

Water Resource Collaboration Group

2021 Water Conservation Recommendations for the City of Spokane

Introduction

The Water Resource Collaborations Group (WRCG) is a technical advisory group consisting of volunteer community members with a background in water resource management, hydrology, and ecology. City Council authorized the WRCG by resolution on July 27th, 2020. In that same resolution, 2020-0051, the City adopted its first Water Conservation Master Plan which set a per capital water reduction target of 5% over a period of 10 years.

At the time, City Council envisioned that the next version of our conservation plan would include more robust conservation goals as well as both voluntary and mandatory drought response measures. To make this vision possible for the City, Council tasked the WRCG to put forth a series of recommendations.

Specifically, City Council asked the WRCG to form recommendations in three areas: the City's ten-year conservation targets, additional conservation measures to be included in the next version of the Water Conservation Master Plan, and mandatory drought reduction measures to prepare for the possibility of future droughts.

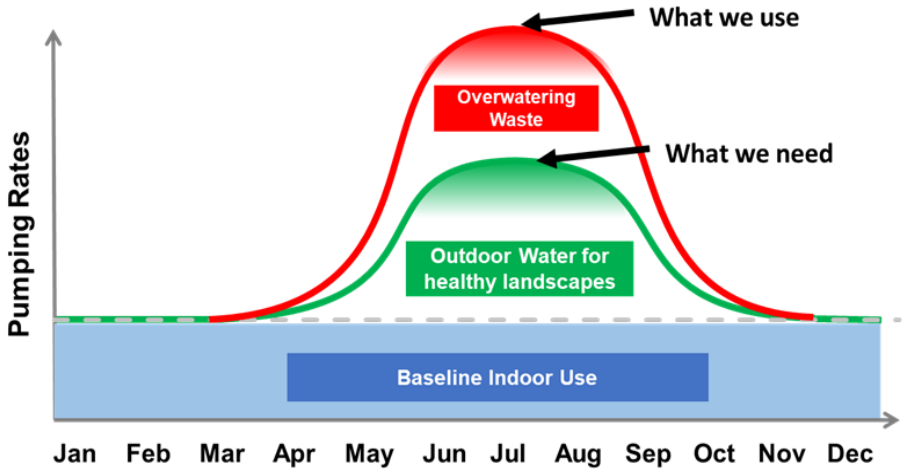
In order to maximize public input on water conservation, the WRCG established public outreach and education priorities early in their process. WRCG recommendations are based on a series of public workshops and survey responses conducted over a four-month period in early 2021.


Why We Conserve Water



We conserve to…

1. Protect the health of our river
   - Community identity
   - Economic vibrancy for our community
   - Recreational benefits
   - Preserve the ecological integrity of the river ecosystem
2. Ensure a sustainable supply of drinking water
3. Protect people and wildlife
4. Avoid water waste
5. Save money on infrastructure and at the meter.





Water efficiency is reducing water waste and protecting water quality

A lot of hard work goes into providing the water coming out of our tap every day. Wasteful water practices are unnecessary and can have significant direct and indirect costs. By reducing waste, we are reducing the costs required to pump the water to our homes and businesses as well as the costs to treat the water.

By making just a few small changes to daily routines, we can save a significant amount of water, money, and preserve water supplies for the future by simply reducing waste.

Wasted water on the roadways picks up surface pollutants from cars and other sources and may be carried into our aquifer and river.



The Aquifer & Our River

Photo Credit: Charlie Gurche

The Spokane Valley Rathdrum Prairie Aquifer



“The sole source of water for most people in Spokane County, Washington and Kootenai County, Idaho, is a large underground rocky formation containing high-quality water called the Spokane Valley-Rathdrum Prairie Aquifer (Aquifer), and it is also commonly known as the “Rathdrum-Spokane Aquifer.” Discovered in 1895, this Aquifer has become one of the most important resources in the region, supplying drinking water to more than 500,000 people.

“Our Aquifer underlies about 370 square miles in two states. It has one of the fastest flow rates in the United States, flowing as much as 60 feet per day in some areas. In comparison, a typical aquifer has a flow rate between 1/4-inch and five feet per day. The volume of the entire Aquifer is about 10 trillion gallons, making it one of the most productive aquifers in the country ”

- The SVRP Aquifer Atlas

While the aquifer is prolific it is limited by many factors which we will explore throughout this report.



Photo Credit: Austen Frostad

The Spokane River

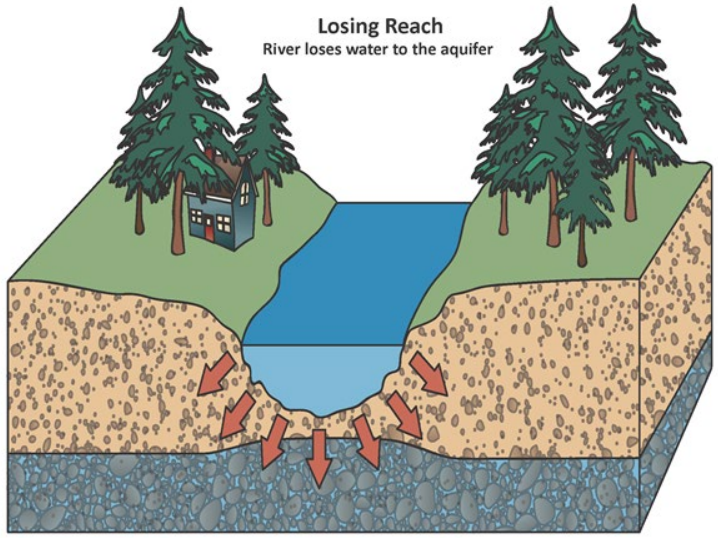
“From Lake Coeur d'Alene to its confluence with the Columbia, the Spokane River travels 111 miles of varied and often spectacular terrain-rural, urban, in places wild. The river has been a trading and gathering place for Indigenous peoples for thousands of years. With bountiful trout, accessible swimming holes, and challenging rapids, it is a recreational magnet for residents and tourists alike.”

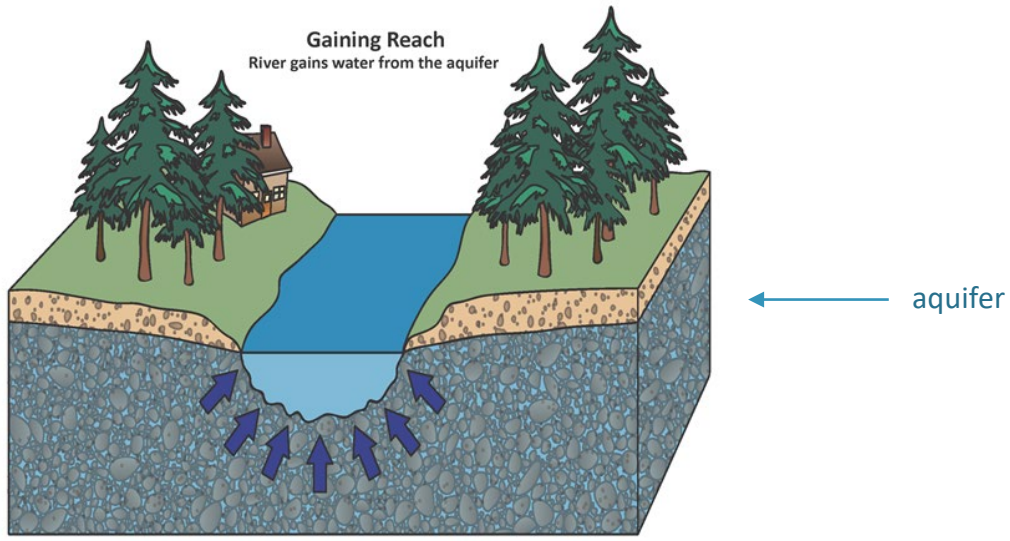
– Paul Lindholdt, “The Spokane River”

The Spokane River defines our region. It provides an aesthetic beauty cherished by residents and visitors alike. The river also provides life to a variety of native wildlife and ecosystems while providing a myriad of recreational opportunities throughout the year. The social, economic, and environmental health of our region depends on protecting this valuable natural resource.

