

# **Drainage & Wastewater Line of Business**

**Presentation to the Customer Review Panel**

**October 12, 2016**



# Structure of Presentation

1. The Big Picture
  - Clarifying Definitions
  - Overview Statistics
  - System Map
  - System Processes
  - Historical and Projected Wastewater
2. Finances
  - Sources and Uses of Funds
  - Capital Investment Cycle
3. Service Targets
4. Customer Engagement
5. What's Changed and Challenges
  - What's Changed Since 2014
  - Ongoing and Upcoming Challenges

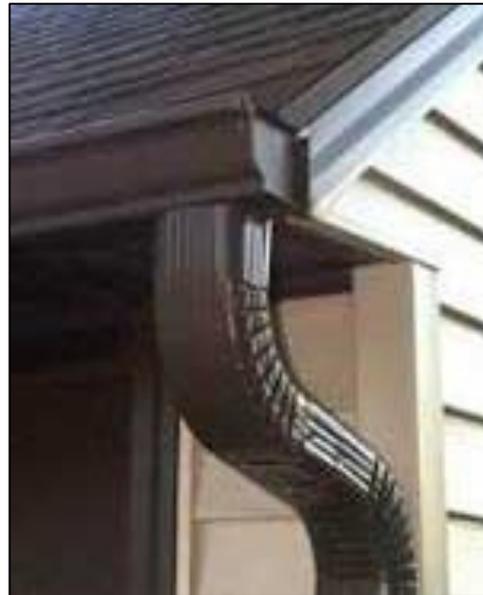
# The Big Picture: Clarifying Definitions

**Drainage (stormwater) and wastewater come from...**

**Stormwater  
Runoff to Streets**



**Roof Runoff  
(drainage/stormwater)**



**Toilets, Sinks  
Showers, Washing  
Machines  
(wastewater)**



# The Big Picture: Clarifying Definitions

## ***What's a "Combined Sewer Overflow (CSO)"?***

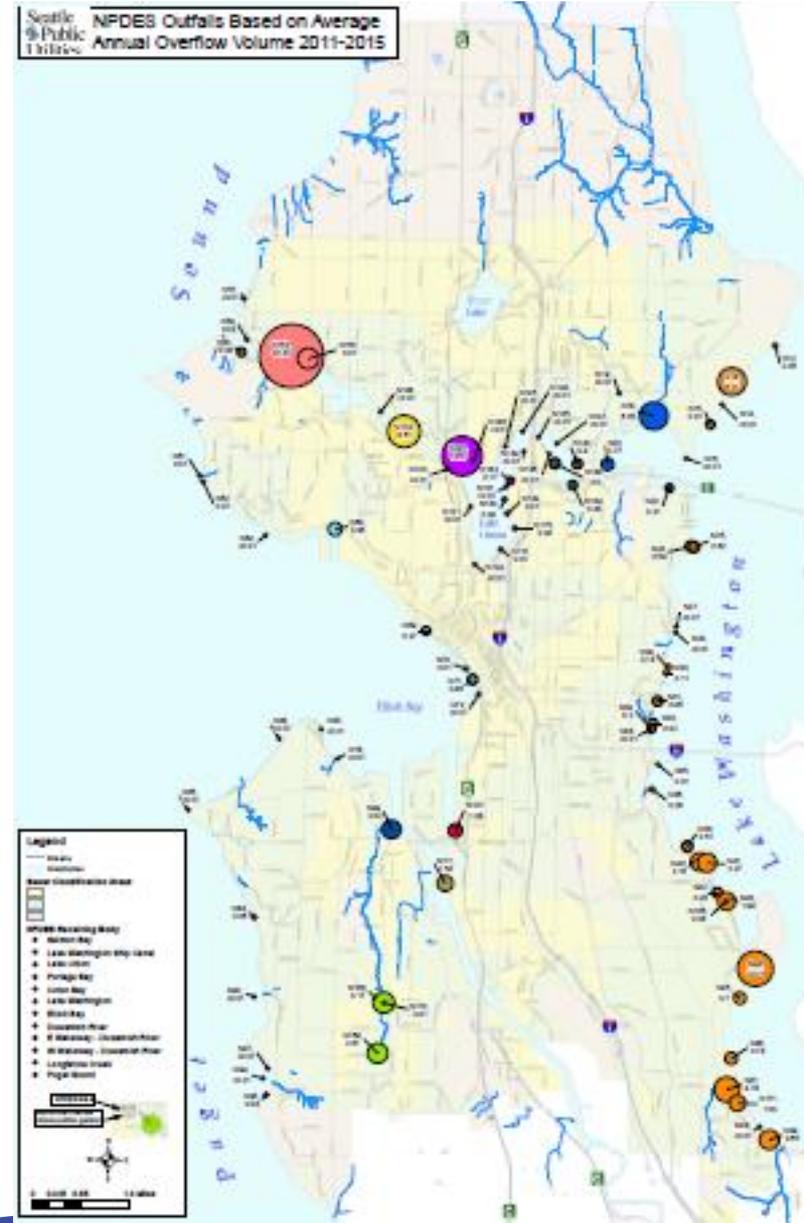
- Discharge of stormwater and untreated sewage from one of our 86 outfalls into a water body. These occur when the system is overwhelmed during a rain event and does not have the capacity to handle all the stormwater and wastewater.

