CITY OF BOZEMAN
WATER CONSERVATION

2014-15 City of Bozeman Water Conservation Program Update

Annual Report to the City Commission

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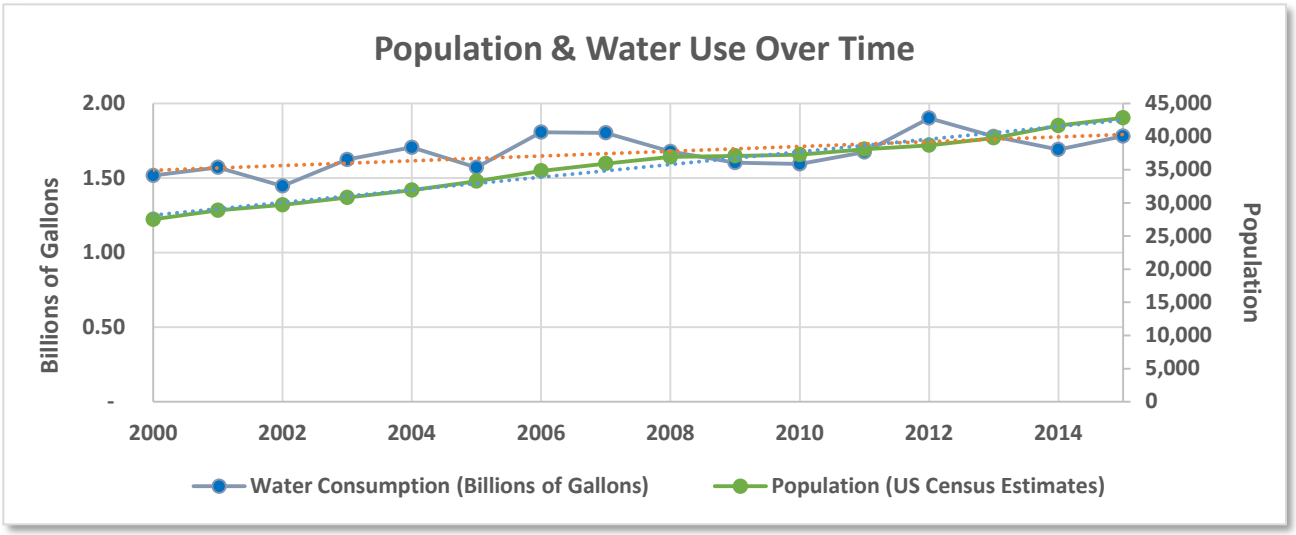
WATER CONSERVATION SNAPSHOT FOR 2014-2015

Water demand in Bozeman declined over the last two years from 122 gpcd (gallons per capita per day) in 2013 to 113 gpcd in 2015 despite increases in population and metered connections, and drier than average years.[1] More specifically, between 2013 and 2015, overall residential water use declined from 74 gpcd to 71 gpcd and water use during the summer months, otherwise known as "peak water use" declined from 164 gpcd to 152 gpcd in 2015.[2] This rate of decline exceeds historical rates of reduction in water use throughout Montana and the United States.[3]

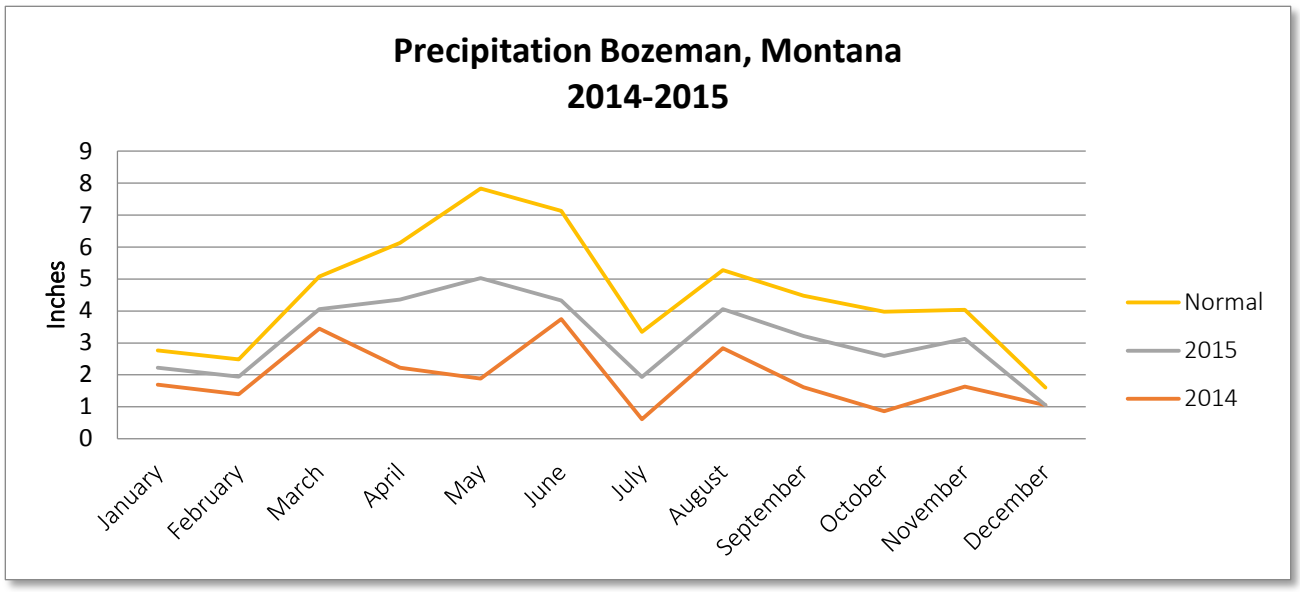
The City of Bozeman's Water Conservation Program has provided an opportunity for Bozeman water customers to take advantage of targeted conservation and education programs and to invest in effective efficiency initiatives.



