

THE ARIZONA REPUBLIC

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EDITORIAL

Editorials represent the opinion of the newspaper, whose Editorial Board consists of: Phil Boas, Richard de Uriarte, Jennifer Dokes, Cindy Hernandez, Kathleen Ingley, Doug MacEachern, Joel Nilsson, Dan Nowicki, O. Ricardo Pimentel, Robert Robb, Paul Schatt, Linda Valdez, Ken Western and Steve Benson.

Let's cool it!

Our stand: We got ourselves onto this heat island, we can get ourselves off it

You can feel it. Just go for a drive at night on the fringes of the Valley and trail your hand out the window. As the houses disappear and you move into farmland or desert, the temperature falls abruptly. The drop can be as much as 18 degrees. "It's like falling off a cliff," says one researcher.

It's the urban heat island effect, and it's going full blast in the Valley.



Our urban heat island, and how to escape it

Series at a glance

TODAY: The Valley's urban area generates extra heat, putting a burden on our comfort, our wallets and our health. It's time to fight back.

PART 2: Turn roofs into solutions, not problems.

PART 3: Use the cooling power of trees.

PART 4: Make roads more reflective.

Web sites with further information:
<http://eetd.lbl.gov/HeatIsland>
<http://yosemite.epa.gov/OAR/globalwarming.nsf/content/ActionsLocalHeatIslandEffect.html>

got a taste just two months ago, on July 15, when the thermometer never dipped below 96 degrees.

Researchers say we're headed for a time when nights never get cooler than 100 degrees in the Valley.

This isn't a natural disaster, an earthquake or a hurricane that we can't control. We got ourselves onto this heat is-

land.

And we can go a long way toward getting off.

We must ramp up awareness; the threat is just appearing on the radar screen for local communities. And we must put out a little more money and effort now for benefits over the long term, not an easy step in this impatient state.

Unlike other metro areas, the Valley suffers from the heat island mostly at night. During the day, the desert around us may actually be hotter because plants and irrigation create an "oasis" in developed areas. Once the sun goes down, though, we get a double punch: The urban area takes a long time to even start cooling off, and then the heat dissipates very slowly.

Sweating is just the start. We're paying for the extra heat in all kinds of ways.

■ **Your electric bill is higher.** Air conditioners use 2 to 3 percent more electricity for each degree that the temperature rises, according to Arizona Public Service Co. Nationally, the heat island adds an estimated 5 percent to total air conditioning costs, or about \$1 billion a year in electricity.

■ **Your landscaping suffers.** Plants that can tough it out during the day become stressed and weak when nights stay hot. They need even more water to survive and some just don't make it.

■ **You breathe dirtier air.** Heat aggravates pollution: Los Angeles, for instance, chokes on 3 percent more smog for each degree the temperature rises above 70. Plus, power plants create more pollutants when they have to generate more electricity.

■ **Your water use goes up.** The heat raises evaporation rates, boosting water use for everything from irrigation to filling swimming pools.

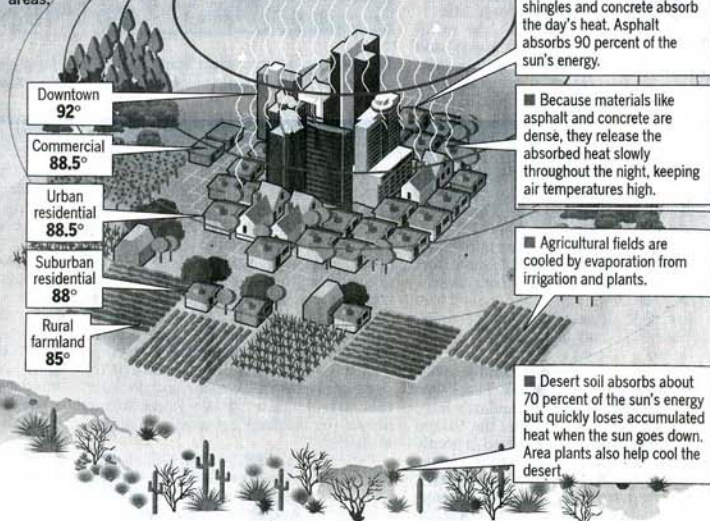
■ **Your job prospects could wilt.** In an era when "quality of life" has become key to attracting businesses, the urban heat island can only tarnish the Valley's allure.

In some places, a city's extra heat seems to be changing weather patterns, as is happening in Atlanta. While some people suspect the same thing is happening in the Valley, Arizona State University Professor Randall Cerveny says the

Phoenix, an island in the desert

Cities, with lots of concrete and asphalt, tend to be hotter than the surrounding countryside, an effect known as the "urban heat island" that is most noticeable at night.

Nighttime temperatures in Valley cities can be 10-15 degrees higher than in nearby rural areas.



Sources: National Weather Service, U. S. Department of Energy, Arizona Republic research.

Mark Waters/The Arizona Republic

data show no impact.

But the heat island has made one change: Wintertime freezes have about disappeared from the Valley core. That's a plus for the few remaining citrus orchards, and it means you can grow frost-sensitive plants like organ pipe cactus. But the lack of vegetation dieback probably boosts the population of insects and other garden pests.

Human-generated heat is taking such a toll in health, energy use and pollution around the country that in 1997 the Environmental Protection Agency launched a multiagency project to combat it, the Heat Island Reduction Initiative.

The risks are starting to sink in here in Arizona.

Phoenix Mayor-elect Phil Gordon included the heat island as an issue on his campaign Web site. Gilbert's general plan, adopted in 2001, calls for reducing the heat island effect. Gilbert is just translating that into design guidelines and recommendations.

Phoenix went further last year, devoting an entire section of the general plan to the issue. But it took a tremendous push to get the heat island included.

Phoenix planner Dean Brennan explains, "The attitude is, 'We're hot, what difference does it make?' It's something that people need to be made aware of."

Tucson is far ahead: It started tackling the problem a decade ago. The non-profit Tucson Clean & Beautiful has helped run several "cool communities" conferences since 1998.

Researchers are still figuring out exactly how urban areas warm up, and they're refining ways to offset the effects of development. But the basic strategies are clear, and we can start on them now:

■ Plant more vegetation, especially trees. They not only shade surfaces, they act as nature's evaporative coolers.

■ Install "cool" roofs, which absorb less heat and shed it quickly

■ Use lighter-colored pavement to reflect heat.

Rapid growth is expanding the Valley's heat island every day. It doesn't have to. We can develop in smarter ways, committed to long-run costs and benefits, and stop stoking the furnace.

Written and researched by Kathleen Ingley.