



NALMCO[®]

THE STANDARD FOR LIGHTING MANAGEMENT QUALITY SINCE 1953

Spring Seminar

WWW.NALMCO.ORG

NALMCO SPRING SEMINAR

Lynnette Schaeffer, LC
Parking Lot Case Study



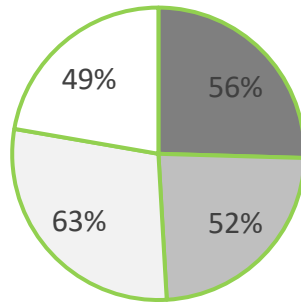
March 8, 2023



The Standard for Lighting Management Quality since 1953 *** nalmco.org

Did you know?

Distracted Driving in Parking Lots



■ Texting ■ Social Media ■ Programming GPS ■ Taking Photos

**1 in 5 (20%) Accidents
happen in Parking Lots**

↑
Holidays

FBI Crime Data 2019
534,196 Violent Crimes in the US
**6% of these happened in a Parking
Lot/Garage**



**Parking Lot/Garage
3rd Most Common
Site of Violent
Crimes**



What's Wrong with This?



- Lacking uniformity
- It's dark
- Hot spots
- Can't see very well
- Difficult to distinguish vehicle color
- Inefficient

Techny Park – Northbrook, IL



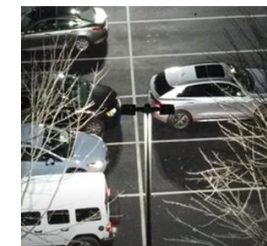
The Standard for Lighting Management Quality since 1953 *** [.nalmco.org](http://nalmco.org)

Case Study – City of Northbrook, IL Park District

- 8 Locations
- 1,387 Stadium Lights (1500 Watt to 450 or 600 Watt SIG'S)
- 521 Parking Lot and Flood Lights (300 Watt to 150 Watt VERT'S)
- **Comments from Installer**
 - Easy one for one replacement with no extra wiring required
 - Easily incorporated Networked Lighting Controls
 - Very quick and easy Install
 - Field adjustable optics
 - Reliable system
 - Right price
 - Great working with Eiko
 - DLC Approved = Increase in ComEd Rebates



BEFORE



AFTER

One for One Replacement • No Extra Wiring • Simple, Easy & Quick

What an Improvement (Parking Lot)