The Aquifer and the River are Interdependent

Image Source: Spokane Valley Rathdrum Prairie Aquifer Atlas





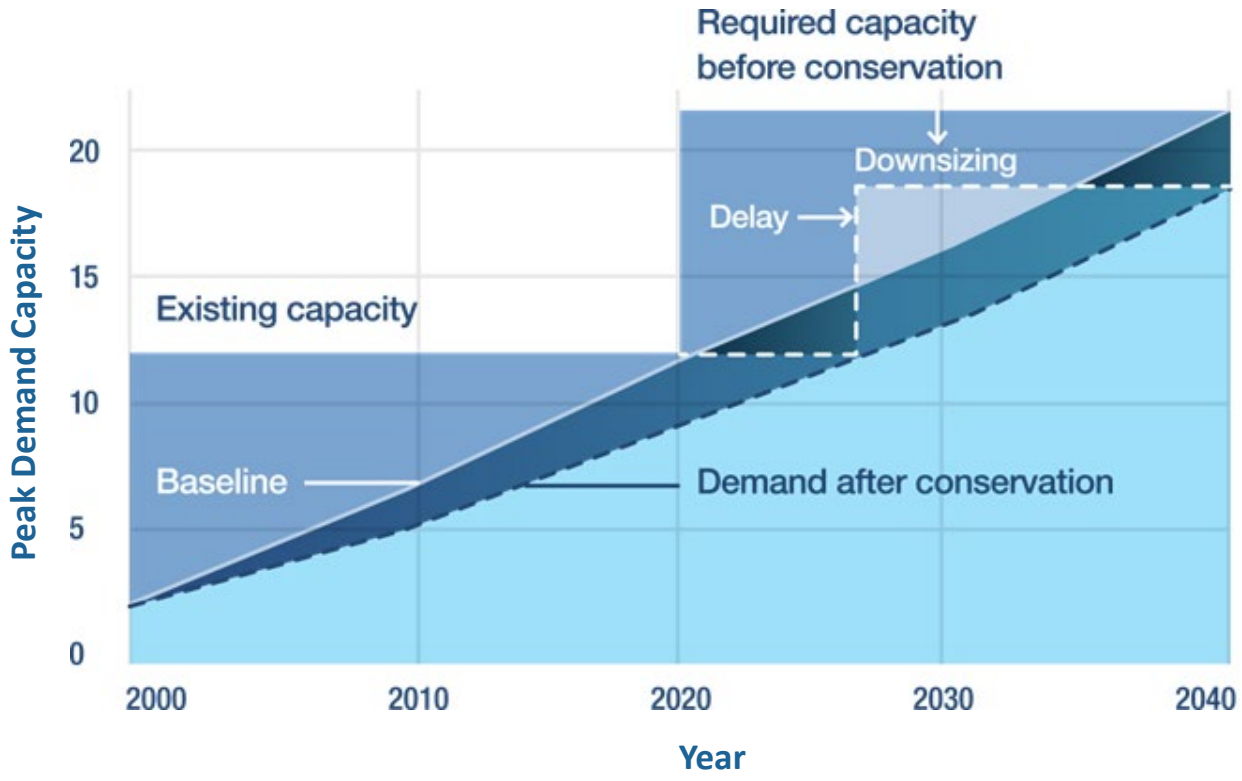
The Spokane River sits on top of the aquifer as it runs from Lake Coeur d'Alene west towards the Columbia. At times along the river's journey, the river gains water from the aquifer where the water table is high. At other times, the river loses water into the aquifer at places along the river's path where the water table is below the riverbed.

From the time the river exits Lake Coeur d'Alene until approximately Flora Road in Spokane Valley, the river loses water to the aquifer, this is called the 'losing reach'. A losing reach is where the water table of the aquifer is lower than the bottom of the river. Gravity together with the porous ground of the riverbed pulls the water into the aquifer and less water flows on the surface. The river starts gaining water from the aquifer as it flows through the center of Spokane. However, over the last several decades, increases in groundwater pumping and growth in population throughout the aquifer area is reducing river gains during critical times of the year where temperatures and pumping are at their seasonal high.

Pumping water intercepts ground water that would otherwise feed the river, reducing the amount of water the river gains. This means less water in the river for fish, wildlife, and people living in the Spokane region and downstream.

Sources: USGS and WA Dept of Ecology


Conservation & Economics



Source: Water Conservation Programs – A Planning Manual (M52), American Water Works Association

Conservation reduces infrastructure costs

Water utilities face growing water demand due to population growth, higher operating costs, and aging infrastructure.

In addition, the City provides water to customers in the water service area while maintaining reliable service, high water quality, and managing wastewater discharge.

Water-efficiency programs are a sound return on investment for water utilities. Using water more efficiently saves money, reduces stress on water systems and the environment, and preserves water supplies for future generations.

For just about every water supplier, it is a matter of when—not whether—to add capacity. In this context, water-efficiency measures taken today help communities defer capacity investments and/or reduce the size of the expansion needed. This reduces costs for everyone.

Using less water keeps costs down over time

The costs of updating aging water systems and investing in new technologies are the primary drivers of most rate increases. Using less water keeps those costs down over time. By stretching the lifespan of supply sources, water agencies can avoid or delay the costs of securing new supplies; building and maintaining new infrastructure; and treating more water and wastewater.

- **Tucson, AZ:** Thirty years of conservation reduced per-person-per-day use from 188 gallons to 130 gallons. Without this reduction, Tucson would have needed to invest $350 million in new infrastructure to deliver and treat more water and wastewater. Because these costs were avoided, rates are at least 11.7 percent lower today, and customers save an average of $112 annually on their water bills.
- **Gilbert, AZ:** Two decades of water conservation brought water use down by 29 percent from 244 gallons to 173 gallons per person per day. Gilbert and its ratepayers have avoided just under $341 million in water and wastewater treatment expenses. Thanks to conservation, Gilbert customers pay rates that are 5.8 percent lower than they would be without conservation.
- **Westminster, CO:** Thanks to conservation, the volume of water used per person per day declined by 17%, even as the population more than doubled from roughly 52,570 to 106,114 people. If the peaking factor had not been reduced by 30%, Westminster would have had to expand system to accommodate an extra 52 million gallons per day. Developing the additional water treatment infrastructure to meet these higher demands would have required a capital investment by the City of approximately $130,000,000.

