Seattle Public Utilities

Joint Meeting of Water System Advisory Committee (WSAC)
and Creeks, Drainage, and Wastewater Advisory Committee (CDWAC)
December 14th, 2016 Meeting Notes
Seattle Municipal Tower, 700 Fifth Avenue
Room 4901
5:30 pm – 7:30 pm

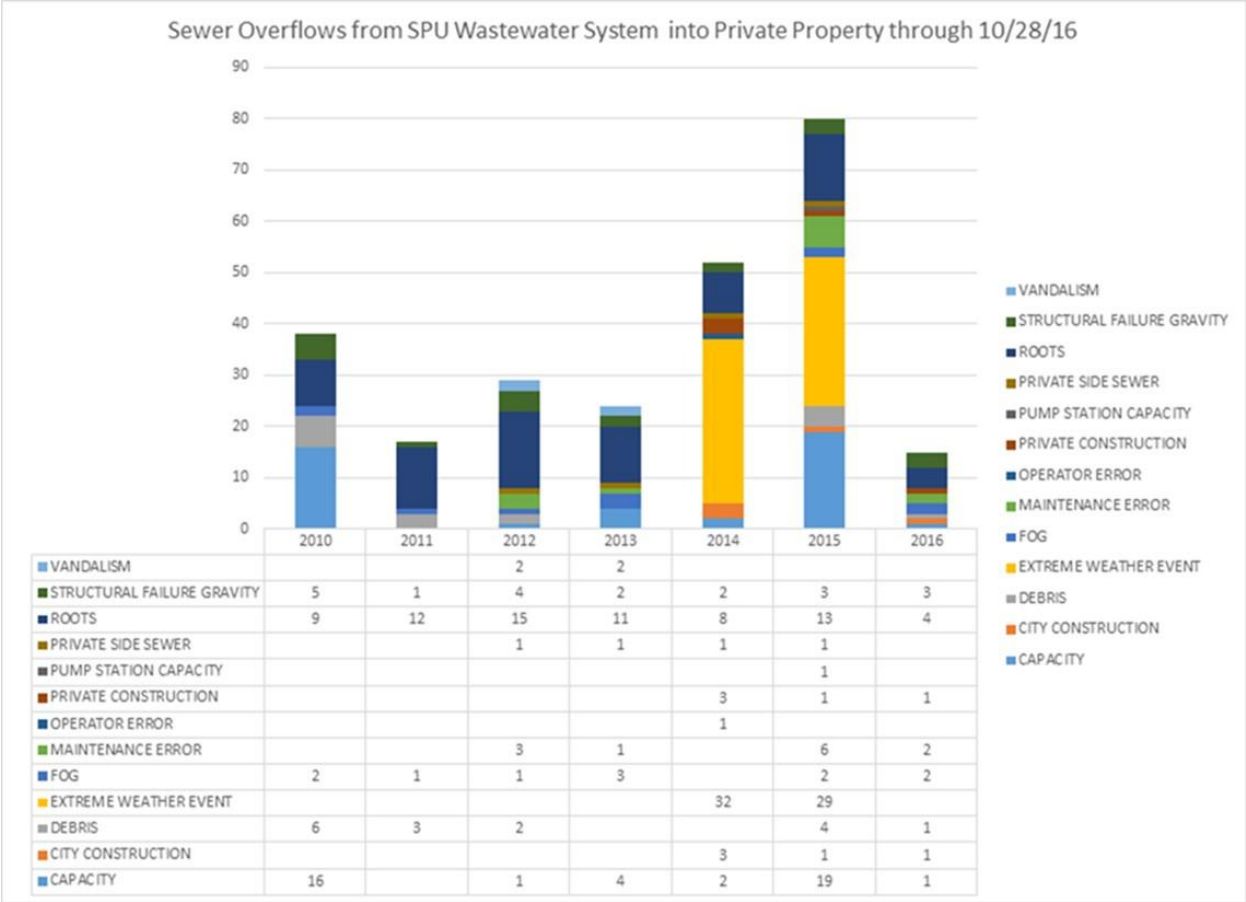
Committee Members & CAC Staff	Present?	SPU Staff & Guests	Role
WSAC		Madeline Goddard	Deputy Director, Drainage and Wastewater Branch
Tom Grant	Y	Alex Chen	Director, Water Planning & Program Management Division
Melissa Levo	Y	Sheryl Shapiro	CDWAC Liaison and CAC Program Manager
Kelly McCaffrey	N	Natasha Walker	CAC Program Coordinator
Teresa Stern	Y	Joan Kersnar	SPU Drinking Water Planning Manager, Water LOB Liaison
Kyle Stetler	N	Bruce Flory	SPU Principal Senior Economist
Rodney Schauf	Y		
Paul Reed	Y		
Michael Godfried	Y		
CDWAC			
Clifford Armstrong III	Y	**Guests**	
Schyler Hect	N	Steven Cole	Guest
Patrick Jablonski	Y	Ben Billick	Guest
Christina Ciampa	N	Kirsi Longley	Guest
Seth McKinney	Y	Joel Carsley	Guest
Noel Miller	Y	Charlie Scott	Guest
Devin O'Reilly	Y		
Gary Olson	P		
Evan Osborne	Y		
Mariella White	Y		

