CITY OF SPOKANE

WATER CONSERVATION MASTER PLAN

City of Spokane
Water Department

Executive Summary

Plan Overview

The Water Conservation Master Plan presents goals, targets, strategies and actions to conserve our water supply and to sustainably manage it for future generations. The variety of water conservation activities provides an opportunity to reduce demand while minimizing customer sacrifice and have been selected based on their pumping reduction potential for a reasonable cost.

Water system operation improvements to reduce distribution system loss, to improve meter accuracy, and to utilize tiered rate structuring are included in the Spokane Water System Plan. The Water Conservation Master Plan builds on those strategies, focusing on utility sponsored programs that help customers reduce their water use (programmatic conservation). The savings that occur due to plumbing codes/standards when customers replace older, less-efficient fixtures are considered within the strategies of this plan.

Activities that reduce indoor water use primarily impact the year-round base water use, while efforts that reduce outdoor water use target the peak season increased use. Both indoor and outdoor efforts will impact the peak season water use by lowering the base and assisting in shaving the peak. Figure 1 shows how the peak season water use can be impacted by either "shaving the peak" or "shaving the base".

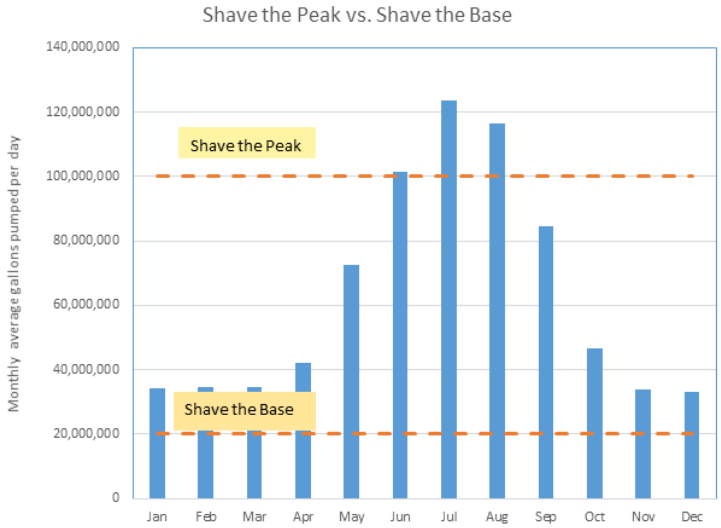


Figure 1: Shave the Base vs. Shave the Peak

Overarching Goals and Targets

The Water Conservation Master Plan centers on the achievement of the following overarching goals:

1. **Growth without Additional Pumping:** balance increasing number of connections system-wide with reductions in consumption to ultimately eliminate or defer potential capital expense.

2. **Reduction in Seasonal Demand Peaks:** peak seasonal demand relies on the distribution capacity of our system and in some areas, requires just-in-time water service. Keeping demand within the storage capacity of our system is safer, more reliable, and more cost-effective.

As our community's priorities shift, technologies change, and new knowledge is revealed, the plan will undergo a continual process of monitoring, evaluation, and evolution to keep pace with changing needs.

Water Use Efficiency

The City of Spokane addresses water efficiency through both the supply and demand sides of the water system. Water loss control programs (supply) fall under the umbrella of evaluation and reduction of Distribution System Loss (DSL). Components of this strategy include: pipe condition assessment, leak detection, system water audits, meter replacement program, and measurement of water consumption through authorized and unauthorized use from hydrants.

Our current conservation program addresses consumer water demand in the following ways: education, facility efficiency improvements, rebate programs, operational standards, a wastewater conservation credit for the lowest 20% of indoor water users and an inclined block water consumption rate structure.

In order to ensure a reliable, sustainable, resilient water supply while our economy and population grow, new policy will be needed. Regulations, ordinances and permitting policies have proven to significantly reduce water use throughout the nation. An overview of successful municipal irrigation restrictions has been provided in the appendix. To significantly address current and future water consumption, implementing water wise policies will effectively protect and sustain our water supply.

Table of Contents

Contents

Introduction

A River Runs Through It

Living in the Inland Northwest provides us with four beautiful seasons, year-round recreational opportunities and a stunning backdrop of low-slung mountains, coniferous forest and, during certain times of the year, a fierce and roaring river.

The Spokane River supported the early life of tribes and settlers with food, commerce and drinking water. As our small town grew and many others around it, our supply became degraded by human contamination.

Discovery of a prolific aquifer beneath our feet changed our source of water in 1907. It wasn't until recently that we began to understand the aquifer and its interdependent relationship with the river. Substantial studies from the USGS and the region's public water providers show us that the Spokane River is the largest recharge source of the aquifer and it is also its largest point of outflow.

For many years, our water supply was thought of as "infinite" and the quality "too pure".

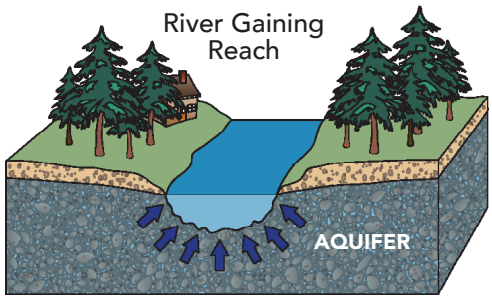


Figure 2: Water flows into the river through the bottom or through springs on the banks of the river.

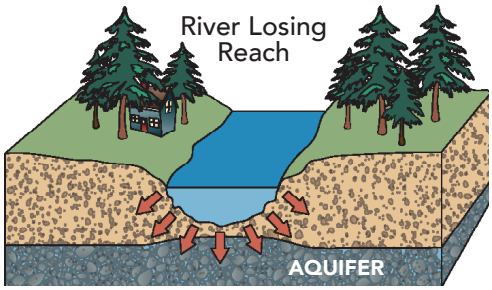


Figure 3: In these areas the water seeps out of the bottom of the river and recharges the SVRP aquifer.

Our water system has grown to accommodate population growth and the community's love of green landscapes. We now recognize that we don't have an endless supply of water, and we and we are not the same community that we first served when the Water Department was created more than 135 years ago.

Spokane is characterized as a high-desert climate, and during the summer months of the year, we can experience long periods without precipitation with high temperatures. The year 2015 brought us our worst case example: a significantly decreased snow-pack, abnormally warm spring temperatures, and an early runoff meant that we saw our river at its lowest level during the summer critical demand period. We also experienced difficulty pumping water from some of our more shallow wells.

Let us use 2015 as the impetus to use our natural resources more wisely and recognize their value. Each time we use water is an opportunity to make a deliberate choice to use this precious resource responsibly.

The availability of this resource ensures we will have clean and sufficient water to drink, trees to shade our streets, gardens to grow, and parks to play in. The water that flows from our taps makes our life in Spokane bountiful.

Spokane Water Today

Our Water Source:

The Spokane Valley Rathdrum Prairie (SVRP) aquifer is the sole source of water to more than 600,000 residents in the Inland Northwest. It underlies the eastern, central, and northern portions of the City and primarily flows from the east to the west and north, following the general topographic surface of the Spokane valley. Recharge of the SVRP aquifer is primarily from the Spokane River, area lakes and infiltration of rainfall. Given that the City of Spokane is directly dependent upon supply from the aquifer, it is critical for the City to understand and plan for the risks associated with potential changes in aquifer levels and water quality.

Although the SVRP aquifer is highly productive and highly transmissive, it is not inexhaustible. The Spokane River and SVRP aquifer are hydraulically connected. The gaining reaches of the Spokane River are the largest outflow source of the aquifer, while the losing reaches of the Spokane River remains the largest source of water to the SVRP aquifer. This gain in flow is vital for the ecological function of the river, supports recreation and tourism, and protects historic and cultural resources. Pumping less water from the aquifer, especially during summer months, could potentially mean more water available for the gaining reaches of the river.

Spokane Water System

The water system has seven well stations with 14 wells and 27 well pumps, 25 booster pump stations with 72 booster pumps, 22 pressure zones with 34 reservoirs, and more than 1,000 miles of water main. Well stations draw drinking water directly from the aquifer. The water is pure enough to be pumped directly from the ground without any treatment. Chlorine is added to the water to ensure that quality is maintained throughout the distribution system.

To pump water up to storage tanks and reservoirs, booster stations are used to help move the well water from lower elevations. To meet customer needs, the system has more than 100 million gallons of water storage capacity. The amount of water stored in a given tank depends both on the demand for the area as well as the fire protection requirements.