Washington State Water Rates

WA DOH Water System Data				Purveyor website Data, Residential Single Family Within City Rates, 2019												
								Consumption Charge Tiers by Increasing Usage								
WS Name	Region	County	Total Conn	Bi-monthly Basic Service	Monthly Basic Service	Meter size, inches	Units included in Basic Service?	1st Step Usage, units	1st Step Rate, $/unit	2nd Step Usage, units	2nd Step Rate, $/unit	3rd Step Usage, units	3rd Step Rate, $/unit	4th Step Usage, units	4th Step Rate, $/unit	Example month bill, ERU 359 gpd ~ 15 units
SEATTLE PUBLIC UTILITIES **	Northwest	KING	173833		$ 17.15	3/4	No	0 - 5	$ 5.41	6 - 18	$ 6.69	> 18	$11.80			$ 111.10
TACOMA WATER DIVISION CITY OF	Northwest	PIERCE	138239		$ 24.76	5/8	No	0 - 5	$ 2.01	> 5	$ 2.51					$ 59.92
VANCOUVER CITY OF	Southwest	CLARK	104798		$ 8.53	5/8	No	> 0	$ 2.22							$ 41.83
SPOKANE CITY OF *	Eastern	SPOKANE	85259		$ 17.72		No	0 - 6	$ 0.34	7 - 12	$ 0.72	13 - 25	$ 0.96	26-45	$ 1.24	$ 25.92
ALDERWOOD WATER DISTRICT	Northwest	SNOHOMISH	76297	$ 31.73	$ 15.87	5/8	4	5 - 14	$ 2.51	15 - 30	$ 3.04	> 30	$ 3.66			$ 52.74
BELLEVUE CITY OF	Northwest	KING	66090	$ 48.11	$ 24.06	5/8	No	0 - 11	$ 3.77	11 - 17	$ 4.79	17-45	$ 6.29	> 45	$ 8.98	$ 90.30
YAKIMA WATER DIVISION CITY OF	Eastern	YAKIMA	27638	$ 21.68	$ 10.84	3/4	No	> 0	$ 1.80							$ 37.84
WHITWORTH WATER DISTRICT 2	Eastern	SPOKANE	11849		$ 21.00		10	11 - 37	$ 0.38	37 - 140	$ 0.50	> 140	$ 0.61			$ 22.90
PULLMAN WATER DEPARTMENT, CITY OF **	Eastern	WHITMAN	11637		$ 24.25	3/4	5	6 - 8	$ 2.56	9 - 20	$ 2.76	> 20	$ 4.58			$ 51.25

* City of Spokane rates are up to date as of Dec 2021; all other data is from 2019

** Summer Rates

Economic Impact of Recreation

Few cities can claim a natural asset that puts the business district in touch with fishing, biking, hiking, and paddling within face-washing distance of a thundering waterfall. A healthy Spokane River supports a thriving recreation industry.

A study by ECONorthwest quantified the economic impacts of the Centennial Trail, a nearly 40-mile paved trail located in Spokane County in eastern Washington. It follows the Spokane River and extends from the Washington/Idaho border, through Liberty Lake, City of Spokane Valley, City of Spokane, Riverside State Park, and Nine Mile Falls. Washington State Park visitor statistics estimate that approximately 1.5 million pedestrian and biking trips occur on the Centennial Trail every year, many of which are likely repeat users, such as commuters or neighborhood residents.

Trail users support local economies by spending money on transportation, lodging, and equipment. An economic model of local economies was used to produce estimates of the total economic contributions and jobs supported by the Centennial Trail. These results include both the direct impacts of spending, as well as the indirect and induced impacts of increased local economic activity.

A clean, healthy river provides residents much needed refuge from summer heat. The dozens of public access points along the river offer Spokane area residents and visitors equitable access to the river and the health benefits it provides.



Summary of Annual Economic Impacts
Supported by the Spokane Centennial Trail

IMPACT TYPE	VALUE
Economic Contribution	$1.7 million
Total Labor Income	$594,000
Total Jobs	22
Health Savings	$1.6 million
Recreational-Use Value	$12 million
Property Values	$23.7 million

Source: ECONorthwest

Values are realized annually



Trends & Impacts

Photo Credit: Sean Zenishek

Climate Trends

Spokane's climate is warming. In 2021, the National Weather Service measured a 0.4 degree Fahrenheit increase above the thirty-year average from the previous decade in Spokane. Climate projections indicate that Spokane temperatures will continue to increase throughout this century, with greater increases experienced over the summer months. Additionally, climate data in our region is showing a trend of increasing summer drought.

Analysis of climate data by the Spokane Climate Project indicates that shifts in timing and type of precipitation, particularly in the winter months, will have a significant impact on our River throughout the year.

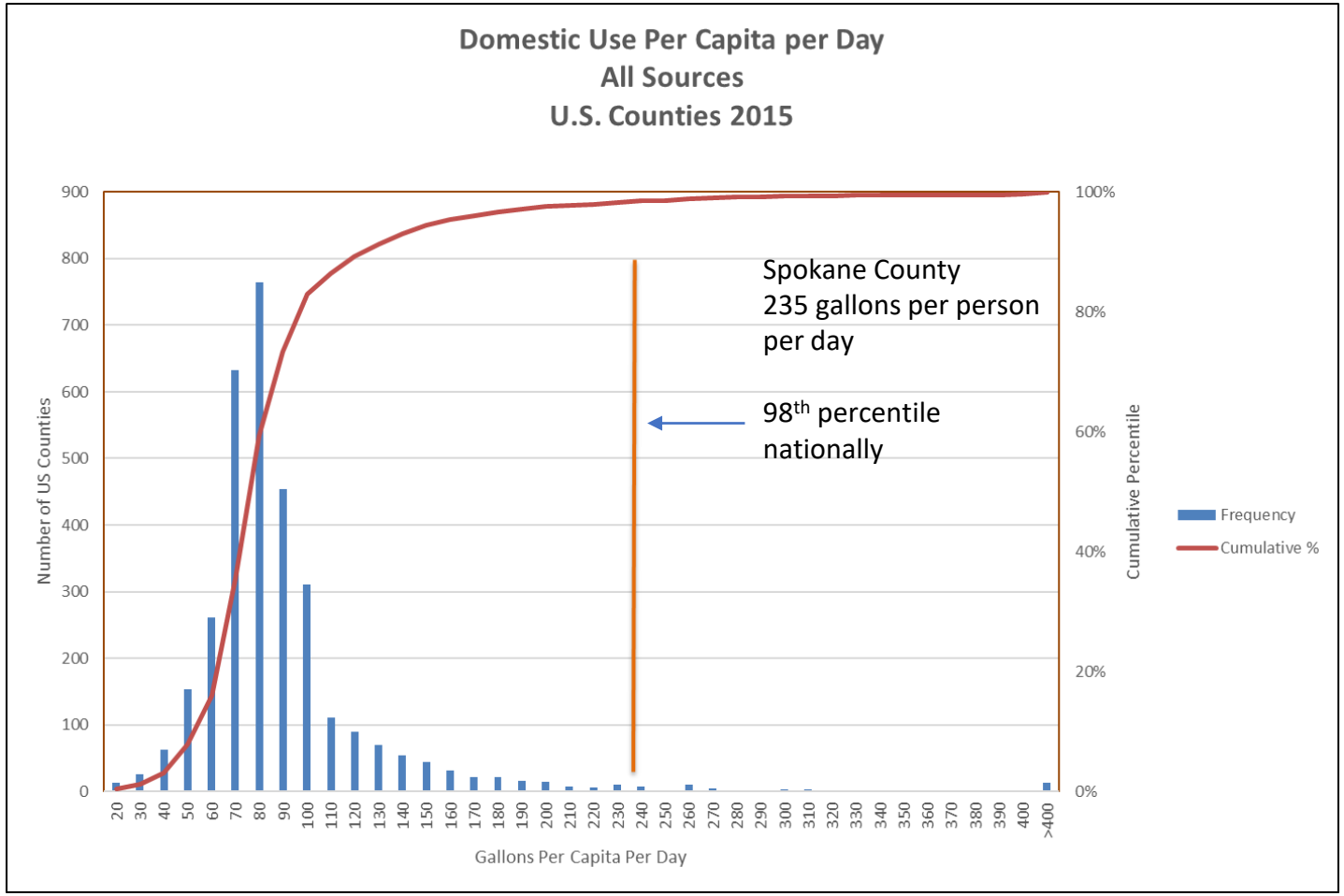
"When precipitation falls as snow it can contribute to snowpack, a critical natural water storage system for our region. Snowpack, especially mountain snowpack, delays the timing of the water entering a stream system. Conversely, when winter precipitation falls as rain, that water enters the stream system immediately. This leads to a decrease in the amount of water stored in the mountains as snow that would otherwise enter the stream system later during the spring and summer months. As a result, more water flows out of the watershed earlier in the year, leading to earlier and longer summer-low flows in rivers and streams."



