

Morehead-Cain Internship Team

Water & Sanitation Report



Centennial

C O L O R A D O

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Definitions

Accessory Dwelling Units (ADU) - An additional residential space located on the same zone lot as a primary residence. These can be an attached or a detached structure.

Master Meter - A type of contract between Denver Water and a special water district. A Master Meter distributor owns and is responsible for construction, operation, maintenance, and replacement of its water system. Denver Water delivers water to the distributor through one or more master meters and bills the distributor at the established “Wholesale (Master Meter)” rate. The Distributor, not Denver Water, is responsible for reading the meters of its individual customers and for billing its individual customers according to rate schedules established by the Distributor.

Non-renewable water resources - Water that is not replenished at all or for a very long time by nature. This includes groundwater bodies such as deep aquifers.

Pre-Development Meeting - An opportunity to present a conceptual plan before starting the development process to the City Staff. The City then gives comments on the feasibility of the plan.

Read and Bill - A type of contract between Denver Water and a special water district. Under Read and Bill contracts, the distributor owns and is responsible for construction, operation, maintenance, and replacement of its water system into which Denver Water delivers water. Denver Water reads the meter of each individual customer and bills each individual customer at the established “Read and Bill” rate.

Renewable water resources - Water that naturally replenishes due to the hydrological cycle unless overexploited. This includes groundwater aquifers and surface water like rivers and lakes.

Tap Fees - The price required by a water or sanitation district to install a new water or sewer connection to a municipal or privately owned source.

Total Service - A type of contract between Denver Water and a special water district. Under Total Service contracts, Denver Water owns the water system and is responsible for its

operation, maintenance and replacement. Denver Water reads each individual customer's meter and bills each individual customer at the established "Total Service" rate. In Total Service Areas, water service is provided to the customers in the same manner as that provided to customers inside Denver.

South Metro Water Supply Authority (SMWSA) - a partnership of 14 water providers (including 3 that work with the City of Centennial) from in the South metro region of Denver that aims to help water providers shift from non-renewable to renewable water sources via snowmelt.

Will-Serve Letter - A letter provided to a future customer by a utility service during the pre-construction process indicating that the special district has the capacity to serve the customer. This letter is required to go forward with construction.

Project Scope

Issue Statement

The City of Centennial is served by nine different water and sanitation districts. These districts all vary in district type (water, sanitation, or both), tap fees, billing, and organizational structure. Because these utilities are not housed under the City itself, there can be a distance between the districts and the City in regards to communication. This impacts the efficiency of city development, disaster control, and other overlapping sectors where both the City and the individual water and sanitation districts must collaborate. Through our research, we want to provide the city with a resource to learn more about the different districts. We hope that the City can effectively move forward with an understanding of the priorities and inner-workings of these utility services.

Mission

Our goal is to provide resources to strengthen the partnership between the City of Centennial and its water and sanitation districts, empowering the city to bridge the gap between districts and citizens.

Methods

Independent Research: Before directly meeting with water and sanitation districts, we utilized their online resources to find general information, financial reports, and contacts for further interviews.

Board Meetings: We attended board meetings of water and sanitation districts. This allowed us to communicate our project, gain reliable contacts, and gain more information about the water districts.

District Surveys: We designed a survey to gather insights on districts' priorities, concerns, and general information not publicly available. These insights allowed us to provide the City of Centennial with a better understanding of how to support and partner with these special districts. Eight of the nine districts responded; Inverness Water and Sanitation District excluded.

Community Tabling Events: To gain community engagement, we set up tables at City of Centennial's Summer Social Events. We conducted a community-based survey and facilitated conversation with citizens about their water and sanitation providers, as well as thoughts on water resources in their communities.

Interviews: We conducted interviews with a staff or board member from the various water and sanitation districts. Interviewees were selected based on in-person introductions and remote responses when in-person introductions were not an option. We conducted an interview with every City of Centennial water and sanitation provider other than East Cherry Creek Valley Water & Sanitation.

Executive Summary

Concluding our time with the City of Centennial, we found a few key takeaways from our discussions with the water and sanitation districts. We numbered our takeaways below.

1. The number of employees of the water and sanitation districts that we spoke to significantly impacted each district's priorities, as smaller districts may have fewer or no staff members and rely solely on contracted engineers, accountants, and attorneys. These small districts tend to focus on replacing aging infrastructure as their budget allows. Larger districts, with a staff count of up to 60 full-time staff, have more resources to shift some focus to conservation or other non-critical but still important water and sanitation questions.
2. Communication between municipalities and water and sanitation has had varied levels of success. Currently, these districts tend to work with government entities only when necessary, typically during the project approval process. These districts voiced a need for more collaboration with the municipalities they work in.
3. In general, the water and sanitation districts are concerned about aging infrastructure, water conservation, and emergency planning.
4. There is an interesting relationship between Denver Water and many water districts that serve Centennial. These districts act as governing bodies outside of Denver, but typically follow the same guidelines and practices of Denver Water.
5. Water scarcity in the area is a significant concern. This will likely cause pricing to go up in the future, leading some districts to be concerned with conservation. Paradoxically, when water is conserved, water districts bring in less revenue, meaning they cannot cover all of their costs and may have to increase prices to cover the cost of operations.

Overview of Water & Sanitation Districts

District Name	Council Districts Served	Number of Customers Served	Applicable Contracts
Arapahoe County Water & Wastewater Authority	3 & 4	3,500 customers	Independent
Castlewood Water & Sanitation District	3	2,700 customers	Total Service
East Cherry Creek Valley Water & Sanitation District	3 & 4	60,000 customers	Independent
Inverness Water and Sanitation District	3	Not Reported	Independent
South Arapahoe Sanitation District	1, 2, & 3	10,000 customers	Independent
South Englewood Sanitation District No. 1	1	4,500 customers	Independent
South-East Englewood Water District	1, 2, & 3	Not Reported	Total Service
Southgate Water & Sanitation District	1, 2, & 3	60,000 customers	Read & Bill Contract
Willows Water District	1, 2, & 3	20,000 customers	Master Meter Contract, Read & Bill

Arapahoe County Water and Wastewater Authority

Introduction

Arapahoe County Water and Wastewater Authority (known as ACWWA) offers water and sanitation services to 3,500 consumers in Arapahoe and Douglas counties. Centennial City Council Districts 3 and 4 are served, in part, by ACWWA. The mission of ACWWA is to

provide sustainable water/wastewater services by optimizing resources to ensure quality and value while protecting the environment.