## ***What's a "Dry Weather Overflow (DSO)"?***

- Discharge of untreated sewage from one of our 86 outfalls into a water body. These occur when its' not raining.

## ***What's a "Sewer Overflow (SSO)"?***

- Also known as a Sanitary Sewer Overflow - occurs anywhere in the sewer system, whether or not its raining.



# The Big Picture: Clarifying Definitions

## ***What's a "Sewer Backup"?***

- A sewer backup is a discharge of sewage into a customer's basement or other location (such as onto the street). These occur when the system is clogged (e.g., by tree roots or grease), or is broken, or is at capacity during a storm event. Also referred to as SSO's (Sanitary Sewer Overflows)



## ***What's a "Side Sewer"?***

- A side sewer is the area of the sewer customers control that runs from the home or building to the main street sewer.



# The Big Picture:

## Overview Statistics for Size, Employees, Regulators

### ***Size***

Service Territory      City of Seattle, with small exceptions due to infrastructure

### Infrastructure

- 448 miles of sanitary sewers
- 968 miles of combined sewers
- 477 miles of storm drains
- 86 Combined Sewer Overflows points
- 68 wastewater pumps
- 295 storm drain outfalls
- No wastewater treatment plants (flows sent to King County)

### ***Employees***

# employees (2016 budgeted)      561

# Union      12

### ***Regulators***

- WA State Dept. of Ecology
- WA State Dept. of Fish and Wildlife
- US Environmental Protection Agency
- National Marine Fisheries Service
- US Army Corps of Engineers

# The Big Picture:

## Overview Statistics for Rates and Bills

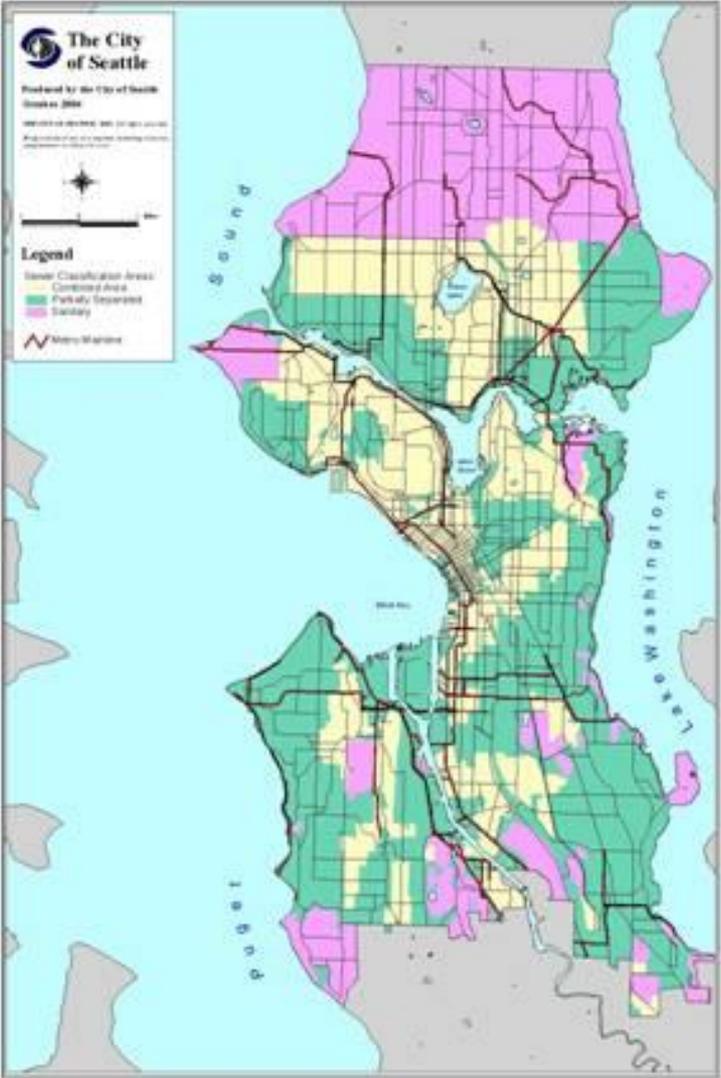
### Rates and Bills

- |                               |  |
|-------------------------------|--|
| Length of Current Rate Path   | ▪ 3 years, 2016-2018   |
| Billing Mechanism (2015 data) | ▪ Property Tax (drainage)<br>▪ Combined Utility Bill (wastewater)              |
| Rate Revenue                  | ▪ \$102.1M (drainage)<br>▪ \$257.1M (wastewater)                               |
| # Customer Accounts           | ▪ 214,119 (drainage)<br>▪ 172,532 (wastewater)                                 |
| Rate Methodology – Drainage   | ▪ Bills based on parcel size and impervious surface                            |
| Rate Methodology – Wastewater | ▪ Bills based on water usage, adjusted for water not entering sewer system     |
| Customer Classes - Drainage   | ▪ Two: residential and general service (which includes large residential lots) |
| Customer Classes – Wastewater | ▪ Two: residential and commercial, both pay the same rates                     |

