GREEN SCHOOLYARDS PROJECT

Research and intuition tell us that kids need a chance to play and exercise outdoors to be healthy and happy. Greening parks and playgrounds—adding trees and natural play structures—is good for children's physical, mental, and emotional health.

But as temperatures rise and heat waves become more intense because of climate change, it's critical to understand how trees and shade structures control temperatures and change how children play and exercise.

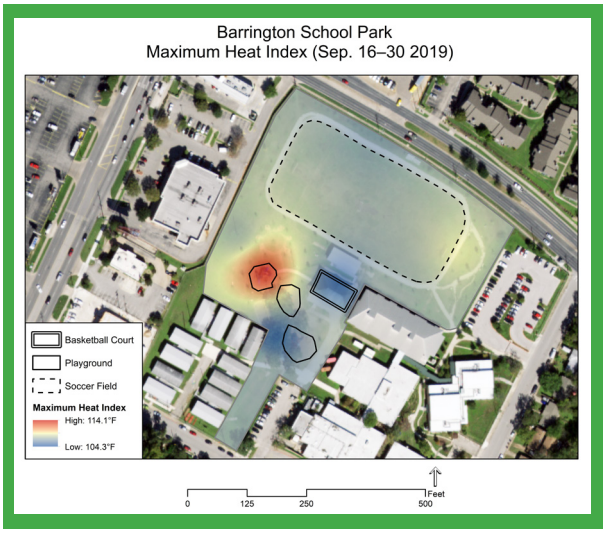
Austin Parks and Recreation Department and UTHealth School of Public Health in Austin developed the Green Schoolyards Project to determine how green features—trees, gardens, and nature trails—in three joint-use elementary school parks (Barrington, Cook, Odom) impact heat index (the measure of "how it really feels") within parks and physical activity and well-being of children.

Like communities across the country, the ability for children and families in Austin to access safe, cool, greenspace isn't equal. As a result of historical disinvestment and discriminatory practices, many families of color—specifically Latinx families—and families with low incomes live farther from the parks that are designed to be safe, cool and engaging. These learnings are critical as the city and its partners implement equitable solutions for health and prepare for climate change.

INITIAL GREEN SCHOOLYARDS PROJECT FINDINGS

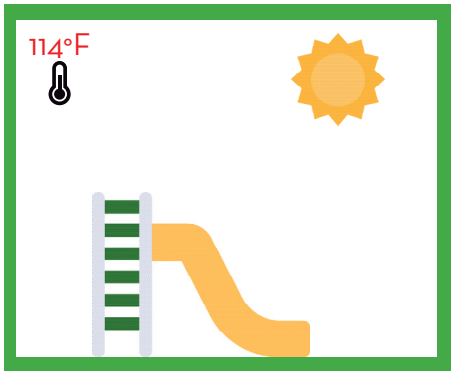
Temperatures Vary Significantly Within Parks

- Daily maximum heat index at three parks averaged between 99°F and 105°F from September 16–30th 2019.
- Two playgrounds within Barrington School Park had a nearly **10°F difference in temperature.** An unshaded playground saw a heat index of 114°F, while a shaded playground only reached 104°F. That range is the difference between "Extreme Caution" and "Danger" levels for likelihood of extreme heat disorders.

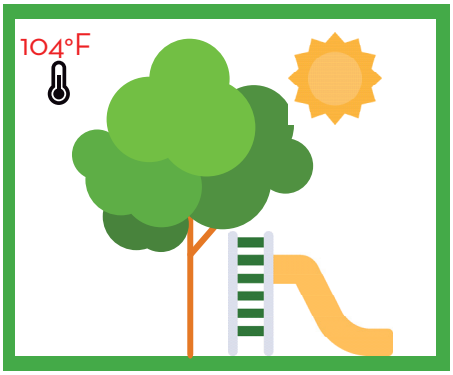


Maximum heat index reached at sites within Barrington School Park, September 16-30 2019

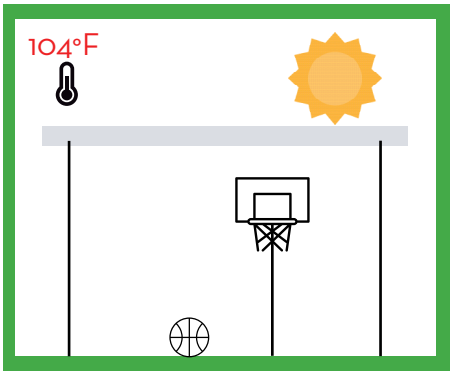
Playground without Shade:



Playground under Tree Shade:



Basketball Court under Shade Structure:



Park Use Varies Daily and Seasonally

- Basketball courts and playgrounds had the most physically active children throughout the day, while children tended to use tracks more during the school day and soccer fields more after school.

- 11% more girls and 25% more boys were observed under tree canopy in higher temperatures than in lower temperatures, potentially seeking shade as refuge from the heat.

- Trees don't seem to increase physical activity, but kids will move their play there when it's available.

WE NEED TO BE INTENTIONAL IN PARK DESIGN

- If we want kids to play outside longer and safely, their play spaces should be shaded to reduce temperatures and their higher risk of overheating.

- Heat variations within a park and patterns of where children play tell us that public health researchers and practitioners are important partners to inform the redesign of greenspaces in the face of climate change and to address persistent health inequities.

WHAT'S NEXT:

- We will test whether the physical activity levels and interactions with green features of individual 3rd and 4th grade students during recess change between high-temperature days and moderate-temperature days.

- We will establish whether children's physical activity and interactions with green features in parks differ before COVID-19 and during the pandemic.

- We will determine how children's connection to nature—measured by a survey—relates to their social-emotional learning skills, conduct at school, and standardized test scores.

Support for this research was provided by the Robert Wood Johnson Foundation. The views expressed here do not necessarily reflect the views of the Foundation.

QUESTIONS?

Melody Alcazar, MS
Melody.Alcazar@austintexas.gov

Kevin Lanza, PhD, MCRP
Kevin.L.Lanza@uth.tmc.edu