



designing with LED

PURDUE ROAD SCHOOL – MARCH 2018

emcs.inc

● general



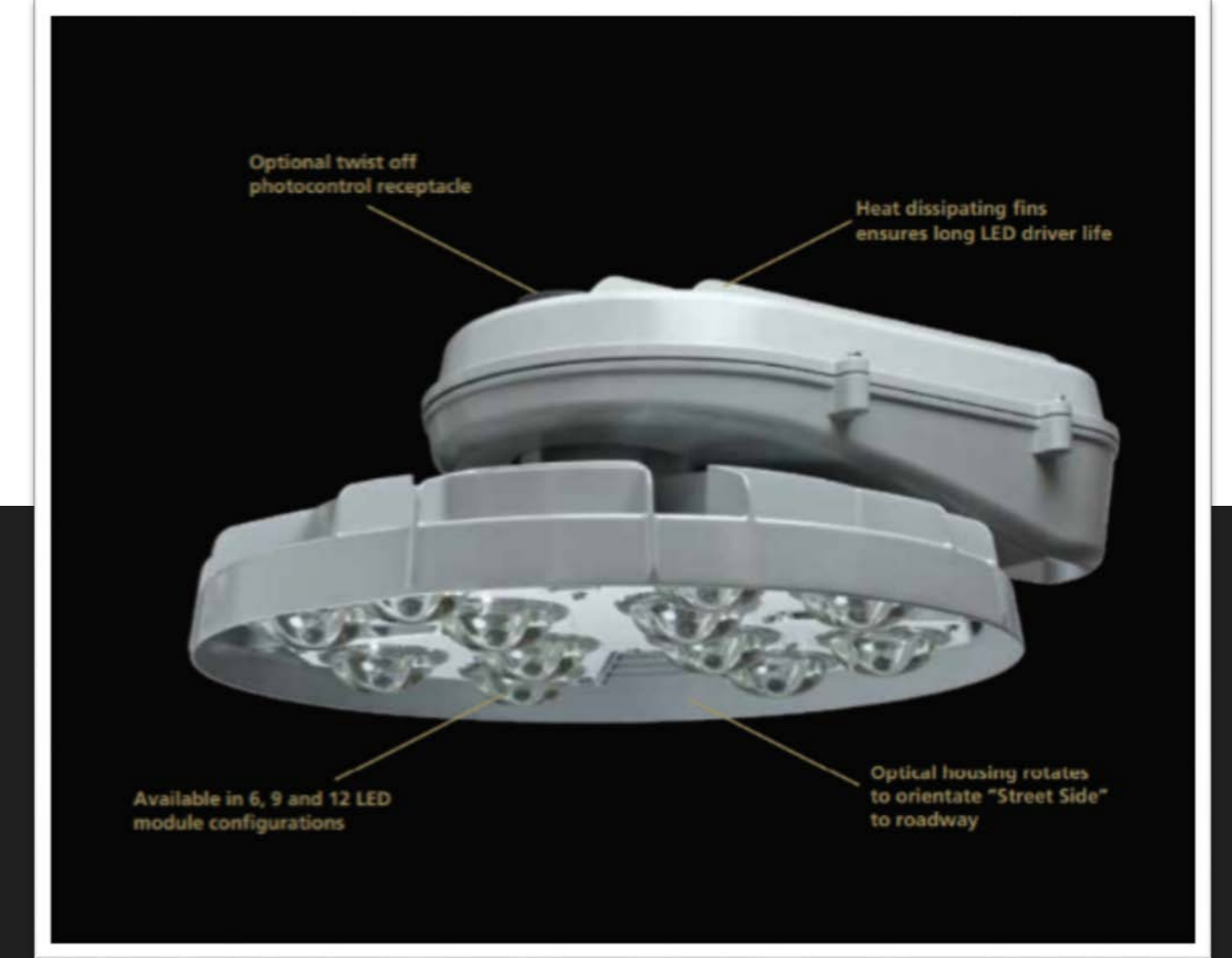
Longer Lasting/ Lower Maintenance

*No ballasts to replace
Expect 20 years
Not all created equally**



White Light vs Yellow Light

*Better visibility/peripheral vision
More represents daylight*



Numerous Possibilities

*Tilt
Symmetric/Assymmetric
Different Lumen packages*

EARLY LED

Used much less energy
> produced less light
Not good distributions
No High Mast Options
Much more expensive than HPS