Water Resources

ACWWA receives its water from multiple sources, including the Cherry Creek Alluvial Aquifer (renewable water source), the Denver and Arapahoe formations of the Denver Basin (nonrenewable water source), and through water purchase collaborations with East Cherry Creek Valley Water and the Joint Water Purification Plant. ACCWA has renewable water rights through the South Platte River Basin. ACWWA is a member of South Metro Water Supply Authority.

Conservation

Water conservation is a priority for ACWWA. The district sends newsletters and mailings to consumers, who can call in with questions about water conservation. ACCWA offers a service called "Slow the Flow," which helps consumers detect how much water they use within their irrigation systems. ACWWA offers this service to 60 consumers, but limited people have accessed this resource.

Development and Planning

ACWWA has a public improvement district, a taxing unit of Arapahoe County, which is responsible for the construction and financing of water and sanitation sewer improvement projects. In order for ACWWA to provide water and sanitation services for residential areas, ACWWA must provide a will-serve letter to Arapahoe county. In terms of infrastructure, it is not a concern as ACWWA is currently focused on the availability of water resources. ACWWA has a regular maintenance system, which allows them to be proactive to broken pipes and pipe leaks.

Fees and Finances

ACWWA charges \$25,467 for a Water Tap Fee and \$6,501 for a Wastewater Tap Fee, which reaches a minimum total of \$31,968. Billing for ACWWA wastewater is based on a monthly fixed charge that ranges from \$20.48 to \$45.14 and a volume charge ranging from \$4.61 to \$6.92 depending on customer class, including residential and

commercial/industrial. A single family's bill, if they used 4,000 gallons per month, would be roughly \$40. Financially, the company's total net position at the end of 2021 was \$145,134,100. This comes from mostly operational revenue, with only 20% of revenue coming from tap fees.

City Connections

ACWWA does not seem to be interested in monthly or quarterly meetings. They feel as if they already have effective communication with the City. Furthermore, ACWWA covers a small part of Centennial, which does not require constant communication. However, ACWWA is interested in a partnership that would include collaboration on water conservation efforts. A quote from ACWWA: "As we move forward with the current water situation, we are definitely going to need much more say in land use or a partnership with the city." ACWWA would like to see the City encourage turf replacement and xeriscaping.

Castlewood Water and Sanitation District

Introduction

Castlewood Water and Sanitation District offers water and sanitation services to approximately 2,700 customers in Arapahoe County. Centennial City Council District 3 is served, in part, by Castlewood Water & Sanitation District. Their main goal is to provide clean water at a reasonable price. They stated that they strive to have as few complaints as possible from their customers. Operations is their highest priority.

Water Resources

Castlewood Water and Sanitation District is in a Total Service contract with Denver Water. They retain no water rights individually, but they own and operate all of their infrastructure. Most of their water comes from reservoirs, which are renewable but depleting. Since they own no water rights on their own, and are in contract with Denver Water, their main focus is their aging infrastructure. Castlewood ensures that they have the funding and budget for unforeseen infrastructure costs and infrastructure expansion in the future.

Conservation

Conservation is low on Castlewood's priority list as they do not collect revenue for water used by their customers. Denver Water bills their customers directly for the amount of water used, which results in Castlewood only collecting revenue through the tap fees and wastewater collection rates.

Development and Planning

Castlewood is almost fully built-out. They have little to no room for new development and the development they do have is unlikely to change into development that is not residential. Currently they are serving mostly residential, single-family houses.

In terms of accessory dwelling units (ADUs), Castlewood is concerned with the added demand to their already built-out system that would occur if ADUs were added to homes in their area. They would require an independent service line for ADUs added or an increased size pipe for both water and sewage, but are also worried that this added infrastructure will lead to more opportunities for damaged pipes and corridor spacing constraints. They also mentioned that current meter size is based on a single family occupancy. They emphasized that adding more demand to that system is dangerous and could lead to a loss of revenue for the district.

Fees and Finances

A total tap fee for a residential sized tap would be around \$12,620. The district bills every six months with a base sewer fee of \$112.50. Financially, their net position at the end of 2020 was \$13,005,467.

City Connections

Castlewood identified that one of the main areas in which they would like more communication with the City of Centennial would be with infrastructure overlay. As Centennial grows and more dry utilities are being inserted under roads, the corridor for wet infrastructure is closing and becoming hard to access. With utility lines being close to one another, there is an increase in damage if the line were to need repair. The district would like help from the city in collaborating street improvements and asphalt repaving with their infrastructure improvement to save time and money for both the city and the district.

Another suggestion from Castlewood was the creation of a specific meeting for the different water and sanitation districts by the city that is geared towards water and sewer needs and collaborations. They said that a scheduled time to get everyone in the room would be beneficial and the district would want to attend either quarterly or once a month.

East Cherry Creek Valley Water & Sanitation District

Introduction

East Cherry Creek Valley Water & Sanitation District (ECCV) offers water and sanitation services to approximately 60,000 customers in Centennial and unincorporated Arapahoe County. They serve Centennial Council District 3 and District 4, in part. Their main goal is “sustaining our community by providing safe, reliable water.” Operations is their highest priority, with company growth being their lowest.

Water Resources

ECCV sources its water from the Denver Water and the South Metro WISE Authority pipeline. The Northern project, ECCV’s multi-phase project, creates a long-term renewable water source for ECCV with water rights from the South Platte River and the Beebe Draw. ECCV is a member of South Metro Water Supply Authority.

Conservation

East Cherry Creek Valley Water & Sanitation District prioritizes water conservation by implementing programming, conservation advertising, and restrictions on water usage. ECCV’s conservation projects include turf replacement rebate programs, resources on indoor and outdoor water conservation methods, and awareness of water leaks and pressure with a request for leak adjustments. The district expressed that they are heavily concerned with limited water supply moving forward.

Development and Planning

In ECCV’s responses to the district survey, ECCV selected two on a scale of 1-5 (one being not concerned and five being very concerned) about their concern for their water

infrastructure capacity and their concern about their sewer infrastructure capacity. We concluded infrastructure capacity is not ECCV's biggest priority.

East Cherry Creek Valley Water & Sanitation District is concerned about accessory dwelling units and the "unintended and detrimental consequences." ECCV expressed reasons for this concern that included metering for water providers and additional capital costs, potential planning and water availability, successful implementation for subsidies for ADUs, and limited density put in by the Intergovernmental Agreements for water providers. ECCV recommended further analysis of ADUs and consideration of the impact on water and sewer providers.

Fees and Finances

A single-family residential tap fee is \$29,000 for water and \$8,830 for sanitation. ECCV uses a tiered-pricing water rate structure; the residential rates for the water bill depends on gallons usage. An increase of water gallons used increases the price per thousand gallons of water. The water bill ranges from \$4.60 to \$13.05 per thousand gallons depending on gallon usage. There are additional fees, including monthly charges, on the water bill.