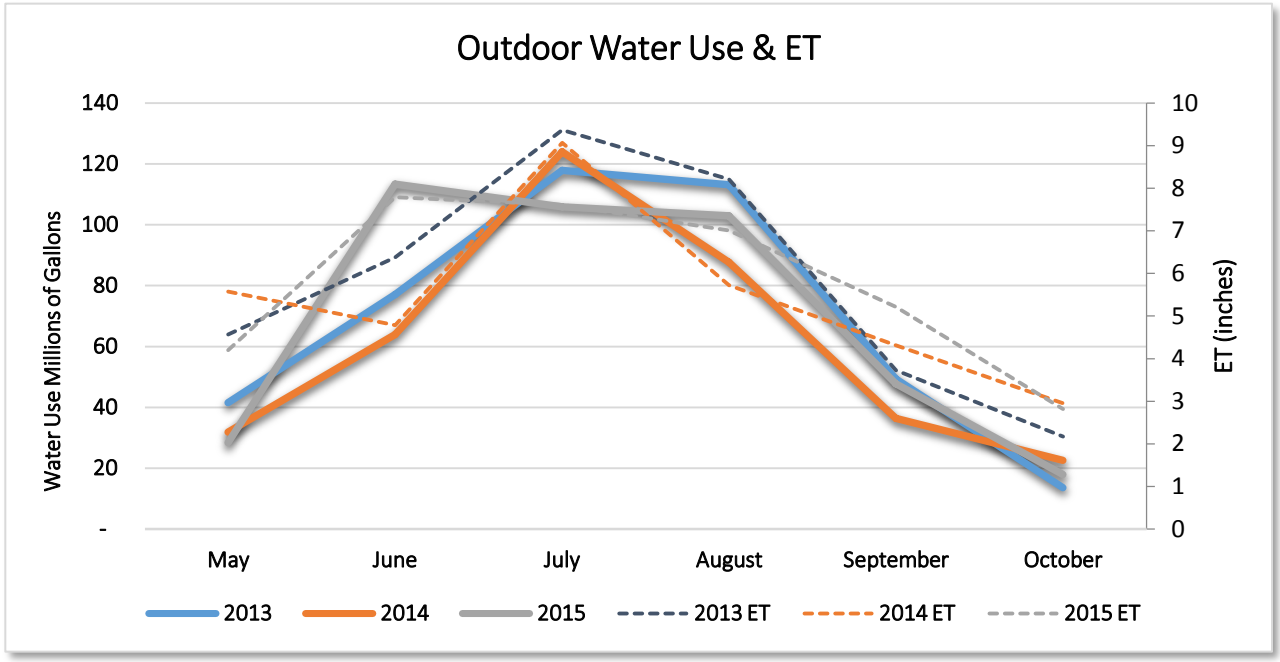
[1] Assumes same annual rate of growth of 2.8% in 2015 that occurred between 2010-2014. *See e.g.* United States Census Bureau available at: *http://www.census.gov/quickfacts/table/PST045215/3008950,00* Last visited: January 16, 2016; Metered connections increased by 6.8% between 2013 and 2015 and 3.9% from 2014 to 2015.

[2] Assumes peak water use between May and October.

[3] *See e.g.* Water Use Trends in the United States Pacific Institute (April 2015) available at: http://pacinst.org/wp-content/uploads/sites/21/2015/04/Water-Use-Trends-Report.pdf last visited: February 1, 2016.



Despite the drier than average years in 2014 and 2015, the city was able to meet peak demands for watering during the summer months without instituting watering restrictions. It is important to note however, that regardless of available voluntary initiatives designed to conserve water supplies, consumption is closely associated with area weather conditions including but not limited to precipitation and solar radiation which is commonly expressed as evapotranspiration (ET). This rate indicates how much water has been used by landscapes or lost to the atmosphere and to be replaced in order to maintain healthy vegetation. This correlation is evidenced by the graph below.



In 2014-2015 the water conservation program provided:

- Residential Water Conservation Customer Survey of 400 single-family residents.
- Watershed specific pilot educational programs for 5 teachers and ~ 100 students in Bozeman schools.
- Professional landscape irrigation efficiency education and certification for 31 irrigation professionals working in Bozeman and the surrounding area.
- Thirty-five presentations and demonstrations to professional and government organizations, trade shows, homeowner's associations, neighborhood and community groups.
- Project support for a utility water loss audit that indicates water losses of ~ 14%.
- Twenty landscape irrigation audits and system assessments of single-family residential properties.

In 2014-2015 the conservation program facilitated:

- $67,435.62 invested in rebates and incentives and annual savings of ~ 20 AF. This is enough water saved each year to supply water to 85 new single family or 161 multi-family units.
- 144 high efficiency toilets were rebated in 2014 and 206 in 2015.
- 156 high efficiency clothes washer installations in 2014 (program launched November 20, 2014) and 2015.
- 11 irrigation system retrofits (program launched May 1, 2015).
- Over 1.1 million dollars in water savings.

Next Steps for 2016 include:

- Expand indoor and outdoor rebate initiatives and bulk retrofit programs for residential and commercial customers.
- Expand water demand tracking tool capabilities.
- Expand water education pilot program for Bozeman schools.
- Advance projects to shift irrigation of city property from treated to raw surface water supplies.
- Develop a drought management plan.
- Work with other divisions to identify opportunities to generate additional water savings.

WATER CONSERVATION IN BOZEMAN

Bozeman's Integrated Water Resources Plan

The Integrated Water Resources Plan (IWRP) is a proactive long-range plan which resulted from the City of Bozeman's recognition that continued growth will occur into the future and eventually exceed the capacity of current water supplies. The city's existing water supply sources are finite; thus, new supplies must be developed to meet projected future needs.

The Commission's adoption of the IWRP and the IWRP Implementation Plan highlights the significant role that water conservation plays as an infrastructure program in addressing the city's long-term water supply needs.

Water Conservation Program

The goal of the City of Bozeman's Water Conservation Program is to protect and enhance water resources through conservation in order to meet the IWRP's 50-year water planning target.

The program objectives include (i) establishing and strengthening the community's water conservation ethic; (ii) ensuring adequate supplies are available to meet current and future customer demands; (iii) ensuring adequate supplies are available in time of drought for emergency response and long term drought mitigation.

The strategies implemented to facilitate the achievement of the goal include (i) providing an equitable distribution of water conservation benefits throughout all of the customer classes and the community; (ii) utilizing a variety of methods to raise awareness of the value of water, ways to conserve, and to encourage participation in initiatives; and (iii) developing mechanisms to track and forecast demands and evaluate and modify elements of the Program as needed.

Program Evaluation

In order to determine if the Program is meeting the aforementioned goals, strategies and objectives, a variety of tracking and forecasting tools are utilized to monitor effectiveness.

A. Demand Side Management

   The role of the Program is to balance the development of sufficient water supplies with customer demand. Supply-side strategies emphasize meeting customer needs in the most cost-efficient and effective manner. Demand-side strategies highlight customer education and voluntary retrofits of end use devices with high efficiency fixtures like toilets, clothes washers and irrigation system components.

   New water conservation initiatives typically evolve from pilot projects and case studies to ensure that they meet the goals, objectives and strategies of the program.

The City of Bozeman's rebates are based on the cost of the water saved rather than the direct cost of the retrofit. The Water Conservation Division will continue to assess cost per acre foot (af) to maximize budget and staff resources.

