

HURRICANE CITY

UTAH

Mayor
Nanette Billings

City Manager
Kaden DeMille

Water Board

Ken Richins – Water Superintendent
Mac J Hall, Chair
John Slack
Leah Thompson
Bevin Johnson
Casey Lofthouse
Clark Fawcett- councilman
Gary Cupp
Mike Vercimak
Dayton Hall

Water Board Meeting Agenda

Tuesday, March 25, 2025

7:00 PM

Water Department Meeting Room – 646 W 600 N

Notice is hereby given that the Water Board will hold a Regular Meeting in the Water Department Meeting room located at 646 W 600 N, Hurricane, UT. A silent roll call will be taken, along with prayer by invitation.

AGENDA

1. Call to order, prayer.
2. Approval of Minutes of February 4, 2025
3. Report on irrigation expansion project: irrigation ponds and pump station.
4. Discussion on the Utah State Board of Water Resources 0% loan for \$12,665,000 to be used on upcoming water projects.
5. Report on irrigation expansion Phase 2 piping project.
6. Report on Gould's wash well and Sky Ranch well.
7. Sky Ranch 2MG water tank status
8. Discussion on the Sand Hollow aquifer study.
9. Discussion and possible recommendation to City Council for the annual WCWCD wholesale water rate increase and Hurricane city water rates.
10. New Business
11. Adjourn

Hurricane City Water Board
Meeting Minutes
March 25, 2025

Present: Ken Richins, Angie Tripp, Kory Wright, Mac Hall, Clark Fawcett, Dayton Hall, John Slack, Leah Thompson, Bevin Johnson, Gary Cupp

Guests: Bruce Zimmerman, Doug Heideman

Items #1 **Call to order, prayer**

Mac Hall called the meeting to order at 7 pm. Leah Thompson gave the prayer

Items #2 **Approval of Minutes November 26, 2024**

John Slack motion to approve the minutes from February 4, 2025. Bevin Johnson second the motion after the a few spelling issues were fixed. Motion passed

Item #3 Report on irrigation expansion project: irrigation ponds and pump station.

Kory Wright said both 3MG ponds are dug and ready to move forward on getting the rebar and concrete completed. Interstate Rock has blasted the pipeline that comes out of the ponds on Friday so they should be done blasting. The transmission line has been run and ready to bring the service line back through. They have had a little bit of a problem with a CenturyLink line that's in the way, so they will have to move it out into the road a little bit. The irrigation system is up and running. Service lines for homeowners will be installed soon.

Mac Hall asked if the second phase of the pipeline has been bid out. Ken Richins said that Interstate Rock got the bid.

Item #4 Discussion on the Utah State Board of Water Resources 0% loan for the \$12,665,000 to be used on the upcoming water projects.

Ken Richins talked about the loan we applied for a year and a half ago. The funds were committed last week at their board meeting. Today a meeting with the bonding group was held. During that meeting the closing took place and money was wired so it's a done deal. This will help us pay for the city matching part with NRCS and will fund the Sky Ranch 2MG water tank, Sky Ranch well, and Goulds Wash well along with the 18-inch transmission pipeline. This was taken to the city council and agreed to award the Gould's Wash Well, Sky Ranch 2MG tank, and the 18-inch transmission line. Later, the city council will award the contract for the Sky Ranch well.

John Slack asked if the city was looking at getting some donated materials. Ken Richins explained that all the NRCS projects go through Washington County. We were able to use part of the property purchased as a match.

Item #5 Report on irrigation expansion Phase 2 piping project

Ken Richins said we haven't heard anything on the Phase 2 piping project yet. Phase 2 piping project has been bid out since it was required by the Board of Water Resources, so they knew how much money to come up with. We can't award it until we receive the funding from NRCS. We are on hold right now with all federal government funding. The Board of Water Resources said for the amount we are charging for our water rates we could come back to see if we can get funding for the rest of this project for a 1% loan. If for someone reason the funds from NRCS don't go through we need to see in-house what we can do there is a chance we could get some funding to finish the project out. We don't want half of the project finished.

Item #6 Report on Gould's wash well and Sky Ranch well.

The Gould's Wash well and Sky Ranch well was discussed during item number 3.