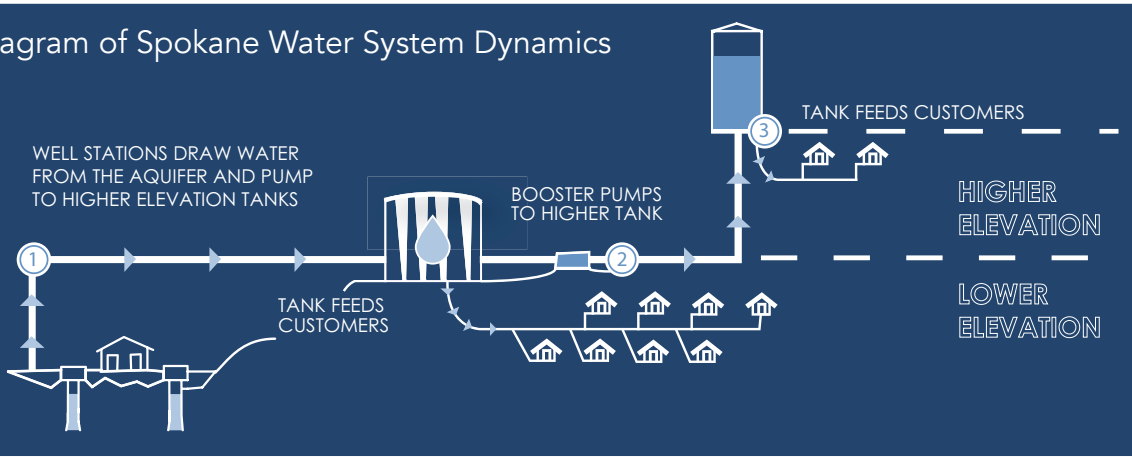
The wide variety of geographical features and substantial elevation changes found in and around the City, create the need for numerous water system pressure zones.

Within the City's service area, the south side of the City (South Hill) rises from the Spokane River to Moran Prairie and the western slopes of Browne's Mountain. Elevations range from the valley floor at 1,870 feet above sea level to about 3,000 feet. To the West, elevations vary from a low of 1,735 feet in the Latah (Hangman) Creek-Vinegar Flats area to 2,580 feet on the West Plains. The North side of the City (generally north of the Spokane River) experience elevations that range from 1,683 feet to 2,145 feet. Also on the North side is a plateau known as the Five Mile Prairie, a prominent geographical feature. Elevations of the prairie range from 2,145 feet at its base, to 2,400 feet on the plateau.

Aquifer Levels Impact on Pumping

Water supply is reliant upon the aquifer levels at our wells, which are at a fixed depth - based on well construction. Low aquifer levels impact our ability to distribute water efficiently throughout the system. These system characteristics make water conservation an even more critical component of the City of Spokane's long-term goals of sustainability, social responsibility, and affordability (Triple Bottom Line).

Figure 4: Diagram of Spokane Water System Dynamics



Customer Profile

Water Use Characteristics

Water use characteristics and customer sectors are important in designing a water conservation program that fits our customer base and consumption patterns. Water consumption for the City of Spokane Water Service Area is 53% single family, 14% multi-family, 24% commercial, 5% institutional, and 4% City parks and recreation facilities.

- The single family sector includes residential detached homes, duplexes, planned developments and mobile home parks.
- Multi-family consists of residential buildings with 3 units or more.
- Commercial sector includes a wide variety of buildings and water use from small restaurants to large industrial complexes and private golf courses.
- Institutional accounts include city/county/state/federal governmental buildings and grounds, public and private educational facilities, non-city owned private parks and play-fields.
- Park accounts include all city-owned parks and golf courses.

Table 1: Customer Sector Accounts & Consumption

	Sector	Number of Accounts	2018 Annual Consumption (mg)
	Single Family (SF)	66,482	9,553
	Multi-Family (MF)	2,504	2,564
	Commercial/Industrial	5,848	4,410
	Institutional	643	988
	Parks	277	716
	Total	**75,754**	**18,105**

Figure 5: Accounts Sector Split

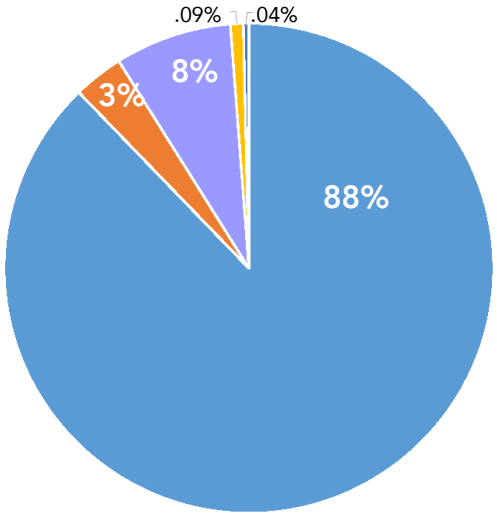
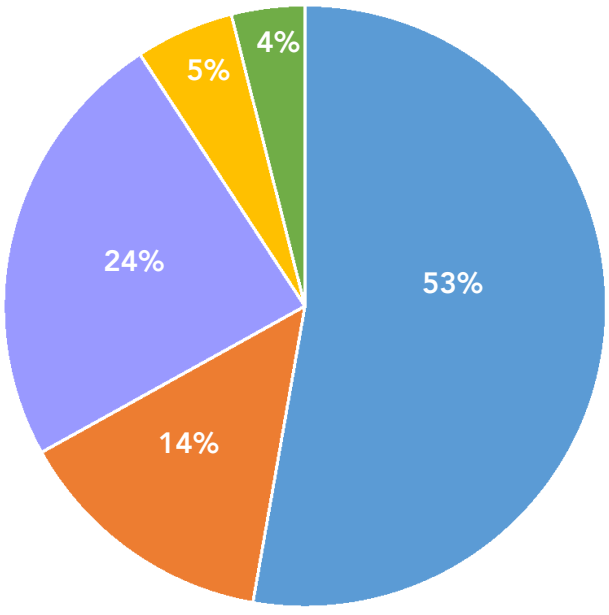


Figure 6: Consumption Sector Split



Characteristics Analysis

- The single family sector is a great target for the conservation program because it represents the largest portion of consumption (53%) and the vast majority of accounts (88%) and has a large savings potential.
- The multi-family sector has a much smaller percent of accounts (3%) compared to its consumption (14%) and could provide a good return on investment of resources.
- The commercial/industrial sector is a good target for the conservation program because of its sizable portion of consumption (24%).
- Together, the institutional and parks accounts make up 9% of the consumption and just over 1% of customer accounts. However small, conservation activities in this sector have the ability to visibly demonstrate government's commitment to natural resource conservation and influence decision making.

Housing Stock Characteristics

The type and age of housing in the Spokane service area is important to choosing appropriate water conservation hardware and identifying behavior changes to promote throughout the program. National toilet and showerhead standards first took effect in 1994, and buildings constructed before this period could have pre-code hardware. Information on housing type and age was provided from the U.S. Census Bureau 2013-2017 American Community Survey 5-year estimates. Note that due to the complexity of our entire service area, only data reported for the City of Spokane have been reviewed.

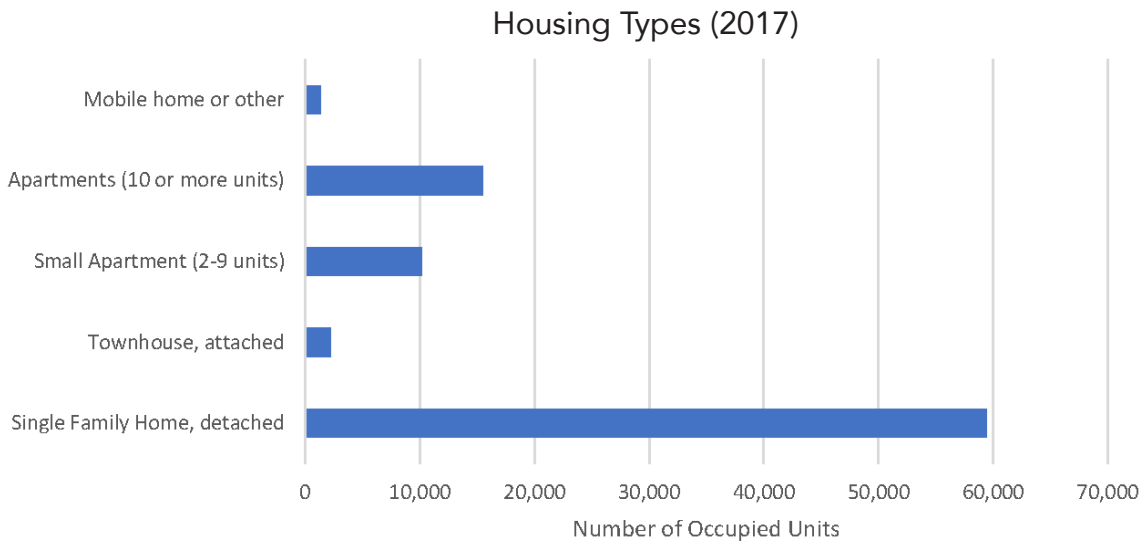


Figure 7: Housing Types

Single family homes are the predominant housing type, followed by larger apartment buildings.

