

City of Thornton, CO Water Efficient New Home Construction Incentive Program

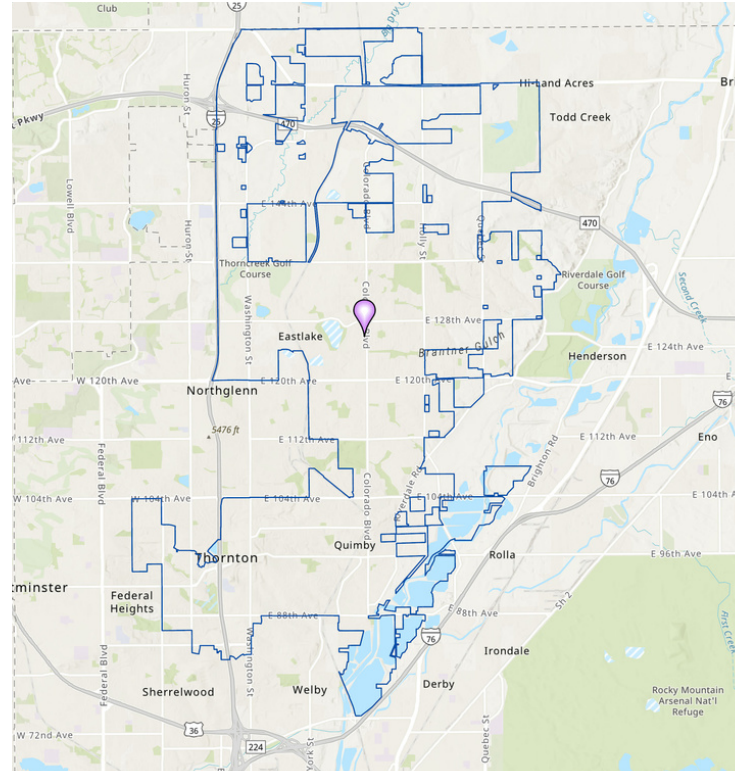


Project at-a-Glance

Community Overview

- Utility/Community: City of Thornton, CO
- Location: Thornton, CO
- Population served: 148,600
- Service area: 37.94 square miles

Project Partners



Project Benefits

- Develops a three-tier program to incentivize water-efficient new home construction in a rapidly growing community.
- Tier One and Tier Two incentives result in a 9-14% water savings.
- Inspired Thornton to make a greater financial investment in funding for water efficiency and consider updates to their municipal code to eliminate minimum turf requirements in front yards/ common areas and/or consider adopting a graywater ordinance.

Project Challenges



Changing population



Lack of reliable water supply

Strategies for Success

WaterNow Alliance (WaterNow) supported the City of Thornton to develop an incentive program to improve water use efficiency in newly constructed homes. The goal of this program was to increase water use efficiency by 20% in new homes compared to older homes in the city. Through research of existing incentive programs and collaboration with local stakeholders including homebuilder associations, citizen water advisory committees, and various city departments, WaterNow developed a three-tiered incentive program focused on both indoor and outdoor water use. The findings from this project can be a model for other fast-growing communities in the Front Range and elsewhere that are considering incentives for water-efficient growth.



Project Spotlight

The City of Thornton, CO is a rapidly growing community in the Front Range and faces chronic water supply shortages. In May 2018, the City applied for Project Accelerator to gain support from WaterNow to develop an incentive program to improve water use efficiency in newly constructed homes. The goal was a 20% increase in water use efficiency in new homes compared to older homes on the market locally. This would be a significant improvement considering the City anticipates a population increase of 74% (approximately 260,000 residents) at full buildout. Single-family residential customers are already the largest customer class, representing 87% of total water connections, and growth trends indicate they will represent the largest number of new units constructed in the near future. These single-family units, which have traditionally boasted lush high-water-use landscapes, present an excellent opportunity for Thornton to tackle water-use efficiency as the city continues to grow.

WaterNow carried out a phased approach to develop and implement this new incentive program.

Phase 1: Research similar water-efficient construction incentive programs and best management practices focused on examples from Colorado, California, Arizona, and Texas. Conduct informational interviews with five water agencies in Colorado to understand the successes and challenges of the implementation of similar programs.

Phase 2: Engage with local stakeholders, including municipal staff and the local home builders association (HBA) to explain the goals of the incentive program, collect feedback, and answer questions.

Phase 3: Develop a tiered incentive program and identify metrics to track program participation and success. Phase 3: Develop a tiered incentive program and identify metrics to track program participation and success.