# Drainage and Wastewater Goals

- Collect and convey wastewater in our public sanitary and combined sewer systems to protect public health and the environment by preventing sewer back-ups and overflows.
- Manage stormwater and drainage from the public system to reduce flooding, protect and improve receiving water and sediment quality, public safety and the environment.

# The Big Picture: Drainage & Wastewater Infrastructure Map

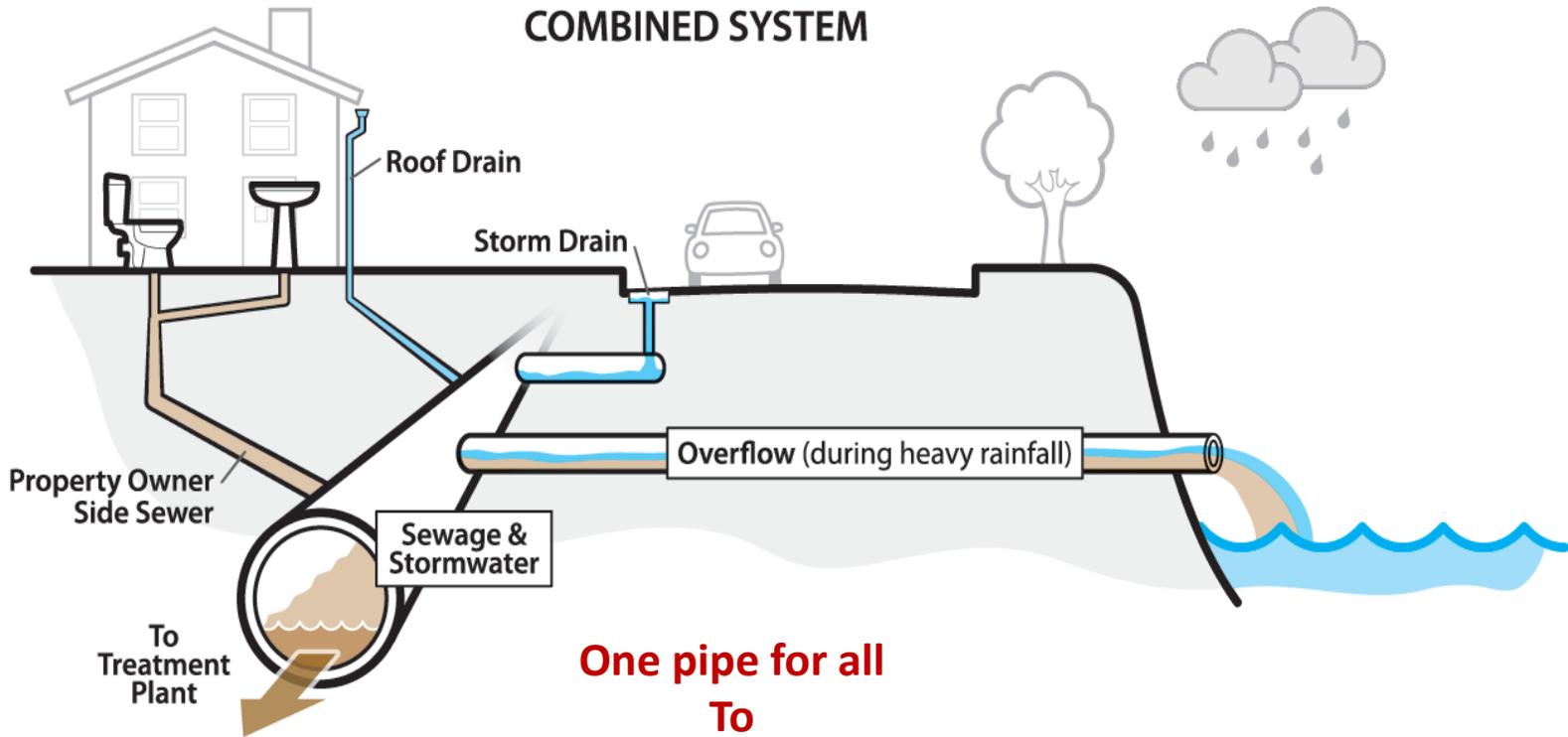


**Combined System**

**Partially Separated System**

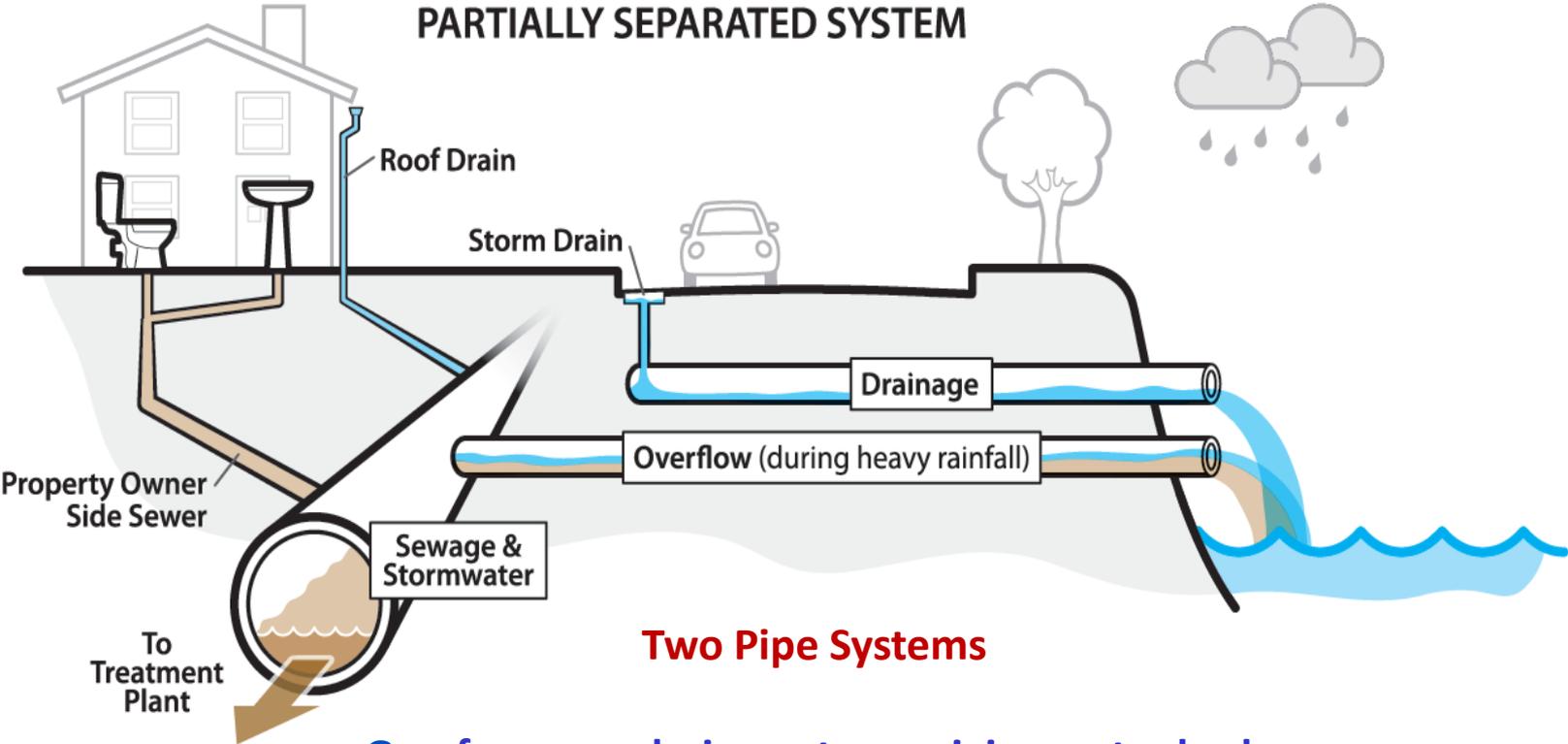
