

FINANCING THE FUTURE:

How to Pay for Turf Replacement in Colorado

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Executive Summary

Introduction

Lawns with turfgrass are the number one irrigated "crop" in the United States. An estimated 40 million acres of land in the continental U.S. has some form of lawn on it.¹ Colorado is no exception. **Outdoor water use of drinking water in Colorado accounts for 38% of all municipal water demand each year.**² Most of this outdoor water use is dedicated to landscaping and irrigated turf.

What is "Waterwise" Landscaping?

The term "waterwise" can conjure images of rocks and cacti. In fact, native and drought-resistant landscaping encompasses an extraordinary range and depth of plants, trees, shrubs and other flora, from native grasses to fields of wildflowers to large shade trees. Waterwise landscaping is a plant and water management practice that is functional, attractive, and emphasizes using plants that have lower supplemental water needs, such as native and drought-tolerant plants. Beyond plant type, the landscape and irrigation system is designed, installed, and maintained using practices that reduce water demand such as drip irrigation, applying mulch, improving the soil with compost, and grouping plants with similar watering needs together.



The prevalence of turfgrass in Colorado's semi-arid climate presents a significant opportunity. Replacing "non-essential turf" with waterwise landscaping can be a key strategy for meeting the State's water needs,³ as well as a central element of long-term drought and climate change resilience planning. Southern Nevada Water Authority (SNWA) provides a leading example. Over the past 20 years, SNWA has invested nearly \$260 million in its turf change-out incentive program, converting over 4,600 acres to waterwise landscaping.⁴ The program has saved nearly 467,000 acre-feet of water, which is 167,000 acre-feet more than the amount of Colorado River water that the State of Nevada has the right to consumptively use each year.⁵ In other words, when implemented at large scale, turf replacements can serve as vital water supply infrastructure — the same as pipes, tanks, and reservoirs.

To achieve turf replacements at larger scale, Colorado cities and utilities will need to be positioned to make significant investments in these programs, as they would for other water supply projects. Some of these investment opportunities can be found on property a city or water utility owns. However, the most substantial opportunities to replace non-essential turf are on private properties, or public property outside of utility ownership such as parks and median strips. Accordingly, it is essential that water providers be able to invest in incentives to encourage property owners to convert non-essential turf to waterwise landscaping.

Incentive programs can include rebates provided to customers once a project is complete, or direct installation programs where the utility provides financial and technical assistance up front. <u>A growing number of Colorado water providers, as well as utilities throughout the West</u>, are putting programs in place to encourage their public and private customers to swap non-essential turfgrass for waterwise landscaping. Target customers include commercial, industrial, and institutional (CII) property owners,





home owner associations (HOAs), multi-family residential building owners, and single-family residences, as well as municipal departments that use a significant amount of water. Turf replacements are, in many ways, the next low-hanging fruit for reaching the State's water conservation objectives, and ensuring a secure water supply. This paper examines some of the more promising funding and financing pathways available to water providers to scale up turf replacement locally.



Turf Replacement Programs Today

WaterNow Alliance and Western Resource Advocates reviewed a number of current utility turf replacement programs in Colorado and around the West. The list below is a representative sample of initiatives now underway, each showing some level of success (See <u>Appendix C</u> for detailed Case Studies):

- Moulton Niguel Water District, CA's NatureScape and Commercial & Residential Turf Removal Programs: Provides up to \$4/square foot for three programs residential, HOA and CII.
- Castle Rock Water, CO's ColoradoScape program: Residential program reports a 19% reduction in outdoor water use.
- Desert Water Agency, CA's Grass Removal Incentive Program: Replaced 2.3 million square feet of grass.
- Fort Collins, CO's Xeriscape Incentive Program: Removed approximately 363,000 square feet of high-water-use landscapes.
- City of Peoria, AZ's Xeriscape Rebate Program: Reports a reduction in total home water use on participating properties of 30% 40%.
- Colorado Springs Utilities, CO's Business Turf to Native Grass Conversion Incentive: CII-only program that reports an approximately 30% 50% reduction in outdoor water use since 2013.

These programs are viewed as successful ways to conserve water by each of the communities interviewed. At the same time, most of these initiatives report a level of frustration with budget





constraints and the lack of secure funding streams. Annual budgets for these programs are low relative to overall utility spending; most utilities spend less than 1% of their overall budget on these programs. In general, turf replacement program budgets are higher where communities are able to combine a variety of financing options into a portfolio approach.

Financing Options for Large-Scale Turf Replacements in Colorado

The research on current turf change-out programs leads to two major conclusions. First, these programs are showing meaningful success in terms of water savings. Second, with a few notable exceptions, current programs are fairly small-scale, and thus not realizing most of the water supply and cost saving benefits achievable.

The issue of scale is tied to the fact that turf replacement incentives today are, for the most part, being paid for primarily or exclusively out of annual operating cash, or other limited revenue streams. However, a strong case can be made that these programs are not akin to other annual expenses, but represent longer-term investments in water supply reliability. The premise of this paper is that Colorado utilities have a broader range of financing options available to scale up spending on turf replacement programs. These options include specifically the use of municipal bond proceeds and other forms of debt to finance these programs. (See **Turf Replacement and Debt Financing** Box below).

Turf Replacement and Debt-Financing

Like other water infrastructure, large-scale turf replacement will be best envisioned and positioned as long-term capital projects. For most, if not all cities and utilities, this process will begin with shifting turf conversion programs from annual operating budgets to capital improvement plans and budgets (CIPs). This first step — taking a capital-improvement approach — helps pave the way to securing the upfront funds required to achieve large-scale turf replacements while minimizing rate impacts.

Namely, once a program is part of a CIP, it is typically eligible for debt-financing. Municipal bonds and other forms of debt have long been the capital financing vehicles of choice for most public water utilities to pay for large, expensive capital projects such as reservoirs, pipes, tunnels, and treatment plants. Access to the same capital markets is available for financing large-scale turf replacement initiatives. Debt-financing turf replacements makes sense from an accounting-policy perspective because it more appropriately matches the time benefits of the investments; turf change-outs are not annual expenses but rather long-term water supply investments. As such, the costs of those projects are more properly paid for over the long term. Using debt to finance at least part of these initiatives would provide a level of "intergenerational equity," ensuring that both current and future ratepayers bear the burden of the cost, because current and future ratepayers both enjoy the benefits.





Debt-financing for turf replacement programs will be a new concept for many, if not most, public agencies. Capital treatment for incentive programs raises unique issues, as discussed below. In addition to debt-financing, this paper explores other financing mechanisms appropriate for turf replacement programs including state and federal grants, special fees, and performance contracting. The report prioritizes these options according to their relative merits and limitations so that the options with the most potential to fully finance large-scale turf replacements are first. (See **Turf Replacement Finance Mechanisms Summary** Box below).

Turf Replacement Finance Mechanisms Summary

Revenue Bonds – Debt instruments issued by local governments, including utilities, to raise funds for capital projects. Municipal bonds are highly prized by investors, because they are deemed a very safe investment due to the virtually certain funding stream provided by ratepayers, and they are typically tax-free.

Environmental Impact Bonds (EIBs) – Special type of municipal bond that leverages private capital to support public investment in high-impact Environmental, Social, and Governance (ESG) initiatives. EIBs use an outcomes-based approach where the utility repays the investors based on the achievement of agreed-upon project outcomes, shifting the risk of experimenting with new innovations from ratepayers to investors.

State Revolving Fund Loans (SRFs) – Low-cost loans for utilities provided by the federal government pursuant to the Federal Clean Water Act and the Safe Drinking Water Act to communities to implement water projects and advance water management objectives of various kinds. The SRFs are primarily administered by the states.

State and Federal Grants – The Colorado Water Conservation Board (CWCB) and US Bureau of Reclamation each run grant programs supporting water use efficiency efforts. Large-scale turf replacements are expressly eligible for grant funding under both the CWCB's Water Plan Grants and the Bureau's WaterSMART Water & Energy Efficiency Grants and Small-Scale Water Efficiency Projects.

System Development Charges & Other Fees – Dedicated funding streams that utilities may have the option of dedicating to various purposes including potentially turf programs. Tap fees are one-time charges assessed to developers to help offset the cost of new supply and capacity. Fines for various infractions can similarly be funneled into dedicated conservation funds. While capable of providing a steady revenue stream, fees and fines are unlikely to generate the same level of capital as bonds and SRF loans, however.

Performance Contracts – Like EIBs, performance contracts are another tool that shifts the risk of performance from public water utilities to private investors by leveraging future cost savings. Those cost savings — in this case through reduced water bills — are guaranteed to be enough to repay the money required to finance the specific water project. Once the repayment period ends, those cost savings are then accrued by the property owner.





Capitalizing Turf Replacements

While there is no single or best way to fund turf conversion programs, **the ability to access capital markets through debt-financing is the fastest and most effective of the available options to bring these programs to scale.** Unlike grants, fees, and contract options, however, <u>capitalizing</u> incentives raises a particular set of legal, accounting, and cultural challenges to be addressed.

It is not surprising that the concept of borrowing to fund payments to consumers is new to many utility and municipal chief financial officers (CFOs). Generally Accepted Accounting Principles (GAAP) are conventionally understood to require that public entities must own or control the asset being financed. This would appear on first blush to preclude the use of debt-financing for rebates or direct installation initiatives that do not produce assets owned by the agency to secure the loan. However, Governmental Accounting Standards Board (GASB) rules provide two pathways directly applicable to utilities seeking to capitalize turf replacement programs: (1) conventional accounting under GASB 4; and (2) Regulated Operations accounting authorized by GASB 62.

Doesn't My Utility Need to Control an Asset Before We Can Capitalize the Cost?

Not always – this is the basic difference between GASB 4 and GASB 62.

Standard accounting for public entities is generally done in conformity with GASB Concepts Statement 4, which reflects the rule that only assets controlled by the entity can be financed with debt, i.e., capitalized.

However, GASB Statement 62 authorizes public agencies to book these expenditures as "regulatory assets" that can be capitalized. GASB 62 accounting does not require that the utility own or control the asset in order to capitalize the cost; the asset is the binding promise to repay the loan, not the items procured or produced with the loan.

<u>GASB 4</u> establishes the bedrock principle that in order to capitalize an investment, the public entity must control the asset to be financed. As applied to consumer rebates for installations on private property, this requirement can be achieved by securing some type of legal interest in the property where the installations are taking place, for example with a conservation easement, lien, or contract. Agencies successfully employing this approach include SNWA with its turf replacement program, and Milwaukee Municipal Sanitation District, with its green stormwater infrastructure program.

GASB also offers a complete alternative to GASB 4. <u>GASB 62</u> authorizes a way of accounting for debt that does not require ownership or control of the asset being financed. GASB 62 allows public entities to book debt for long-term investments that do not result in tangible, fixed assets; the asset is instead the promise to repay.⁶ Applied to turf replacements, GASB 62 offers a streamlined approach for utilities and consumers, eliminating the need to secure an easement or lien or other type of control over the property at issue. In response to a campaign led by WaterNow and several partners, in 2018, GASB issued special technical guidance clarifying that GASB 62 applies specifically to water utility rebate and direct installation programs.⁷

While there are a number of additional legal and policy issues that may arise around using debt to finance turf replacement incentives, there does not appear to be any impediment to doing so for Colorado communities seeking to expand their efficiency programming in this direction.





"Utilities will need to invest in improvements that some people today might not even consider infrastructure but that by the 22nd century will seem as natural and essential to utility systems as dams, aqueducts and deep tunnel pipes do today. ... To upgrade their systems, utilities will have to pursue distributed infrastructure [e.g., turf replacements] on a scale too large to be financed solely through cash."

Ceres. 2014. Bond Financing Distributed Water Systems

Conclusion

Trading turfgrass for waterwise landscaping at a large scale represents a major potential source of new water supply for Colorado. Whether and when to invest resources in large-scale turf replacements will be highly specific to each utility's unique circumstances and needs. This paper is designed to be a starting point for communities exploring this option. It is hoped that this work will be helpful in supporting conversations between utility leadership, management and staff about the benefits of investing in turf replacements at a scale that captures their full potential as a sustainable, climate-resilient source of supply.





I. Introduction

A growing number of Colorado communities are beginning to encourage their customers to replace non-essential turf with waterwise landscaping through voluntary incentive programs. When implemented at a large scale, these replacements can conserve tens of thousands of acre-feet of water per year, serving as a source of sustainable, climate-resilient water supply.

Getting to scale can be a challenge, however. Limits on already strained utility operating budgets is one of the main hurdles. To help inform utility decision making, this paper synthesizes research conducted to date, in Colorado and nationwide, identifying financing mechanisms most applicable to large-scale turf replacement initiatives, and outlines a variety of mechanisms available to finance these programs. One of our central theses is that an underutilized option is for communities to re-envision turf replacement programs as long-term water supply investments and finance them alongside other capital projects.

This report focuses on "large-scale" projects — at both the parcel and community levels — for several reasons.ⁱ First, at large scale, turf replacement initiatives provide the opportunity for communities to realize meaningful water supply impacts, particularly if funding can be sustained over time. In addition, community-wide projects entail very different financing challenges that do not arise for small or one-off projects that are relatively easy to fund with operating revenues or grants.

As explored below, this suite of finance mechanisms includes revenue bonds, Environmental Impact Bonds, loans, state and federal grants, special fees, and performance contracting. The debt options enable Colorado communities to invest in turf replacements as long-term capital projects, just as they would any other water supply infrastructure such as pipes, reservoirs, and tanks. Grants, special fees, and performance contracts offer ways to supplement annual revenues, i.e., water rates. The case studies detailed in the report provide examples of how some of these mechanisms are already being leveraged in some Colorado and other Western communities.

The use of bonds and other forms of debt to finance large-scale turf replacements is an emerging concept. SNWA's bond-financed turf replacement incentive program is the leading example. To pave the way for more communities to move in this direction, this report summarizes how investments in large-scale turf replacements can be capitalized in accordance with Generally Accepted Accounting Principles (GAAP), and offers initial guidance on addressing real or perceived legal, tax, and accounting barriers to borrowing as a means of scaling up investments in turf replacement initiatives.

"One of our central theses is that an underutilized option is for communities to re-envision turf replacement programs as long-term water supply investments and finance them alongside other capital projects."

ⁱ "Large-scale" projects will mean different things to different communities. For example, Southern Nevada Water Authority has one of the longest and most successful turf replacement programs in the nation. Over the last 20 years, they have replaced 40% of the turfgrass (4,622 acres) throughout the Las Vegas Valley. SNWA was able to accomplish this significant amount of turf replacement because it has financed the program in large part with municipal bond proceeds. It is highly improbable that the Authority would have been able to raise the same level of funding if they had been limited to annual operating expenses. For the purposes of this paper, "large-scale" turf replacement refers to projects substantial enough to have meaningful impact locally and would likely be challenging for a city, town or utility to pay for primarily with operating cash.





This report is organized into two primary sections below. <u>Section II</u> describes how the prevalence of turfgrass in Colorado's semi-arid climate presents a significant water management opportunity, and highlights key financing and implementation insights from water utilities making headway on turf replacements in their communities. <u>Section III</u> explores the six identified financing approaches found to be most applicable for scaling up turf replacement programs in Colorado and details the various benefits and attributes of each. Additional details on these topics can be found in **Appendices A-D**.

To achieve large-scale deployment, Colorado cities and utilities will need access to capital markets and to be positioned to make significant investments in turf replacement. With this report, WaterNow and Western Resource Advocates offer viable pathways to realizing this opportunity.

II. Turf Replacement Programs in Colorado & Potential for Scale

Lawns with turfgrass are the number one irrigated "crop" in the United States – an estimated 40 million acres of land in the continental U.S. has some form of lawn on it.⁸ The Colorado Water Plan cites replacement of turf with waterwise landscaping as a key strategy for meeting the State's future water needs.⁹ Turf replacements are also essential elements of sustainable water supply, drought, and climate change resilience planning. To capture these benefits, a growing number of Colorado communities, as well as cities throughout the West, are developing programs to incentivize their commercial, industrial, and institutional (CII)ⁱⁱ and residential customers to change out non-essentialⁱⁱⁱ areas of turfgrass for waterwise landscaping.

What is "Waterwise" Landscaping?

The term "waterwise" can conjure images of rocks and cacti. In fact, native and drought-resistant landscaping encompasses an extraordinary range and depth of plants, trees, shrubs and other flora, from native grasses to fields of wildflowers to large shade trees. Waterwise landscaping is a plant and water management practice that is functional, attractive, and emphasizes using plants that have lower supplemental water needs, such as native and drought-tolerant plants. Beyond plant type, the landscape and irrigation system is designed, installed, and maintained using practices that reduce water demand such as drip irrigation, applying mulch, improving the soil with compost, and grouping plants with similar watering needs together.

This Section summarizes how replacing turf at large scale is a proven water supply, drought, and climate resilience strategy in these early adopter communities. It then reviews current turf replacement programs in Colorado to contextualize the scope of programs implemented to date, and summarizes insights from six case studies of well-established or emerging turf replacement programs in Colorado and across the West.

For purposes of this paper, CII programs are considered to also include homeowner association (HOA) common areas.
 Actual program structures vary with multi-family properties, and HOA properties may be considered residential or CII.
 For purposes of this paper, the term "non-essential turf" refers to irrigated, non-native turf that receives little, if any, physical use. It is recognized that some turf is useful – primarily for recreation – and should remain.