Table 1.1 2014-2015 REBATES SUMMARY

Initiative[4]	Expenditure[5]	Water Saved/year (MGY)	Water Savings Over Life of Components (AF)[6]	Cost per HCF	Cost per AF of Water Saved	No. of Rebates Issued
Residential HE[7] Toilet Pre 1996	$37,625.00	3.913	120.1	$7.19	$313.28	301
Residential HE Toilets Post 1996	$2,450.00	.286	13.17	$6.39	$186.02	49
Commercial HE Toilet	$3,395.00	.378	11.6	$6.72	$292.67	23
Single Family HE Clothes Washer	$22,250.00	1.248	57.4	$13.34	$395.92	156
Single Family HE Irrigation Components	$1,715.62	TBD	TBD	TBD	TBD	11
TOTALS	$67,435.62	5.825	202.3	$33.64	$333.34	540

[4] Includes 2014 and 2015.
[5] Does not include administrative costs.
[6] 10 years average life expectancy for HET; 15 years average life expectancy of HECW.
[7] HE = High Efficiency

2014-2015 ACCOMPLISHMENTS

EDUCATION, OUTREACH, AND ENGAGEMENT

Education and outreach initiatives are a cornerstone of the City of Bozeman's Water Conservation Program. Initiatives focus on raising awareness of the value of water in a headwaters community like Bozeman and how to use our water resources wisely. These initiatives reach students, adults, residents, and businesses.

Residential Water User Survey

A statistically valid survey of Bozeman residents was conducted in the fall of 2014. According to the survey, the majority of Bozeman residents (59%) are now paying more attention to their water use than they have in the past. A similar proportion of residents (60%) indicate that they have changed how much water they use during the past few years.

Concerns about current or future water scarcity and the environmental impacts of water use are the largest factors motivating these changes, but financial motivations (concerns about the cost of water) are also an important consideration for many Bozeman residents.

Most single-family homes in Bozeman now have in ground sprinkler systems (72%). On average, Bozeman households water landscapes 2.8 times per week during the summer season. Newer Bozeman residents and younger residents generally water more frequently than longtime residents and older residents. Overall, about 27 percent of Bozeman households water their landscapes more than three days per week during the summer season. However, few residents (6%) water their yards during the heat of the day (between 9AM and 5PM).

Forty-eight percent of respondents were unaware of any water conservation measures they could implement to reduce water use around the home and the vast majority (80%) were unaware of water conservation initiatives by the City of Bozeman. As this survey was conducted prior to the launch of the Program, this is unsurprising and will hopefully serve as reliable baseline data from which to assess the relative effectiveness of current and future education and outreach programs.

Overall, the survey's findings demonstrated the high level of water awareness among Bozeman water customers and provided great guidance as to where to focus water conservation initiatives to maximize budget and staff resources.

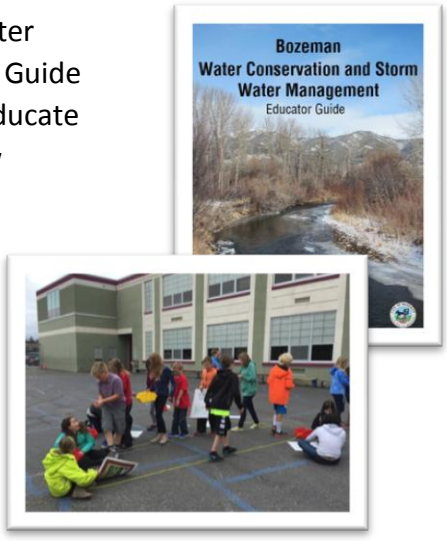
More specifically, messaging to single family residential customers focused on simple actions they could engage in to save money and the resulting environmental benefits that come from water conservation. Tools and information were made available on the water conservation website, in customer mailers, good neighbor bags, at neighborhood presentations and other community events to capitalize on those wanting to make changes in their daily water use.

Single family residential customers comprise the largest user class and the majority have automatic in-ground sprinkler systems. These circumstances determined the substantive elements of the outdoor rebate initiative and the selection of the outdoor sprinkler system components that are currently available for rebate. Specifically, the program supports rebates for weather based irrigation controllers, MSMT nozzles and rain sensors which are components that can be easily retrofitted on existing systems and can improve outdoor watering efficiency by thirty percent or more. Additionally, both the indoor and outdoor rebate initiatives address customers' concerns about costs to support those wanting to install high efficiency fixtures. The targeted efforts that stemmed from the survey findings have generated over 1.1 million dollars in water savings.

Going forward, subsequent surveys will facilitate a means in which to measure the effectiveness of education, outreach and engagement initiatives in addition to guiding program development.

School Education

The Water Conservation Division in partnership with the Stormwater Division and Project WET, developed a Bozeman specific Educator Guide with interactive science activities that helped five area teachers educate students in Bozeman schools about the area's watershed and how individual actions can impact our watershed.



The goal was to present complex concepts specifically related to Bozeman's watersheds, water conservation and stormwater, to educators via lessons plans that are relevant, accessible and create positive experiences for young learners.

The Initiative was so popular with teachers and students alike that it is being introduced in two more area schools in 2016, increasing the scope of this education pilot project.

Public Information Campaign

The first phase of the Water Conservation Division's website went live early March 2015 and includes information about the value of water, the benefits of water conservation, water resource plans, the Bozeman survey and other water conservation resources, applications and instructions for rebates and incentives for indoor fixtures, and a home use water calculator. It received over 19,000 hits as of December 2015.

The second phase of the website went live May 2015 and includes information about calculating outdoor water use, DIY sprinkler system assessment and audit instructions, instructions and applications for rebates and incentives for sprinkler system components, drought tolerant and water smart plant lists specifically geared for Bozeman's climates, water related news items and much more. The second phase garnered 2,533 additional hits as of the end of August 2015 for a total of over 21,000 hits to the website as of December 2015.

Presentations regarding Bozeman's water supplies and ways to conserve water were given to various organizations including the Greater Gallatin Watershed Council, Montana State University Fall Water School, Idaho-Montana Parks and Recreation Fall Conference, the League of Women Voters, MSU Sustainability Series, Bozeman Public Library Wonderlust Series Friday Forum, Bozeman homeowners associations and neighborhood councils.

Various articles in local, state and national publications were written about the water conservation program, initiatives and public outreach including, AWWA Journal, Montana Quarterly, Bozeman Chronicle, and Bozeman Magazine.[8]

Local television news media ran several stories highlighting where Bozeman's water comes from, the need to conserve water and resources offered by the city's water conservation division to help customers save water.[9]

Indoor Residential Water Usage Public Education Campaign

- Bill stuffers sent to all Bozeman water customers informing them about the high efficiency toilet and clothes washer rebate initiatives offered.
- The utility bill was redesigned to include customer's historical water usage by month and how single family residential customers compare with their neighbors.
- Facts and tips for free and simple ways to save water around the home were included in the Good Neighbor Bags distributed to over 500 residents two times each year.
- Provided free leak detection kits, aerators, shower timers, and water to customers.

Outdoor Residential Water Usage Public Education Campaign

- Ran ads in local print and online news outlets throughout the 2015 irrigation season providing easy tips for ways to save water outside homes and business and alerting them to new rebate initiatives for sprinkler system components that reduce water use.