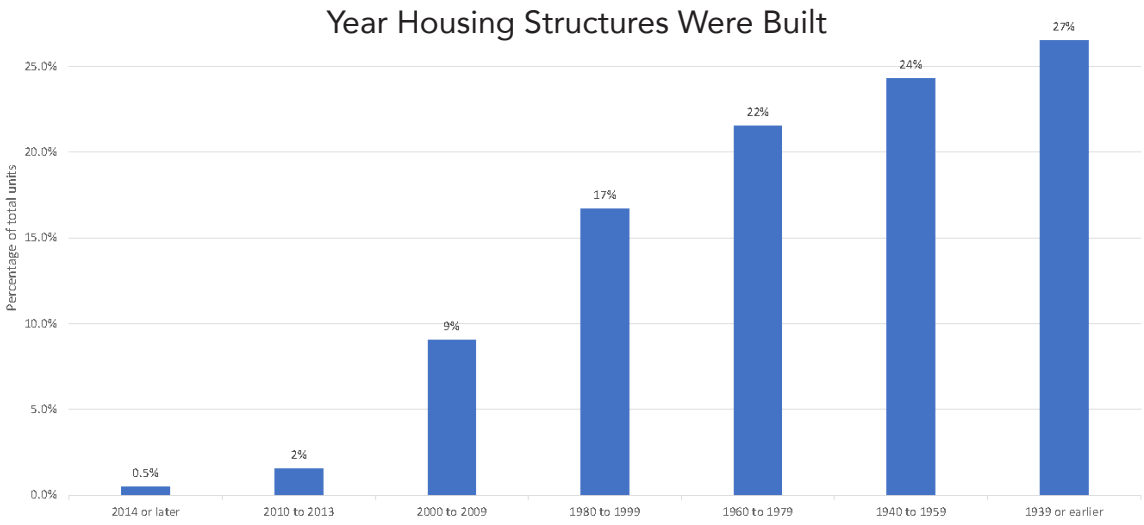


Figure 8: Housing Age

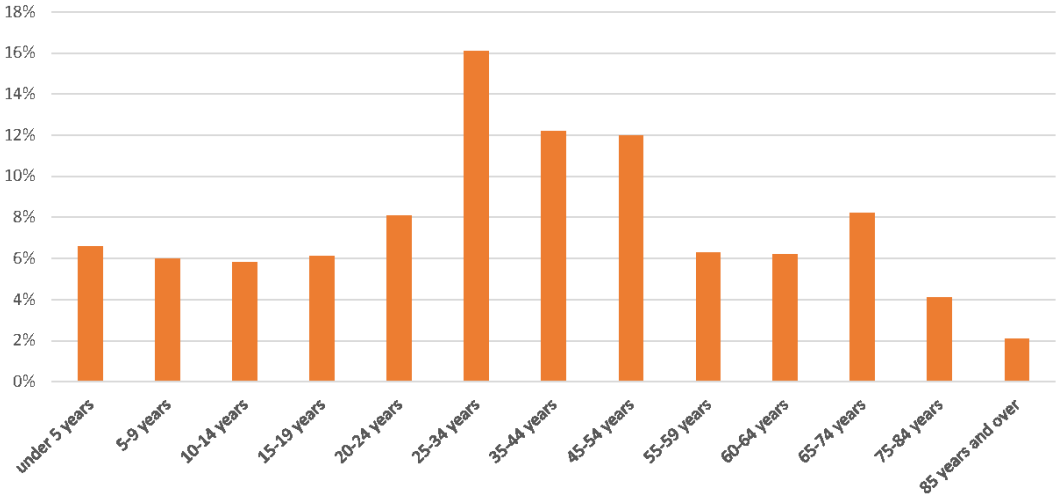
Most of the existing housing stock was built before the plumbing code was updated, 73% of housing structures were built before 1980.

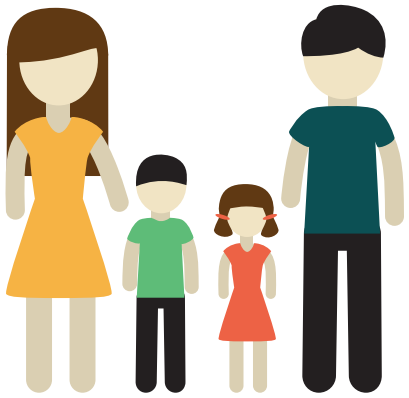
Customer Profile

Customer Demographics

The demographics of our customers is paramount to designing a water conservation program and activities that fit those characteristics. Data was obtained from the U.S. Census Bureau 2013-2017 American Community Survey 5-year estimates.

Figure 9: Age Distribution





Age: The 25-54 age groups each represented a higher percentage of the population than youth and senior groups.

Figure 10: Educational Attainment of Population ≥ 25yrs old

Education: Customers that have a high-school diploma and/or attended but did not complete college represent the majority of our adult population.

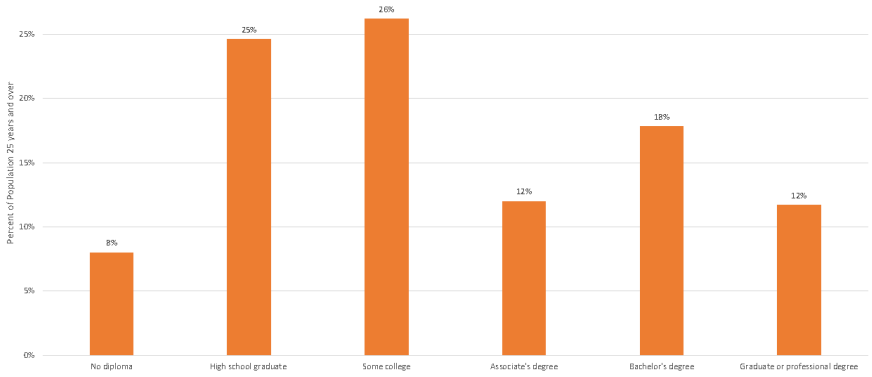
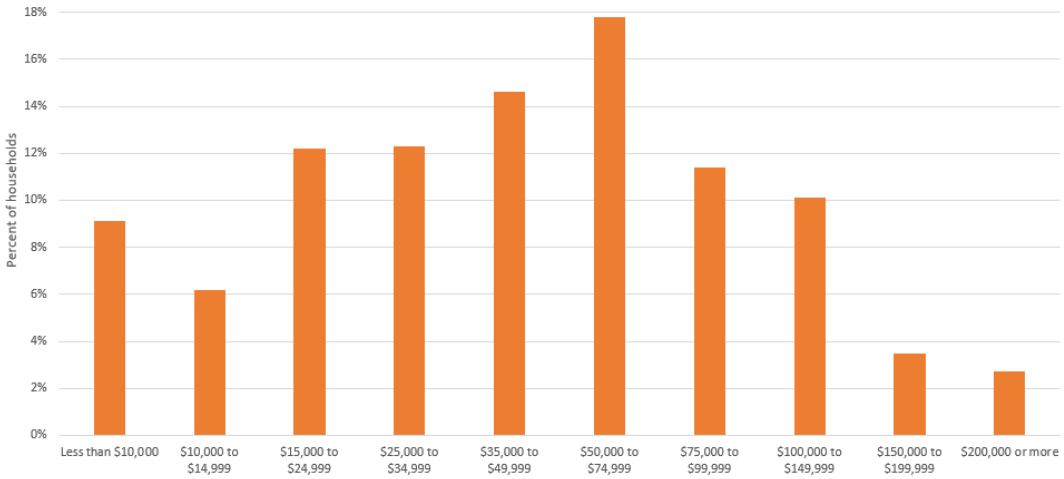


Figure 11: Household Income



Income: The average household income in Spokane is $62,092 compared to the United States' average of $77,713. Income plays a significant role in an individual's motivation or ability to participate in conservation activities. Providing financial and technical assistance will help customers at all income levels participate.

Historic Conservation Efforts

Original Conservation Driver

Since 2003, State municipal water laws have asked public water systems in Washington to maintain or create a water use efficiency program in order to demonstrate to the State that the purveyor is being a responsible steward of their inherent water rights. The City of Spokane has complied with the law by publicly establishing water savings goals, striving to meet a standard of no more than 10% system water loss, metering all connections, performing leak detection, establishing conservation rate structures and implementing customer education.