Item #7 Sky Ranch 2MG water tank status

Ken Richins said that the project will be awarded by mayor Billings as soon as we get the information back from Alpha Engineering. The contractor will then have to get everything together and return to the city before we can issue the notice to proceed. We are on a time frame to have the projects done by the end of 2026. We received our water sample today for the Sky Ranch well. The water quality is good. The drillers we unable to get a volume of how much water we will get out of the well.

Item #8 Discussion on the Sand Hollow aquifer study.

Leah Thompson gave a brief explanation about a meeting held in January 2025. USGS (United States Geological Survey) has completed a study which some of the information in the report doesn't have anything to do with the aquifer. Leah has put together a board of smaller water users that meet on March 18th and they are putting together a response to submit to the state. The data they are looking into is where the loss of reservoir water is going.

Dayton Hall said mayor Billings has scheduled a meeting with the state engineer next Wednesday April 2nd at 6 pm with individuals from the state.

Leah Thompson said the citizen committee will meet with the state engineer and some of the staff that night. Once they have met, they will put together a letter to send back to the state.

Ken Richins thanked Leah Thompson for all her work on gathering and putting all the information together. The following attachment has more details on the study.

Item #9 Discussion and possible recommendation to City Council for the annual WCWCD wholesale water rate increase and Hurricane city water rates.

Ken Richins explained that we talked about two months ago about the 15 cents a thousand of all aspects of all wholesale water that the district is raising. Bevin Johnson said we have a certain number of people that can't afford all these water rates going up was asking if we could offer a low-rate option.

Clark Fawcett said that is something that needs to be investigated more.

Kory Wright passed out information that shows how the rate study from LaVerkin was discussed to give some ideas on some tier rates.

Ken Richins asked how the board feels about the wholesale rate charging 15 cents more per thousand across the board. The wholesale rate comes from the district which raises rates each year. Ken explained that 30% of our water comes from the district. Clark Fawcett explained that raising the rates helps with repairs and maintenance of the water system. There was some suggestions from the board about adding some water usage into the base rate.

John Slack explained that with the irrigation system going in that should help those individuals keep the outside water usage down lower.

Kory Wright explained that this is why we are trying to repair and replace waterlines that need to be repaired or replaced to help with water loss and high usage.

Ken Richins said that raising the rates helps with projects around the city. An attachment was presented showing the comparison of each city on water base rates a tier rates.

The board had a brief discussion on the rates.

Mac Hall asked the board if they wanted to make a motion on a recommendation to take it to the city council to follow the districts 15 cents per thousand on water rates.

Leah Thompson made a motion to recommend to the city council the 15 cents per thousand increase to match the WCWCD with the understanding to reevaluate the tier structure. John Slack second the motion. Motion passed.

Item #10 New Business

Kory Wright presented a documentation about a drought consistent plan (water shortage matrix). This is part of a drought board that he is on and wanted to present to the water board with a brief discussion.

Adjourned 8:20 pm

Summary of issue:

From the letter submitted to the State requesting the study: "The District believes that excessive withdrawals from the Sand Hollow Aquifer are impairing their water rights now and that a groundwater management plan is needed to help prevent impairment going forward." City of Hurricane and City of St. George joined in the request.

Data: It appears that the district assumes the aquifer is being overdrawn based on safe yield estimate of USGS study compared to "paper" water rights. Part of the District's 20-year plan is to re-evaluate the yield of local groundwater. Are they concerned about overdraft of aquifer or is the goal to reduce water use by some of us in order to facilitate growth?

Condition 5 of the Memorandum Decision

- Memorandum of Understanding pg. 2, Amended Order of the State Engineer application to recover ground water RC004-001, page 2, and Solomon 2005 pg. 4: "In order to be efficient, an Aquifer Storage and Recovery System must recover water before it moves laterally beyond the capture zone of recovery wells." Pg 5: "Recharge water stays in the capture zone 10-40 years".
- If district is pumping recharge water as recommended, they are not losing any water due to other users over-drawing. Dr. Solomon's study concluded that, "on the basis of net input and net withdrawal of 15,000 acre-feet as proposed, all measurable ground water effects would occur within the boundaries of the applicant's project properties and would not likely be evident at the protestants' wells and properties." Pg 5: applicant (WCWCD) "proposed that at the end of 25 years the applicant would then accept a 10% reduction of the annual recharge based on the principle that the first water in is then the first water out." That was amended in 2018 to change specific reduction amounts to excluding "losses." How is District documenting "losses" and is the method comprehensive of all possibilities or are some data assumed?