[8] *See* AWWA Journal Vol. 107 No. 8 August (2015); Montana Quarterly, (2015); available at: http://www.themontanaquarterly.com/; "Where Does Bozeman's Water Come From" Bozeman Magazine (December 2015); http://bozemanmagazine.com/articles/2015/12/01/25724_where_does_bozemans_water_come_from

[9] *See e.g.* http://bozemanmagazine.com/articles/2015/12/01/25724_where_does_bozemans_water_come_from; http://www.nbcmontana.com/news/Recent-dry-spell-prompts-water-conservation-education-in-Bozeman/34938842; http://www.kbzk.com/Clip/11634628/water-conservation-the-focus-for-city-official.

- Ran radio ads throughout the 2015 irrigation season directing customers to the Water Conservation Division's website for information and rebates to reduce outdoor watering.
- Circulated bill stuffers to all Bozeman residential customers informing them about the new rebates for sprinkler systems.
- Ran slides on Channel 20 throughout the 2015 irrigation season that directed people to the website for more information about outdoor water saving tips and rebates.

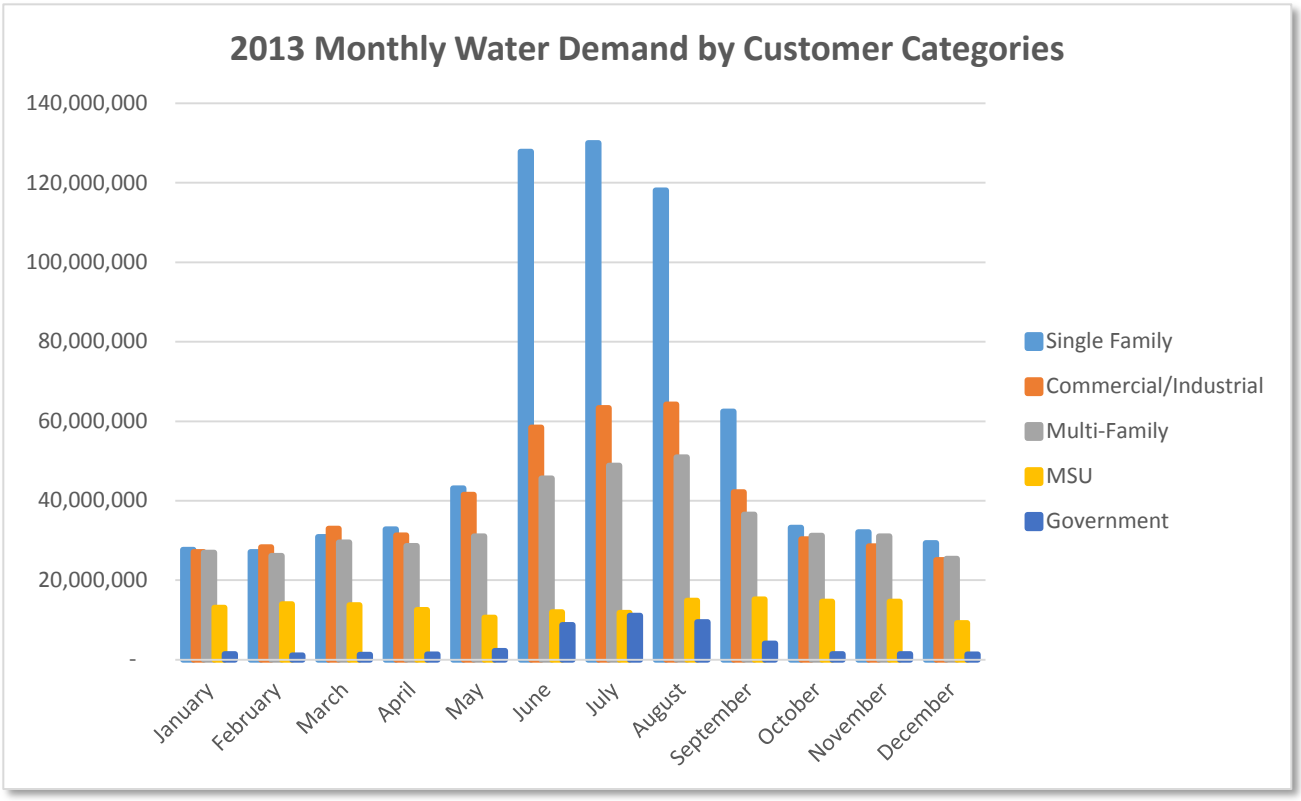
- Organized and sponsored a Certified Landscape Irrigation Auditors Class with the Irrigation Association held in Bozeman in March 2015. The class was for irrigation professionals with at least two years of field experience. It was sold out with thirty-one attendees and a waiting list. Several staff from the City of Bozeman Parks and Facilities Departments attended.

- Hosted the Certified Landscape Irrigation Auditor's Exam March 2015. Fifteen irrigation professionals sat for the irrigation exam.
- Provided twenty sprinkler system assessments and audits to Bozeman residential customers. Assessments and audits covered sprinkler equipment, system performance, maintenance, and irrigation schedules.
- The Water Bottle Fill Station was made available at Bogert Farmer's Market, Music on Main, Sweet Pea Festival of the Arts, MSU CatWalk, and other community events throughout the summer. The Water Bottle Fill Station encourages residents to bring their own water bottles to community events instead of purchasing bottled water and to appreciate the high quality of Bozeman tap water.

- In partnership with local experts, developed nine plant lists that detail drought tolerant and watersmart shrubs, perennials and grasses that create seasonal interest, require little or no water and are suitable for Bozeman's climates.

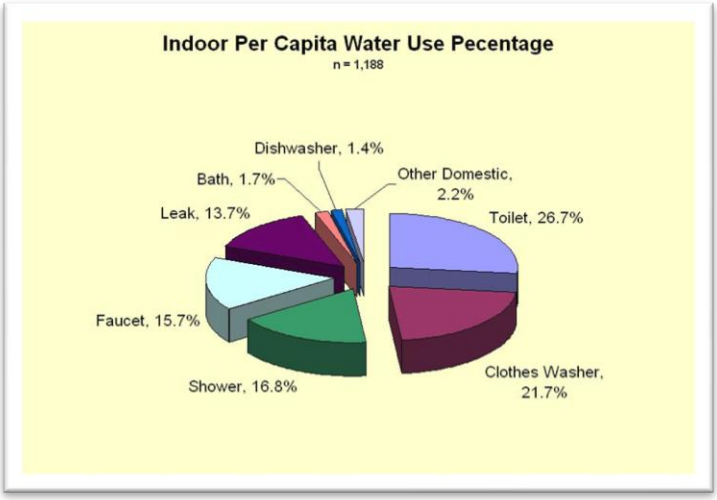
Rebates and Incentives

Pursuant to the initiatives for the conservation program outlined in the IWRP and adopted by the Bozeman City Commission and a review of Bozeman customer meter data, the first year of the Water Conservation Program focused on voluntary rebate initiatives to encourage replacement of fixtures with the largest water footprints in single and multi family residences.