A. Large-Scale Turf Replacement: Proven Drought- & Climate-Resilient Water Management Strategy

Colorado's semi-arid climate punctuated with multi-year droughts, along with a growing population, requires conservation of the state's water supply. **Colorado is the seventh-driest state in the nation, receiving an average of 18.1 inches of rain annually**,¹⁰ and access to and availability of water is a growing concern. Historically, the state has experienced prolonged drought conditions in combination with an overall increase in average temperatures since the beginning of the 20th century, with six of the eight warmest years on record for the state having occurred since 2012.¹¹ Climate change is expected to continue to exacerbate this trend, causing even warmer temperatures, earlier and more rapidly melting snowpack, and increased plant and soil evapotranspiration.¹²

Outdoor use of drinking water in Colorado generally accounts for 38% of all municipal water use each year, according to the Colorado Water Conservation Board (CWCB).¹³ Most of this outdoor use is dedicated to landscaping, and primarily irrigated turf.¹⁴ Cool season turfgrasses such as bluegrass, fescue, perennial ryegrass, or bentgrass, which are not native to the region, require substantial irrigation to survive. While estimates vary along the Front Range, traditional turfgrass can require anywhere from 16.2 to 18 gallons (26 to 29 inches, respectively) of supplemental irrigation water per square foot annually, depending on local climate and other factors.¹⁵



Statewide Baseline Municipal Demand Category Distribution

Source: Analysis and Technical Update to the Colorado Water Plan. (See Figure 4.2.8, pp. 52). <u>https://cwcb.colorado.gov/colorado-water-plan/technical-update-to-the-plan</u>

Communities across the West are beginning to adopt turf replacement as a way to reduce water demand for the long term while maintaining vibrant and attractive landscapes. This strategy presents different challenges than more conventional water supply options because most of the relevant properties, whether residential, CII or belonging to other public entities, are not under the direct control of the water provider. Thus, rebates and other financial incentives are among the most effective tools available to implement turf change-outs for water-efficient landscape alternatives. And it is clear that this can be accomplished at large scale to provide substantial water supply benefits. The most dramatic example of this is Southern Nevada Water Authority's 20-year experience with large-scale turf replacement. Over that period, SNWA, which serves more than 2 million residents, has converted over 4,600 acres, or nearly 40% of non-essential turfgrass in its service area, to waterwise landscaping. The program has saved nearly 467,000 acre-feet in total water supply.¹⁶





Coloradans have a critical opportunity to shift their outdoor irrigation practices and landscaping principles. Enabling large-scale turf conversions across Colorado would conserve the state's water supply for current and future generations, while increasing community resiliency during drought-stricken times. Critically, turf replacement, like most other demand reduction measures, tends to be highly cost-effective compared with many water augmentation and infrastructure expansion alternatives. (See **Cost-effectiveness: Turf Replacements as a Source of Supply** Box on page 13).

Drought & Climate Resilience Resources

- YARDX: Yield and Reliability Demonstrated in Xeriscape
- Exploring the Role of Landscape Water Conservation and Efficiency in Meeting Colorado's Water Gap: Expected Benefits of Landscape Water Conservation Best Management Practices
- Evaluating the Effects of Turf-Replacement Programs in Los Angeles
- Landscape Transformation Study: 2018 Analytics Report





Cost-effectiveness: Turf Replacements as a Source of Supply

There are multiple reasons for a water utility to need additional water supplies; drought, impacts of climate change, an expanding customer base, and environmental concerns and requirements, among others. Whatever the reason, it is often faster and cheaper to conserve what you have rather than pay for new sources of supply. Waterwise turf replacement can be a particularly cost-effective program for some utilities.

The general approach to determining if a turf replacement program is cost-effective is to determine the cost of the turf program versus how much it would cost to pay for the alternative, and then how much of that cost will be borne by the utility versus the customer.

1) How much water could be saved?

How much water does your system use for residential and commercial irrigation systems?

- Las Vegas estimates that outdoor water use accounts for 60%-90% of all water used within its service area.
- In Colorado, estimates of outside water use range from 23%-69%.

Turf replacement programs tend to save 50%-60% of outside water use since there is usually some degree of outside watering still required for waterwise landscaping. If we estimate outside water use at 38% and assume that a customer could reduce that use by 50% with a turf replacement program, it would not be unusual for that kind of program to save 19% of total water usage per property.

2) <u>How much would it cost to produce an equivalent amount of "new" water?</u> In 2020, the estimated cost of purchasing water from the Colorado-Big Thompson Project (CBT) was \$60,000 per unit, which is the equivalent of \$85,000 per acre-foot of average water yield. An average Colorado residence uses about 0.5 acre-feet per year. So, it would cost a utility \$42,500 per home to purchase CBT water on a per home basis. That means if a water utility could reduce water use by 19% at a property, the utility could save \$8,075 per year on purchasing water per residence with a turf replacement program. Adding in the cost to treat and distribute the water, the full costs and savings would be higher.

(Continued on next page.)







Analyzing the issue a bit differently, in 2013, Westminster, Colorado, estimated that their water conservation program allowed the City to purchase and treat enough water to save \$219 million on water purchases and \$130 million for a new water treatment facility, which together would have increased their water rates by 135% if not for the conservation programs.

The City of Fort Collins has found that its turf replacement program is far more cost-effective than the cost of securing additional new water rights. The City's 2022 budget document states that:

"[u]tilities anticipate needing to acquire additional water rights that are currently worth approximately \$50 million. It costs the utility \$130 per 1,000 gallons of water to develop new water supplies. [Waterwise landscaping] XIP costs \$79 per 1,000 gallons of water reduced, a 39% savings over developing new water supplies."

The other important factor to consider is that water treatment and distribution systems have to be built for peak demand. Peak demand typically occurs in summer months due to increased outside use primarily for landscape irrigation. If a turf program saves water during peak demand times, it is much more cost-effective because it could change how a water provider sizes their facilities.

Figure 1 includes data from a 2006 Nevada study that found turf used up to six times more water than waterwise landscaping.



Figure 1 Kent A. Sovocool, Mitchell Morgan, and Doug Bennett, An In-depth Investigation of Xeriscape as a Water Conservation Measure, Journal AWWA, February 2006.

(Continued on next page.)





3) How do you determine the right amount of rebate to offer?

The amount of rebate varies considerably across the West. Many rebates started as flat amounts or less than \$1 per square foot converted. Las Vegas currently offers \$3 per square foot up to 10,000 square feet. The Metropolitan Water District in Southern California has a rebate of \$2 per square foot with additional amounts often added by each water utility within the area. The amount will vary based on the cost of other options and the amount sufficient to gain customers' interest.

The following table from a 2006 study showed customer return on investment (ROI) for turf conversion scenarios depending on whether the cost included labor and the reduced cost to maintain the converted landscape. While somewhat dated, it gives an example of how to estimate the ROD to customers. In addition, because Colorado is not as hot or dry as Nevada, it is important to note that ROI periods in Colorado are likely longer than those provided in the table.



Figure 2 Kent A. Sovocool, Mitchell Morgan, and Doug Bennett, An In-depth Investigation of Xeriscape as a Water Conservation Measure, Journal AWWA, February 2006.

In addition, Las Vegas estimates that its \$3/sq. foot will pay about 50% of the customer cost to convert (for a total cost of \$6/sq. foot). Fort Collins estimates the cost for customers to convert to be between \$2 and \$5 per square foot. Other estimates range between \$5 and \$20 per square foot. In a 2016 study for Los Angeles, for the years 2009 to 2015 they determined that when the utility offered a \$1/sq. foot rebate, the utility saw savings after 10 years. If the rebate was increased to \$1.75, the utility did not see savings until 14-20 years. But at a rebate of \$1.75, typical households would make back their initial investment and start saving money in 10 years, which was comparable to the ROI on an investment in a solar system.

(Sources: (1) Price of CBT from the Colorado Real Estate Journal August 31, 2020; (2) Turf Application and ROI tables from "An in-depth investigation of Xeriscape as a water conservation measure" AWWA Journal, February 2006 by Kent Sovocool, Mitchell Moran and Doug Bennett, (3) Los Angeles study: UCLA Luskin School of Public Affairs Turf Replacement Program Impacts on Households and Ratepayers, September 2016.)





B. Waterwise Landscaping: Colorado & Western Communities Replacing Turf for Water Savings & Community Resilience

A number of Colorado communities have begun to adopt turf replacement programs at modest levels. As of 2022, we have identified 22 Colorado municipal water providers, all of which are located in the Front Range, that have implemented turf replacement incentive programs for residential and/or CII customers in recent years. Program details and links are provided in Appendix A –Turf Rebate Programs in Colorado.

WaterNow and WRA conducted six informational interviews with communities that have emerging or established turf replacement rebate initiatives to better understand these programs, evaluate their scope, highlight lessons learned, and document how they are being financed. Programs interviewed in Colorado include Castle Rock Water, Fort Collins Utilities, and Colorado Springs Utilities; programs interviewed outside of Colorado include the Moulton Niguel Water District, CA, Desert Water Agency, CA, and City of Peoria, AZ. These communities were selected because they broadly represent the types of turf replacement rebate programs across the West today. Interview questions are listed in Appendix B - Interview Questions. The interviews surfaced a number of interesting takeaways and common themes, as discussed in more detail in Appendix C – Case Studies.

Current Turf Program Financing Mechanisms: Key Takeaways

- 1. Communities experimenting with turf replacement programs consistently face budget constraints and report needing more and more secure resources to expand these programs.
- The annual budgets for turf replacement programs are low relative to overall utility spending, from \$13,000 (for the City of Peoria's Xeriscape Rebate Programs) to \$1,041,000 (for Desert Water Agency's Residential and Commercial Programs). Most utilities spend less than 1% of their overall budget on these types of programs.
- 3. Communities are funding their turf replacement programs primarily out of operating cash, but some are supplementing in various ways, including state and/or federal grants, revenue collected from fines for various types of water violations, and environmental mitigation funds.
- 4. Communities that are combining a variety of financing options into a portfolio approach tend to have higher overall turf replacement incentive budgets.
- 5. None of the communities interviewed are accessing capital markets through municipal bonds, state revolving fund (SRF) loans or other forms of debt to support their turf replacement programs.

Current Turf Program Implementation Issues: Key Takeaways

- Replacing turfgrass with waterwise landscaping bears out the theory that such programs will successfully reduce demand for outdoor irrigation. Interviewees report anywhere from 30% – 50% water savings per square foot annually.¹
- 2. The amounts of the incentives vary considerably depending on the utility, location, type of plant and/or seed material being rebated, and customer type (residential vs. CII). Rebate amounts for the six case studies ranged from \$0.09 per square foot for commercial-scale conversion to native grass seed mixes (Colorado Springs Utilities, CO^v) to \$4 per square foot for single-family residence low-water gardens (Moulton Niguel Water District, CA).
- 3. Addressing challenges posed by HOA landscape requirements is a consistent theme across many of the utilities interviewed. This may present opportunities for increased outreach and education to HOAs to help them abide by Colorado legislation enacted July 2021 that prohibits HOAs from banning waterwise landscaping.

^{iv} It should be noted that these water savings claims are estimates based on various factors; few communities have put rigorous performance metrics in place.

v Colorado Springs Utilities' 9 cents per square foot rebate only applies to replacing turfgrass with native grass seed mixes, which are substantially less costly than other waterwise landscaping options.





- 4. Communities are finding that engaging larger property owners is constructive and produces substantial savings, but understandably requires higher levels of utility incentives in light of higher costs.
- 5. The process of educating landscape professionals on best management practices for waterwise landscaping and irrigation and engaging them as allies appears to be critical for longer-term success.

We believe that these insights are generally applicable to many water providers in Colorado and across the West. The next section of this report outlines pathways for financing turf replacements at large scale.

III. Paying for Large-Scale Turf Replacements in Colorado

To maximize the water supply benefits associated with changing out non-essential turf for waterwise landscapes, cities and utilities will need to be positioned to make significant investments in large-scale turf replacement, just as they would for other water supply reliability projects.¹⁷

These opportunities can be found on public property a water utility owns, such as the landscape outside of a water utility building. However, the vast majority of non-essential turf is located on either: (1) private property, e.g., HOA common areas, commercial, industrial, institutional, and residential land; or (2) public property the water utility does not own or control, e.g., parks, street medians. Therefore, it is critical that public water providers are well-positioned to incentivize private property owners, as well as other public property owners, to convert non-essential turf to waterwise landscaping.vi Incentives can include rebates provided to customers (public and private), or direct installation programs where the financial and technical assistance for a turf replacement project is provided by the water utility up front. As indicated above, water utilities today are, for the most part, paying for these incentives out of annual revenues and charges, and to a lesser degree, available federal and state grant programs.

"Utilities will need to invest in improvements that some people today might not even consider infrastructure but that by the 22nd century will seem as natural and essential to utility systems as dams, aqueducts and deep tunnel pipes do today. ... To upgrade their systems, utilities will have to pursue distributed infrastructure [e.g., turf replacements] on a scale too large to be financed solely through cash." Ceres. 2014. Bond Financing Distributed Water Systems



^{vi} There are, of course, mandatory approaches for limiting turf and water waste, but those policy approaches are beyond the scope of this paper, which addresses voluntary turf replacements.





Debt-Financing: Public vs. Private Property

Water providers deploying large-scale turf replacements as a source of water supply will need to look to three types of property where turfgrass is located: (1) public property the utility owns or controls; (2) public property the utility does not own or control; and (3) private property. Using proceeds from bonds or other forms of debt to pay for waterwise landscaping on utility owned/controlled property is fundamentally the same as financing conventional infrastructure, e.g., pipes, tanks, reservoirs, because the utility is using public funds to pay for investments on public property it owns. Debt-financing turf conversions on public property the utility does not own/control and private property raises unique, and mostly overlapping, questions. The Financing Mechanisms for Large-Scale Turf Replacements, Capitalizing Turf Replacements, and Identifying & Overcoming Financing Barriers sections below discuss these questions in detail.

There may, however, be some nuances between debt-financing turf replacements on non-utility public property and private property that make financing replacements on public non-utility more attractive to utility management and staff. These may include the relative ease to keep bonds tax-exempt, a perception that debt proceeds should only be spent on public property, and administrative advantages of two public agencies working together versus engaging with a wide array private property owners. Notwithstanding these possible advantages, to achieve turf replacements on a large scale, it will be necessary to incentivize conversions on private property given that <u>90%-95% of land across most urban/suburban areas is privately owned</u>.

Yet, in most instances the level of investment needed to achieve significant water savings is far in excess of what most cities and utilities can afford to divert from their annual operating budgets without imposing significant rate increases or even experiencing rate shock. The case studies detailed in Appendix C demonstrate this challenge. The majority of the case study communities pay for their turf replacement incentives primarily out of annual operating dollars, which inherently limits program scale. Like other water infrastructure, large-scale turf replacement will be best envisioned and positioned as long-term capital projects. For most, if not all cities and utilities, this process will begin with shifting turf conversion programs from annual operating plans and budgets to capital improvement plans (CIPs) and budgets. Once a program is included as part of a CIP, it is typically eligible for capital financing. This first step — taking a capital-improvement approach — helps pave the way to securing the upfront funds required to achieve large-scale turf replacements while minimizing rate impacts.

Municipal bonds and other forms of debt have long been the financing vehicle of choice for cities, water utilities and other public entities to pay for large, expensive capital projects such as reservoirs, pipes, tunnels, and treatment plants. Many, if not most, public water providers regularly incur debt to pay for larger-scale investments, such as pipes, tanks, tunnels, trucks, water rights, and buildings.

What will be new for some is the notion of using debt to pay for consumer incentives, particularly those involving private property installations. This approach may raise unique legal and accounting questions that are somewhat different from using debt-financing for more conventional, utility-owned and -operated infrastructure. It may also present real or perceived barriers that Colorado decisionmakers, and utility management and staff will need to navigate.





The key point is that **borrowing to finance large-scale turf replacement programs is allowable under current legal, accounting and other relevant rules.** It is also the more appropriate approach from an accounting-policy perspective because it matches the longer-term benefits with the costs of replacing turf. Waterwise landscaping generates long-term water supply benefits; therefore, the costs of those projects are properly paid for over the longer term rather than expensed as annual costs. Using debt as part of a financing strategy for turf replacements also provides a level of "intergenerational equity," ensuring that both current and future ratepayers bear the burden of the cost, because both enjoy the benefits provided by these programs.

A Hypothetical: Debt-Financing Keeps Customers' Rates Lower

If a utility with a \$70 million annual budget were considering investing \$10 million in a major incentive program to replace non-essential turf on HOA property, the utility would have to raise rates 14% to pay for the program out of its annual operating budget. If instead the utility debt-financed the program and paid for it over 20 years, less than a 1% rate increase would be needed to implement the same \$10 million direct installation program — a much more affordable approach. At the same time, the utility customers eligible for the program can likely keep their rates low because they'll use less water as a result of turf replacement, lessening the impact of the 1% rate increase even further.

At the same time, various constraints, both actual and perceived, may come into play with debtfinancing. To help navigate these constraints, this report also explores state and federal grants, special fees, and performance contracting as additional methods for paying for larger-scale turf change-out programs.^{vii} To this end, this Section III outlines:

- 1. A menu of financing mechanisms available to Colorado utilities;
- 2. An overview of how Colorado communities can account for <u>capital investments in large-scale</u> <u>turf replacement</u> incentives; and
- **3.** An <u>introductory guide</u> on how Colorado cities and utilities can identify and overcome potential real or perceived barriers to financing large-scale turf replacement projects.

A. Financing Mechanisms for Large-Scale Turf Replacements

There are six primary mechanisms potentially available to local utilities to upscale investments in turf change-outs for waterwise alternatives:

- Revenue Bonds
- Environmental Impact Bonds
- State Revolving Fund (SRF) Loans
- State and Federal Grants
- System Development Charges & Other Fees
- Performance Contracts

^{vii} Whether and when to finance a large-scale turf replacement incentive program in a particular community is highly specific to that community's unique circumstances and needs. Addressing issues specific to individual communities is beyond the scope of this report. However, **Appendix D – To Borrow or Not to Borrow** provides an overview of considerations for water managers contemplating financing large-scale turf replacements. The **Cost-effectiveness: Turf Replacements as a Source of Supply** Box (on page 11) outlines how replacing turf with waterwise landscaping is a cost-effective source of water supply.





These can be used individually or combined into a portfolio approach. The analysis below is organized according to each option's relative merits and limitations considering whether the mechanism can:

- 1. generate significant revenues to support large-scale implementation;
- 2. provide a sustained, ongoing source of funding;
- 3. pay for turf replacements on non-utility property from a legal perspective; and
- **4.** be adopted based solely on a city council or utility governing board decision.

Role of Utility Revenues

Utility costs typically break down into annual operating expenses and longer-term capital costs. As a rule of thumb, annual expenses include salaries, benefits, O&M, and debt service payments; capital budgets cover infrastructure and other long-term investments. Operating expenses must be paid out of annual revenues, i.e., rates, fees, taxes; capital costs can be paid for either on a "pay as you go" basis, i.e., cash, or other sources of capital, generally debt. Debt incurred by a utility is secured by revenues from rates, fees, taxes, or grants. How utilities establish their revenue sources to pay for their costs can vary widely depending on local and state requirements and needs.





The following sections detail these six options.

Turf Replacement Finance Mechanisms Summary

Revenue Bonds – Debt instruments issued by local governments, including utilities, which raise funds for capital projects. Municipal bonds are highly prized by investors, because they are deemed a very safe investment due to the virtually certain funding stream provided by ratepayers, and they are typically tax-free.

