

Douglas County New Press

How thirsty is Douglas County?

Water providers work to transition to renewable sources



Rueter-Hess Reservoir, which was completed in 2012, is owned and operated by Parker Water and Sanitation. It has a capacity of 75,000 acre-feet.

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On an average day, 25 people move to Douglas County. Each one needs to drink, shower, water their lawn and wash their dishes.

The full impact of that growth is difficult to see, but it's easy to understand: more people need more water. And in a county where thousands of homes rely on a limited supply of underground aquifers, water providers are constantly working to shift to more sustainable resources before they run out.

Some aquifers buried under Douglas County have lost two to six feet in depth of water. Local water providers have noticed their supply wells aren't producing like they once did.

"It's like sucking water out of the bathtub with a straw," said Rick McLoud, water resources manager for Centennial Water & Sanitation. "There's only so much water in the bathtub and the sooner you suck it out with a straw, the sooner it will be gone."

Centennial Water, which provides water to about 100,000 customers in Highlands Ranch and Mirabel metro districts, is one of the county's providers that has noticed declines in well production.

That's because the water they're pulling to the surface is depleting. And it's not replenishing itself.

Growth is expected to continue in the county, with nearly 60,000 more people projected to move to the area by 2030, according to the [state's demography office](#). That means the community's thirst is only going to increase.

To meet those demands, water providers are planning a mix of conservation efforts, wastewater projects and new infrastructure for renewable resources of water. The county government is also looking at how to bring in more water and is considering spending a portion of their \$68 million in federal funds from the American Rescue Plan Act on the issue.

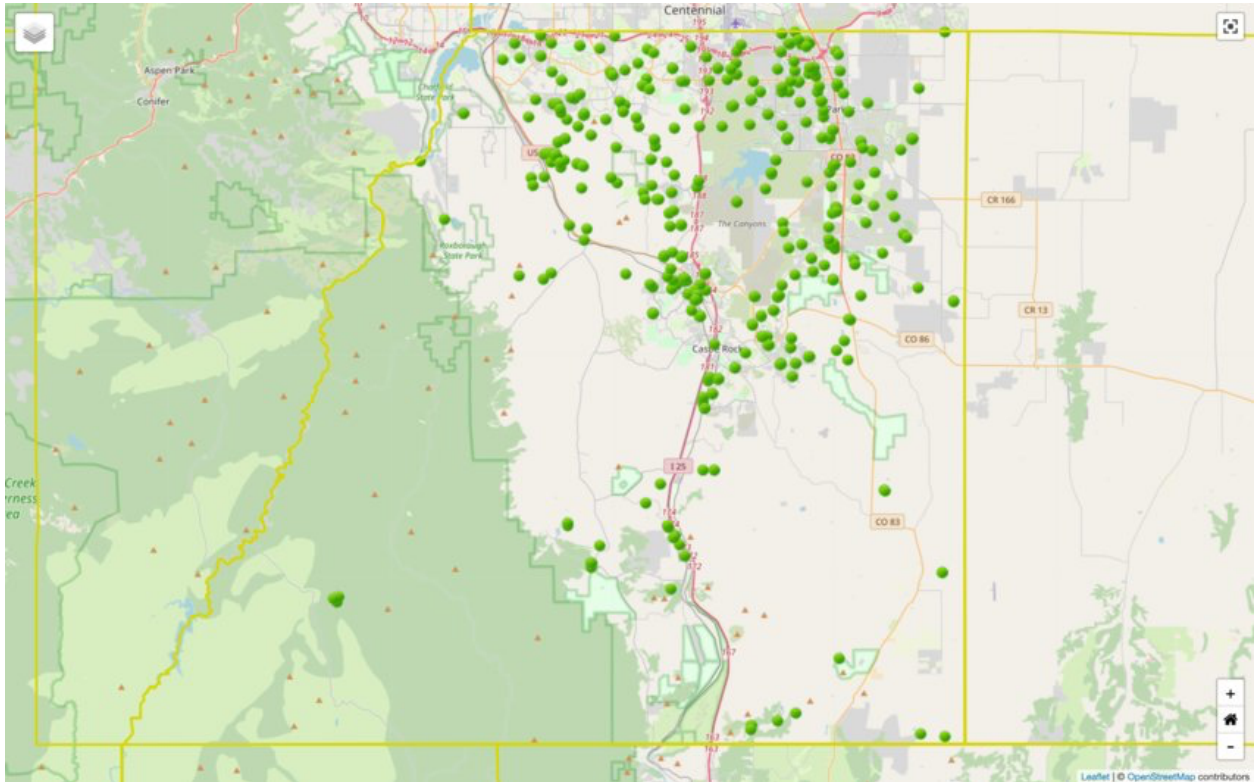
'Overreliance on groundwater'

As Douglas County's development has surged since the 1990s, many of the largest communities such as Parker and Castle Rock have relied on groundwater to fill residents' bathtubs and sinks, said State Engineer Kevin Rein.