Spokane River - 8/23/05
Upstream from Sandifur Bridge
600 cubic feet per second (CFS)

Sources: National Weather Services, Spokesman Review, Spokane Climate Project

Per capita Water Use



Source: Version 2.0: Dieter, C.A., Linsey, K.S., Caldwell, R.R., Harris, M.A., Ivahnenko, T.I., Lovelace, J.K., Maupin, M.A., and Barber, N.L., 2018, Estimated use of water in the United States county-level data for 2015 (ver. 2.0, June 2018): U.S. Geological Survey data release, https://doi.org/10.5066/F7TB15V5.

This graph illustrates per capita water use throughout the U.S.. Per capita water use is a measure of how many gallons each person uses daily, on average.

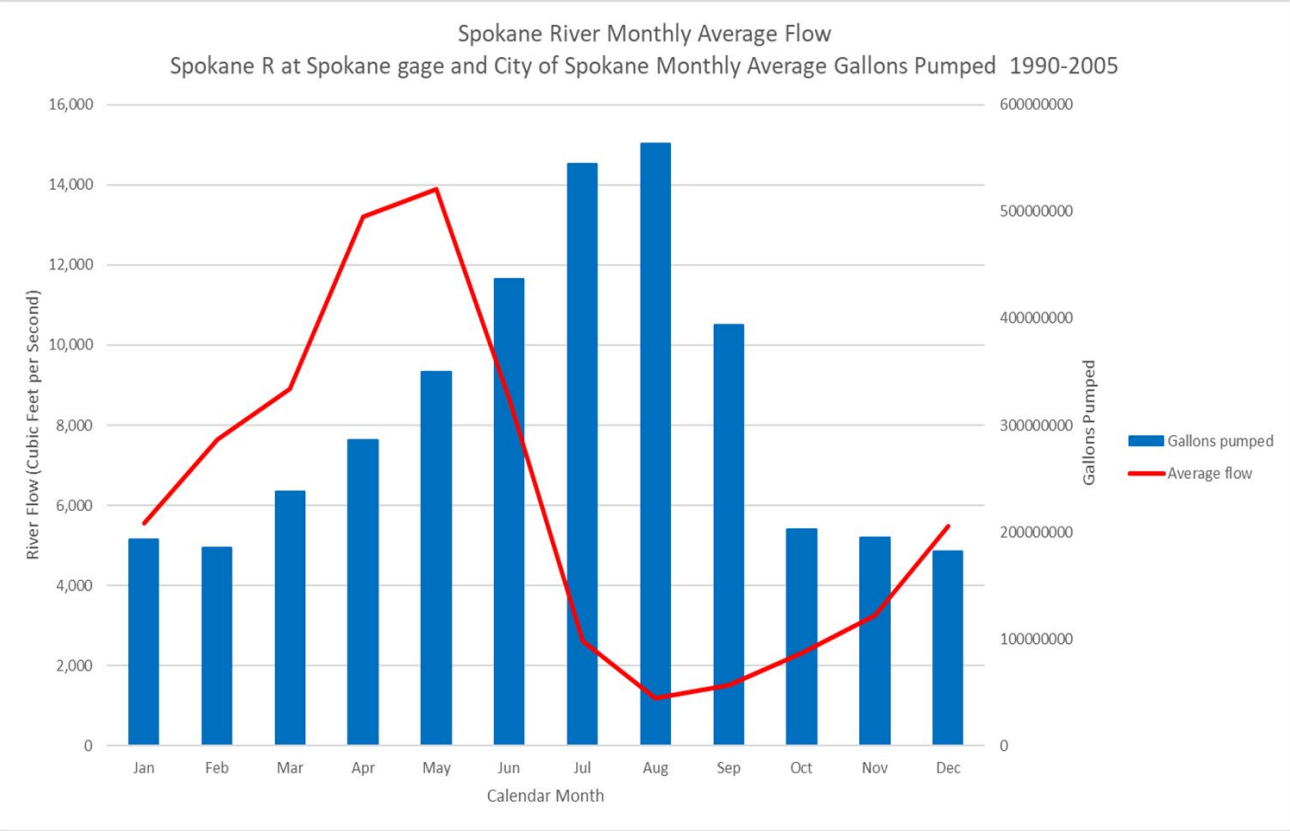
The axis on the bottom indicates the per capita daily water use in gallons.

The left axis shows frequency, or the number of counties that fall into a particular per capita use. The blue bars show the number of counties in each per capita water use range. The most common water usage is 80 gallons of water per person per day. The second most common water use average is 70 gallons per person per day. In other words, people in the U.S. use 80 gallons of water per day, on average.

Spokane County per capita water use is 235 gallons per person per day. Within the city of Spokane, people use, on average, 202 gallons per day.

The cumulative percentages on the right, where the orange line and red line cross, indicates that residents of Spokane County use more water than 98% of the country, and 155 gallons more per day per person than the national mean.

