

H2infO- Colorado Homebuyer/Realtor Water Provider Information Tool Pilot Program



CWCB GRANT FINAL REPORT

<https://h2info-co.com>

Prepared for: Kevin Reidy, Colorado Water Conservation Board Program Manager

Prepared by:



Chambers Econ & Analytics LLC

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Executive Summary

Summary

The H2info Water Provider Information Tool pilot program focused on building a web accessible, public facing water information tool to deliver public water provider data to realtors and home buyers. The target audience for the tool's data are the homebuyers that make up the growing population and demographic trends described in the Colorado Water Plan.

The pilot development began in April 2018 with the receipt of funds from the CWCB Colorado Water Plan and the Metro basin Round Table Water Supply Reserve Funds. The pilot tool became operational in May of 2019 and the online tool represents the ongoing "deliverable" of the initial grant.

The focus of the team's efforts, described in this report, were on deployment and assessment of an initial tool/user interface for homebuyers that provides simple address and map searches to the 350+ water providers in the seven county pilot area. The tool operates on Peak Spatial Enterprises' systems and is a free service to the target users. Peak Spatial will continue to provide updates, operations, and maintenance of the tool through 2020 and will work with the CWCB to add more counties and water providers as experience and requirements dictate.

The team will continue to operate the tool through 2020 and, with the CWCB and other tool beneficiary input, will look at potential geographic expansion of the pilot area and modifications to the interface and data content.

Acknowledgments

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- Kevin Reidy, Colorado Water Conservation Board, Program Manager
- Barbara Biggs, Metro Basin Roundtable Chair
- Mark Shea, Colorado Springs Utilities and Arkansas Basin Roundtable Chair
- Commissioner Longinas Gonzalez, El Paso County Commissioner
- The Pikes Peak Regional Water Authority members
- Greg Baker, Aurora Water

Contents

Executive Summary	2
Summary	2
Acknowledgments	2
Project Background	4
Purpose	4
Vision	4
Project Tasks	4
Tool Implementation	5
Water Provider Data – Pilot Area	5
Water Provider Tool	5
Tool Components	6
User Interface.....	6
Tools.....	6
Searches	7
Water Providers.....	7
Water Provider Database.....	7
Output.....	9
Tool and Data Evolution.....	10
Outreach	11
Tool Analytics	12
Conclusions	13
Next Steps	15
Outreach	15
Sponsorships	15
Tool Expansion	16
Points of Contact	16

Project Background

Purpose

The purpose and overall objective of the H2infO Water Provider Tool Program was to build and operate a “public facing” site connecting Coloradoans with their water providers when they are making home buying decisions. The rationale for the tool is based on the complex water provider boundaries, characteristics, and capabilities that range widely from provider to provider and that don’t correspond with typical county or city boundaries.

The tool supports the challenge water providers often have at the billing and administrative level in helping their customers understand who provides them with water service. It also supports realtors who are trying to provide necessary information to a home buyer prior to a sale. Once a home buyer makes a choice they are effectively choosing their water provider.

The program supports the conservation, public education and outreach planks of the Colorado Water Plan (CWP) and reaches beyond the Colorado water community to the citizens of the Colorado. With the population of Colorado projected to grow by an additional 2.5 - 5 million people, over the time period of the CWP, this particular tool targets that future, largely municipal demand, on the limited water supplies within the State.

Vision

The long term vision for the Pilot, after proving out the utility and interface, is to expand the tool to other areas in the State and to provide a consistent tool that realtors, home buyers, and water providers can rely on to identify the basic characteristics of water providers servicing specific properties. Placing water information in the hands of home buyers prior to making a home purchase decision develops a more water savvy population, highlights water provider data specific to potential home properties and reduces the potential for customer confusion relative to their water providers.

Project Tasks

The initial pilot program included six specific tasks implemented over the period of the grant effort. Those six tasks are:

- Task 1 - Define Water Supplier Attributes/Build GeoDatabase
- Task 2 - Build and Test Water Disclosure System
- Task 3 - Coordinate with Real Estate MLS and other Beneficiaries
- Task 4 – Deploy and Operate Water Disclosure System
- Task 5 – System Operational Status and Performance Metrics
- Task 6 – Update and Maintain System

Task 1 and 2 occurred sequentially at the beginning of the program and Tasks 3 – 6 are continuous tasks that are occurring simultaneously. Though the grant period of performance ends in December 2019, work on tasks 3 to 6 will continue.

Tool Implementation

Water Provider Data – Pilot Area

The initial pilot area for the program encompasses seven Front Range counties: from south to north, Pueblo, El Paso, Teller, Douglas, Arapahoe, Denver and Adams Counties. These counties include a significant number of independent water providers that include large utilities (Denver Water, Colorado Springs Utilities, Aurora Water, and Castle Rock) and small water and Metro districts throughout the pilot region.

There are over 350 water providers in this seven county region alone and over 500 in the Colorado Front Range area. Each of the water providers in the tool, whether a city utilities, water or metropolitan districts, are required to have a public water system identification (PWSID) number. Some of the larger water districts that serviced more than 2000 acre feet of water were also identified as HB-1051 providers. These providers are required to report additional information to the State Water Conservation Board.

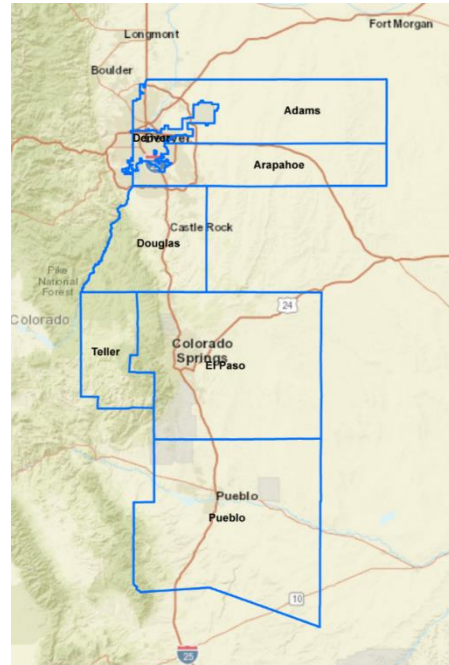


Figure 1 - Pilot Counties

A listing of the water providers included in the tool is provided in Appendix A of this document.

Water Provider Tool

The tool itself was designed to provide a free web accessible map based interface to the water provider information contained in a curated database that includes the seven county's water providers and the water provider's attributes. The tool was designed primarily for desktop and tablet use though efforts were made to accommodate use of the tool on a smart phone.