In Colorado, the [Office of the State Engineer](#) administers water rights, manages wells and their permits and monitors water use, among other water-related duties.

Groundwater from aquifers makes up about 65% of the water used by Parker Water and Sanitation, which is the provider for Parker and parts of Lone Tree and Castle Pines, and by Castle Rock Water. Centennial Water uses about 20% groundwater. Those ratios can change depending on drought conditions.

According to the state engineer's office, Douglas County has about 440 municipal wells, which are used to drill into the aquifers.



“Douglas County is unique in that its overreliance on groundwater in some ways has spoiled it in the sense that we’re not as subject to the hydrologic cycle as other areas are,” said Brock Smethills, president of Sterling Ranch Development Company and a board member of Dominion Water and Sanitation.

That’s because areas relying on renewable surface water and snowmelt will feel the impacts of a drought year more acutely.

A simulation produced by the United States Geological Survey shows that from 1880 to 2003, about half of the water removed from the Denver basin aquifers came from the South Denver Metro Region, said Suzanne Paschke, the Associate Director for Hydrologic Studies for the Colorado Water Science Center in the USGS.

“That is where most of the storage depletion is occurring in the basin, according to our simulations,” Paschke said.

Aquifer is depleting

Since 1996, the state engineer’s office has been advising those using wells in the Denver basin to be aware that the aquifers contain a finite amount of water, Rein said.

“We recognize the non-renewable nature and we have advised ... that anyone using this resource should recognize that it’s non-renewable and it may not even last for the 100 years it’s allocated on,” Rein said.

In 2003, [news reports](#) said the aquifer was in such decline that some areas of the county could run dry of groundwater in 10 to 20 years.

Studies completed by the United States Geologic Survey [in 2011](#) and [2019](#) showed that aquifer declines were continuing but stopped short of giving predictions on the amount of time until they're empty.

"We can pull out less now than we used to when we first started," said McCloud with Centennial Water. "We're feeling its finiteness."

Mark Marlowe, the Castle Rock water director, said many of their wells have seen declines in water levels, though he added it's difficult to determine how widespread that withdrawal is within the basin.

"There's a big supply but it is going to become more difficult to extract that supply over the long term," Marlow said. "Quite frankly, we want to protect that supply for periods when surface water is not available."

That added difficulty comes because as the water level in the aquifer decreases, more wells must be drilled to maintain the same amount of production, causing increases in costs.

Castle Rock is currently working with Colorado State University to study their deep groundwater, Marlowe said.

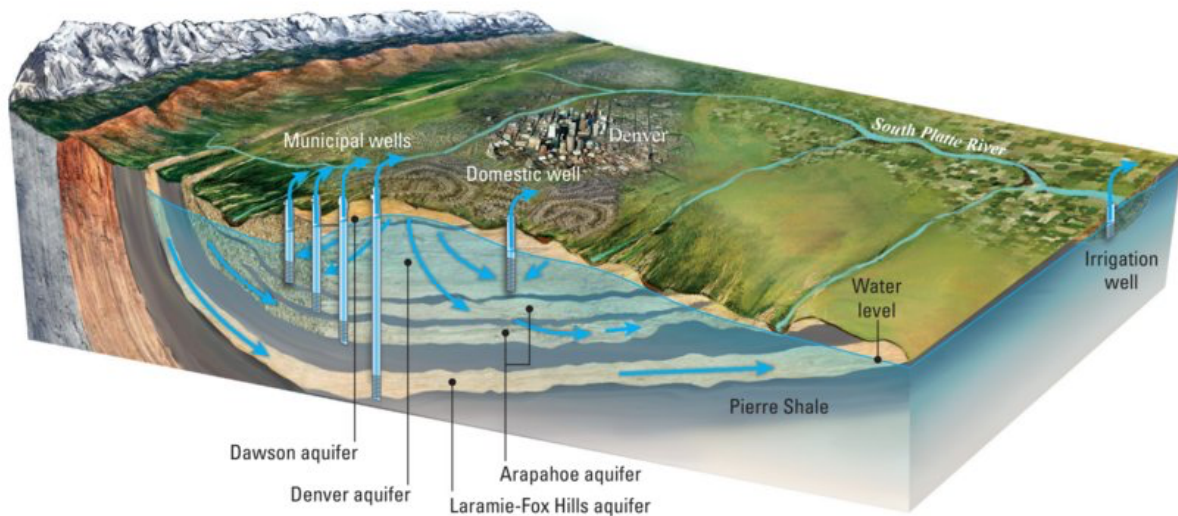
"There's still a lot to know and learn about the Denver basin groundwater in terms of how long it will be sustainable as a resource," he said.

