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Association for the Advancement of Sustainability in Higher Education
Sustainability Tracking Assessment and Rating System (STARS)

Urban Heat Island Collaboration

The Partnership for a Green City, a division of the Executive Vice President of Research and Innovation at the University of Louisville, has partnered with Geography and Geosciences Chair, Dave Howarth, to examine the Urban Heat Island Effect in Louisville in response to a 2014 study citing Louisville as the fastest growing heat island in the country.

Urban heat in Louisville was the subject of a comprehensive study, the first of its kind, led by Dr. Brian Stone of the Urban Climate Lab at Georgia Institute of Technology. Dr. Stone outlined the dangers facing Louisville because of the urban heat. He also detailed recommended actions that the city and its residents can take — in businesses, homes, and throughout the community — to reduce urban heat. Dr. Stone's research was done by modeling UHI data using meteorological data from two data points — one at Louisville International Airport and the other at Bowman Field Airport.

Dr. Howarth wanted to conduct a study and contacted the Partnership because of its connection with Louisville Metro Government, University of Louisville, Jefferson County Public Schools and Jefferson Community & Technical College. The idea was to investigate the UHI using multiple data collection sites in the metro area as opposed to being modeled by two data points as in the original research. The actual data should provide robust knowledge of the heat island effect confirming the previous study or showing some undetermined variation(s). Initially, Dr. Howarth thought that fire stations would be excellent sites for meteorological stations that would map meteorological data in urban and suburban areas of the merged city and county. The fire department administration was against the stations because they believed that the met stations would be stolen. The Partnership suggested strategically located local schools to allow students and teachers to become citizen scientists studying the UHI in Louisville and become a part of Dr. Howarth's research. The Superintendent and Assistant Superintendent of Curriculum were excited about the possibilities and jumped at the opportunity. Dr. Howarth had 17 met stations he purchased through a grant and the Partnership purchased 17 more and the stations are sited at 2-mile intervals covering a majority of the Metro area. The stations at the schools collect data every 15 minutes, and download it to Weather Underground to measure the UHI from the 32 ACTUAL data points sited at this time.



Urban Heat Island Initiative

Since 2015, the Partnership, in collaboration with Brightside, has hosted an annual Urban Heat Island Youth Summit where students from schools with the met stations attend a day of UHI education, hands on demonstration projects, and mitigation project brainstorming that aligns with the UHI curriculum in middle and high school. Students are then encouraged to submit grant proposals for UHI mitigation projects on their school property. Since 2015, we have provided almost \$25,000 to schools for projects varying from planting trees and a green wall to cool coatings on parking lots and school roof tops. Two of our students won the Bronze Medal in the International Science Fair for their study of what is the most effective cool coating for roofs or pavement.

We are committed to the project into the future and we have a second professor in Meteorology who is interested in working with the schools and accessing the meteorological data from the 32 schools. Our Mayor, the Superintendent and the college and university presidents are in full support of the project as is the Executive Vice President of Research and Innovation.

Brent Fryrear, Director

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