City Connection

East Cherry Creek Valley Water & Sanitation District expressed that they wanted more support from the City of Centennial and provided the best contact for this.

Inverness Water & Sanitation District

Introduction

Inverness Water and Sanitation District is responsible for delivering water and wastewater services to both businesses and residents within the unincorporated Inverness community, located in Arapahoe and Douglas counties. It was previously believed that Inverness served District 3, partially. However, upon further investigation, Inverness does not currently serve the City of Centennial.

The operating objectives of the district encompass several key goals. Inverness focuses on providing safe drinking water, utilizing renewable water sources and reuse of treated wastewater, and promoting conservation.

Water Resources

Inverness secures a significant portion of its annual water needs from Denver's renewable water supply. While Denver Water does not officially acknowledge Inverness as one of their contractual distributors, Inverness obtains additional renewable water through its partnership with Denver and Aurora Water as a member of the South Metro WISE Authority. The District also relies on several deep wells, drawing from regional aquifers to obtain high-quality water. Inverness is a member of South Metro Water Supply Authority.

Conservation

Inverness Water and Sanitation District focuses primarily on water supply and conservation. The district acknowledges that water supply remains a persistent issue, but considers itself fortunate compared to other water providers in Colorado. Currently, Inverness is primarily concerned with preserving renewable supplies amidst droughts and variable climate conditions, avoiding reliance on the Denver Basin. Inverness also aims to achieve a 10-15% reduction in outdoor water usage. However, the district faces difficulties in urging large corporations to switch from landscaping to xeriscaping.

Development and Planning

Inverness prioritizes redevelopment over serving new developments. They clarify that their infrastructure capacity is not necessarily "great" but rather "adequate." Inverness points out that changes in water usage have resulted in available capacity within their system. However, they openly recognize a challenge with their aging infrastructure, consisting of miles and miles of antiquated asbestos pipes that are prone to breaks.

Fees and Finances

Inverness imposes a development fee of \$3,000 per acre. Water tap fees start at \$23,448 and sewer tap fees start at \$10,300. Installation charges for water taps, sewer taps, fire lines, and irrigation are set at \$300. Residential tap and development fees amount to

\$14,456 per unit, covering water, sewer, drainage, detention, stormwater quality, and reviews. A minimum monthly base water service fee of \$35.00 is charged by Inverness. Water use fees beyond the base fee range from \$5.46 to \$9.58 per 1,000 gallons, depending on the annual allocation. The base sewer service fee is \$25.00 per month, with an additional charge of \$8.16 per 1,000 gallons based on monthly metered use.

City Connection

Regarding communications between the City of Centennial and Inverness Water and Sanitation District, Inverness acknowledges the limited opportunities due to minimal overlapping boundaries. However, Inverness has expressed an interest in establishing a monthly meeting with the City to enhance collaboration and communication.

South Arapahoe Sanitation District

Introduction

South Arapahoe Sanitation District, formed in 1957, offers sanitation services to approximately 10,000 homes and businesses in Centennial, Littleton, Greenwood Village, and other parts of Arapahoe County. This Sanitation Districts serves, in part, Council Districts 1, 2, and 3. Their main goal is to provide sanitary sewer conveyance from the district to the treatment plan, and their highest priority is operations.

Conservation

South Arapahoe Sanitation District expressed they are looking at different maintenance methods to reduce water usage. One instance is their usage of a new technology called acoustic monitoring, which indicates if there is an obstruction in the pipe through an acoustic signal.

Development and Planning

The main concern in the district is aging infrastructure and maintaining interrupted service, especially the lift station, which is high risk. The District expressed that sewer capacity is not a concern at the moment; however, they would need to do a sewer capacity

analysis to ensure the sewer structure is sized for the additional volume that comes with high-density housing.

South Arapahoe Sanitation District primarily serves residential development. The district is unaware of any ADUs that have been tapped into the water district and stated that there is no need for increased tap size in ADUs; therefore, if there is no change in the water meter size, the Sanitation district is not aware of it.

Fees and Finances

The sewer bill includes treatment of the water (which is not done in-house), maintenance and improvement programs of the district's existing wastewater collection systems, and maintenance and capital expenditures of the interceptor line that brings the sewage to the treatment center.

The total tap fee for a residential-sized tap is around \$12,620. The district bills every six months with a base sewer fee of \$112.50. Financially, their net position at the end of 2020 was \$13,005,467.

The district expressed that they do not face any financial challenges or constraints at the moment; however, since the district contracts experts, they are concerned with rising prices. The prices include the price of rehabilitation, maintenance, hourly rates, etc. In addition, the district expressed that they receive and hear concerns from the community about the rising prices. However, South Arapahoe Sanitation District does not have control over the treatment cost, which is a part of the bill.

City Connection

South Arapahoe Sanitation District believes that direct communication with the City of Centennial is adequate, though they expressed that they want more support from the City of Centennial. They emphasized a need for clear lines of communication and recommended to be contacted when new development or tenant finish is proposed. South Arapahoe Sanitation District also expressed the need to coordinate more on-road programs and ensure they are accessible and any complaints about sewer. The district would be interested in monthly meetings in addition to the weekly development review meetings.

South Englewood Sanitation District No. 1

Introduction

South Englewood Sanitation District No. 1, formed in 1951, offers sanitation services to approximately 4,500 customers in Arapahoe County, Centennial, Littleton, and Greenwood Village. They provide services to customers in Centennial Council District 1. Their main goal is to maintain an effective and safe collection and transmission system for sewage waste. The district outsources waste treatment.

Conservation

South Englewood Sanitation District expressed that their position as a sanitation utility does not put them in the position to be concerned about water conservation.

Development and Planning

South Englewood Sanitation's main concern is keeping infrastructure updated in order to avoid contamination, leaks, and spills. This will occur through infrastructure replacement and updates as needed. The district's upcoming focus will be on capital improvement projects in Englewood. The area that the district serves is mostly built out, so future efforts will have more to do with redevelopment than new development.

South Englewood Sanitation District is concerned about the potential for added ADU's to require the enlargement of downstream sanitation facilities. They would see the addition of an ADU as requiring a separate tap fee, and would not allow the additional dwelling to connect to the existing sewage service line. If the construction of ADU's was allowed, the district hopes that the city would consider the impacts that increased costs due to the possible system enlargement would have on the district and therefore its consumers.

Fees and Finances

The district sees finances as a limitation, but has expressed that they feel confident about their ability to sufficiently maintain infrastructure. They are comfortable with their

balance and want to maintain \$3,000,000 in reserve, which would allow for 6 projects in a catastrophic year without floating a bond. Tap fees start at \$1500.