Study area: Study area increased from map of previous studies. What was the reason for expanding study area to the east but not to the west or south to exclude Sand Hollow Resort where there is known high water table and Turf Sod Road, and to include Bench Lake area and east Hurricane.

Safe yield: Estimated to be between 2,100 acre-feet (USGS model) and as much as 8,500 acre-feet (LRE study).

- How do we find and accurate safe yield? What can small users do to help? WCWCD and City can afford to take percentage cuts. We cannot. Safe yield must be accurate; therefore, much more data is needed.
- Static water levels over time can be used to determine safe yield and that the natural aquifer is not being drawn down over time. Will the State gather or accept data that may be available from smaller users? Benefit is small users are more randomly distributed and may give more accurate picture. Monitored C42-14 are wells currently used by construction company to fill water trucks. There is no period of rest to allow static levels to return to accurate state. Also used to water acres of feed grass as well as sod and previously used to water acres of melons. This study well is probably not the most accurate source of aquifer level data.
- Aquifer levels that existed before reservoir: (Small user well data and data from Hurricane City west well shows static water levels and recharge have remained stable for up to 50 years, including pre and post reservoir.

- Is further appropriation closed by the state so no new rights can be moved into the study area?

Study concerns: LRE study states: "However, we believe that some aspects of the natural system are not accounted for in the model."

Geology: Kayenta and Springdale sandstone not included in study as other sources of water storage capacity. Recharge water could be lost through fissures in the Kayenta on the west and south. Has there been study of the springs along the Virgin in this area? How will volcanic flow in the northwest part of the study area affect flow? Do we need to address that, and potentially lava tubes? What about volcanic areas on the east?

Agriculture concerns: WCWCD 20-year-plan, July 2023: District expects ag water to be converted to municipal supply, resulting in water savings. We in agriculture are concerned. It appears the district is planning on ag water conversion to facilitate growth between 2023 and 2040. (pg 5).

Inaccurate user data: Letter says State identified provisionally 20,000 acre-feet of "paper" water right excluding recharge allocation, yet provisional user list states 11,122 acre-feet of cumulative diversion. Cumulative depletion, which I was told was used in conjunction with safe yield, was 7,439-acre feet. Need to know how much is being withdrawn and by whom.

- Examples: City of St George: 81-669 Sun River and 81-670 north of Washington up toward the mountain, Millcreek area. Listed on letter but not on provisional list of water users. Other wells are outside study area, particularly to the west of the reservoir. Perhaps these were people who had applied to move water right into the study area, such as City of St. George?

Study limitations: "Model Limitations The numerical model is a simplified representation of the groundwater system and includes limitations regarding the simulation of natural recharge, uncertainty in hydraulic conductivity in areas far from the reservoir, assumptions regarding discharge to the Virgin River, the use of an equivalent porous media model to simulate preferential flow in a fractured dual-permeability aquifer system, the assumption of uniform storage properties, not including the possibility of upwelling higher-salinity groundwater as a form of recharge, and the simulation of withdrawals from shallow drains using the head dependent Drain package. In this model, natural recharge as infiltration of precipitation was set to values obtained from Heilweil and McKinney (2007) rather than adjusting it during parameter estimation. Also, average long-term recharge rates were assigned rather than accounting for seasonal and annual variability."

- Natural recharge does not seem to address water the ends up in the aquifer from percolation of water to the north into deep rock. Not everything that falls on Pine Valley Mountain runs off. What happens to the water that soaks into the rock itself? Many of us remember being told by water authorities that water in the natural aquifer primarily originated in mountains to the north (Pine Valley, Kolob) and eventually soaked into the sandstone and flowed south into the Berry Springs/Dixie Springs area. Is there aquifer flow where Silver Reef formations go under the river? Mines closed when drilled deep enough to be filled with groundwater.

- "Recharge to ground water in the study area occurs through infiltration of streamflow, infiltration of precipitation, infiltration from irrigation, and subsurface flow from adjacent areas." WCWCD septic study 1997. Not all these sources are included in the current study.