In 2006, the City adopted the Water Stewardship Strategic Plan, which set goals as a per capita (per person) seasonal reduction in pumping. The goals were based on total pumpage for all uses including residential, commercial, industrial, and government, and are expressed on a per capita basis. Goals were specified for seasonal periods of October through March, April through June, and July through September.

Current Goals and Program

In 2014, the City of Spokane updated the annual water use efficiency goals based on metered consumption instead of measured pumping and are associated with a specific customer segment (RES 2014-0043). The indoor residential goal has been consistently met since 2014, and in most years the outdoor goals have not been met.

Table 2: 2014 Water Use Efficiency Goals

	Reduction Goal	Time Measured
1	0.5% Reduction in SF Residential Indoor	Dec 15 – February 14
2	2% Reduction in SF Residential Outdoor	July 15 – September 14
3	2% Reduction in Commercial /Industrial Outdoor	July 15 – September 14
4	2% Reduction in Governmental Outdoor	July 15 – September 14

Table 3: Water Use Efficiency Goal Results 2014-2019. Goal is measured as daily gallons consumed per connection.

Year	1 Goal / Actual (gal/day)	2 Goal / Actual (gal/day)	3 Goal / Actual (gal/day)	4 Goal / Actual (gal/day)
2014	122 / 122	516 / 513	4,318 / 4,325	4,921 / 4,759
2015	121 / 120	516 / 562	4,232 / 3,837	4,822 / 4772
2016	121 / 119	492 / 564	4,147 / 3,975	4,726 / 5,822
2017	120 / 118	479 / 638	4,064 / 4,602	4,631 / 5,410
2018	119.6 / 115	467 / 617	3,983 / 4,088	4,539 / 5,745
2019	119 / 113	455 / 553	3,904 / 3,947	4,448 / 5,189

City of Spokane Water Department's current conservation efforts include:

Water System: Leak detection, distribution system loss (reduction 1.75 bg/year from 2012-2018), water audits, improved meter accuracy, tiered rate structure.

City Owned Parks: Indian Canyon (16.8 mg saved in 2019) and Esmeralda golf course irrigation improvements, Manito Park turf reduction and irrigation system, converting Manito Koi Pond to recirculating system, controls for splash pads that limit the run time, irrigation design standards.

Customer Program: the City offers education and technical assistance, giveaways in the form of efficient showerheads (limiting flow to 2 gpm), kitchen sink aerators (1 gpm), bathroom sink aerators (1 gpm), and toilet dye tabs to test for leaks. Outdoor water saving tools include: SpokaneScape Turf Replacement Rebate Program, soil moisture meters, hose timers, rain barrels, and garden hose nozzles with repair parts.

Conservation Master Plan Development Strategy

Water conservation is important to the Spokane community for many reasons:

- Conservation programming could delay or eliminate the need for system expansion and capital costs.
- Conservation measures have potential to impact river flows during dry months.
- Conservation provides us with sustainability and resiliency planning given anticipated climate variability.
- Conservation planning efforts and activities meet the City's legal obligations to conserve and also provide us with better guidance to meet our goals (WAC 246-290-830).
- The development of a Water Conservation Master Plan is a joint Mayor/Council initiative supported both by state requirement and Council Ordinance (C35630).

The Conservation Master Plan has been developed with the support of two internal committees and the Sustainability Action Subcommittee (SAS).

- Advisory Committee: The advisory committee is comprised of cross-departmental leadership engaged to provide guidance and strategic oversight of the program's direction, attainability, and financial sustainability.
- Technical Committee: The technical committee has been engaged to provide cross-departmental review of cost and operations inputs.
- SAS: Sustainability Action Sub-Committee is a council-appointed advisory group comprised of volunteer stakeholders around the Spokane community.
- Table 4 shows the additional stakeholders/influencers and variables that were considered in creating the Water Conservation Master Plan.

Table 4: Plan Development Considerations

Stakeholder	Interest in Conservation Plan
Customers/ Rate Payers	*Assistance with utility bills *Increases in population *Desire to keep bills low
Spokane City Council	*Desire for sustainability and affordability throughout the City of Spokane *Positive customer feedback
State Department of Health	*Requirements for compliance *Can change requirements
Tribes	*Water for aquatic life and habitat protection
Environmental Groups	*Sustainable water supply, water conservation
Influence	**Consideration in Conservation Plan**
Plumbing Code	*Continuously improving efficiency standards for fixtures; as homes are updated, efficiency improves over time
Avista's conservation programming	*Partnering on showerhead distribution and education outreach
MySpokane Customer Service	*Tools to help promote conservation through billing, website, and customer interactions
Climate Variability	*Has the potential to affect water supply and demand
Large areas in Spokane County for development	*Newer homes will have more efficient plumbing *Opportunities to install low-water use landscaping *Population growth could support more commercial growth *West Plains PDA - if developed without conservation in mind could cause costly capital improvements
Rates	*Rates influence the amount of water consumed

The program has been designed under the following criteria:

- SAVES WATER: Each element is reasonably expected to contribute to water savings in the near-term or longer-term.
- ALL CUSTOMERS: The program will have offerings for all customer classes to participate.
- FIXTURE UPGRADES & BEHAVIOR: The program should maximize efficiency by promoting new technology and behavior changes.
- INDOOR & OUTDOOR: The program will have offerings to achieve both indoor and outdoor efficiencies.
- CUSTOMER COST SHARE: Financial incentives can provide the motivation for individuals to participate in efficiency measures and reward positive behavior.
- BEYOND-CODE: Move customers to levels that are more efficient than current plumbing code to maximize water savings.
- PARTNERSHIPS: The program will work to leverage partnerships that help increase participation and reduce costs. Potential partners include other water and energy utilities, home-improvement stores, and community-based organizations.
- See Appendix for a list of all considered incentivized conservation activities.

The variety of water conservation activities provides an opportunity to reduce demand while minimizing customer sacrifice and have been selected based on their pumping reduction potential for a reasonable cost.

VISION: Reliable, Sustainable, Resilient Water Supply
Spokane water customers and City facilities are using water efficiently, new development construction is designed to minimize water use, and fixtures in existing developments have been upgraded to maximize water efficiency.

Goals	Key Performance Indicators	Strategies
Service Area Growth without Additional Pumping (total overall base consumption). *Annual consumption decreases from 2018 levels despite population and economic growth.*	Annual: 10 million gallons conserved for all participants	S2-S5
	Annual Residential (SF/MF): 5,000 gallon reduction per participating connection	S3-S4
	Annual City: 2 million gallon reduction for all city-owned properties	S5
	Annual Commercial: 200,000 gallon reduction per participating connection	S4
	Annual: 30 education events	S8
	Annual: 1,400 rebates issued	S2-S4, S8
	Long-Term: Conserved 500 million gallons by 2030	S1-S8
	Long-Term: 5% reduction in per capita consumption by 2030	S1-S8
Reduction in Seasonal Demand Peaks (outdoor consumption)	Annual: Reduction in MDD (maximum day demand) during active growing season	S1-S3, S5-S8
	Long-Term: 15% reduction in seasonal peak demand by 2030	S1-S8

MDD: Maximum day demand is the quantity of water supplied during the highest-use day of the year

CORRESPONDING STRATEGIES	
S1	Target pressure zones with highest impact (could be due to cost of distribution, risk exposure, system capacity, redundancy, etc)
S2	Work with high water users within all customer classes to maximize results
S3	Financial Incentives for Outdoor Conservation
S4	Financial Incentives for Indoor Conservation
S5	City-Owned Facility Program
S6	Development Policies Targeting Responsible and Consistent Growth
S7	Technological Advancements: Enhanced data accuracy and monitoring
S8	Education and Technical Assistance

S1: Target pressure zones with highest impact.

Outlying pressure zones have the highest peaking factors and the highest cost to the City to provide water service. As demand or connection accounts increase within the pressure zone over time, more existing storage must be dedicated to emergency storage. Outreach activities will be focused in the high cost/high risk pressure zones identified below.

Priority Actions

S1-A	Target high risk pressure zones (just in time delivery and/or extremely high per capita consumption) with educational outreach, technical assistance, incentive opportunities.
S1-B	Target high cost pressure zones (determined by pumping): Southview, Eagle Ridge 1 & 2, Woodridge, Glennaire, West Plains, Kempe.
S1-C	Landscaping and irrigation standards for new development.

S2: Work with high water users within all customer classes to maximize water use efficiency.

High water users present substantial opportunities for water conservation; identify impediments and barriers for customers to use water wisely.