**Fully Separated System**

# The Big Picture: System Processes – Combined System



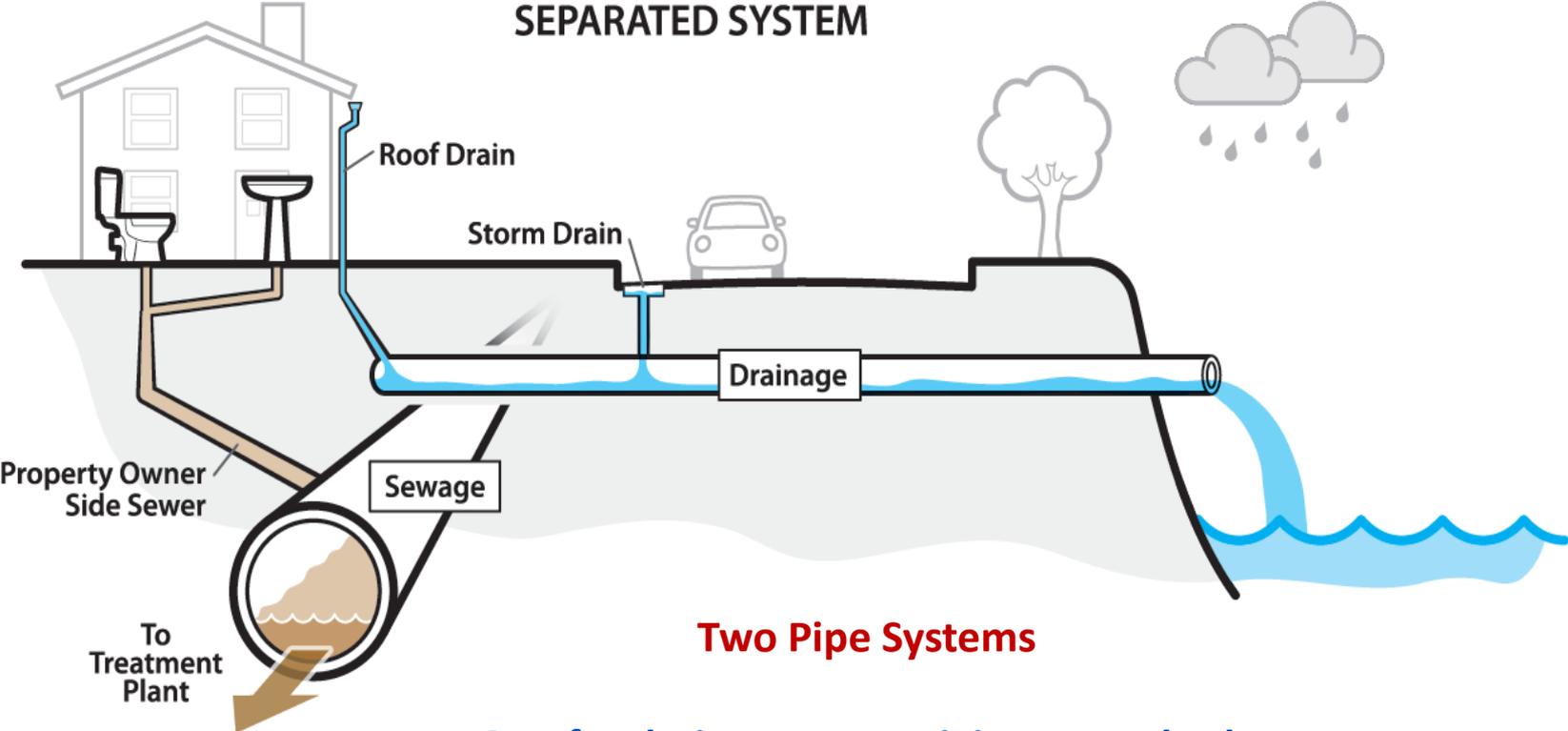
**One pipe for all  
To  
King County Treatment Plant  
And  
Overflow to Receiving Water Bodies**

# The Big Picture: System Processes – Partially Separated



**Two Pipe Systems**  
**One for some drainage to receiving water body**  
**and**  
**One for sewage/stormwater to King County Treatment Plant**

# The Big Picture: System Processes – Fully Separated

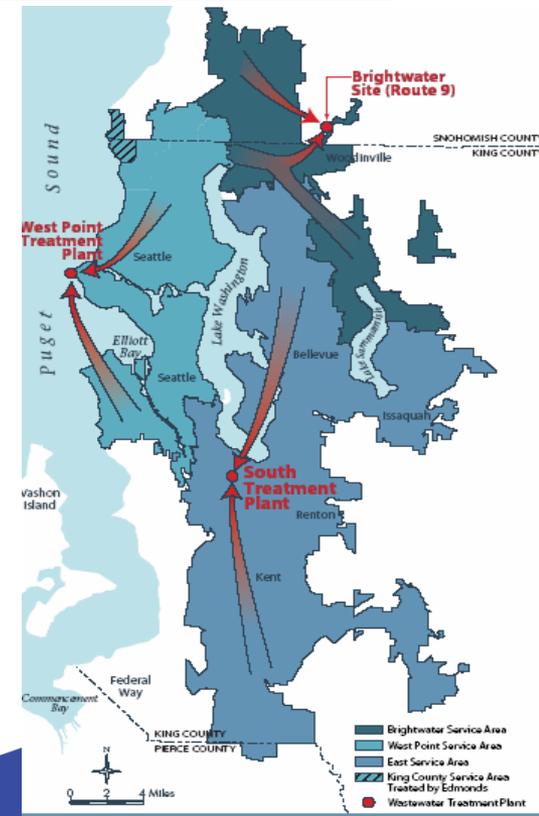


**Two Pipe Systems**

**One for drainage to receiving water body  
and  
One for sewage to King County Treatment Plant**

# The Big Picture: System Processes – Wastewater and Drainage Destinations

- Wastewater: Treated at King County West Point Treatment Plant; discharged into receiving waters
- Drainage: It depends....
  - One-third of City has pipes that combine drainage and wastewater; all goes to treatment plant
  - One-third of City is partially separated; so some drainage flows combine with wastewater flows; other drainage flows remain separate.
  - One-third of City has fully separated pipes for drainage and wastewater; drainage flows sent untreated to various receiving waters



