



WATER WISE

Saving Water Makes Good Sense (\$)

UPDATES

March 10, 2011



Water Wise Pilots (L-R) Bob Meaders, Joe Leggio, Allan Abedor, Dennis Witt, Don Parrish, Tony Zoellner, David Alf

The eight (8) pilot homes have now been operating for 4 months with dual-flush toilets and water efficient showers installed to reduce the use of water inside the home. In examining the household water use since November as compared against the previous 7 months experience (refer to [Household Trends](#) on the Water Wise webpage), it appears that the pilots are seeing a 20-25% reduction in household water. This translates to 600-1200 gallons of water each month, depending on your habits. Needless to say, these

devices save water but at an expense (investment in water efficient equipment) that does not justify retrofitting your home. The real opportunity for using this equipment is in original installation and useful-life replacement.

We continue to see the utilization of the clothes washing machine as an easy, no expense opportunity to save water. Half of our pilots wash a load of clothes every day whereas others can achieve the task by doing a load of clothes every 2 or 3 days. Better planning on this task could save as much as 40 gallons of water each day, or 15M gallons annually.

The next phase of the Water Wise Program will be aimed at getting more Bentwater residents involved. We believe the best opportunity to save water in Bentwater is in irrigation, where the Program has demonstrated that most folks are overwatering their landscape by as much as 50%. That translates to about 40-50 Million gallons of water annually being wasted. Look for the *Water Wise Guys* in April, a MUD sponsored effort to provide a Homeowner Irrigation System Evaluation and recommended watering schedules for your sprinkler system.

January 12, 2011

The Water Wise Program completed 2010 with operating experience to demonstrate “how to”, and “how much”, water can be saved through conservation practices. The eight (8) pilot homes averaged about 18,000 gallons of water per month, with roughly 70% of that going toward irrigation of their landscape. Based on monitoring the irrigation rate, we demonstrated that $\frac{3}{4}$ to 1 inch of water is all that is needed to maintain a healthy and green landscape, even during the warmest, driest months of the year. Overall, our pilots overwatered their landscape by about 50%. Translating this experience across all of Bentwater shows a potential opportunity to save up to 40-50 million gallons of water annually if we can just get our irrigation under control. The irrigation issue is simple – know how much water your sprinkler system will deliver, and set the controller to deliver the recommended amount of water. We have provided a “Irrigation Calculator” on this website to help you determine the right amount of irrigation for your landscape. And if you want to take all the worry out of irrigation, you can consider installing the UgMO System which actually controls irrigation based on demand from moisture probes in your landscape.

Inside the home, the pilots averaged about 150 gallons of water daily. However, the pilots fell into two distinct regimes – those who use 100 gallons daily and those who use 200 gallons daily. There appears to be a couple of factors that impact household water use. First, some pilots tend to operate their washing machines more often, in fact averaging 1-2 loads every day of the week. This will require up to 40 gallons of additional water daily. The second factor is the requirements of a swimming pool. We have shown that evaporation from pools is about 1.5 inches per week in the summer and this requires about 1 gallon/sqft of surface area to maintain the pool level.

With the installation of dual-flush toilets and high efficiency showers, we are beginning to see about a 20% reduction in household water use. This would translate to about 1,000 gallons per month savings.

December 18, 2010

November is the first full month of experience with the Kohler dual-flush toilets and high efficiency shower heads. Based on the average daily water usage (for the April to October period), four pilot homes showed improvement in November but it will take several months to come to any conclusions. We would expect the efficient equipment to reduce water use inside the home by 20-30%. You can observe the water usage habits of the pilot homes by viewing [Household Trends](#).

As expected, irrigation was substantially reduced in November as the winter season will require far less watering of our landscape, even though we continue to be in draught conditions. The pilots averaged just over ½ inch water per week irrigation rate in November.

November 15, 2010

With the close of October, the *Water Wise* pilots now have 7 months of experience under their belts and it's timely to reflect on what we have learned about conserving water. The average water usage of the pilots over the April to October time frame is presented on this website.