City Connection

South Englewood Sanitation is concerned about communication with the City of Centennial concerning road construction. Informing the district about potential and ongoing road construction would allow the sanitation district to most efficiently plan infrastructure improvement projects. The district feels that current communication with the City of Centennial has amply served the needs of the district. However, on the District Survey, the district noted that “with all cities it is helpful to have good working plans for adjusting manholes in the City's paving programs.”

South-East Englewood Water District

Introduction

South-East Englewood is a water district serving Centennial council districts 1, 2, and 3. The district holds a Total Service contract with Denver Water, who owns the district's water infrastructure and is responsible for its operation, maintenance and replacement. South-East Englewood Water District's main goal is to provide reliable water service to their customers. They also aim to advise customers on Denver Water's activities and ensure that Denver Water is fulfilling contractual duties.

Water Resources

As a Total Service contract holder, South-East Englewood receives water from Denver Water. In the District Survey, the district ranked their level of concern with limited water supply as a 4, with 1 being no concern and 5 being very concerned.

Conservation

South-East Englewood follows Denver Water's conservation guidance since it is a Total Service contract holder. The board of South-East Englewood water is in tune with the needs of the Denver metro area and supports the efforts that Denver Water is taking towards sustainability. They did note that they want to make sure that conservation

measures put in place by Denver Water reduce consumption without increasing runoff from impervious surfaces, as to not have a negative impact on water quality.

Development and Planning

Aging infrastructure is not as big of a concern for South-East Englewood as other districts because of Denver Water's ability and responsibility to maintain water lines. They are, however, concerned about Denver Water's water supply and pumping station capacities because of the district's position outside of the city of Denver. If Denver Water cannot supply water for South-East Englewood, it is still the district's responsibility to supply water to their customers. The district communicated that there were moments when this was a serious concern, referencing a past tap moratorium, but that currently, it is a background worry.

South-East Englewood did not communicate concerns surrounding Centennial development. They will default to Denver Water's ADU requirements. Currently, Denver Water does not require ADU's to install their own service line/pay a separate tap fee. This was surprising to the district's consulting attorney, who wonders if that might not always be the case.

Fees and Finances

South-East Englewood did not express that they face financial challenges. The district developed a financial cushion when years ago, South-East Englewood collected funds for an expansion of the Denver Water collection system that were never spent. They also expressed that as a water-only district, their financial situation is easier than districts that provide both water and sanitation services. In their survey response, affordability was ranked as the district's lowest priority compared to other issues. When asked about a sliding scale tap fee amount, the district reported, "currently no tap fees." On their 2022 budget, tap fees are listed as \$2,400.

City Connection

South-East Englewood expressed that they would like to see an improvement on the system to deal with complaints from Centennial citizens. Currently, when a citizen has a complaint (a water break, for example), the city of Centennial will relay the complaint to the

consulting attorney, who will relay the complaint to Denver Water. South-East Englewood has had problems in the past with not having enough information to give to Denver Water or being unable to call back the citizen with the complaint to follow up. The district expressed a desire for a way to receive more information about complaints or request information from the person who complained.

South-East Englewood is also interested in communication about development and redevelopment. Though Denver Water is responsible for maintaining their water system accordingly, the water district board would like to stay updated.

Southgate Water & Sanitation District

Introduction

Southgate Water and Sanitation District provides water services to 43,000 customers and sanitation services to 60,000 customers, serving over 80,000 residents in Colorado. Its service area encompasses portions of the City of Centennial, City of Cherry Hills Village, City of Lone Tree, Arapahoe County, and Douglas County.

The primary goal of Southgate is to establish itself as the leading provider of economical and professional water and sanitary sewer services in the Denver metropolitan area. The district aims to deliver high-quality services efficiently while prioritizing cost-effectiveness.

Water Resources

Southgate Water and Sanitation District operates under a Read and Bill contract with Denver Water. Although Southgate does not possess any individual water rights, it owns and operates all of its infrastructure.

Conservation

Conservation takes precedence on Southgate's priority list over affordability, community engagement, and company growth. However, the district does not express significant concern regarding water scarcity and conservation due to its reliance on Denver Water. Southgate's concerns regarding water scarcity would only arise if Denver Water faces such challenges. Consequently, any conservation efforts are primarily driven by the residents and customers served by Southgate.

Development and Planning

Southgate perceives its primary role and responsibility as facilitating developments and redevelopments within its jurisdiction. The district strives to establish interactive partnerships with the various jurisdictions with which it collaborates. Southgate predominantly serves residential developments. Its primary concerns lie more with sewer infrastructure capacity than with water infrastructure. Ensuring that the system is adequate to accommodate redevelopments is a key priority for Southgate.

Presently, Southgate provides service to accessory dwelling units, although the number of projects thus far has been limited. The district evaluates these units on a case-by-case basis to determine appropriate tap fees. Southgate does not anticipate significant disruptions to its water or systems caused by ADUs. The district believes that incorporating ADUs into its system can be easily managed and would have a gradual and incremental impact, if any.

Fees and Finances

Southgate has a minimum tap fee of \$8,846 and an additional administrative fee of \$125 per tap. As of January 1, 2023, the monthly water service charges range from \$10.80 to \$1,015.20, depending on the tap size.

Southgate's adopted water service budget for 2023 amounts to \$28,237,457, with the majority of revenues sourced from rates and service charges. The adopted 2023 budget indicates a total of \$9,628,343 in ending funds available.

Southgate has a starting sewer tap fee of \$9,281. Similar to the water system fees, there is a \$125 administrative fee per tap for single-family developments. The monthly sewer service charges range from \$3.16 to \$296.73, depending on the tap size.

City Connections

Southgate has placed emphasis on the importance of early communication and collaboration between the City and all stakeholders involved in projects. They value the opportunity to review and provide input on projects in the early stages. The communication between Southgate and the City has been relatively smooth.

Southgate acknowledges that larger projects, such as lot scraping or new building constructions, have seen beneficial cooperation from the City in terms of keeping them informed about the project details. However, they recognize that smaller projects can go unnoticed. Southgate appreciates the redevelopment process of the City of Lone Tree, where new tenants are required to obtain signatures from affected special districts to confirm that the plans have been reviewed, commented on, and approved. Southgate's intentions are not to impede developments, but if they are informed about a project right before completion and it poses issues for them, they may be left with no alternative.

Southgate has expressed interest in conducting virtual meetings every other month or quarterly with the City to discuss water matters in Centennial; however, they also acknowledge that in-person meetings, where all parties are present in the same room, are generally beneficial for all involved.