Priority Actions

S2-A	Evaluate the top 50 users per customer sector on a biannual basis, comparing lot size and water use to determine if efficiency improvements could be made.
S2-B	Make contact with top 50 users annually with technical assistance and incentive opportunities.
S2-C	Implement water use efficiency incentives (See S3 and S4) with a minimum of 5 customers per sector annually.

S3: Residential, Multi-Family, Commercial Financial Incentives for Outdoor Conservation

The Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool version 3.0 (Tracking Tool) was used to evaluate the benefit and costs for utilities in implementing water conservation activities. The Tracking Tool has a library of 30 defined water conservation activities. These activities have 21 parameters. These parameters have predefined values that can be supplemented with utility specific data if they are available. The following activities have been selected for water customers based on cost effectiveness, staff availability and impact on peak demand:

Priority Actions

S3-A	Implement financial incentive program using utility inserts, press releases, outreach events and social media avenues to advertise. (Cross-cutting strategy: S2-B)
S3-B	Irrigation Controller Rebate (Single Family): Residential customers who purchase a WaterSense approved irrigation controller can submit a receipt and receive a $100 credit on their utility bill post verification of installation.
S3-C	Irrigation Controller Rebate (Multi-Family): Customers who purchase a WaterSense approved irrigation controller can submit a receipt and receive a $500 credit on their utility bill post verification of installation.
S3-D	SpokaneScape Turf Replacement Program: Residential customers who remove turf and replace with drought tolerant plants, low-volume irrigation and mulch are eligible for a credit of $0.50/sq ft, up to $500.
S3-E	SpokaneScape Turf Replacement for Commercial Properties: customers who remove turf and replace with drought tolerant plants, low-volume irrigation and mulch are eligible for a credit of $0.50/sq ft, up to $2,500.
S3-F	Efficient Nozzle Replacement: Single Family customers that swap out sprinkler heads for rotary nozzles with built in pressure regulation are eligible for a $4/nozzle credit.

Table 5: Outdoor Conservation Financial Incentives

ACTIVITY	ANNUAL WATER SAVINGS PER UNIT (gallons)	ANNUAL NUMBER OF UNITS	REBATE AMOUNT	ANNUAL PROGRAM COST	TOTAL ANNUAL GALLONS SAVED	WATER SAVINGS/ INVESTED DOLLAR (gallons)
Irrigation Controller -SF	10,805	100	$100	$10,000	1,080,500	108
Irrigation Controller- MF	43,221	10	$500	$5,000	432,210	86
SpokaneScape - SF	11,440	100	$500	$50,000	1,144,000	23
SpokaneScape- MF/ COM	28,600	10	$2,500	$25,000	286,000	29
Efficient Nozzles -SF	300	1,000	$4	$4,000	300,000	75
TOTALS	**94,366**	**1,220**	**-**	**$94,000**	**3,242,710**	

SF: Single Family Customers; MF: Multi-Family Customers; COM: Commercial

S4: Residential, Multi-Family, Commercial Financial Incentives for Indoor Conservation

Both indoor and outdoor efforts will impact the peak season water use, by effectively lowering the base and assisting in shaving the peak. Indoor conservation will reduce flow to the wastewater collection systems and provide interceptor relief, allowing for more capacity at the treatment plant and at critical points in the collection system. The following activities have been selected using the AWE Water Conservation Tracking Tool based on cost effectiveness, staff availability and impact on year-round consumption:

Priority Actions

S4-A	Implement financial incentive program using utility inserts, press releases, outreach events and social media avenues to advertise. (Cross-cutting strategy: S2-B, S3-A)
S4-B	Low-Flow Showerheads (SF/MF): WaterSense labeled showerheads (1.5 gpm) will be purchased and available for customers at the customer service counter in City Hall, community events, and other locations.
S4-C	High-Efficiency Toilets (SF/MF): Customers who purchase a WaterSense approved toilet (1.28 gpf or less) can submit their receipt and receive a $100 credit on their utility bill post verification of installation.
S4-D	High-Efficiency Toilets (COM): Customers who purchase a WaterSense approved toilet or urinal (1.28 gpf or less) can submit their receipt and receive a $100 credit on their utility bill post verification of installation.
S4-E	Cooling Tower Conductivity Controller: Customers who purchase and install a conductivity controller (increases the amount of times water will re-circulate through cooling tower) are eligible for a $695 credit.

Table 6: Indoor Conservation Financial Incentives

ACTIVITY	ANNUAL WATER SAVINGS PER UNIT (gallons)	ANNUAL NUMBER OF UNITS	REBATE AMOUNT	ANNUAL PROGRAM COST	TOTAL ANNUAL GALLONS SAVED	WATER SAVINGS/ INVESTED DOLLAR (gallons)
Low-Flow Showerhead- SF/MF	2,062	500	$6	$3,000	1,031,000	344
High Efficiency Toilets- SF	9,541	500	$100	$50,000	4,770,500	95
High Efficiency Toilets- MF	13,644	500	$100	$50,000	6,822,000	136
High Efficiency Toilets- COM	13,020	100	$100	$10,000	1,302,000	130
Cooling Tower Conductivity Controller - COM	209,880	10	$695	$6,950	2,098,800	302
TOTALS:	**248,147**	**1,610**	**-**	**$119,950**	**16,024,300**	

SF: Single Family Customers; MF: Multi-Family Customers; COM: Commercial Customers

S5: City-Owned Facility Program

Establish the City of Spokane as a model within our community and to other communities by implementing, practicing, and demonstrating water efficiency on all City properties. This will demonstrate our commitment to conservation and to a sustainable future.

Priority Actions

S5-A	Develop landscape and irrigation standards for City properties and projects.
S5-B	Conduct facility water audits - inventory existing equipment to identify and plan efficiency upgrades.
S5-C	Offer financial incentives for efficiency upgrades.
S5-D	Continue to build relationships with Parks and Grounds maintenance crews to foster a positive attitude toward conservation.
S5-E	Offer educational courses and irrigation efficiency trainings/certifications for appropriate City staff.
S5-F	Nozzles: Irrigated City properties will swap out sprinkler heads for rotary nozzles with built in pressure regulation. Ordered in bulk can cost $3.50/ nozzle, labor costs of installation are not included
S5-G	Irrigation Controllers for Parks: Large landscape controllers that use technologies to improve efficiency (ie: centralized computer control, moisture sensor, rain shut-off switches).
S5-H	High Efficiency Toilets: Replacement of 3.5 gpf toilets with WaterSense approved toilet or urinal (1.28 gpf or less). Cost includes installation.
S5-I	Sink Aerators: City facilities will be inventoried and existing aerator that is >1.5 gpm will be replaced.
S5-J	SpokaneScape Demo Gardens: Turf replacement at existing, high traffic landscaped areas with drought tolerant plants, low-volume irrigation and mulch.
S5-K	Facility Audit: Private contractor will analyze 5-8 city facilities, provide minute reads on water consumption and identify resolutions to eliminate water waste.

See next page for table of activities.

Currently the full program is in development and the intention of the conservation team is to dedicate resources annually to this body of work. The first year's slate of activities are listed below:

Table 7: City-Owned Facility Activities

ACTIVITY	ANNUAL WATER SAVINGS / UNIT (gallons)	ANNUAL NUMBER OF UNITS	INCENTIVE	ANNUAL PROGRAM COST	TOTAL ANNUAL GALLONS SAVED	WATER SAVINGS/ INVESTED DOLLAR
Nozzles	300	500	-	$2,000	150,000	75
Irrigation Controllers	43,221	2	$10,000	$20,000	86,442	4
Toilet-Replace & Install	13,020	100	250	$25,000	1,302,000	52
Sink Aerators	*Data collection in process*			$3,000	-	-
SpokaneScape Demo Gardens	Varies/sf	1	-	$30,000	-	-
Facility Audit	-	-	-	$50,000	-	-
TOTALS:	**-**	**-**	**-**	**$130,000**	**-**	**-**

S6: Development Policies Targeting Responsible and Consistent Growth

Adopting cost-effective water use efficiency codes and standards are a critical component of the City of Spokane's long-term goals of sustainability, social responsibility, and affordability.

Priority Actions

S6-A	Evaluate, update or establish building, planning, landscape, irrigation, and stormwater codes for water efficiency.
S6-B	Evaluate options and viability for water conservation and reuse through stormwater management or advanced wastewater treatment.
S6-C	Engage SAS in water use policy review and potential regulation development.

S7: Technological Advancements

Enhanced data accuracy and monitoring is a valuable tool for all customers to help manage their water consumption.