Water Wise pilots and Committee members

So what have we learned? As to be expected, the largest use, and the biggest challenge, is the amount of water we use to irrigate our landscape. Irrigation consumes 65% of homeowner water, and it can be as much as 80% of water use during the hot summer months. We set out to demonstrate that the well publicized irrigation rate of 1 inch of water per week would be adequate to maintain a healthy and green landscape. It was a bit of a struggle to adjust old habits regarding the settings on sprinkler controllers, but eventually most of the pilots achieved irrigation rates of 1 inch per week or less. The pilot home equipped with the UgMO moisture control system averaged 0.75 inches per week over the entire test period. Based on these results, we have demonstrated that you can maintain a healthy landscape by irrigating no more than 1 inch of water per week, even during the hot, dry summer months. The key factors to achieving this reduced level of irrigation are watering when the sun goes down, watering no more than 2-3 times a week, and setting your controller times to deliver the right (calculated) amount of water.

All other uses of water, which are primarily inside the home, account for the remaining 35% of the water we use. The pilots fell into two groups, those who use about 100 gallons per day, and those who use twice that amount of water. One factor that distinguished the higher users was the habit of washing clothes – at a cost of 40 gallons of water each load – one to two times daily, every day of the week. This is a habit that is well worth changing. Aside from reducing the use of the washing machine, we have not identified any significant opportunities to save water inside the home. The next step in the program is underway as each pilot home is now equipped with high efficiency showers and dual flush toilets.

Three of the pilots have swimming pools which consume water to replace the daily evaporation. We measured the evaporation to be about 1.5 inches per week, which equates to 0.9 gallons per square foot of pool surface area.

So what have we learned? Based on the demonstrated irrigation rate of 1 inch per week or less, the pilots overwatered their landscape by nearly 50% over the 7 months, which translates to roughly 35,000 gallons of water for each pilot. Conservatively, this represents an opportunity for Bentwater homeowners to save 40-50 million gallons of water annually – that’s a lot of water. Inside the home, we are still defining the opportunity but it will likely be on the order of 10,000 gallons per household annually or 10-15 million gallons for all of Bentwater.

October 25, 2010

September proved to be a pivotal month as the eight (8) pilots averaged less than 1 inch of water per week in irrigation of landscape. This represents a substantial savings in water during the month of roughly 42,000 gallons (\$126) of water as compared to the level of irrigation practiced by the pilots at the beginning of the Program in April. Assuming our pilots are representative of the average homeowner in Bentwater, this translates (across all Bentwater homes) to a savings potential of 8-10 million gallons per month during the summer months and likely 50 million gallons of water annually. This is a lot of water, and the best and easiest way for Bentwater homeowners to secure our future when it comes to water. Irrigation is where the major opportunity exists and we now know how to get our arms around setting our irrigation systems to provide the optimum amount of water. You can learn more about setting your sprinklers to deliver optimum irrigation by using the [Irrigation Calculator](#) on this website.

Our challenge remains – how do we get you interested enough to want to stop overwatering your yard?



Overwatering your landscape wastes water and costs dollars!

September 17, 2010

The *Water Wise* pilots have been monitoring their water use for five months now and we are beginning to paint a good picture of the opportunities and challenges surrounding water conservation in Bentwater. There is little question that irrigating our landscape is far and away the largest use, and waste, of our water. The pilots have shown that watering our landscape uses about 65% of our annual water, and it can be as much as 80% of our water use during the summer months. This far outweighs the amount of water we use inside the home, where daily requirements are 100-200 gallons of water, depending on your daily habits. With an eye on conservation and a little attention to habits, we can all get by on 125 gallons of water each day or no more than 4,000 gallons a month inside our homes.



Beth and Dennis Witt use a handheld water monitor to measure water use in daily activities.

The biggest carrot and biggest challenge for all of us is finding a way to reduce the amount of water we use in irrigating our yards. The *Water Wise* Program set out to demonstrate that 1 inch of water per week was all that was required to keep your landscape healthy and green. Three of the pilots have been able to maintain their irrigation rates at or below the 1 inch target, and their landscape has been healthy and green. The other pilots have struggled a bit to maintain the target rate of irrigation and as a result have used up to 10,000 gallons excess water in a month. That's right, 10,000 gallons of unnecessary water use. Overall, the average irrigation rate of the eight pilots has been 1.2 inches per week. In an attempt to answer the question "how much water is enough", one of the pilot homes was equipped with the UgMO System that actually controls your watering based on the moisture in your soil (read more about the UgMO system in the August 20, 2010 Update). The UgMO equipped home ran consistently at about 0.75 inches of water per week over the test period, showing that even 1 inch per week watering can be too much. Based on the UgMO results, the pilots have been overwatering their yards (on average) by nearly

70%. In short, we have a significant opportunity to save water in Bentwater if we can just get our irrigation under better control. You can view the performance of the pilots in controlling irrigation by going to [Irrigation Usage Trend Charts](#) on this website.