Willows Water District

Introduction

Willows Water District serves about 20,000 customers within Arapahoe County. Centennial City Council Districts 1, 2, and 3 are served, in part, by Willows Water District. The mission of Willows is “to maintain a state-of-the-art water system and provide customers with high quality water and excellent service at a reasonable cost.”

Water Resources

Willows Water District operates under a Read and Bill contract in some parts of the district and a Master Meter contract in others. Although Denver Water is responsible for the delivery of water, Willows manages and owns all of the infrastructure.

Conservation

Conservation is a high priority for Willows Water District; however, the district is not concerned with limited water supply. Since Denver Water is their water supplier, they are not concerned about the availability of water, but follow water conservation advisories from Denver Water. This includes restrictions on watering the lawn between 10 AM- 6 PM. Willows is partnered with Resource Central and participates in the program: “Slow the Flow”, which optimizes residents' sprinkler systems to ensure they are water efficient.

Resource Central offers another program called “Garden in a Box,” that allows residents to purchase a water-efficient plant starter kit, encouraging residents to reduce water usage when watering the lawn. Willows budgets money to promote these programs to customers. Information about the programs is sent with water bills. Willows recommended Resource Central as a good partner to other organizations.

Development and Planning

Willows is fully built-out. Currently, there is no room for development. Any development in the future would entail remodeling existing development. Willows is serving mostly residential development. Infrastructure capacity was stated to not be a concern for Willows.

In terms of accessory dwelling units, Willows would likely require an additional tap fee.

Fees and Finances

A total tap fee for a residential sized tap is around \$3,100. For a residential customer with a tap size of $\frac{3}{4}$, the price of water is \$4.97 per 1,000 gallons for the first 22,000 gallons, which gradually increases as gallon usage increases. Willows is comfortable financially and does not see affordability as a high priority for consumers.

City Connections

Willows Water District has voiced that they already have a strong connection with the City of Centennial. Willows is a small company, with a small portion of consumers based in Centennial. They feel as if regular, scheduled meetings would be unnecessary. They are satisfied with current communication with Centennial.

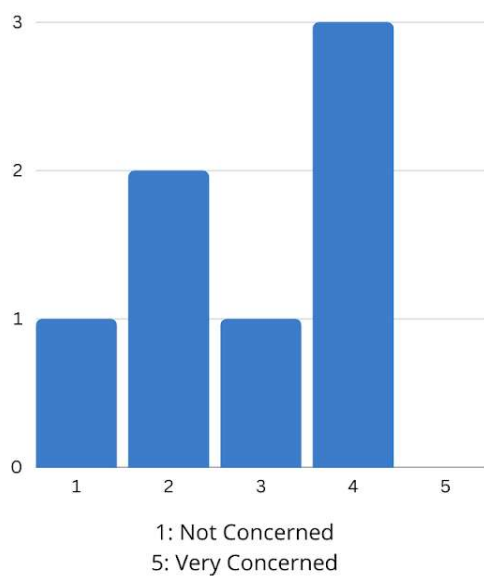
Water and Sanitation District Survey

A survey was sent out to all water and sanitation districts that serve Centennial in order to gain a better understanding of their priorities and operations. The water districts that we received answers from Arapahoe County Water and Wastewater Authority, Castlewood Water & Sanitation District (CWSD), East Cherry Creek Valley Water & Sanitation District, South Arapahoe Sanitation District, South Englewood Sanitation District No. 1, South-East Englewood Water District, Southgate Water and Sanitation Districts, and Willows Water District. Information from the survey for each water/sanitation district was

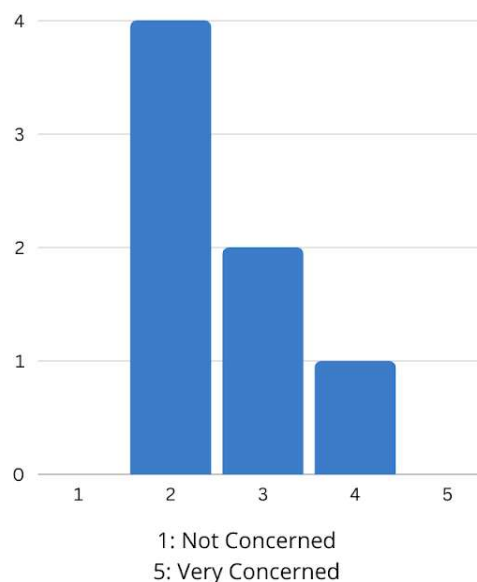
incorporated in the district summary. The graphs provide an overview of all the water districts that filled out the survey.

Two of our survey questions inquire about the concern of infrastructure capacity and the concern the water district has. The results of these survey questions are graphed below:

If applicable, are you concerned about your sewer infrastructure capacity?

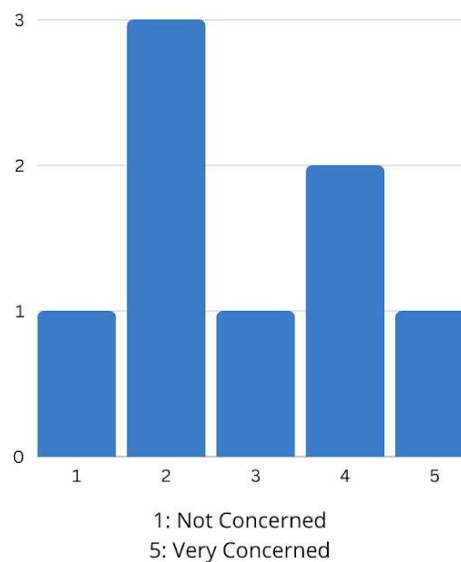


If applicable, are you concerned about your water infrastructure capacity?



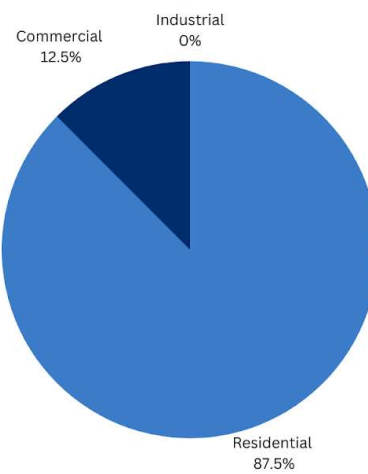
The next question inquired about the concern the water districts have for limited water supply. We noticed that the concern depends on where they source their water from. These results are graphed to the right:

Is your district concerned with limited water supply?



