

# OPTIMIZE ENERGY SAVINGS, SAFETY, AND COMFORT WITH SMART LIGHTING

## Customers benefit from:

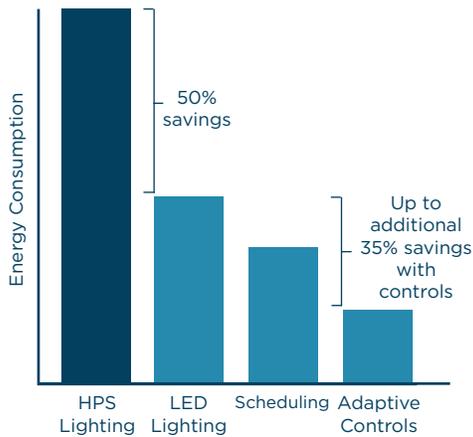
- Up to 35% additional energy savings beyond LEDs alone
- Reduced maintenance and operating costs
- Improved public safety
- Enhanced lighting quality
- Modern control capabilities without compromised ambiance
- Fixture compatibility in any location
- Smart city ready platform

## The Challenge

Cities spend as much as 50% of their energy budgets on outdoor lighting, with a single streetlight emitting an estimated 200 kg of CO<sub>2</sub> annually. Increasingly, cities seek strategies for energy efficiency and carbon reductions, while meeting other objectives, such as reducing operating and maintenance costs, and regulatory compliance.

LED technology offers the inherent controllability and high levels of efficiency that enable rapidly evolving innovations in intelligent outdoor lighting. *Lumewave by Echelon™* lighting control solutions leverage the benefits of LED technology, enabling cities to meet these objectives and take their lighting infrastructure to the next, strategic level.

**Provide a suite of safety and comfort capabilities for citizens without compromising energy efficiency and maintenance goals.**



## The Solution

Many cities worldwide have transitioned to LED lighting, which reduces energy costs by as much as 50%. But that’s only a part of the smart city equation. Bundling intelligent controls with LEDs captures up to an additional 35% in energy savings by enabling additional strategies such as smart dimming, motion-based control, and lumen maintenance. For instance, lumen maintenance can realize up to 10% additional savings by harmonizing lighting output to design levels over the life of the lamp. What’s more, bundling controls with the LED upgrade optimizes the labor investment, as the incremental additional labor cost for including controls is negligible.

With intelligent control networks, municipalities can implement automated asset monitoring and optimize maintenance workflows, reducing maintenance issues and costs. Municipalities move from a reactive approach of monitoring light outages and resident complaints to a proactive approach of optimized maintenance workflows. For instance, public works departments can identify fixture types and locations, including detailed data about power sources, manufacturer, and more. This enables efficient predictive maintenance workflows, along with automatic alert notifications so crews optimize travel routes and maintenance time. In addition, the automatic update of asset inventory combined with data identifying potential fixture failures enable personnel to plan replacement procurement more cost-effectively.

### Only Lumewave by Echelon offers:

#### Safety and Comfort

- *Safe passage control*  
Instantaneous peer-to-peer wireless communication provides “pathway” illumination for occupants in motion
- *Human centric control*  
Mitigated light trespass and glare for residents
- *Emergency assist*  
Easily activated lighting scene to signal distress

#### Versatility and Scalability

- *Administrative flexibility*  
Easy to navigate central management system for single system view
- *Adaptability*  
Expandable architecture for large municipal deployments and multi-site installations

## Adaptive Strategies for Safety and Energy Efficiency

### Parks and recreation areas

- 100% output at dusk
- Dim to 50% between midnight - 5 a.m.
- Motion-based control for trail and pathway lighting for reduced light levels during periods of inactivity

### Building façades

- Lighting dims to 30% between midnight - dawn

### Parking lots

- 100% output at dusk
- Dim to 50% at half hour after local business closing times

