

CAMPUS

Citizen scientists help create heat map of city

Project aims to show where temperatures are hottest across Worcester

Scott O'Connell Scott.O'Connell@telegram.com

Published 8:48 p.m. ET Aug. 22, 2019 | Updated 2:55 p.m. ET Aug. 23, 2019

WORCESTER - Anybody who lives or works in Worcester knows the city gets hot during the summer. A team of citizen scientists is helping to show just how hot it gets, depending on where you are.

Fanning out across the city Tuesday in cars equipped with special temperature readers, the group began the process of creating Worcester's first urban heat map: a detailed layout of the city showing comparative heat in local neighborhoods.

The resulting data, which will be available in a few months, will equip city planners with specific guidance on where to put cooling stations during heat waves, where to plant trees to produce heat-reducing shade, and what other steps to take to alleviate overly hot temperatures.

"Excessive heat is a public health threat, especially to people we'd describe as vulnerable," said Worcester Polytechnic Institute professor Seth Tuler, who is working on the project. Hopefully the effort will hopefully provide "a more fine-grained understanding" of how that health threat is distributed across Worcester, he said.

Heat mapping in other cities – similar projects have been undertaken in Baltimore, Washington, D.C., and Portland, Oregon – have shown that it is hotter in more developed areas, for example, like large parking lots, buildings with big flat roofs, and busy roadways. Parks and other grassy, shady areas, in comparison, tend to be cooler.

But the only way to know for sure how hot it gets in different parts of the city is to go out and take Worcester's temperature. The 13 volunteers involved with the project went on three separate one-hour car trips Tuesday – at 6 in the morning, 3 in the afternoon, and 7 at night,

the most stable temperature times of the day – along special algorithm-designed routes meant to represent as closely as possible eight separate sections of the city.

Mr. Tuler was one of the drivers, accompanied by citizen scientist Priscila Espinosa, founder of SproutChange, a local community health startup focused on promoting solutions to food insecurity and climate change. Their only scientific tool was a large thermometer, designed by a company called CAPA Strategies, that was attached to Ms. Espinosa's passenger-side window about 6 feet from the ground.

Because the device was programmed to only read temperatures for an hourlong trip, Tuesday's project was more a test of navigation skills and driving ability than scientific inquiry. Missed turns, discrepancies with the route directions, and even a leisurely-moving recycling truck all threatened to undermine the precision needed to complete the entire winding course within the 60 minutes.

The project at least got cooperation from the weather. Coordinators had been aiming to hit the road on an especially hot day, and Tuesday delivered, with readings reaching 88 degrees, according to Mr. Tuler's car around 3 p.m.

The other seven cars involved in the undertaking were driven by or carried other faculty members, city employees, students and others in the community. "This has been a really collaborative-driven process," Mr. Tuler said. "That's one of the aspects of the project that was really important."

The effort was funded by WPI's Global Lab and the National Oceanic and Atmospheric Administration's Climate Program Office, according to the university. The city government and the EcoTarium were also involved.

They will present the results of the project at a public meeting later this year, according to Mr. Tuler. The data will eventually be used to create a high-resolution map showing ground-level temperatures across the city, with statistical projections filling out the areas the drivers weren't able to traverse Tuesday.

Video: Worcester By Bike