Getting irrigation under control is as simple as turning the knob on your sprinkler system controller. You need to set your sprinkler to deliver no more than 1 inch of water per week in the summer months and far less during other parts of the year. The amount of water required for 1 inch per week is dependent on the size (area) of your landscape. Based on the average size lot in Bentwater, this rate of irrigation requires 3500 gallons per week or 14,000 gallons each month. **If you want to know how to set your irrigation system to deliver the recommended amount of water for your specific landscape, go to the [Irrigation Calculator](#) on this website.** The [Irrigation Calculator](#) will help you measure the size of your landscape and help you determine the amount of water being delivered by your sprinkler system. Once you know this information, you can determine your irrigation rate and make adjustments as necessary to reach the target 1 inch per week. If you are having difficulty determining the irrigation rate for your landscape, contact us for help at bca@bentwatercivic.com .

Inside the home, the pilots have been recording a log of daily activities as well as measuring their daily use of water. You can view the results of the first five months by going to [Household Usage Trend Charts](#) on this website. The pilots fall into two categories – those who use 125 gallons of water daily, and those who use 200-250 gallons of water daily. There are a couple of factors that seem to distinguish the higher users. First, those who have swimming pools require water to make up for the evaporation that takes place. For the pools in our Program, this translates to about 1.7 inches of water per week, or 1-2,000 gallons in a month. The amount of evaporation can be much greater if there are waterfalls involved. The second distinguishing factor appears to be the use of the washing machine. The eight pilots are averaging one load of washing per day, but some run the washing machine as much as twice every day, seven days a week, while others wash clothes 2-3 times a week. Since the typical load requires as much as 40 gallons of water, you can see that some folks require an additional 2,000 gallons of water each month to support their clothes washing activity. This is an opportunity where changing habits can lead to reducing 1/3 of the water use inside the home.

So the question remains, do I use too much water? If your monthly water consumption this summer has been more than about 18,000 gallons, there's a good chance you are using more water than you need to be using. And there's an even better chance that the cause of the excess use is in the amount of water you are using to water your yard. Even if your use has been less than 18,000 gallons, you still may be using too much water based on the size of your yard. It won't cost you anything to find out how you compare to the target 1 inch per week irrigation, just go to the [Irrigation Calculator](#) to find out where you are on the irrigation table. And if that doesn't work for you, get help at bca@bentwatercivic.com. **The opportunities are significant, perhaps as much as 25% of the total water use in Bentwater, if we can only stop overwatering our yards.**

August 20, 2010

Irrigation of landscape represents the largest (and easiest) opportunity to reduce water consumption; about 65% of annual water consumption in Bentwater goes to irrigate landscape. The eight pilot homes in the *Water Wise* Program are demonstrating that with some diligence and planning, irrigation can be significantly reduced. We started collecting data in April, following repairs and/or modifications to the sprinkler systems aimed at providing efficient coverage of the

landscape. Not knowing how much water is required to keep the landscape healthy and green, a target of watering no more than 1-inch of water per week was suggested. One of the pilots is equipped with UgMO moisture probes buried in several areas of the landscape. The UgMO system measures the moisture a few inches below ground and sends a wireless signal back to the sprinkler system controller, telling it when it's time to water. This is probably the most accurate measure of "how much water is enough", and it provides confirmation of our target 1 inch per week. The UgMO pilot has run very consistently at about 0.75 inches per week through the four month period, showing that even 1-inch per week may be too much.



Data through June showed that most of the pilots were overwatering by 50-60%, using as much as 10,000 gallons per month more than is needed. As a result, irrigation systems have been calibrated - to determine how much water is delivered during a complete sprinkler cycle - and set to reduce the watering. **July was a breakthrough month as several pilots beat the target, and demonstrated that even 0.5 inches per week can be enough when you get a little rain.** And the landscapes are healthy and green. More importantly, the pilots are demonstrating that you can save 5-10,000 gallons of water per month if you get control of your irrigation. **You can observe the trends in irrigation water of the pilot homes by clicking on "Monthly Pilot Data – Irrigation" on the *Water Wise* homepage.**

So where do you stand? If your monthly water consumption is more than 17,000 gallons or your monthly water bill is more than \$55, it's a good chance you are overwatering and wasting water. If this is your situation and you want some help with setting up your sprinkler system to provide the right amount of water, contact us at bca@bentwatercivic.com