Water provider searches are supported by:

- device location (phone, tablet, or desktop),
- address data entry, and
- simple map/point and click options

These searches help a user focus on particular homes/properties and initiate a water provider query. The water provider query initially returns basic information and links to the water provider and there is an option to get a more detailed report that retrieves more information from the database.

Tool Components

User Interface

The user interface for the Water Provider tool includes embedded tools for zooming, address searching, basemap toggling (between imagery and map data), and buttons for locating a specific residence and retrieving the water provider report.

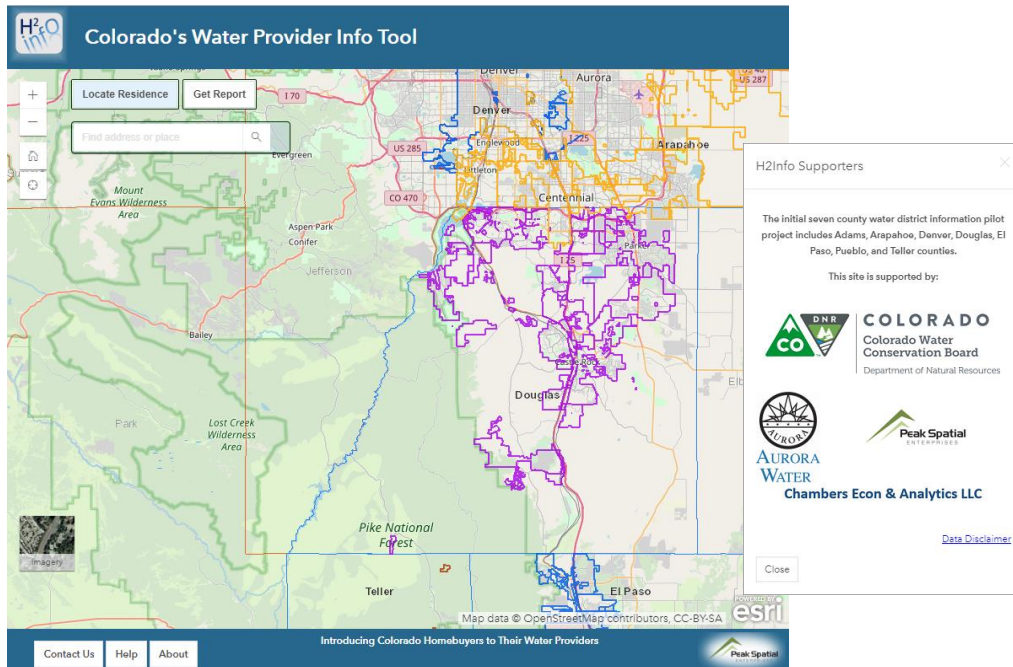


Figure 2 - Tool Interface Overview w/initial Supporter Splash Page

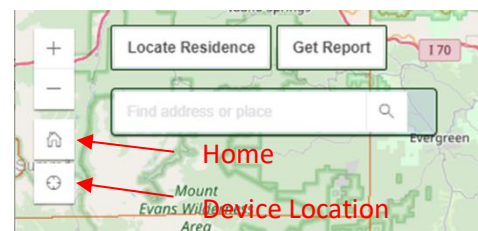
The footer contains help, contact, and about buttons that provide additional information for users who require step by step instructions, contact information to report issues or ask questions, or more information about the tool.

The map components and tools are built using ArcGIS (ESRI software) components that connect to a water provider geodatabase. ArcGIS Javascript 3.2X was used for the map interactions and address searches.

A sponsor/supporter splash page opens up showing the tool's supporting agencies prior to a user getting to the tool itself. The splash page includes a data disclaimer link that describes the purpose of the tool, the source of data and cautions against inappropriate use or inferences made based on the tool's information. Note: long term operations, updates and maintenance of the tool is projected to be provided by support from water providers and realtor organizations who benefit from use of the tool.

Tools

User tools are located in the upper left corner of the map and include standard zoom buttons, a home button, a device button, a "Locate Residence" and "Get Report" button, and an address search entry window.



Searches

Address

The tool uses ESRI's ArcGIS World Geocoding Service to refine a user's location based on free text searching for the address. While a user is typing in the address search window, the service begins to refine the search and presents address options for the user to select. This service is similar to the Google address search often found on web site implementations.

Device

The device search is the target icon on the map that turns on "use of device location" so that that map will zoom to the location of the smart phone, tablet or wifi service connecting a desktop system to the web. This feature will be particularly useful to users who are mobile, like realtors and home buyers, so that they can dynamically query the tool while looking at homes.

Home

The home button on the map returns the tool display to its default geographic extent, map center, and zoom level so that a user can back out of detailed searches and start from a fresh page. The pilot system is set to center at a point near Castle Rock with a zoom setting that allows some of the Denver metro area to be seen and also some of El Paso Cty. This may change as the system evolves to include more counties and districts.

Locate Residence

The Locate Residence button initiates the water provider database query. A user selects the "Locate Residence" button and then clicks on a location or house on the map to specifically set the query. A blue square icon is place on the map where the click was made to show the location of the query. *Note: This approach to initiating a query was set so that a more specific home selection could be made rather than relying on the address search function only. The address search places the identified location along the road in front of the address or plat which isn't always on the house itself.*

Get Report

The Get Report button retrieves the basic report for a quick identification of the water provider for the location selected along with the high priority links to the water providers data.

Water Providers

All 350+ providers with a Colorado Department of Health and Environment (CDPHE) Public Water System ID (PWSID) number are included in the seven county pilot tool. Some of the water providers also overlap with bordering counties outside the original seven counties (for example, City of Westminster water utility, principally located in Jefferson County also includes some overlap with neighboring Adams County). These providers and their boundaries are included in the tool.

Water Provider Database

Sources

Data collected in the water provider database comes primarily from three public but disparate sources: the Colorado Department of Local Affairs (DOLA), county assessors, and the water providers themselves. Secondary sources include regional water organizations, such as the Pikes Peak Regional Water Authority and the South Metro Water Supply Authority, and the State's HB-1051 database that is

publicly accessible at <http://cowaterefficiency.com>. Access to this site requires setting up an account but it is open to users desiring more details about those water providers who report HB-1051 data.

The most significant mapping variable in the system is the water provider boundary. This, by and large, came from the water provider inputs to the DOLA system which shows water district/utility boundaries and other district boundaries of interest such as metropolitan districts which often have a PWSID number.

Nearly all water provider specific information such as annual rates/fees, conservation plans, water quality reports and contact information comes from the water districts themselves. Some secondary water distribution districts include this information from their primary water provider so, in some cases a water district may have it's own rates/fees but references Denver Water's water quality and conservation plans as their own.

Content Description

The attributes collected and curated for the water providers in the pilot program are shown with a brief description, in the table below.

