

# Urban Heat Island Effect - Mitigation

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Tucson AZ, Earth Camp for Educators 2012



The Power of Perspective

Artist's view of a U.S. Landsat satellite. Credits: NASA

We can reduce (mitigate) urban heat islands using four main strategies:

- increasing tree and vegetative cover
- installing green roofs
- installing cool roofs
- using cool pavements

## Planting Trees

Tucson is one of nine “Cool Communities” in the nation, due primarily to its “Trees for Tucson” program. Trees are one of our most important allies in the fight against the urban heat island effect. Air temperatures directly under trees can be as much as 25 degrees cooler than temperatures over unshaded blacktop.



Trees for Tucson program, TEP, Tucson, AZ

**Win-Win!**  
Trees and vegetation help to reduce pollution and...

- Reduce energy costs
- Reduce greenhouse gases
- Increase property values
- Improve human health and comfort

## Green roofs...

are roofs planted with grasses, flowers, shrubs, or other vegetation. Like trees planted at ground level, the vegetation shades the surface, keeping it cooler. Reducing the urban heat island effect isn't the only benefit of green roofs - they can also be used to grow fresh, local produce in the city, and they significantly reduce stormwater runoff.

**Win-Win!**  
Green Roofs help to reduce pollution and...

- Reduce energy costs
- Reduce greenhouse gases
- Increase property value
- Provide a community garden or park for apartments



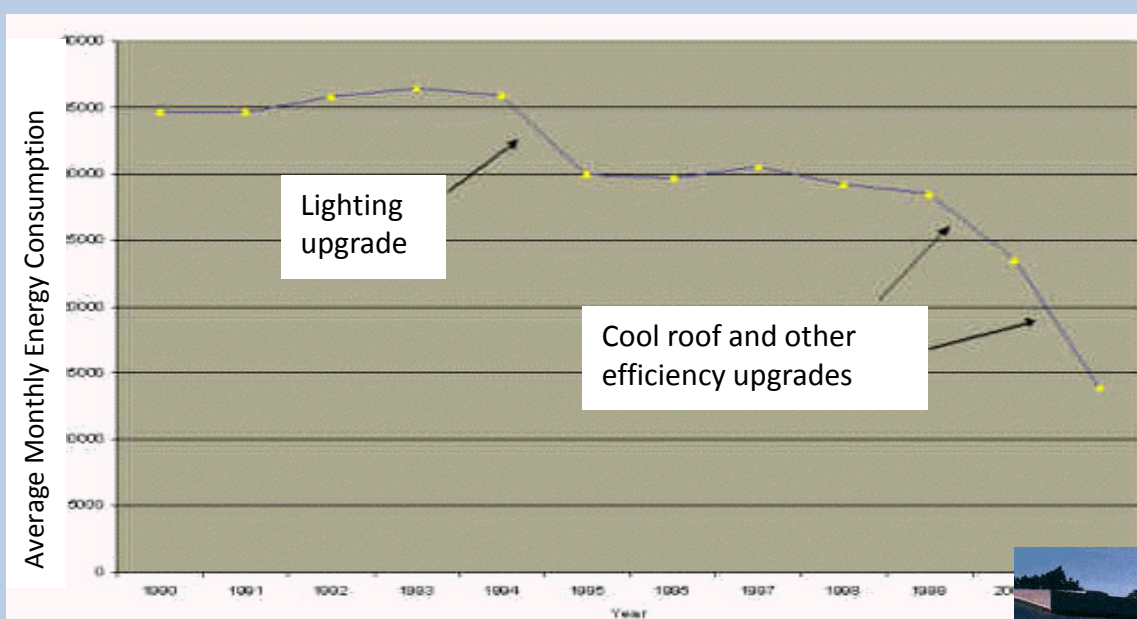
## Cool pavement

Many types of cool, **permeable pavements** reduce the urban heat island effect in one or more ways. For example, grid or block pavers may incorporate grass or other groundcovers, which help shade the surface of the pavement and increase local evapotranspiration. **Porous pavements** often have much lower total mass than asphalt or concrete, reducing the amount of heat they absorb, and many **permeable pavements** reflect more of the Sun's energy.



## Cool roofs...

are light colored surfaces that reflect the Sun's energy. Well designed white or light colored roofs can significantly reduce the amount of heating that occurs through the roof, lowering the roof surface temperature by as much as 100 degrees and reducing heat transfer to the interior, reducing energy use. Light colored pavement, walls, and other surfaces also reduce the urban heat island effect.



**Win-Win!**  
Cool Roofs help to reduce pollution and...

- Reduce energy costs
- Reduce greenhouse gases
- Increase property values
- Reduce peak-time energy usage

