LANDSCAPE PERFORMANCE SERIES
presented by the Landscape Architecture Foundation

Methods Document
Samford Park at Toomer's Corner
Auburn University

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This Methods Document accompanies a *Landscape Performance Series* Case Study Brief. It was produced through the 2016 Landscape Architecture Foundation *Case Study Investigation* (CSI) program, a unique research collaboration that matches LAF-funded faculty-student research teams with leading practitioners to document the benefits of exemplary high-performing landscape projects.

The full case study can be found at:
https://landscapeperformance.org/case-study-briefs/samford-park

Landscape Performance Benefits

Environmental Benefits

1. Infiltrates up to 32,000 gallons of stormwater in the permeable paving system.

Calculations- Under the majority of the permeably-paved corner is #57 stone at a depth of 3 ft for the temporary holding of water before it infiltrates back into the ground. A site plan showing the location of this gravel was brought into AutoCAD, scaled up and the location outlined. The "area" command was used to conclude that the gravel took up an area of about 3,212 sf. The area was multiplied by the depth of 3 ft to get a volume of 9,636 cf. Research into the porosity of #57 stone showed that available void space is within the range of 38-52% depending on construction methods. We used 45% as the available space for water storage.

$$9{,}636\ cf\ \times 0.45\ porosity\ =\ 4{,}336.20\ cf\ water\ storage\ capacity$$

There are 7.48 gallons in 1 cubic foot, therefore:

$$4{,}336.20\ cf\ \times 7.48\ gallons\ = 32{,}437\ gallons\ \approx 32{,}000$$

To find the square footage of the paving before renovation and the new paving, the roughly quarter-circle corner was outlined and the area measured via historical imagery on Google Earth Pro as were the tree wells. The corner measured close to 5,000 sf and each tree well (2 total) was 350 sf.

5,000 sf - 2(350sf) = 4,300 sf of paving for original site

Limitations- The volume estimates do not take into consideration water that may seep into areas outside of the gravel such as into the tree planting areas, nor does it account for potential storage that may be available in certain areas that were altered with structural fill. The square footage of previous conditions are estimates, due to the inability to measure with extreme accuracy based off of Google Earth imagery.

Sources- The site plan was provided by HNP, Inc and numbers for available void spaces in #57 stone were acquired from a publication by StormTech (http://www.stormtech.com/download_files/pdf/techsheet1.pdf).

2. Reduced soil and water contamination by the herbicide Tebuthiuron from 68 parts per billion to undetectable levels through the removal of 1,778 tons of contaminated material.

Calculations- This is based off of information provided by Auburn University.

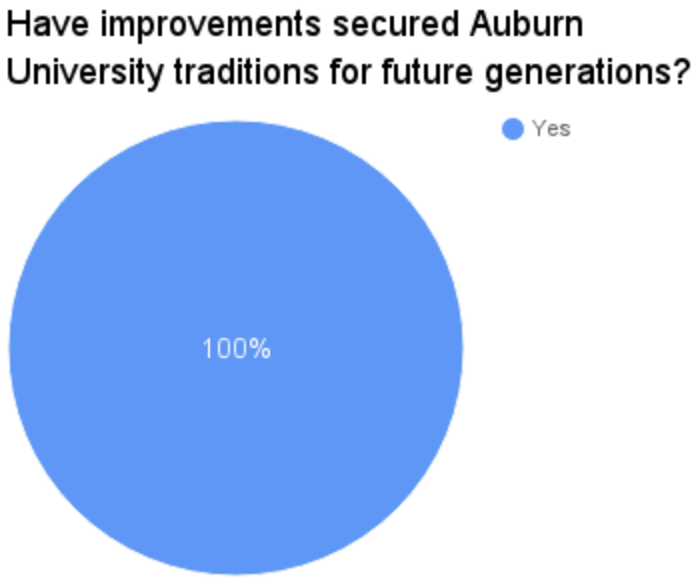
Limitations- The levels of Tebuthiuron are based off of measurements taken prior to the start of remediation efforts in October 2013. The poisoning occurred November of 2010.

Sources- Ben Burmester, PE - Auburn University

Social Benefits

1. Helped secure the traditions of Auburn University for future generations, according to 100% of the 31 survey respondents.