Table 1 – Water Provider Database Attributes

Attribute	Description	Typical Source
Boundary	Water Provider Physical Boundary	DOLA/County Assessors
County	Political boundary	DOLA/County Assessors
Population	Census	DOLA
Water Source	Ground Water/Purchase Surface Water/Surface Water	DOLA
Contact Information	Address	DOLA/Water Providers
HB 1051 Reporting (Y/N)	Water Provider Participation	HB-1051 Site
HP-1051 Gallons/Capita/Day	Self explanatory	HB-1051 Site
HP-1051 Non-Revenue System Loss/Yr	Self explanatory	HB-1051 Site
Municipality or County	Political boundary	DOLA/County Assessors
Water Loss Audits (Y/N)	Performed and published?	Water Provider Sites
Sanitation and Wastewater Provider? (Y/N)	Self explanatory	Water Provider Sites
Regional Water Authority Group Member (Y/N) and URL	Self explanatory	Regional Water Group Sites
Regular Board Meetings	Self-explanatory	Water Provider Sites
Conservation Irrigation Use Restrictions	Self-explanatory	Water Provider Sites
Public Water System ID Number	Self-explanatory	DOLA/CDPHE Data
Web Page URL	Link to main water provider site	Water Provider and DOLA
Conservation Plan URL	Link to water provider conservation plan if available	Water Provider
Consumer Confidence Report	Link to water provider water quality and/or consumer confidence report if available	Water Provider

Rates and Fees	Link to water provider rates and fees sites for current year or all published years	Water Provider
Integration with Land Use Plan	Link to land use plan if available	Water Provider
Governmental Type	Special District, Community, Municipality, etc	Water Provider/DOLA
Public Water System Provider Name	Official Name of Water provider	DOLA/CDPHE
Participation in Integrated Land Use and Water Supply/(Y/N)	Is there a published relationship between water providers and land use entities?	Water Provider
Source	Notes on the source of the data elements	Various

Output

Basic and Details

The pilot system provides basic and detailed attribute information about water providers when the map is highlighted/clicked after selecting the “Locate Residence” button and the “Get Report” button is selected. The basic report is returned first with links the water providers site, rates/fees, conservation plan, and water quality reports if available.

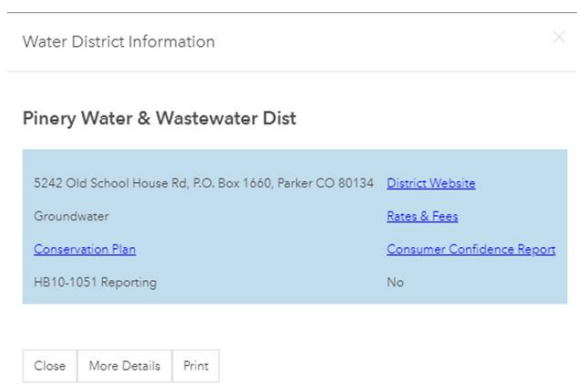


Figure 3 - Basic Report

A more detailed listing of the water provider can be accessed from the Basic report interface by selecting the “More Details” button.

Locating a residence and generating a report is only engaged when the location selected lies within the seven county area and is also within a water provider boundary. If a user selects a point outside the seven county area or selects a location that isn’t serviced by a water provider, appropriate error messages are displayed.

Full Water District Information

Aurora

Web Page :	District Website
Rates and Fees:	Rates & Fees
Conservation Plan:	Conservation Plan
Consumer Confidence Report:	Consumer Confidence Report
Source:	null
Population:	300000
Water Source:	Surface Water
Governmental Type:	Municipality
Contact Information:	15151 E Alameda Pkwy #3600, Aurora CO 80012
HB10-1051 Reporting:	Y
HB10-1051 Gallons per capita per day:	null
HB10-1051 Nonrevenue System Loss:	null
Participant Integrated Land Use & Water Supply:	Y
Municipality or county:	undefined
Water Loss Audits:	undefined
Sanitation & Wastewater Provider:	N
Regional Water Authority Group Member:	N
Regional Water Authority Name:	N/A
Regular Board Meeting:	Yes
Conservation Irrigation Use Restrictions:	Y
Public Water System ID#:	CO103005

Print

Close

Figure 4 - Detailed Report

Printing

Each of these reports can be printed out if desired by selecting the “Print” button under each type of report. This action generates a pdf of the report and provides the user a print function within whatever pdf viewer they use.

Tool and Data Evolution

The tool evolved over the course of the grant/development work and its current form moved from a desktop/web site type implementation to an interface that could be adapted more readily to mobile devices, either smartphone or tablet.

This migration led to a simplification of the tools and a placement of the most used elements of the site, on the map frame itself so that the map, the query, and the report became the focus.

Data evolution involves continuous updates to existing attributes in the water provider database and also extends to refinement, addition and deletion of attributes as experience and input is received. The utility of the tool demands that the data provided to realtors and home buyers be the kind of data that helps educate, inform and distinguish water details that they find useful. This data evolution will occur over time and has already begun. For example, the inter-government agreement situation is requiring the team to clarify information about relationships among water providers. These clarifications will lead

to changes in how the tool displays and describes those relationships. As an example, Denver Water is the provider of water to some districts while the contact information and billing remains specific to the individual district. That information is in the system but wouldn't be completely obvious to users in the current deployment.

Outreach

The team worked throughout the grant period interfacing with potential users, initial supporters, and water professionals to refine and promote the tool. That effort will continue as the tool's existence and utility become more well known.

The focus of the team's work during the grant period was to return to initial supporters as the tool became operational to engage use and feedback. Analytics, described in a following paragraph, tracks when certain engagement events happen. An early spike in users came when the CWCB published the tool's initiation in the Confluence newsletter. That occurred in May and the tool received over 70 legitimate hits within days of newsletter publication.

Similarly, when the team visited the Pikes Peak Regional Water Authority, the Pikes Peak Realtors Association, the Metro Roundtable and other events over the past six months, each visit and presentation triggered surges in visitors.

These visits also promoted contacts from users with questions, comments and advice on how we might expand and/or correct data provided from the public sources of information. Some the comments involved specific water district or water utility reaction to their own data or their own attributes. Boundaries are particularly challenging since that is the crux of the water provider jurisdiction issue but, at the same time, isn't uniformly implemented across the water community. While DOLA collects and publishes boundaries it isn't clear how carefully water providers prepare that type of data or if the data is quality control checked by DOLA.

Notable outreach events included meeting with Mark Shea, Colorado Springs Utilities and the Arkansas Roundtable chair, and his thoughts on including the tool in a specific municipal use program for the Arkansas RT. Another set of meetings with the El Paso County Assessor, Mark Schleiker, have initiated coordination to connect the tool with his "Community Pages" online tools.

