



Volunteers plant trees at restoration event hosted by TreeFolks
Photo Credit: TreeFolks

Replanting Riparian Forest Buffers in Austin through City Forest Carbon+ Credits

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The City of Austin, Texas has declared bold goals when it comes to climate change, including carbon neutrality for city operations by 2020 and net-zero greenhouse gases community-wide by 2050. The city's recently adopted [Water Forward plan](#) sets a course to provide for the water demands of one of the fastest growing cities in the nation.

Water is a precious resource in Central Texas, and rivers and streams with healthy forest

buffers are critical to both water quality and quantity – as well as vital contributors to fish, bird, and wildlife habitat and our natural ecosystem. City officials struggle to balance new development to accommodate the needs of a growing city with preserving its natural assets and tree canopy, to continuing to pay for all the things needed to meet the city's policy goals and maintain the high quality of life that attracts people to the area.

Recently, the State of Texas passed [legislation](#) that severely

limits the ability of Texas local governments to provide an adequate tax base to pay for needed public services such as emergency response or parks. Knowing that it will take more than city action alone to protect and preserve what's best about Austin, a committed group of stakeholders has come together to pioneer an innovation that can help ensure the health of the region's riparian forest buffers while supporting the city in meeting its carbon reduction goals.

With the aid of City Forest Credits, the Austin Office of Sustainability, the Austin Watershed Protection Department, Travis County and the local nonprofit TreeFolks are completing a pilot project and launching the [Travis County Floodplain Reforestation Program](#) to generate carbon credits from reforestation of local rivers and streams.

The key to the innovative county-wide program, which works to restore healthy forest buffers in eastern Travis County floodplains, is that it also addresses climate impacts by generating carbon offsets, known as Carbon+ Credits. These credits will be sold to the City of Austin to help meet the city's [2020 carbon neutrality goal](#). The pilot and program are both operated by TreeFolks and will generate carbon offsets throughout eastern Travis County on both public and private lands, in parklands, and in streamside areas known as "riparian zones." Research by The Nature Conservancy, along with fifteen other institutions, demonstrates



Example of degraded stream with no forest in Travis County
Photo Credit: TreeFolks

that more than one-third of climate mitigation needed by 2030 to keep global temperature rise below two degrees Celsius can be accomplished with conservation, restoration, and better land management.

The tree planting projects will increase canopy cover and diversity in an ecosystem that needs help. The [City of Austin Watershed Protection Department](#) recently concluded that diverse wooded corridors along creeks and riparian

zones here are rare. In addition, extreme weather due to climate change is exacerbating Austin's summer high temperatures, flood conditions, and wildfire risk. During the summer of 2011, Austin had 90 days with temperatures greater than 100° F and wildfires destroyed 32,000 acres of forest in Central Texas. Three floods between 2013-2015 resulted in loss of life, extensive damages to homes and businesses, and displacement of many residents.



Example of healthy stream with riparian forest in Travis County
Photo Credit: TreeFolks

Investing in green infrastructure can increase climate resilience. The augmented forest density, canopy cover, and tree diversity will improve the functionality of drainage basins and their surrounding ecosystems, while also improving water quality. These plantings will provide both food and habitat for local wildlife populations and help to buffer against flood risk.

New riparian forests will also help to mitigate Austin's urban [heat island](#). Since heat islands can affect communities by increasing energy demand, air conditioning costs, greenhouse gas emissions, air pollution and heat-related illness and mortality, this reforestation program offers multiple ecosystem and human benefits. Public trees in Austin currently remove an estimated 803 metric tons of air pollution annually, including ozone, nitrogen, particulates, and volatile organic compounds, while producing nearly 58,000 metric tons of oxygen.

The reforestation project

also serves to engage local community members with the local environment, complementing Austin's participation in the Biophilic Cities network and the Children and Nature collaborative, and aligning with citywide green infrastructure efforts. Reforesting Austin's local stream corridors will create lasting change, both within the city limits and across eastern Travis County floodplains.

