

SAFER PARKS AFTER DARK

New night-lighting methods help provide answers for dark-sky advocates



Civic Space Park, Phoenix by Michael Ruiz

By Peter Harnik, Ryan Donabue, and Jordan Thaler

To light ... or not to light. For urban parks, that is often the question, and an early nighttime flight over a city clearly reveals the dichotomy. Within the fabric of pulsing roads and faintly shimmering neighborhoods, the patches of complete blackness are almost invariably parks—the only spaces that retain the ancient vestige of total darkness in our modern, artificial world. And the pools of dazzling white light are usually also parks—venues where baseball, football, or other organized games are being played.

In the past, the debate over lighting seemed to admit no compromise. Advocates claim that parks obviously need lights for safety: the more bulbs, the fewer criminals, the less vandalism. Opponents lament losing the beauty and primordial romance of nature in the dark. Organizations such as the International Dark-Sky Association (IDSA) and National Dark Sky Week battle light pollution, and say it disrupts patterns of behavior for nocturnal animals

and prevents humans from enjoying the wonders of the nighttime sky. Even dark parks aren't always dark enough. In December 2010, when a ranger took a group of New Yorkers out to a remote park at midnight to watch what was expected to be a spectacular meteor shower, the shooting stars weren't visible because of the overwhelming ambient glow from the city.

Park managers are caught between the politics and the significant expense of installing lighting and paying utility bills. Fortunately, technological advances are helping to bridge the gap. Some programs are showing that lighting can help purge parks of criminal behavior, and new technology enables light to be confined to the ground without blurring the cosmos—at lower cost.

One proponent of bright parks is Los Angeles, known for its shortage of parkland in crowded, low-income communities and also for a gang turf culture that

frequently spills over into parks. Harvard Park in Inglewood, historically a flashpoint for gang conflict, was perennially shunned after dark by all but the bravest of residents. Thanks to an initiative called Summer Night Lights, things have been different for the past three years. The city, by ratcheting up nighttime visibility and adding programming such as athletic leagues, arts initiatives, and family programs at Harvard Park and 23 others, has helped use gang loyalties to spur healthier organized competition and to diminish vandalism, drug use, and violence.

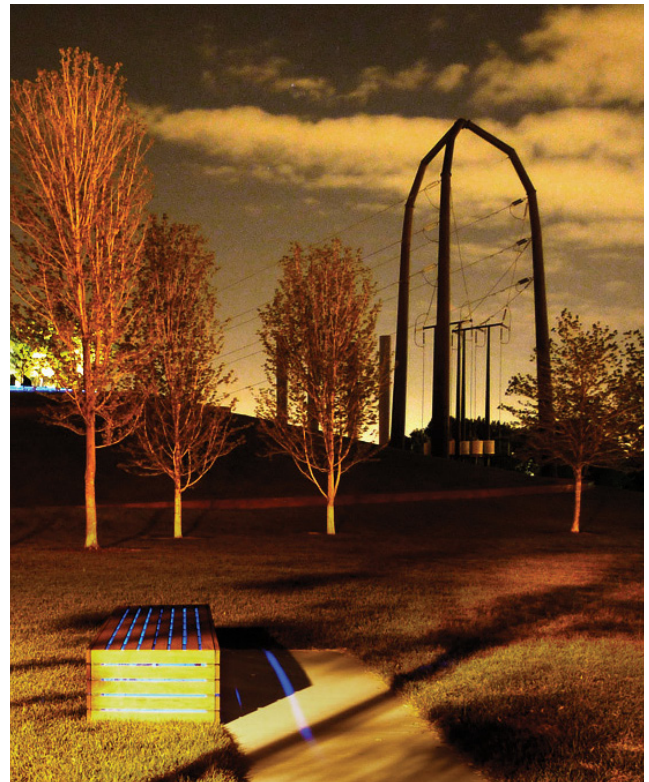
Because of the lights and programs, other members of the community now feel comfortable there at night, too, which improves Harvard Park's usership and safety. Alicia Avalos, the director of Summer Night Lights, says: "The program is not about changing someone's identity, but rather curbing violent behavior. Out of 24 sites, we have not had to pull out of one." Compared with statistics from before the program, she notes, there has been a 40 percent reduction in gang activity and a 57 percent reduction in gang-related homicides. The success of the program has made it a priority at city hall. Even as Los Angeles struggles with a budget deficit, the program has been expanded to include eight more parks. (About half the \$6.2 million program is funded by private companies.) Other cities are seeing the light, too—Long Beach, California, and Jacksonville, Florida, have recently started similar programs.