Water consumption by customer class for 2013 shows that single family residential accounted for 38% and multi family customers 23% for a total of 61% of all water consumed. Commercial and Industrial (CII) customers were responsible for 28% of all water consumed in 2013 while MSU users account for ~9 % of overall consumption.

As a result of the 2013 data of water use by customer class, voluntary initiatives were developed that targeted single and multi-family and commercial water users.



Residential End Uses of Water Study[10]

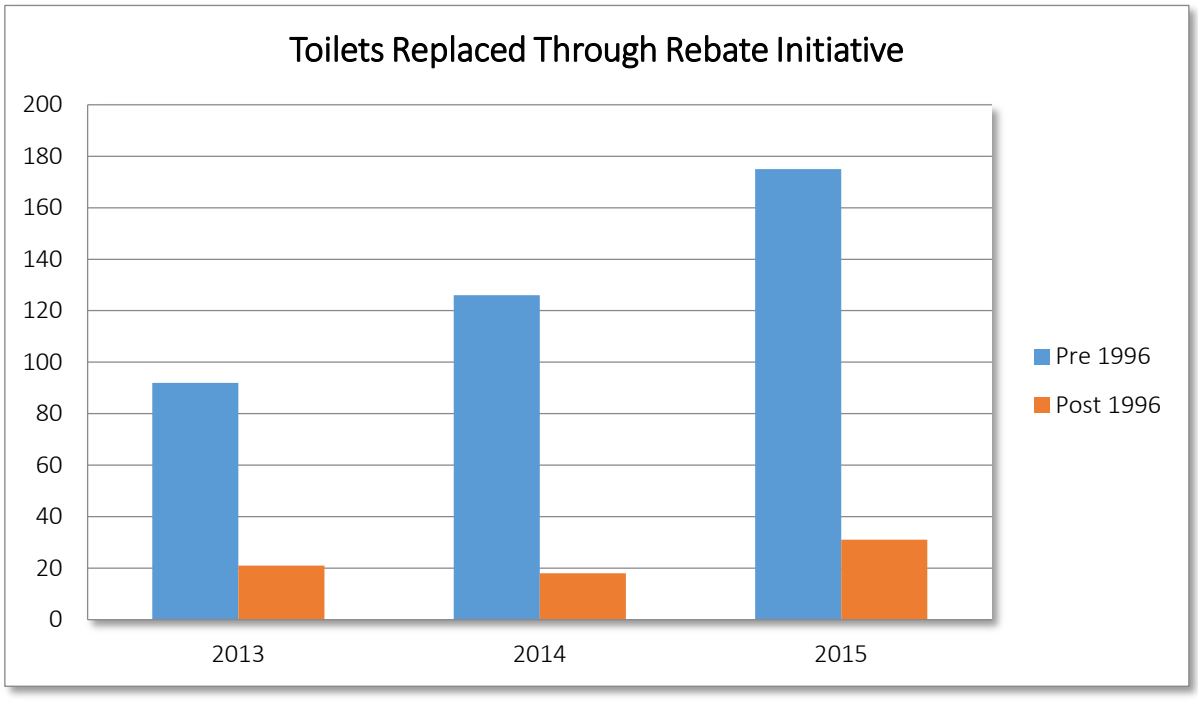
[10] Residential End Uses of Water Study available at: http://www.allianceforwaterefficiency.org/residential-end-uses-of-water-study-1999.aspx last visited: January 22, 2016.

High Efficiency Toilet Rebate Program

The majority of indoor water use for residential customers occurs in bathrooms. Toilets are the largest water user inside the home and account for approximately thirty percent of total indoor use. Retrofitting toilets saves on both water and sewer bills.

The high efficiency toilet rebate initiative was implemented July 1, 2008 and rebooted in 2014. This rebate is designed to encourage customers to retrofit older toilets with high efficiency models. Only WaterSense® labeled models that use 1.28 gallons per flush (gpf) or less are eligible.[11]

WaterSense®, a partnership program by the U.S. Environmental Protection Agency, seeks to protect the future of our nation's water supply by offering people a simple way to use less water with water-efficient products, new homes, and services. WaterSense® brings together a variety of stakeholders to promote the value of water efficiency, provide consumers with easy ways to save water, as both a label for products and an information resource to help people use water more efficiently, to encourage innovation in manufacturing, and to decrease water use and reduce strain on water resources and infrastructure. Products and services that have earned the WaterSense® label have been certified to be at least 20 percent more efficient without sacrificing performance.



[11] Reflects activity through December 2015

Pre-1996 toilets consume 3.5 – 10 gpf versus post 1996 toilets that require 1.6 gpf.[12] The rebate allows for $125.00 for the replacement of pre-1996 toilets and $50.00 for the replacement of post 1996 toilets, with a maximum of $250.00 per residence. Twelve hundred toilets have been replaced through the 2015 rebate initiative that resulted in almost sixteen million gallons of water saved through October 2015. These savings will continue for the life of the fixtures and increase as more customers continue to participate in the initiative.[13]