Ron Redd, the district manager of Parker Water and Sanitation, said from their well monitoring, they've also seen declines in multiple aquifers.

"On average we can see a two- to six-foot decline," he said.

Douglas County sits on a layer of several aquifers, including the Arapahoe, Denver, Dawson and the Laramie-Fox Hills aquifers. Most major water providers use the water in the Arapahoe and Denver aquifers, which reach depths of 1,700 and 600 feet beneath the ground, respectively.

"While the aquifers are thicker there, I think there's so much use that it's heavily impacted," Pashcke said.



Development is growing

While communities like Highlands Ranch are essentially built out, areas like Lone Tree, Castle Pines, Sterling Ranch and Castle Rock have hundreds if not thousands of homes set to be developed in the coming years.

“Water is a linchpin of development around the Denver metro area,” Brock Smethills said.

The state engineer’s office is required by statute to allow developers to continue using the Denver basin groundwater.

“Our state engineer’s office personnel, we’re really bound to allow this water’s use, according to the law,” Rein said. “And they should be mindful of our advice that we’ve given them about the non-renewable nature of the resource and again be aware that they may need alternate supplies in the long term or the short term.”

Under Douglas County’s guidelines for development in unincorporated areas, only the western part of the county is not allowed to rely on their groundwater for development, said Steve Koster, assistant director of planning services for the county. Those communities must provide either a renewable water source or use groundwater from the eastern part of the county.

Koster said the county is not actively looking at requiring or incentivizing developers to instead look for renewable resources of water.



Projects to address

All the major water providers in the county have said they are confident in their plans to address growth and water demands.

Parker Water and Sanitation is [working on a project](#) that will partner with a water conservancy district in Sterling, a town in eastern Colorado, to capture unused water during high runoff years from the South Platte River there and store it to pipe back to the town. The project won't impact existing water rights and won't allow buy-and-dry of nearby agriculture, Redd said.

In order to meet Parker's projected water demands, the project will need to be complete by 2040, Redd said.

That project would get Parker Water to 75% renewable water and would provide water for more than 300,000 people in Douglas County, including in Parker, Castle Rock and portions of Castle Pines and Lone Tree, according to a project proposal. Castle Rock Water is a partner on that project.

Over the next 20 to 30 years, Castle Rock plans to invest about \$500 million in renewable water projects including new pipelines, additional storage and water rights. Marlowe said the reason they spread out those projects over time is to keep rates for their customers down.

By 2050, Castle Rock plans to move to 75% renewable and by 2065 have a 100% renewable system for wet or average years.

Dominion Water and Sanitation, which serves about 1,200 homes in Sterling Ranch, plans to be 90% renewable by 2040. Sterling Ranch is slated to add about 11,000 more homes to their community in that same time period at a rate of 450 homes per year. Dominion also plans to include about 700 other existing homes from smaller communities to their service area soon.

Right now, Dominion is 100% renewable but is set to drill wells in the Cherokee Ranch area to blend some groundwater into their system, making it more drought-resistant, Cole said.

They are also planning to build a river intake on the South Platte River and a wastewater treatment facility, which will provide at least 1,600 acre-feet of water per year to Sterling Ranch.

An acre-foot is the equivalent of a one-foot-deep pool about the size of a football field. Most homes in Douglas County use less than half an acre-foot per year of water.



In the next few years, Dominion Water will also begin the state's first pilot program for rainwater harvesting.

Paschke said she doesn't want her work for USGS to be interpreted to mean the only solution is to completely stop using groundwater. Instead, she said, she advocates for a combination of approaches, including water reuse and conservation.