ACTION ITEMS

In early 2017, Noel will provide a CRP update to Committee members.

Follow-up to ACTION ITEMS from previous meetings:

- Brian Landau provided sewer overflow records to date for this year. Committee members were interested in seeing if SPU will likely surpass 2015 figures. See graph on the next page



	2010	2011	2012	2013	2014	2015	2016
VANDALISM			2	2			
STRUCTURAL FAILURE GRAVITY	5	1	4	2	2	3	3
ROOTS	9	12	15	11	8	13	4
PRIVATE SIDE SEWER			1	1	1	1	
PUMP STATION CAPACITY						1	
PRIVATE CONSTRUCTION					3	1	1
OPERATOR ERROR					1		
MAINTENANCE ERROR			3	1		6	2
FOG	2	1	1	3		2	2
EXTREME WEATHER EVENT					32	29	
DEBRIS	6	3	2			4	1
CITY CONSTRUCTION					3	1	1
CAPACITY	16		1	4	2	19	1

1. Regular Business

- WSAC Co-Chair, Rodney Schauf, opened the meeting at 5:36 PM and reminded attendees to sign-in.
- Committee Members, SPU staff, and guests introduced themselves.
- Sheryl provided farewell gifts to members who have competed their terms.
- Clifford Armstrong announced this would be his final meeting. He has accepted a position at the City of Tacoma.
- Meeting notes from November were approved.
- Sheryl indicated emergency exits, bathrooms, and noted that she would be following up with more details concerning emergency supplies and procedures at a future meeting.

2. 2019 Water System Plan (WSP) Overview, Water Demand Forecast Update: Preliminary Draft:

Bruce Flory, SPU Principal Economist

Bruce Flory provided context for the presentation, relative to the 2019 Water System Plan Overview, and then went into the details of the Water Demand Forecast Update, providing:

- A history of population and water demand growth and our past attempts to forecast it over the years. Historically, water demand was highly correlated with population growth but the two were "decoupled" beginning in the early 1990s due to actions by SPU and outside events: a

drought in 1992, state and federal efficiency codes and standards for water fixtures and appliances, water system leak reductions and operational improvements, conservation rate structures and rising water and sewer rates, and aggressive and ongoing utility conservation programs.

- An overview of the demand forecast methodology
- Reviewing changes since the last Water Supply Plan
- Sharing results of the Water Demand Forecast. For the two decades ending in 2010, water demand steadily declined as water conservation in all its forms (listed above) more than offset the impact of population and economic growth. Since 2010, total water demand has flattened out as growth and conservation have balanced each other out. This balance is forecast to continue for a decade or so with water demand from the Seattle system starting out flat and then increasing gradually to 139 mgd by 2039. The average growth rate in demand over this period would be less than half a percent per year. After 2039, water demand is forecast to decline slightly and then remain flat at about 135 mgd for decades as the declining portion of the Cascade Water Alliance block contract kicks in.