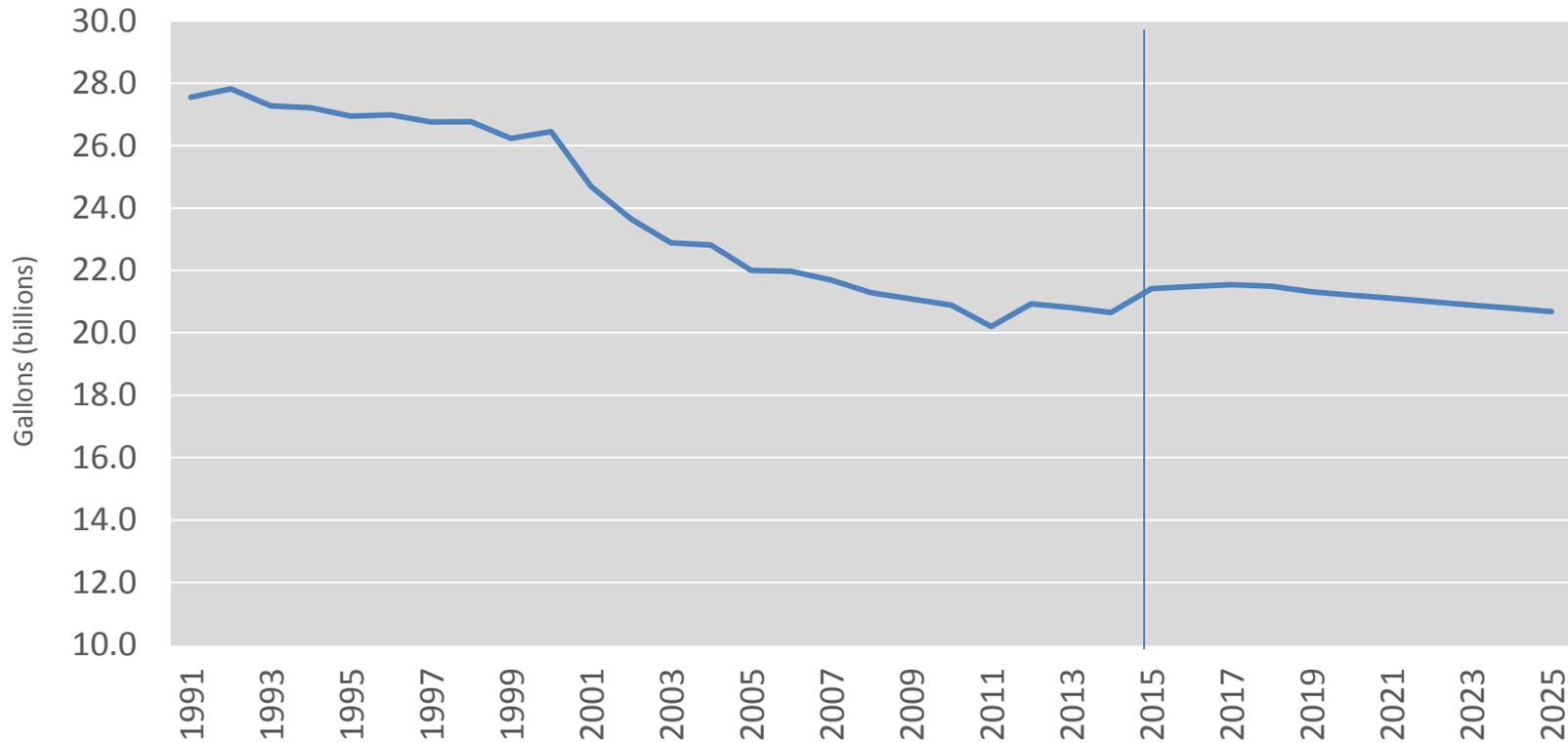
# The Big Picture:

## System Processes – Why do we care about all of this?

- Untreated Stormwater Runoff. Water from the separated system goes untreated to our lakes, creeks, Puget Sound and the Duwamish river.
- Combined Sewer Overflows. Without additional collection system storage, untreated sewage continues to flow into our water bodies.
- Flooding. Impacts to property and mobility can occur where inadequate drainage infrastructure exists.