Environmental Impact Bonds (EIBs) – Special type of municipal bond that leverage private capital to support public investment in high-impact Environmental, Social, and Governance (ESG) initiatives. EIBs use an outcomes-based approach where the utility repays the investors based on the achievement of agreed-upon project outcomes, shifting the risk of experimenting with new innovations from ratepayers.

State Revolving Fund Loans – Low-cost loans for utilities provided by the federal government pursuant to the Federal Clean Water Act and the Safe Drinking Water Act to communities to implement water projects and advance water management objectives of various kinds. The SRFs are primarily administered by the states.

State and Federal Grants – The Colorado Water Conservation Board and US Bureau of Reclamation each run grant programs supporting water use efficiency efforts. Large-scale turf replacements are expressly eligible for grant funding under both the CWCB's Water Plan Grants, and the Bureau's WaterSMART Water & Energy Efficiency Grants and Small Scale Water Efficiency Projects.

System Development Charges & Other Fees – Dedicated funding streams that utilities may have the option of dedicating to various purposes including potentially turf programs. Tap fees are one-time charges assessed to developers to help offset the cost of new capacity. Fines for various infractions can similarly be funneled into dedicated conservation funds. While capable of providing a steady revenue stream, fees and fines are unlikely to generate the same level of capital as bonds and SRF loans, however.

Performance Contracts – Like EIBs, performance contracts are another tool that shifts the risk of performance from public water utilities to private investors by leveraging future cost savings. Those cost savings — in this case through reduced water bills — are guaranteed to be enough to repay the money required to finance the specific water project. Once the repayment period ends, those cost savings are then accrued by the property owner.

1. Revenue Bonds

Revenue bonds¹⁸ are routinely issued by water utilities to raise funds for capital projects intended to provide long-term benefits to the local water system.¹⁹ Municipal bonds are considered a highly effective financing tool for investing in water infrastructure for several reasons: (1) they allow water systems to obtain sufficient funds to implement capital improvements; (2) they are highly liquid and therefore channel capital to public water systems at reasonable cost; and (3) they are generally long-lived in their maturity, affording public water systems as much as 30 or 40 years to repay investors, and spread costs across all customers who use the improvements.²⁰ In addition, <u>tax-free</u> governmental bonds are highly attractive to investors, making it relatively easy for many (though certainly not all) public entities to raise cash quickly.²¹ As a familiar path to financing water infrastructure investments well within local agencies' decision-making authority, **bonds may present an attractive option for financing large-scale turf replacement programs.**





Revenue bonds can also be issued as "green" or "climate bonds." Green bonds are municipal bonds wherein the proceeds are dedicated exclusively for projects and activities that serve environmental sustainability purposes. Similarly, climate bonds are municipal bonds wherein the proceeds are used for projects and activities dedicated to building climate change resilience. Green bonds and climate bonds can be certified by third parties to establish that the funded projects meet the stated objectives.^{viii}

Every state has its own rules establishing when and for what purposes public entities may issue revenue bonds, and it appears that Colorado law permits turf replacement programs, whether on public or private properties, to be financed with bond proceeds. Colorado broadly authorizes public water providers, whether cities, towns, counties, or special metropolitan water districts, to issue revenue bonds to finance projects that extend or add to water supplies.²² Specifically, Colorado's revenue bond statute empowers public water providers to issue bonds for the "improvement, betterment, or extension of any water facilities."²³ Thus, to simplify somewhat, whether turf replacements can be financed with bond proceeds in Colorado depends on whether these programs constitute the "improvement, betterment or extension of any water facilities."

For purposes of Colorado's bond statute, the term "water facilities" is broadly defined to mean:

"...any one or more works and *improvements* used in and as a part of the collection, treatment, or distribution of water for the beneficial uses and purposes for which the water has been or may be appropriated including, but not limited to, uses for domestic, municipal, irrigation, power, and industrial purposes and including construction, operation, and maintenance of a system of raw and clear water ..., and other equipment and appurtenances, *all extensions, improvements, remodeling, additions, and alterations thereof*, and any and all rights or interests in such works and improvements...²⁴

Because turf replacements extend water supplies, they likely fall within this definition of "water facilities," as "improvements" or "extensions" used in the collection or distribution of water for beneficial purposes. In other words, projects that provide water supply. The water-saving functions of turf conversions are akin to the benefits associated with water meters throughout a distribution system; changing out turf essentially preserves, conserves and puts to reasonable and beneficial use the water rights (or contracts) owned by the public water provider. Converting turf to waterwise landscaping is a source of supply, serving in the aggregate the same functions as reservoirs. To the extent that turf replacements enhance water supply, they likely qualify as "water facilities" for purposes of Colorado's revenue bond statute. As such, public water providers may be able to use their bond proceeds to finance these projects.

A related legal consideration is whether bond proceeds can be used for projects that are situated on property the utility does not own or control. In particular, the question is: does Colorado law require that public water providers have an ownership interest in the property where the turf conversion occurs? While some state bond statutes require public ownership or control in bond-financed projects, Colorado's statute likely does not. The focus of the statute is on whether an improvement is used as part of the system for the beneficial uses for which the water has been appropriated. It therefore appears that Colorado's public water providers would have the legal authority required to finance turf replacements with revenue bonds. Put differently, our analysis indicates that there is no state-level legal impediment to the issuance of public debt for the purpose of investing in turf replacements on private as well as public properties.²⁵

viii Certification processes also include follow-up reporting once the bonds have been issued and the projects are underway as an additional layer of verification to investors to show that the funds were used as promised.





However, some legal advisors may feel that a more cautious approach would be for the utility to acquire some sort of right or interest in turf replacements on private properties in order for the incentive program to qualify as an "improvement to the water system." This is not an insurmountable barrier; such a relationship can be established with relative ease through a contract, lien, or easement.²⁶

The bottom line is that municipal bonds are a potentially viable opportunity for Colorado municipalities and utilities to raise the upfront funds to invest in and implement turf replacements at larger scale. While water providers will want to explore this issue with their own advisors, state law does not appear to preclude this approach. Other issues related to using municipal bond proceeds to finance large-scale turf replacement are explored in Section C., <u>Identifying & Overcoming Financing</u> <u>Barriers</u> section, on page 38.

Revenue Bond Resources

- <u>Tap into Resilience Toolkit</u>
- <u>Climate Bonds Initiative: Explaining Green Bonds</u>
- <u>Climate Bonds Initiative: Understanding Climate Bonds</u>
- Case Study: DC Water Green Bond
- <u>Case Study: San Francisco Public Utilities Commission Climate Bond</u>
- Presentation: Very Brief History of Water Infrastructure Finance

2. Environmental Impact Bonds

While Colorado's public water providers may be well acquainted with traditional revenue bonds, they may be less familiar with Environmental Impact Bonds — an innovative financing tool that leverages private investment to support high-impact environmental programs. EIBs are essentially a special kind of municipal bond, designed to deliver successful environmental (or other Environmental, Social, Governance (ESG)) outcomes, shifting the risk of investing in innovative projects to investors instead of the utility and its ratepayers.

As with traditional municipal bonds, EIBs can be used to pay for a wide variety of capital projects. A city or utility's authority to issue an EIB is defined by the same statutory authorities outlined above that govern their ability to issue <u>revenue bonds</u>. Accordingly, it should be feasible to issue an EIB to finance investments in large-scale turf replacements that extend or add to water supplies.





There are several conditions necessary for the issuance of an EIB. A government agency or municipality must have a project that requires funding, but may be higher risk compared with a conventional approach, with specific ESG outcomes in mind. While turf replacement is a tried-and-true strategy,^{ix} there may be some hesitation with investing in these solutions at large scale since the specific water-saving outcomes cannot be known with absolute precision. EIBs were developed for precisely these types of projects. With an EIB, private investors take on the risk that the particular project may not perform as expected. An underwriter brings agencies and investors together with an outcomes-based financing structure that includes, at a minimum:

- Establishing performance metrics;
- Developing the outcomes-based payment structure;
- Aligning and coordinating partners; and
- Finding and delivering new sources of capital.

First EIB to Finance Consumer Incentives

In February 2022, Buffalo, NY, issued the largest Environmental Impact Bond to finance green infrastructure investments, proven climate resilience strategies. The \$50 million bond will also be the largest investment in green infrastructure in the Great Lakes region. The investment is expected create approximately 700 family-sustaining jobs. In announcing the EIB, Buffalo's Mayor emphasized, "My administration does not view individual projects as activities in isolation, and instead views them as part of a network that functions as a system-wide improvement to our city's water system." This perspective and financing approach provides a solid example for Colorado communities considering large-scale turf replacements as a source of water supply.



With this model, a municipality's repayment of the bond depends on achievement of project outcomes. Performance is determined by verified third-party evaluations on whether key stated environmental goals are achieved by bond-financed projects. If the projects perform as expected, the bond would be paid back as planned. If the projects underperform as benchmarked against the established performance metrics, investors may be obligated to repay the bond amount — known as "clawback" — allowing the municipality to assess whether to continue the projects. If the projects

^{ix} See Southern Nevada Water Authority example on pg. 4.





overperform, the municipality may agree to pay investors an additional amount over the bond interest and principal payments to incentivize the investors to take on the risk of the innovative projects in the first place.^x ElBs require post-issuance reporting and disclosure of the project outcomes to investors. These disclosures and reporting are more rigorous than green or climate bonds, because they serve as the basis for determining whether the finance projects are performing as expected, underperforming, or overperforming, and whether the agreed-upon payment structures are triggered.

A number of communities around the nation, including Washington, D.C.; Atlanta, GA; and Buffalo, NY; have issued EIBs to finance water investments, primarily in green stormwater infrastructure. While of a different nature than turf conversions, the basic concepts involved are the same. Performance metrics established for the EIBs issued in these communities included, for example, volume of stormwater flow reduced, volume of stormwater stored, and amount of impervious area managed; all very similar to the types of metrics that could be established to measure the efficacy of conversion projects aimed at generating water savings.

While sometimes more expensive than regular revenue bonds discussed above, an EIB can be an attractive financing mechanism for communities looking for ways to maximize the water supply benefits of large-scale turf replacements while minimizing the public risk of taking on this new strategy to manage water supplies. With a growing portfolio of EIBs across the nation, this financing vehicle appears to be gaining traction with investors willing to take on the project risks to advance environmentally sustainable solutions.

EIB Resources

- Environmental Impact Bonds: How Do They work?
- Environmental Impact Bonds: The Very Welcome New Kid on the Municipal Finance Block
- <u>Case Study: DC Water EIB</u>
- <u>Case Study: Atlanta Green Infrastructure Investments</u>
- Buffalo Sewer Authority Closes on Largest U.S. Environmental Impact Bond
- Buffalo Sewer Authority: Sewer System Environmental Impact Bond Official Statement
- Quantified Ventures

3. State Revolving Fund Loans

The Federal Clean Water Act and the Safe Drinking Water Act establish state revolving funds (SRFs) that offer low-cost loans to assist communities with implementing water projects and advancing water management objectives of various kinds. As a general rule, the Clean Water SRF focuses on wastewater treatment and disposal, while the Safe Drinking Water SRF focuses on ensuring the health and safety of the nation's drinking water supplies. The U.S. Environmental Protection Agency (EPA) allocates SRF funding to each state that implements the Clean Water and Safe Drinking Water Acts. The states contribute an additional 20% to match federal SRF capitalization grants, and also administer the program according to state-specific eligibility criteria.

The American Recovery & Reinvestment Act of 2009, and subsequent appropriations bills, require all Clean Water SRF programs to use at least 10% of their federal capitalization grant for green infrastructure, water and energy efficiency projects, or other environmentally innovative activities.

^{*} This payment structure differentiates EIBs from green and climate bonds. EIBs can qualify as green or climate bonds, however.





This requirement is commonly referred to as the "Green Project Reserve," and is intended to operate as a floor, not a ceiling, on the percent of SRF dollars that can be allocated to water use efficiency and other "green" projects. **Turf replacements and consumer water conservation rebates are** expressly identified as projects meeting Green Reserve eligibilities.^{xi}

Colorado's SRF is administered jointly by three agencies: the Colorado Department of Health & Environment, the Colorado Department of Local Affairs, and the Colorado Water Resources and Power Development Authority (collectively, "SRF Agencies"). Colorado's SRF program consists of two funds — the Water Pollution Control Revolving Fund and the Drinking Water Revolving Fund. Both issue loans to Colorado public water providers to finance the design and construction of water supply and water pollution control infrastructure projects statewide. As of 2021, the Colorado SRF program had funding capacity to issue approximately \$137.6 million in loans; \$31.7 million for the Drinking Water SRF and \$105.9 million for the Clean Water SRF.

Colorado cities, towns, counties, and special metropolitan water districts are all eligible applicants for the state's SRFs.²⁷ Eligibility for the Drinking Water SRF is contingent on having a Water Use Efficiency Plan in place in most cases (for public water systems providing over 2,000 acre-feet of water a year), underscoring the public priority placed on demand reduction initiatives. Eligibility for SRF loans depends on which of the two Colorado funds a project proponent is applying to.

The **Colorado SRF Eligible Project Categories** table lists the types of projects eligible for Water Pollution Control Revolving Fund²⁸ and the Drinking Water Revolving Fund²⁹ loans.



xⁱ EPA's Guidance on Green Project Reserve eligibilities provides that "turf removal and replacement with native vegetation or trees that improve permeability" is a type of categorically eligible green infrastructure project; and that "implementation of incentive programs to conserve water such as rebates" is a type of categorically eligible water efficiency project. See EPA. 2012. 2012 Clean Water State Revolving Fund 10% Green Project Reserve: Guidance for Determining Project Eligibility. <u>https://www.epa.gov/sites/default/files/2015-04/documents/green_project_reserve_eligibility_guidance.pdf</u>





Colorado SRF Eligible Project Categories (Turf replacement programs likely fall within bolded project categories)						
Water Pollution Control Revolving Fund	Drinking Water Revolving Fund					
Nonpoint source and stormwater pollution control projects	Projects to prevent or correct inadequate supply, storage, and distribution issues					
Water conservation projects	Projects that implement water conservation and efficiency infrastructure applications					
Publicly owned treatment works construction, repair, and rehabilitation	Projects to correct a documented public health hazard					
Reclaimed water projects	Equipment replacement, rehabilitation, or repair					
Biosolids projects	Projects that implement source water protection activities					
Nontraditional projects — a project that is clearly related to the improvement or protection of water quality (e.g., the liner portion of a new landfill is intended to protect water quality)						

Water conservation and efficiency programs are "eligible projects" for purposes of both of Colorado's SRFs, and either could be available to finance large-scale turf replacements on both public and private property; because they are governed by different regulations, SRF loans in Colorado do not have the types of legal limitations that can attach to municipal bonds.

Colorado regulations governing the Drinking Water SRF define "water conservation projects" as any measure that "achieves a reduction in water consumption" for a water system.³⁰ The regulations also expressly cite consumer incentives, public awareness, and public education as a types of eligible water conservation projects.³¹ Similarly, Colorado's Clean Water SRF eligibilities related to water conservation projects provide that it is Colorado's general policy to use the Clean Water SRF to "promote water conservation."³²

Colorado's SRF Agencies follow EPA's Green Project Reserve Guidance, which provides, as indicated above, that "turf removal and replacement with native vegetation or trees that improve permeability" is a type of categorically eligible green infrastructure project; and similarly, that "implementation of incentive programs to conserve water such as rebates" is a type of categorically eligible water efficiency project. To incentivize applications for water efficiency projects, the SRF Agencies award additional points for these types of projects in the loan scoring process, and offer reduced interest rates.³³





While Colorado's SRF program specifically permits funding for water-conserving incentives, it has not yet funded any turf replacement programs. SRF Agency staff have indicated openness to evaluating SRF financing for large-scale turf replacements, including consumer incentive programs.³⁴

SRF Resources

- Colorado Department of Public Health & Environment: SRF Loan Information Overview
- <u>Clean Water SRF: 2021 Intended Use Plan</u>
- Drinking Water SRF: 2021 Intended Use Plan
- Webinar: Leveraging SRFs
- Webinar: Financing Innovation

4. State and Federal Grants

Although sporadic and competitive, grants are in some ways the holy grail for water use efficiency programs because this form of funding does not add to debt service requirements or put pressure on cash-strapped operating budgets. There are a number of substantial federal and state grant opportunities applicable to turf replacement projects that operate, in most cases, as one-time gifts of funds for specific purposes. While some grant programs are renewable, in general, they should not be considered a source of long-term, sustained funding.

At the same time, grants can be an important source of funds to establish the viability of new and innovative programs such as turf replacements, paving the way for longer-term financing options. There are many potential grant programs, and this report explores three key opportunities with the most direct relevance and greatest potential for turf replacement programs in Colorado communities: (1) Colorado Water Conservation Board Water Plan Grants; (2) Bureau of Reclamation WaterSMART Water & Energy Efficiency Grants; and (3) Bureau of Reclamation WaterSMART Small Scale Water Efficiency Projects. As detailed in the **American Rescue Plan Act** box below, one-time funding provided by Congress through the American Rescue Plan Act may also be a source of funding for large-scale turf replacements.

American Rescue Plan Act

In March 2021, Congress enacted the American Rescue Plan Act (ARPA) providing one-time funding of \$65.1 billion in Coronavirus Recovery Funds for local governments. Among other measures, ARPA authorizes funds to be used for a broad range of projects that improve access to clean drinking water, and improve wastewater and stormwater infrastructure systems. Eligible projects include green stormwater infrastructure investments, efforts that address climate change impacts, and measures to conserve and reuse water, including facilities on private property. Given their water-saving and climate resilience benefits, large-scale turf replacements meet these eligibilities.