Pumping Impacts River Health



Sources: Washington Dept. of Ecology datasets for the SVRPA Modelling Team, 2007 and Spokane at Spokane gaging data, USGS NWIS, extracted 2020

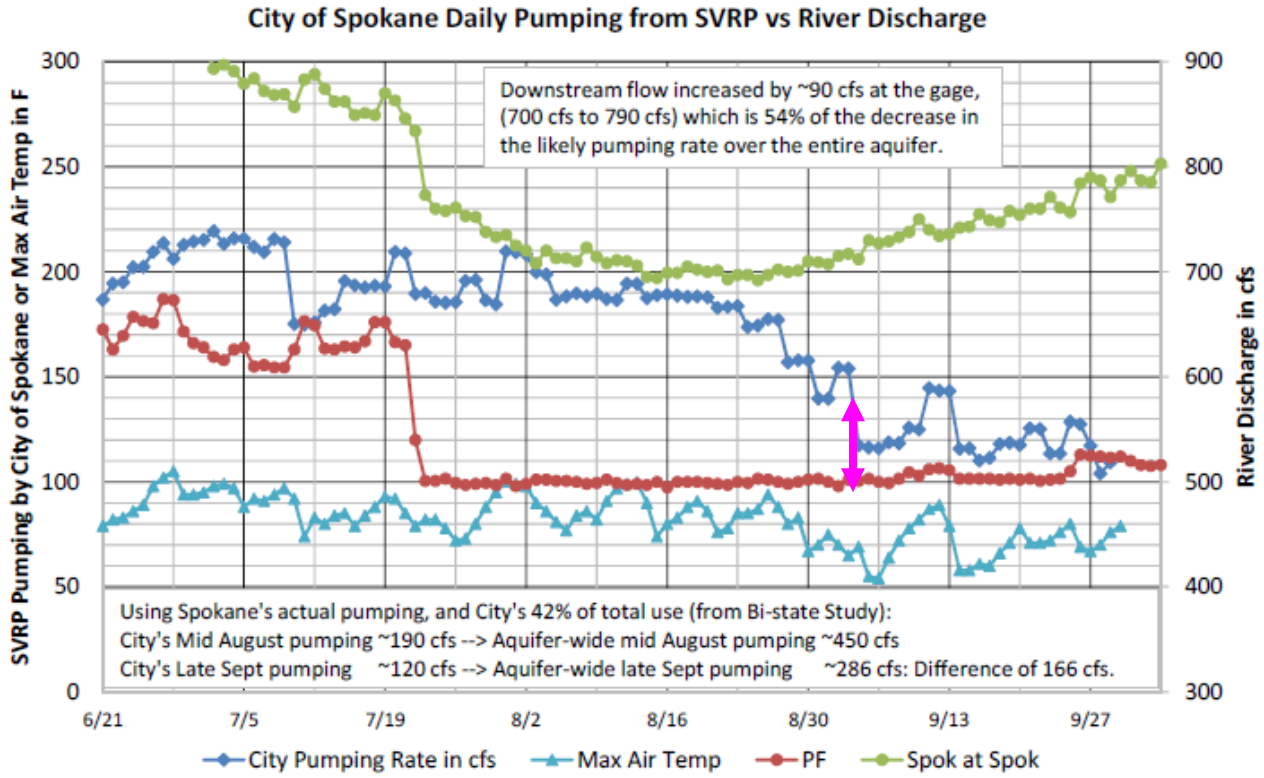
Just as we are pumping more water from the SVRP aquifer to water our lawns during the summer, the river flows are at their lowest. It is during this time that the river needs water the most.

Pumping Impacts the River

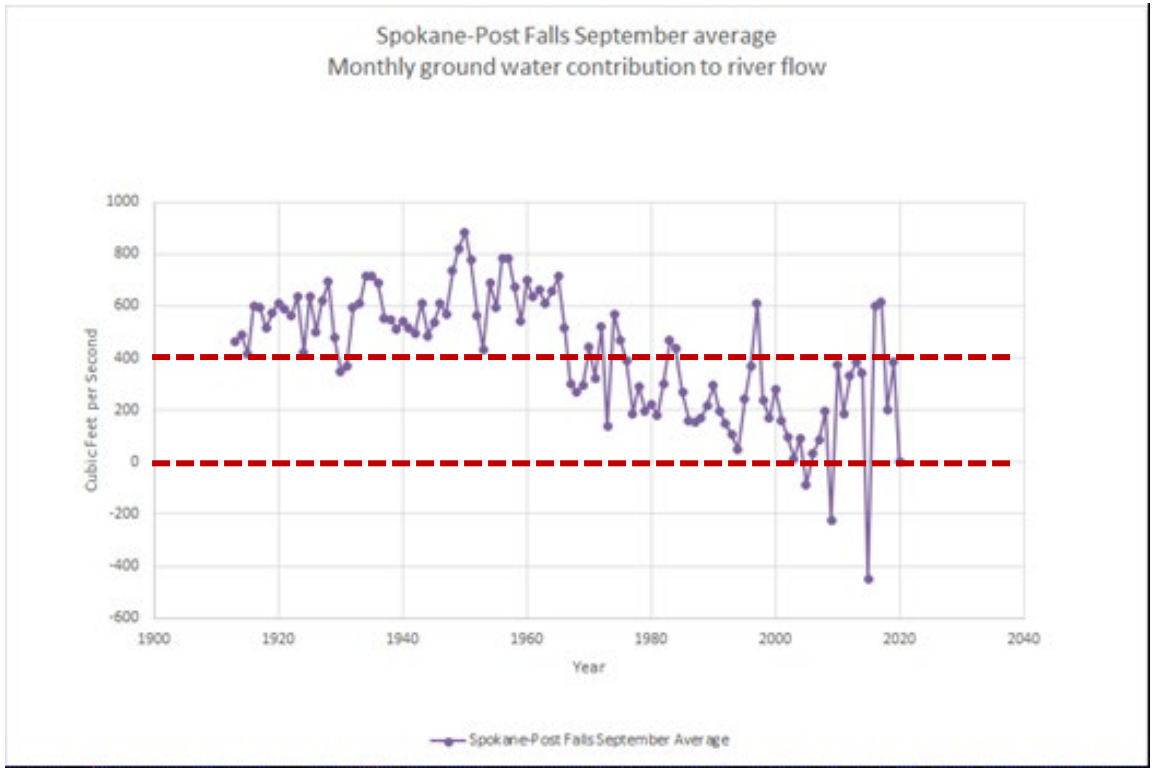
The relationship between water withdrawals from the Aquifer and flow rates in the Spokane River (Summer 2015)

- Light blue line shows summer fluctuation in air temperature
- Dark blue line shows rate of pumping from the Aquifer due to summer peak demands for irrigation
- Green line shows decreasing flow rate in the Spokane River during summer months as measured in downtown Spokane. You can see that when pumping increases in June, river flows decrease; when pumping slows in late August, flows begin to increase.
- Red line shows discharge from the Post Falls Dam. In drought years like 2015, Avista maintains the minimum 500 cubic feet per second (cfs) flow rate in the river
- Pink arrow shows how reduced pumping from the aquifer is associated with increased flows in the Spokane River, despite constant discharge from Post Falls Dam

The pink arrow on this graph highlights as city pumping decreases at the end of August, flows in the Spokane River increase. This is because the Aquifer and the Spokane River are connected. With wise water use, we can keep water in the river and improve river health.



Graph credit: John Covert. (2018, Feb 27). Healthy River Healthy Spokane [Conference presentation]. Water Quality Forum, Spokane, WA, United States. https://vimeo.com/257950229



Source: USGS data analyzed by Guy J. Gregory, L.G., L.Hg.