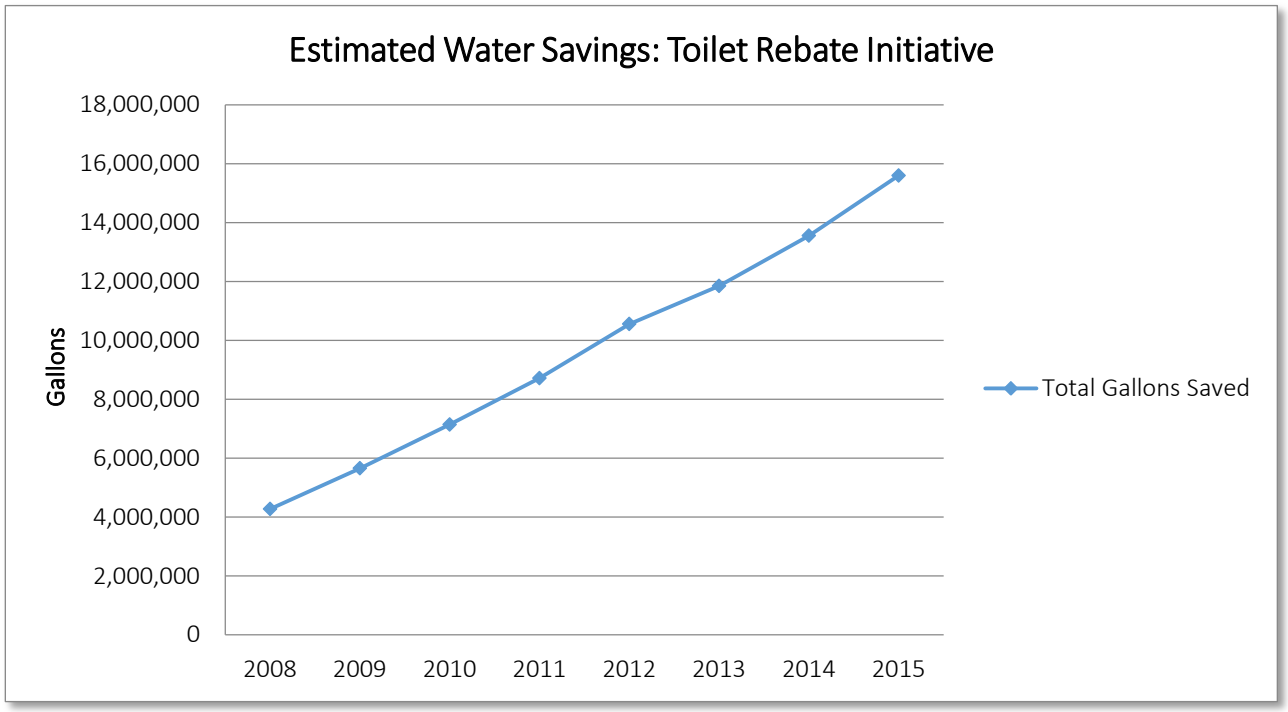


TABLE 1.2 HET SAVINGS

Initiative[13]	Expenditure[14]	Water Saved/ year (MGY)	Water Savings Over Life of Components (AF)[15]	Cost per HCF	Cost per AF of Water Saved
Residential HE[16] Toilet Pre 1996	$37,625.00	3.913	120.1	$7.19	$313.28
Residential HE Toilets Post 1996	$2,450.00	.286	13.17	$6.39	$186.02
Commercial HE Toilet	$3,395.00	.378	11.6	$6.72	$292.67

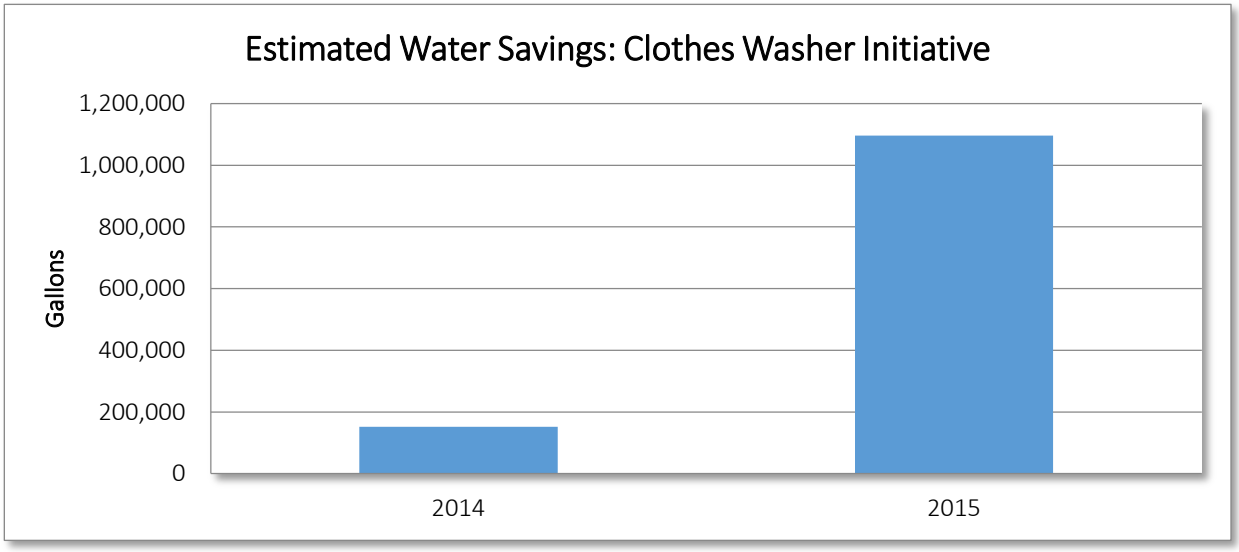
[12] The estimated savings conservatively uses 3.5 gpf per fixture.
[13] See HET Savings Table 1.2 below.

Residential High Efficiency Clothes Washer Rebate Program

Washing clothes is the second largest water user inside the home with an estimated 400 loads per year per household. On average, approximately twenty-two percent of residential water use goes to laundry.

The residential high efficiency clothes washer initiative was implemented November 2014 and is designed to encourage residential customers to retrofit traditional clothes washers that use 40-45 gallons per load with high efficiency clothes washers that use 15-20 gallons per load. The rebate allows for $150.00 for the replacement of a traditional clothes washer with a high efficiency model that is CEE Tier Two or higher and does not use silver ion technology, limited to one per residence.[14]

The Consortium for Energy Efficiency (CEE) identifies efficiency tiers based on energy and water use. Clothes washer efficiency is based on an integrated Modified Energy and Water Factors. The Modified Energy Factor is a ratio that calculates the capacity of the clothes container divided by the total clothes washer energy consumption per cycle. A higher number indicates lower consumption and more efficient use of energy. The integrated Water Factor is a ratio that calculates the number of gallons of water needed for each cubic foot of laundry. A lower number indicates lower consumption and a more efficient use of water. Based on the water factor, high-efficiency clothes washers are divided into three tiers, with Tier 2 and 3 being the most water and energy efficient. Tier 2 and 3 clothes washers use less than 15 gallons per load compared to typical top-loading models that use 40 or more gallons per full load. A Tier 2 or 3 high-efficiency clothes washer can reduce water use by 85 percent.



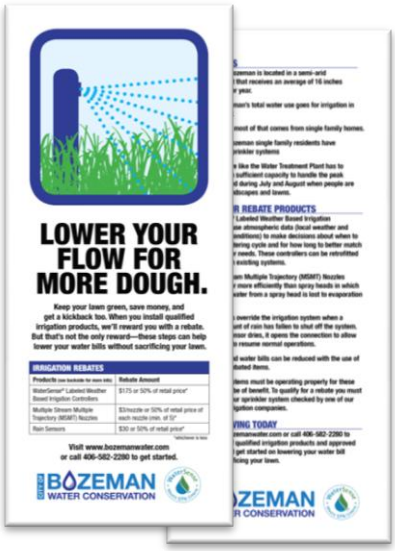
[14] Consortium for Energy Efficiency available at: http://library.cee1.org/content/qualifying-product-lists-residential-clothes-washers, last visited November 11, 2015. Silver ion technology is a nanotechnology that involves the use of particles of silver that are dispersed throughout the water and is classified as a pesticide by the EPA.