Local decisionmakers have wide latitude to identify water infrastructure projects that are the highest priority in their community. To learn more, check out WaterNow and National League of Cities' recent blog, <u>Using American Rescue Plan Act Funds for Water, Wastewater and Stormwater Infrastructure</u> <u>Projects</u>, as well as National League of Cities' <u>ARPA Clean Water Infrastructure Fact Sheet</u>.





a) CWCB Water Plan Grants

CWCB Water Plan Grants are a particularly robust option for jumpstarting larger-scale turf replacement programs. The Colorado Water Plan establishes a measurable objective to achieve 400,000 acre-feet of municipal and industrial water conservation by 2050, and specifically calls out consumer turf buy-back programs as an element of a successful conservation strategy for the State.³⁵ CWCB's Water Plan Grants program is organized to fund projects that advance the Water Plan's measurable objectives within five specific categories:

- Conservation & Land Use Planning, for activities implementing long-term strategies for conservation, land use, water efficiency, and drought planning;
- Engagement & Innovation, for activities supporting water education, outreach, and innovation efforts;
- Environmental & Recreation, for projects that promote watershed health, environmental health, and recreation;
- Water Storage & Supply, for projects that, among other things, are identified in basin implementation plans to address the water supply and demand gap; and
- Agricultural Projects that provide technical assistance or improve agricultural efficiency.³⁶

HB22-1151: Turf Replacement Program

In June 2022, the Governor signed a bill to develop a dedicated state funding program for turf replacement projects throughout Colorado. HB22-1151 directs the Colorado Water Conservation Board to develop a voluntary statewide grant program to match local turf replacement program funding. The bill also provides a pathway for Coloradans who do not live in communities with turf replacement programs to access funding through a third-party contractor. This bill creates a significant new source of funding to support the acceleration of turf replacement with waterwise landscaping across the State.

Projects that convert turfgrass to waterwise landscaping fall well within the Conservation & Land Use Planning category and possibly within the Water Storage & Supply category, depending on whether and how the Basin Implementation Plans address this issue. Outreach and education efforts to implement turf replacement programs may fall within the Engagement & Innovation bucket. Turf replacements meet CWCB's various criteria in these categories by reducing overall future water needs through cost-effective water efficiency measures; promoting a water efficiency ethic throughout Colorado; preparing for the impacts of climate change; and enhancing Colorado's water communication, outreach, and education, among others.³⁷

CWCB has already provided grants for a number of turf replacement projects. In particular, Fort Collins Utilities has received \$140,000 in Water Plan Grant funds, which will fund projects through 2023. These grants, in combination with federal grants, helped replace over 600,000 square feet of turfgrass on HOA and commercial properties. More details about Fort Collins' program can be found in <u>Appendix C</u>. In addition, in 2017, the Meadows Neighborhood Company, a 4,000-acre, large-scale master planned community in Castle Rock, CO, received a \$66,700 Water Plan Grant to convert turfgrass to lower-water-use plant materials in targeted areas, among other efficiency and conservation improvements.³⁸





Governmental entities including municipalities, districts, enterprises, counties, and State of Colorado agencies are all eligible for CWCB Water Plan Grants. It is important to note that grant applicants must provide matching funds at varying levels depending on the project.³⁹ To date, CWCB has granted roughly \$3.8 million in Conservation & Land Use Planning grants, and \$2.8 million in Engagement & Innovation grants.

b) Bureau of Reclamation WaterSMART Water & Energy Efficiency Grants

WaterSMART is a U.S. Bureau of Reclamation program first authorized in 1992. It is comprised of six distinct funding programs, all with the goal of addressing the West's water challenges (see **What is WaterSMART?** Box below). Local and regional water providers in 16 states are eligible for WaterSMART Funding.⁴⁰

WaterSMART's Water and Energy Efficiency Grants (WEEG) focus on large-scale projects that produce quantifiable and sustained water savings. The program prioritizes projects that support multiple benefits achieved through collaboration. Large-scale turf replacements are **expressly eligible** for WEEG funding. The Bureau's FY22 Notice of Funding Opportunities for the WEEG program specifically provided that turf replacement incentive programs are eligible for WaterSMART grant funding.⁴¹ Indeed, <u>Moulton Niguel Water District</u> in California has already received WEEG funding support for its turf replacement programs.

What is WaterSMART?

The WaterSMART program was created to address the Western United States' serious water challenges — widespread drought, increased population, aging infrastructure, and environmental water requirements that all place strain on water resources. WaterSMART grants fund local water management programs that conserve and use water more efficiently, mitigate conflict risk in areas at a high risk of future water conflict, or accomplish other benefits that contribute to water supply reliability. Future WaterSMART funding opportunities may increase in the next five years, as the Infrastructure Jobs and Investment Act signed into law on November 15, 2021, authorized \$400 million in new funds for the WaterSMART program through 2026.

Learn more at: <u>https://www.usbr.gov/watersmart</u>.







With roughly \$40 million awarded annually, WEEG funding is not insignificant, and in recent years has supported dozens of projects annually. In FY20, the Bureau awarded \$41 million in WEEG funding for 54 projects, and the Bureau expects to fund 40-45 projects in FY22. WEEG is designed to support larger projects. As of FY22, **applicants can request WEEG grant funding of up to \$2 million** (for projects to be completed within three years), or up to \$500,000 (for two-year projects). All WEEG projects require a 50% non-Federal cost-share match. In some circumstances, state funds – such as CWCB Water Plan Grants – can serve as this match, but this is not always the case. Details on match requirements are provided in the Notice of Funding Opportunity issued each grant round.

c) Bureau of Reclamation WaterSMART Small-Scale Water Efficiency Projects

In addition to the WEEG program, the Bureau of Reclamation administers WaterSMART Small-Scale Water Efficiency Projects (SWEP) grants. This program is for smaller projects to conserve or otherwise make more efficient local use of water supplies. SWEP grants are substantially less than WEEG grants, with a maximum of \$75,000 (as of FY20) for projects with total construction costs of no more than \$200,000. The overall pot of funding available for SWEP grants is also less than the WEEG program; in FY20, Reclamation awarded \$3.3 million for 52 SWEP projects. Priority is given to projects supported by existing water management and conservation plans, System Optimization Review, or other planning efforts led by the applicant.

Eligibility for SWEP is the same as the WEEG program, and Colorado water providers are well positioned to seek SWEP grants to support turf replacement initiatives. The SWEP application is designed to be streamlined to allow small to mid-sized utilities, as well as larger utilities, to be able to apply with relative ease. A non-Federal cost-share of at least 50% is required, however.

WaterSMART Grant Application Support

Through its WaterSMART Conservation and Efficiency Funding for Colorado River Basin Communities program, WaterNow provides Western water decisionmakers with no-cost, hands-on assistance to apply for WaterSMART Grants. WaterNow has supported a number of successful applications totaling nearly \$2 million in grant funds.

Learn more at: https://bit.ly/3C70D0E.

As detailed in **Appendix C,** <u>Desert Water Agency</u> was among the FY20 SWEP grant recipients and received \$75,000 to support its ongoing Grass Removal Incentive Program. Since 2014, this program has been successful in removing approximately 2.3 million square feet, or approximately 53 acres, of turfgrass.⁴² Fort Collins Utilities was also a successful FY20 recipient and was awarded a \$70,000 SWEP grant to support its commercial turf replacement program. Fort Collins used their CWCB grant as matching funds.





Grant support available through programs like WaterSMART and CWCB's Water Plan Grants are potentially important sources of funding for large-scale turf replacement in Colorado. As indicated above, several communities have already found success in applying to these programs for turf change-out support. At the same time, all of these programs have limited funds and require a not insignificant match, and the award process can be quite competitive. For these reasons, state and federal grants are not likely to fully finance large-scale turf replacements. Nevertheless, this financing option is an important mechanism for public water providers to consider as they work to ramp up investments in turf conversions.

State and Federal Grants Resources

- <u>Tap into Resilience Toolkit: WaterSMART Grants</u>
- WaterNow: WaterSMART Grant Application Support
- <u>Colorado Water Conservation Board: Grants Overview</u>
- <u>Colorado Water Conservation Board: Water Supply Reserve Fund Grants Overview</u>
- Colorado Water Conservation Board: Water Supply Reserve Fund Grants Guidelines

5. System Development Charges & Other Fees

Many parts of Colorado are growing fast, and new construction offers opportunities to install waterwise landscaping from the outset. **Tap fees and other types of "system development charges" can be a way of incentivizing developers to install waterwise landscaping upfront,** avoiding the need for costly change-outs at a later date. For present purposes, however, we are focused on the role of tap fees, as well as other special charges, as a way of generating supplemental revenue to fund turf replacement incentives. These fees and charges can provide a revenue stream for utilities that can be dedicated to financing landscape retrofits on existing properties. While water rates provide the bulk of utility revenues, competition for this operating cash is high. Decisionmakers may therefore look to these special fees as a dedicated revenue stream to help pay for turf replacements.

System development charges are one-time charges assessed to developers to help pay for the infrastructure and water resources capacity needed to support the new development.⁴³ Thus, system development charges offer a way for public water providers to generate revenue in addition to monthly billed water rates.⁴⁴

Public water providers may also leverage water use-related fines and other fees as a dedicated revenue stream for turf conversion programs. As explained below, <u>Castle Rock Water imposes fines</u> on water users who exceed their water budget, or are found watering outside of their approved watering days. It dedicates these funds to pay for both its Residential and Non-residential ColoradoScape Renovation programs. This approach has generated a dedicated source of revenue for Castle Rock that partially supports a combined budget of \$145,000 as of 2021. Similarly, Moulton Niguel Water District, which has established a water budget-based rate structure, dedicates fines from residential customers who exceed their water budgets into a special water efficiency fund. Moulton uses this fund to pay for all three of its turf replacement programs (see <u>Appendix C</u>).

It should be noted that while system development charges and other fees can be a steady source of revenue that can help fund turf replacement programs, they are unlikely to generate the same level of capital as bonds and SRF loans. The availability and scale of these revenues depend on the pace of new development or how often property owners exceed established water use restrictions or budgets. In addition, unlike debt-financing outlined above that can provide substantial upfront cash to support project implementation, fees and fines accrue more gradually over time; however, given





the incremental nature of implementing turf replacements, this is not necessarily a negative. While it would be challenging to finance a major turf replacement initiative entirely with development fees and fines, these supplemental revenue streams can serve a pivotal role in a larger financing portfolio, providing a steady if incremental source of revenue supplementing grant and loan opportunities.

System Development Charges & Other Fees

- Western Resource Advocates: A Guide to Conservation-Oriented Water System Development Charges
- <u>Castle Rock: Watering Schedule & Fines</u>
- Moulton Niguel Water District: Water Budget-Based Rates

6. Performance Contracts

Like Environmental Impact Bonds, performance contracts provide a mechanism to shift the risk of performance for a given program from water utilities to service providers in order to minimize risks to the public.⁴⁵ For purposes of this report, the term "performance contract" is used to refer to a legal agreement between a public entity (e.g., school district or a water utility) and a service company to implement an agreed-upon project with a desired outcome. What makes performance contracts unique is that payment for the service provided is contingent on specified performance outcomes rather than simply project completion.

This type of performance contracting in Colorado is governed by state law.⁴⁶ The relevant statute empowers local governments to enter into performance contracting agreements for "utility costsavings measures," i.e., installations and measures designed to reduce energy consumption, including devices that reduce water consumption or sewer charges.⁴⁷ Such contracts are authorized for projects "in buildings or other facilities *owned or rented by the political subdivision*."⁴⁸ Thus, a Colorado public water provider's legal authority to enter into energy performance contracts may not extend to projects located on private property. However, given the energy and water savings potentially available in connection with turf replacements on publicly owned properties, performance contracting may be a viable option in connection with such projects.

Under the performance contract model, public agencies can enter into agreements with service companies that conduct comprehensive energy and water retrofit projects in public facilities.^{xii} Because "guaranteed performance is the hallmark of performance contracts,"⁴⁹ the terms of the performance contract will provide that the private service company guarantees that financial savings on water or electric bills resulting from the installation of energy and water conservation measures will exceed the financing costs necessary to implement the energy- and water-saving upgrades. If the realized savings do not exceed the cost, the service company makes up the difference, not the public agency.⁵⁰ If the realized savings do exceed the costs, the performance contract will generally provide that the service company is eligible to share in those cost savings.

^{xii} The state agency running the performance contracting program works only with public entities.





The upfront capital to finance the energy and water retrofit projects typically comes from a private lender, such as an investment bank, working with the public entity and service company. The private lender would be a party to the performance contract, with the guaranteed savings being necessary for the lender to realize their return on the investment. Upon completion of the project, measurement and verification of the savings are conducted, and those savings initially go toward servicing the debt on the project. Once that debt is repaid, all savings then accrue directly to the public entity.

Performance contracting is not, strictly speaking, a financing mechanism akin to those outlined above in that it does not generate cash for the utility to implement programs. This report nonetheless includes this section on performance contracts because public water providers in Colorado may be able to utilize performance contracts to help pay for turf replacement projects.

What might offer the best opportunity is including turf replacement in a larger performance contract project. For example, a municipality may want to develop a multi-faceted performance contract that involves various elements of its water and energy systems; e.g., upgrades to advanced metering infrastructure (AMI), aging wastewater infrastructure replacements, energy efficiency upgrades, and solar panel installations. It would be relatively easy to also include turf replacement components in such an initiative. This type of "blended" or "bundled" project helps the overall contract become cash flow positive, where the turf replacement savings alone might be insufficient to show a return on investment during a standard payback period of 15 to 18 years. Additionally, water providers could use any of the finance mechanisms described earlier in this report, such as municipal bonds, SRFs, and state and federal grants, as a means to bring additional capital to a performance contract project in order to decrease the time period for a project to become cash flow positive. Another way is by using the estimated savings from reduced water bills and maintenance costs as a match for grants through WaterSMART or the Department of Local Affairs.

Benefits of Energy Performance Contracts

- 1. Lower operating costs, greater savings
- 2. Implemented as a turnkey service
- 3. Single point of accountability
- 4. Financial and operational risks are shifted
- 5. Projects are high quality, maintained, and verified
- 6. Funds saved from lower energy and water bills can be reinvested in more facility improvements
- 7. Creates local jobs and economic development
- 8. Maintenance costs are reduced
- 9. Projects improve air quality in public facilities

Western Resource Advocates. 2015. Tapping the Power of the Market: Energy Savings, Water Conservation, and New Revenue Streams Through Performance Contracting in the Colorado River Basin States

Performance contracts in the water sector are relatively new.⁵¹ In any event, Colorado's Energy Office has confirmed that large-scale turf replacement fits within the long-standing "Energy Performance Contracting" model administered by the Colorado Energy Office and used by public agencies and energy service companies in Colorado, and that they have engaged in conversations with clients about possibly including turf replacement in future projects.⁵² However, we have not identified an example of a utility that has employed performance contracts for turf replacements in Colorado or elsewhere as of yet.





Given that the concept of large-scale turf replacements as a source of water supply remains an emerging concept, performance contracts may provide an attractive rubric for public water providers considering this option while safeguarding public funds and shifting risk to willing private parties.

Performance Contracting Resources

- <u>Colorado Energy Office: Energy Performance Contracting</u>
- <u>Western Resource Advocates: Tapping the Power of the Market: Energy Savings, Water</u> <u>Conservation, and New Revenue Streams Through Performance Contracting in the Colorado River</u> <u>Basin States</u>
- <u>National Renewable Energy Laboratory: Turf Conversion Measurement and Verification Protocol-Guidelines for Energy Service Companies and Water Efficiency Service Companies to Determine Water Savings of Turf Conversion Measures for use in Performance Contracts
 </u>

B. Two Pathways for Capitalizing Turf Replacements

Section A above outlined six financing and payment mechanisms for upscaling turf replacement programs in Colorado. While all have their benefits, the three options with the greatest relative merits to finance large-scale turf replacements all involve borrowing. This result is not surprising, since low-cost debt-financing is how cities, towns and public utilities typically pay for large-scale, long-term investments. At the same time, the nature of turf replacement programs – decentralized, distributed across communities, not owned or operated by utilities – raises a somewhat different set of issues around whether and how and when such programs can be capitalized. As discussed below, turf change-outs, as well as other forms of decentralized water use efficiency programs, can in fact be debt-financed under Governmental Accounting Standards Board (GASB) rules. (See Governmental Accounting Standards Board Box below).

Governmental Accounting Standards Board (GASB)

GASB is possibly the most important and influential non-governmental organization affecting how public entities manage and track their money and resources. Established in 1984, GASB establishes public accounting standards implementing "Generally Accepted Accounting Principles" (GAAP) to bring transparency and standardization to public financial reports and statements. GASB is universally recognized as the organization responsible for establishing the authoritative accounting and financial reporting standards used by virtually all state and local governments nationwide. As such, its rules and guidance are regarded almost as having the force of law by most public entities, including cities, towns and utilities.

GASB's sister organization is the Financial Accounting Standards Board (FASB), which establishes similar financial reporting rules for private companies, including non-profits. While the mission of transparency and accountability for each organization is closely related, the standards themselves may be very different, reflecting the differences between governmental entities and companies. GASB and FASB are both overseen by the Financial Accounting Foundation (FAF).

For more information about GASB: <u>https://www.gasb.org/aboutgasb</u>.





Generally Accepted Accounting Principles (GAAP) allow utilities to borrow to pay for "capital expenditures," i.e., expenditures for fixed or capital assets. Under GAAP, capital expenditures must, among other things, result in the acquisition, improvement or creation of an "asset" of the utility. Applied to public borrowing to support turf replacements, this means that these programs may need to generate a public asset of some kind.

This section details two approaches under current GASB rules for capitalizing investments in largescale turf replacements as local government assets: (1) Regulated Operations accounting, and (2) conventional accounting.

1. Regulated Operations Accounting

In the 1990s, GASB crafted an alternative to conventional accounting for investments that public entities need to make that are not annual expenses and may require debt-financing, but do not result in conventional fixed assets. GASB Statement No. 62 (GASB 62) established the concept of a "regulatory asset" as a way of empowering public agencies to book the cost of these "business-type activities" as assets instead of annual expenses. Referred to as a "Regulated Operations" accounting approach, GASB 62 recognizes that public entities need to make long-term investments that do not necessarily produce conventional tangible assets (like reservoirs or treatment facilities), but that also are not properly characterized as "annual expenses" for accounting purposes.

Under the Regulated Operations approach, business-type activities become "regulatory assets" that public entities can borrow against. The "asset" under GASB 62 is not the physical thing being capitalized (e.g., turf replacements, rain gardens or bioswales); it is instead the guaranteed promise of repayment by the entity.⁵³ GASB 62 is thus a complete alternative to GASB Concepts Statement No. 4's capital asset accounting.

GASB 62 is available to any public entity with a governing board legally authorized to:

- Set rates;
- Set those rates at levels to cover the cost of the specific programs to be financed; and
- Commit to setting rates in the future to pay for the cost of these programs.⁵⁴

Virtually all Colorado cities, towns, and metropolitan water districts can meet these criteria. As a practical matter, this means that **borrowing for large-scale turf replacement can be accomplished** with relative ease from an accounting perspective using GASB 62.





