



Parks Turf Study

**A comprehensive report
prepared for:**



**City of Phoenix
August 2016**

Executive Summary

About

The Parks Turf Study is yet another step toward meeting the Reimagine Phoenix city-wide goal of 40% waste diversion by 2020; it's also another step toward solidifying the position of the City of Phoenix as a sustainability leader and a pioneer in the circular economy.

The premise of the project is that rather than collecting food scraps and yard waste and sending them to the landfill – the outdated linear model – the project team will explore the efficacy of turning these waste items into compost at a Phoenix-owned facility and then using that compost to improve the turf quality at Phoenix city parks, creating an internal circular economy.

Potential benefits to Phoenix and its citizens are many:

- Reducing and diverting waste from the landfill and associated methane emissions
- Exploring opportunities for cost savings
- Increasing revenue through growing the market for city-made compost
- Fostering collaboration between multiple City of Phoenix divisions and departments
- Improving quality of life by beautifying city parks
- Confirming City of Phoenix sustainability leadership nationwide

City of Phoenix-ASU Collaboration

This project is a partnership between the City of Phoenix and Arizona State University, and collaboration has been key to the success of the Year One research. The team consists of the City Public Works Department, which is responsible for compost production, delivery, logistics and funding; the City Parks and Recreation Department, which is responsible for coordination, best turf practices and application; and ASU, which has provided a team from the Global Sustainability Solutions Services and various researchers from the Julie Ann Wrigley Global Institute of Sustainability and Swette Center for Environmental Biotechnology who are responsible for research, sampling, testing and third party verification.

During the first year of the study, the City's Parks Department staff applied 449 cubic yards of compost across 8.21 acres of turf at the nine City parks involved in the study across the City. All of the compost used in the Study is produced at the Public Works Department's Pilot Compost Facility at the 27th Avenue Transfer Station and consists of residential yard waste clippings, parks and landscaping clippings, large animal manure, and food scraps from produce/grocery businesses and special events. All of the compost generated at the pilot compost facility has maintained US Composting Council's Seal of Testing Assurance (STA) certification standards.¹ During the first

¹ Information about the study is posted on yard signs at each of the participating parks and at: phoenix.gov/publicworks/phx-compost-study.

year of the study, Parks and Public Works Department staff received zero concerns or complaints from residents about the program.

Research Agenda and Methodology

The research conducted during this project is designed to validate the effectiveness of using compost on city parks. During this multi-year study, the project team will apply compost at several city parks and a team of ASU students and researchers will evaluate the impacts on turf quality, soil health and water usage.

During Year One research, work was done at nine parks around the City (4 experimental and 5 demonstration). ASU researchers took soil samples from each plot, which were then sent to three different laboratories, where the chemical, physical and microbiological characteristics of each soil sample were tested, recorded and analyzed.

Year One Findings and Recommendations

Results of the soil and turf data analysis show that compost does not have any negative impacts on the current turf. In fact, previous compost studies and the nature of compost lead the team to believe that compost application will be beneficial to multi-use park turf.

But it's important to keep in mind that the study was modeled to last at least three years, as it often takes time for there to be measurable changes in soils. Continuation of the study over the next three to five years will yield significant results and enable the City of Phoenix to identify the financial and environmental benefits of compost turf application.

It would be scientifically beneficial to expand the current applications in order to better understand the benefits of compost use. For example, the study could be expanded onto other turfs – athletic fields or entire parks—beyond isolated test plots.

Next Steps

- Plan for Year Two research. The City of Phoenix and ASU will come together to prepare a strategy for next year's research.
- Prepare for fall application. Public Works and Parks and Recreation along with ASU will plan for the next year of soil testing and compost application.
- Review meeting. It's important for stakeholders to come together to discuss the findings and determine the future of the study. Ideally, the meeting should take place in January 2017.
- Turf mapping. City of Phoenix should complete a mapping of all turf in its park system, which can easily be done through GIS technology.
- Cost-benefit framework. The City of Phoenix and the Solutions Services team should develop a framework for robust cost-benefit analysis.