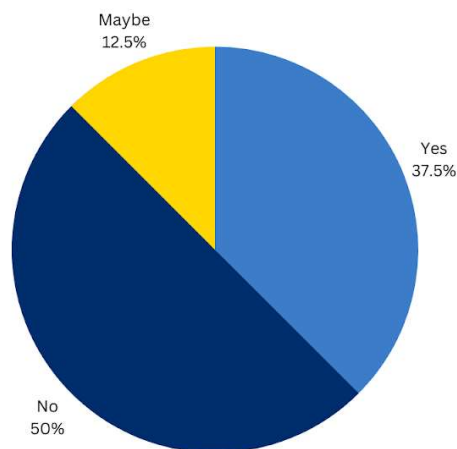
The graph to the right displays information that depicts different types of development served by the water districts. Types of development include Residential, Commercial, Park and Recreational areas, and Industrial areas. The majority of the water districts selected Residential.

What type of development does your district mostly serve?



The city is considering accessory dwelling units as a part of its affordable housing strategy. The graphic to the right indicates if the water districts currently serve ADUs.

Are you serving Accessory Dwelling Units in your District?

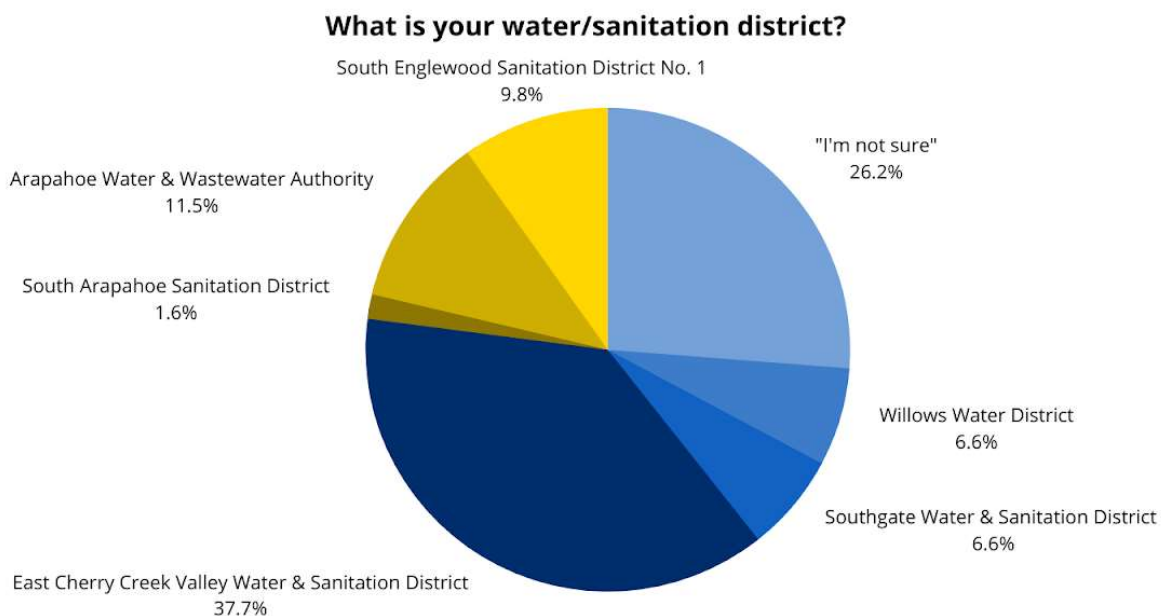


Community Engagement

Survey Response

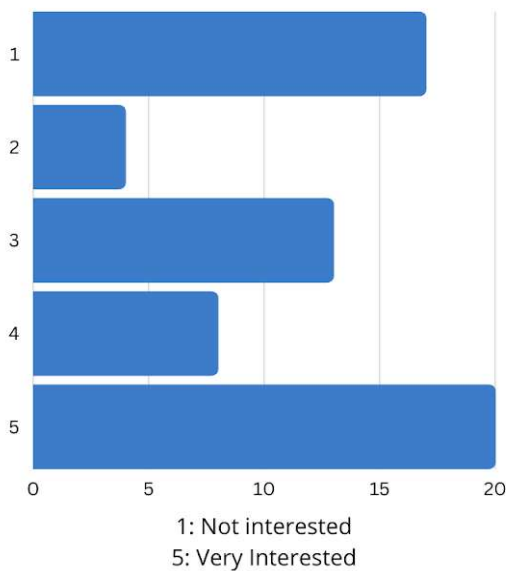
To understand the community's view on water districts, we tabled at two of the City of Centennial's summer social events in districts 1 and 4, where we conducted a survey and two conversational questions we gave out to the residents of Centennial who were in attendance. The number of people that responded to our survey was 62, 33 from the first tabling event in District 1 and 29 from the second tabling event in District 4.

Our first question on the survey asked, "What is your water/sanitation district?" This question was asked to see if the community knew and/or thought about who their water or sanitation district was. The results of this tabling question are shown below.

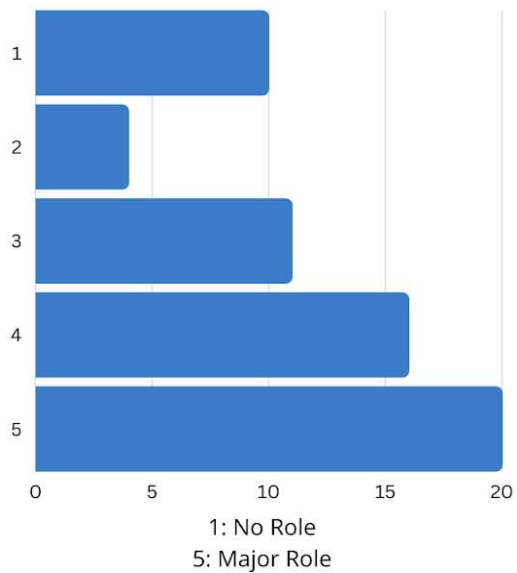


The water districts that were not selected on the survey include: Castlewood Water & Sanitation District, Inverness Water & Sanitation District, South Englewood Sanitation District no. 1, and Southeast Englewood Water District. The survey results do not provide a view of the consumers from these water districts.

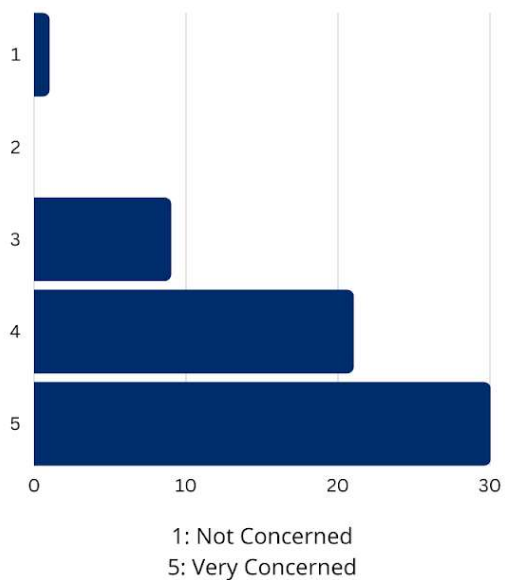
Would you be interested in replacing your grass lawn with water-efficient plants or xeriscaping, if you had the autonomy to do so?