Techny Park – Northbrook, IL



Techny Park – Northbrook, IL

\$0.087/kWh 8hrs/day 7days/week

BEFORE

31 – 400W MH

**\$3,597 Annual
Energy Costs**

**Was
32,000
Lumens
Day 1**



AFTER

31 – 150W LED

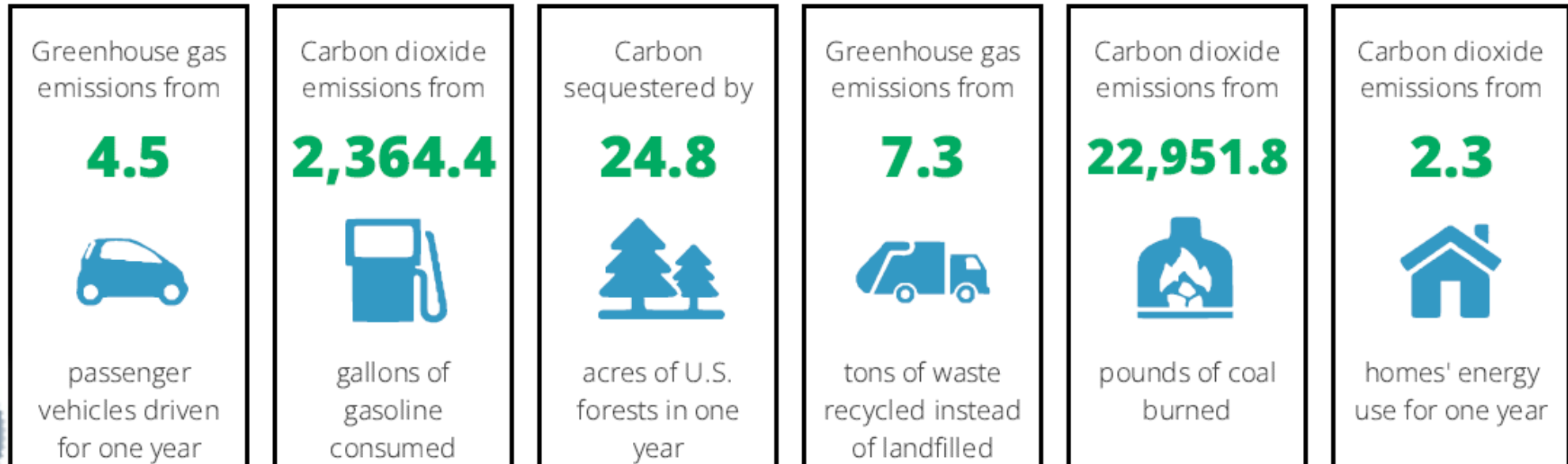
**\$1,140 Annual
Energy Costs**

**19,700
Lumens
Day 1**

**Annual
Energy
Savings
Year over
Year
\$2,456**

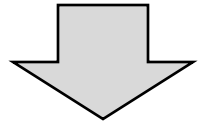
Environmental Impact

The energy saved from this project is equivalent to 20.0 tons of carbon dioxide reduction.



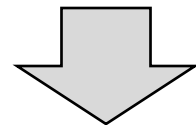
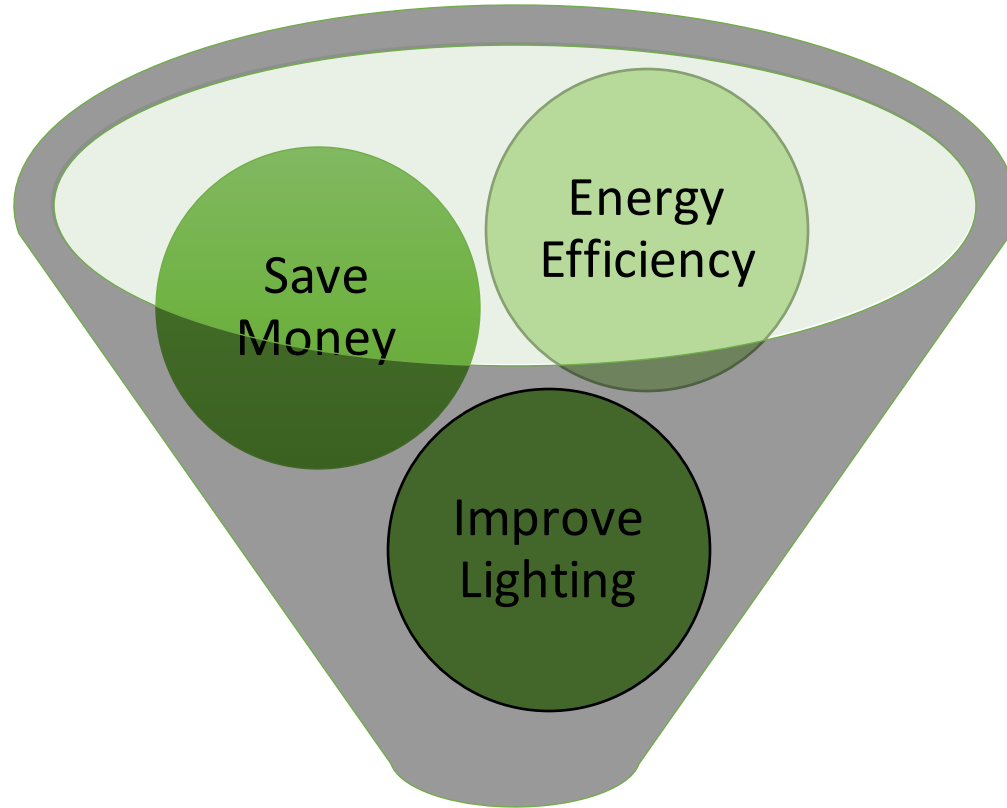
Driving Factors for the Upgrade