- **Committee member question:** What is PSRC?
    - **Answer:** Puget Sound Regional Council. SPU used their Forecasts of Demographic Variables 2015-2060.
- **Committee member question:** What is non-revenue water?
    - **Answer:** The difference between the water we bring in, and the water we sell. We sell less water than is diverted from our sources. The difference can come from leaks (in reservoirs, etc.) or water used for different authorized purposes that is not revenue generating, such as firefighting, street cleaning, and flushing reservoirs. It is assumed to increase gradually over the years as infrastructure ages.
    - **Guest question:** You said it was cut in half in the early 1990s. Was that because you wanted to reserve?
        - **Answer:** When we had the drought in 1990s, the Utility was seeking ways to reduce non-revenue water and discovered we had leaky reservoirs. They were also overflowing some of the reservoirs. They resolved both of these. We were also sending water to Green Lake (to improve water quality in the lake) which was also stopped. Non-revenue water went from 25 mgd to 12mgd or so. As we've covered all the in-city reservoirs, we've reduced that even more because we no longer must clean them as often or overflow them to skim debris off the top. We've been as low as 6 mgd.
        - **Joan:** The number we're at now is considered low nationally. Even double would be considered low.
- **Committee member question:** Can you explain what the code savings are?
    - **Answer:** Code savings are the state and federal plumbing fixture and appliance codes that specify efficiency requirements for toilets, showerheads, aerators and washing machines. "Market transformation" refers to efficiency standards (such as Energy Star) go beyond code, these are also known as passive savings because they occur independently from actions taken by SPU such as conservation programs.
- **Committee member question:** How does commercial and industrial factor in?
    - **Answer:** Commercial, industrial, governmental/institutional water consumption is all lumped together as non-residential and is analyzed separately from residential. Total non-residential consumption is divided by the number of employees to calculate the water-use "flow factor." The flow-factor is per employee. Conceptually, non-residential

water use can be split into two categories, domestic use (i.e., water use by employees and customers for toilets, showers, drinking water, etc.) and process use (e.g., hydro blasting, steel making, food processing and beverage bottling, glass making, etc.). Non-residential conservation is easier to model on the domestic side than process but we try to do both.

- **Committee member question:** We just had a climate change/climate resiliency presentation. Do you add an inflation factor to account for climate change?
    - **Answer:** We try to consider how weather and climate affect water demand. Because base year flow factors are calculated from weather-adjusted consumption data, the forecast represents demand under average weather conditions. Analysis of daily consumption data back to 1982 shows a maximum annual variability of about plus or minus 5%. In other words, an extremely hot dry summer would be expected to increase annual consumption in that year by up to 5% above the average trend. An extremely cold wet summer would be expected to do the opposite, reducing that year's annual consumption by about 5% below the average trend. The model does not explicitly account for the potential impact of climate change on future demand. While higher summer temperatures are anticipated over the next century due to climate change, most climate model/emission scenario combinations do not project *average* temperatures to rise above what has already been experienced in the hottest years on record. Therefore, the impact of climate change on future demand is not expected to increase the average-weather forecast beyond the range of weather-induced demand variability. I therefore don't model climate change on the demand side, per se. However, when looking at climate change scenarios on the supply side, we would add 5% on the demand side.
- **Committee member question:** In addition, do you take into consideration changing market factors such as cannabis growing, which is water intensive?
    - **Answer:** We do not go industry by industry, so new intensive uses of water is something we might use in a scenario but is not part of the baseline scenario. Ex: If urban agriculture grew, you might end up with more irrigation. Or if there was cannabis growing in the Seattle area or another highly intensive use of water, such as more breweries or more laundromats. This is not captured in the model.
- **Committee member question:** All your explanatory variables are tangible things, yes? Things that are based on real, measurable factors.
    - **Answer:** Explanatory variables include (forecasts of) single and multifamily households, employment, household income, and water and sewer rates, etc. We get forecasts of some of these from PSRC and the water and sewer rate forecasts from our own rates staff. We did a literature review in the 2000s of water demand forecasting methodologies and specifically, of all the econometric estimates of price and income elasticities. We took the means of the ranges of elasticities for our baseline values and use the ranges from high to low in our sensitivity analysis.
- **Committee member question:** Regarding the conservation assumptions from fixtures being replaced: is that related to existing fixtures or new installs?
    - **Answer:** Both. It's the change out of old fixtures and then there's new construction where the efficient equipment is installed at the start, Also, the average efficiency level of what's being installed is improving over time.
    - **Committee member question**: I was surprised because I thought we were hitting our maximum efficiency because our infrastructure doesn't allow it to get much more efficient. Surprised that there was so much savings projected.

