



Cottonwood Plains Elementary School Landscaping
Project
CWCB Final Grant Report



Prepared by: Melissa Carroll, Resource Energy Manager, Thompson School District
Submitted on: 10/19/2023
Updated: 10/26/2023

Project Completion Summary

The Thompson School District (TSD) as a whole spends approximately 20% of its annual utility budget on over 100 million gallons of potable water used both indoor and outdoor. In an effort to reduce utility costs, be better stewards of water resources, and support the 2021 Sustainability Management Plan, TSD is converting unnecessary irrigated turf area into low-water, native landscaping. With grants through Northern Water and the Colorado Water Conservation Board (CWCB), TSD piloted this effort with a project of about 3,000 square feet in front of Cottonwood Plains Elementary School (CPES). Denver Botanic Gardens created the design as part of the Northern Water grant, Elite Industries prepared the site and sourced the plants, and TSD volunteers installed the plants. The project took place during the spring and early summer of 2023 and is anticipated to reduce water use at CPES by over 80 kgal annually after the 3-year plant establishment period.

In April 2023, the contractor, Elite Industries, were met onsite for a final walkthrough and review of the design plans before beginning work. It was determined that the pathways in the design were not sized appropriately for ADA access, separate zoning would not be possible to support newly planted trees, and obtaining the number of boulders listed would be difficult due to supply chain restraints. With the help of Northern Water, the design was adjusted to enlarge the pathways by removing many boulders and the new trees. The contractor started preparing the site (removing existing landscaping and irrigation, pouring concrete pathway edging, placing large plants, laying pea gravel for Planting Day, etc.) towards the end of May. The site was ready for planting, and the plants were delivered and placed by the contractor the morning of Planting Day (June 3). Some of the plants were substituted the day before due to supply chain issues - all substitutions were approved by Northern Water and Denver Botanic Gardens. These changes were reflected in the updated digitized design made available on the school's website.

Despite the rain, 61 volunteers showed up for around 3 hours of planting in addition to the 7 volunteers that were onsite from setup to clean up. A group of middle schoolers were seen smiling and laughing while covered in mud as they struggled to dig a hole in the clay that kept being refilled by water and gravel. One parent of 3 Cottonwood Plains students commented, "It is good to give the kids ownership of this space and get their hands dirty. Way better than spending a rainy Saturday in front of the screens!" TJ, TSD Grounds Lead, said, "[This project] is good to show what we are capable of doing... This site will hopefully allow us to do something similar for other schools." Andrew, a community member, said, "I want to replace the lawn in front of my house and could plant some of these there instead."

During the week following the Planting Day, the contractor installed the drip irrigation, top-dressed the pea gravel, and added compacted crusher fines to the pathways. The irrigation system was tested and programmed by the contractor and TSD Grounds team. Health of the plants will be monitored over the next 3 years of establishment period to ensure that they are receiving adequate water and drainage.

Following the completion of the planting and landscaping improvements, TSD focused its efforts on the outreach and education portion of this grant. This included 3 major stakeholders: the community, the school staff, and the students. As the main connection point for all information regarding this project, TSD created a news article presented on its social media sites that briefly explained the project. Additionally, TSD created a webpage

linked to the school's website that provides more details about the project design, funding and procedure, and plants used in the design. Both the news article and the website are public-facing and will act as an educational opportunity for the community to learn about low-water, native landscaping opportunities for schools, businesses, and residents.

A QR code was created that connects people directly to the school's webpage about the design while onsite. Labels created by a local small business were installed onsite to help visitors identify plants on the ground and connect those plants with the links on the webpage. The labels include the common name and scientific name of the plants, and the links on the webpage direct visitors to plant information sites to learn about the climate preferences of the plants.

It is important that the staff understand the background of this project, the benefits, and the ways they can utilize this space. A focus on staff outreach included developing a presentation that was shared during an all-staff meeting at the beginning of the school year. Not only did this presentation provide staff with an understanding of why water conservation is important, but it also explained the school's historic water use trends, how this project will impact those trends, and how the staff can share this information with their students. The space can be connected to each topic such as biology, math, and art. The staff were also provided links to the webpage about the project as well as residential resources to utilize in their own homes such as Resource Central's Garden in a Box program.

Students will benefit from the upgraded landscaping through daily interactions with the space. The space provides the students with year-round color, a diversity of plant types, and an opportunity to see a growing ecosystem. The upgraded landscaping has already encouraged hummingbirds and butterflies to hang out in this area, which exposes the students to nature in a way that was not seen before at this location. On the first day of school, principal Eric Harting commented, "[The front landscaping] looks beautiful... I even saw hummingbirds zipping around while students were being dropped off." Additionally, studies have shown that students have higher test scores when allowed a place to connect with nature. Therefore, it is likely that students will benefit from interacting with this space even at the minimum of the beginning and end of each school day. While these impacts are difficult to quantify, the increased quality of life and education is evident through the positive comments and discussions heard throughout the TSD community.

As word continues to spread about this project, other schools are reaching out to pursue similar improvements, and the status quo of irrigated Kentucky Bluegrass is shifting towards something more adapted to our climate. As more unnecessary turf areas are transitioned to landscaping similar to this one, we can expect to see a more Colorful Colorado and a more water conscientious state.

Challenges and Solutions

During the final walkthrough and design review of the site with the contractor prior to beginning work, it was determined that 1) the pathways were not designed to the necessary

ADA width, 2) the irrigation system did not have the capacity to provide separate zoning to support newly planted trees, and 3) sourcing the number of boulders shown in the design was proving difficult due to supply constraints. As a result, Northern Water reconfigured the design with wider pathways by removing over half of the boulders and any new trees. This allowed for a slight reduction in materials cost as well.

Additionally, the spring and summer were very wet, which resulted in flooded areas in the front of the school. Some of the plants in these flooded areas died due to the excess water and transplant shock. Fortunately, the contractor provided a 1-year warranty on the plants and will return next spring to replace any plants that did not survive.

Matching Commitments

All matching contributions were met for this grant and outlined in the invoice reimbursement trackers submitted to CWCB. TSD requests that CWCB release the remaining 10% of the budget with the satisfaction of this report and final invoice reimbursement tracker.

Supporting Links



TSD news [article](#)

School [webpage](#)

TSD [Sustainability Management Plan](#)

Project Photos

Before:



Site Preparation:









Planting Day:







Finished Project:











