

Planting Trees to Reduce Cooling Loads on Campus Phase 2

Campus-wide

March 2017 – May 2018

Project Description

This project was written as a continuation of the Phase I- Planting Trees in Commemoration of Arbor Day Project which was passed in 2015. Phase I requested \$37,400 in order to plant 35 live oak trees on campus. The goal of Phase II was to introduce colorful trees to campus in a large-scale tree planting project. This project requested \$74,800 to plant 69 colorful trees at the March 17, 2017 Student Green Energy Fund meeting. Due to a large amount of projects proposed and limited funds, the project was passed but only awarded \$25,605 to allow for the planting of half the number of trees. The team assembled to implement the project was Antonio Lourenco, the Project Manager from Facilities Management; Robin Rives, the student Principal Investigator; and Shuang Hao, the Landscape Architect from Facilities Planning.

The process involved many steps. The first was conducting site assessments of various locations to determine if they were fit for planting. Tony, Shuang, and Robin collaborated to determine the other locations where trees could be planted. After these sites were assessed, Shuang determined if these areas were fit for planting. Twenty two different sites were selected for planting. Next, the team collaborated with Sun State Landscaping to get their opinion on the proposed locations and their suggestions for selecting the tree types. Shuang, Tony, and Robin met several more times to finalize the tree types for each location. Planting trees provides shade and reduces the Urban Heat Island effect and cooling loads of buildings, which helps save energy. At the age of 40 years, each tree from this project has the potential to sequester 1 ton of CO₂. One average mature tree can absorb approximately 911 lbs. of CO₂ per year. Additionally, each mature tree is able to produce 260 lbs of O₂ per year.

Project goals

This project's goals were to introduce colorful trees to USF's campus, increase our biodiversity and urban forest cover. As well as to effectively reduce our urban heat island effect and cooling loads on buildings, which ultimately reduces energy usage and costs, and subsequent emissions. Additionally, the trees absorb carbon dioxide and thus significantly offset USF's carbon footprint.

Project results

Various beautiful trees including Acacia Trees, Little Gem Southern Magnolias, Golden-Rain Trees, Pink Tabebuia Trees, and so forth were introduced to areas all over campus in 22 different locations. The trees will bring colorful flowers to the campus every spring for years to come. The project led the way to a Phase III and Phase IV which allowed for even more trees to be planted with the same goals in mind.

The GHG reduction benefits of this project are immediate and long term, with the potential to reduce the carbon footprint of the USF Tampa campus. At the age of 40 years, each tree from this project has the potential to sequester 1 ton of CO₂. One mature tree (average tree planted) can absorb approximately 911 lbs. of CO₂ per year. 69 trees can absorb 62,859 lbs. of CO₂ per year. The oxygen that the trees produce is another result - each mature tree able to give 260 lbs of O₂ per year, or 17,940 lbs of O₂ per 69 trees per year.

Pictures

Before and after photos from a few tree locations.



Partners

Facilities Management and the Student Green Energy Fund were the main parties responsible for this project. The Student Green Energy Fund approved and provided the funds for the project. At Facilities Management, the Project Manager was Antonio Lorenzo for a majority of the project. Later on, Suchi Daniels took over the role of Project Manager. Robin Rives was the student Principal Investigator involved throughout the project. Nainan Desai, the Assistant Director of Facilities Management, was also involved in the project to help provide guidance. Shuang Hao was the USF Landscape Architect who helped to determine tree species, locations, and logistics for planting, irrigation, and so forth. Tom Schlick, the Assistant Director of Grounds, was also an integral member of the project to help determine tree species, locations, and to help coordinate the planting, irrigation of trees, and future maintenance of the project. Sun State Landscaping was the contractor through which the trees were purchased and planted.

More Information

Robin Rives, Student Principal Investigator
727-465-4019
rrives@mail.usf.edu

Suchi Daniels, Project Manager
813 974-0857
suchitramba@usf.edu

Nainan Desai, Assistant Director of Campus Sustainability
813-974-2488
ndesai@usf.edu