Surfside Homeowners Association

Proposed Water Use Efficiency Goals Public Briefing Document

1. Background

Purpose / Water Conservation Rule

Washington State's new Water Use Efficiency Rule requires municipal water suppliers to establish a water conservation goal. Surfside's water conservation goal must be approved by the Board of Trustees, and then re-established at a minimum every six years. The goal must be measurable in terms of reduced water production or usage. Progress towards the goal must be reported annually to the State and City customers.

Public Process

The water conservation goal must be established using a public process. The public process is intended to provide an opportunity for consumers and the public to comment on Surfside's proposed goals. Surfside's water system manager will make a brief presentation regarding the proposed goals and public comments will be accepted. All comments received at the hearing will be reviewed by Surfside's staff and considered by the Surfside Board of Trustees.

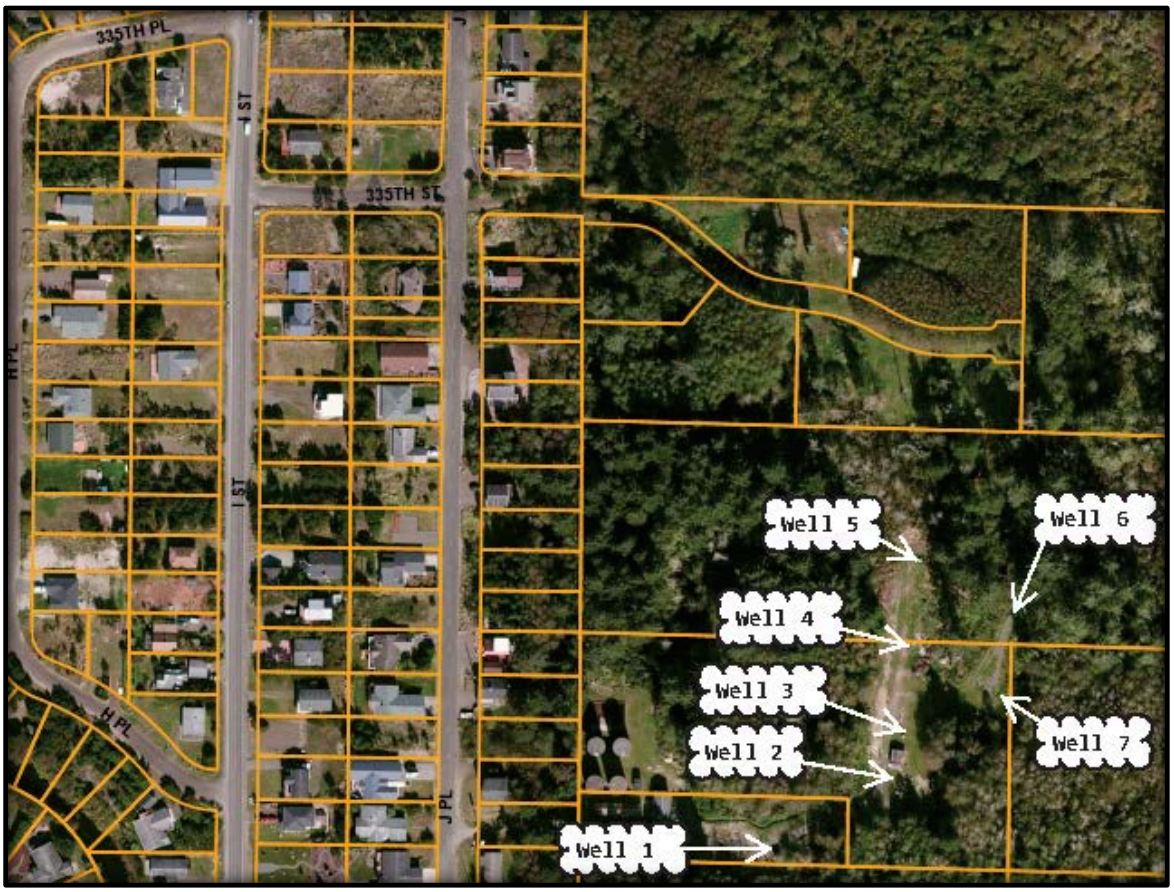
As part of the public process, this document provides background information related to Surfside's proposed water conservation goal.

Overview of Water Use and Sources of Supply

Surfside provides water to approximately 1,900 homes, recreational lots and 5 businesses. In 2013, Surfside members used approximately 0.215 million gallons per day (mgd) of water. Most of the water is used by single-family households. Water use increases significantly during the summer months. Increased population and outdoor water use are the contributing factors.