As of December 30, 2015, 156 clothes washers had been rebated, resulting in 1,096,000 gallons saved per year for the life of the fixtures. The average life span of a high efficiency clothes washer is 15 years. The amount of water saved will continue to increase as more customers participate in the rebate program.[15]

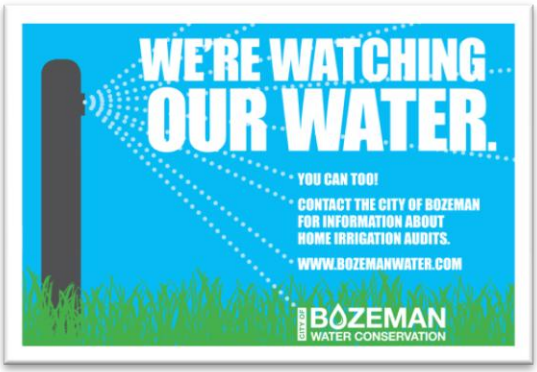
Outdoor Residential Irrigation Rebates

Residential customers (single family and multi-family) are the largest user class comprising over 74% of all accounts. Additionally, sixty percent of total water usage during the summer months goes to residential customers. Seventy-two percent of single family households in Bozeman have automatic in-ground sprinkler systems. If installed, operated and maintained, these systems can reduce outdoor water use without sacrificing turf and landscape aesthetics. However, in many instances, these systems consume significant amounts of water.

In an effort to provide resources and support for Bozeman water customers wishing to reduce outdoor water usage while preserving the quality of their outdoor landscapes, the Water Conservation Division launched two outdoor sprinkler system initiatives in May 2015.



The first initiative is a residential irrigation product rebate initiative in which customers could receive rebates on select high efficiency sprinkler system components. Rebates were offered on (1) weather based irrigation controllers (WBICs) that use local atmospheric data like precipitation, wind and solar radiation, to determine when and how long to water, (2) rain sensors that override sprinkler systems to shut the system off when 1/8th " of rain or more is detected and then resume normal function when the sensor dries, and (3) multi-spray multi-trajectory (MSMT) nozzles that can be retrofitted into sprinkler spray bodies and are better able to apply water efficiently to the intended landscape and reduce water loss due to evaporation and drift. Each component can reduce water use by thirty percent or more. When used in combination, water savings of forty percent or more can be realized. Nineteen irrigation rebates have been preliminarily approved and are at varying stages of completion. Water savings data will be provided as soon as it becomes available.



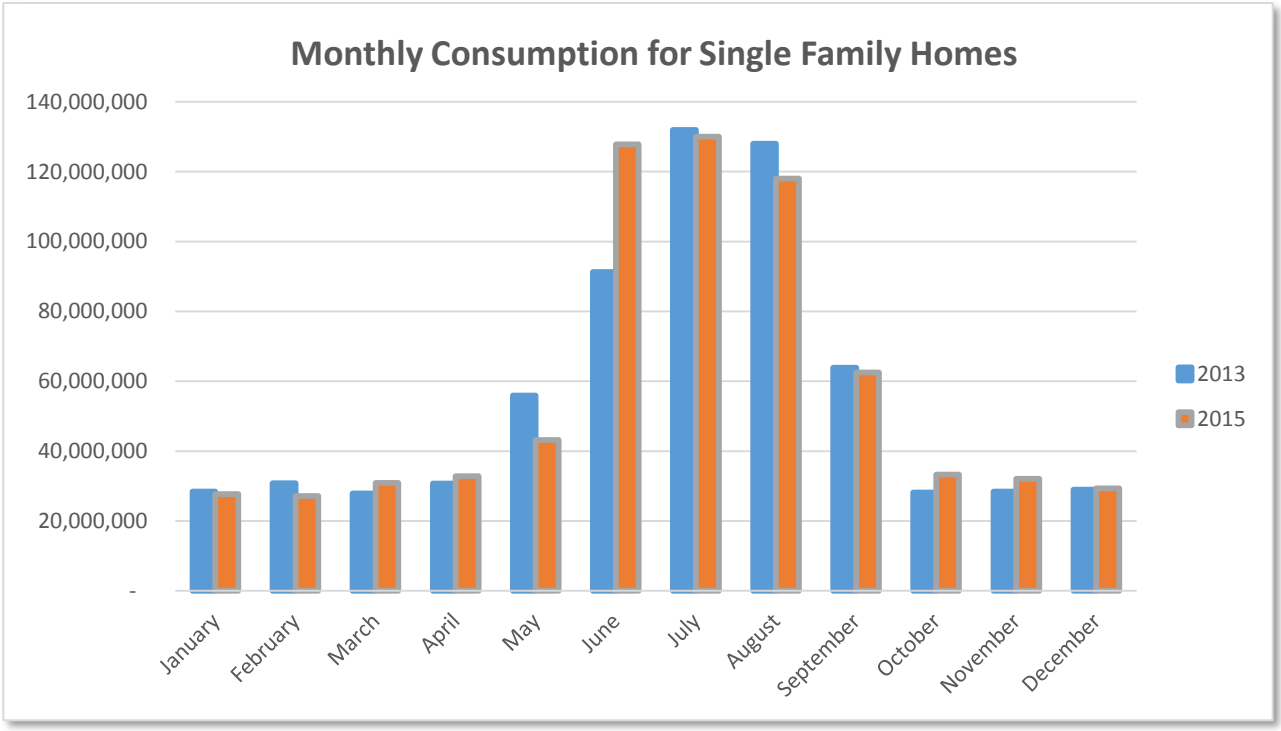
The second initiative launched in May 2015 is a residential landscape irrigation sprinkler assessment and audit service provided by the Water Conservation Division free of charge to city water customers. Twenty systems were assessed and audited during the 2015 irrigation season. Each

[15] See Table 1.1 2014-2015 Rebates Summary above.

received an evaluation of sprinkler system performance, proposed watering schedule and other recommendations specific to each site based on soil type, microclimate, turf and landscape type, exposure and slope in order to improve irrigation system efficiency.

For those who participated in the residential landscape sprinkler assessments, half experienced a thirty to fifty percent reduction in water usage when compared with irrigation during the 2014 season by the same owner.

Water usage data between 2013 and 2015, indicates that water use increased slightly, by 0.15%. However, this increase is far less than anticipated with the addition of 760 new meters during that time period and actually reflects a 7.4% reduction in gpcd from 122 gpcd in 2013 to 113 gpcd in 2015 despite drier than average years and increases in population. The chart below illustrates monthly water usage for single family customers during 2013 and 2015. In many instances the 2015 data demonstrates no change or reductions in monthly consumption from 2013 consumption despite 2.8% average growth rate each year. The exception occurs in June 2015, where water usage is noticeably more than 2013. During June 2015, Bozeman received far less precipitation than the historical average, resulting in a significant increase in outdoor watering.[16]



[16] See Bozeman Precipitation Chart page 4 above.