"It's a balance of maybe there's more reliance in drought years when there's less surface water, relying more on groundwater," she said.

Water wasted

Conservation and education of the public are also big parts of all the water providers' plans to continue providing water to the community.

"We consider water conservation to be a water supply," Marlowe said. "Especially given how much water is still wasted on outdoor irrigation."

Castle Rock plans to incorporate programs in the coming years that encourage more efficient utilities and lawns that don't require heavy irrigation. At the statewide level, a [bill being considered](#) by the legislature this session would pay residents up to \$2 per square foot to rip out their irrigated turf and replace it with less thirsty alternatives.

Sterling Ranch has focused on a program they call "demand management" that allows residents to have a live look at their water usage and bills.

"It gives the residents the information to manage their water," said Harold Smethills, an owner of Sterling Ranch and board member of Dominion Water.

Their community also has banned the use of bluegrass, a type of turf that demands lots of water. Instead they offer a variety of drought-resistant plants for landscaping.



Water providers are also working to educate their customers about the realities of the water supply.

“It’s important to us to educate and help customers understand what the water supply situation is, especially constant education so we don’t just have to go out and educate when we have a drought,” said Stephanie Stanley, the director of finance and administration for Centennial Water.

Multiple entities, including Dominion, Parker Water and Castle Rock Water, have already built or are planning to invest in wastewater treatment plants to reuse their existing supplies as much as possible.

Even with all the plans set, water managers say the job isn’t complete.

“There’s a lot of work to do. We’re not done,” Marlowe said. “We live in a state that is an arid state and we need to continue to work on this for sure.”

McCloud, with Centennial Water, said he sees one main goal for water providers in the county.

“The work is to obtain surface water,” McCloud said. “People are doing various things to do that and they all have the pressure of the groundwater usage pushing them to be successful.”

Lisa Darling, the executive director for the South Metro Water Supply Authority, said she’s confident in the plans the Douglas County water providers have produced but that issues such as climate change continue to demand attention.

County funds

As the commissioners consider how to approach the issue, \$68 million in federal funds has the potential to aid in addressing the water demands of a growing community.

One proposal for the money, which the commissioners have dedicated [six two-hour meetings](#) to discussing, would pump about 22,000 acre-feet of water per year to Douglas County from the San Luis Valley. Renewable Water Resources, the private company proposing the project, says that’s enough for 70,000 houses.

The project has been met with ire [from many in the valley](#), though, as multiple water conservation districts and elected officials there have said they don’t have enough water to spare and it would damage their agriculture-based economy. Opponents from across the political spectrum have come out against it including Rep. Lauren Boebert, Gov. Jared Polis, Rep. Cleave Simpson and Attorney General Phil Weiser. Both of Colorado’s U.S. senators, [John Hickenlooper and Michael Bennet](#), have also opposed the project.

So far, all the major water providers in Douglas County have said they are not interested in using the water from the RWR proposal. Darling says that’s in part because many providers have already heavily invested in other projects.

“It would be difficult to foresee a provider saying ‘oh well, I’ve got so much invested in that but heck, I won’t do that anymore I’m going to go swing over to this other project,’” she said.

If commissioners [decide to invest](#) the initial fee of \$10 million, the project would then have to go through the water court process before it could begin. While it's possible ARPA funds couldn't be used directly on the project, RWR has suggested the county use the federal dollars to backfill their general county budget.

Commissioners have also heard presentations from Parker Water, who asked them to consider using about \$20 million of the federal funds to help their South Platte River project, and Dominion, who asked for help funding their regional wastewater plant in partnership with Castle Rock Water and the Plum Creek Reclamation Authority.

With new projects, costs are also a factor. Water providers often work to spread out infrastructure needs to keep their customers' costs down. That's one concern Darling has with the county considering funding multiple major water projects.

"I don't think it's practicable to expect to have a number of these huge projects and play on that same customer base," she said. "That's a huge economic impact."

Still, as water becomes harder to find, Darling says costs are likely to go up regardless.

"It would be hard to believe that in future, anything that is becoming scarcer would become less expensive," she said.

Keywords

[water in douglas county](#), [denver aquifer](#), [rick mcloud](#), [mark marlowe](#), [water supplies in denver](#), [douglas county water use](#), [parker water](#), [centennial water](#), [renewable water in douglas county](#), [ronn redd](#), [douglas county groundwater](#), [sterling ranch](#), [castle rock water](#)