One simple approach taken by the team was to prepare and print business cards with the tool's URL and the team's contact information, for distribution to water providers so that they can engage their billing and administrative/customer teams to bookmark the tool and use it to help answer calls for support that might come from customers who are actually outside their service area. This particular issue has been highlighted by a number of water providers as a direct benefit to them since it offers the possibility of reducing or shortening time spent directing water users to the correct water provider.



Figure 5 - Business Card

Tool Analytics

The team implemented a basic Google Analytics component in the tool beginning in June 2019 and can track a number of details associated with visitors including the type of device accessing the tool, browser type, return vs new users, times of visits, time on the site, and referral or non-referral visitors.

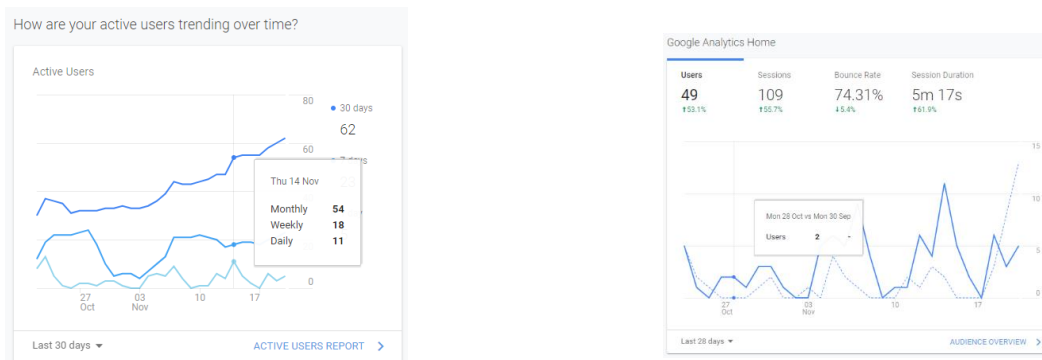


Figure 6 - User Trends Over Time/Session Duration Examples

Analysis of the results of implementation of this as it relates to the Water Provider tool are just beginning to reveal trends and metrics that the development/deployment team will be interested in tracking.

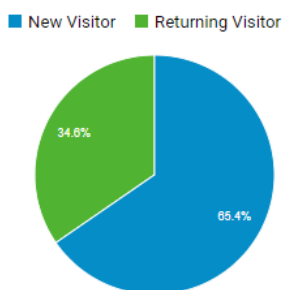


Figure 7 - New/Returning Visitors

Two specific metric of interest for the team are return vs new visitors and session duration. Return visitors are those who consistently use the tool, we assume, as part of their day to day activities. This class of users would include water provider and realtors. During the pilot period we saw a continuing growth in return visitors with one third of site visitors falling in that category. Session durations are also a reasonable indicator of actual engagement on the site. The most recent session duration numbers ranged from 4-5 minutes which is an increase from the initial durations of under one minute which, we presume, were the result of internet automated search engines picking up on a newly published URL. Once the team began reaching out and briefing the actual target audience, the numbers of visitors, return visitors, and session durations started to increase.

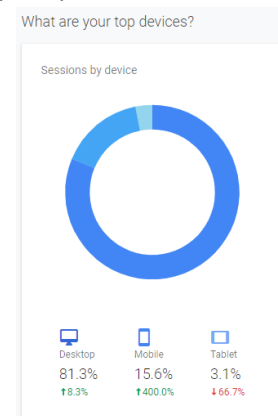


Figure 8 - Device Types

Conclusions

The development, deployment and operations of the tool has been an invigorating experience leading to the primary conclusion that the tool, its data, and its target audience are well matched.

The team will continue to operate and update the tool for the indefinite future using sponsorships from water providers and realtors along with additional grant/seed funding requests to the Colorado Water Conservation Board, to provide the initial population of water provider data from counties outside the initial seven Front Range counties in the Pilot Program.

Modifications expected to the tool are divided primarily between the user interface or user experience and the types and priorities of data collected and displayed.

There are a number of user interface modifications that the team will continue to work on as input is received from users.

Mobile adaptation – initial responses from users received via email or in dialog at roundtables or other water meetings indicates that many are using handheld devices/smartphones to access the tool. Analytics shown above, indicate that nearly 20% of users access the site in this fashion. Continued work on simplifying the tool for tablets and smartphones seems to be a natural next step.

Reduction in Steps – A number of users expressed that they would like the tool to more rapidly return the water provider information by eliminating the “Locate Residence” and “Get Report” steps. Their desired system response would be to simply type in an address and, when the system zoomed to that address, return the current Basic Report information. The report return could also be engaged if a user selected the Device location feature and, if triggered by selecting on a map point by the device location, would return the Basic Report. In the first instance, two steps would be removed from the user query and the second process would remove one of the steps. Both approaches have merit and will be examined, tested and considered for release.

Data Quality – Data quality will always rely on the public information that water providers release. The team will make changes that are highlighted through the year as well as checking annual types of information for all water providers (rate/fees, water quality reports etc). The team will work with water providers/districts where possible to simplify the updates. Many water provider web sites add their reports under specific pages and then break the reports out by year. For example, a common approach is to have a “Rates/Fees” page and then hyperlink to different years. This approach doesn’t change the data link in the tool’s database so doesn’t result in report return discrepancies. Some water providers put their new, annual rates and fees updates on an entirely new page/url. When this happens, the link in the database to their rates and fees isn’t sustained until the team, through web site visits, identifies the change and modifies the system.

Boundaries – water provider boundaries are extremely important for the tool to provide maximum value. Some of the smaller water providers have boundaries that they haven’t reviewed or examined since originally set. The team expects to work with water providers whenever boundary issues are identified. An approach that the team intends to take is to work with the larger water providers, who likely have geospatial staffs that refine boundaries, and use them as “known” data sets so that the team

can refine neighboring water providers boundaries. Where boundary issues are seen and changes made, the team will connect with the water providers involved to confirm. If changes are required those changes will be made in the system.

Water Provider Relationships – complex agreements are often made among water providers that make public understanding of their water situation unclear. For example, many urban water providers in the Denver area are actually served by Denver Water though billing and maintenance might be accomplished by the individual water provider. These types of relationships can also involve sharing of other important documents such as water quality reports and conservation plans. In some cases almost all of a water providers responsibilities are outsourced to others. These situations require different report generation and retrieval in the Water Provider tool. Users should be aware of the relationships in order to have the correct attribute information for their specific situation.