Surfside receives its water from seven deep wells at the J Street site, as shown in Figure 1, developed between 1974 and 1996. The well field is capable of producing a peak of 986 gallons per minute.

Figure 1 – J Well field



Water Conservation History

The requirement to set a water conservation goal is relatively new. In 2003 the Legislature passed the Municipal Water Law which, among other things, accomplished the following:

1. Added flexibility in the use of municipal water rights to service growing communities by eliminating some of the risk of losing those municipal rights to the state
2. In exchange for this water right flexibility, the law requires municipalities to use water efficiently.

The Municipal Water Law, as relates to Water Use Efficiency became, RCW 70.119A.180 from which the Department of Health created Washington Administrative Codes (WAC) 246-290-800-840. The laws and codes requires public water systems to, among other things:

- Publicly establish water saving goals for their customers
- Evaluate or implement specific water saving measures to achieve customer-based goals.
- Develop a WUE planning program to support the established goals.
- Install meters on all customer connections by January 22, 2017.

- Achieve a standard of no more than 10% water loss.
- Report annually on progress towards achieving these goals.

Historically, Surfside has not encouraged water conservation nor practiced water conservation as a utility. Although Surfside set Water Use Efficiency Goals for the first time in 2008 those goals were not realistic nor were they generally known or accepted by the membership or by the leadership. Nevertheless, Surfside did significantly reduce its water use.

Goal #1: Reduce water usage on an ERU basis by an average of one percent per year over the long-term 20-year planning horizon.

ERU is an acronym for “Equivalent Residential Units”. An ERU is a unit of measure used to equate non-residential or multi-family residential water usage to a specific number of single-family residences.

For example, if a system has sufficient physical capacity to serve 100 ERU’s, then that system would have sufficient capability to meet the projected needs of 100 full-time single-family residences. That same system would also be able to serve any combination of commercial, industrial, and residential customers provided the quantity of water used is equivalent to the projected needs of 100 full-time single-family homes (100 ERU’s).

Most small rural water systems consist primarily of single-family residential types. In the aggregate, these residential customers have a fairly typical overall demand pattern. Non-residential, or multi-family (apartment, condominiums, etc.) customers may have significantly different patterns of demand. These customers are designated by comparing them to the average single-family residential unit. Non-residential customer water use can then be expressed in terms of the number of full-time single-family residences that would create a similar demand for water service. This non-residential component is then considered as “equivalent residential units” (ERU’s).

It is important to realize that the quantity of water associated with an ERU is system specific. The ERU level for one system may not apply to another system with differing demographics or water use patterns. Moreover, an ERU “level of service” for any specific system may in itself change with time (may not be the same from year to year) as water use patterns in a particular water system change for various reasons (demographics, conservation activities, etc.).

This is significant because lowering the quantity of water represented by an ERU means that the utility will be able to meet the growing demands on its system for a longer period of time before expensive capital improvements and upgrades are necessary thereby saving money for the utility and its members.

Has Surfside been meeting its goal of reducing its water use by an average of 1% per year on an ERU basis?

Year	Total Water Production (MG)	Commercial Water	Authorized Use & Estimated DSL	Total ERU	Average Use per day per ERU	Annual Use per ERU	Gal. Saved Per Year Per ERU / Percent of Savings
2008	104.335	3.58	20.65	942	312.56	114,084	(16,264) +10.5%
2009	113.457	4.04	21.78	944	325.63	118,857	(4,722) +2.8%
2010	94.861	2.81	19.44	936	276.25	100,830	18,026 10.6%
2011	75.477	2.20	17.91	935	219.46	80,104	20,727 14.7%
2012	73.603	0.68	15.33	922	217.54	79,403	700 0.6%
2013	78.282	2.89	18.45	958	221.48	80,841	(1,438) +1.2%
					Average Gal. Saved per ERU / Average percent water saved per ERU		16,979 11.5%

The above spreadsheet shows water use patterns for 2008 through 2013. Over the data period there is a decline in water use rate of 16,979 gpd per ERU. Since the average water use rate reduction per ERU changed over time as did the number of ERUs, the savings on a day to day basis was calculated using a spreadsheet calculator and totaled. The total of water savings over the 6-year period calculates to 15.9 million gallons. This is an average savings of 7,365 gallons per day over the data period.

Although overall water savings for the six year period is significant, until the water system is 100% metered it is difficult to quantify how much of that savings is due to increased water conservation efforts on the part of Surfside members compared to improved distribution system leakage.