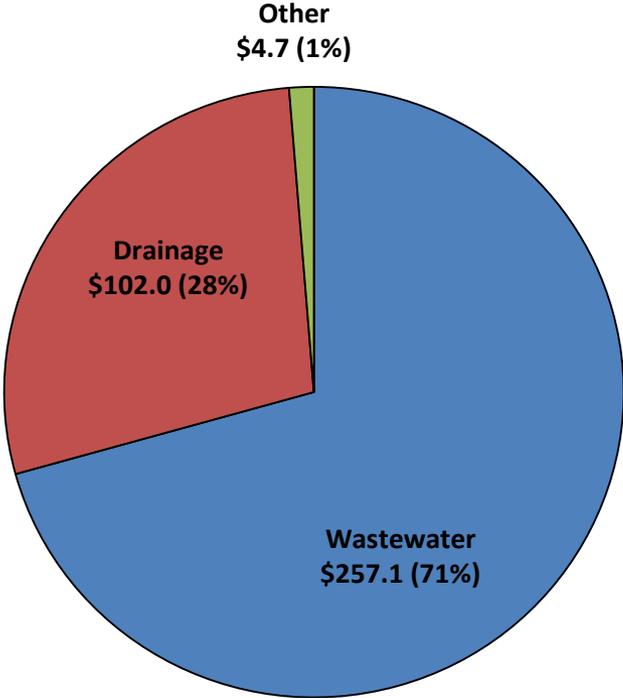
# The Big Picture: Wastewater Use

## 1991-2025 Billed Wastewater Consumption

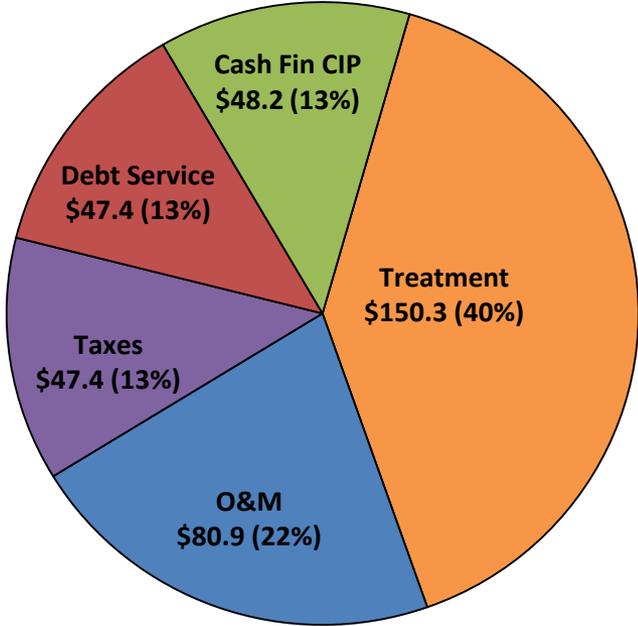


# Sources & Uses of Funds

## Drainage and Wastewater Fund Revenues and Expenses (2015, \$ in millions)

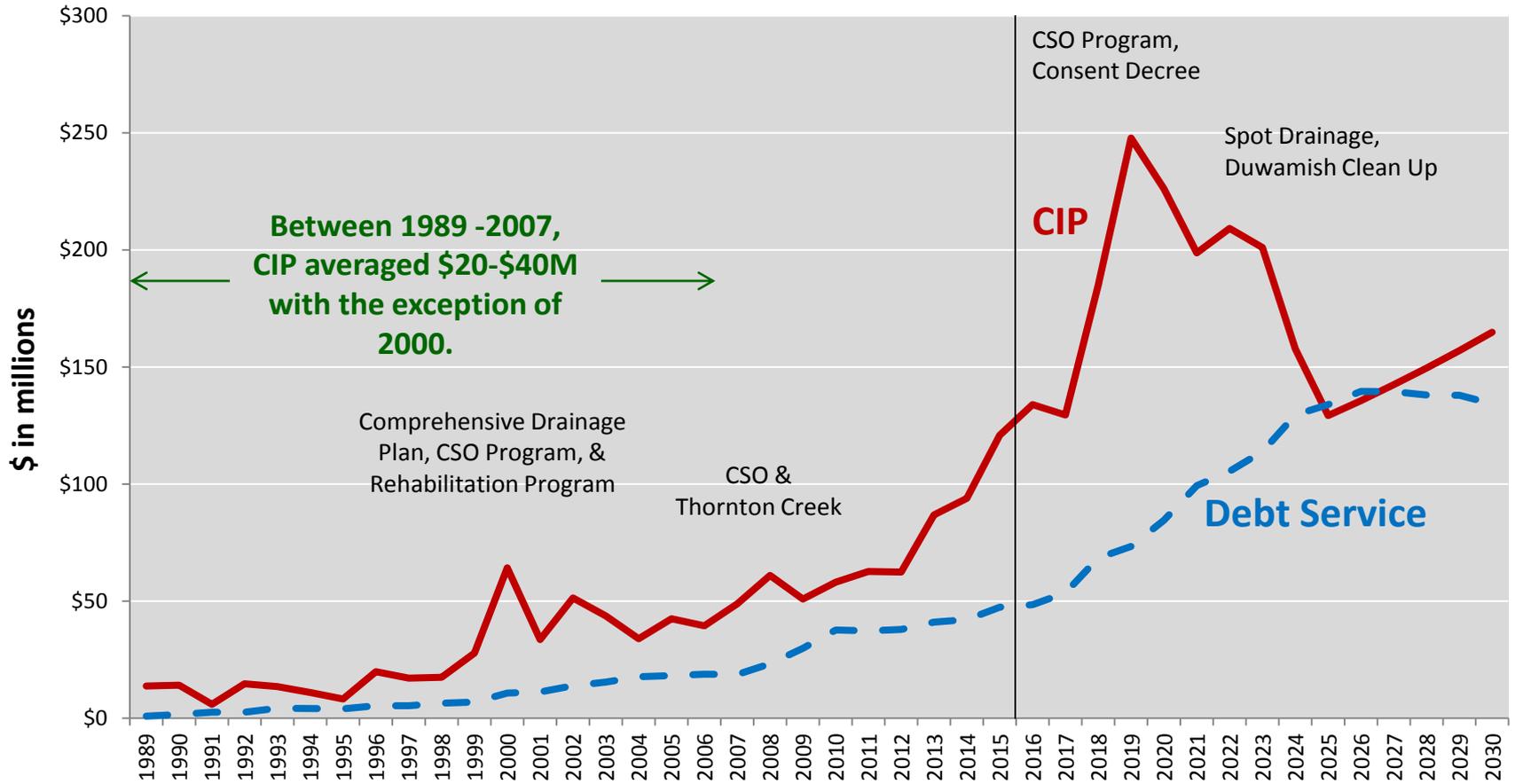


**Revenues**



**Expenses**

# Where We Are in Our Capital Investment Cycle



# Service Targets

SPU uses the following service targets as key indicators of quality and success:

## ***Drainage Service Targets***

- To support the city-wide goal of 700 million gallons of runoff managed using Green Stormwater Infrastructure by 2025. SPU has a goal of managing 10 million gallons of stormwater via RainWise rain gardens and cisterns
- No critical services (e.g. hospitals) are inaccessible due to flooding, except during extreme storm events (e.g. events exceeding 100-year, 24-hour storm event)
- Remove 140 tons of pollutants from roads during 2016

## ***Wastewater Service Target***

- Limit sewer overflows to no more than 4 per 100 miles of pipe, on a two-year average

## ***Combined Service Targets***

- Respond to 90% of high priority drainage and wastewater problems within one hour
- Limit combined sewer overflows to 1 per outfall per year over a 20-year moving average

# Are We Meeting Our Service Targets?

## *Performing Well in Most Areas*

- Meeting our drainage service targets
- Meeting one of our combined service targets:
  - Respond to 90% of high priority DWW problems within one hour

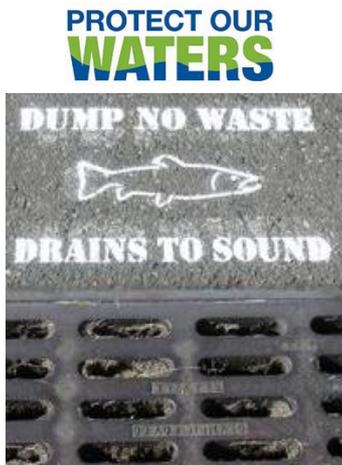