Priority Actions

S7-A	Conduct a forensic billing analysis annually. Identify billing system anomalies and systematic data handling errors to target high users and to reduce unauthorized consumption.
S7-B	Evaluate options for smart meter technology to improve customer self monitoring and leak detection.

S8: Education and Technical Assistance

Education is key to changing societal norms and behaviors toward conservation, and technical assistance can provide customers the tools needed to accomplish conservation activities.

Priority Actions

S8-A	Partner with high water users in all customer sectors to maximize water efficiency.
S8-B	Facilitate public education of all ages on water conservation at community events, neighborhood meetings, classrooms and city-hosted classes.
S8-C	Utilize social media platforms to facilitate communication about water conservation per capita goals and strategies. Recognize and promote leaders in conservation and showcase businesses, schools and individuals that are taking action.
S8-D	Implement education campaign related to water conservation and utilize it to grow participation and awareness of City financial incentive programs.
S8-E	Encourage voluntary drought response measures to the public through social media platforms and campaign activities by communicating low river flows and strategies to reduce consumption and improve river health.
S8-F	Research low or no-cost leak detection and repair for low-income customers.
S8-G	Update the City's "Slow the Flow" conservation webpage to provide pertinent information on rebate incentives and other program components.
S8-H	Develop and update the City's "SpokaneScape" turf-removal rebate webpage to encourage water-wise landscaping in the community.
S8-I	Collaborate with existing community groups to effectively implement strategies and spread awareness. Potential partners include other water utilities, energy utilities, home-improvement stores, community-based organizations and professional organizations.
S8-J	Expand upon the City's Environmental Programs dashboard to track internal water use and increase efficiency awareness across all City departments.
S8-K	Develop and facilitate water conservation courses for City staff and host annually.
S8-L	Develop and implement a water-wise or SpokaneScape commercial and industrial certification program.
S8-M	Design and construct SpokaneScape demonstration gardens throughout service area.
S8-N	Develop and distribute a guide for enhancing water-use efficiencies on landscapes and irrigation systems.
S8-O	Develop and distribute a water-wise plant list specific to Spokane's climate and soil conditions.
S8-P	Develop and distribute landscape template guide for commercial, residential and institutional properties.
S8-Q	Utilize utility billing software to show the relationship between water consumption and entire utility bill.

Conservation Budget, Staffing, Evaluation & Reporting

Budget:

The annual budgets for a 6-year program are shown below. It is divided into FOUR categories: Rebates, O&M (conservation staff), City Facility Program conservation activities and Contractual Services. The budget is all inclusive and pays for City conservation staff time, rebates to customers, contractors, marketing, and all other expenses.

YEAR	REBATES	O&M	CITY FACILITY PROGRAM	CONTRACTUAL SERVICES	TOTAL
2020	$213,950	$125,000	$130,000	$50,000	$518,950
2021	$213,950	$125,000	$130,000	$50,000	$518,950
2022	$213,950	$125,000	$130,000	$50,000	$518,950
2023	$213,950	$125,000	$130,000	$50,000	$518,950
2024	$213,950	$125,000	$130,000	$50,000	$518,950
2025	$213,950	$225,000	$130,000	$50,000	$618,950

Staffing:

The City of Spokane currently has two full-time staff members assigned to the conservation program. Moving forward, Utility Billing Staff will play a large supporting role facilitating residential rebate processing and reporting. Existing Conservation Staff positions are shown below.

#	TITLE	POSITION DESCRIPTION
1	Water Conservation Coordinator	Overall program planning and management, commercial rebates and education/ technical assistance, evaluation, marketing, research, data analytics
2	Water Efficiency Specialist	Landscape rebates, education/technical assistance, landscape program evaluation and planning

Evaluation:

The Water Conservation Team will monitor the progress of the Water Conservation Master Plan implementation on an ongoing basis, evaluating and tracking the progress of key performance indicators.

Progress Reporting:

In accordance with State (WAC 246-290-810) and Council requirements (ORD C35630), the Water Department will provide an annual written report each February that provides for the previous 5 years the following information:

- Total number of gallons pumped to each customer sector with its associated revenue and costs. Sectors include: Single family, multi-family, commercial, institutional, government, permitted hydrant use, and intertie accounts.
- Total budget dollars used in the Conservation Program and estimated water savings
- Percentage and number of gallons lost by the water distribution system
- Per capita consumption for all customers in the water service area

Plan Updates:

Within one year of adoption, each defined strategy will be further developed following a SMART logic model (Specific, Measurable, Achievable, Realistic, Time-bound) and actions will be assigned City of Spokane staff ownership.

Within 20 months of adoption of the Water Conservation Master Plan, a council appointed Water Conservation Taskforce will develop community drought response measures which will be presented to council for its inclusion to the plan.

The Water Department will work with internal staff and community members to update the plan every 5 years. This five-year update schedule will ensure that the plan can respond to environmental changes and reflect actual results. Any updates to the Water Conservation Master Plan will go through the City Council approval process before taking effect.

2020 Implementation Plan:

The 2020 Water Conservation Master Plan was developed and reviewed by City of Spokane staff, in conjunction with the Sustainability Action Sub-Committee (SAS). Once the plan has been adopted by Spokane City Council with a public hearing, a press-release will be issued to inform the public. Following Council adoption, water conservation staff will attend neighborhood community council meetings to share the content of the plan, and continue to educate the community on the goals and associated activities established by the plan.

2020 Pilot Program Timeline:

	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
CONTENT DEVELOPMENT							
Create Rebate Platform/ Update Website							
Research Target Customers							
Build Partnerships							
MARKETING & ADVERTISING							
Press Release							
Blog Posts							
Social Media Platforms							
Water Wise Spokane Ad Campaign							
OUTREACH							
Neighborhood Council Meetings							
Community Events							
City-Hosted Online Landscaping Classes							
CITY-OWNED FACILITY PROGRAM							
Facility Inventory Audits							
Identify Irrigation Projects							
REPORTING							
3rd Quarter KPI's							
Report to Council (Feb 2021)							

Table 8: Subtotal of all Incentivized Conservation Activities

ACTIVITY	ANNUAL WATER SAVINGS PER UNIT (gallons)	ANNUAL NUMBER OF UNITS	REBATE AMOUNT	ANNUAL PROGRAM COST	TOTAL ANNUAL GALLONS SAVED	WATER SAVINGS/ INVESTED DOLLAR (gallons)	ANNUAL WASTE-WATER IMPACT (gallons)
Low-Flow Showerhead-SF/MF	2,062	500	$6	$3,000	1,031,000	344	1,031,000
High Efficiency Toilets-SF	9,541	500	$100	$50,000	4,770,500	95	4,770,500
High Efficiency Toilets-MF	13,644	500	$100	$50,000	6,822,000	136	6,822,000
High Efficiency Toilets-COM	13,020	100	$100	$10,000	1,302,000	130	1,302,000
Cooling Tower Conductivity Controller - COM	209,880	10	$695	$6,950	2,098,800	302	2,098,800
Irrigation Controller -SF	10,805	100	$100	$10,000	1,080,500	108	-
Irrigation Controller-MF	43,221	10	$500	$5,000	432,210	86	-
SpokaneScape- SF	11,440	100	$500	$50,000	1,144,000	23	-
SpokaneScape- MF/COM	28,600	10	$2,500	$25,000	286,000	11	-
Efficient Nozzles -SF	300	1,000	$4	$4,000	300,000	75	-
CITY OWNED PROPERTY PROGRAM							
Efficient Nozzles	300	500		$2,000	150,000	75	-
Irrigation Controllers	43,221	2	$10,000	$20,000	86,442	4	-
Toilet-Replace & Install	13,020	100	250	$25,000	1,302,000	52	1,302,000
Sink Aerators	*Data collection in process*			$3,000	-	-	
SpokaneScape Demo Gardens	Varies by sq footage	TBD		$30,000	-	-	-
Facility Audit	-	-	-	$50,000	-	-	-
SUBTOTAL OF KNOWN VALUES:	399,054	3,433	-	$343,950	20,805,452	-	17,326,300

SF: Single Family Customers; MF: Multi-Family Customers; COM: Commercial Customers

Activities Considered:

The Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool version 3.0 (Tracking Tool) was used to evaluate the benefit and costs for the utilities in implementing water conservation activities. The Tracking Tool has a library of 30 defined water conservation activities. These activities have 21 parameters. These parameters have predefined values that can be supplemented with utility specific data if it is available.