It is significant to note that Surfside added 43 new connections from January 2008 to December 2013. Therefore, total residential demand increased during that period of time while total water use decreased. It is reasonable to conclude the water savings is the result of 1) increased water use awareness due to the Water Meter Installation Project that started in 2012; and 2) reduced distribution system leakage due to the Water Main Replacement project and a concerted effort to repair water main leaks.

Goal #2 Establish a program to monitor lost and unaccounted-for water.

It is not possible to accurately measure “lost or unaccounted-for water” (the use of these terms has been discontinued by the Department of Health in favor of “distribution system leakage”) until the water system is 100% metered. It is possible to estimate distribution system leakage. The method is described in Goal #3.

Goal #3 Reduce annual average lost and unaccounted-for water to no more than five percent over the long-term 20 year planning horizon.

Although it is impossible to quantify distribution system leakage until

the water system is 100% metered, it is possible to estimate distribution system leakage. Estimated DSL was consistently below 5% in 2014. The Program to monitor DSL will only become more accurate as the system comes closer to 100% metered.

2. Proposed Water Conservation Goal

Surfside's proposed water use efficiency goals for 2015 – 2020 are:

Supply Side Goal:

1. Distribution System Leakage Reduction

Note that it is not possible to quantify the amount of DSL reduction that will be accomplished because, until the system is fully metered, it is not possible to determine how much DSL there actually is. However, measures will be taken to reduce DSL whenever possible.

Demand Side Goals:

1. Reduce average day water demand per ERU by one percent per year over the six year planning period.
2. Reduce maximum day water demand per ERU by 2.5 percent per year over the six year planning period.

Supply Side Measures

Leakage Reduction:

1. Surfside will replace problem water mains and find and repair leaks.
2. Surfside will have all services metered by January 1, 2017.
3. Surfside will continue to improve its record keeping of unmetered water use including water main flushing, construction water use, and fire hydrant use.
4. Surfside will reduce water main flushing by 1.5% per year over the six year planning period by utilizing a computer assisted heuristic data analysis approach to develop field protocols identifying the velocity and volume of water required at each flushing station to effectively and efficiently scour the mains and clear them of accumulated sediment.

Demand-Side Measures

Reduce Average Day Water Demand per ERU by One Percent per Year

1. Surfside will provide an annual statement of history of consumption for members who have meters installed. The statement will also show their consumption in comparison to the average median member usage. The annual history will be mailed to each member with the annual newsletter. Providing historical consumption data allows members to understand how their use varies throughout the year and

from year to year. This information will provide consumptive awareness and assist members to make informed choices about how they manage their water use, including implementing conservation.

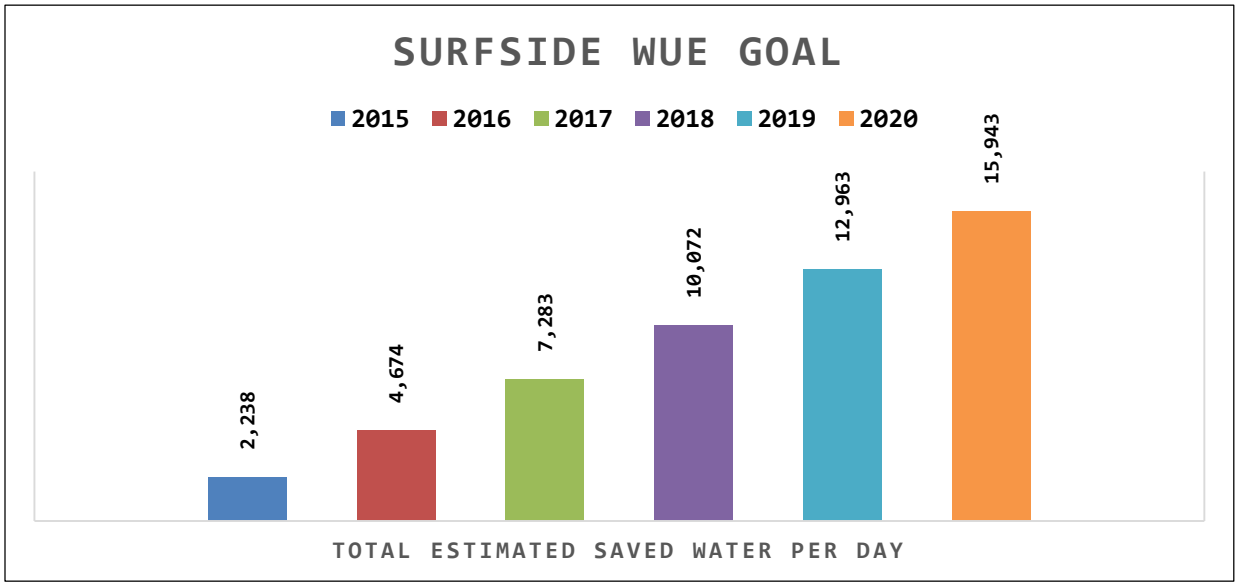
2. Surfside will provide water conservation information and tips on its website, newsletters, periodicals, in its new member packet, and stock brochures encouraging conservation, at its business office.