C-PACE: Another Energy Sector Analogy

The energy sector offers another useful analogy for how communities can invest in large-scale turf replacements. When authorized by state and local governments, the <u>Commercial Property</u> <u>Assessed Clean Energy (C-PACE)</u> program allows property owners to finance investments in energy efficiency installations. PACE financing is repaid as an assessment on the property's regular tax bill, and is processed the same way as other local public benefit assessments. Water efficiency and conservation projects that save on energy may fit within this framework. For example, Nevada's C-PACE program authorizes property owners to finance turf replacements. Colorado could follow Nevada's lead and extend eligible projects beyond irrigation systems and low-flow fixtures to include turf conversion to waterwise landscaping.

More info on Colorado's C-PACE program available here: <u>https://copace.com/</u>.

Electricity utilities have been bond-financing energy conservation rebate programs on private properties for many years using GASB 62 accounting. However, this is not an approach that has been widely known or employed by the public water resource sector. When surveyed, many municipal and water utility chief financial officers questioned GASB 62's application to consumerfacing water conservation programs. Addressing this uncertainty, and as a result of an initiative led by WaterNow and Earth Economics, in May 2018, GASB issued new guidance under GASB 62 stating expressly that public water resource agencies are authorized to account for investments in rebate and direct installation program investments using the GASB 62 Regulated Operations approach (assuming the three criteria listed above are met).⁵⁵ The practical implication of this clarification is that **utilities can now access municipal bond proceeds to invest in consumer rebates, as well as direct installation programs.** The GASB 62 accounting approach applies to investments made through both municipal revenue and general obligation bonds and can be used when issuing tax-exempt or taxable municipal bonds, as well as other forms of debt.

At least two water utilities use the GASB 62 Regulated Operations approach to debt-finance consumer incentive programs. Seattle Public Utilities and King County, WA, pay for their consumer rebate program for green stormwater infrastructure (GSI) largely with municipal bond proceeds and use the GASB 62 Regulated Operations accounting approach to book these investments.⁵⁶ As of September 2020, Seattle has been able to finance rain barrels and rain gardens on private property to address stormwater runoff and combined sewer overflows that manage 410 million gallons of stormwater per year, bringing the city closer to meeting its goal of managing 700 million gallons of runoff per year with GSI by 2025.⁵⁷

Los Angeles Department of Water and Power (LADWP) also uses GASB 62 to account for its debtfinancing for a variety of water efficiency and stormwater capture programs, including rebates for replacement of turf with low-water landscaping, high-efficiency washing machines, permeable pavement, rain barrels, and cisterns.⁵⁸ As of 2020, LADWP reported \$160 million in distributed water conservation and stormwater regulatory assets.⁵⁹

Even with the 2018 GASB 62 clarification for water utilities, there is substantial interplay between accounting and legal rules regarding the use and tracking of public debt, and in particular the use of debt deployed for public purposes on private property. As indicated above, Colorado's revenue bond statute appears to permit the use of municipal bond proceeds to finance turf replacement incentive programs on properties outside of utility ownership and/or control. Assuming that is the case, GASB 62 could apply, alleviating the need for some sort of easement on participating land parcels.





2. Conventional Accounting

Most chief financial officers, accountants, and others in the finance space have been schooled in conventional accounting, which holds that public entities can issue debt to finance fixed and tangible assets that they own or control, and ideally both. The theory behind this rule is, of course, that this ensures that the loan is secured by something tangible in the borrower's control.

In the context of public utility investment in installations on private and other non-utility property, the issue is how to secure control sufficient to satisfy the requirement of GASB Concepts Statement No. 4 (GASB 4) — the standard accounting treatment for debt-financing capital assets for public entities. As a general matter, control results from the city's or utility's ability to determine the nature and manner of use of the investment. Easements or contracts can usually establish the requisite level of control.

A number of water utilities have determined that they can borrow to pay for private property incentive programs — including specifically large-scale turf replacements — in compliance with the conventional accounting standards set forth in GASB 4. Most famously, **Southern Nevada Water Authority has been bond-financing its turf program for more than 20 years, generating approximately 467,000 acre-feet in water supply** for the Las Vegas region (see box on page 11). The Milwaukee Metropolitan Sewerage District (MMSD) similarly uses municipal bond proceeds to finance green stormwater infrastructure (GSI) installations on non-utility properties distributed across its service area.

To meet the "control" requirements of GASB 4, SNWA obtains permanent conservation easements on the properties where the turf replacements are located.⁶⁰ Since 1999, SNWA has recorded slightly more than 70,000 easements covering more than 200 million square feet of waterwise landscaping; less than 1% of these easements have been modified or rescinded. MMSD also complies with GASB 4 by requiring recipients of its GSI grants to enter into a conservation easement. In 2019, MMSD invested \$1.9 million in GSI on property it does not own, and is planning a substantial expansion of its program; MMSD has issued a certified Climate Bond to finance an additional \$20 million in "community-based" GSI.^{xiii}

Under either the conventional GASB 4 or GASB 62 Regulated Operations approaches, Colorado communities have clear pathways and precedents to look to in capitalizing investments in large-scale turf replacements and opening the door to a wide variety of financing mechanisms.

Capitalizing Turf Replacements Resources

- Tap into Resilience Toolkit: Answering Accounting Questions
- Go Green: Muni Bond Financing for Distributed Water Solutions
- GASB 62: How Does It Work?
- MMSD Green Bond Framework
- MMSD: Conservation Easement
- How Can Utilities Capitalize Spending On Consumer Rebates? Frequently
 Asked Questions

xⁱⁱⁱ This approach is not without its challenges. Many public and private property owners balk at having permanent liens and/or conservation easements attached to their properties. In addition, obtaining and tracking these legal arrangements can be a significant administrative burden for the utility.





C. Identifying & Overcoming Financing Barriers

While there are many options for financing turf conversion programs, there are also a number of real or perceived barriers to accessing these mechanisms listed in the <u>Potential Financing Mechanisms</u> section above. WaterNow and the University of California Irvine School of Law's Center for Land Use, Environment, and Natural Resources explored these issues in depth in their 2021 <u>Tap into</u> <u>Resilience: Pathways for Localized Water Infrastructure</u> report. Guidance on how to overcome these issues is summarized below.

1. Perceptions Regarding Accounting Limitations

As indicated above, GASB 62 is not yet in wide use in the water sector. Interviews and other interactions with water utility and municipal CFOs establish a strong anecdotal record of cultural resistance to the concept of public borrowing in the absence of a tangible, fixed utility-controlled asset. These **perceived barriers can be as difficult to overcome, if not more so, than more concrete legal or policy hurdles.** WaterNow and partner organizations have created a number of resources to help address and move beyond this challenge, including the <u>Tap into Resilience Toolkit: Answering Accounting Questions</u> and <u>Go Green: Muni Bond Financing for Distributed Water Solutions</u>.

2. State Gift Prohibitions

Nearly every state has some form of a constitutional prohibition against "gifts" of public funds for private purposes. These provisions are distinct from the rules regarding the use of public debt, but similarly can give rise to negative perceptions or concerns about the use of public funds for projects and technologies deployed on private property. Constitutional gift prohibitions are generally not a barrier to investment in large-scale turf replacements or other consumer-facing water use efficiency rebates, direct installations, or other incentives.

As with most states, Colorado allows expenditures that incidentally benefit private interests, as long as they primarily serve and fulfill a public purpose. Article 5, Section 34 of the Colorado Constitution authorizes the appropriation of public resources for the benefit of individuals, corporations, communities, institutions, or associations not solely owned and operated by the State for "discrete and particularized public purpose[s]." Appropriations that have incidental private interests still pass constitutional muster where the public purpose outweighs those incidental private interests.⁶¹ Accordingly, it appears that Colorado's gift prohibition does not bar local water providers from using bond proceeds, or other public financing, to pay for large-scale turf replacements on private property.

3. State and Local Laws Limiting Use of Bond Proceeds on Non-Utility Property

In addition to accounting rules and state constitutions, most states and many localities have enacted laws regulating how public entities may, and may not, use bond dollars and/or other public debt in connection with private property. For the most part, these rules had their genesis in efforts to ensure against corruption, fraud, and misuse of public funds. However, they can also be interpreted as limiting the ability of cities, towns, and utilities to access bond dollars for projects on non-utility property — even when those projects advance important public interests.





However, as described above, Colorado's revenue bond statute does not contain language precluding local investments on non-utility properties, and can be read as sufficiently flexible to spend on non-utility property large-scale turf replacements.xiv Additional materials on pathways for overcoming state and local legal barriers to large-scale turf replacements are available at <u>Tap into</u> <u>Resilience Toolkit: Answering Legal Questions</u>.

4. Limits on Tax-Exempt Governmental Bonds

The federal tax code generally provides that interest on "governmental bonds" (i.e., bonds issued by state and local governments) is tax-exempt, which results in significant cost savings on the debt. There are, however, limits on the amount of funds from tax-exempt governmental bonds that can be used to finance investments on commercial and/or private property. Specifically, a bond qualifies for tax-exempt treatment so long as:

- No more than 10% of the proceeds are used in a private trade or business; and
- No more than 5% of the proceeds are loaned to a private person.⁶²



For the most part, these limitations do not present serious barriers to using tax-exempt bonds to finance turf replacements. First, the 10% limitation applies only to commercial enterprises, not all private properties; and it is unlikely that commercial turf replacements alone would comprise a substantial portion of a bond issuance. Moreover, the federal tax requirements apply to the *entire* proceeds of a bond issue. Therefore, **a utility will be able to issue a tax-exempt bond by including the**

xiv City charters, ordinances, and/or utility regulations may also govern how and where public funds can be spent. However, whether local laws are similarly flexible will need to be determined on a community-by-community basis, and is beyond the scope of this report.





funds for a turf replacement initiative as part of a larger bond issue financing a variety of needs and ensure the amount of funding that goes to commercial properties remains below 10%. Utilities can also avoid the 5% cap on proceeds being loaned to private persons by setting up consumer incentives as grants, direct installations, or other types of incentives that are clearly not loans to private persons.

Additional materials on pathways for overcoming governmental tax-exempt bond barriers to largescale turf replacements are available at <u>Tap into Resilience Toolkit: Issue Tax-Exempt Bonds</u>.

5. Federal Tax Disincentives/Lack of Incentives

As described above, the most effective and efficient way for cities, towns and utilities to implement large-scale turf conversion is to provide substantial financial incentives of various kinds to property owners. Federal tax law is ambiguous as to whether these incentives qualify as "general income" for federal income tax purposes. In other words, utilities offering, for example, a \$3,000 rebate to a homeowner for a turf change-out may determine that it is required to issue a 1099 tax form to participating consumers; property owners would then be required to pay federal income taxes on the amount of the rebate. This situation creates significant disincentives for both utilities and property owners. There are efforts underway in Congress to eliminate this barrier.⁶³

Until federal law is clarified on this issue,^{xv} there are two basic arguments that even under current law, rebate payments should not be considered taxable income. First, turf replacement rebates are not an "accession to wealth" of the property owner. The purpose of the turf rebate is to enable the *water utility* to achieve public water conservation objectives at the least amount of cost to its ratepayers. (See **Cost-effectiveness: Turf Replacements as a Source of Supply** Box on page 11 for details.) The payment is being made to the property owner not for the purpose of conferring a benefit on the property owner, but rather because it may be more cost-effective for the water utility to have the property owner change out their turfgrass for waterwise landscaping than to build new pipelines or reservoirs, or buy new water rights. Thus, any benefit to the property owner is largely incidental for purposes of the federal tax code, and may be offset by the property owner's obligation to maintain the waterwise landscaping.

Second, the payments could be viewed as a reduction of the purchase price of the turf replacement rather than as taxable income. For example, when a retail customer purchases an automobile and receives a manufacturer's rebate for a portion of the purchase price, the rebate is treated as a reduction of the automobile purchase price — not as income to the purchaser. By analogy, rebate payments for turf replacements by the water utility to the property owner should be treated as a reduction in the purchase price of the turf replacement and therefore not as taxable income. Additional materials on pathways for overcoming state and local legal barriers to large-scale turf replacements are available at <u>Tap into Resilience Toolkit: Taxability</u> and <u>Taxability of Rebates:</u> Federal Tax Issues.

^{xv} Energy efficiency rebates have been exempt from federal taxation since the 1990s. See 26 U.S.C. § 136 (enacted 1992). Efforts have been underway since 2015 to enact similar legislation amending the IRS code to address this ambiguity by expressly exempting water-related consumer rebates from federal taxation. The House of Representatives included such a provision in its version of the Build Back Better Act (<u>H.R.5376, Section 136305</u>), which the House passed in November 2021. As of the date of publication, it was unclear whether or not this bill would be adopted by the Senate.





In sum, unlike grants, fees, and contract options, capitalizing incentives raises a particular set of legal, accounting, and cultural challenges to be addressed. The necessary pathways to navigating these challenges do, however, already exist.

Tax Incentives: A Potential Tool

Achieving large-scale turf replacements may require navigating certain tax barriers. However, tax incentives are an additional tool that can encourage private property owners to partner with utilities to implement waterwise landscaping. Some state legislatures are beginning to show some willingness to deploy this approach via their tax codes for sustainable water solutions:

Georgia--residents can receive an income tax credit of 25% of the cost or \$2,500, whichever is less, for purchasing energy/water-efficient equipment for residential or business use.

Maryland--any county or the City of Baltimore may establish a property tax credit against local property taxes when a sediment control pond or stormwater management structure is required by law.

Texas--established a sales tax exemption for equipment, services and supplies for rainwater harvesting and other water infrastructure. And residents are exempt from property tax reassessments for implementation of approved water conservation initiatives, among other things.

Colorado could take a similar approach by adopting legislation to update the state tax code to offer tax credits for turf replacements.

IV. Conclusion

Trading turfgrass for waterwise landscaping represents a major water supply opportunity for Colorado, as recognized in the state's Water Plan, and as some Colorado communities are already experiencing. Realizing these benefits at large scale will, in most instances, require utility investment beyond what strained annual operating budgets can reasonably bear. As detailed herein, the state's local public water providers have a suite of financing mechanisms at their disposal to shift Coloradans' relationship to landscaping, building climate resilience while keeping rates affordable.

Whether and when to implement large-scale turf replacement incentive programs will be highly specific to unique community circumstances, but the resources required to facilitate these on-theground discussions are increasingly available.⁶⁴ And investing in turf change-outs at a scale that captures the full potential of waterwise landscaping as a sustainable, climate resilient source of supply is readily achievable.





End Notes

¹ Milesi, C. et al. 2005. Mapping and Modeling the Biogeochemical Cycling of Turf Grasses in the United States. <u>https://link.springer.com/article/10.1007%2Fs00267-004-0316-2</u>

² Colorado Water Conservation Board (CWCB). 2019. Analysis and Technical Update To The Colorado Water Plan. Volume I. <u>https://cwcb.colorado.gov/colorado-water-plan/technical-update-to-the-plan</u> ³ Ibid.

⁴ Southern Nevada Water Authority. 2021. Water Smart Landscapes Program, Data Summary as of December 15, 2021. Data available upon request.

⁵ Southern Nevada Water Authority. 2021. Water Smart Landscapes Program, Data Summary as of December 15, 2021. Data available upon request.

⁶ Governmental Accounting Standards Board (GASB). 2010. Statement No. 62, Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements. ¶¶ 476-500.

https://www.gasb.org/jsp/GASB/Document C/DocumentPage?cid=1176159967625&acceptedDisclaimer=true : see also WaterNow Alliance, 2018. Go Green: Muni Bond Financing for Distributed Water Solutions.

https://tapin.waternow.org/resources/go-green-muni-bond-financing-for-distributed-water-solutions/.

⁷ GASB. 2018. Implementation Guide No. 2018-1, Implementation Guidance Update – 2018. ¶¶ 4.4, 4.5. https://www.gasb.org/jsp/GASB/Document_C/DocumentPage?cid=1176170563952&acceptedDisclaimer=true.

⁸ Milesi, C. et al. 2005. Mapping and Modeling the Biogeochemical Cycling of Turf Grasses in the United States. <u>https://link.springer.com/article/10.1007%2Fs00267-004-0316-2</u>

⁹ Colorado Water Conservation Board (CWCB). 2015. Colorado's Water Plan. Collaborating on Colorado's Water Future. <u>https://www.colorado.gov/pacific/sites/default/files/CWP2016.pdf</u>

¹⁰ Sen Nag, O. 2019. States that Receive the Least Amount of Rain. World Facts.

https://www.worldatlas.com/articles/the-10-driest-states-in-the-united-states-of-america.html

¹¹ Frankson R. and Kunkel K.E. 2022. Colorado State Climate Summary. NOAA National Centers for Environmental Information, State Climate Summaries 2022.

https://statesummaries.ncics.org/downloads/Colorado-StateClimateSummary2022.pdf

¹² Mankin J.S., I. Simpson, A. Hoell, R. Fu, J. Lisonbee, A. Sheffield, D. Barrie. 2021. NOAA Drought Task Force Report on the 2020 – 2021 Southwestern U.S. Drought. NOAA Drought Task Force, MAPP, and NIDIS. <u>https://cpo.noaa.gov/Portals/0/Docs/MAPP/Reports/Drought-Task-Force-IV-Southwest-</u> Drought.pdf?ver=2021-09-21-113001-237

¹³ Colorado Water Conservation Board (CWCB). 2019. Analysis and Technical Update To The Colorado Water Plan. Volume I. <u>https://cwcb.colorado.gov/colorado-water-plan/technical-update-to-the-plan</u>

¹⁴ Milesi, C. et al. 2005. Mapping and Modeling the Biogeochemical Cycling of Turf Grasses in the United States. <u>https://link.springer.com/article/10.1007%2Fs00267-004-0316-2</u>

¹⁵ Denver Water. 2018. Water Efficiency Plan. <u>https://www.denverwater.org/sites/default/files/water-efficiency-plan.pdf</u>.

¹⁶ Zane Marshall, Southern Nevada Water Authority. Personal communication with authors. December 15, 2021.

¹⁷ As explained above, for purposes of this paper, "large-scale" turf replacement refers to projects substantial enough that they would likely be challenging for a city, town or utility to pay for largely or entirely out of operating expenses or grant funds.

¹⁸ Colorado water providers may also be authorized to issue general obligation bonds that are secured by the general taxing power of a local government. This report does not explore general obligation bonds and instead focuses on revenue bonds given that public water providers have an expected revenue source that can be used to repay this form of debt.