        - **Answer:** This only assumes the efficiency of the existing fixtures on the market. Part of the estimated future savings is from the changeout of old for new fixtures and part is because the average efficiency of new fixtures is improving as a growing proportion of newly installed fixtures meet the highest standards.
    - **Committee member comment**: In the hospitality industry, we're seeing savings beyond code.
- **Committee member question:** Can you describe the Cascade block?
    - Cascade Water Alliance members: Bellevue, Redmond, Kirkland, Issaquah, Tukwila, Sammamish Plateau Water, and Skyway. The Cascade block is 33.3 mgd on an average annual basis. They can and usually do use less than this but can't use more without a penalty. By the latest contract amendment, the block will remain the same through 2039. It will be reduced by 2 mgd in 2040 and then by 1 mgd each year thereafter through 2060.
    - **Committee member question:** Are they working on getting their own water supply sources?
        - **Joan:** They own Lake Tapps down in Pierce County, which was used for hydropower but then they bought the water rights to divert as their municipal water source. It's an expensive source so that's why they're delaying it.
    - **Committee member question:** So the block might not shrink in the same time frame?
        - **Answer:** It would be subject to negotiation.
- **Committee member question:** And the current firm yield is straight… That's our supply, so that does not fluctuate?
    - **Joan:** It's a topic that if you want to hear more about, it's on the list of potential items for 2017 workplans.
    - **Answer:** Our supply is highly variable year to year depending on the variables. Our firm yield is based on historic stream flows, based on past hydrology and weather. But that's a topic for another session.
- **Committee member question:** So was the methodology in the 2007 and 2013 forecast about the same?
    - **Answer:** Yes. 2007 is when we began using this methodology.
- **Committee member question:** Will the current firm yield have the same kind of uncertainty forecast?
    - **Answer:** We do look at the climate change uncertainty around future water supply scenarios and we also do that on the demand side so we're comparing similar scenarios
- **Guest question:** Are you taking into consideration some of the new technologies that factor into demand, such as rainwater harvesting and graywater recycling; i.e. some of these closed loop recycling systems?
    - **Answer:** It's not in the demand forecast but we have a group looking at SPU's relationship with these technologies and trying to anticipate how they might influence the future (and how SPU might be involved). That could be a scenario; IF those become pervasive.
    - **Joan:** As well as raingardens and cisterns for outdoor irrigation; how much potable water is it generating versus how much it is just managing stormwater.
    - **Guest comment:** As architects, we're looking at these technologies more and more. For LEED certification, etc.
    - **Joan:** I could see it as a scenario: potential for offsetting potable water use.
    - Noted lots of interest from CAC members in this topic

3. 2017 CDWAC/WSAC Officer Elections

Sheryl thanked the current Co-Chairs for their leadership in 2016. Blank sticky notes were handed out as ballots and collected. The following 2017 Officers were elected:

- CDWAC Co-Chair: Schyler Hect
- CDWAC Co-Chair: Gary Olson
- WSAC Chair: Rodney Schauf

4. 2017 CDWAC-WSAC Planning

CDWAC and WSAC members broke into separate groups for work planning. Water Systems LOB Liaison, Joan Kersnar, lead WSAC members through their work planning process. Drainage and Wastewater LOB Liaison, Sheryl Shapiro, and Madeline Goddard, Deputy Director of the Drainage and Wastewater Branch lead CDWAC members through their discussion.

Notes are available on separate Committee work planning documents.

5. Farewell to Noel, Kyle, Kelly, Tom

These members completed their 2nd term and hearty appreciation was given for their enthusiastic and valuable participation. Several of these members have indicated that they will continue to attend meetings as they are able as "Active Alums."

6. Around the table

An around the table did not take place.

Adjourned 7:36 PM