Pumping Trends

As we grow and demand more water, late summer River flows get less water from the aquifer. The September average shows:

- Prior to 1960, in dry years, late summer flows in the Spokane River gained 400 cfs from the Aquifer.
- Since 1960, the River seldom gains as much as 400 cfs from the aquifer.
- Since 2000, it's quite common that the River gets zero flow (as indicated by the red dotted line) from the Aquifer.



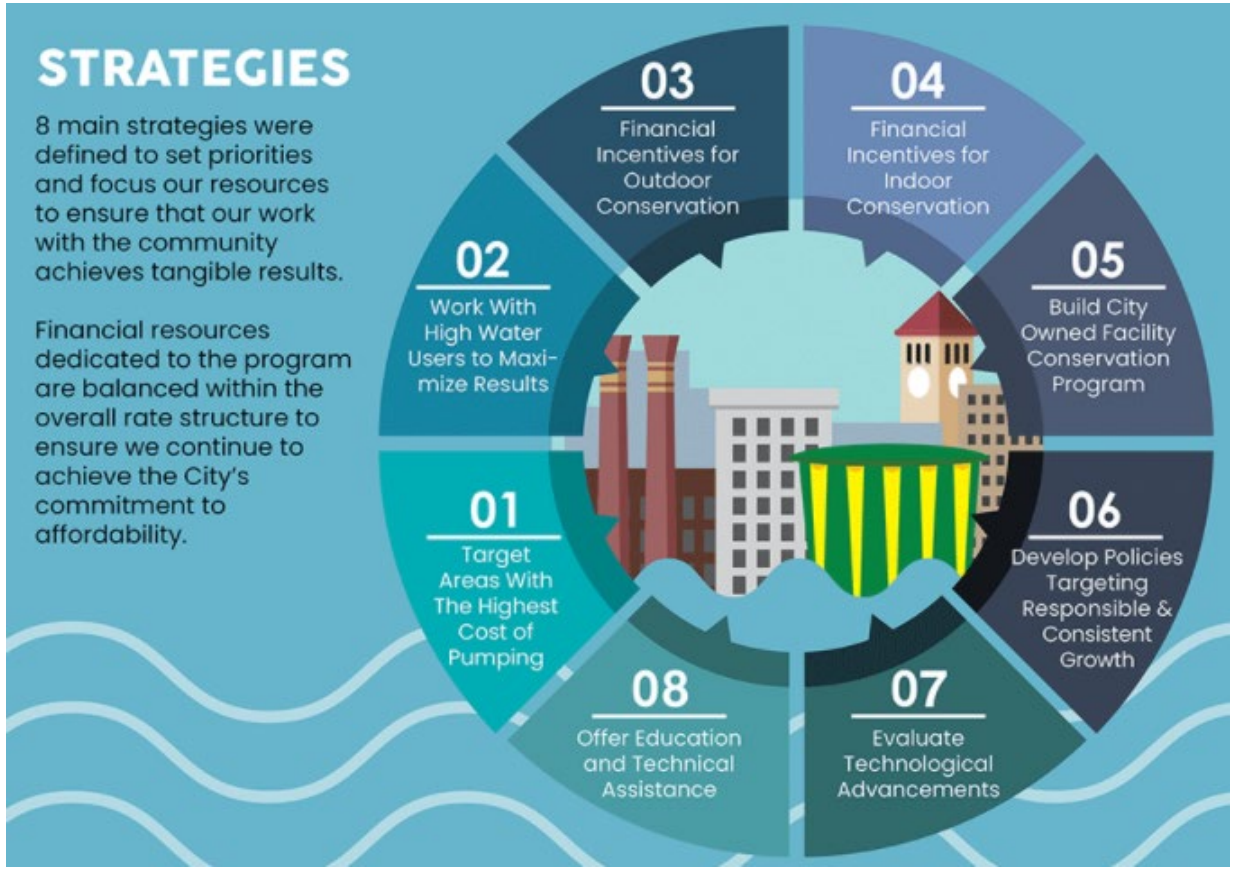
WRCG Recommendations

Amplify the Existing Plan

In 2020, the City of Spokane adopted its first Water Conservation Master Plan. The 2020 plan contains all the elements of a good water conservation plan, however, due to limited resources dedicated to conservation efforts, the plan's reduction targets were extremely low.

In a region where water use is higher than 98% of the United States, we think Spokane can do better! The following pages outline the WRCG recommendations to increase conservation within the city to ensure long-term sustainability of our natural ecosystems and to lessen additional economic impacts to our residents.

This donut chart shows the primary strategies of our existing plan. The four strategies below the graphic highlight key components of the existing plan the WRCG wants to see amplified by increases capacity and resources into the program.



Focus on high water users	Provide free water consults and incentives	Expand on existing WaterWise program	Expand on existing Spokane Scape program

New Conservation Target: 25% by 2030

Achieve annual pumping reduction of 25% from 2015-2019 average by 2030.

City of Spokane Water Use	Per capita daily use (in gallons)	National percentile ranking *	Percent Reduction from baseline
Baseline*	202	97	
Existing Target	191	97	5%
Proposed Target	151	94	25%

Baseline refers to the 2020 per capita daily water use within the city limits. The county per capita daily use is 235 gallons which is in the 98th percentile nationwide; the city per capita daily use is 202 and is in the 97th percentile nationwide. County data is from a 2015 US Geological Survey report. City data provided by the City of Spokane Water Department.

* Source: Version 2.0: Dieter, C.A., Linsey, K.S., Caldwell, R.R., Harris, M.A., Ivahnenko, T.I., Lovelace, J.K., Maupin, M.A., and Barber, N.L., 2018, Estimated use of water in the United States county-level data for 2015 (ver. 2.0, June 2018): U.S. Geological Survey data release, https://doi.org/10.5066/F7TB15V5.

Staffing Recommendations

The 2020 conservation target of 5% reduction over ten years is based on existing staffing resources of 2 fulltime employees. Currently, the City employs one full time Water Conservation Coordinator and one Water Efficiency Specialist who focuses on providing support for SpokaneScape. For the City of Spokane to make meaningful progress on water conservation, the City will need more staff capacity. The WRCG recommends:

- 1 FTE Water Conservation Coordinator
- 2 FTE Water Efficiency Technicians – expertise in both residential and commercial systems is needed
- 1 FTE Education and Outreach Specialist

For comparison, the City of Flagstaff has 1/3 of Spokane's population and staffs 5-6 full time employees in their Water Conservation office. Their water consumption is currently 84 gallons/per person/per day compared to Spokane's 202 gallons. Over the past ~30 years, Flagstaff has reduced their water consumption by 50%.

For Spokane, a 25% reduction in pumping will result in cost savings to the City in terms of energy and resource use, and in infrastructure avoidance costs. More analysis needs to be done to identify more accurate cost benefits to the City.



Policy Recommendations

The WRCG recommends the following City policy changes be made in order to effectively reduce water consumption.