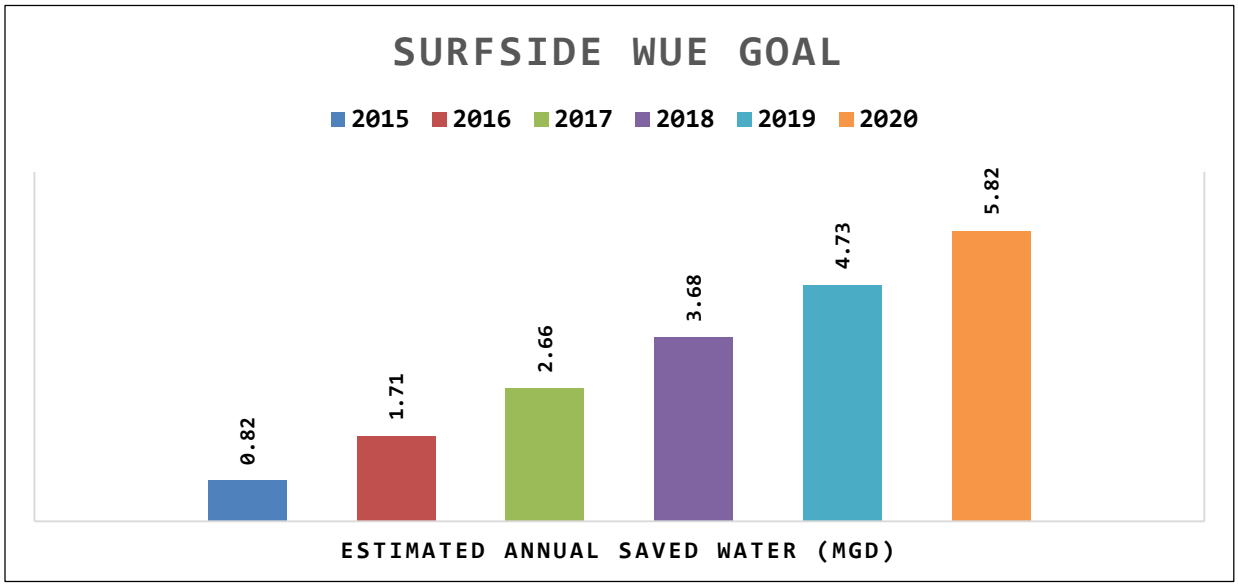
Reduce Maximum Day Water Demand per ERU by 2.5 Percent per Year

1. The Board of Trustees will establish a conservation charge policy to discourage water use that is excessively disproportionate or wasteful. The conservation charge will be set by the Board of Trustees at its June 2017 regular Board meeting and will go into effect on January 1, 2018. All Non-commercial members will be billed annually the same conservation rate for every one hundred cubic feet (rounded) of water they use greater than a set amount of water to be established by the Board. The conservation charge policy will be designed to encourage conservation of water and to comply with the Municipal Water Act's Water Use Efficiency Standards.

3. Projected Water Savings

The Charts below provide a projection of savings Surfside expects proposed Water Use Efficiency Goals and Measure will provide. Surfside's proposed 2015-2020 water Use Efficiency Goals are expected to generate an average of 2,238 gallons per day (gpd) of water savings each year. Surfside's water reduction during the 2008 -2013 was significantly greater than the amount projected for 2015 to 2020. Although the lack of meters does not allow for verification, the most reasonable source of savings in water from 2008 – 2013 is due to the Water Main Replacement Project along with greater efforts on the part of the Water Department to locate and repair water main leaks.





4. Evaluation

Evaluation of the Water Use Efficiency program is important to ensure anticipated savings are being achieved and to make timely modifications to the program, if necessary, to achieve the savings. Surfside is required to report annually to the State and the members on progress towards meeting its Water Use Efficiency Goals.

Therefore, the water system manager will include in his monthly and annual reports to the Board of Trustees an evaluation of the performance of the Water Use Efficiency program. The evaluation will, if needed, include recommendations for adjustment to the goals for the Board's consideration.