July 29, 2010

The eight (8) pilot homes have now been collecting data on their daily water usage and "water habits" for three months and as you might expect there are many learnings. As you recall each pilot is equipped with a hand-held monitor that provides instantaneous feedback on how much water is being used inside the home. With the monitor in hand, they can observe how much water is being consumed in daily activities such as taking a shower, washing clothes or running

the dishwasher. So far our pilots are averaging about 160 gallons per day, with some as low as 100 gallons, and others using over 200 gallons per day. This compares against a national average of about 110 gallons per day. So, we have a ways to go in conserving water inside the home. In terms of water wasting habits, the biggest culprit so far is in the use of the washing machine. Our pilots wash cloths (on average) every day of the week, with half of the pilots using the washer 1-2 times a day. This alone requires 30-60 gallons of water every day and represents an opportunity where a little more planning could save substantial water. We will soon install water saving bathroom fixtures in each pilot home which we are hopeful will substantially reduce the daily water usage inside the home. [You can observe the trends in water consumption of the pilot homes by clicking on “Monthly Pilot Data - Household” on the Water Wise homepage.](#)

Irrigation of landscape represents the largest (and easiest) opportunity to reduce water consumption. About 65% of our annual water consumption goes to irrigate our landscape. The sprinkler systems of each pilot have been repaired/modified to provide efficient coverage of landscaping, but the question remains, how much water is enough. Our pilots are averaging about 1.25 inches of irrigation water per week; this compares to the suggested 1 inch per week. One pilot has been equipped with UgMO moisture probes buried in several areas of the landscape. In essence the probes measure the moisture at about 4-6 inches below ground and send a wireless signal back to your sprinkler system controller, telling it when it’s time to water. This is probably the most accurate measure of “how much water is enough”. So far the UgMO equipped pilot is running at 0.75 inches per week, representing a substantial savings in water.

Data shows that most of the pilots are overwatering by 50-60%, using about 10,000 gallons of water per month more than is needed. To get a better handle on this, the pilots are calibrating their sprinkler systems and setting them to provide no more than 1-inch of irrigation per week. We are also encouraging our pilots to begin implementing preferred irrigation practices – water before the sun comes up; set your sprinkler system to water with longer time cycles, no more than 2-3 times each week; and cut your lawn at maximum length. [You can observe the trends in irrigation water of the pilot homes by clicking on “Monthly Pilot Data - Irrigation” on the Water Wise homepage.](#)

June 29, 2010

At a recent ribbon cutting ceremony attended by local and State officials, the Bentwater Civic Association announced plans to encourage Bentwater residents to conserve water. The *Water Wise* program is a joint effort with the POA and MUD 18 water utility.

Ribbon Cutting Ceremony



Back Row: Tony Zoellner, Bill Sellmeyer, State Senator Robert Nichols, County Judge Barb Sadler, County Commissioner Mike Meador, State Representative Brandon Creighton
Front Row: Joe and Amber Leggio and son, Linda Zoellner

Eight homeowners have been selected as “pilots” to both demonstrate water saving practices and act as leaders to encourage residents to join the effort to conserve water. Each of the pilot homes is equipped with a hand held water monitor that provides instantaneous feedback on how much water is being used in their everyday activities. The idea is to get people to see that their habits can be modified to use far less water. Kohler and Moore Supply are enhancing the effort by providing each home with the latest water efficient designs in commodes, shower heads and faucets.

The big carrot in the program is landscape irrigation, which annually consumes 60-70% of the water used by Bentwater homeowners. The first step has been completed as pilot home sprinkler systems have been repaired/modified to ensure effective coverage of the landscape. But the big question remains - how much water is enough to provide green and healthy landscape. The

quantity of water needed is dependent on many factors, including time of day you water, the length of the grass, and sprinkler cycles per week. Initial data shows that the pilots are watering well above the suggested 1 inch of water per week. Pilots are being encouraged to water when the sun goes down and mow their grass at maximum length to minimize evaporation, and to sprinkle no more than three times a week to encourage deeper plant roots that are more draught tolerant. One home is equipped with UgMO wireless moisture probes, buried 4-6 inches below grade, that actually tell the sprinkler system when it's time to water. This home is watering at a rate of 0.75 inches per week, representing significant opportunity to save water.

The long term goal of the program is to get more and more residents to join the cause. Plans are being made to offer a certification program that would identify steps that can be taken by residents to *water wise* their homes and in doing so make a contribution to our community's ever growing water issue.