¹⁹ WaterNow Alliance. 2021. Tap into Resilience Toolkit. *What are My Financing Options, Types of Bonds, Municipal/Revenue Bonds*. <u>https://bit.ly/2ZPMDqK</u>. See also WaterNow Alliance. 2019. *Innovation in Action: 21st Century Water Infrastructure Solutions*. <u>https://tapin.waternow.org/resources/innovation-in-action-21st-century-water-infrastructure-solutions</u>.

²⁰ Sharlene Leurig, Ceres and Jeremy Brown, The University of Texas School of Law. 2014. Bond Financing Distributed Water Systems, 16 . <u>https://tapin.waternow.org/resources/bond-financing-distributed-water-systems-how-to-make-better-use-of-our-most-liquid-market-for-financing-water-infrastructure/</u>

²¹ Public water providers do have the option to issue taxable revenue bonds. While these are less favorable given that interest earned is not tax-free, they can be a viable mechanism is certain instances. How to keep bonds to finance turf conversions tax-free is explained in the <u>Limits on Tax-Exempt Governmental Bonds</u> section of the report.





²² Colo. Rev. Stat. §§ 31-35-401(7), 31-35-403(1), 32-1-1101(1)(d); see also Colo. Rev. Stat. § 32-1-103(20) (defining "special district" as a quasi-municipal corporation).

²³ Colo. Rev. Stat. §§ 31-35-401(7), 31-35-403(1), 32-1-1101(1)(d); see also Colo. Rev. Stat. § 32-1-103(20) (defining "special district" as a quasi-municipal corporation).

²⁴ Colo. Rev. Stat. § 31-35-401(7) (emphasis added).

²⁵ These materials are not offered as or intended to be legal advice. Readers should seek the advice of an attorney when confronted with legal issues. Attorneys should perform an independent evaluation of the issues raised in these materials. By providing these materials, WaterNow does not endorse, either expressly or by implication, their legality and expressly disclaims any and all liabilities and warranties related to use of these materials.

²⁶ WaterNow Alliance. 2021. Tap into Resilience Toolkit. Answering Legal Ouestions that Arise When Using Debt, Sources of Legal Authority. https://tapin.waternow.org/toolkit/?item=legal-authority. WaterNow Alliance. 2021. Tap into Resilience All Resources Library. MMSD: Conservation Easement.

https://tapin.waternow.org/resources/mmsd-conservation-easement/. Ed Harrington and Cynthia Koehler, WaterNow Alliance. 2018. Debt Funding for Water Conservation Programs, 27.

https://tapin.waternow.org/resources/debt-funding-for-water-conservation-programs/.

²⁷ 5 C.C.R. § 1002-51.

28 5 C.C.R. § 1002-51.

²⁹ 5 C.C.R. § 1002-52.

³⁰ 5 C.C.R. § 1002-52.

³¹ 5 C.C.R. § 1002-52.

32 5 C.C.R. § 1002-51.

³³ Beyond meeting eligibility requirements, SRF loan applicants must also fulfill certain procedural and administrative requirements. These are described in detail on the SRF Agencies' website. The first key step is completing the annual eligibility survey. The survey is not an application, and completing it does not require an application for financial assistance. It is, however, the way in which project proponents are listed on the SRF Agencies' annual eligibility list, which is a required pre-condition for submitting a loan application. ³⁴ WaterNow interview with Jim Griffiths, Finance Director, Colorado Water Resources & Power Development

Authority: Mark Henderson Unit Manager, Water Quality Control Division Grants and Loans Unit, Colorado Department of Public Health and Environment: and Desiree Santerre. Water and Wastewater Program Manager, Colorado Department of Local Affairs on October 8, 2020.

³⁵ CWCB. 2015. Colorado Water Plan. Chapter 6.3.1.

https://dnrweblink.state.co.us/cwcb/0/doc/199504/Electronic.aspx?searchid=80d50cb3-95bf-405c-bfa5-587c633c7136.

³⁶ CWCB. 2021. Water Plan Grant Program. Grant Guidelines.

https://dnrweblink.state.co.us/CWCB/0/edoc/215720/WaterPlanGrantCriteriaGuidelines 11152021.pdf. ³⁷ See CWCB. 2021. Water Plan Grant Program. Grant Guidelines.

https://dnrweblink.state.co.us/CWCB/0/edoc/215720/WaterPlanGrantCriteriaGuidelines_11152021.pdf. ³⁸ CWCB. 2017. Water Plan Grant Application. <u>https://dnrweblink.state.co.us/CWCB/0/edoc/206773/18-Feb-</u> The%20Meadows%20Neighborhood%20Company-Targeted,%20Integrated%20Irrigation%20Efficiency%20 Improvements%20and%20Management%20and%20Turf%20Conversion%20for%20Reduced%20Water%20Us e_%20Application%20Exh%20A,%20B,%20C.pdf?searchid=25441ec1-459c-400e-80a3-46422e69f6b0.

³⁹ For grants issued in 2021 and 2022, the Colorado legislature authorized CWCB to reduce match requirements. See Colorado Rev. Stat. § 37-60-106.3(6)(c). See also CWCB. 2021. Grant Guidelines.

https://dnrweblink.state.co.us/CWCB/0/edoc/215720/WaterPlanGrantCriteriaGuidelines_11152021.pdf. ⁴⁰ These 16 states are: Arizona, California, Colorado, Kansas, Montana, Nebraska, Nevada, New Mexico, North

Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming,

⁴¹ WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2022. September 2021. https://www.grants.gov/web/grants/view-opportunity.html?oppId=335103

⁴² Desert Water Agency, 2020, Desert Water Agency earns \$425,000 in Grants for Grass Removal Program. https://dwa.org/desert-water-agency-earns-425000-in-grants-for-grass-removal-program/

⁴³ Amelia Nuding, Western Resource Advovates and Todd Cristiano, Andrew Rheem, and

Melissa Elliott, Raftelis. 2018. A Guide to Designing Conservation-Oriented Water System Development Charges. https://3hzk7prghr33icsww1y4geu6-wpengine.netdna-ssl.com/wp-

content/uploads/2019/06/WRA_Guide-to-Conservation-Oriented-SDCs_web.pdf





⁴⁴ Further, conservation-oriented development charges can be structured to incentivize waterwise developments by charging lower development fees when developers meet specified indoor and outdoor efficiency requirements. This conservation-oriented structure incentivizes waterwise landscaping in new developments and avoids the need for future turf replacements. Conservation-oriented development charges are, thus, an incentive but not a financing mechanism.

⁴⁵ Rachel Brombaugh, McKinstry, Inc. and Jorge Figueroa, Western Resource Advocates. 2015. Tapping the Power of the Market: Energy Savings, Water Conservation, and New Revenue Streams Through Performance Contracting in the Colorado River Basin States, 11. <u>https://westernresourceadvocates.org/wp-</u>

content/uploads/dlm_uploads/2015/07/Tapping-the-Power-of-the-Market-Report_FINAL.pdf

⁴⁶ Colo. Rev. Stat. §§ 29-12.5-101(9), 29-12.5-102.

⁴⁷ Colo. Rev. Stat. §§ 29-12.5-101(9), 29-12.5-102.

48 Colo. Rev. Stat. § 29-12.5-102 (emphasis added).

⁴⁹ Rachel Brombaugh, McKinstry, Inc. and Jorge Figueroa, Western Resource Advocates. 2015. Tapping the Power of the Market: Energy Savings, Water Conservation, and New Revenue Streams Through Performance Contracting in the Colorado River Basin States, 12. <u>https://westernresourceadvocates.org/wp-</u> content/uploads/dlm_uploads/2015/07/Tapping-the-Power-of-the-Market-Report_FINAL.pdf

⁵⁰ Rachel Brombaugh, McKinstry, Inc. and Jorge Figueroa, Western Resource Advocates. 2015. Tapping the Power of the Market: Energy Savings, Water Conservation, and New Revenue Streams Through Performance Contracting in the Colorado River Basin States, 11. <u>https://westernresourceadvocates.org/wp-</u> content/uploads/dlm_uploads/2015/07/Tapping-the-Power-of-the-Market-Report_FINAL.pdf

⁵¹ International Water Association. 2018. <u>https://iwa-network.org/groups/performance-based-for-improving-utility-efficiency/</u>

⁵² Western Resource Advocates. Personal communication with Colorado Energy Office, DeLynne Southern, Technical Specialist. February 4, 2022.

⁵³ See GASB. 2010. Statement No. 62, Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements. ¶¶ 476-500.

https://www.gasb.org/jsp/GASB/Document_C/DocumentPage?cid=1176159967625&acceptedDisclaimer=true. See also WaterNow. 2019. Tap into Resilience Toolkit. How to debt finance localized infrastructure as a regulated asset. https://tapin.waternow.org/toolkit/?item=accounting-questions.

⁵⁴ Ed Harrington and Cynthia Koehler, WaterNow Alliance. 2018. Debt Funding for Water Conservation Programs, 28. <u>https://tapin.waternow.org/resources/debt-funding-for-water-conservation-programs/</u>.

⁵⁵ GASB. 2018. Implementation Guide No. 2018-1, Implementation Guidance Update – 2018. ¶¶ 4.4, 4.5. https://www.gasb.org/jsp/GASB/Document_C/DocumentPage?cid=1176170563952&acceptedDisclaimer=true. See also WaterNow. 2019. Tap into Resilience Toolkit. How to debt finance localized infrastructure as a regulated asset. https://tapin.waternow.org/toolkit/?item=accounting-questions.

⁵⁶ Melissa Kelly, University of California Irvine Center for Land, Environment, and Natural Resources and Caroline Koch, WaterNow Alliance. 2021. Tap into Resilience: Pathways for Localized Water Infrastructure. https://tapin.waternow.org/resources/pathways-for-localized-water-infrastructure/

⁵⁷ Melissa Kelly, University of California Irvine Center for Land, Environment, and Natural Resources and Caroline Koch, WaterNow Alliance. 2021. Tap into Resilience: Pathways for Localized Water Infrastructure. <u>https://tapin.waternow.org/resources/pathways-for-localized-water-infrastructure/</u>

⁵⁸ Melissa Kelly, University of California Irvine Center for Land, Environment, and Natural Resources and Caroline Koch, WaterNow Alliance. 2021. Tap into Resilience: Pathways for Localized Water Infrastructure. <u>https://tapin.waternow.org/resources/pathways-for-localized-water-infrastructure/</u>

⁵⁹ Melissa Kelly, University of California Irvine Center for Land, Environment, and Natural Resources and Caroline Koch, WaterNow Alliance. 2021. Tap into Resilience: Pathways for Localized Water Infrastructure. <u>https://tapin.waternow.org/resources/pathways-for-localized-water-infrastructure/</u>

⁶⁰ SNWA. Conservation Easement Template. 2018. <u>https://www.snwa.com/assets/pdf/restrictive-easement-sample.pdf.</u>

⁶¹ Americans United for Separation of Church and State Fund. Inc. v. Colorado, 648 P.2d 1072 (Colo. 1982). ⁶² 26 U.S.C. § 141.

⁶³ The Section 125305 of the December 11, 2021, version of the Build Back Better Act (H.R. 5376) would amend the federal tax code to clarify that water-related subsidies are excluded from income tax. Whether this bill will become law remains to be seen as of the writing of this report.

https://www.finance.senate.gov/imo/media/doc/12.11.21%20Finance%20Text.pdf.

⁶⁴ WaterNow. 2019. Tap into Resilience Toolkit. <u>www.tapin.waternow.org</u>.





Appendix A – Turf Rebate Programs in Colorado

Water Provider Name	Residential Program (Y/N)	CII Program (Y/N)	Turf Replacement Program Information	Link
Aurora Water	Y	Y	 Water-wise Landscape Rebate (Residential): Up to \$3,000 for residential water-wise landscape retrofits. Project must be at least 500 sqft. Landscape Design Program: Water Conservation offers free professional water-wise landscape designs to Aurora Water customers. Water-wise Landscape Award: Individuals and businesses are recognized for the hard work put into their water-wise landscapes. Three winers receive a credit on their water bill. Greatscapes Program: Offers income-qualified customers a free water-wise landscape replacement. (Residence must be owner-occupied with front yard of 1,800 sqft or less). Water-wise Landscape Rebate (Large Property): Only high water-use turf areas that are readily visible to the public are eligible. Potential areas are addressed on a case-by-case basis. Resource Central Lawn Removal Service: Up to \$1,250 (minimum of 500 sq ft) 	Waterwise Landscape & Z-Zone Rebate: https://www.auroragov.org/cms/One.a spx?portalId=16242704&pageId=165 99022 Greatscapes Program: https://www.auroragov.org/residents/ water/water_conservation/Greatscape sProgram
Castle Rock Water	Y	Y	ColoradoScape Turf Renovation (Residential) : \$1.20 per sq ft rebate for residential turf that is removed. Minimum area of 400 sq ft (or the entire front yard) of turf removal and a maximum rebate amount of \$1,800.	ColoradoScape Turf Renovation: http://crconserve.com/rebates





Water Provider Name	Residential Program (Y/N)	Cll Program (Y/N)	Turf Replacement Program Information	Link
			ColoradoScape Turf Renovation (Non-Residential) : \$1.20 per sq ft rebate for non-residential turf that is removed. Minimum area of 1,500 sq ft of turf removal and a maximum rebate amount of \$18,000.	
Centennial Water & Sanitation District	Y	Y	Residential Turf Replacement Rebate: \$1 per sq ft rebate for the removal of any high-water-use plant material and replacement with Xeric or drought tolerant vegetation. \$250 minimum rebate (250 sq. ft.) per location; \$1,000 maximum rebate (1,000 sq. ft.) per location. Commercial Turf Replacement Rebate: Offered on a case-by-case basis and typically coupled with rebates for irrigation improvements.	Turf Replacement Program: https://centennialwater.org/water- conservation/incentive-programs/#turf
City & County of Broomfield	Y	Ν	Resource Central Lawn Removal Service: Up to \$500 (minimum of 200 sq ft) Free Garden in a Box Kits	
City of Arvada	Y	Ν	Resource Central Lawn Removal Service: Up to \$500 (minimum of 200 sq ft) Free Garden in a Box Kits	
City of Boulder	Y	Ν	Resource Central Lawn Removal Service: Up to \$500 (minimum of 200 sq ft) Free Garden in a Box Kits	





Water Provider Name	Residential Program (Y/N)	CII Program (Y/N)	Turf Replacement Program Information	Link
City of Brighton Utilities	Y	N	Lawn Removal Rebate : \$1 per sq ft rebate for replacing water-thirsty lawns with low water use landscape.	
City of Fountain	Y	Ν	Resource Central Lawn Removal Service: Up to \$1,000 (minimum of 200 sq ft) Free Garden in a Box Kits	
City of Lafayette	Y	Ν	Resource Central Lawn Removal Service: Up to \$500 (minimum of 200 sq ft) Free Garden in a Box Kits	
City of Longmont	Y	Ν	Resource Central Lawn Removal Service: Up to \$750 (minimum of 200 sq ft) Free Garden in a Box Kits	
City of Louisville	Y	N	Resource Central Lawn Removal Service: Up to \$500 (minimum of 200 sq ft) Free Garden in a Box Kits	
City of Northglenn	Y	Ν	Turf Replacement Rebate : \$1 per square foot of removed turf as a credit toward owner's water bill. Must replace between 200 sq ft and 1000 sq ft of turf.	Northglenn Turf Replacement Rebate: https://www.northglenn.org/Departme nts/Public%20Works/Water/Water%20 Conservation/Rebate%20Policy%20Fin e%20Print.pdf





Water Provider Name	Residential Program (Y/N)	CII Program (Y/N)	Turf Replacement Program Information	Link
			Resource Central Lawn Removal Service: Up to \$1,250 (minimum of 200 sq ft) Free Garden in a Box Kits	
City of Thornton	Y	Υ	 Residential Water-Wise Landscape Rebate: Up to \$1 per sq ft for turf replaced with low-water grass seed areas and up to \$2 per sq ft for perennial gardens and other projects. Commercial Water-Wise Landscape Grant: Projects may qualify for a grant that assists with 50% of the cost of design, renovation and installation, up to \$10,000 per acre with a maximum amount of \$50,000 per property. 0.5 acres minimum; 5 acres maximum. Resource Central Lawn Removal Service: Up to \$500 (minimum of 200 sq ft) Free Garden in a Box Kits 	Waterwise Landscape Rebate: https://www.thorntonwater.com/rebate s-free-services
City of Westminster	Y	N	Resource Central Lawn Removal Service: Up to \$1,000 (minimum of 200 sq ft) Free Garden in a Box Kits	





Water Provider Name	Residential Program (Y/N)	CII Program (Y/N)	Turf Replacement Program Information	Link
Colorado Springs Utilities	Ν	Y	 Business Turf to Native Grass Conversion Rebate: \$0.09 to \$0.18 per sq ft for turf to native grass conversion; up to \$20,000 per customer. Available for conversion of large areas (over 5,000 sq ft) to a native or lower water use grass. 	Turf to Native Grass Conversion: <u>https://www.csu.org/Pages/BusinessIr</u> <u>rigation.aspx</u> <u>https://www.csu.org/Documents/Gras</u> <u>sConversionSeedingGuidelines.pdf?csf</u> <u>=1&e=3w3Tg4</u>
Fort Collins Utilities	Y	Y	Residential Xeriscape Incentive Program (XIP): \$0.75 per sq ft rebate up to 1,000 square feet - or \$750 - per approved project. Offers an additional \$0.25 per sq ft rebate up to 1,000 square feet - or \$1,000 - for projects planting a minimum of 80% plants native to Colorado. Commericial Xeriscape Incentive Program (XIP): Eligible properties can receive up to \$1.50 per sq ft of area converted up to \$15,000 per project if the proposed project demonstrates long-term water reduction through landscape transformation. Funds are limited.	Residential Xeriscape Incentive Program: <u>https://www.fcgov.com/utilities/reside</u> <u>ntial/conserve/water-</u> <u>efficiency/xeriscape/incentive-program</u> Commercial Xeriscape Incentive Program: <u>https://www.fcgov.com/utilities/xipxl</u>
Greeley Water	Y	Y	Life after Lawn Program : \$1 per sq ft rebate for converted turf. Rebates available for between 500 sq ft and 2,000 sq ft for residential properties and between 5,000 sq ft to 20,000 sq ft for commercial or HOA properties.	Life after Lawn Program: https://greeleygov.com/services/ws/co nservation/life-after-lawn