## *Area for Improvement*

- Limit sewer overflows to no more than 4 per 100 miles of pipe, on a two-year average
- Limit CSOs to an average of no more than 1 untreated discharge per CSO outfall per year

# Customer Engagement

Public behaviors are key to meeting our water quality goals. The following initiatives work to educate and engage residents:

- Education programs about the impacts of pesticides, fertilizers, automobiles, pharmaceuticals and pet waste.
- K-12 education programs to build knowledge in generations to come.
- RainWise program and non profit partnerships to build and maintain green stormwater infrastructure.
- reLeaf and Green Seattle Partnership urban forestry programs.
- Green Business program providing spill kits and other tools.
- Water Quality Hotline (684-7587) for residents to report issues.



## What's Changed since 2014?

- Move Seattle levy and other major interagency projects – funding for utility impacts
- Increasing costs for street work
- The weather, changing precipitation patterns
- Implementation of the Plan to Protect Seattle's Waterways for Consent Decree, greater clarity on
  - Schedule
  - Cost
  - Risks
- Port is no longer a customer as of 2015

# Ongoing and Upcoming Challenges

- Our infrastructure continues to age, past deferrals of renewal and replacement
  - Pipes
  - Pump stations
  - Facilities
- Less MTCA funding for sediment remediation
- 2013 “culvert case”
- Shared wastewater system operations with King County
- Resiliency, climate adaptation
- More stringent regulation, wastewater and stormwater