PEOPLE



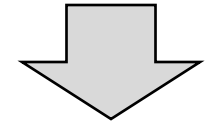
Josh McCoy
Director of Operations
LEAD Electric & Lighting

Northbrook Park District:
Chris Leiner
Jake Vest



Take Savings to Upgrade other Things

REBATES



ComEd Rebates on
Networked Lighting Controls



After the Upgrade: Skate Park and Parking Lot



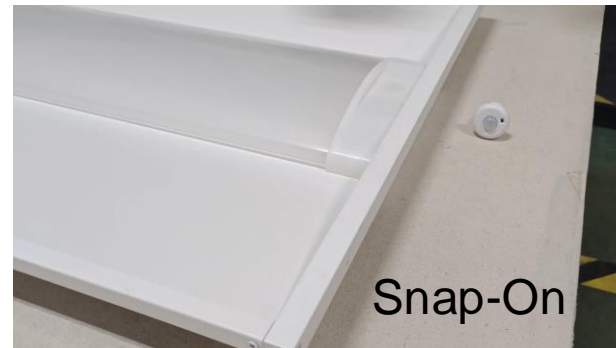
Techny Park – Northbrook, IL



Easily Added Networked Lighting Controls



Products that can easily accept standalone or networked lighting controls without the need for any wiring!



Lighting Design Considerations

- Aim for Uniformity
- Be Aware of Light Pollution
- Good Vertical Illuminance
- Good Horizontal Illuminance
- Omit or Reduce Direct Glare
- Peripheral Detection and Modeling of Faces
- Highlight Points of Interest

