



MITIGATING URBAN HEAT

How Parks Advance Sustainability and Resilience

Extreme heat is the number-one weather-related cause of death in the United States and poses a major threat to public health and livability. Cities are at elevated risk from extreme temperatures because they absorb and re-emit more of the sun's energy compared to natural landscapes. Since vegetation provides shade and does not retain heat as well as built structures, green space and parks are some of the best lines of defense for cooling cities.

Health and Equity Considerations

Redlining and other racially motivated land use policies and practices contributed to an unequal distribution of parks and green spaces across cities. This disparity has resulted in significant temperature differences between neighborhoods, with previously redlined areas experiencing surface temperatures **up to 12.6 degrees higher** than nonredlined areas.

This means that the most vulnerable communities face a disproportionate risk of experiencing dangerous temperatures and suffering negative health outcomes.

Extreme heat can worsen pre-existing health conditions and cause its own set of challenges, including respiratory difficulties, cramps, exhaustion, and heat stroke. In addition, elevated temperatures can affect communities by increasing peak energy demand, air conditioning costs, and pollution.

Key benefits of mitigating urban heat include the following:

- Improved public health and reduced incidence of heat-related illnesses
- Decreased energy consumption and air conditioning costs
- Improved community resilience
- Reduced water consumption
- Reduced air pollution

Leveraging Parks to Mitigate Urban Heat

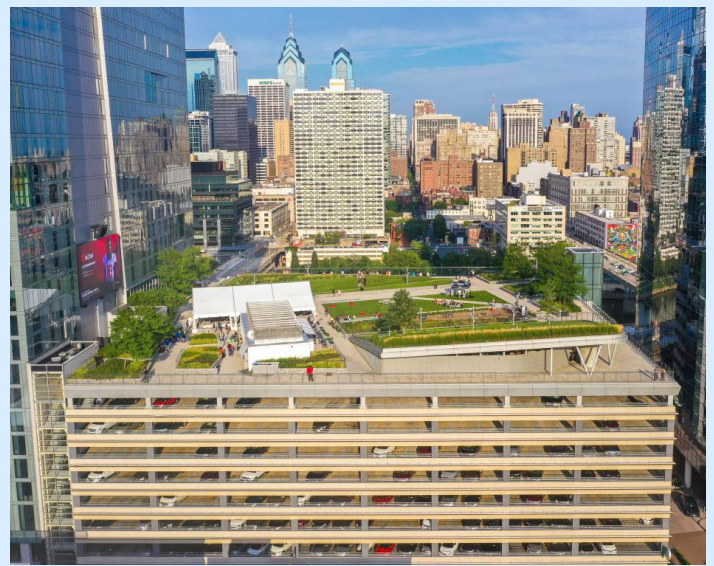
Planners and developers can mitigate urban heat by leveraging the cooling power of parks. Key strategies include the following:

- **Preserving existing green space, vegetation, and tree canopy.** Preserving green space and vegetation can help reduce air temperatures and energy demands in the summer.
- **Establishing new parks in park-poor areas.** Using heat mapping and other tools, cities can understand which neighborhoods are the hottest and can allocate resources to build or incentivize new parks in those areas.
- **Planting and maintaining tree cover and vegetation.** Planting and maintaining vegetation can increase shade cover and provide enhanced cooling effects throughout a city.
- **Installing green roofs or cool roofs.** Green roofs have vegetation, while cool roofs are made with special materials or coatings that help reflect sunlight and heat away from a building.
- **Installing cool pavements in parks and trails.** Parking lots, sport courts, paved walking trails, and sidewalks can be built with cool pavement materials to reflect solar energy and enhance water evaporation.
- **Building shade structures and other heat-resilient infrastructure.** In addition to natural tree cover, the installation of shade structures, especially for playgrounds and other facilities, can help reduce temperatures in parks.
- **Leveraging park and recreational facilities to help people cool off.** Parks provide swimming areas, splash pads, and shade structures that can help residents stay cool on hot days. During intense heat waves, cities can transform indoor recreational facilities into cooling centers to provide free access to air conditioning to minimize the dangers of extreme heat for vulnerable populations.

Project Example

Cira Green, Philadelphia, Pennsylvania

Cira Green is an elevated 1.25-acre publicly accessible park situated atop a parking garage, and designed to create a vibrant gathering space, minimize risk of stormwater inundation, and mitigate urban heat. The park, which serves as a public event and community gathering area for the city, brings welcome green space to the area and makes smart use of an otherwise unoccupied rooftop space. The functional and aesthetic design elements of Cira Green provide a strong example of how green roof principles can be integrated to minimize heat stress and reduce stormwater inundation. [Learn more.](#)



Additional Resources

- [Scorched: Extreme Heat and Real Estate](#) (ULI)
- [Houston, Texas: Urban Heat Island Mitigation](#) (ULI)
- [“How Decades of Racist Housing Policy Left Neighborhoods Sweltering”](#) (*New York Times*)