Bulk Retrofit Initiative

HRDC Properties Bathroom Fixture Replacement Project is a partnership with HRDC and the City of Bozeman's Water Conservation Division to upgrade HRDC properties including apartments and single family homes, to install high efficiency bathroom fixtures in all bathrooms. The apartment retrofits were completed in December 2015 and the single family residences will be completed in January 2016. Water usage before and after the installations will be monitored. This makes water, energy and money savings available to families in need who might not otherwise be able to participate in the city's fixture rebate initiatives and helps the Water Conservation Division on the path to achieving water conservation goals.

After meeting with the developer and project management team for Stoneridge Apartments affordable housing project to discuss water conservation strategies, the team agreed to make the complex an Enterprise Green Communities Project that will incorporate high efficiency fixtures in all units and commons areas as part of the certification for the Enterprise Green Communities 2011 Program. The Water Conservation Division has offered assistance to the team in the form of educational materials about the benefits of water conservation and bulk rebates on various high efficiency fixtures.

Utility Management

N. 7th Ave. Drought Tolerant and Native Plant Pilot Project

Data from the drought tolerant pilot project installed in July 2014 demonstrates that the shrubs, perennials and grasses planted in the two medians along N. 7th Avenue require 86% less water than Bozeman's medians planted with turf grass. This also results in a 23% reduction in the monthly water bill and creates an attractive, yet water smart landscape feature for one of Bozeman's primary entryway corridors. The N. 7th Avenue medians highlight the beauty of Southwest Montana's native landscapes, provide examples of drought tolerant plants that would thrive in any Bozeman garden and are described in greater detail on the Water Conservation Division's website.

COB MSU Native Grasses Project

In an effort to identify various native grass cultivars that can thrive with little or no supplemental irrigation after establishment, no fertilizer and infrequent mowing, the Water Conservation and Streets Divisions partnered with Montana State University to study how various native grasses perform under extreme landscape conditions in two medians in order to develop protocols for use throughout the city.

The project advances the outdoor water savings objectives of the Program by reducing the amount of traditional landscapes that require regular and frequent supplemental irrigation.

Additionally, it provides the development community with viable drought tolerant alternatives to consider when designing landscapes and determining water requirements for a project.

Professor of Plant Sciences at MSU, Tracy Dougher, is the lead researcher. Dr. Dougher brings over two decades of experience to the project and specializes in the study of native grasses for turfgrass applications for the Intermountain West and their water requirements.

Utility Water Loss Audit

In order to quantify utility system water losses and identify sectors attributable for the losses, the Water Conservation Division partnered with Public Works, Water and Sewer and Water Treatment Plant Divisions to provide project support for contracted services to conduct a utility water loss audit. The findings of the audit indicate that system losses are approximately 14%. The audit identified specific areas in which to focus current and future efforts to reduce system loss and methods to employ in order to reduce system inefficiencies.

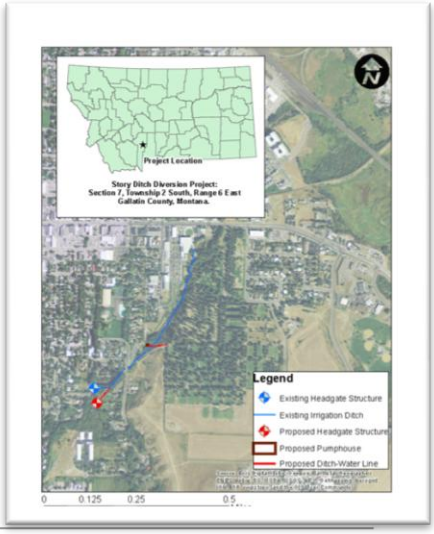
Sunset Hills Cemetery and Lindley Park Irrigation Project

In an effort to generate additional supplies of water through demand side management, the Water Conservation Division partnered with the Parks and Recreation Division to contract for services to generate a preliminary engineering report that will examine alternatives available to the City of Bozeman to utilize an existing irrigation right decreed to irrigate Sunset Hills Cemetery and Lindley Park and cease irrigation of said lands using treated water supplies.

Alternatives for ditch diversion and delivery and irrigation system improvements will be provided to increase existing system efficiencies.

The project advances the outdoor water savings objectives of the Program by reducing the amount of treated water used to irrigate city lands and improving irrigation system efficiencies to maximize utilization of available water resources.

Moreover, it generates additional drinking water supplies to accommodate growth, mitigate drought and improve aquatic habitats.



Drought Management Plan

On December 28, 2015, the City Commission consented to enter into a Professional Services Agreement with the engineering firm of Advanced Engineering and Environmental Services, Inc. (AE2S), to develop a Drought Management Plan for the city in the interests of public health and safety to mitigate and respond to drought events.

There is growing evidence that changes in climate are causing longer and more frequent droughts in some areas including Southwest Montana. Drought directly impacts the City of Bozeman's ability to deliver water and increases the risk of wildfire in key locations within the city's watershed. As the city continues to grow, the utility must build resiliency to drought through proactive and comprehensive drought planning in advance of a crisis.

The Integrated Water Resources Plan recommends drought contingency planning as a component of the Water Conservation Program and includes some suggested drought response actions. The IWRP recognizes that water conservation and drought management combine to insure the availability of firm yields to cover indoor water demands during a drought emergency.

Research shows that planning for drought is far more cost effective than emergency response. Taking steps ahead of time to prevent known impacts from a drought emergency is far less expensive than measures taken in the midst of a drought. Moreover, post- drought relief is costly and may not reach the people most in need of assistance.

Water Conservation Technician

Effective December 30, 2015, a water conservation technician has joined the Water Conservation Division. Of fifty-seven applicants for the position, the chosen candidate is a graduate of MSU and brings water conservation education experience to the position. Primary duties include expanding the scope of education and outreach initiatives and administering rebate initiatives to support the city's water conservation goals.

Parks Irrigation Systems Improvements and Upgrades

The Water Conservation Division has been working closely with the Parks and Recreation Department to assess the efficiency of existing irrigation systems, develop protocols for new parks and research various options for central irrigation system control options. These efforts are on-going and will be largely driven by the progress on the Sports Complex, Story Mill Park and Sunset Hills and Lindley Park projects.

NEXT STEPS

For the FY 2016-2017, The City of Bozeman Water Conservation Division plans to offer the same resources and initiatives that were offered in FY 2014-2015 but with goals to expand and accelerate visibility and participation. New initiatives will continue to be evaluated to determine which projects will best meet the goals of the Water Conservation Program in the future.

The Water Conservation Division will increase public outreach, engagement and partnerships with the community and will work closely with other city divisions to implement the IWRP and related master planning efforts. As a part of all of these endeavors, the Water Conservation Division will continue to evaluate the resources needed to successfully manage and implement the Water Conservation Program policies and objectives.