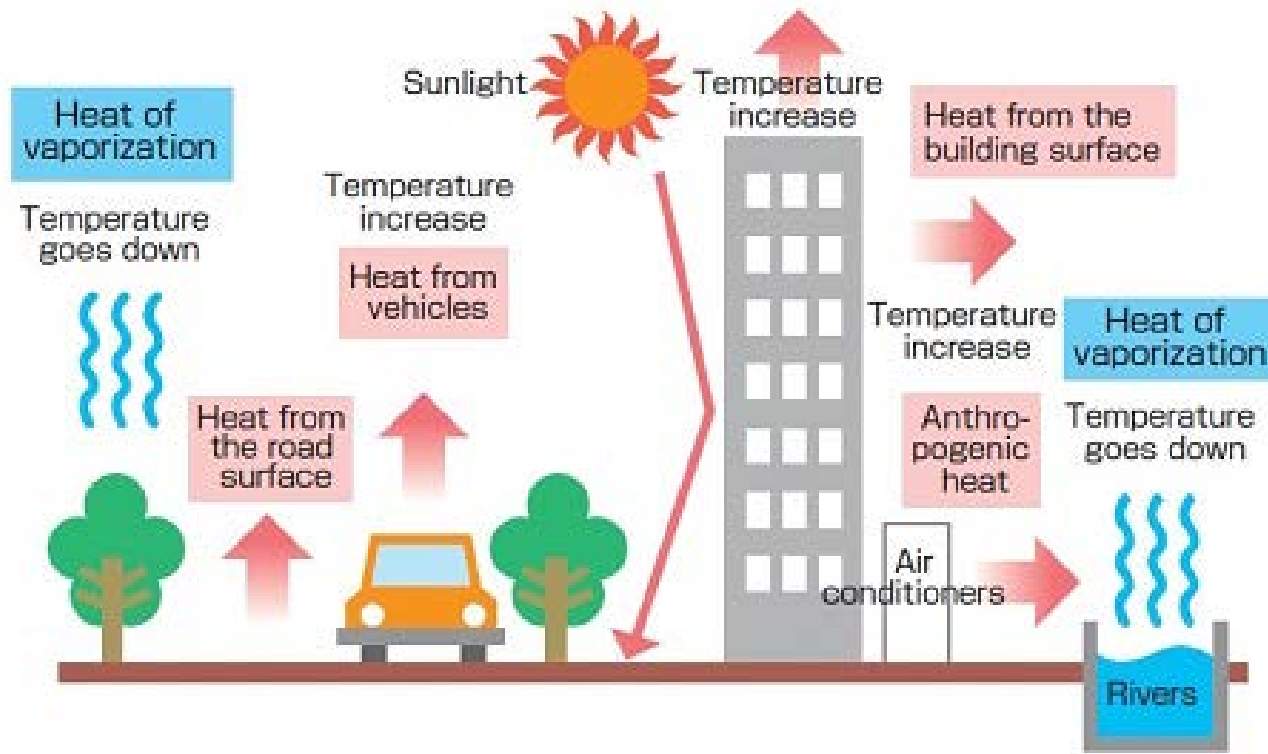


HEAT ISLANDS

September 9, 2021



Source: U.S. EPA 2012



“Heat islands are urbanized areas that experience higher temperatures than outlying areas.”

Impacts

- Increase energy consumption
- Elevated emissions of air pollutants and greenhouse gases
- Compromised human health and comfort
- Impaired water quality

BRYAN • COLLEGE STATION HEAT ISLAND

FACTORS:

ALBEDO

GREENSPACE

POPULATION DENSITY

BUILDING HEIGHT

INTENSITY SCORE

6°

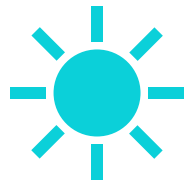
Source: Climate Central analysis based on Sangiorgio (2020) DOI: 10.1038/s41598-020-75018-4 and Demuzere (2020) DOI: 10.1038/s41597-020-00605-z