The following 12 activities were considered, using the model, for inclusion in the new conservation program:

Table 9: Conservation Activities Considered

ACTIVITY	ANNUAL WATER SAVINGS PER UNIT (gallons)	ANNUAL NUMBER OF UNITS PROGRAMMED	ANNUAL PROGRAM COST	ANNUAL TOTAL GALLONS SAVED	ANNUAL WASTEWATER IMPACT
LF Showerhead- SF	2,062	500	$3,000	1,031,000	1,031,000
LF Showerhead -MF	1,898	250	$1500	474,500	474,500
HE Toilets- SF	9,541	500	$50,000	4,770,500	4,770,500
HE Toilets- MF	13,644	500	$50,000	6,822,000	6,822,000
HE Toilets- CII	13,020	100	$10,000	1,302,000	1,302,000
Clothes Washers -SF	5,000	50	$12,500	250,000	250,000
Cooling Tower Conductivity Controller - COM	209,880	10	$6,950	2,098,800	2,098,800
Irrigation Controller -SF	10,805	100	$10,000	1,080,500	-
Irrigation Controller- MF	43,221	10	$5,000	432,210	-
Irrigation Controller- Parks	43,221	2	$20,000	86,442	-
Turf Replacement- SF	11,440	100	$50,000	1,144,000	-
Efficient Nozzles -SF	300	1000	$4,000	300,000	-

SF: Single Family Customers; MF: Multi-Family Customers; COM: Commercial Customers

Appendix

Municipal Irrigation Restricitons & Demand Reduction Summary

The table below summarizes the research from the Alliance for Water Efficiency's study, *Use and Effectiveness of Municipal Irrigation Restrictions During Drought*. Within this study, voluntary conservation did not generate statistically significant savings and messaging and enforcement were found to be best practices and essential components to achieving a significant reduction in seasonal water demand. Case study participants successfully reduced annual demand by 18%-30% and peak monthly demand by 20%-42% through a combination of mandatory demand management measures. In two case studies, demand reductions achieved during the drought were maintained with little rebound through the on-going implementation of restrictions.

This study recommends that the design of irrigation restrictions be specific to the local region; in Texas 2 days/week restrictions are only mildly constraining because they receive more, evenly distributed frequent rainfall and most customers were already watering at that frequency. In parts of California 3 days/week restrictions are considered mildly constraining and 2 days/week restrictions saw large reductions in demand.

An executive summary of the study can be found here: www.allianceforwaterefficiency.org/sites/www.allianceforwaterefficiency.org/files/assets/AWE_Drought_Restrictions_Study_Executive_Summary_Final.pdf

City/State	Mandatory Watering Restrictions	Intensity of Restrictions & Demand Reduction Average Spring/Fall	Intensity of Restrictions & Demand Reduction Average Summer
Austin, TX Annual Precip: 32-34" Population: 1 million	Seasonal irrigation restrictions with enforcement; restrictions limit the number of days/week irrigation is allowed.	2008-2016: 2 days/week: 10% reduction 1 day/week: 14% reduction	2008-2016: 2 days/week: 11% reduction 1 day/week: 21% reduction
Plano, TX Annual precip: 22-40" Population: 1.7 million	Seasonal irrigation restrictions with enforcement; restrictions limit the number of days/week irrigation is allowed.	2011-2015: 2 days/week: Did not produce savings 1 day/week: 17% reduction **1 day/ 2 weeks: 18% reduction**	2011-2015: 2 days/week: Did not produce savings 1 day/week: 17% reduction **1 day/ 2 weeks: 32% reduction**
Hayward, CA Annual precip: 18" Population: 160,000	Seasonal irrigation restrictions with enforcement; restrictions limit the number of days/week irrigation is allowed. Water Waste Prohibition *(non-essential uses: irrigation runoff, washing of outdoor hardscapes, hoses w/o shut-off nozzle, etc)*	2014-2017: 2 days/week:15% reduction	2014-2017: 2 days/week: 21% reduction Mandatory Prohibition of Water Waste: 15% reduction
Los Angeles, CA Annual precip: 15" Population: 4 million	Seasonal irrigation restrictions with enforcement; restrictions limit the number of days/week irrigation is allowed.	2014-2017: 3 days/week: 13% reduction	2014-2017: 3 days/week: 15% reduction
Sacramento, CA Annual precip: 20" Population: 500,000	Seasonal irrigation restrictions with enforcement; restrictions limit the number of days/week irrigation is allowed.	2014-2017: 2 days/week: 25% reduction	2014-2017: 2 days/week: 29% reduction
Visalia, CA Annual precip: 11" Population: 145,000	Seasonal irrigation restrictions with enforcement; restrictions limit the number of days/week irrigation is allowed.	2014-2017: 3 days/week: 9% reduction 2 days/week: 16% reduction	2014-2017: 3 days/week: 18% reduction 2 days/week: 22% reduction

ORD C35630

ORDINANCE NO. C35630

An ordinance relating to future and renewed water intertie agreements; enacting a new chapter 13.045 to the Spokane Municipal Code.

WHEREAS, the City of Spokane is a regional water purveyor pursuant to the Spokane County Coordinated Water System, Washington State Department of Health, the City of Spokane Comprehensive planning documents and state law; and

WHEREAS, wholesale water supply exchanges between local water purveyors are anticipated by the Washington State Department of Health's Office of Drinking Water, the Spokane County Coordinated Water System, the City of Spokane Comprehensive Plan, and the City of Spokane Comprehensive Water System Plan; and

WHEREAS, state law provides that such wholesale water supply where appropriate can be used for: long-term water supply, to supplement a limited supply of water, to provide water when there is limited capacity, to provide water to meet a peak, or to assist during an emergency situation; and

WHEREAS, state law requires that a coordinated water resource and system plan for an area "shall provide for maximum integration and coordination of public water system facilities consistent with the protection and enhancement of the public health and well-being;" and

WHEREAS, neighboring water purveyors can protect the public by establishing intertie agreements to help ensure the continuous availability of a safe and reliable drinking water supply to all customers; and

WHEREAS, the City currently has intertie agreements with six water purveyors identified within the County Coordinated Water System; these agreements will need to be updated over time, and the potential for other interties exists; and

WHEREAS, the City of Spokane is the largest water purveyor with the most complex system in the region and, as such, has the ability to efficiently and effectively provide water to adjoining purveyors that is safe, reliable, and protects the national resource and environment, allowing the City to assist its smaller water system neighbors; and

WHEREAS, the City is committed to good stewardship practices for its water resources to protect not only the quantity but the quality of water in our region; the City also has identified a strategy and goal around "Smart Use of Water Resources for Economic Growth" as part of its City Council adopted Joint Administration-Council 6-Year Strategic Plan; and

WHEREAS, the City also is committed to enhancing resiliency, and through its Comprehensive Plan, encourages working with adjacent jurisdictions and other water purveyors to facilitate consistent provision of water services and coordinated responses to emergencies; and

WHEREAS, the City recognizes that it derives 100% of its water from the Spokane Valley Rathdrum Prairie Aquifer ("SVRPA"); and

WHEREAS, pumping from the SVRPA may, at certain low flow times of the year, reduce water in the form of ground (aquifer) water inputs to the Spokane River in gaining reaches; and

WHEREAS, aquifer inflow into the Spokane River is important for maintaining the health, wellbeing and viability of the Spokane River and the overall water resource; and,

WHEREAS, an increasing population and climate variability creates competition for scarce water resources that would normally flow through the Spokane River; and

WHEREAS, the Spokane River has experienced decreased flows in late Summer and early Fall months; and

WHEREAS, reducing or limiting new well development that taps into the Aquifer will preserve ground water and prevent contamination of the water supply which is a benefit of providing wholesale water supply to neighboring purveyors; and

WHEREAS, the City recognizes the importance of encouraging and implementing long term conservation measures to support and protect the water resource as well as the health of the Spokane River; where such flows support related wildlife, recreational, and economic activity associated with the River; and

WHEREAS, in order to meet these goals, the City of Spokane intends to be a leader of efforts by all SVRPA pumpers in reducing water use and preserving River flows; and

WHEREAS, the City is pursuing its goal to support sufficient flows in the Spokane River during certain low flow times of the year and encourages prudent conservation measures that will provide resiliency to all water supplies in the greater Spokane region; and

WHEREAS, the City also strives to have consistent and understandable policies when dealing with neighboring jurisdictions and water purveyors.

NOW, THEREFORE, the City of Spokane does ordain:

Section 1. That there is adopted a new chapter 13.045 of the Spokane Municipal Code to read as follows:

Chapter 13.045 Intertie Agreements and Water Rights

Section 13.045.010 Purpose

The purpose of this Chapter is to codify a consistent and predictable approach to renewed, revised, or new water intertie agreements to ensure ongoing conservation and protection of water resources, especially in the Spokane Valley and Rathdrum Prairie Aquifer.