- Questionable data/assumptions about recharge: Need/request data on geology between west dike and river. Is water going to the west because of infiltration into the aquifer, leakage through the earthen dike, or water travelling on a shelf of caliche? Cat tails and need to drill wells to recover

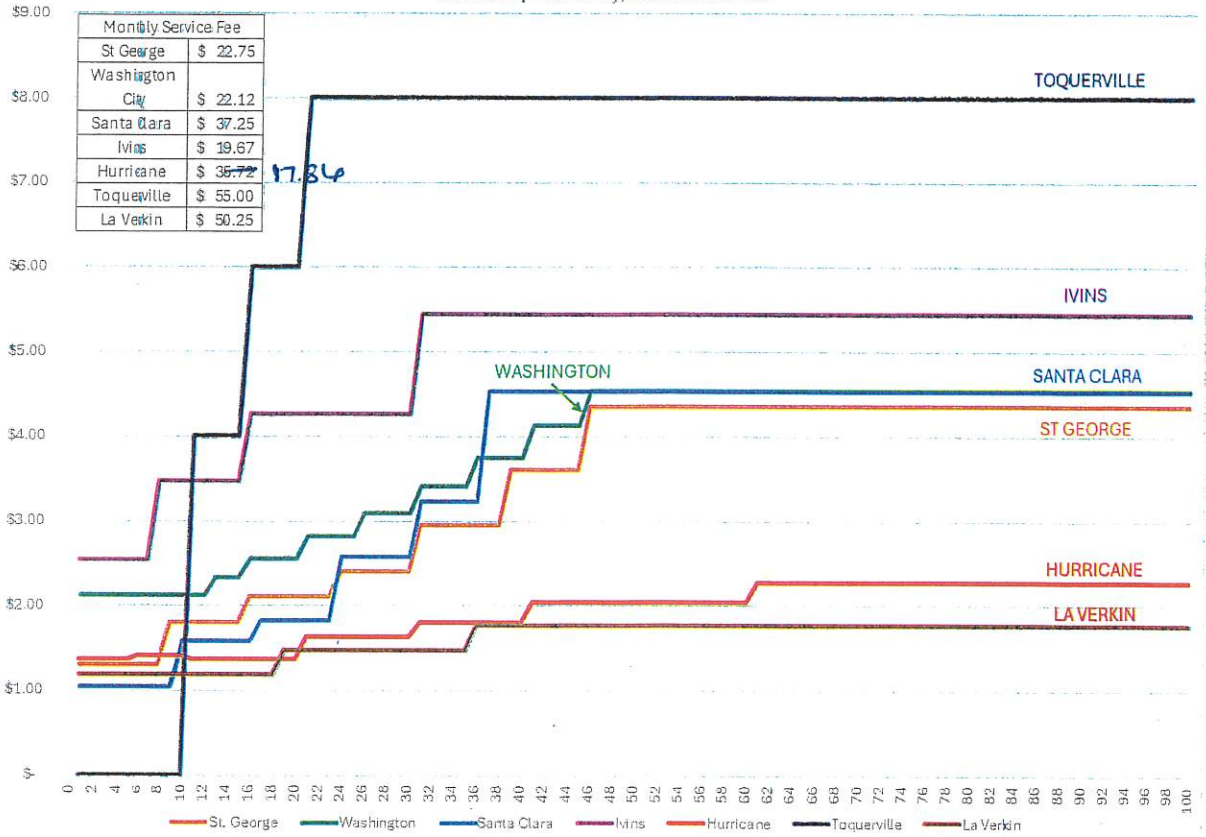
abundant groundwater west and north west of reservoir. 2850 elevation is where Kayenta starts? Past that everything goes to the river? How do you know? Also, blasting out near Dixie Springs. What kind of rock are they having to blast? Assume it is Kayenta or caliche as there is no volcanic flow out there.