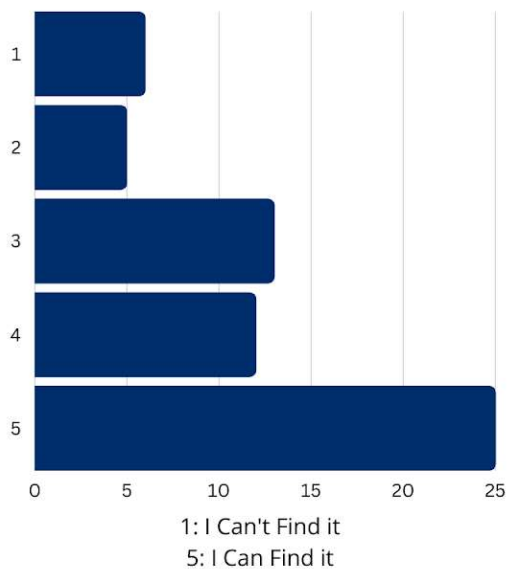
How much of a role would financial incentives play in your decision to replace your grass lawn with water-efficient plants or xeriscaping?



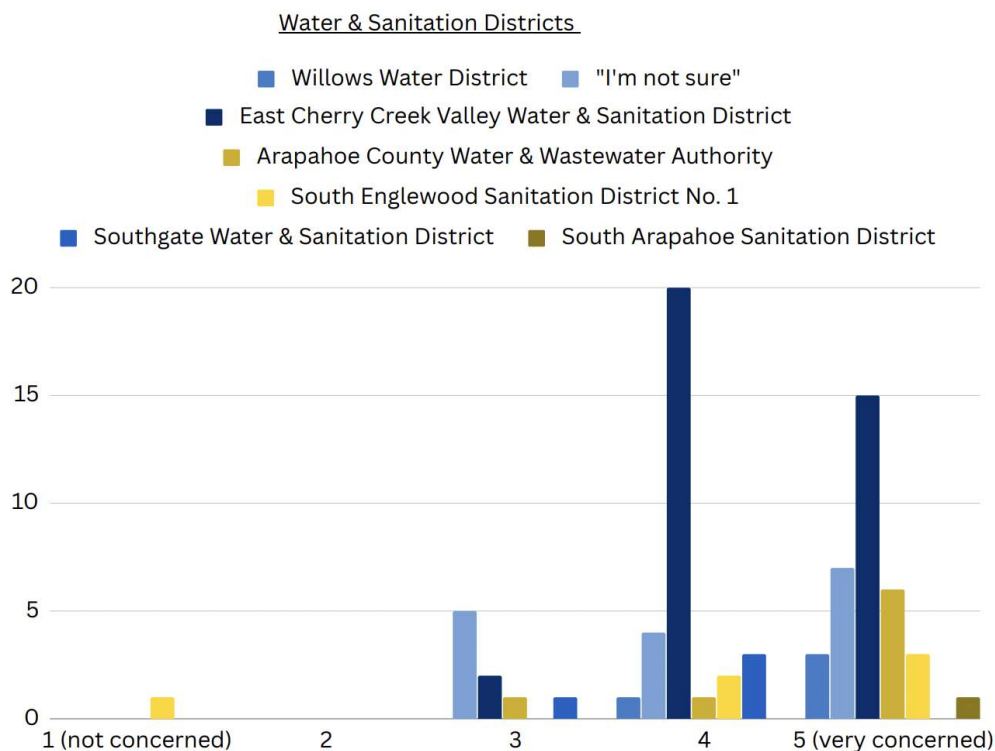
How concerned are you about water conservation efforts?



Are you able to find information about your water district (fees, rates, water, sources, etc.)?



“How concerned are you about water conservation?”



This is a graph of the community responses from the different water and sanitation districts. East Cherry Creek Valley Water & Sanitation District had the most consumers out of the community members that we surveyed, which is the reason behind the amount of respondents. The majority of the community members were very concerned about water conservation, marking level 5 on the survey.

Conversational Questions

In addition to the survey, we asked citizens at the summer socials two conversational questions. The first question was: “What are your thoughts regarding water?” This yielded responses including,

- “Scared of drinking water in Englewood”
- “Grateful for ECCV for renewable source”

- “Want to see people doing better with irrigation with grass”
- “Idea that you don't know what is in your water and it is not trusted”
- “I think the 109 degree angle between the hydrogen atoms is cool”
- “Curious about forever chemicals-- will ECCV say something”
- “Would put artificial grass if there is interest”
- “Water district is nice and runs very well”

In addition, there were multiple responses that emphasized the need to conserve water.

The second question that we asked was “What would you like your water district to be most concerned with?” This was determined through individuals choosing one of the four categories: Operations, Conservation, Community Engagement, and Affordability. The results were 6 for operations, 17 for conservation, 1 for community engagement, and 5 for affordability.

There were numerous biases, including the inability to reach citizens who did not attend the summer socials, lack of data from two districts that we did not table at, and having a voluntary survey.

Recommendations

Our recommendations come from conversations during interviews with the water and sanitation districts. Ideas include:

1. Schedule regular, possibly monthly or quarterly, meetings with interested water/sanitation districts and the City to ensure that communication is clear and effective. These meetings would be specifically targeted to how the districts could collaborate and work with the city on upcoming projects, road improvements, and pre-development meetings. This would also allow up to date contacts for the districts and allow the districts to feel a sense of community and collaboration with the City.