Water Provider Name	Residential Program	Cll Program (Y/N)	Turf Replacement Program Information	Link
Little Thompson Water District	Υ	Ν	 Water-Saving Plants Rebate: Up to \$250 for installing approved water-saving plants according to program specifications. Water-Saving Trees Rebate: Up to \$150 for installing approved water-saving trees according to the program specifications. Soil Amendment Rebate: Up to \$500 for the addition of approved soil amendment in areas being prepared for plants and grass. Resource Central Lawn Removal Service: Up to \$1,000 (minimum of Context) 	Water-Saving Plants Rebate: <u>https://littlethompsonwd.colorado.gov/</u> <u>sites/littlethompsonwd/files/document</u> <u>s/Waer%20Saving%20Plants%20Rebat</u> <u>e%2020210825.pdf</u> Water Saving Trees Rebate: <u>https://littlethompsonwd.colorado.gov/</u> <u>sites/littlethompsonwd.files/document</u>
			200 sq ft) Free Garden in a Box Kits	s/Water%20Saving%20Trees%20Rebat e%2020210825.pdf
Northern Water	Ν	Υ	Collaborative Water-Efficient Landscape (WEL) Grant : The program is open to public and private commercial facilities within Northern Water's boundaries. The maximum amount that will be awarded per project is \$20,000 (a matching amount is required) with a 1,000 sq ft minimum for projects (smaller projects may be considered if they offer unique edication opportunities).	Collaborative Water-Efficient Landscape (WEL) Grant: <u>https://www.northernwater.org/getme</u> <u>dia/68ab90ba-65c2-46cd-be87-</u> <u>253757e78ddc/FS_Grant-Program</u>
Town of Berthoud	Y	Ν	Resource Central Lawn Removal Service: Up to \$1,000 (minimum of 200 sq ft) Free Garden in a Box Kits	





Water Provider Name	Residential Program (Y/N)	CII Program (Y/N)	Turf Replacement Program Information	Link
Town of Erie	Y	Y	 Turf Replacement Rebate Program: Up to \$2 per sq ft for low water use garden plantings and \$1 per sq ft for low water grass rebates, with a maximum of \$2,000. Projects must replace a minimum of 200 sq ft with a maximum of 1,000 sq ft. Resource Central Lawn Removal Service: Up to \$1,000 (minimum of 200 sq ft) 	
Willows Water District	Y	Ν	Resource Central Lawn Removal Service: Up to \$1,000 (minimum of 200 sq ft) Free Garden in a Box Kits	





Appendix B – Interview Questions

Interview Questions:

- 1. We would like to hear more about your turf replacement program:
 - a. When was it established?
 - b. What was the motivation for implementing the program?
 - c. What are the program details and who is eligible?
 - i. Residential? CII?
 - d. What level of participation from customers do you typically experience?
 - e. Do you have any estimates of water saved and/or square footage removed?
 - f. Are there any other qualitative or quantitative metrics you track? (e.g., customer satisfaction)
 - g. Does the program have goals for participation numbers or AF-saved? If so, is the program achieving these goals (e.g., seeing decreases in water use)?
 - h. Do you have an idea of the potential savings that could be realized through turf replacement in your community?
 - i. How is the program funded and is funding sustainable? Have you considered alternative funding sources for the program compared to what you are already using?
 - j. How do you advertise the program? What advertising mechanisms are most effective?
- 2. Any specific lessons learned from the program?
 - a. Are there any barriers limiting the size of the program? (e.g., funding, staff capacity, customer demand, political will)
 - b. Do your elected leaders support the program?
 - c. Are there any changes you would like to see made?
 - d. Do you have plans to make any of these changes?
 - e. Do you get much feedback from participants?
 - f. Why do you think that some customers are motivated to participate in the program and others choose not to?
 - g. What types of landscapes are you seeing being put in after the turf is removed? Are there program limitations around what must be installed?
 - i. Are these the types of landscapes you were hoping for?
 - 1. If not, any thoughts about how to get proper landscaping in?
 - h. Do you find the experience and expertise of the landscape company matters? (e.g., would Qualified Water Efficient Landscaper certified professionals help?)
 - i. Were there any outside resources that were particularly helpful to you/your utility in developing your turf replacement program? Or that would have been helpful in getting it off the ground?
- 3. For Colorado communities: Any thoughts in general as to how Colorado as a state could help your community and others accelerate turf replacement?
- 4. Anything else about your turf replacement program you would like to mention?





Appendix C – Case Studies

WaterNow and WRA conducted six informational interviews with communities in Colorado and the western U.S. that broadly represent existing turf replacement rebate programs with the goals of better understanding these programs, evaluating their scope, highlighting lessons learned, and documenting finance mechanisms. Summaries are detailed below:

Moulton Niguel Water District, CA Castle Rock Water, CO Desert Water Agency, CA Fort Collins Utilities, CO City of Peoria, AZ Colorado Springs Utilities, CO

A. Moulton Niguel Water District, CA | NatureScape Program

Background

Moulton Niguel Water District has established three distinct turf removal programs: NatureScape, Commercial Turf Removal, and Residential Turf Removal. NatureScape is a Turf-to-Native Garden direct install program that helps residential customers replace turf with a native, watershed-friendly landscape. Moulton Niguel covers \$4 per square foot for turfgrass replacement.^{xvi} Customers also receive a free pre-qualification landscape and irrigation assessment, and 50% off landscape design fees. Projects must be between 250 – 3000 square feet to be eligible, and most are completed in 8 weeks. NatureScape typically has about 80 applicants per year.

Moulton Niguel's Residential Turf Removal and Commercial Turf Removal rebate programs both offer customers \$4 per square foot. The Residential Turf Removal has a maximum of 3,000 square feet and the Commercial program has a maximum of up to 10,000 square feet; however, customers are able to exceed these thresholds with board approval. These programs are operated at the regional scale through the Municipal Water District of Orange County and Metropolitan Water District of Southern California (MWD). Because these are both rebate programs, rather than a direct install program like NatureScape, the process from start to finish (i.e., from the start of application to receiving final check) takes somewhat longer. On average, Moulton Niguel Water District has 140 applicants for the residential program and 11 applicants for the commercial program may be attributable to the workshop required for participation in the NatureScape program and that NatureScape is a locally advertised program, not included in the broader regional advertising across Southern California.

^{xvi} Any difference in the cost of the turfgrass replacement not covered by the \$4 per square foot is the responsibility of the property owner. Customers can use Mouton Niguel's NatureScape Rebate Calculator to receive an instant cost estimate based on project size by visiting their website at: https://gram.mnwd.com/naturescaperebatecalculator/





Step-by-Step NatureScape Direct Install	Step-by-Step Residential and Commercial Turf
Program Details:	Removal Program Details:
 Attend Landscape Workshop Apply for Program Pre-Qualification Assessment Landscape Design Turf Removal Landscape Installation Post Installation Education Projects are complete in as little as 8 weeks. 	 Select Landscape Contractor and Designer, or Do It Yourself (for residential customers) Appy for the Program Pass Pre-Inspection Notice to Proceed Turf Removal Landscape Installation Notification of Completion Pass Post-Inspection Provide Receipts Receive Rebate Check (in 30 – 60 days for commercial customers; in 10 – 12 weeks for residential customers)

Water Savings Results

Both of Moulton Niguel's Regional Turf Removal Programs (the Residential Turf Removal and Commercial Turf Removal programs) have been successful in reducing outdoor water usage throughout Orange County. Moulton Niguel partnered with the University of California, Riverside to perform a comprehensive evaluation on their regional rebate programs and found that turf removal saves 44 gallons of water per square foot annually. The NatureScape Program has only been active since December 2017, and they intend to evaluate the water savings of this program once they have enough complete NatureScape installations (and after a three-year plant establishment phase), ideally beginning in 2023.

Across all three programs, Moulton Niguel Water District has removed 5.74 million square feet of turf resulting in 250 million gallons of water saved annually; over 100,000 square feet of turf has been removed through the NatureScape Program.^{xvii} Moulton Niguel Water District expects to see more projects and an increase in water savings as the program continues to grow.

Financing Mechanisms

Moulton Niguel Water District has established a water budget-based rate structure and dedicates funds from customers who exceed their water budgets into a special water efficiency fund. Moulton uses this water efficiency fund to support all three of its turf replacement programs. The Water District was recently able to increase their rebate amount, from \$2 to \$4 per square foot, with additional funding received from MWD's Member Agency Administered Program and the WaterSMART Grant Program. With this increased rebate amount, Moulton Niguel has seen an increase in applications as compared to previous years.

xvii Personal communication with Lindsey Stuvick, Moulton Niguel Water District (September 27, 2021 and January 13, 2022).





Challenges and Lessons Learned

Moulton reports that some HOAs have specific landscape design criteria that are incompatible with the District's turf removal program requirements. For example, HOAs may have a limited approved plant list, or preclude rocks larger than 6 inches, in addition to other restrictions. To help HOAs learn more about sustainable landscaping choices, the District annually partners with 16 local cities and water agencies to host H2O for HOAs, a networking and education event for HOA board members, property managers, and professional landscapers (mnwd.com/h2o-for-hoas). The event features guest speakers on a range of topics, including but not limited to: sustainable stormwater management, watershed-friendly landscape design, California native plants, and technical irrigation topics.

In connection with its residential turf replacement programs, Moulton reports that many customers are unfamiliar with best management practices for plant selection, watering, and maintenance of native and low-water landscapes. A common mistake is that residents overwater their native plants in the summer because they come from different climates where they're accustomed to applying more water during the summer heat. To assist customers, Moulton Niguel hosts 20 sustainable landscape workshops each year and has educated over 3,000 attendees on the benefits of California native plants, watershed-friendly design, as well as maintaining native plants and healthy soil in the landscape. The District is working hard to encourage participation in their educational programming through their NatureScape program and they hope to continue to grow this in the future through more demonstration gardens and through their NatureScape Garden Tour, now inperson and online (mnwd.com/naturescape-garden-tour).

B. Castle Rock Water, CO | ColoradoScape Program

Background

Castle Rock Water aims to help their customers reduce their use of potable water for outdoor landscaping through its Residential and Non-residential ColoradoScape^{xviii} Renovation rebate programs. The utility reports that these rebate programs have been very successful and are generating their greatest water savings compared with other conservation initiatives offered (e.g., rebates for Smart Irrigation Controller, Rotary Nozzle, Toilet Retrofit, etc.).

The Residential ColoradoScape Renovation rebate program encourages residential water customers to replace water-thirsty plant material, such as Kentucky bluegrass, with waterwise landscapes. Customers can receive a rebate of \$1.10 per square foot for removing at least 250 square feet of healthy, high-water-use plant material and replacing it with low- or no-water alternatives. The maximum rebate amount is \$1,500. Appropriate changes or reductions in the irrigation system also must be completed. To take advantage of this rebate, residential customers must complete a Water Wiser Workshop^{xix} and meet other program requirements. Since program inception in 2009, Castle Rock Water has provided rebates for 30-50 projects per year.

Castle Rock's Non-residential ColoradoScape Renovation rebate program encourages "non-residential" water customers (commercial users and HOAs) to replace high-water-use plant material into waterwise landscapes. The rebate amount offered is also \$1.10 per square foot, but the minimum area is 1,500 square feet (compared with 250 square feet for residential properties), and the maximum rebate amount is \$15,000 per account. Appropriate changes or reductions in the associated irrigation system also must be completed. Applicants are not required to participate in a

xviii Castle Rock Water has defined ColoradoScape as, "A natural landscape, comprised of low to very-low water use plant material, which blends in with the native Castle Rock landscape. Plant material must be maintained in its natural, native form. This landscaping uses a combination of hardscape and landscape materials, providing a variety of colors, textures, sizes, shapes, and seasonal interest."

xix Essentially a three-hour "irrigation 101" course. Learn more at: https://crconserve.com/101/Learn-to-Conserve





Water Wiser Workshop since the vast majority – if not all – of these conversions are completed by landscape professionals. There has been substantially less use of the Non-residential program since its inception in 2018, which may be because of the relatively new launch of the program. The Non-residential ColoradoScape Renovation has completed 3-9 projects per year.

Water Savings Results

Both of Castle Rock's ColoradoScape Renovation programs have been successful in reducing outdoor water usage. The residential program has shown a 19% reduction in outdoor water use for participants and has removed approximately 217,980 square feet of turfgrass since 2015. The newer non-residential program, while under-utilized, also is showing success and has led to the removal of approximately 180,000 square feet of turfgrass resulting in a 29% reduction in outdoor water use for these properties.^{xx} These results indicate that, as in other areas, engaging larger property owners can generate substantial benefits.

In July 2021, the Colorado Legislature passed <u>House Bill 21-1229</u> which prohibits HOAs from banning xeriscape, among other protections for property owners interested in installing energy-efficient and other sustainable technologies. With over <u>10,000 HOAs</u> in Colorado representing 2.6 million people (45% of the population), this change to Colorado law eliminates a significant barrier to turf replacements on residential property.

Financing Mechanisms

Funding for both the Residential and Non-residential ColoradoScape Renovation programs comes from water fees collected either through Castle Rock Water's tiered billing structure and water conservation surcharge, or fines collected during water restriction periods.^{xxi} Historically, the budgets for the residential and non-residential programs were separate and varied (\$45,000 for the residential and \$100,000 for the non-residential over the last few years). Typically, each year the residential budget is exhausted well before satisfying consumer demand, therefore resulting in many applicants becoming waitlisted for the program. Within the last year, Castle Rock Water has combined the budget for both the residential and non-residential programs, totaling to \$145,000. Since this budget decision has been implemented, Castle Rock Water has not had to waitlist any program applicants or run out of funds.

Challenges and Lessons Learned

Castle Rock Water reports that HOAs can be a major barrier for residents seeking to participate in the residential program due to restrictions on approved landscaping. As a result, HOAs may not be inclined to approve alternative types of low-water landscaping. Castle Rock Water has worked closely with many property managers and HOAs to educate them about the benefits of replacing turfgrass with ColoradoScape designs, with the intent of increasing participation from more HOAs in the future.

xx Personal communication with Linda Gould, Castle Rock Water (October 13, 2021 and January 3, 2022).

^{xxi} The water conservation surcharge is an amount of money that is added to accounts that use over 40,000 gallons in a single month, per the tiered billing structure. Additionally, water violation fines are collected during water restriction periods (watering days are every third day, based on the last number of the address) and range in cost from \$25 to \$800; Castle Rock Water issues violations for watering during the wrong day, wrong time, or for water waste.





On the non-residential side, funding limitations are a major challenge. These larger projects typically require landscape professionals raising the price tag to tens of thousands of dollars compared to far more modest single-family residential installations. Therefore, the relatively low \$1.10 per square foot rebate is typically not adequate to offset applicants' costs quoted for the landscape retrofit.

C. Desert Water Agency, CA | Grass Removal Incentive Program

Background

As its name suggests, Desert Water Agency (DWA) is not awash in water. Its service area, the Coachella Valley, is one of the driest regions in California, receiving only about 3 inches of rain per year on average. To address its water supply challenges, DWA has established grass removal incentive programs; they have a Residential Program, and a Commercial and HOA Program, both with fairly similar incentive amounts and requirements.

DWA offers \$2 per square foot for residential, HOA, and commercial customers, and \$3 per square foot for government customers. Both programs have reasonable and sustained participation; recent years have had nearly 100 projects per year, with about 80% of the projects at single-family homes. To receive the incentive, grass must be present when applying for the rebate, and replaced landscapes must be comprised of some form of ground cover (cannot just be bare dirt); artificial turf is eligible. Most customers hire landscape professionals to complete their projects rather than completing the project on their own.

Water Savings Results

Desert Water Agency has one of the more successful turf removal programs across the Western US. Since 2014, approximately 2.3 million square feet of turfgrass has been removed through their program.^{xxii} Desert Water Agency has yet to determine the best metric for calculating annual water savings, since localized site conditions such as weather, irrigation systems, and types of converted landscapes can vary drastically between each project. In the past, DWA has referenced Southern Nevada Water Authority's rule of thumb that turf replacement saves 55 gallons of water per square foot annually. However, DWA staff indicates that as the program grows, the agency plans to develop water savings metrics, since the many variables at play make it difficult to quantify savings with accuracy.

Financing Mechanisms

DWA pays for both of its grass removal programs primarily with grant funding from the California Department of Water Resources Integrated Water Management Program and the US Bureau of Reclamations Small-Scale Water Efficiency Program. State grants are able to serve as part of the required matching funds for the federal grants, and vice versa. DWA supplements the turf program budget with "mitigation funding" (roughly \$100,000) from a local as plant that has to offset its environmental impacts. In 2021, DWA reported annual combined budget for all of the turf programs was \$1,041,000, and it was on track to use the entire budget. As the program continues to grow, and as funding allows, Desert Water Agency hopes to offer higher incentives to disadvantaged communities.

xii Personal Communication with Ashley Metzger, Desert Water Agency (September 17, 2021 and December 22, 2021).





Challenges and Lessons Learned

DWA aspires to increase their incentive amount for disadvantaged communities through grants specific to these customers. This will help customers who could not afford the landscape conversion cover more of the cost. Although Desert Water Agency's turf replacement programs are better funded than similar programs around the West, funding has been a limiting factor for a utility interested in substantially growing these programs. DWA wants to make its Grass Removal Incentive as accessible and equitable as possible and believes that increasing the incentive amount would enable them to serve more customers.

DWA has also faced some challenges in addressing customer expectations. Staff reports that customers frequently overestimate the total square footage to be converted on their applications, which has resulted in DWA not providing as high a rebate as the customer expected or potentially even rejecting the project after the site inspection. To alleviate this challenge, the agency is considering removing this application question so that there isn't a discrepancy between customer expectations and reality.

Customer landscape conversions are most successful when paired with other behavioral changes. This includes reprogramming irrigation controllers or adjusting the frequency and amount of water plants receive. Additionally, DWA performs outreach and shares informational books and flyers to teach residents about how much water their landscape needs. This helps maximize savings and ensures customers get as much benefit as possible out of their landscape conversions.

D. Fort Collins Utilities, CO | XIP (Xeriscape Incentive Program)

Background

Fort Collins Utilities' Xeriscape Incentive Program (XIP) is a comprehensive, education-based program offering residential, HOA and commercial water customers a rebate for transforming high-water-use areas to waterwise landscapes. Residential participants receive a \$0.75 per square foot rebate for up to 1,000 square feet, or up to \$750 per approved project, per address. In partnership with Nature in the City^{xxiii}, the program offers an additional \$0.25 per square foot rebate for up to 1,000 square feet, or up to \$1,000 total, for projects with a minimum of 80% plants native to Fort Collins or Colorado. Since 2016, participation in the residential XIP program has grown more than fourfold, with 16 projects completed in 2016 and 69 projects completed in 2021.