- Evaluating recharge to the fractured Navajo sandstone aquifer in SW Utah 1999 to 2002: “Quantification of recharge to the aquifer has been hampered by the lack of understanding regarding the mechanisms controlling surface infiltration and movement through the unsaturated zone. Of particular importance is determining the role of fracturing and fast preferential pathways in the movement of recharge to the water table.” What do we know now that we did not know then?
 - Are there fissures that are interfering with recharge? Need to study springs along the river and collected water quality data to determine if recharge water is sheeting to the west along a caliche shelf toward and under Sand Hollow Resort, being lost through fissures, or being lost to the south?
 - What if aquifer was pretty much full before reservoir was built? Would pressure from recharge mound raise static water levels in wells away from the reservoir or would water saturate less permeable rock such as the Kayenta to the west/south? Was sandstone under reservoir dry prior to construction, thus allowing all recharge water from the reservoir to go to storage? If not, what was the static water level pre-construction under the reservoir?
 - Initial documents from WCWCD says the reservoir would be “designed not to interfere with natural aquifer.”
 - Is caliche impeding recharge? Is gypsum affecting recharge? Core samples available from wells drilled in reservoir bed prefilling?
 - Has pond scum sealed off bottom of reservoir given the warm water and the algae growth? (Swimmer’s itch)
 - From documents provided in meeting, it appears recharge water has only travelled a small distance from reservoir and may be leakage through the dike. USGS says it estimates it will take up to 650 years for recharge water to move from reservoir to River on the north. Water studies can date water and identify natural aquifer versus recharge water. Will this be done?