Calculations- All of the 31 survey respondents believe that the redesigned corner will help Auburn University continue the traditions associated with the corner.

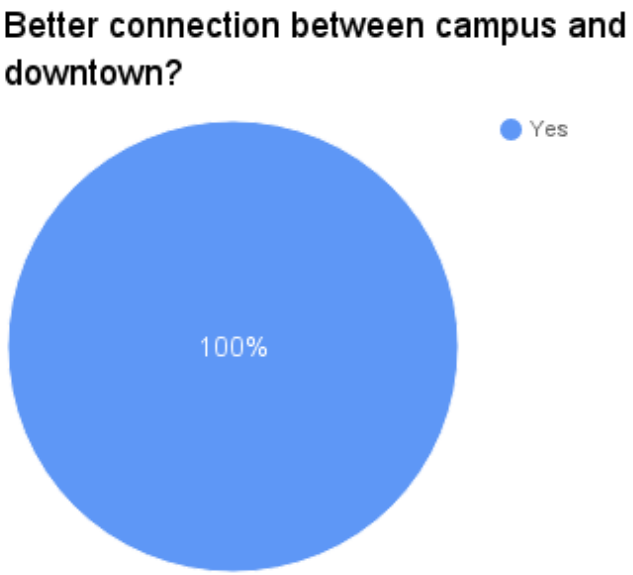


Limitations- The survey did not specify what "traditions" included, but it was generally assumed that the rolling of the trees with toilet paper after a sporting victory was the tradition in mind due to its dependence on the two live oaks.

Sources- Survey Question 9 - See Appendix A

2. Improved the connection between downtown and campus, according to 100% of the 31 survey respondents.

Calculations- All of the 31 survey respondents believe that the redesigned corner has created a better connection between the campus and its adjacent downtown.



Limitations- The renovation of the intersection and other three corners is taken for granted. While the two renovation projects were carried out by different entities (Auburn University and the City of Auburn), a general coherence is visible across the whole area.

Sources- Survey Question 8 - See Appendix A

<u>Cost Comparison</u>

Because of the tradition surrounding the trees, large replacement trees were required, even though they cost an estimated 20 times more than smaller alternatives. Younger trees would have had the benefit of being less expensive, in the range of $200-$400 per tree, but would not yet have the strength, size, or rigor to survive campus activities. The 14-in caliper trees, estimated to cost within the range of $5,000-$7,000 per tree, would be able to take on the activities sooner and provide Samford Park with shade, so the university made the decision to invest in larger replacement trees.

Calculations-
Average of $5,000 and $7,000 is $6,000
Average of $200 and $400 is $300
$6,000 ÷ $300 = 20

Limitations- These numbers are estimates and only address the cost of the tree itself. Transporting such large trees required flatbed trucks and cranes, neither of which are reflected in the cost.

Sources- Various tree nursery catalogs.

Appendix A

Survey by Auburn University: Samford Park Phase I, Auburn AL
Sponsored by: Landscape Architecture Foundation Case Study Initiative

1. I wish to participate in this survey:
a. Yes
b. No

2. My age range is:
a. 18 - 35
b. 36 - 64
c. 65 and older
d. I do not wish to disclose this information

3. I identify as:
a. Male
b. Female
c. Other (Please explain) _____
d. I do not wish to disclose this information.

4. What is your geographic relationship to this park?
a. I live near this park.
b. I work near this park.
c. I live and work near this park
d. Other (Please Explain) _____

5. How often do you visit this park?
a. Daily (everyday)
b. Weekly (2 or more times a week)
c. Monthly (2 or more times a month)
d. Other (Please explain) _____

6. How long do you stay at the park
a. Less than 1 hour.
b. 1-3 hours.
c. More than 3 hours.
d. Other (Please explain) _____

7. What are the reasons you use/visit this park? (Indicate all options that apply)"
a. To charge my phone.
b. To meet up with friends.

c. To walk to campus/downtown.
d. Other (Please explain) _____

8. Do you feel the corner's improvements create a better connection between campus and downtown?
a. Yes
b. No

9. Do you feel that the corner's improvements (which included the replanting of the Toomer's Oak trees used in the Auburn rally) help secure the traditions of Auburn University for future generations?
a. Yes
b. No