

Water Conservation Project Study: Third Cherry Creek Townhouse Corp.

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During the past decade, Cherry Creek 3's efforts to decrease water usage by millions of gallons of water, resulted savings of hundreds of thousands of dollars. This success occurred by developing and implementing a water conservation-efficiency program that has made it a model recognized statewide and beyond.

Cherry Creek 3 Complex information: The 54-year old, 251-unit condo-style townhome complex in southeast Denver County, CO is one of the oldest homeowners' associations in the city. The HOA's fiscal year begins on Oct. 1 of each year and ends the following Sept. 30. Units are individually owned and are part of 39 buildings on the campus, which occupies one city block.

Denver Water is the water supplier for the HOA. Three incoming water meters serve the Association. There are no individual meters on homes. The HOA inherited a looped water-distribution system to buildings from the complex developer, Hallcraft Homes.

The HOA pays all water and sewage charges for homeowners, the 109,000-gallon swimming pool and outdoor irrigation. Homeowners' monthly maintenance fee to the HOA includes a 1/251st share of the entire bill for the complex. The monthly dues are \$195 per month per condo unit owner.

Motivation for conservation: At the conclusion of the 2008-09 fiscal year, Cherry Creek 3 had purchased 36,708,000 gallons of water from Denver Water. The amount paid for water and sewage tallied \$158,705, approximately 42% of the HOA's annual operating budget.

Early conclusions: It was apparent Cherry Creek 3's water consumption was increasing, resulting in higher costs for both water and sewage. HOA Board members recognized that leaks could be occurring underground or in owners' individual homes. Also considered was the possibility that, as homes were sold, more people occupied homes and used more water.

Cherry Creek 3 began paying closer attention to its monthly water consumption. During several occasions since 2009, underground pipe leaks were discovered and repaired after water bills rose.

Initial opportunity to reduce consumption: Concerned homeowner Don Ireland contacted Denver Water to talk about how the HOA could conserve water. He also conducted online research to see what was being done in other communities across the nation. The majority of toilets in Cherry Creek 3 were 3.5 gallon-per-flush models, installed by Hallcraft when the homes were built in 1965.

Denver Water, following the Colorado drought in 2001, was actively offering conservation opportunities in the region. It offered Cherry Creek 3 a unique plan (not currently available): Denver Water would purchase new, 1.28 gallon-per-flush toilets to the HOA and provide an up-front, \$125 rebate on each installed toilet to help cover for installation costs. It would also provide dumpsters for old toilets, so the porcelain could be recycled. For its part, Cherry Creek 3 would solicit home owners to purchase up to three new toilets and oversee a contractor to install the toilets. As a condition to participate in the program, Denver Water required that at least 100 new toilets had to be ordered and installed.

Cherry Creek 3 hired a contractor to conduct the work. Mr. Ireland volunteered to coordinate the project and market the program to individual homeowners. Each owner was asked to pay \$15 per new toilet to help pay for installation costs. Using multiple newsletters and posting regular flyers on back patio fence clips, the information directed owners to attend three sign-up sessions and pay the individual, \$15-

per-toilet sign-up fee. The Association decided to include the installation of a quarter-turn shutoff valve on each toilet as another part of its participation.

It should be noted that some Cherry Creek 3 Board members opposed the project, fearing liability issues if the new toilets failed and caused damages inside the privately-owned homes. Other concerns included invasion of privacy by Denver Water and the HOA. Among the most common fears was that the new toilets may not operate as advertised and that they may cause sewer line clogs because they do not supply ample water to flush through sewer lines.

As the result of the three meetings, more than 125 owners, slightly more than half of the complex, paid to have 425 toilets purchased. [It is estimated that as many as 1,000 toilets existed in the complex.] Some owners didn't participate because they had recently remodeled bathrooms and had High Efficiency Toilets installed. Other owners declined to participate while others claimed (years later) that they were unaware of the toilet-replacement program.

Toilets were installed in the summer and fall of 2009. The Association paid approximately \$7,200 toward the installation costs while owner-participants' fees paid the remainder.

Toilet-replacement program results: At the end of the 2009-10 budget year, Cherry Creek 3 used 31.964 million gallons, a decrease of 4.744 million gallons from the previous fiscal year. The HOA also petitioned Denver Wastewater to review the Association's sewage bill, which is based on an average of water consumption early each calendar year. To Cherry Creek 3's surprise, Denver Wastewater reviewed the community's decreased consumption and issued a refund check of \$17,070 – an amount that greatly exceeded the HOA's costs to implement the toilet program.