CURRENT

Use slightly more energy
> better light output
Better coverage
High Mast Options
Price is evening out



Improvement in Technology . Good for ALL applications

• IES RP-8-14 updates

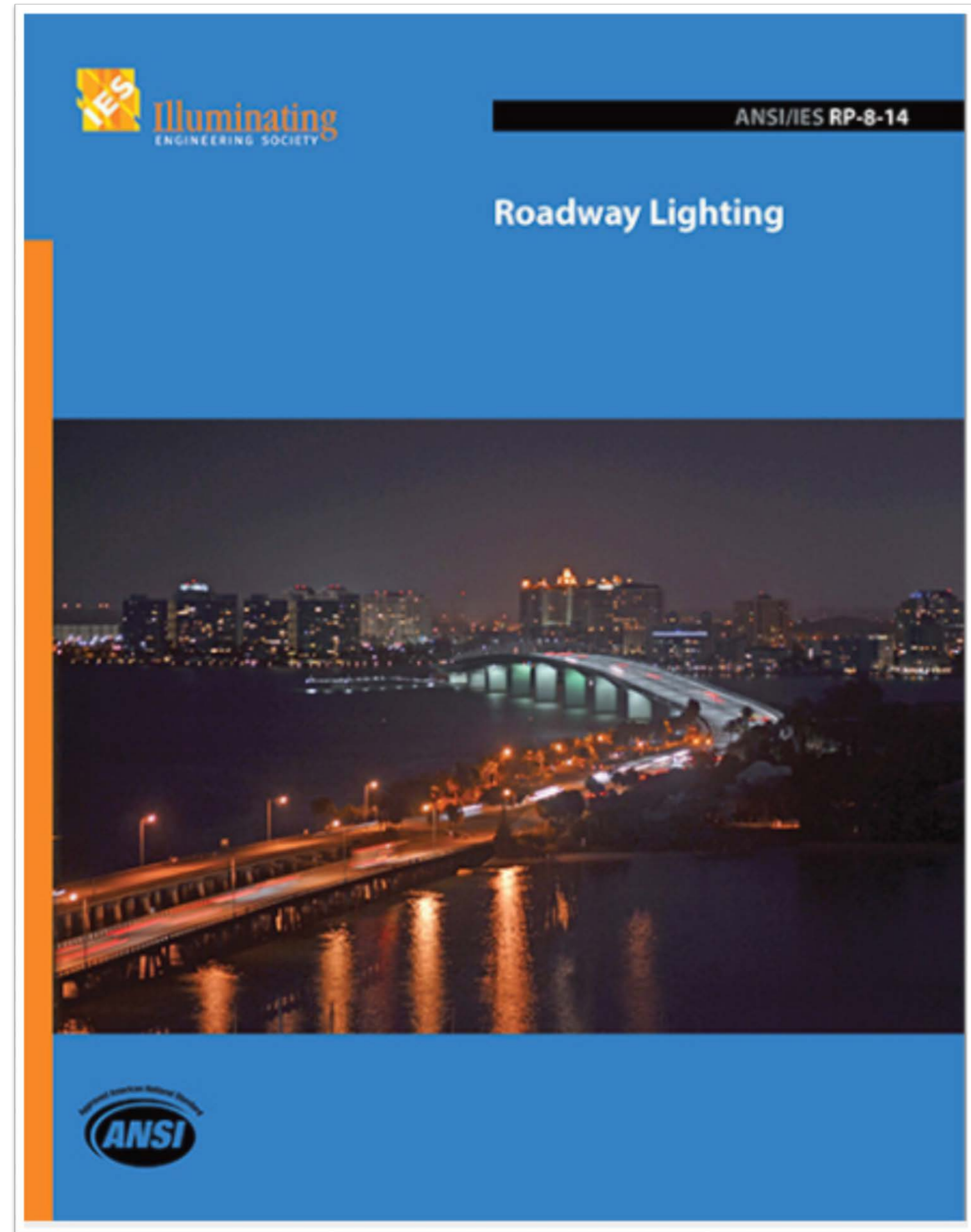
Luminaire Classification System
(LCS/BUG Ratings)