1. Adopt efficient irrigation and landscaping design standards for new construction and large renovations
2. Adopt drought response measures
3. Require highest water users in each sector (residential, commercial, municipal) participate in City's free water audit program or to provide alternative conservation plan
4. Consider updating plumbing code standards



Residential Program Recommendations

1. Create program for on-site technical assistance:
   - Prioritize top 10-20% of high water uses
   - Provide free water audits
   - Offer on-site solutions for leak detection and repairs
   - Create program for low-income residents to repair leaks

2. Improve reporting on water bill
   - Make it easier for customers to truly understand their monthly water usage
   - Add messaging that compares water use in the neighborhood, city, country

3. Accelerate smart water meter roll-out for real-time system monitoring

4. Offer incentives for Flume or similar leak detection devices, including purchase via water bill – Flume program – might be good for Spokane (Water Dept is already exploring this).

5. Offer incentives for on-demand water heaters at hot water fixtures



Commercial Program Recommendations

1. Develop a Commercial Water Efficiency Program to provide technical guidance with primary focus on Top 50 Commercial Water Users
   - Expand current strategy to include technical water audits
   - Provide custom incentives/rebates based on water audit findings

2. With current staffing levels, it is recommended the City seek the assistance of a technical consultant to work with City staff to initiate an effective program. The consultant should:
   - Develop a Commercial Water Efficiency Program framework and methodology.
   - Provide technical water audit training to City Conservation staff.
   - Apply the Program methodology to key properties.
   - Fine tune the Program methodology based on Program outcomes.
   - Transition a fully functional Program to City Conservation staff for inhouse operation.

3. Increase Water Conservation Staffing levels to maintain Water Efficiency Program as a City service.
   - Successful conservation programs typically have 1 manager to oversee and direct conservation programs and between 2-4 technicians to provide program services.



Ongoing Education & Outreach

1. Ensure E&O messaging includes education on the following key points:
   a. How pumping impacts our aquifer and river
   b. More emphasis on the following solutions:
      - Simple, easy to follow irrigation & landscaping suggestions – current suggestions are overwhelming for people who are not looking to remove turf or make major changes
      - Leak detection devices (indoor & outdoor)
      - Weather-based irrigation devices



2. Update e-bill messaging (new system coming fall 2021) – this is a big opportunity. Many people who attended the water workshops said that messaging was not reaching them. The e-bill program should include solutions for higher water users and to provide visibility on where people fit within their neighborhood or the city in terms of water use.
   a. Make water data available for download – this allows people to import their water use into software/apps to track their conservation over time
   b. Consider purchasing or creating software to make usage more visible. You cannot improve what you cannot measure
   c. Automatically include the following in all bills:
      - River flows – build awareness on current river flow status using USGS flow status from Spokane Gage
      - If you are a high-water user, you automatically get sent information on how to conserve, check for leaks, participate in free water audit, rebates, etc.

3. The WRCG has gathered dozens of recommendations on conservation E&O. A comprehensive list of feedback and ideas will be provided to the Water Conservation Coordinator to consider for implementation into their current messaging.



Drought Response Measures

Drought Response Option 1

Drought Type	Triggers	Dates Effective	# of Years Triggered Since 2009	Required Measures	Voluntary Measures
Advisory	ECY issues **Drought Advisory for Spokane County**	April 1-June 1	1 (ECY received drought advisory authority 2020)		▪ Daytime watering prohibition (9am-6pm) ▪ Every other day watering (all outdoor) ▪ 15 min/station; 2 hour total irrigation (all types) ▪ Home car washing restriction ▪ Hardscape washing restriction
Moderate	**River Flow <6,500 CFS**	June 1-15	8	▪ Daytime watering prohibition (9am-6pm) ▪ Every other day watering (all outdoor)	▪ 15 min/station; 2 hour total irrigation (all types) ▪ Home car washing restriction ▪ Hardscape washing restriction
River Drought	**River Flow <1,250 CFS**	June 16 – Oct 1	5 prior to 8/1; every year after 8/1	▪ Daytime watering prohibition (9am-6pm) ▪ Every other day watering ▪ 15 min/station; 2 hour total irrigation (all type) ▪ Home car washing restriction ▪ Hardscape washing restriction	
Drought Emergency	**River Flow <850 CFS** *or* ECY issues **Drought Emergency for Spokane County**	June 16 – Oct 1	4	▪ Daytime watering prohibition (9am-6pm) ▪ 2 day per week watering ▪ 15 min/station; 2 hour total irrigation (all type) ▪ Home car washing restriction ▪ Hardscape washing restriction	

Option 1 incrementally curtails outdoor water use depending on the drought type, with the goal of changing citizens behavior to voluntarily adopting water conservation practices. River flows and determinations from the WA Dept. of Ecology (ECY) are used as triggers to define drought type. All river flows (cubic feet per second, CFS) are measured at the USGS gauge located near Monroe St. Bridge (USGS 12422500 Spokane River at Spokane, WA).

Drought Response Option 2

Drought Type	Triggers	Dates Effective	# of Years Triggered Since 2009	Required Measures	Voluntary Measures
Advisory	ECY issues **Drought Advisory for Spokane County**	April 1 – June 1	1 (ECY received drought advisory authority 2020)		▪ Daytime watering prohibition (9am-6pm) ▪ Every other day watering (all outdoor) ▪ 15 min/station; 2 hour total irrigation (all types) ▪ Home car washing restriction ▪ Hardscape washing restriction
Moderate	**River Flow <6,500 CFS**	June 1 – 15	8	▪ Daytime watering prohibition (9am-6pm)	▪ Every other day watering (all outdoor) ▪ 15 min/station; 2 hour total irrigation (all types) ▪ Home car washing restriction ▪ Hardscape washing restriction
River Drought	**River Flow <1,250 CFS**	June 16 – Oct 1	5 prior to 8/1; every year after 8/1	▪ Daytime watering prohibition (9am-6pm) ▪ Every other day watering (all outdoor)	▪ 15 min/station; 2 hour total irrigation (all types) ▪ Home car washing restriction ▪ Hardscape washing restriction
Drought Emergency	**River Flow <1,000 CFS** *or* ECY issues **Drought Emergency for Spokane County**	June 16 – Oct 1	6	▪ Daytime watering prohibition (9am-6pm) ▪ 2 day per week watering ▪ 15 min/station; 2 hour total irrigation (all types) ▪ Home car washing restriction ▪ Hardscape washing restriction	

Option 2 is the same as option 1 but with greater consideration given to river flows, adding a mid-summer trigger at 1250 CFS. Fewer actions are "required" until the drought type is severe or extreme. River flows and determinations from the WA Dept. of Ecology (ECY) are used as triggers to define drought type. All river flows (cubic feet per second, CFS) are measured at the USGS gauge located near Monroe St. Bridge (USGS 12422500 Spokane River at Spokane, WA).

This is the WRCG's preferred option.