### Parking garages

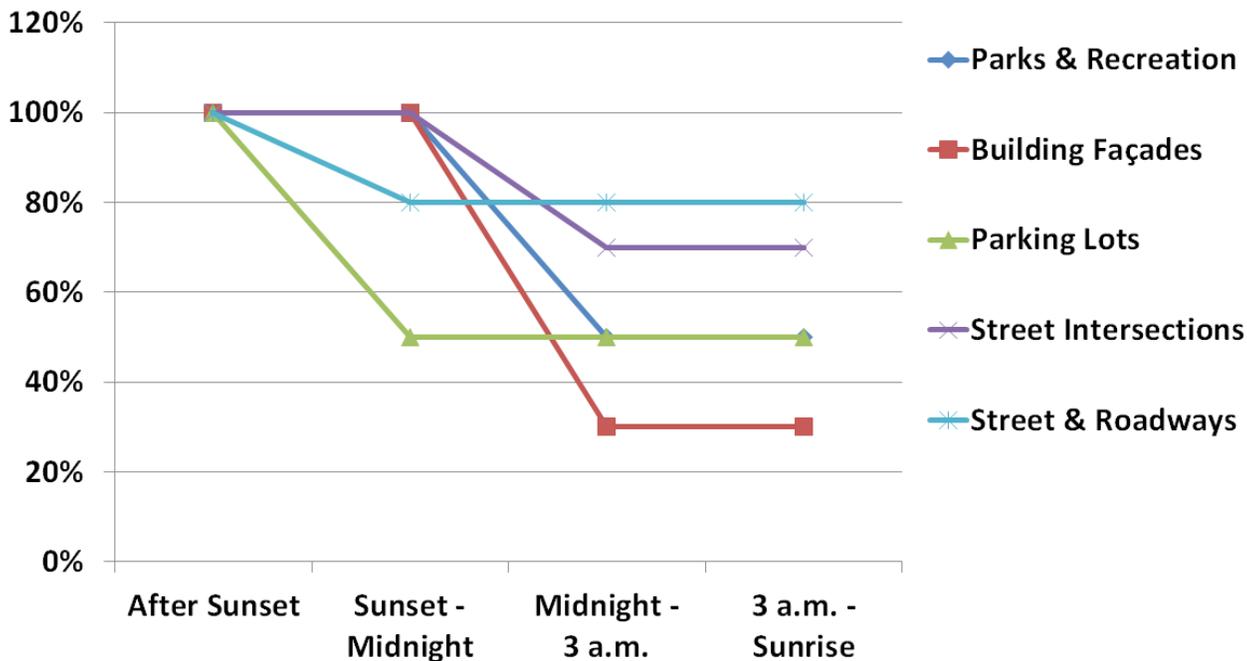
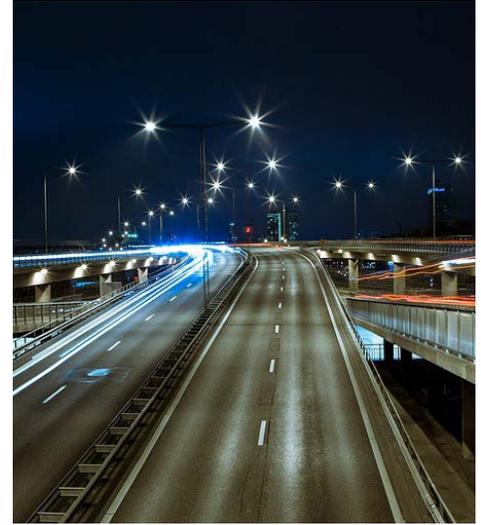
- Motion-responsive control to optimize safety and energy performance throughout nighttime hours
- Emergency assist capabilities

### Street intersections

- 100% output at dusk with subsequent dimming to 50-70% between midnight - 3 a.m.
- Lower light levels in the middle of residential blocks to 30-35% between midnight - 3 a.m.

### Sports venues

- 100% output during games and events
- Dim to 20% for safety or turn lights OFF when venue is not in use





### The Echelon Advantage

- Create optimized nighttime environments for citizens with a suite of safety and comfort capabilities (see page 2)
- Deliver sophisticated control capabilities to all lighting while preserving ambiance of historical or decorative lights
- Achieve border-to-border intelligent networked control
- Reduce maintenance issues and costs by up to 15% with comprehensive predictive maintenance, alarm notifications, and extended lamp life
- Simplify future technology implementations of smart city applications
- Monitor and control city's lighting infrastructure from a single central management system

### Learn More

For more information about *Lumewave by Echelon* solutions call +1 408-938-5200 or visit [www.echelon.com](http://www.echelon.com).