

# Health warning draws attention to color of LED streetlights in Minneapolis, St. Paul

The golden glow of Twin Cities streetlights will soon give way to the whiter hue of LED technology, raising new questions about the color and feel of our neighborhoods.

By Eric Roper (<http://www.startribune.com/eric-roper/62906482/>) Star Tribune |

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The golden glow of Twin Cities streetlights will soon give way to the whiter hue of LED technology, raising new questions about the color and feel of our neighborhoods.

Doctors, engineers and neighbors are debating the trade-offs as thousands of LED streetlights are installed across the metro area in the coming years. They consume much less energy, last longer and can focus light more precisely, but the lights also are capable of producing harsher light.

“I open the shades, and it’s like I’m out in front of Split Rock Lighthouse,” said Richard Rangel, staring at the gleaming LED lanterns on his street corner in St. Paul’s Lexington-Hamline neighborhood one recent evening.

Public works officials got a jolt in June when the American Medical Association, which otherwise supports the conversions, warned against installing a common type of LED streetlight preferred by many Minnesota governments and Xcel Energy. Its blue-filled white light can disrupt sleep patterns — similar to staring at a smartphone before bed — and generate more glare that temporarily impairs vision, the association said.

The warning from the AMA was enough to spur St. Paul to plan testing the performance of LEDs that emit warmer colors, which are slightly less efficient. Minneapolis is doing the same. But Xcel Energy, which is replacing 100,000 lights across the state over the next several years, says it will be using the bluer LEDs for the vast majority of its fixtures.

“Our proposed LED lights are considered to be functionally equivalent or superior to what we’re currently using on our streetlights in Minnesota,” Xcel spokesman Matt Lindstrom wrote in an e-mail. “They have significantly lower glare for improved nighttime visibility and allow people to better discern color.”

More Twin Cities residents will likely see the difference in the coming years as the upgrades reach deeper into residential areas — most conversions so far have been taller lights on busy roads. Xcel has already piloted its LED lights in West St. Paul and plans to begin updating its Minnesota fixtures, including many in Minneapolis and the Twin Cities’ suburbs, this August. Minneapolis and St. Paul collectively operate nearly 60,000 streetlights.

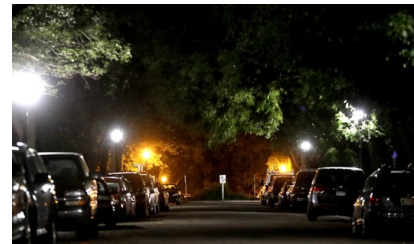
## Negative health effects?

The health debate over streetlights reflects a growing awareness of how blue-rich light impacts sleep cycles. Apple even added an optional feature to its iPhones this year that transitions the screen to warmer, yellow-hued colors at night.

Harsh white light contains more blue wavelengths, which signals to the brain that it is still daytime, said Dr. Michael Howell, a sleep expert at the University of Minnesota. That disrupts the biological clock, which can hinder sleep, make sleep less refreshing or change eating habits in ways that increase calorie intake.

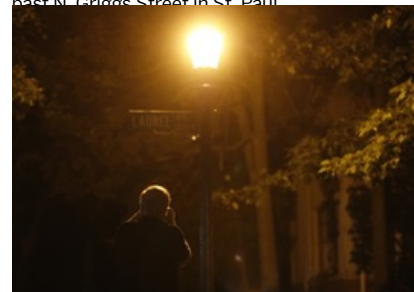
“If you want to have a public health policy that can decrease obesity, decrease cardiovascular disease, improve mood, a straightforward approach to that is [to] decrease the blue light exposure we have in the evening,” Howell said.

Such color differences are measured by their “color temperature.” Today’s yellowish high-pressure sodium streetlights emit a temperature of about 2,100 degrees Kelvin, compared to 4,000 Kelvin for common LED streetlights and 6,500 Kelvin for daylight,



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The difference in the color temperature of the streetlight bulbs is apparent on Laurel Avenue east N. Griggs Street in St. Paul.



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Steve Orfield of Orfield Labs took a reading of a non-LED streetlight on Laurel Avenue in St. Paul.

according to the AMA. The association recommended installing streetlights at 3,000 Kelvin or lower along with adequate shielding.

Minneapolis traffic operations engineer Steve Mosing said those warmer-colored streetlights have recently become available in the city's preferred wattages. The city intends to test them on Plymouth Avenue in north Minneapolis.

St. Paul ordered a number of the warmer lights after residents began citing recent reports of the health effects. "It became obvious that we should at least be looking at that and responding to that," said John McNamara, the city's general lead electrician in traffic operations. The city also offers shields to homeowners who ask for them.

Only about 5,500 of St. Paul's 38,000 streetlights have been converted to LED, most of them downtown or on major roads. Shorter residential LEDs are still too costly for a massive retrofitting in the immediate future, McNamara said, but Lexington-Hamline's historical lantern-style lights were converted as part of an initiative to repair older infrastructure.

### Residents take notice

History shows that people feel strongly about the color and brightness of streetlights.

When cities transitioned away from mercury vapor technology in the 1980s, St. Paul residents vocally rejected the orange glow of low-pressure sodium lights tested by the city — in favor of less efficient high-pressure sodium bulbs. Minneapolis faced a backlash in the early 2000s after installing more than 8,000 ornamental streetlights that police and residents complained increased glare significantly. In the aftermath, the city developed a policy requiring new streetlights to focus light exclusively downward.

The angle of a light's distribution is often more important than the color it emits, says Steve Orfield of Orfield Laboratories, a lighting expert who has studied streetlights for Minneapolis. He believes many streetlights shine light too broadly — increasing glare for pedestrians and drivers.

"If the city was using LED lights that were angularly controlled well enough, you'd find that this [color] discussion would be essentially irrelevant," Orfield said, noting that the light source itself should ideally not be visible unless someone is underneath the light.

The historical lamps in Lexington-Hamline, designed for gaslight, throw light with less focus than some newer lights in the city. A staff member at the Lexington-Hamline neighborhood association said she has heard complaints from 10 to 15 residents. One is Diana Scimeca.

"I feel like I'm in a parking lot when I walk outside," Scimeca said. She noted that a recent block party was even cut short by the harsh glow.

"Everybody starting saying, 'I hate these lights, I hate these lights, I hate these lights.'"

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Streetlights to be replaced across state Total lights in Minneapolis and St. Paul