The next step: targeting outdoor water conservation in Cherry Creek 3. Following the success of toilet-replacement project, Mr. Ireland ran for the HOA Board and was elected president. One of his objectives was to continue to press for water conservation, including changing the landscaping in the 40+ year old community. The general observation of the landscaping was it was an outdated look that utilized juniper bushes and lava rock in the small plots in front of each condo unit. The remainder of the complex had several dozen trees and was dominated by Kentucky bluegrass, irrigated with old sprinkler heads and controllers. The HOA president attended a series of xeriscaping classes and continued to communicate with water-conservation experts around the country. Cherry Creek 3 accepted a new, 5-year agreement with Denver Water. Denver Water agreed to offer a cash incentive annually for the reduction of each acre-foot of water outdoors and rebates for water-efficient sprinkler heads. [Note: Denver Water no longer offers incentives for outdoor water-efficiency projects but continues to offer rebates for new irrigation controllers and low-water sprinkler heads.]

Landscape Improvement Plant approved: At the insistence of the Board president, Cherry Creek 3 created a multi-year Landscape Improvement Program (LIP) with three objectives:

1. Conserve water
2. Improve the beauty of the neighborhood
3. Bolster property values as the result of improved curb appeal.

The HOA Board determined to conduct the LIP over a 5-year period, replacing approximately 50 home-front planting areas and spending \$25,000 annually. A landscape architect was hired to create a general planting plan based on the direction each building faced. Community volunteers attended landscape classes, learned about Plant Select low-water plant species and made decisions impacting the project.

Some Board members and owners opposed the change, many because of a departure from “the way it’s always been done.” Others worried that the addition of xeriscaping meant changing the neighborhood’s look to one of “rocks and cactus plants,” etc.

During the next several years, the landscaping changed. The work included installing new irrigation controller clocks with rain shut-off sensors, changing more than 1,500 traditional sprinkler heads to water-saving MP-Rotator varieties and reshaping earth to assure water would drain away from building fronts in the event of heavy precipitation.

Many of the residents’ initial objections passed after they witnessed the beauty of the new plants, enjoyed natural-looking mulch that replaced outdated lava rock and observed the removal of partly-dead junipers throughout the complex.

During the LIP, several owners also expressed a desire for Cherry Creek 3 to create a Community Garden for vegetables. In 2012, The Board decided to remove turf grass from a seldom-used section of land that wasn’t directly in front-window view of any home. The irrigation system was disconnected and gardeners used a hose system to hand-water their plants.

Throughout the complex, several smaller areas of turf grass were replaced with xeric plants. At the end of buildings, new, low-water ground covers replaced grass sections and “hell strips.” When a major water-sewer line replacement project was conducted on a sloped hillside, the work area was not re-seeded with sod. Instead, a mulched “Conservancy Area” containing native and xeric plants was installed.

Cherry Creek 3 continues to experiment with landscaping. On one hillside, grass was removed and replaced with thyme, a perennial bloomer that has low water demands and is stoppable. On two other side-yard plots, Dog Tuff Grass © sections have replaced Kentucky bluegrass.

Because of its age as a community, Cherry Creek 3 has removed more than a dozen old trees. Since 2016, the HOA had installed more than 30 new trees, primarily low-water species suitable for the region. As of this update, there are approximately 200 trees on the property.

Since the inception of the LIP, Cherry Creek 3 has spent more than \$150,000 on new landscaping in addition to regularly-scheduled maintenance work.

Lessons learned while conducting Landscaping Changes:

Cherry Creek 3 uses a local landscaping company for its weekly lawn care and sprinkler maintenance. The company continues to work for the HOA but several elements of the care have changed:

- The HOA leadership now controls timing operations of its irrigation clocks, based on recommendations by Denver Water.
- The HOA doesn’t activate sprinklers until the final week of May (or first week of June, depending on the weather) and shuts off the irrigation clocks in late September.
- The contractor now mows the grass to a minimum of 3.5 inches to help save water and promote a healthier lawn.
- The contractor maintains rain shut-off devices attached to irrigation clocks to assure sprinklers won’t operate if it is raining. The new clocks won’t water if substantial rain occurred one or two days before the scheduled clock operation.

Results of Landscaping Changes: Cherry Creek 3 is more visually appealing, especially in the spring and summer. Although there is a greater fiscal demand for weeding and plant maintenance, those costs have been offset by Cherry Creek 3’s reduction in water and sewage costs. And an unforeseen appeal is the gradual increase in pollinators and insects that thrive on the plants.

Cherry Creek 3 implements rebate program for owners: Realizing that water conservation and efficiency primarily falls upon everyone in the HOA, the Cherry Creek 3 Board began offering rebates for owners installing new Water-Sense devices in homes. [Denver Water offers limited rebates for selected High-Efficiency Toilets.]