Drought Response Option

Drought Type	Triggers	Dates Effective	# of Years Triggered Since 2009	Required Measures	Voluntary Measures
Advisory	**River Flow <6,500 CFS** *or* ECY issues **Drought Advisory for Spokane County**	June 1 – Oct 1	All years	▪ Daytime watering prohibition (9am-6pm) ▪ Every other day watering (turf) ▪ 15 min/station; 2 hour total irrigation (all types)	▪ Every other day watering (garden/trees) ▪ Home car washing restriction ▪ Hardscape washing restriction
Drought Emergency	**River Flow <1,000 CFS** *or* ECY issues **Drought Emergency for Spokane County**	June 1 – Oct 1	6	▪ Daytime watering prohibition (9am-6pm) ▪ Two day per week watering (all type) ▪ 15 min/station; 2 hour total irrigation (all types) ▪ Home car washing restriction ▪ Hardscape washing restriction	

Option 3 uses simplified definitions of drought type. This option encourages citizens to change water use behavior, recognizing that Spokane is more likely to experience drought conditions more frequently into the future. River flows and determinations from the WA Dept. of Ecology (ECY) are used as triggers to define drought type. All river flows (cubic feet per second, CFS) are measured at the USGS gauge located near Monroe St. Bridge (USGS 12422500 Spokane River at Spokane, WA)

Success Stories



Photo Credit: chooseflagstaff.com

Flagstaff, AZ – 50% Conservation

Key Points

- Per capita daily water use = 84 gallons
- Since 1988, residents of Flagstaff have reduced their water use by 50%
- Permanent every other day watering and daytime water ban in place
- Flagstaff has approximately 1/3 the population of Spokane yet employs 3 times as many water conservation staff

Flagstaff shares many similarities to Spokane in terms of climate and water resources. The city of Flagstaff has four distinct seasons and is home to the largest contiguous ponderosa pine forest in the United States. As cities of the intermountain west, both rely on snowpack for much of their drinking water. Under a changing climate, both cities are expected to see diminishing snowpack and hotter, drier summers that will impact human health, increase wildfire risk, and stress water demand.

Since 1988, Flagstaff has reduced water use by 50%! Some of that reduction is attributed to changes in plumbing code and building upgrades over time. However, the City was able to avoid costly infrastructure upgrades due to decreases to outdoor water use.

In the 1980s, Flagstaff established an every-other-day watering code which went into effect permanently in 2000. At first, watering every other day was a drought response, but it proved too confusing when the City tried to implement it during a crisis.

In addition to the every-other-day watering restriction, people cannot water from 9am - 5pm. Those two things have drastically reduced outdoor water use. Since 2000, Flagstaff's water system has never been near capacity. Before 2000, they were close to capacity (90%) nearly every summer. This drastic reduction in water use avoided millions of dollars of infrastructure costs to the City and ultimately the residents.

Salt Lake City, UT

Much like Spokane, single-family homes in SLC consume the largest amount of water in comparison with other subclassifications. Over the last twenty years, conservation efforts in the residential sector have been primarily voluntary, and account for a 29% reduction in residential water use since 2001. Currently, the city is working to upgrade meters with Advanced Metering Infrastructure that will provide more real-time water usage data for customers to guide and track effectiveness of conservation efforts. Several outreach and educational programs have been ongoing, including a best management practices guide for water efficient and low impact landscaping, low-water plant database, and lawn sprinkler check-ups.

Policies that have contributed to SLC's water conservation efforts include two key ordinances. A Water Shortage Contingency Ordinance and Plan were enacted in 2003, which allows the mayor to enact water shortage stages based on projected water supply. Stages include both voluntary and mandatory actions for municipal customers to meet specified reduction targets. A water efficient landscaping ordinance for all new or expanded development was established in 2014, including best management practices to reduce water waste in landscaping and park strips.

Economic incentives, including water audits and rebates, are were introduced in 2021 to encourage further water conservation for both commercial and residential water use.

Key Points



- Per capita daily water use = 206 gallons
- Since 2000, residents of SLC have reduced their water use by 28%
- SLC's irrigation audit program provides site-specific irrigation schedules, systems, and activities to improve landscape watering efficiency, typically resulting in a 30% reduction in water use following implementation of recommendations

Santa Barbara, CA

Key Points

- In 2020, per capita daily water use = 91 gallons
- Since 2009, residents of Santa Barbara have reduced their water use by 30%
- Warm-Summer Mediterranean Climate (semi-arid); average annual precipitation 19 inches compared to Spokane's 16.5 inches in a similar climate

Santa Barbara's water conservation program began in the 1970s as a drought response and has been augmented many times since as a result of prolonged drought. A city ordinance adopted in 1989, prohibits the waste of water including activities that cause runoff beyond a property's boundaries, failure to repair leaks within 72 hours after notice by the city, and irrigating during the 48 hours following a measurable rainfall event. A tiered rate structure was also introduced in 1989, to incentivize reduced water use. Standardized allotments for residential customers are based on type of building (single- or multi-family) and number of dwelling units. Allotments for commercial and industrial customers are based on historical off-peak usage. In 2016, the city enacted a Water Shortage Contingency Plan that contains four stages of action to reduce water consumption during times of drought or water shortages.

Like Spokane, over 70% of the City of Santa Barbara water service area are residential customers. Santa Barbara provides the public with information on how to conserve water. The city provides free Water Checkup appointments to assess water usage on residents' properties, evaluate irrigation systems, check for leaks, and provide recommendations on improving water efficiency indoors and outdoors.

Santa Barbara provides water budgets for customers with dedicated irrigation meters. Budgets are based on landscaped area, water requirements of plants, and current weather conditions. Customers going over budget are billed at a higher rate. The city also provides multiple rebates for water efficient fixtures, appliances, irrigation systems; and water wise landscaping or mulching.

Gilbert, AZ – Residential Water Audits

In an effort to reduce water usage and make conserving water an easier process, the Gilbert water conservation team has a water efficiency checkup program free of charge for residents. As part of the program, a trained water conservation specialist evaluates the irrigation system, checks for water leaks, and offers customized recommendations for increased water savings at your home. Learn more here: https://www.gilbertaz.gov/departments/public-works/water-conservation

Initial savings: Prior to an efficiency checkup, the average water consumption per home was 250,000 gallons per year (gpy). After one year in the program, the average water consumption dropped to 205,000 gpy. Keep in mind, 250,000 gpy does not reflect the typical home water use in Gilbert. Most residents who request a Water Efficiency Checkup do so because their water consumption is higher than usual. The Water Department also reaches out to homes that have a high water use occurrence to help reduce waste.

The Gift that Keeps Giving: In addition, an assessment of the water usage at homes in the program for five years found that, on average, 9,081 kgals of water was saved consistently per year, following the Water Efficiency Checkups.

Key Points



- Per capita daily water use = 173 gallons
- A Water Efficiency Checkup saves an average of almost 50,000 gallons.
- The savings continue for at least 5 years.
- Gilbert's Water Checkup program includes site-specific irrigation schedules, systems, and activities to improve landscape watering efficiency.



Next Steps (2022)

- The City of Spokane adopted an update to their Sustainability Action Plan (SAP) in October of 2021. Many of the recommendations outlined in this report are included in this plan. The SAP can be found at https://my.spokanecity.org/sas
- Members of the WRCG have been invited to continue providing recommendations on City water policy through participation in the Sustainability Action Subcommittee
- The WRCG will have an opportunity to provide input into the City's water systems planning that is underway in 2022-2023
- Spokane City Council will continue seeking recommendations on water stewardship – any comments or questions can be directed to sas@spokanecity.org