ANJEC REPORT
Local Environment Matters
ARTICLE REPRINT
The ANJEC Report is a quarterly publication of the Association of NJ Environmental Commissions.
Read additional articles online at www.anjec.org/ANJECReport.htm

Reprinted from the Fall 2014 issue

How cities are confronting the urban heat island effect

By Julie Lange Groth, ANJEC Report Editor

More people die from excessive heat exposure in the US than from hurricanes, lightning, tornadoes, floods and earth quakes combined. The problem is markedly worse in cities, where the urban heat island effect causes summer temperatures to spike up to 22 degrees higher than in neighboring, less developed areas, especially after sunset. Children, older adults and people with existing health conditions are especially vulnerable.

A shady street in Salem, NJ

According to a new survey, many US cities are implementing strategies to reduce excess heat caused by the hard surfaces in urban landscapes, such as buildings, roads, and other infrastructure. A "heat island" of elevated temperature results as urban areas become warmer than their rural surroundings. Heat island impacts include impaired water quality, increased energy consumption and elevated air pollution and other human health threats.

The study, conducted by the American Council for an Energy Efficient Economy (ACEEE) and the Global Cool Cities Alliance (GCCA), surveyed 26 cities in the US and Canada, including New York City and Philadelphia, and several common themes emerged. Local governments are leading by example by requiring use of "cool" technologies, such as reflective roofs on municipal buildings, lining city streets with shade trees, and raising public awareness. More than half of the cities have some kind of requirement in place for reflective and vegetated roofing for private sector buildings. Almost every city has policies to increase tree canopy and manage storm water.

"Our report finds that by addressing their urban heat islands, cities are more effectively delivering core public health and safety services, making them attractive places to live, work, and play," said Kurt Shickman, executive director of the Global Cool Cities Alliance.

The report includes case studies on how several cities have responded to urban heat, demonstrating the variety of strategies employed. In response to a study that found that Houston's roofs and

(Continued)

pavements can reach 160° F, the city now requires most flat roofs in the city to be reflective. After an extreme heat wave in 2008, Cincinnati lost much of its urban canopy, and instituted an aggressive forestry plan. Washington D.C. has instituted a wide suite of programs such as Green Alleys, which helps residents manage excess stormwater by replacing pavement with grass and trees, and requiring reflective roofs on all new buildings.

The survey also found that most city governments are not acting alone to reduce excess heat. States, neighboring jurisdictions, utilities, developers, contractors, and local building owners are collaborating to create incentives for communities to reduce urban heat and mainstream these practices.

In New Jersey

According to Shickman , there are no cities in this State that have cool roof requirements. The New Jersey Chapter of the American Planning Association does include ways to reduce the urban heat island effect in its *Planning Guide for Sustainable Cities .*

The Cool Cities Initiative is a joint effort between the New Jersey Department of Environmental Protection (NJDEP) and the New Jersey Board of Public Utilities. The NJDEP works with municipalities to plant many thousands of shade trees in residential neighborhoods and low-rise, mixed-use areas on publicly owned land across the Garden State.

How do New Jersey's urban communities benefit from these trees? In summer, when the temperature in cities can be up to 12°F hotter than the surrounding countryside due to the heat island effect, trees provide shade and reduce the heat absorbed, which lowers surface temperatures by 7° to 11°F and air temperatures by 2° to 7°F.

Groundwork Elizabeth of Elizabeth, New Jersey, is a local initiative for mitigating heat islands. It is a private/public partnership that works on reclaiming vacant land, cleaning up neglected areas, returning brownfields, promoting environmental education, and tree planting through the State's Canopy Program.

More info

- *Mitigation of the Heat Island Effect in Urban New Jersey: http://pubs.giss.nasa.gov/docs/2005/2005_Solecki_etal_1.pdf*
- *APA-NJ Planning Guide for Sustainable Cities - www.slideshare.net/APA-NJ/planning-for-sustainable-communities-master-plan-guidance-for-new-jersey-officials?redirected_from=save_on_embed*
- *NJDEP's Cool Cities Initiative –www.state.nj.us/dep/parksandforests/forest/community/Cool_Cities.html*
- *Groundwork Elizabeth - http://njbikeped.org/heat-island-mitigation-in-new-jersey/*
- *Cool Policies for Cool Cities: Best Practices for Mitigating Urban Heat Islands in North American Cities, visit: http://aceee.org/research-report/u1405*
- *Cool Roofs and Pavements Toolkit: www.coolrooftoolkit.org/knowledgebase/cool-policies-for-cool-cities/*