

Innovations

Why L.A. is coating its streets with material that hides planes from spy satellites

By Peter Holley August 18



A woman with an umbrella walks past the Broad Museum during a heat wave in July 2016 in Los Angeles. (Jae C. Hong/AP)

Climate change conjures up distant images of rising seas and cracking ice sheets, but in cities across the United States the effects of global warming are apparent as soon as you step outside.

It's known as the "[urban heat island effect](#)," and it refers to the pockets of intense heat captured by the concrete, asphalt, dark roofs and the dearth of foliage that define many American cityscapes.






Los Angeles — surrounded by desert and encased in thousands of miles of asphalt — is the poster child of the heat island effect, experts say, which explains why city officials are exploring innovative ways to combat record-breaking, rising temperatures. Los Angeles Mayor Eric Garcetti wants to reduce the city's average temperature by 3 degrees Fahrenheit over the next 20 years, [according to the Los Angeles Times](#).

One tactic for achieving that goal may involve coating city streets in a substance known as CoolSeal, a gray-colored coating designed to reflect solar rays. City officials said CoolSeal has already shown promising results. The coating was first tested in 2015 on a parking lot in the San Fernando Valley, one of the hottest parts of town, according to Greg Spotts, the assistant director of the Bureau of Street Services, which oversaw the testing. Summer temperatures in the area — which average in the upper 80s — have climbed above 100 degrees multiple times over the past year.

"We found that on average the area covered in CoolSeal is 10 degrees cooler than black asphalt on the same parking lot," Spotts said. "We thought it was really interesting. It's almost like treated asphalt warms at a lower rate."

City officials [claim Los Angeles](#) is the first U.S. city to test cool pavement to fight urban heat.

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The hope, they say, is that cooler streets will lead to cooler neighborhoods, less air conditioning use and fewer heat-related deaths. The metropolis is one of the only cities in the nation that experiences heat-related deaths in the winter, a phenomenon expected to worsen alongside temperatures, Spotts said. Complicating matters, experts say, is the fact that many Los Angelinos live in multifamily dwellings without air conditioning.



The city of Los Angeles is coating streets in a special gray paint that can lower the temperature as much as 10 degrees. (City of Los Angeles)

“Not everyone has the resources to use air conditioning, so there’s concern that some low-income families will suffer,” Alan Barreca, an environmental science professor at the University of California at Los Angeles, [told Agence France-Presse](#). “That bothers me on a moral dimension. The pavement would provide benefits to everyone.

“It can protect people who have to be outdoors,” he added.

Officials believe treated streets are more comfortable for pets as well, as Fox affiliate KTTV found [when they tested](#) whether pets that avoided hot asphalt were more willing to walk on a treated roadway. (Spoiler alert: they were!)

To determine whether CoolSeal is cost-effective and how it influences drivers, Spotts said his agency has applied the product to designated streets in 14 of the city’s 15 council districts, where it will be monitored and studied through the fall.

“We think that more than 10 percent of the city is asphalt — that’s 69,000 city blocks,” Spotts said. “There’s been estimates that suggest covering a third in the city’s pavement with a cooler materials might be able to move the needle on the city’s temperature.

“We’re not ready to do that, but we do want to explore what it might take to go big and take this thing to scale,” he added.

The coating costs about \$40,000 per mile and lasts seven years, officials said.

Street Services is carrying out their pilot program with GuardTop, a California-based, asphalt coating manufacturer. The company began working with the defense industry to develop cool pavement for military spy planes, according to Jeff Luzar, GuardTop’s vice president of sales.



A parking covered in CoolSeal was on average 10 degrees cooler than conventional asphalt. (Photo courtesy of the City of Los Angeles)

Luzar said the officials were interested in lowering the temperature of taxiways so that aircraft would be less easily seen by spy satellites using infrared cameras, which form images using thermal energy. Years later, the product being applied to Los Angeles streets is similar, but it has been refined over the years to make it even more solar reflective.

Since news about the pilot program broke, GuardTop has received inquiries from all over the world, including China, Israel, Australia and Saudi Arabia.

Spotts said the attention the pilot program has received shows Los Angeles is ahead of the curve when it comes to combating global warming. The city began using natural gas-fueled trash trucks and commuter buses ahead of other cities, he said.

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“We’ve done things over and over again that people said couldn’t be done, and this time is no different,” he said

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