Although the Los Angeles program is a success, it's not universally agreed that maximizing lighting is the key to safety. Some people believe that programming and community building do more than bulbs, and they challenge the notion that brighter parks are necessarily safer.

"Based on before-and-after studies of crime statistics, there is no clear evidence that outdoor lighting reduces crime." That's the verdict of a March 2008 study by the Royal Astronomical Society of Canada, which found that many criminal activities, such as theft, are "more prevalent during daytime hours," and that "artificial lighting can encourage certain types of vandalism, such as graffiti, as individuals are better able to see what they are doing." In the United Kingdom, a 2009 study by the Royal Commission on Environmental Pollution suggested that badly designed street lighting can lead to glare and dark shadows that may promote rather than

hinder criminal activity. A meta-analysis by British researchers looked at eight American studies, finding that they split evenly on the topic of whether lighting reduces crime in parks. When the results of the studies aggregated, they did show a seven percent reduction in criminal activity—but that figure is barely statistically significant.

In some cases, leaving a park dark can make it safer by not giving users a false sense of security. Greenway designers argue that if lighting is going to be placed haphazardly, it is better to make its absence conspicuous, clearly signaling that the area is not meant for use after dark. Also, if only certain paths are lit, criminals can more easily predict the paths of pedestrians. (These are sometimes referred to as "channelized routes" or "movement predictors.")



Gold Medal Park, Minneapolis by Mark Nye

Whether lighting actually increases safety or not, it certainly makes people *feel* safer; lighting is regularly one of the most requested new features. And if people begin to feel more comfortable in a park, it will become safer simply by being better used. The stellar crime reduction that accompanied Summer Night Lights cannot be fully attributed to lighting; the presence of gang interventionists and professionally supervised recreation programs surely played a role.

Comparison of Lighting Costs

FIXTURE	Light Type	Fixture Cost	Annual Maintenance Cost	Annual Energy Use	Annual Energy Cost	Total Annual Cost	7-year* Total Cost
150W Cobra head/standard with electronic ballasts	HPS	\$160	\$100	672 kWh	\$103	\$203	\$1,578
100W Cobra head/standard with electronic ballasts	HPS	\$160	\$100	476 kWh	\$73	\$173	\$1,368
250W Historic (i.e. shielded teardrop)	HPS	\$95	\$100	1,230 kWh	\$188	\$288	\$2,108
108W LED (standard pole or under deck)	LED	\$1,050	\$0*	443 kWh	\$68	\$68	\$1,523
90W LED (standard pole or under deck)	LED	\$1,050	\$0*	369 kWh	\$56	\$56	\$1,444
90W Central Park LED	LED	\$1,650	\$0*	369 kWh	\$56	\$56	\$2,044

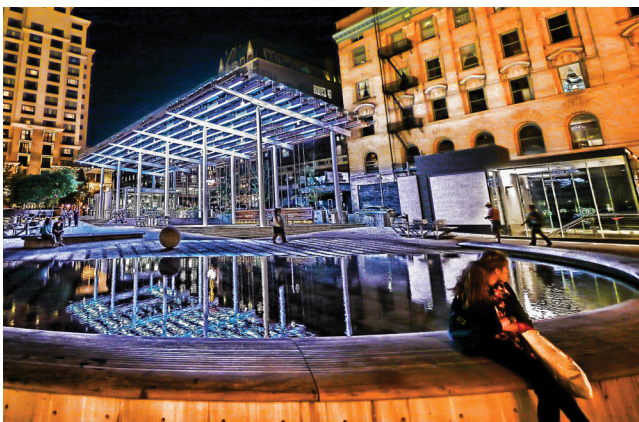
HPS—high power sodium

LED—light emitting diode

*The LED components are covered under a 7-year manufacturer's warranty.

Even beyond crime reduction, there are plenty of reasons to better equip urban parks with more—and more modern—light technology. Lighting maximizes the efficiency of the existing park stock by allowing considerably more use. In New York City, the lighting of fields allows two more hours of daily use in the summer and four more in the winter and fall.

Astronomical organizations and the other dark-sky efforts recognize, of course, that humans demand brightness and that urban areas will always require lighting. Thus the groups call for more research into the specific types of light rays that are emitted and better design to put the right amount of light where it is needed. “Some level of artificial lighting is required for nighttime activities,” says Robert Dick, the chair of the Light Pollution Abatement Committee of the Royal Astronomical Society of Canada. “But this lighting must be designed to increase visibility. Paradoxically, more light can reduce visibility, especially for persons over 40 years of age.”