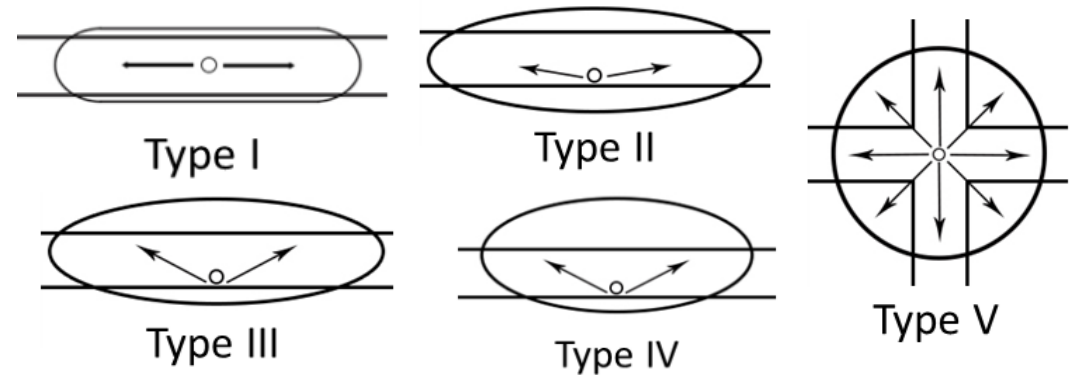


Lighting Design Considerations - Uniformity

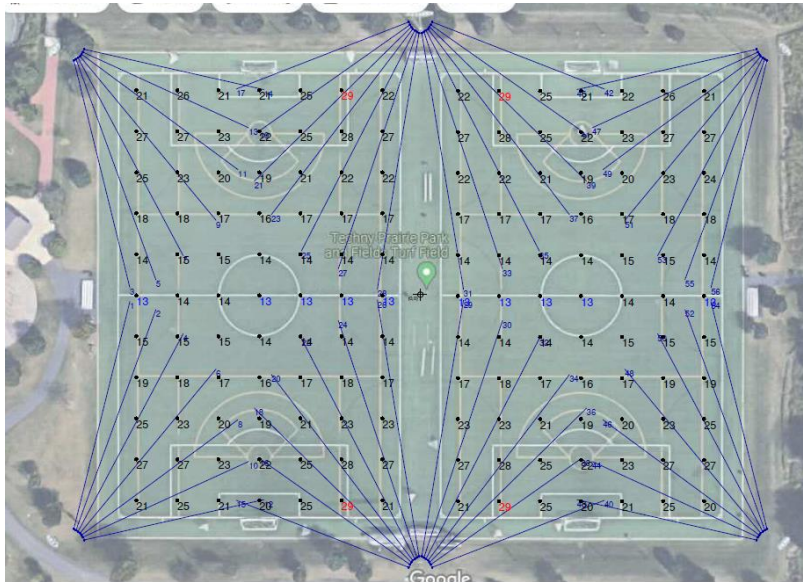
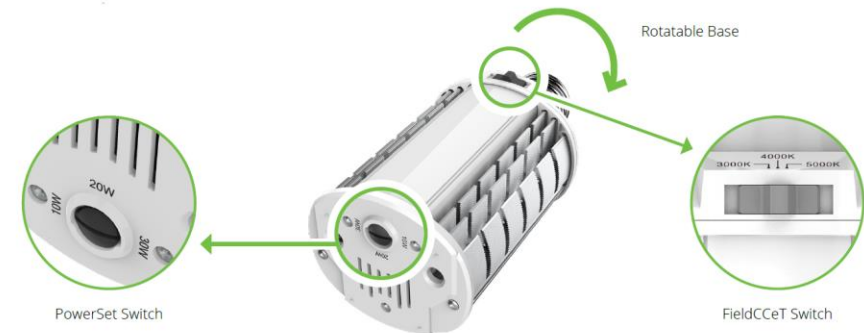
Uniformity

- Too much light → Use Selectable Products
- Optics → Use products that have accessories and field installable optics
- Aiming → Take the time to aim the fixtures
- Before you start the project use Lighting Layout Tools

Fixture Distribution Types



Replacement Lamps and Uniformity



Lighting Design Considerations – Light Pollution

Light Pollution

- Artificial light that provides a negative affect including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste
- Light pollution impact humans and animals



Lighting Design Consideration - Light Pollution



April 2022

Addressing Light Pollution Alongside Energy Savings

The DLC's LUNA requirements establish criteria for using the highest quality outdoor lighting at night – lighting that minimizes light pollution, provides appropriate visibility for people, and limits negative impacts to the environment. In addition to the benefits that appropriate lighting can provide to our outdoor environment, there are also energy savings to be captured by only using the right type of light, and only where it is needed.

LUNA sets performance requirements for specific categories of outdoor solid-state lighting so that energy efficiency programs, cities and municipalities, and all outdoor lighting decision makers can be confident that their selections save energy AND follow best environmental practices for nighttime lighting.

[QUALIFY A LUNA PRODUCT](#) 🔍



Responsible Lighting at Night: The Impacts of Light on Wildlife & Ecosystems

[VIEW WEBINAR](#) →



Responsible Lighting at Night: Bridging the Inequality Gap

[VIEW WEBINAR](#) →



Lighting Design Considerations - Illuminance



Vertical Illuminance

- Amount of light landing on vertical surfaces i.e. pedestrians, sides of buildings

Horizontal Illuminance

- Amount of light landing on horizontal surfaces i.e. steps, parking lot surface

Aim for the Right Amount of Light

- IES provides Footcandle recommendations for nearly every area and task



Lighting Design Considerations - Glare

Direct Glare

- Caused by bright or intense light directly visible by a person's view
- The most common example: Sunlight



Direct Glare Caused by Light Fixtures

- Inappropriate light levels
- Lack of glare shields, lens, diffusers and other optics
- Misplaced or improper aiming of fixtures



Could you see this person?



Lighting Design Considerations - Glare

Direct Glare

- Too much light → Use Selectable Products
- Optics → Use products that have accessories and field installable optics
- Aiming → Take the time to aim the fixtures
- Check out the fixture UGR Rating
 - UGR = Unified Glare Rating defined by CIE
 - Good to aim for 19-25 UGR



Lighting Design Considerations

Peripheral Detection

- Make sure the lighting allows to see people's faces

Points of Interest

- Light points of interest like signs and special landscaping
- Helps attraction attention



Summary

- Lighting Design Considerations are critical to the success of a project
- Be on the look out for areas with aggressive rebates especially those with NLC
- Take time to commission, aim and fine tune the lighting to address critical lighting design considerations



THANK YOU!

Lynnette.schaeffer@eiko.com

Director of Training