How Is the Project Funded?

Creating carbon credits to attract investment for tree planting is an innovative and scalable model, using the carbon market to create a financial mechanism to drive investment in green infrastructure. A key component of this initiative is the Travis County Floodplain Reforestation Program. As part of the inaugural U.S. Natural Climate Solutions Accelerator Competition, the initiative is funded in part by the Nature Conservancy with the Doris Duke Charitable Foundation. The Travis County reforestation will

also include private property owners to expand the scope of the initiative. Nonprofit TreeFolks will work with volunteers and youth service organizations to plant native saplings in targeted public and privately-owned parcels. TreeFolks provides the reforestation services to private owners free of charge. These services include, for those applicants who choose to participate and are selected, free trees, free planting services, and free consultations.

In addition to the grant funding, these tree plantings will generate Carbon+ Credits issued by the nonprofit City Forest Credits, to be sold to the City of Austin to help meet its climate program and carbon-reduction goals. "I think the work is innovative and potentially game-changing. To harness the market to create environmental benefits in cities is a great thing," said Zach Baumer, climate program manager for the City of Austin who convened the initial partners to create the program.



Left & Opposite Page: Mature Riparian Forest
Photo Credits: City of Austin

Right: Plant saplings at a TreeFolks Ready Set Plant event
Photo Credit: TreeFolks



"Riparian locations contribute to local water quality improvements, stormwater reductions, air quality improvements, and energy savings."

—Thaïs Perkins, TreeFolks

Benefits Beyond Carbon

City Forest Credits makes it possible for tree planting projects in cities, towns, metropolitan areas and other urbanized areas to earn and sell carbon credits. A key innovation in these City Forest Credits is that each Carbon+ Credit quantifies more than just a metric ton of CO₂. Each credit also estimates and quantifies rainfall interception (one element of stormwater runoff), local air quality, and energy savings through cooling and heating impacts.

Here's how that translates into benefits for our community: five acres of riparian plantings in the Austin area will store around 530 tons of CO₂ at 25 years of maturity and generate over 500 Carbon+ Credits. At maturity, that same five acres of trees can annually intercept around 500,000 liters of rainfall per year, in addition to improving air quality and energy savings.

Using funds allocated for carbon offsets to purchase local credits from these riparian

plantings keeps the City of Austin's investments localized while addressing global climate change. Previously, the City of Austin did not have local options for purchasing carbon offsets, and has supported projects in North Dakota, South Dakota, and Mississippi. All proceeds from the sale of Carbon+ Credits to the City of Austin will be exclusively used by TreeFolks for program administration and future tree plantings in Central Texas.

"This project is truly a win-win," says Thaïs Perkins, the Executive Director of TreeFolks. "The city can move forward on its climate goals, while putting its carbon offset dollars to work locally. The trees deliver the CO₂ storage for a global atmospheric benefit, and the riparian locations contribute to local water quality improvements, stormwater reductions, air quality improvements, and energy savings. And that's not even counting the bird and wildlife habitat, potential recreation, stabilization of banks and slopes, and so much more."

Lucia Athens is the City of Austin's Chief Sustainability Officer, a Landscape Architect, and author of the Island Press book [Building an Emerald City: A Guide to Creating Green Building Policies and Programs](#).

Mark McPherson is the Executive Director of City Forest Credits, a non-profit organization based in Seattle that is working nationally to enable local tree planting and preservation projects to earn carbon credits and sustainability certification.

Resources:

- Austin Water. Water Forward. <http://austintexas.gov/waterforward>.
- City of Austin. Office of Sustainability. <http://www.austintexas.gov/sustainability>.
- City of Austin. Watershed Protection Department. <http://www.austintexas.gov/watershed>.
- City Forest Credits. <https://www.cityforestcredits.org>.
- Travis County. About the Environmental Quality Program. <https://www.traviscountytx.gov/tnr/environmental-quality/about>.
- TreeFolks. <https://www.treefolks.org>.