During 2017 and 2018, several owners replaced water devices and received rebates for new toilets, dishwashers and front-loading laundry machines from Cherry Creek 3. In 2019 and 2020, the HOA Board will increase rebate amounts to help incentivize additional owners to replace water devices with high-efficiency models. [Note: in 2016, Colorado Gov. John Hickenlooper signed legislation that requires the sale of high-efficiency, WaterSense plumbing devices in the state.]

The concept was that if owners take immediate action, the entire HOA will benefit from lower water and sewage bills long-term. [Note: Until the end of the 2016-17 fiscal year, Cherry Creek 3's water bill had always been higher than its sewage charges. For the 2017-18 fiscal year, Denver Wastewater Management's bill exceeded the water bill, primarily because of rate increases. See chart for details.)

CHART: Cherry Creek 3 HOA Annual Water and Sewage Comparisons

CC3 Fiscal Year	Gallons (millions)	Water Cost	Sewage Cost	Total Bill (W & S)	Gallon change from Prev. Year (Oct. 1-Sept.30)	Explanation of Change
2007-08	36.612	\$79,905	\$68,026	\$147,931		
2008-09	36.708	\$85,774	\$72,931	\$158,705	0.096	
2009-10	31.984	\$77,299	\$57,363	\$134,662	-4.724	High Efficiency Toilets installed
2010-11	30.012	\$71,000	\$52,264	\$123,264	-1.972	LIP phase 1 begins
2011-12	24.849	\$71,727	\$48,052	\$120,579	-5.163	MP Rotator heads installed, LIP continues
2012-13	21.895	\$62,685	\$58,545	\$121,230	-2.954	Continued LIP program
2013-14	21.998	\$65,768	\$64,650	\$130,418	0.103	No LIP (pre-drought), large water line break
2014-15	20.834	\$62,585	\$64,952	\$127,537	-1.164	LIP continues
2015-16	21.659	\$60,831	\$58,429	\$119,260	0.825	LIP ends, small water break, population increase -*
2016-17	24.415	\$75,275	\$66,892	\$142,167	2.756	Major water line break, population increase -*
2017-18	22.446	\$69,297	\$74,666	\$143,963	-1.969	Additional efficiency promoted, HOA rebates increase
2018-19	20.411	\$62,512	\$78,495	\$141,007	-2.035	Same as above
* - A wave of home sales occurred. Many single-occupied homes were purchase by younger families, often with 2 or more occupants.						

NOTEWORTHY CONCLUSION: Comparing Cherry Creek 3's pre-conservation efforts, the HOA used 36.7 million gallons of water in 2008-09. The Association's water consumption decreased approximately 16.3 million gallons when comparing its lowest annual billing in 2018-19.

Each year in recent years, Cherry Creek 3 continues to use between 12.27 and 15 million fewer gallons than pre-conservation. According to HOA President Don Ireland, the annual savings of water and sewage charges since 2008-09 has tallied in excess of \$100,000 most years – compared to estimated charges if the HOA continued to use 36.7 million gallons of water annually since then. The savings not

only helped fund the LIP, it also helped fund some of the HOA's standard maintenance efforts (fence repairs, driveway projects, swimming pool improvements, etc.) Despite the savings, higher insurance costs and fees from other utilities (especially sewage costs) and typical increases from suppliers and vendors have resulted in higher monthly maintenance dues for Cherry Creek 3 owners.

Denver Water outdoor conservation rebate program: Cherry Creek 3 received \$36,668 in rebates from Denver Water as its reward for reducing water consumption via landscaping and irrigation changes. Denver Water continues to offer customers rebates for replacing old irrigation sprinkler heads and controllers with more water-efficient models. However, it no longer offers wide-scale rebates for programs similar to the one conducted by Cherry Creek 3.

Cherry Creek 3 has stepped into the state and national spotlight as the result of its conservation efforts and landscaping changes:

- Rockies Audubon began promoting pollinator-friendly landscaping in 2010. Cherry Creek 3 became the first multi-family development in Colorado named a "Habitat Hero" award winner in 2014. The HOA's water savings were frequently mentioned as part of the Association's accomplishments.
- In 2015, Colorado WaterWise awarded its annual Liz Gardner Conservation Award to Don Ireland and Cherry Creek 3 HOA for its water-conservation efforts. It was the first time the award was given to a homeowners' association in Colorado.
- Cherry Creek 3 became the first HOA recipient to receive a Colorado Environmental Leadership Award in October 2016.
- Plant Select named Cherry Creek 3 its first HOA Partner Award recipient in 2018 for its conservation efforts, which included using more than 90 water-saving Plant Select species. The HOA is the first Plant Select HOA Demonstration Garden in Colorado and educates other HOAs about the connection between Plant Select and outdoor water savings.
- "Hometown Habitat: Stories of Bringing Nature Home," featured Cherry Creek 3 in 2016. The nationally-shown environmental documentary, based on a book by Dr. Doug Tallamy, discussed what everyday people are doing to promote native plantings in urban and suburban areas to promote pollinators.
- In 2017, Cherry Creek 3 was featured as part of *Doing More with Less: The Challenge and Opportunities of Water Efficiency*. The documentary was a joint effort of the Colorado Water Conservation Board and Metropolitan State University's One World One Water Center.
- Magazines and e-newsletters, including Colorado Gardener magazine, Cornell University's Habitat Network e-newsletter, the national Audubon Society and more than a half-dozen publications have featured Cherry Creek 3's water-conservation and landscaping changes.
- Cherry Creek 3's water-wise landscaping has resulted in several garden tours, requested by Denver Botanic Gardens, Colorado Native Plant Society and HOA leaders across the Front Range.
- Since 2016, Mr. Ireland has spoken at the Colorado WaterWise annual summit and to hundreds of HOA leaders and interested, individual home owners about the importance of water conservation and how proper planting can help attain the goal of reducing consumption.