2. In addition to regular meetings, it would be beneficial to push attendance from water districts for pre-submittal development meetings. Through interactions with water and sanitation districts, districts are interested in knowing about development plans that occur within their boundaries.
3. Some water districts are interested in guidance on xeriscaping/turf replacement. ACWWA voiced that xeriscaping/turf replacement would be beneficial in conservation efforts for the water districts, as typical yards require a significant amount of water to upkeep. This initiative may be possible in the future; however, many citizens are apprehensive about turf replacement/xeriscaping. Kentucky bluegrass requires about an inch of water per week in order to grow, but many consumers are reluctant to replace their bluegrass with turf. Another factor to note is the impermeable structure of artificial turf, which would add a strain on the stormwater districts in the area. The stormwater districts may not have the infrastructure to maintain the amount of water that is not absorbed by the ground. We recommend that all impacts of conservation initiatives be thoroughly considered, and that water and sanitation districts be consulted.
4. Be clear and considerate in communication surrounding affordable housing, keeping in mind the externalities that are faced by the water utilities. Right of way infrastructure can make it increasingly hard for utilities to expand pipes and infrastructure for units that put more strain on the system. Accessory dwelling units specifically can be hard on a system as the tap originally put into the home is estimated to support a single-family and when adding additional housing without expanding the tap, lines can clog or mess up. The additional tap for an ADU would most likely be necessary and would be added cost to the homeowner. As of right now, most water districts are not worried about water resources to support affordable housing.
5. At community tabling events, our team noticed complaints about ambiguity surrounding water/tap/permit fees. We collected preliminary information around various tap fees and collected information in interviews about why some rates might be more expensive than others, often attributed to varying levels of responsibility for infrastructure maintenance and revenue collection. However, we think it would benefit members of the public to make information on water prices

and tap fees easily available, especially for home buyers and builders. Currently, it took interviews and extensive research to determine basic tap fees, so more research could be helpful to citizens and potential developers.

6. It could be beneficial to both the water and sanitation districts as well as the city to create a map that shows how much land is possible for development and how much is possible for redevelopment. This would allow the districts to see a future plan and prepare for how their district might change.

Contacts and Resources

Water & Sanitation Contacts

Arapahoe County Water & Wastewater Authority (ACWWA)

Name	Title	Contact
Wade Wheatlake	District Engineer: Merrick	wade.wheatlake@merrick.com Office: 303-353-3683 Mobile: 303-204-2002
Jeff Baker	District Commissioner Director	jbaker@arapahoegov.com Mobile: 303-917-0315
Patty Pratt	Customer Service Representative	pprat@acwwa.com Office: 720-645-1410 Mobile: 303-790-4830 Fax: 303-790-9364
Kevin McBrien	Senior Engineer:	kmcbrien@acwwa.com Main: 303-790-4830 Direct: 720-645-1406 Cell: 303-475-6837

Castlewood Water & Sanitation District

Name	Title	Contact
Wade Wheatlake	District Engineer: Merrick	wade.wheatlake@merrick.com Office: 303-353-3683 Mobile: 303-204-2002
Tamara K. Seaver	Attorney: Icenogle Seaver Pogue	TSeaver@isp-law.com Direct: 303-867-3004

		Mobile: 720-353-0100
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East Cherry Creek Water & Sanitation District

Name	Title	Contact
David Kaunisto	District Manager	dkaunisto@eccv.org work: 303-693-3800 ext.174
Rick Clark	Senior Engineering Manager	rclark@eccv.org
Tamara K. Seaver	Attorney: Icenogle Seaver Pogue	TSeaver@isp-law.com Direct: 303-867-3004 Mobile: 720-353-0100

Inverness Water & Sanitation District

Name	Title	Contact
Luis Tovar	District Manager	luis@mulhernmre.com Work: 303-628-6046

South Arapahoe Sanitation District

Name	Title	Contact
Jennifer Chipman	Consulting Engineer: Kennedy Jenks	JenniferChipman@KennedyJenks.com Work: 720-744-2208 Cell: 303-895-5119
Anthony Soria	Board Member	tsoria4312@gmail.com
Ronald McKinnon	Board Member	mcksales99@gmail.com
Timothy Bell	Board Member	tjbell1968@yahoo.com
Thomas Sutton	Board member	tsutton424207@gmail.com
Steve Daldegan	Board Member	sdaldegan@lakehurstwater.org

South Englewood Sanitation District No. 1

Name	Title	Contact
Aimee Chalus	District Engineer: Kennedy Jenks	aimeechalus@kennedyjenks.com
Darryl Farrington	Attorney: Semple	dfarrington@semplelaw.com

	Farrington Everall & Case P.C.	
Anthony Galioto	Accountant: CliftonLarsenAllen	anthony.galioto@claconnect.com
Martin McMahon	Board Member: Secretary	Cell: 303-517-7298
Laura Smith	Board Member: Vice President	lsmitty6936@gmail.com
Donna Jones	Board Member: President	donnalj63@yahoo.com
Michael Jones	Board Member	mfjsales@gmail.com
Karen Matthews	Board Member	grannythip.04@gmail.com

Southeast Englewood Water District

Name	Title	Contact
Tim Flynn	District Attorney	tflynn@cogovlaw.com Work: 303-218-7198 Cell: 303-880-2813

Southgate Water & Sanitation District

Name	Title	Contact
David Kahlich	Consultant: Kahlich Consulting	reviews@southgatedistricts.org Work: 303-713-7742 Cell: 303-779-0220
David Irish	General Manager	dirish@southgatedistricts.org

Willows Water District

Name	Title	Contact
Randy Mitchell	District Manager	rmitchell@willowswater.org
Blair Zimmerman	Lead O & M Technician	bzimmerman@willowswater.org Main: 303-770-8625
Deb Pilon	Customer Service Representative	customerservice@willowswater.org Work: 303-770-8625 Cell: 303-770-9864

Resources Used In Research

Below is a list of hyperlinked resources used to form background research and write the above report:

[Acronym List for Drinking Water and Safe Drinking Water Information System \(SDWIS\)](#)
[ACWWA 2023 Drinking Water Quality Report](#)
[ACWWA's Board Member Handbook](#)
[Arapahoe County Water and Wastewater Authority](#)
[Castlewood Water & Sanitation District](#)
[Castlewood Water and Sanitation District Transparency Notice](#)
[CDPHE Water System Search](#)
[Centennial Sanitation District Data \(10/2020\)](#)
[City of Centennial Water and Sanitation District Map](#)
[City of Centennial Water District Data \(10/2020\)](#)
[Denver Water 2020 Water Quality Report](#)
[Denver Water's Distributor List](#)
[East Cherry Creek Valley Water & Sanitation District](#)
[Greenwood Village 2020 Book of Special Districts](#)
[Metro Wastewater Reclamation District Member Municipalities and Special Connectors](#)
[South Arapahoe Sanitation District](#)
[South Arapahoe Sanitation District 2020 Special District "Transparency Notice"](#)
[South Englewood Sanitation District No. 1](#)
[South Englewood Sanitation District No. 1 2020 Special District "Transparency Notice"](#)
[South Platte Water Renew District Connector List](#)
[South-East Englewood Water District Transparency Notice](#)
[Southgate Water & Sanitation District](#)
[Southgate Water & Sanitation District Strategic Plan 2018-2020](#)
[Special District Act, 32 C.R.S. § 32-1-101 *et seq.* \(2016\).](#)
[Special Districts | Colorado Division of Local Government, Department of Local Affairs.](#)
[Willows Water District](#)
[Willows Water District Transparency Notice](#)