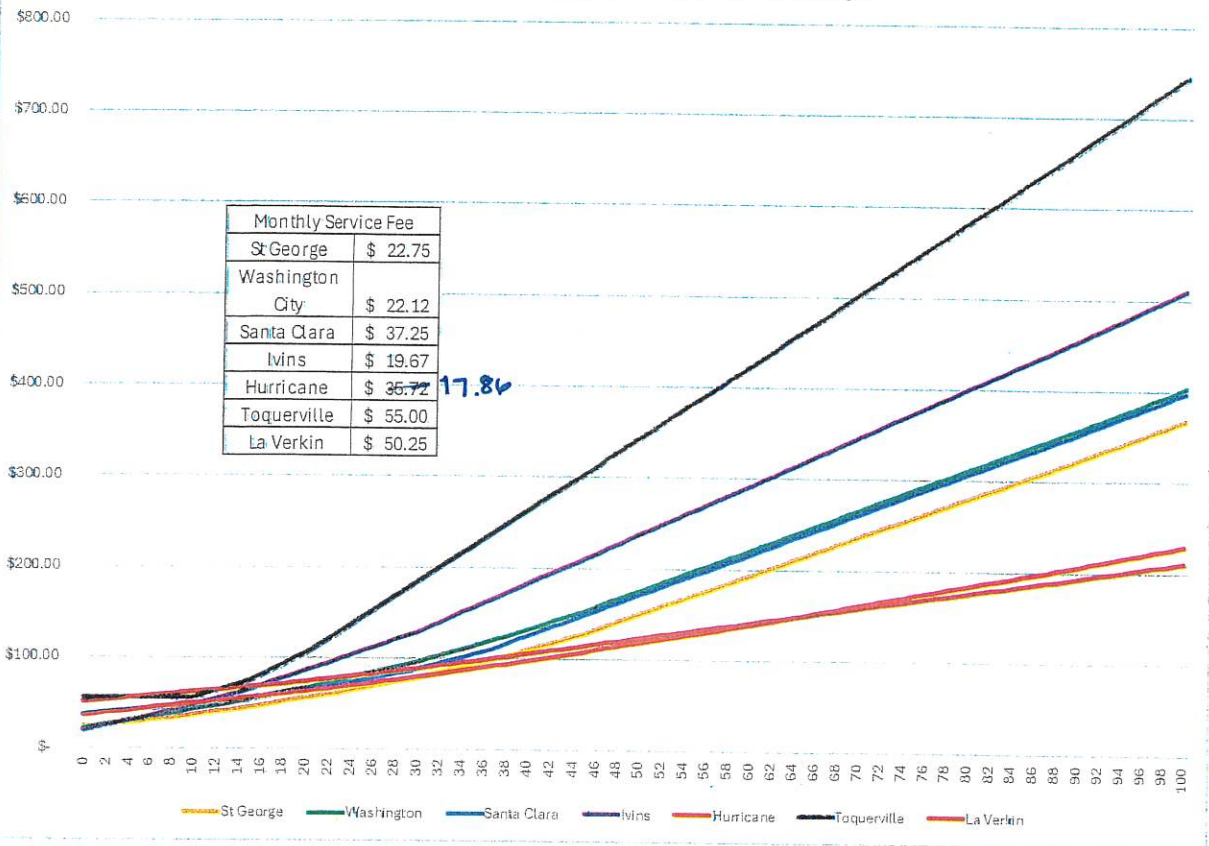
REQUESTS FOR STATE TO CONSIDER

- Request State to study geology and aquifer west of study area to the river.
- Request State study geology to the south of the reservoir. Why is Sand Mountain the border?
- Request pumping data from WCWCD wells (Hurricane City well data already submitted).
- Direction of water flow in natural aquifer pre-reservoir. Was it to the south or to the north?
- Request accurate water right list in the study basin.
- Request time and guidance to gather well static water level data from 1960 to present to submit to the State for considering in establishing safe yield.
- Request State to include other variables such as golf course watering. How much water is leaking through the dike and being pumped back into the reservoir? How is this water accounted for?

Potable Water Rate Tiers by Agency 2024
Consumption Only, no service fee



Water Bill By City Includes Service Charge but no WCWCD Surcharge



Kory Wright

From: Ken Richins
Sent: Monday, March 24, 2025 8:51 AM
To: Derek Imlay; Kory Wright
Subject: RE:

Thank you Derek !.

Ken Richins

Water Superintendent



WATER DEPARTMENT

435-635-9442 ext.101

From: Derek Imlay <derek.imlay@laverkincity.org>
Sent: Friday, March 21, 2025 10:33 AM
To: Ken Richins <kenr@hurricane.utah.gov>; cory@cityofhurricane.com
Subject:

The first attachment presents our current base rate for a 5/8 – 3/4 meter, which is \$39. Our tiered rates are structured as follows: \$1.38 for 0 - 20,000 gallons, \$1.67 for 21,000 - 35,000 gallons, and \$1.96 for 36,000 gallons and above.

The second attachment outlines our proposed increase to the base rate and introduces a change from three tiers to five tiers, significantly reducing the gallonage allowance. The new base rate for a 5/8 – 3/4 meter would be \$45.89, representing an increase of \$6.89. The new tiered rates would be: \$2.41 for 0 - 8,000 gallons, \$2.73 for 8,001 - 16,000 gallons, \$3.55 for 16,001 - 24,000 gallons, \$5.44 for 24,001 - 32,000 gallons, and \$9.97 for 32,001 gallons and above.

Currently, the council is considering implementing percentage increases over the next three years to get us to the new proposed rate, as well as a flexible inflationary rate that can be adjusted annually to align with the current inflation rate. The objective is to ensure that we do not fall behind. It is hoped that by the time we conduct another master water study in five years, the flexible inflationary rate will result in minimal new proposed rates.

Derek Imlay
LaVerkin City Director of Operations
Phone # : (435) 635-2581 ex 105
E-Mail : derek.imlay@laverkincity.org

Water Shortage Matrix

MEASURES	Stage 1	Stage 2	Stage 3	Stage 4
Landscape	Increase enforcement of water waste policies Lawn planting prohibited May through September	Restrictions on watering frequency Municipalities target 20 percent irrigation reduction. Drip irrigated plant installs only. Ornamental lawn irrigation prohibited. Prohibit operation of ornamental fountains.	Watering with a positive shut off hose nozzle allowed any time for trees, shrubs. Drip irrigation may occur 1x per week. Spray irrigation prohibited except communal active recreation areas, such as parks. Conversion from grass to drip irrigated, non-grass landscape allowed.	Irrigation prohibited.
Water recreation	Private residential pool permits limited to 500 square feet surface area Public/Semi-public facilities scaled based upon eligible users. District will not approve connections for large-scale recreational water facilities with demand greater than 9MGY	Private pool permits suspended. Public or multi-family pool facilities permitted. Municipal splash pad operation hours reduced or suspended	Evaporation barriers required on existing pools when not in use (where allowed). Drain/Refill prohibited. Make up water only. Recreational water park and splash pad operations suspended.	All outdoor water recreation facilities suspended.
New Development	Water efficiency standard applies, but irrigated lawn may not be planted May – September	District will not approve connections for any new facility requiring 3M gallons or more annually except critical facilities. Ultra-water efficient (UWE) standards required for new residential construction permits. Existing non-residential permits with a water commitment allowed to proceed according to permitted design.	District will not approve connections except critical facilities and low-water demand projects (see guidance).	

Landscape

Seventy percent of urban water in the region is used consumptively, meaning it is lost to the environment after use. Collectively, all consumptive uses are estimated at about 12 billion gallons each year. Irrigated landscape is estimated to account for 75 percent of consumptive use, or 9.4 billion gallons.