Extracted HB-1051 Data –HB-1051 reporting entities are required to report additional information to the State that is captured and publicly available on the website/database (<http://cowaterefficiency.com>) When originally established, there was a general understanding by the water providers that, though they were releasing public data of their systems to the State, that the State would refrain from widespread advertisement or release of the data. There are no legal constraints in releasing the information and the data has become more useful to researchers and administrators since the passing of HB-1051 but there are still concerns from water providers that the data might be used against them in some negative fashion. The result of this from the Water Provider tool's perspective is that the tool currently returns the website so that the public has access, but doesn't try to reach into the data to extract comparative information from provider to provider. This is likely to change over time and the team would look to the State and water providers for ways to make the HB-1051 data more consumable at the home buyer/realtor levels.

Outreach will continue to be an extremely important way of making the tool's existence known to the current target user base as well as getting new Colorado citizens aware that water is important in Colorado and that each water user in the State should know more about their water provider and their water situation than they may have ever known.

This level of public/personal responsibility will only be achieved by connecting the advertisement of the tool to the broader PEPO mission of educating Coloradans and placing in their hands the informational tools that they can use to responsibly use, conserve, and promote smart water use at a personal level.

Next Steps

The next steps for the program remain, in part, the steps that the team has already been taking. We will continue to reach out to target users in the current seven county area. This includes engaging realtor organizations and affiliates throughout the region to work on encouraging them, as a normal part of the home buying process, to include water provider information for every home transaction that they are working. This addition should be simple and will be promoted but the team as a “best practices” approach for realtors throughout the State. Not only does it promote understanding for a home buyer but, arguably, the result could be more public engagement in water provider conservation plans and programs and less stress on municipal consumption over the period of the Colorado Water Plan.

Outreach

Outreach to water providers will continue to focus on regional water authorities and basin Roundtable presentations. The Pikes Peak Regional Water Authority and the South Metro Water Supply Authority are examples of the former and the South Platte, Metro, and Arkansas roundtables the latter. The team makes regularly appearance at and announcements to the members of these groups.

The team will focus on the large water providers within the tools geographic extent in order to better refine boundaries and intergovernmental agreement among water providers that would provide stronger water understanding by customers.

The team will also work with County assessors whose counties are included in the system. Follow-up in connecting with El Paso County assessor will lead this outreach.

Finally, the team will focus on State and Regional Realtor organizations such as the Pikes Peak Association of Realtors and their Colorado State counterparts.

Sponsorships

Operation, maintenance and data updates in the tool are projected to be funded by sponsoring organizations who see the tool as something of value to them. The primary target for sponsorships and support are the big water providers in the system (e.g. Denver Water, Colorado Springs Utilities, Aurora Water, Castle Rock), and realtor organizations, both regional coordinating groups and larger commercial real estate affiliates such as REMAX or Century21.

Focus on these sponsors specifically targets the beneficiaries of the tool. The large water providers benefit from a tool that not only connects them to the realtor community but provides in-house billing and admin support to deconflict customer queries who live outside their jurisdiction. Realtor organizations benefit from providing a reliable, free data source that can help their individual home buyer understand their situation but, with a long view, a more well “water educated” consumer will result in the State being able to accommodate more property growth and population expansion without draining water resources. Being a visible part of the program that might make this happen could be good public relations for supporting realtors.

Tool Expansion

The team will also be approaching the Colorado Water Conservation Board in the near term to expand the initial Pilot Program to include the remaining Front Range and Denver metropolitan area counties of Jefferson, Boulder, Broomfield, Larimer, Weld, and Elbert County's water providers in the tool. This would add approximately 150-200 additional water providers and provide a more uniformly available tool for realtors who work across counties. The scope of this expansion will be coordinated with the CWCB and may include other counties with areas of complex water provider boundaries and responsibilities.

An approach to expanding the tool could follow the following phases:

- Phase 2 - Remaining Front Range counties
- Phase 3 – Addition of I-70 corridor counties and the areas around Steamboat Springs, Grand Junction, and Durango, and
- Phase 4 - a full State-wide tool that could also connect to the State's well permit data to complete the public picture of water sourcing.



Figure 9 - Potential Phase 2 Expansion - Denver Metro and Northern Front Range (Pilot Counties in light green)

Public water information extracted for realtor use is also an area worth exploring as a next step to the work done so far. The pilot system focuses on basic water provider information published by the water providers themselves. Other, more technical data, found in sources like the HB-1051 databases, could be simplified and returned to realtors/home buyers as well. This use of the HB-1051 data is not as originally intended though some data extraction could lead to more analytical but user consumable information. For example, basic gallons per capita for water providers might be a useful data point for home buyers. Other datapoints could include some understanding of renewable vs non-renewable water in a provider's portfolio.

Points of Contact

Royal Koepsell, Peak Spatial Enterprise, Incorporated, royal.koepsell@peakspatial.com

719-649-3477

Sean Chambers, Chambers Econ & Analytics, seanchambers77@gmail.com

970-397-4215

Appendix A – Water Providers in the Pilot Program

County	Public Water System Provider Name	HB 10-1051 Reporting Y/N
ADAMS	Central Adams County Water & Sanitation District	N
ADAMS	South Adams County Water & Sanitation District	Y
ADAMS	Strasburg Sanitation and Water District	N
ADAMS	Box Elder Water & Sanitation District	N
ADAMS	Berkeley Water & Sanitation District	N
ADAMS	Greatrock North Water and Sanitation District	N
ADAMS	Hi-Land Acres Water & Sanitation District	N
ADAMS	Himalaya Water & Sanitation District	N
ADAMS	Hazeltine Heights Water & Sanitation District	N
ADAMS	Industrial Park Water & Sanitation District	N
HINSDALE	Lakeview Estates Water District	N
ADAMS	Northgate Water District	N
ADAMS	North Lincoln Water & Sanitation District	N
ADAMS	North Pecos Water & Sanitation District	N
ADAMS	North Washington St Water & Sanitation District	N
ADAMS	Shaw Heights Water District	N
ARAPAHOE	Aurora	Y
JEFFERSON	ARVADA, CITY OF	N
ARAPAHOE	Bennett	N
ADAMS	Brighton	Y
BROOMFIELD	Broomfield	N
ADAMS	Federal Heights	N
WELD	Lochbuie	N
ADAMS	Northglenn	Y
ADAMS	Thornton	N
JEFFERSON	Westminster	N
ADAMS	Beebe Draw W&S	N
ADAMS	Crestview Water & Sanitation	N
ADAMS	Eastlake W&S	N
DENVER	Denver Water	Y
ARAPAHOE	Cherry Creek Village Water District	N
	Cherryvale Sanitation District	N
ARAPAHOE	Inverness Water & Sanitation District	N
ARAPAHOE	Bow Mar Water & Sanitation District	N
ARAPAHOE	Holly Hills Water & Sanitation District	N
ARAPAHOE	Castlewood Water & Sanitation District	N
ARAPAHOE	Hillcrest Water & Sanitation District	N
ARAPAHOE	Mansfield Heights Water & San. District	N
DENVER	Cherry Creek Valley Water And Sanitation	N

