
 - Reduced operational challenges during peak flow
 - More shared data allows for better decisions
 - Reduced operational costs
- Better relationships among staff
 - Shared expertise
 - Stronger communication



Questions?