Simon and Helen Director Park, Portland, Oregon by drburtoni

The IDSA offers help in buying, installing, and using lights. Its website gives lists of approved lighting fixtures and encourages the use of such “dark-sky features” as shields that prevent fixtures from projecting light into the atmosphere. For example, the IDSA lauds one reduced-glare Leotek Electronics model for its six energy settings as well as for an attachment to fasten it to existing poles.

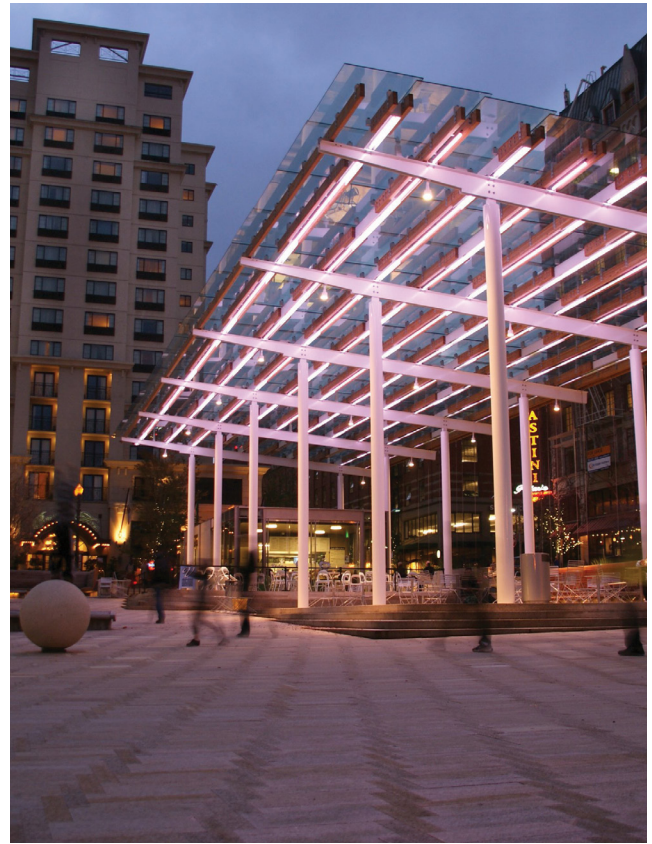
As a result, the seemingly unbridgeable gulf between crime fighters and dark-sky enthusiasts may be shrinking. Driven by the growing efficiency gap between old high-pressure sodium and new light-emitting diode (LED) lights, cities are transforming their lighting stock, and some of the benefits are spilling over into parks. Major cities making the switch include Los Angeles; New York; Anchorage, Alaska; San Jose, California; and Pittsburgh.

New York City’s Department of Transportation (DOT) oversees the largest municipal lighting system in the country, including 12,000 lights in parks (and 262,000 on streets). In 2009, the DOT began a pilot program in Central Park to test LED lights as a replacement for standard 100-watt metal halide park lights. It found that LED lights last two to three times as long, while allowing for better visibility at lower light intensity, which would save \$94,710 per year in that one park.

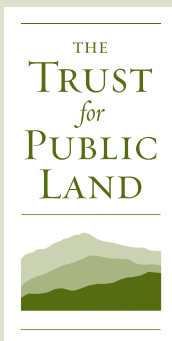
In Santa Fe, New Mexico, the city parks department has installed new LED lights along the pathways of Frenchy’s Field, a 17-acre recreation park. They turn on by way of motion sensors and change brightness depending on

ambient conditions. They also have broader wavelengths, according to Santa Fe Parks Division Director Fabian Chavez, so that they illuminate better, even with less light. There are other benefits, too. Since LEDs use only a fraction of the power of incandescent or sodium-vapor bulbs, they can be powered by solar panels, meaning that they can be erected without any connection to the electrical grid. “I can install them with my own crew,” says Chavez.

The advent of LEDs has also allowed landscape architects to just plain have more fun. Some have bathed center-city parks in kaleidoscopic public art displays, allowing parks to become more prominent civic landmarks and draw more tourists. Phoenix’s Civic Space Park has a stunning LED-clad 145-foot sculpture in its center. Gold Medal Park in Minneapolis, part of a revitalized Mill District, features blue-lit benches that echo the facade of the adjacent Guthrie Theater, from which it draws visitors. Simon and Helen Director Park in Portland, Oregon, has a glass canopy lit with multicolor LED lights, which creates a new downtown nighttime focal point.



Simon and Helen Director Park, Portland, Oregon by drburtoni



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