JEFFERSON	Platte Canyon Water & Sanitation District	N
ARAPAHOE	Hi-Lin Water & Sanitation District	N
ARAPAHOE	Arapahoe Estates Water District	N
ARAPAHOE	Byers Water & Sanitation District	N
JEFFERSON	Cherry Hills Heights Water & Sanitation District	N
ARAPAHOE	Columbine Water & Sanitation District	N
ARAPAHOE	Devonshire Heights Water & Sanitation District	N
ARAPAHOE	Havana Water & Sanitation District	N
ADAMS	Strasburg Sanitation and Water District	N
ARAPAHOE	Willows Water District	N
ARAPAHOE	Southgate Water District	N
	Cottonwood Water & Sanitation District	N
JEFFERSON	Southwest Metropolitan Water & Sanitation District	N
ARAPAHOE	Charlou Park Water District	N
ARAPAHOE	Brookridge Heights W&S	N
ARAPAHOE	Cherrymoor South W&S	N
ARAPAHOE	East Valley W&S	N
DOUGLAS	Highlands Ranch Metro	N
DOUGLAS	South Park Metro	N
ARAPAHOE	Arapahoe County Water and Wastewater Authority	Y
ARAPAHOE	South University Place Water Association	N
DENVER	Denver Water	N
ARAPAHOE	Littleton	N
ARAPAHOE	Cherry Hills Village	N
ARAPAHOE	Cherry Hills North W&S	N
ARAPAHOE	Galleria Metro Distric	N
ARAPAHOE	East Cherry Creek Valley Water and Sanitation	Y
ARAPAHOE	Cherry Moor Water	N
DENVER	Denver Suburban Water	N
ARAPAHOE	Greenwood Plaza Water	N
ARAPAHOE	Southwest Cherry Hills Water	N
JEFFERSON	Valley Water	N
ARAPAHOE	Southeast Englewood Water District	N
ARAPAHOE	Country Homes Metro District	N
ARAPAHOE	Rangeview Metro	N
ARAPAHOE	Aurora	Y
ARAPAHOE	Sheridan	N
ARAPAHOE	Bennett	N
ARAPAHOE	Deer Trail Metro District	N
ARAPAHOE	Englewood	Y
ARAPAHOE	Glendale	N
ADAMS	Central Adams County Water & Sanitation District	N
ADAMS	South Adams County Water & Sanitation District	N
ARAPAHOE	Cherry Creek Village Water District	N
ARAPAHOE	Bow Mar Water & Sanitation District	N
ARAPAHOE	Holly Hills Water & Sanitation District	N

ARAPAHOE	Castlewood Water & Sanitation District	N
ARAPAHOE	Hillcrest Water & Sanitation District	N
DENVER	Cherry Creek Valley Water & Sanitation	N
ARAPAHOE	Hi-Lin Water & Sanitation District	N
JEFFERSON	Cherry Hills Heights Water & Sanitation District	N
ARAPAHOE	Southgate Water District	N
JEFFERSON	Bennett Bear Creek Farm Water & Sanitation Dist	N
JEFFERSON	Grant Water & Sanitation District	N
JEFFERSON	Alameda Water & Sanitation District	N
JEFFERSON	Clear Creek Valley Water and Sanitation District	N
ADAMS	Box Elder Water & Sanitation District	N
ADAMS	Berkeley Water & Sanitation District	N
	Himalaya Water & Sanitation District	N
ADAMS	North Lincoln Water & Sanitation District	N
ADAMS	North Pecos Water & Sanitation District	N
ADAMS	North Washington Street Water & Sanitation Dist	N
JEFFERSON	Bancroft-Clover Water & Sanitation District	N
JEFFERSON	Lakehurst Water and Sanitation District	N
JEFFERSON	Lochmoor Water & Sanitation District	N
JEFFERSON	Wheat Ridge Water District	N
JEFFERSON	Bear Creek W&S	N
ADAMS	Industrial Park W&S	N
JEFFERSON	S.W. Suburban Denver W&S	N
DENVER	Denver Water	Y
ARAPAHOE	Littleton	N
ARAPAHOE	Cherry Hills Village	N
ARAPAHOE	Cherry Hills North W&S	N
ARAPAHOE	Galleria Metro District	N
DENVER	Denver Suburban Water	N
JEFFERSON	Valley Water	N
JEFFERSON	Consolidated Mutual Water Company	N
ARAPAHOE	Southeast Englewood Water District	N
ARAPAHOE	Aurora	N
JEFFERSON	Lakewood	N
		N
ARAPAHOE	Sheridan	N
ARAPAHOE	Englewood	Y
ARAPAHOE	Glendale	N
Denver	SOUTH DENVER METROPOLITAN DISTRICT	N
Denver	MIDTOWN METROPOLITAN DISTRICT PARCEL 2	N
Denver	MIDTOWN METROPOLITAN DISTRICT PARCEL 2	N
Denver	COMM COORD METRO DIST 1 BROADWAY3TRIANGLE PARK	N
Denver	SOUTH DENVER METROPOLITAN DISTRICT	N