Applicants must attend a 2-hour educational XIP Basics training course prior to enrolling in the program. Fort Collins Utilities also offers one-on-one consultations for applicants to discuss landscape designs and irrigation systems with Utilities experts. All landscape and irrigation plans must be approved by the XIP prior to installation.

The HOA and Commercial XIP is designed to help larger customers (multi-family complexes, faithbased organizations, schools, parks, government entities, and more) save water outdoors. Eligible properties can receive up to \$1.50 per square foot of area converted up to \$15,000 per project. The proposed project must be able to demonstrate long-term water reduction through landscape transformation. Applicants must provide a financial match at least equivalent to the XIP grant amount received (in-kind services are not counted toward the match). The HOA and Commercial XIP was developed in 2019 and has had growing participation, with 7 projects in 2019 and 12 projects in 2021.

^{xxiii} Nature in the City is a program developed by the City of Fort Collins to better integrate nature into development projects. Learn more here: https://www.fcgov.com/natureinthecity/project-info.php





Water Savings Results

Fort Collins reports that both the Residential and HOA and Commercial XIPs have been successful in reducing outdoor water usage. The Residential XIP has achieved a 6.8 gallons per square foot savings (39%) and has removed approximately 362,975 square feet of high-water-use landscapes since 2016.^{xxiv}

Although the HOA and Commercial XIP has only been in place for a few years, it has shown an 8 gallons per square foot water savings (50%) and has removed approximately 670,730 square feet of high-water-use landscapes. ^{xxv} The 2020 program year shows the cost of the Commercial XIP is \$79 per 1,000 gallons of water reduced, a 39% savings over developing new water supplies.

Financing Mechanisms

Fort Collins allocates \$57,800 from the Utilities' annual water conservation budget to the Residential XIP. For the past few years, the HOA and Commercial XIP program has been funded by grants from both the Bureau of Reclamation's Small-scale Water Efficiency Program (BOR-SWEP) and the Colorado Water Conservation Board Water Plan Grant, totaling \$140,000. Fort Collins Utilities was recently awarded another BOR-SWEP grant for \$70,000 through 2023. Additionally, in November 2021, Fort Collins City Council adopted an annual operating budget of \$70,000 for the program, starting in 2022.

Challenges and Lessons Learned

Fort Collins' Residential and HOA and Commercial XIPs have been very successful with program participation and implementation, and the utility plans to continue to offer these programs as funding and staff resources allow.

Commercial and HOA XIP participants must obtain proper permits through the City of Fort Collins zoning department prior to construction of their project. This step may be perceived as a barrier to some applicants, especially those who are less well-versed in landscape regulations and the permitting process. Fort Collins Utilities has acknowledged this as a challenge, and is working closely with the zoning department and their customers to help set them up for success during this arduous process.

E. City of Peoria, AZ | Xeriscape Rebate Program

Background

In response to Arizona state law requiring cities to have water conservation programs,^{xxvi} the City of Peoria has developed four water rebate options, including a Xeriscape Conversion Program for Existing Homes and a separate Xeriscape Rebate for New Homes. All Peoria water customers who opt for xeriscape landscaping for their home are eligible to apply to one of the programs.

xviv Personal communication with Katie Collins, Fort Collins Utilities. Personal communication with authors. September 17, 2021 and December 15, 2021.

xxv Ibid.

xxvi Arizona Revised Statute § 45-342





For Peoria, Xeriscape refers to seven principles, which if used property, ensure that landscapes are water-efficient, yet creative and colorful:

- Proper landscape planning and design
- Low-water-use plants
- Appropriate turf areas
- Efficient irrigation
- Soil improvements
- Use of mulches
- Appropriate maintenance



To be eligible for the New Home Xeriscape Rebate Program, the application for the rebate must occur within 1 year of the home purchase, and 50% or more of the total landscaping area (front and back) must be xeriscape landscaping. Customers are credited \$150 to their account after inspection of property and approval. The City of Peoria receives and approves only about 5 – 10 applications for the New Home Rebate Program each year, possibly due to the low rebate level.

The Xeriscape Conversion Rebate Program was developed in 2004 and applicants must have a property with a minimum of 500 square feet of grass area that will be replaced with xeriscape (artificial turf does not count toward the total). The rebate amount is tiered at 500-square-foot intervals (up to 3,000 square feet, and then by 1,000-square-foot intervals) and varies depending on the percentage of low-water-use plant material installed (25% vs 50%) (**Table 1**). To receive the maximum rebate amount of \$1650, at least 50% of the conversion area (at maturity) must have low-water-use plant material installed.

Total Square Footage of Turf Removal with 50% Low- Water-Use Plant Coverage	Rebate Amount (Up To)	Total Square Footage of Turf Removal with 25% Low-Water- Use Plant Coverage	Rebate Amount (Up To)
500 - 999	\$225	500 - 999	\$90
1000 - 1499	\$375	1000 - 1499	\$150
1500 - 1999	\$525	1500 - 1999	\$210
2000 - 2499	\$675	2000 - 2499	\$270
2500 - 2999	\$825	2500 - 2999	\$330
3000 - 3999	\$1,050	3000 - 3999	\$420
4000 - 4999	\$1,350	4000 - 4999	\$540
5000+	\$1,650	5000+	\$660

Table 1: City of Peoria Xeriscape Rebates

The Xeriscape Conversion Rebate Program receives about 50 applications per year; about 30 are fully completed each year. Similar to the New Home Rebate Program, City of Peoria water customers receive the rebate as a credit on their account after inspection and property approval.

Water Savings Results

The City reports that both the New Home Rebate Program and the Xeriscape Conversion Rebate Program have been successful in reducing water usage throughout Peoria. The City has observed that the xeriscape programs have reduced the total home water use on participating properties by





30% – 40%.xxvii Over the last two years, 2020 and 2021, the two programs have removed approximately 43,000 square feet and 61,000 square feet of turfgrass, respectively.xxviii The program is expected to continue to grow as drought conditions worsen in the region and their budget allows.

Financing Mechanisms

All of Peoria's water conservation rebate programs are funded under their Water Conservation and Sustainability Program. The budget for this program is covered by enterprise funds from the City's water bills. In the last two years, the entire Conservation and Sustainability Program budget has increased from \$50,000 to \$70,000. The amount allocated for the xeriscape rebate programs varies. In 2020, the two programs received \$8,000 (16% of the total water conservation budget); in 2021, the budget was \$13,000 (19% of the total water conservation budget).

Challenges and Lessons Learned

The primary challenge as reported by Peoria staff is the role of artificial turf. Artificial turf is not eligible for either the New Home Rebate or Xeriscape Conversion Rebate Programs. However, many customers choose to install artificial turf since they are still eligible for the rebate as long as they meet the 25% minimum low-water-use plant material within the converted area. The City of Peoria has received some pushback by customers who advocate for the inclusion of artificial turf as part of the rebate program. As a result, staff have been working diligently to educate their customers on the drawbacks of artificial turf (e.g., increased urban heat island effect, life cycle and return on investment, impacts of artificial turf on watershed health and landfills, etc.) while simultaneously providing more educational materials on the benefits of low-water-use plants.

Additionally, the Xeriscape Conversion Rebate Program is not currently open to HOAs or commercial enterprises because of development and planning code challenges. Non-residential properties must go through a thorough landscape design and review process, as detailed in the City's planning code, which can be a costly and lengthy endeavor for customers wanting to participate in the rebate program. The City of Peoria would like to open up their rebate program to non-residential customers in the future, but are not yet at a place to successfully implement and administer an effective program because of some of these perceived barriers.

F. Colorado Springs Utilities, CO | Business Turf to Native Grass Conversion Incentive

Background

In something of a contrast with Peoria, AZ, Colorado Springs Utilities specifically focuses its turf replacement program on its CII customers and provides rebates only for replacing turfgrass to an approved grass mix (**Table 2**), instead of other types of waterwise landscaping options. After a few years of successful turf removal and irrigation system updates throughout the city's parks, in 2018, Colorado Springs Utilities began offering this conversion program to their CII customers. Conversion of high-water-use turfgrass to alternative turfgrass or native grasses can provide significant water savings, up to 80% in some cases (**Table 2**).^{xxix} Colorado Springs Utilities believes that this is the easiest

^{xxvii} While Peoria is unable to separate and quantify indoor vs outdoor water use on residential properties, their assumption that the reduction in use is attributable to the xeriscape program appears credible in that there does not appear to be another particular driver reducing indoor water use, which is generally constant across the year. ^{xxviii} Personal communication with Victoria Caster and Andy Lombardo, City of Peoria (October 25, 2021 and December 15, 2021).

xxix Colorado Springs Utilities. Business Turf to Native Grass Conversion Incentive. Seeding Guidelines and Savings Estimates. Accessed December 22, 2021.

https://www.csu.org/Documents/GrassConversionSeedingGuidelines.pdf?csf=1&e=3w3Tg4#:~:text=To%20encourage%2 Obusiness%20customers%20to.and%20maintenance%20reduction%20options%20available





and most cost-effective water and maintenance reduction option available to their customers, since many native grass landscapes require very minimal supplemental irrigation once established.

Multiple conversion options are available with different water savings and incentive amounts, ranging from \$0.09 - \$0.18 per square foot, with a maximum rebate amount of \$20,000 per customer per year (**Table 2**). Unlike the other case studies, Colorado Springs is focused solely on lowwater grass seeded areas, which are far less expensive to design, install and maintain than other water-efficient landscape conversion projects (e.g., installing trees, shrubs, and perennials). As a result, the return on investment is attractive to customers, ranging from 1 to 3 years. The rebate amount is derived from the value of the projected irrigation water savings of 30%-60% (ranging from 8 to 16 inches on average). Colorado Springs Utilities has evaluated and implemented a traditional "xeriscape rebate" multiple times, but because of the high project and program administration costs required, the cost-benefit ratio is significantly less favorable than other water conservation programs.

Table 2: Colorado Springs Utilities Co	nversion Options and Rel	bate Amounts

Type of Conversion	Potential Water Savings Range	Assumed Annual Water Savings (%)*	Rebate Amount**
Warm Season Lawn or Prairie	50% - 80%	60%	\$0.18
Low Maintenance Prairie	40% - 80%	60%	\$0.18
Cool Season Prairie or Lawn	25% - 50%	30%	\$0.09
Shady Waterwise Lawn	10% - 40%	30%	\$0.09

* Assumes water savings compared to a high-water-using grass like Kentucky bluegrass.

** Maximum total rebate amount per customer is \$20,000 per year.

The most active participant in the turf conversion program is the Colorado Springs Parks & Recreation Department. Each year, the program receives interest from 3 – 10 potential CII applicants, and the program typically funds two conversion projects on average (beyond Parks & Recreation Department projects).

Water Savings Results

Colorado Springs Utilities reported that native grass conversion projects through the Parks & Recreation Department have achieved an approximately 50% reduction in outdoor water use.xxx Overall, the Colorado Springs Utilities program has removed approximately 1.8 million square feet of turfgrass since 2013.xxxi

Financing Mechanisms

The Business Turf to Native Grass Conversion Incentive program is funded through the utility's Operations & Maintenance (O&M) annual budget, which pays for a variety of other rebate programs as well (e.g., irrigation equipment rebates, smart thermostat rebate, etc.). The O&M budget allocates \$25,000 to the turf to native grass conversion incentive program.

Challenges and Lessons Learned

A primary challenge Colorado Springs Utilities reports is a lack of awareness regarding the benefits of native grasses for customers, as well as limited experience with the best practices about how to install and maintain these seed types. For example, some landscape professionals in the area have less experience with native grass (low-water) seed mixes and are more accustomed to using seed mixes that include high-water-use grasses (which are ineligible for the incentive program). In some

 ^{xxx} Colorado Springs Utilities has yet to calculate water savings for their other CII conversion projects outside of the city's parks.
 ^{xxxi} Personal communication with Catherine Moravec, Lance Ackerman, and Lisa Pace, Colorado Springs Utilities (September 14, 2021 and December 22, 2021).





cases, native seed mixes may fail to germinate for various reasons including wrong seeding time, poor seed-to-soil contact, lack of moisture, herbivory, weather, weed invasion, etc. Therefore, landscape professionals often stick with a seed mix they feel certain they can be successful with to avoid having to reseed a project. As a result, the utility reports a need for more landscape professionals in the area willing and able to do native grass conversion projects to increase program participation.^{xxxii}

Colorado Springs utility staff indicated in interviews a strong belief that proactively creating landscapes that are more resilient to a changing climate will reduce local demand for outdoor water use. Moving forward, they hope to increase education for both CII customers and local landscape professionals on the benefits of native grass and low-water landscapes, potentially through a community demonstration area. A native grass demonstration area would not only serve as an educational platform but would also present an opportunity for landscape professionals to participate in the design, installation, and maintenance of the site, while learning techniques and best management practices to utilize for other projects in their work.

G. Case Studies Conclusion

As the six case studies demonstrate, turf replacement initiatives are being implemented at relatively modest levels in Colorado and across the West, and even at these levels are producing substantial water savings benefits. These programs are particular sources of pride for each of the communities interviewed. At the same time, most of these initiatives report a level of frustration with budget constraints and the lack of secure funding streams. Annual budgets for these programs are low relative to overall utility spending, running from \$13,000 to \$1,041,000; most utilities spend less than 1% of their overall budget on turf rebate programs. In general, turf replacement program budgets are higher where communities are able to combine a variety of financing options into a portfolio approach.

Appendix D – To Borrow or Not to Borrow? That is The Question... Public Water Utilities and Debt-Financing

Debt can be a complex and occasionally fraught issue in local politics. Some believe that borrowing should be avoided as much as possible to limit the financial burdens of future ratepayers. Others feel that municipalities and utilities should take advantage of historically low interest rates and invest in system improvements, which ultimately saves costs over time.

As a general rule, water agencies should have rates in place that are sufficient to pay cash for ongoing expenses — payroll, materials, facilities maintenance. It can also often make sense to borrow to pay for building or purchasing large long-lived assets. These decisions sometimes (but not always) mirror accounting rules for categorizing spending as an expense or capital cost.

Under Generally Accepted Accounting Principles (GAAP), an operating expense buys something required for the day-to-day functioning of an organization. In contrast, a capital expenditure creates a benefit for the future. Organizations have capitalization policies that typically define capital as significant expenditures that result in an asset with a useful life of more than one year. But that does not mean that utilities should use debt to fund all capital assets. Determining when to borrow (often in the form of municipal bonds and/or SRF loans) to pay for capital programs depends on many community-specific factors, but generally includes the pros and cons listed below and whether an influx of upfront dollars is in the utility's best interest.

^{xxxii} Ibid.





So, when does it make sense to borrow?

The Pros and Cons of Debt-Financing

Advantages of Debt-Financing:

- Avoid rate shock. It is difficult to quickly raise rates sufficient to pay for large capital outlays since customers are resistant to large water bills. They particularly object to large increases in water rates for financial, political, equity or other reasons. Rate shock can occur, for example, if you have an annual budget of \$50 million and you want to spend \$10 million on a project which would require a rate increase of 20% to raise sufficient revenue for pay-as-you-go funding. Alternatively, borrowing the money for 20 years at 2% interest would generate an annual interest payment of about \$610,000, resulting in only a 1.2% rate increase. So while the utility would still have to put a rate increase into place, it would be substantially more modest. It also means that you could implement the project today instead of postponing it into the future when those improvements are likely to be even more expensive.
- Intergenerational Equity. This concept calls for fairness between "generations" of utility ratepayer. Today's generation should not have to pay all of the costs for something that will provide benefits for future ratepayers (even if that generation is only five or ten years away). Likewise, future generations should not be stuck paying for the all of costs of benefits that ratepayers currently enjoy. Issuing debt and paying it off over time spreads these costs and is in line with this concept.
- Matching Principle. There is a concept in accounting called the "matching principle," which provides that you should match the timing of revenues and expenses under Generally Accepted Accounting Principles for consistency and accuracy in financial reporting. Thus, if a capital project will produce benefits over 20, 30 or more years, the matching principle says you should spread both the revenues and expenses over those same time periods. A water utility can comply with this matching principle by borrowing and setting rates to raise revenues to repay the debt over roughly the same period as the deprecation expense related to the asset.

Disadvantages of Debt-Financing:

- Debt can be more expensive. If you borrow, you must pay interest on the loan. The principal amount you borrow plus the interest will typically be more than the amount you would spend if you cash fund a project. In the example above, if you borrow \$10 million for 20 years at 2%, the total cost of the project would be \$12.2 million when you factor in interest payments. However, you also need to consider what the inflation rate might be over that same period. Inflation reduces the effective cost of borrowing because it reduces the spending power of future dollars. If inflation was 2% during this borrowing period the same as the borrowing interest rate you would essentially break even over time.
- Debt is a fixed cost that could reduce future flexibility. Agencies have variable and fixed costs. Variable costs can be trimmed back during difficult economic times, droughts and other disruptions. Fixed costs need to be met regardless of new situations. Debt service is a fixed cost which must be met annually. All agencies have some level of fixed costs the point is to make sure that the amount of fixed costs is reasonable and appropriate. The amount of fixed costs that might be deemed reasonable depends on the agency's finances (e.g., do revenues fluctuate wildly or are they relatively stable?).





One way to look at the reasonableness of outstanding debt is through the metric of bond ratings. Rating agencies provide scores based on the ability of an agency to repay their debt. Thus, for example, Salt Lake City uses about 5% of their revenues to pay debt service and has a "AAA" rating, which is considered an excellent rating by investors and auditors alike. Denver Water uses about 14% of their revenues and also enjoys a "AAA" rating. Phoenix uses about 31% of their revenues and has a "AA" rating, which is also quite strong. Good bond ratings allow these agencies — and their ratepayers — to enjoy very low interest rates. Additionally, rating agencies look positively on borrowing to finance the timely implementation of important projects necessary for the utility to maintain its asset base; this consideration may outweigh any concerns about larger fixed costs.

Conclusion

As a general rule, as long as interest rates remain relatively low, it will often be fiscally prudent for most water utilities to explore borrowing for substantial capital investments, rather than trying to pay for all such expenses on a Paygo basis. This can be counter-intuitive for those with an aversion to debt for a variety of sound reasons. But as demonstrated above, borrowing is often the most cost-effective means of raising the capital needed to advance key local priorities.