Three-tiered water conservation incentives, estimated water savings, and expected credit value

Tier	Requirements	Estimated Water Savings	Expected Credit Value
Tier One	<ul style="list-style-type: none"> • Smart Irrigation Controllers* • MP Rotators* • 0.8 gallon per flush toilets* 	9% of average household water use	\$500
Tier Two	<ul style="list-style-type: none"> • Tier One Requirements • Maximum 25% turf^o 	14% of average household water use	\$1,000
Tier Three	<ul style="list-style-type: none"> • Tier One & Two Requirements • Graywater systems • Hot water recirculating systems 	TBD	\$2,000

*Must be EPA WaterSense certified

^oThornton’s existing landscape ordinance requires between 25%-50% turf grass in the front yard

WaterNow developed recommendations for a three-tiered incentive program for Thornton that would result in progressive water savings in new home construction. Tier One incentives include smart irrigation controllers, MP rotators, and 0.8 gallons per flush toilets. Tier Two incentives include everything in Tier One plus the installation of front yard landscapes that meet the existing requirements in the municipal code and also limit turfgrass to no more than 25% of the total landscaped area. Tier Three incentives include Tier One and Tier Two requirements as well as graywater systems and hot water recirculation systems.

Based on these water saving estimates, Thornton can help newly constructed homes achieve a 14% increase in water use efficiency by implementing these water conservation incentives. With additional savings from graywater and hot water recirculating systems, new homes would be able to exceed Thornton’s goal of 20% savings, established in their 2018 Water Efficiency Plan.



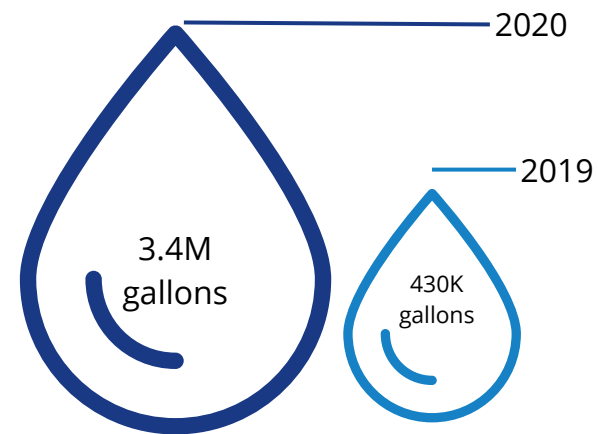
Project Impacts

In 2019, Thornton allocated \$25,000 of their budget to Tier One of the incentive program; 50 newly constructed homes utilized the incentives resulting in approximately 430,000 gallons of water saved. With an anticipated budget increase to \$250,000 for program implementation in 2020 and continued home construction growth in subsequent years, it is estimated that 3.4 million gallons of water could be saved annually.



New home constructions in Thornton as seen from above.
Photo by Doc Searls

Estimated Water Savings



However, due to a number of factors, the incentive program was not implemented beyond 2019 and the City's budget was allocated towards the development of other water efficiency programs. City staff worked with new developments during the review process to reduce landscape water demand by approximately 50%, by changing landscape design to replace bluegrass in non-functional areas with native grass and other low-water plant options. This program resulted in water demand reduction of 500,000 gallons per acre of irrigated landscape. The City also intends to update their landscaping code to include more water-wise regulations in the future.

In addition to these water efficiency programs, Thornton is interested in conducting a long-range rate study that would include consideration of permanently building these conservation incentives into the City's tap fee structure. This is a potentially very significant development from a water savings perspective because developers are more likely to participate if this program is built into the tap fee structure which would signal a long-term commitment. In addition, the City would be able to commit significantly more financial resources to the program if it were to be part of the tap fees because this would expand the budget available for the incentives.

To conclude this Accelerator, WaterNow developed a comprehensive document outlining guidelines to facilitate implementation and tracking metrics to evaluate the success of the program and determine whether changes should be made or funding levels should increase.



Lessons Learned

This tiered incentive program provides several lessons for other communities aiming to develop similar projects:



- Working in partnership with developers and home builders associations is key to understanding the types of incentives of greatest interest and feasibility.
- Learning the intricacies of municipal code regarding landscaping requirements and what developers usually install in new home construction projects is essential.

- Follow-up by the City is needed to ensure water use efficiency measures are retained and used properly by future homeowners.
- In Colorado, indoor water demand tends to be more consistent from one similarly occupied house to the next and furthering water efficiency indoors requires ultra-efficient fixtures that go beyond statewide requirements already in place. Thus, there is more potential to incentivize outdoor water use in new developments.