Denver	CO INTERNATIONAL CENTER METRO DIST 13 AND 14 PAR B	N
Denver	BROADWAY STATION METRO DIST INCLUSION AREA 1	N
Denver	AVIATION STATION NORTH METRO DISTRICT NO. 4	N
Denver	CENTRAL PLATTE VALLEY METRO DISTRICT PARCEL 4B	N
Denver	CENTRAL PLATTE VALLEY METRO DISTRICT PARCEL 6A	N
Denver	BROADWAY STATION METRO DIST INCLUSION AREA 4	N
Denver	WESTERLY CREEK METROPOLITAN DISTRICT	N
Denver	CENTRAL PLATTE VALLEY COORDINATION METRO DIST	N
Denver	CCP METROPOLITAN DISTRICT 2	N
Denver	SOUTH DENVER METROPOLITAN DISTRICT	N
Denver	CENTRAL PLATTE VALLEY METRO DISTRICT PARCEL 23	N
Denver	BROADWAY STATION METROPOLITAN DISTRICT NO. 3	N
Denver	CENTRAL PLATTE VALLEY COORDINATION METRO DIST	N
Denver	DENVER HIGH POINT AT DIA METRO DIST PARCEL A	N
Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 8B	N
Denver	WEST GLOBEVILLE METRO DIST INCLUSION AREA	N
Denver	SOUTHEAST PUBLIC IMPROVEMENT METRO DIST PARCEL 2	N
Denver	DUS METROPOLITAN DISTRICT NO. 3	N
Denver	SECTION 14 METRO DISTRICT (debt only)	N
Denver	COMM COORD METRO DIST 1 BROADWAY4TRIANGLE PARK	N
Denver	FAIRLAKE METRO DISTRICT PARCEL 1	N
Denver	LOWRY VISTA METRO DISTRICT	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	DENARGO MARKET METRO DISTRICT 3	N
Denver	PARK CREEK METRO DISTRICT	N
Denver	BROADWAY STATION METRO DISTRICT NO. 2	N
Denver	CO INTERNATIONAL CENTER METRO DIST 14 PARCEL 3	N
Denver	SOUTH SLOAN'S LAKE METRO DISTRICT NO. 2	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	SMITH METRO DISTRICT INCLUSION AREA	N
Denver	BOWLES METRO DISTRICT PARCEL 1	N
Denver	FAIRLAKE METRO DISTRICT PARCEL 1	N
Denver	BELLEVIEW STATION METRO DISTRICT NO. 2	N
Denver	9TH AVENUE METRO DISTRICT NO. 2	N
Denver	COMM COORD METRO DIST 1 BROADWAY2TRIANGLE PARK	N
Denver	CO INTERNATIONAL CENTER METRO DIST 13 AND 14 PAR A	N
Denver	CENTRAL PLATTE VALLEY METRO DISTRICT PARCEL 7B	N
Denver	COMM COORD METRO DIST 1 BROADWAY1TRIANGLE PARK	N

Denver	CENTRAL PLATTE VALLEY METRO DISTRICT PARCEL 24	N
Denver	SMITH METRO DISTRICT NO. 3	N
Denver	ALAMEDA STATION METRO DIST INCLUSION AREA 2	N
Denver	DUS METRO DISTRICT NO. 5	N
Denver	AVIATION STATION NORTH METR DISTRICT NO. 6	N
Denver	SAND CREEK METRO DISTRICT PARCEL B	N
Denver	DEN INTERNATIONAL BUSINESS CENTER METRO DIST 1	N
Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 6B	N
Denver	SOUTHEAST PUB IMPROVEMENT METRO DIST PARCEL 1	N
Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 4A	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	CCP METROPOLITAN DISTRICT 1	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	DUS METROPOLITAN DISTRICT NO. 1	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 5	N
Denver	SMITH METROPOLITAN DISTRICT NO. 1	N
Denver	BROADWAY STATION METRO DIST NO. 1	N
Denver	DENVER GATEWAY MEADOWS METRO DIST	N
Denver	MIDTOWN METRO DISTRICT PARCEL 1	N
Denver	MILE HIGH BUSINESS CENTER METRO DISTRICT	N
Denver	BOWLES METROPOLITAN DISTRICT PARCEL 2	N
Denver	SMITH METROPOLITAN DISTRICT NO. 2	N
Denver	SAND CREEK METRO DISTRICT PARCEL A	N
Denver	AVIATION STATION NORTH METRO DIST NO. 5	N
Denver	AVIATION STATION NORTH METRO DIST INCLU AREA	N
Denver	COMM COORD METRO DIST 1 24TH ST TRIANGLE PARK	N
Denver	DENARGO MARKET METRO DIST - INCLUSION AREA	N
Denver	GATEWAY REGIONAL METRO DISTRICT	N
Denver	SBC METROPOLITAN DISTRICT	N
Denver	9TH AVENUE METRO DISTRICT NO. 1	N
Denver	GREENWOOD METROPOLITAN DISTRICT	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	FIRST CREEK VILLAGE METRO DISTRICT	N
Denver	DUS METROPOLITAN DISTRICT NO. 4	N
Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 9A	N
Denver	COMM COORD METRO DIST1 E. MAESTES TRIANGLE PARK	N
Denver	BROADWAY STATION METRO DIST INCLUSION AREA 2	N
Denver	ALAMEDA STATION METRO DISTRICT	N
Denver	BELLEVUE STATION METRO DIST NO. 3	N
Denver	CO INTERNATIONAL CENTER METRO DIST 13 AND 14 PAR C	N
Denver	BMP METRO DISTRICT INCLUSION AREA	N
Denver	DENVER HIGH POINT AT DIA METRO DIST PARCEL B	N

Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 8	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	FAIRLAKE METRO DISTRICT PARCEL 1A	N
Denver	SOUTH SLOAN'S LAKE METRO DIST NO. 1	N
Denver	SBC METROPOLITAN DISTRICT	N
Denver	MIDTOWN METRO DIST PARCEL 3	N
Denver	DENARGO MARKET METRO DIST 1	N
Denver	ALAMEDA STATION METRO DIST INCLU AREA 1	N
Denver	DENVER CONNECTION WEST METRO DIST	N
Denver	CO INTERNATIONAL CENTER METRO DIST 13 PARCEL 2	N
Denver	9TH AVENUE METRO DIST FUTURE INCLUSION AREA	N
Denver	DENVER HIGH POINT AT DIA METRO DIST PARCEL C	N
Denver	FIRST CREEK VILLAGE METRO DIST INCLU AREA	N
Denver	WEST GLOBEVILLE METRO DISTRICT NO. 2	N
Denver	DENARGO MARKET METRO DISTRICT 2	N
Denver	AVIATION STATION NORTH METRO DIST NO. 1	N
Denver	AVIATION STATION NORTH METRO DIST NO. 3	N
Denver	SECTION 14 METRO DISTRICT	N
Denver	WESTERLY CREEK METRO DISTRICT	N
Denver	BOWLES METRO DISTRICT PARCEL 3	N
Denver	9TH AVENUE METRO DISTRICT NO. 3	N
Denver	BELLEVUE STATION METRO DIST NO. 1	N
Denver	CCP METROPOLITAN INCLUSION AREA	N
Denver	EBERT METROPOLITAN DISTRICT	N
Denver	SOUTH SLOAN'S LAKE METRO DIST INCLU AREA	N
Denver	DENVER GATEWAY CENTER METRO DISTRICT	N
Denver	AVIATION STATION NORTH METRO DIST NO. 2	N
Denver	TOWN CENTER METROPOLITAN DISTRICT	N
Denver	BROADWAY STATION METRO DIST INCLU AREA 3	N
Denver	WEST GLOBEVILLE METRO DISTRICT NO. 1	N
Denver	BMP METROPOLITAN DISTRICT NO. 1	N
Denver	PARK CREEK METRO DISTRICT	N
Denver	DUS METROPOLITAN DISTRICT NO. 2	N
Denver	BMP METROPOLITAN DISTRICT NO. 3	N
Denver	SMITH METROPOLITAN DISTRICT NO. 4	N
Denver	SOUTH DENVER METRO DISTRICT	N
Denver	SOUTHEAST PUB IMPROVE METRO DIST PARCEL 3	N
Denver	BMP METROPOLITAN DISTRICT NO. 2	N
Denver	GVR METROPOLITAN DISTRICT	N
Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 1B	N
Denver	SOUTH DENVER METROPOLITAN DISTRICT	N
Denver	SOUTH DENVER METROPOLITAN DISTRICT	N
Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 21	N
Denver	GOLDSMITH METROPOLITAN DISTRICT	N
Denver	CENTRAL PLATTE VALLEY METRO DIST PARCEL 17A	N
Denver	SOUTH DENVER METROPOLITAN DISTRICT	N