Section 13.045.020 Definitions

A. Emergency Water Supply means unanticipated or unexpected and sudden event requiring additional short term supply of water from the City of Spokane under terms and conditions as specified in the Agreement between the parties as to duration and volume.

B. In-stream Flow Rule means the Instream Flow rule for the Spokane River as established by Washington State Department of Ecology in Chapter 173- 557 WAC.

C. Supplemental Water Supply means long term supply of water which is an addition to a wholesale water purveyor's existing water supply to provide additional water on a routine basis.

Section 13.045.030 Intertie Contract Components

All renewed, revised or new water intertie agreements shall include the following provisions:

A. A maximum term no longer than twenty years for supplemental supply and five years for emergency supply, inclusive of renewal options;

B. Required five year agreement reviews within any term for supplemental supply and two years for any emergency supply, including the right of the City to cancel agreements after such review if the water purveyor is not in compliance with the terms of the agreement, including contractually required conservation measures;

C. Definition of maximum water flow rates and maximum annual water volumes for supplemental and emergency water supply;

D. A description of the historical and current water supply situation that forms the basis of the terms of the agreement and the proposed future water supply planning. ;

E. Water provided under the contract is for the use in the water purveyor's designated service area and the water purveyor shall not wheel or wholesale any water received from Spokane beyond what is set out in their water system plan or an agreement existing at the time the contract is signed without first obtaining written permission from the City of Spokane.

F. Provisions regarding collaboration on system loss and efficiency measures within the wholesale water purveyor's infrastructure that meets state standards;

G. All Parties must have an existing written water conservation plan with specific reasonable goals and are required to implement and maintain annual water conservation, reduction of system loss in accordance with Chapter 246-290 WAC and efficiency measures with a measurable goal of reducing the annual amount of water consumed per capita year over year especially during Summer and early Fall consistent with state law. The plan will include program effectiveness consultations at least every three years, including documentation of changes in total gallons used and per capita use on an annual and seasonal basis by customer class;

H. All Parties shall participate in any drought response water conservation measures triggered by weather conditions and/or Spokane River flows as may be developed and adopted by the City for all retail and wholesale customers with a methodology for reasonable notice included in the contract; and

I. A written acknowledgement in the contract that the wholesale water supply may be curtailed or interrupted due to drought, low flows in the Spokane River, or shortage pursuant to such reasonable rules and measures adopted by the water department that are consistent with city code, adopted plans, and state law.

Section 13.045.040 Water Charges

A. Charges for water will be as established by the wholesale purveyor rate set out in SMC 13.04.2014.

B. Intertie agreements shall include clear delineation of costs that are the responsibility of the water purveyor, including capital and construction costs, and those that are the responsibility of the City of Spokane.

Section 13.045.050 Water Rights and Seasonal Flow Goals

A. The City of Spokane shall not sell or transfer any water rights without the approving vote of City Council. The City upon approval of City Council may acquire available water rights if it would be prudent to do so for the purpose of protecting the resource for system resiliency purposes, and/or operational efficiency as provided by Chapter 35.21 RCW.

B. The City Council will use the best available evidence and science to set written appropriate minimum seasonal river flow goals for the portion of the Spokane River flowing through the City of Spokane in respect to City operations only. Appropriate minimum flow goals set by the City Council may exceed the minimum standard as established by Washington State Department of Ecology in Chapter 173- 557 WAC. Such goals are not intended to overlap the legal jurisdiction of the State of Washington.

C. The City is committed through its policies and environmental sustainability plan to substantially conserve water and reduce per capita consumption across the City's water distribution system as set out in the City's Water System Plan and water use efficiency goals that are established by City Council Resolution. In order to achieve the City's water use efficiency goals, the City will provide budget support for the following operational and maintenance efforts and policy framework that will improve and protect the regional delivery system's natural water resources, efficiency and effectiveness, including flows in the Spokane River:

1. Conservation educational programming and technical advice;
2. Implementation of conservation measures on city owned property;
3. Programs supporting water conservation equipment and irrigation reduction for all customers;
4. Water re-use programs;
5. Seasonal irrigation efficiency and reduction measures; and
6. Other innovations that will support water conservation goals and increased flows in the Spokane River.

D. The City's policy is to adhere to its river flow goals by following its conservation measures and efficiency plans developed by the water department, which may include implementing seasonal irrigation measures in accordance with the City's policies and procedures. Within twenty months of the adoption of this chapter, the City shall develop and periodically update a comprehensive plan and clear policies and procedures applicable to all customers and classes to achieve its water conservation goals.

Section 13.045.060 Reporting

The Water Department shall provide a written report each February to the City Council that provides for the previous five years, the total number of gallons pumped by the City to each class of customer, including but not limited to residential, commercial and intertie agreements; the revenue from each class of customer and associated costs; the amount of money spent on conservation; the estimated number of gallons of water saved on an annual basis from new City of Spokane conservation efforts; the percentage and number of gallons lost by the water distribution system; the per capita consumption for all customers of the City's water service; and other information that will assist the Council in evaluating the goals of increasing river flows and decreasing the amount of water consumed per capita each year across the City of Spokane's water distribution system.

Passed by City Council July 9, 2018
Delivered to Mayor July 12, 2018

WAC 246-290-810

WAC 246-290-810 Water use efficiency program. (1) Water system plans and small water system management programs submitted for approval for the first year after the effective date of this rule, must describe the municipal water supplier's existing water use efficiency program. The municipal water supplier must continue existing levels of water use efficiency.

(2) Subsections (3) and (4) of this section apply to:

(a) Water system plans submitted to the department for approval under WAC 246-290-100 one year after the effective date of this rule.

(b) Small water system management programs developed and implemented or submitted to the department for approval one year after the effective date of this rule.

(3) Municipal water suppliers shall develop and implement a water use efficiency program which includes sufficient cost-effective water use efficiency measures to meet the water use efficiency goals developed under WAC 246-290-830.

(4) Municipal water suppliers shall complete the following items in the water use efficiency program:

(a) Describe the current water use efficiency program;

(b) For systems serving one thousand or more total connections, estimate the amount of water saved through implementation of the water use efficiency program over the prior six or more years; the estimate may include the entire approval period of the most recent water system plan required under WAC 246-290-100;

(c) Describe the chosen water use efficiency goals and document the goals were established in accordance with WAC 246-290-830;

(d) Evaluate water use efficiency measures to determine if they are cost-effective as follows:

(i) Evaluate or implement, at a minimum, the number of water use efficiency measures specified in Table 13 based on the system's total number of connections.

(ii) Evaluate or implement water use efficiency measures from the following categories of measures if they are applicable: Indoor residential, outdoor, and industrial/commercial/institutional.

(iii) For systems serving less than one thousand total connections, describe the evaluation process used to select water use efficiency measures.

(iv) For systems serving one thousand or more total connections, include the following criteria when evaluating water use efficiency measures:

(A) Quantitatively evaluate water use efficiency measures to determine if they are cost-effective from the system's perspective including the marginal costs of producing water.

(B) Address whether the water use efficiency measures are cost-effective if the costs are shared with other entities.

(C) Quantitatively or qualitatively evaluate water use efficiency measures to determine if they are cost-effective from the societal perspective.

Table 13

Number of connections	Less than 500	500-999	1,000-2,499	2,500-9,999	10,000-49,999	50,000 or more
Water use efficiency measures	1	4	5	6	9	12

(e) Describe all water use efficiency measures to be implemented over the next six or more years, including a schedule and a budget that demonstrates how the water use efficiency measures will be funded. Purveyors may submit a schedule and budget for the entire water

system plan approval period, if the approval period is longer than six years;

(f) Describe how consumers will be educated on water use efficiency practices;

(g) Estimate projected water savings from selected water use efficiency measures;

(h) Describe how the water use efficiency program will be evaluated for effectiveness;

(i) Evaluate water distribution system leakage as follows:

(i) Include distribution system leakage annual totals in accordance with WAC 246-290-820 for each of the past six or more years. Purveyors shall submit distribution system leakage annual totals for the entire water system plan approval period if the approval period was longer than six years.

(ii) If necessary, include a copy of the water loss control action plan in accordance with WAC 246-290-820(4).

(iii) If all or portions of transmission lines are excluded when determining distribution system leakage, estimate the amount of leakage from the excluded portion of the transmission mains and describe how it is maintained to minimize leakage.

[Statutory Authority: RCW 43.20.050 and 70.119A.080. WSR 17-01-062, § 246-290-810, filed 12/14/16, effective 1/14/17. Statutory Authority: RCW 70.119A.180. WSR 07-02-025B, § 246-290-810, filed 12/22/06, effective 1/22/07.]