

BEAT THE HEAT

AUBURN, ALABAMA

Green Cities = Cool Cities



Demographics

Top Five Racial and Ethnic Groups*

69.3%	White (Non-Hispanic)
16.8%	Black (Non-Hispanic)
8.51%	Asian (Non-Hispanic)
3.57%	White (Hispanic)
.879%	Two+ Races (Non-Hispanic)
\$44,654	Median Household Income

*Source: 2018 Data USA, at: <https://datausa.io/profile/geo/auburn-al>



Urban Forest

55.4%	Current tree canopy
68.5%	Potential tree canopy
13.1%	Potential canopy increase
15.7%	Impervious surfaces
3,963	Acres of Potential Planting Area (PPA)



Urban Heat

98.4°F	Average surface temperature*
Projected future days above 100°F**	
7 days	Historically (1971 – 2000)
53 days	Mid-century (2036 – 2065)
90 days	Late century (2070 – 2099)



*across study area on September 7, 2016
 ** Data source: Union of Concerned Scientists, Killer Heat in the United States, at: <https://www.ucsusa.org/resources/killer-heat-united-states-0>

Overview

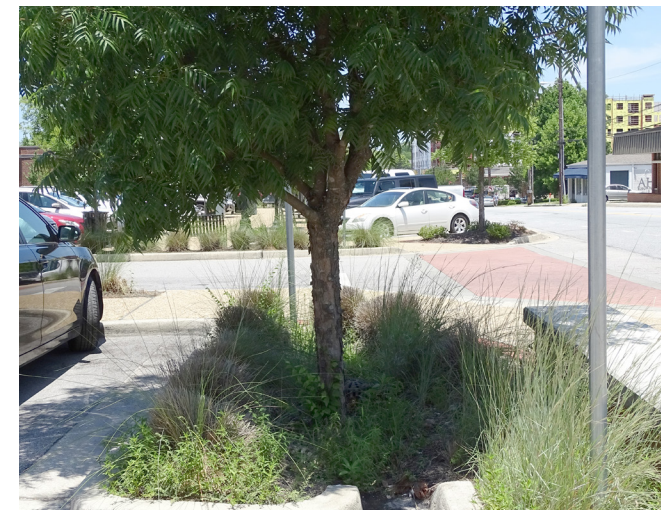
The City of Auburn's downtown was the hottest area of the city on September 7th 2016, with an average temperature of 114°F. Similar to most downtowns across the country, Auburn's downtown is 78% impervious, limiting space to add new trees. However, there are design solutions for densely built urban spaces where trees are needed. These technologies create underground structures that support



Auburn has utilized underground cells and permeable pavers to help large trees survive downtown.



¹ Source: Wolf, Kathleen L. "The environmental psychology of shopping: assessing the value of trees." International Council of Shopping Centers Research Review. 14 (3): 39-43. 4, no. 3 (2007_2): 39-43. https://www.naturewithin.info/Policy/FMJ_City%20Trees_Property%20Values.pdf



Auburn uses bioswales planted with trees to filter runoff from the new city parking lot.

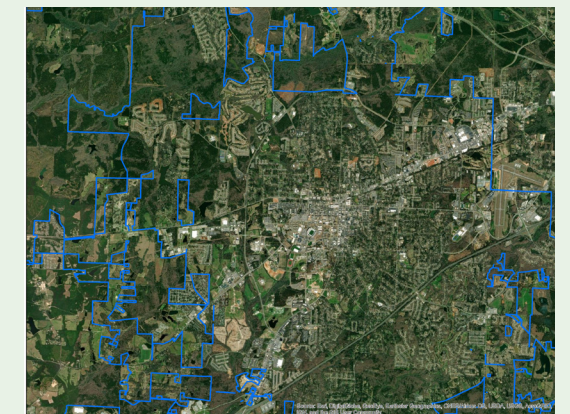
heavy foot traffic, while also giving sufficient soil volume for healthy tree growth. These technologies facilitate stormwater infiltration and air exchange for healthy root growth, while also accommodating underground utilities and maintenance access. While installing adequately sized tree boxes in downtown areas can be much more expensive than utilizing rectangular planting strips, the longer life spans for urban trees with adequate growth space yields greater environmental, economic and social benefits. Larger trees can better mitigate heat, capture more stormwater and attract patrons to local businesses. If existing tree wells are small, note that cities don't need to retrofit all of downtown at once. This would be both too disruptive for the community and cost-prohibitive. These types of underground planting structures can be retrofitted in phases during routine upgrades to facilities, when upgrading stormwater pipes, or when performing utility maintenance, road repair or repaving. The City of Auburn chose to add underground support cells along streets and sidewalks, and added trees to new bioswales that treat adjacent impervious surfaces and permeable pavement.



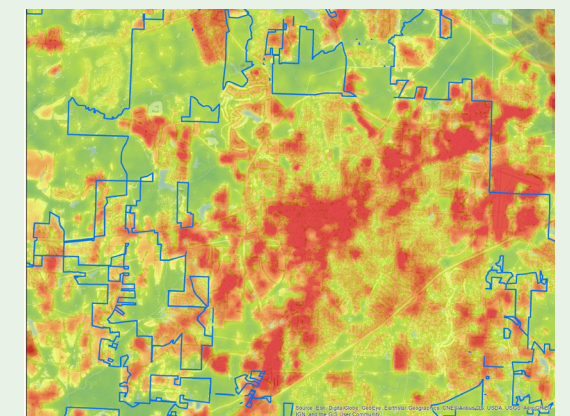
Underground support cells provide adequate soil volume for healthy tree growth while maintaining structural support and grade for highly trafficked areas, such as downtown cores.

Step-Wise Strategy to Identify Communities and Mitigation Opportunities

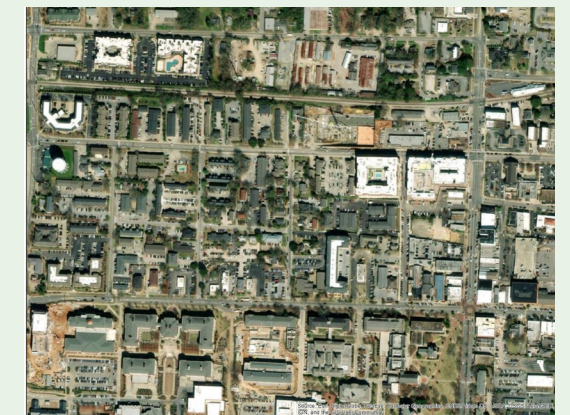
Town boundary aerial



Hot spots in town



Retrofit hot spots with trees in structures



1. Use maps to identify hot spot(s).
2. Don't disregard opportunities based solely on available planting areas.
3. Prioritize areas that meet the first two criteria.
4. Outreach and engage with the community.
5. Identify opportunities for retrofits that provide multiple benefits.
6. Phase in retrofits with upgrades or infrastructure maintenance.