DOUGLAS	Centennial Water & Sanitation District	N
	Inverness Water & Sanitation District	N
ARAPAHOE	Southgate Water District	N
	Denver Southeast Suburban Water & Sanitation Dist	N
DOUGLAS	Louviers Water and Sanitation District	N
DOUGLAS	Dominion Water & Sanitation District	N
DOUGLAS	Westcreek Lakes Water District	N
DOUGLAS	Perry Park Water & Sanitation District	N
DOUGLAS	Thunderbird Water & Sanitation District	N
DOUGLAS	Cottonwood Water & Sanitation District	N
DOUGLAS	Sedalia Water & Sanitation District	N
DOUGLAS	Chatfield South Water District	N
DOUGLAS	North Douglas County Water & Sanitation Dist	N
DOUGLAS	Castleton Center Water & Sanitation District	N
DOUGLAS	Roxborough Water and Sanitation District	N
DOUGLAS	Parker Water & Sanitation District	Y
ARAPAHOE	Southwest Metropolitan Water & Sanitation District	N
DOUGLAS	Silver Heights Water & Sanitation District	N
DOUGLAS	Airport Vista Metro 1	N
DOUGLAS	Airport Vista Metro 2	N
DOUGLAS	BMR Metropolitan aka Bell Mtn Metro	N
DOUGLAS	Castle Pines Metropolitan	N
DOUGLAS	Castle Pines North Metro	N
DOUGLAS	Compark Business Campus Metro	N
DOUGLAS	Concord Metropolitan	N
		N
		N
DOUGLAS	Consolidated Bell Mountain Ranch Metro	N
DOUGLAS	Crowfoot Valley Ranch Metro #1	N
DOUGLAS	Crowfoot Valley Ranch Metro #2	N
DOUGLAS	E-470 Potomac Metro	N
DOUGLAS	Green Valley W&S	N
DOUGLAS	Hidden Pointe Metropolitan	N
DOUGLAS	Highlands Ranch Metro	N
DOUGLAS	Lincoln Park Metropolitan	N
DOUGLAS	Louviers Mutual Service Company	N
DOUGLAS	Meridian Metropolitan	N
DOUGLAS	Meridian Village Metro 2	N
DOUGLAS	North Meridian Metro	N
DOUGLAS	Ravenna Metro	N
DOUGLAS	Remuda Ranch Metro	N
DOUGLAS	Roxborough Park Metro	N
DOUGLAS	Soliltude Metro Dist	N
DOUGLAS	South Meridian Metro Debt Service	N

DOUGLAS	South Meridian Metro	N
DOUGLAS	South Park Metro	N
DOUGLAS	South Santa Fe Metro 1	N
DOUGLAS	South Santa Fe Metro 2	N
DOUGLAS	Stonegate Village Metro	N
EL PASO	Woodmoor W&S No. 1	N
DOUGLAS	Arapahoe County Water and Wastewater Authority	N
ARAPAHOE	Littleton	N
DOUGLAS	Pinery - Denver SE Suburban	N
DOUGLAS	Colorado Dept. of Natural Resources	N
DOUGLAS	Dominion (Sterling Ranch)	N
ARAPAHOE	Aurora	Y
DOUGLAS	Castle Rock	N
DOUGLAS	Larkspur	N
DOUGLAS	Parker W&S	Y
DOUGLAS	Silver Heights W&S	N
EL PASO	Woodmen Hills	N
EL PASO	Woodmen Hills	N
	Meridian Ranch	N
	STERLING RANCH MD	N
EL PASO	Paint Brush Hills Metropolitan District	N
	Santa Fe Springs Metropolitan District No. 1	N
	Santa Fe Springs Metropolitan District No. 2	N
	Santa Fe Springs Metropolitan District No. 3	N
	4-Way Ranch Metropolitan District No. 1	N
	4-Way Ranch Metropolitan District No. 2	N
	Bent Grass Metropolitan District	N
EL PASO	Garden Valley Water & Sanitation District	N
EL PASO	Donala Water & Sanitation District	N
EL PASO	Park Forest Water District	N
	Westmoor Water & Sanitation District	N
EL PASO	Woodmoor Water and Sanitation District No. 1	N
EL PASO	Widefield Water and Sanitation District	Y
EL PASO	Academy Water & Sanitation District	N
EL PASO	Rock Creek Mesa Water District	N
EL PASO	Pioneer Lookout Water District	N
EL PASO	Security Water District	Y
EL PASO	Stratmoor Hills Water District	N
EL PASO	Red Rock Valley Estates Water District	N
EL PASO	Turkey Canon Ranch Water District	N
EL PASO	Colorado Springs Utility	Y
EL PASO	Forest View Acres Water District	N
EL PASO	Calhan	N
EL PASO	Fountain	Y
EL PASO	Manitou Springs	N
EL PASO	Monument	N

EL PASO	Palmer Lake	N
TELLER	Woodland Park	N
EL PASO	Cherokee Metropolitan District	Y
EL PASO	TriView Metro District	N
EL PASO	Cherokee Metropolitan District	Y
PUEBLO	Avondale Water & Sanitation District	N
PUEBLO	Beulah Water Works District	N
PUEBLO	Pine Drive Water District	N
PUEBLO	St. Charles Mesa Water District	N
PUEBLO	BOONE TOWN WATER	N
PUEBLO	COLORADO CITY METRO WATER	N
PUEBLO	PUEBLO BOARD OF WATER WORKS	Y
PUEBLO	PUEBLO WEST METRO WATER DIST	N
PUEBLO	RYE TOWN WATER	N
DOUGLAS	Westcreek Lakes Water District	N
TELLER	Rainbow Valley Water District	N
TELLER	Florissant Water & Sanitation District	N
TELLER	Ridgewood Water District	N
TELLER	Highland Lakes Water District	N
TELLER	Teller County Water & Sanitation District No. 1	N
TELLER	Westwood Lakes Water District	N
TELLER	Cripple Creek	N
TELLER	Woodland Park	N