Irrigated lawn areas are estimated to consume about 75 percent of all landscape water use, or about 7 billion gallons. An analysis conducted by the district estimated there are 180 million square feet of lawn in the region and that as much as 70 million square feet are lawn areas that are primary decorative.

Type of Landscape	Estimated Annual Water Use	Estimated percent of total water supply (2023)
All landscape types	9.4 billion gallons	54 percent
All Lawns	7.0 billion gallons	40 percent
Functional lawns only	4.2 billion gallons	24 percent
Ornamental lawns only	2.8 billion gallons	16 percent
Other landscape types	2.4 billion gallons	14 percent

Whereas irrigated lawns use about four times as much water as drip irrigated plantings, this plan calls for greater restrictions on the use of spray irrigation and ornamental lawns than upon drip irrigated plantings. Where development has been allowed, the installation of irrigated lawn areas may be temporarily deferred or even prohibited, depending upon drought stage.

A prohibition on irrigation of ornamental lawns could yield up to a 16 percent reduction in water demand without sacrificing active lawn areas or drip irrigated plantings. In combination with such a measure, the district would provide an increased incentive for the permanent conversion of ornamental lawns to drip irrigated plants.

Ornamental lawns would include, but not be limited to, decorative lawn areas at businesses and homeowners' associations and front lawns of residential homes. Areas that don't meet the definition of an active recreation area from the current water efficiency standards would be considered ornamental.

Allowing drip irrigated landscape to be installed and sustained is critical to sustaining the region's tree canopy and other benefits of urban landscape and will help to preserve the most valuable plantings (trees and shrubs) and support a moderate level of economic activity in the landscape industry.

Active Recreation Area

Dedicated active play areas where irrigated lawn is used as the playing surface, such as a sports field designed for public use. Minimum requirements:

- 1,500 contiguous square feet of lawn area
- not less than 30 feet in any dimension
- not less than 10 feet from vehicular traffic
- accessible to large populations
- co-located with amenities, such as benches, tables, walking paths, drinking water and play equipment.

Water Recreation

Home swimming pools typically require 20,000 to 30,000 gallons annually to maintain and can comprise up to 20 percent of a home's water use. Most of the water demand a pool is attributable to evaporation, however, estimates suggest up to 30 percent of pools have leaking shells that lose water into the surrounding soil. Because a swimming pool may not be left empty without damage to the shell and unmanaged pools can pose health and safety hazards, this plan allows the water level to be maintained in existing pools but calls for more efficient operational practices, such as the use of a vapor barrier to reduce evaporation.

Community swimming pools provide recreation for hundreds or even thousands of people. In areas where a community pool exists, homeowners are less likely to install private swimming pools. Due to the economy of scale, this plan allows community swimming pools to continue to be constructed to a conservation standard during Stage 1 and 2 conditions. This allows community pools to serve as a recreational option to private swimming pools.

modifications. Agencies should strive to target rate increases toward high-tier water users. Rate impacts to customers following drought guidance should be minimized.

Golf Courses

Golf courses account for approximately ten percent of the region's water use. Because golf courses have professional staff that manage the facility on a full-time basis, they may be provided a water budget at each stage of drought. In Stage 3, the budget should only be adequate for the sustenance of tees and greens. Water use in excess of the budget should be prohibitively costly.

Car Washing

Car washing is largely a discretionary water use, as such, most cities during times of drought prohibit car washing, altogether. The St. George region has an abundance of commercial car washes which already comply with water efficiency standards. Based on a sample of seven commercial car washes in the region, these facilities average 12,800 gallons per day, or 4.7 M gallons annually. These facilities are among the top three percent of commercial and industrial water users in the region.

Eighty percent of water used in commercial car washes is non-consumptive and will be recovered at a wastewater treatment facility where the resulting effluent may be reused¹. The remaining 20 percent is carried out on the wet vehicle and evaporated.

This plan allows car washing at a limited frequency using only commercial facilities with water reclamation. Compliance may require car washes to suspend promotional programs for "unlimited washes" and implement measures to ensure a vehicle is only washed at a frequency commensurate with the drought restrictions.

¹ Brown, C. (2018). Water Use, Evaporation and Carryout in Professional Car Washes. International Car Wash Association.