City of Olympia
Water Conservation Program Analysis
December 22, 2015

Background:

The City has had a water conservation program since the late 1990s. The program uses an integrated approach to convey the importance of conservation through education, use of the media, development of a streamline rebate process, tiered rates, and working with local partners. The program looks not only at reducing indoor and outdoor use but also reducing water loss attributed to water main breaks, leaks, and theft of water. These efforts have resulted in significant reduction of water use, even with an increase in population. For instance, during the last planning period (2009 – 2014), the City exceeded our goal of reducing our water use by 5 percent per connection, achieving an 8.7 percent reduction.

The UAC discussed the fact that the Drinking Water Utility will have extra revenue in 2015 due to drought-related, high water sales ($1 - $1.5 M is expected); they voted to earmark 20 percent for water conservation work contingent upon staff and UAC developing and supporting a tangible strategy for the funds. If a good strategy did not arise, the funds would default to the capital program.

Staff analyzed the existing rebate programs, as well as met with engineering and operations staff to discuss the best ways additional funding could be used at advance the program. Below are the results of the analysis and discussions.

Analysis:

Participation has been declining in recent years as the bulk of easily-achieved water savings has been addressed, even though significant efforts have been implemented to reach out to customers. These efforts included: bus ads, special mailings, utility bill inserts, banners, radio, social media and public events. The City, working with LOTT, even offered free installations of high efficiency toilets to commercial and multi-family customers, though there were few and then eventually no takers.

With the potential of infusing approximately $250,000 - $300,000 (20 percent of extra revenue from 2015's drought-related, high water sales), staff evaluated how this funding would impact the three main customer class rebate programs:

Residential:

- Washing machine replacement – at an average cost of around $700, it is not cost-effective for the resulting 22 gpd water savings. It is also not equitable to all those who have only received $50-$100 rebates over the years. Trading minimal water savings for increased waste disposal of the machine is not efficient.
- Much is already being done for this customer class, especially with the programs funded by LOTT.
- Concern of gifting of public funds.

Multi-Family:

- Piggy-backing on LOTT's free multi-family toilet replacement program, look at contracting with a plumber to offer free installation to several complexes. With water savings at 25 gpd per toilet, and the potential install charge of $150 per fixture, we'd have to replace over 1600 toilets to utilize $250,000. Far exceeding the availability of fixtures from the LOTT program. If we had to purchase fixtures at roughly $200 each, we could install roughly 700 toilets, netting a 17,500 gpd water savings. Significant savings, but with a significant cost.
- The conservation program has had trouble getting participation in the free toilet program and even the $100 rebate program for replacement of 1.6 gpf fixtures; not sure if enough customers will participate, and again it isn't equitable to those that have participated in LOTTs multi-family programs in previous years.
- Concern of gifting of public funds.

Commercial (ICI):

- With the availability of WaterSmart Technology rebates of up to 75 percent for water saving projects and a huge decline in participation because of the volume of large projects already completed in Olympia, there doesn't appear to be a need to invest that large a sum of money in this customer class.

Overall, the City of Olympia and its customers are doing a fantastic job in water conservation. We are currently working to further reduce indoor use by an additional 100,000 gpd and outdoor use by an additional 5 percent by year-end 2020. A goal, we believe to still be aggressive given declining participation in all program areas. The City will continue to leverage the power of rebates, however, a more important component of the overall program is reducing water loss.

In 2014, 200 million gallons (approximately 8 percent of what is produced) were lost in our system. This water loss is attributed to water main breaks, leaks and theft of water. Considering managing our system water loss to less than 10 percent of production is a large part of the Water Use Efficiency Program, the proposed funding would be better spent on one or more of the following Operations and Maintenance or Capital Improvement options, which will also benefit City of Olympia water customers:

1. Fire Hydrant Locks. The amount of water being stolen from the water system is unknown. Stealing water from a fire hydrant creates a cross connection that could introduce contaminants into the water system. Fire hydrant locks are easy to install and operate without modifications to the existing fire hydrant. They are operated with a wrench, equipped with a standard fireman's tool. Discussions are occurring with the Olympia Fire Department to pilot test this device in areas that are fenced in, concealed, or difficult to access. If results are favorable, staff recommends purchasing 200 locks and associated operating equipment. Estimated cost: $60,000.

2. Remote Pressure Sensors. Utilization of remote pressure sensors may allow for improved accuracy of water loss calculations from main breaks, as well as provide enhanced monitoring of pressure fluctuations in the distribution system for quicker responses to water main breaks. These sensors are installed by tapping the water main or installed in a meter vault. Pressure data is transmitted via cellular communications to a smart phone, desktop, GIS, or telemetry system. There is a $53,000 Pressure Reducing Valve (PRV) Capital Facilities Plan project identified for 2016 that will enable data from PRVs to be transmitted to the telemetry system by radio. Staff recommends installation of remote pressure sensors at these locations, in conjunction with the PRV project, as well as at additional locations throughout the distribution system. Estimated cost: $92,000.

3. McCormick Valve House Leak. This structure is a collection point of the discharge pipes from the two Fir Street Storage Tanks (2.5 million gallons each). Water leaks observed at the valve house are believed to be a result of tears in one or both of the liners in the Fir Street tanks. The current estimate of water loss is 3.9 million gallons annually. A seismic retrofit project at the Fir Street tanks is identified in the Capital Improvement Plan for 2017/2018. Evaluation of the extent of the leak can occur once the Fir Street tanks are taken off line. Estimated cost: Unknown.

4. Pipe Condition Assessment and Leak Detection. The City is in the process of contracting out water main condition assessment and leak detection services with Echologics. Their acoustic testing technology utilizes sound waves to assess the structural thickness or stiffness of water mains without taking the pipes out of service. Leaks may also be detected during the evaluation. The project will evaluate up to two miles of asbestos cement mains up to 12-inches in diameter. Depending on the success of the assessment, we may look at expanding this evaluation to include two-miles of small diameter mains. Estimated cost: $80,000.