CLIMATE  CENTRAL

General Strategies to Reduce the Effects



Increasing tree and vegetative cover



Creating green or cool / reflective roofs



Using cool pavements



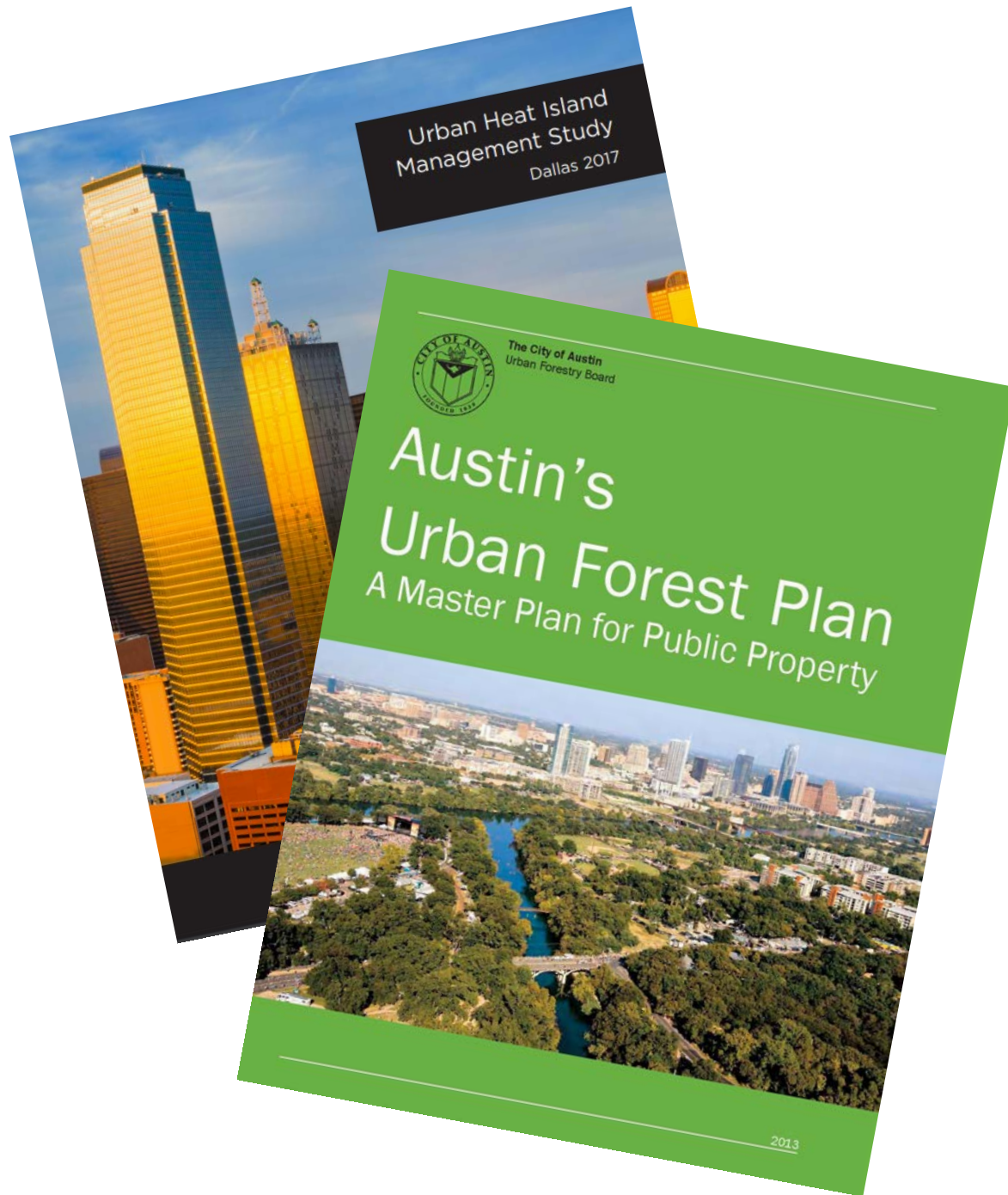
Source: <https://www.epa.gov/heatislands/reduce-heat-island-risks>

Image Sources: <https://www.slideshare.net/Soni3010/urban-heat-island-and-its-planning-measurement> and <https://heatisland.lbl.gov/coolscience/cool-pavements>

Things We Do Already

- Requirements for private development
 - Single-Family – Two trees
 - Multiple Family / Commercial - Landscaping point system and lineal foot – minimum of 50% of points to come from canopy trees
 - Buffers from adjacent properties
- All capital improvement projects require a 1%-2% landscape allowance
- Maintenance and replacement of street and facility trees
- Aggie Replant and Keep Brazos Beautiful to address gaps





Other Community Initiatives

- Tree and vegetation planting
- Development code options
- Green roofs
- Cool pavements
- Larger planning options

Benefits of Increased Vegetation



Shading and cooling the urban heat island / energy conservation



Water filtration and retention



Reducing air pollution and storing carbon



Aesthetics



Increasing property values

HEATING AND COOLING COSTS - A 25 foot tree reduces annual heating and cooling costs of a typical residence by 8 to 12 percent, producing an average \$10 savings per American household. Also, buildings and paving in city centers create a heat-island effect. A mature tree canopy reduces air temperatures by about 5 to 10° F, influencing the internal temperatures of nearby buildings.

Source:

<https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/Urban%20Forest%20Values.pdf>