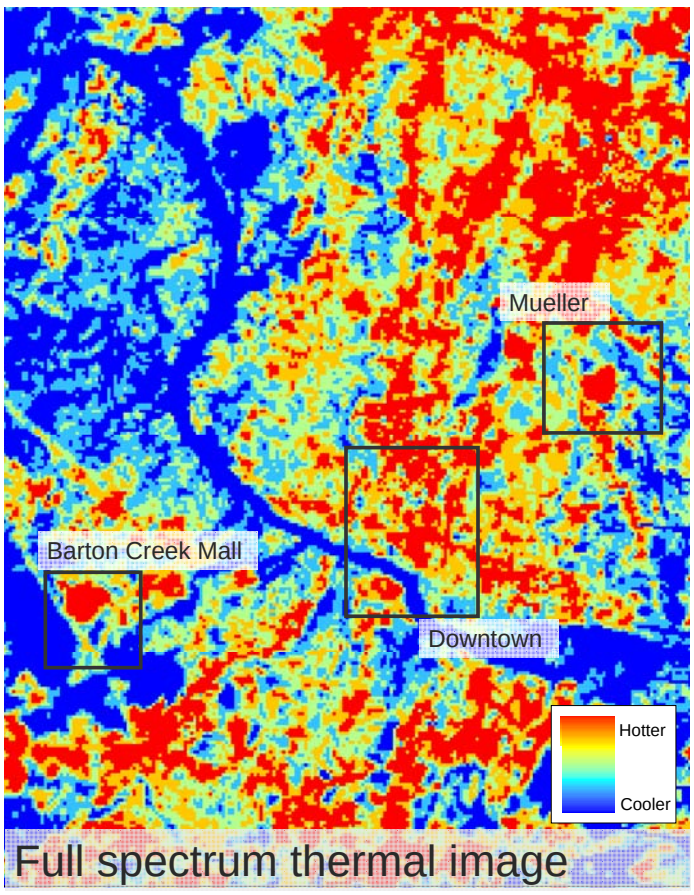
Austin’s Urban Heat Island

Where are the hottest spots in Austin?

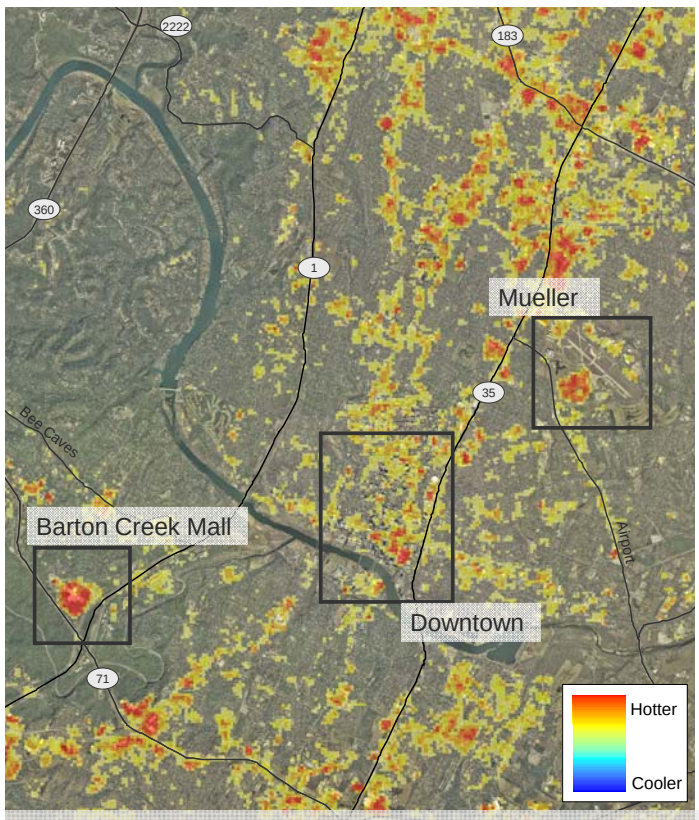
Urban areas are often two-to-ten degrees warmer than nearby rural areas because black topped parking lots and roofs absorb the sun's heat all day, and re-radiate at night; fewer trees means less cooling shade; and heavy energy use creates additional ambient heat. This project shows that urban heat island effects are reduced by using a combination of reflective roofing, cool paving materials, and tree cover.



Full spectrum thermal image

Thermal data was collected from the Landsat 7 satellite for October 2009. The satellite captures energy from the sun that radiates from anything on the ground including trees, buildings, and water.

The image on the right shows only the hottest values from the original image. Those red areas have been given a color spread to show the range of heat in the hottest areas.



Thermal breakout of hottest areas

The Mueller Redevelopment

The thermal image shows two main areas of heat: a commercial development and a residential neighborhood.

Surprisingly, the commercial area is cooler. Residential areas usually are cooler than commercial developments because they have more tree cover and less dark paved areas.

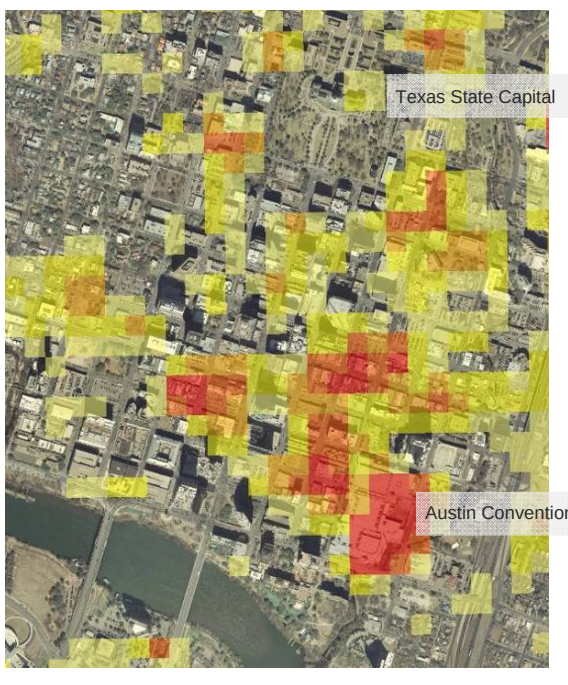
With little tree cover in either area, the major difference in these two areas is roofing.

Reflective roofing is a requirement for flat roofs (commercial roofs) as part of Austin’s energy code. Currently, no requirement exists for residential roofs to be light colored or reflective.

Barton Creek Mall

Although it has a white roof, Barton Creek Mall shows up as one of the hottest areas in South-west Austin.

Unlike the Mueller commercial area, which is a mix of asphalt and concrete parking lots, the Mall is surrounded by black asphalt parking lots.



Downtown

The images to the left show two large downtown buildings: The Capital and the Convention Center.

The Convention Center has a grey roof and very little surrounding trees or green space. The Capital building has a dark roof but is surrounded by green space and trees.

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Thermal data: Landsat 7 Satellite, October 2009
Aerial photo: Capcog/City of Austin, February 2009
ACC instructor: Bonnie Brown