Cherry Creek 3 lessons learned and general observations:

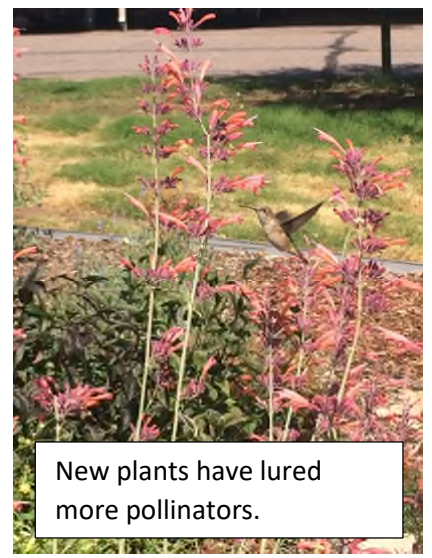
- In 2005, Colorado approved a law prohibiting HOAs from requiring turf lawns in front of homes. The measure opened the door for xeriscaping and low-water plantings.

- No one is trying to abolish Kentucky bluegrass from yards in Colorado. There is a difference between lawn-less yards and less-lawn yards.
- “We’ve always done it this way” is a frequent theme from opponents. Now, Cherry Creek 3 serves as a visual model for other neighborhoods looking into water conservation.
- The original intent to conserve water reaped many unanticipated benefits, including increased property values, renewed community spirit and an urban landscape that provides a home and sustenance to the ecosystem.

Before and After photos



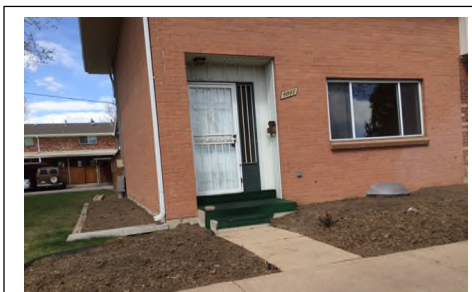
“Hell Strip” conversion. The long strip of grass from 9154 E. Nassau ran the length of two buildings with a driveway in between. The left photo (2000) is pre-conversion, an area requiring lots of water, mowing, fertilizing and aeration throughout the season. Photo (next page) shows converted strip, containing species of currant plants, mountain mahogany plants and blonde ambition blue grama. Original pine tree was preserved.



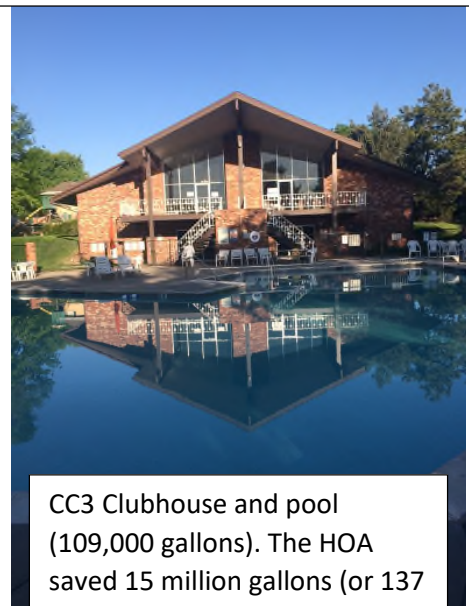
New plants have lured more pollinators.



2009 view (left) and 2014 view (right.) Dead junipers and bluegrass replaced by award-winning Habitat Hero garden.



Building with homes at 9101-9109 E. Oxford Drive. (Left) old, dead bushes and bluegrass strip was removed in 2015. How the building front looked 3 years later (below left) after re-planting.



CC3 Clubhouse and pool (109,000 gallons). The HOA saved 15 million gallons (or 137 filled swimming pools.)