Luminance vs Illuminance

Increased Pedestrian Guidance

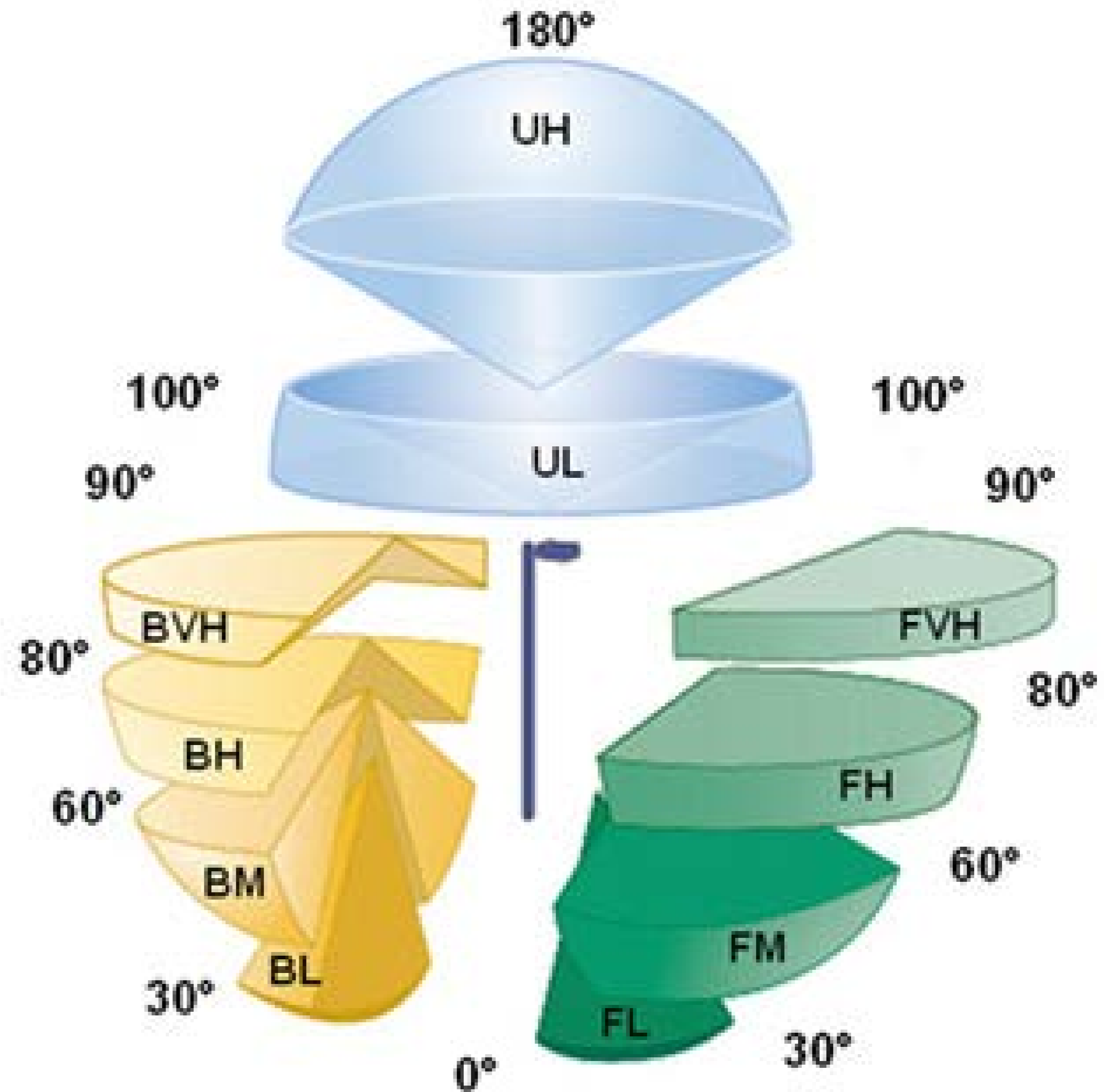
Veiling Luminance

Adaptive Lighting



- **luminaire classification system**

BUG Ratings



- **LED**
unique
design
challenges



Glare
Case Study



LLF and Design Life

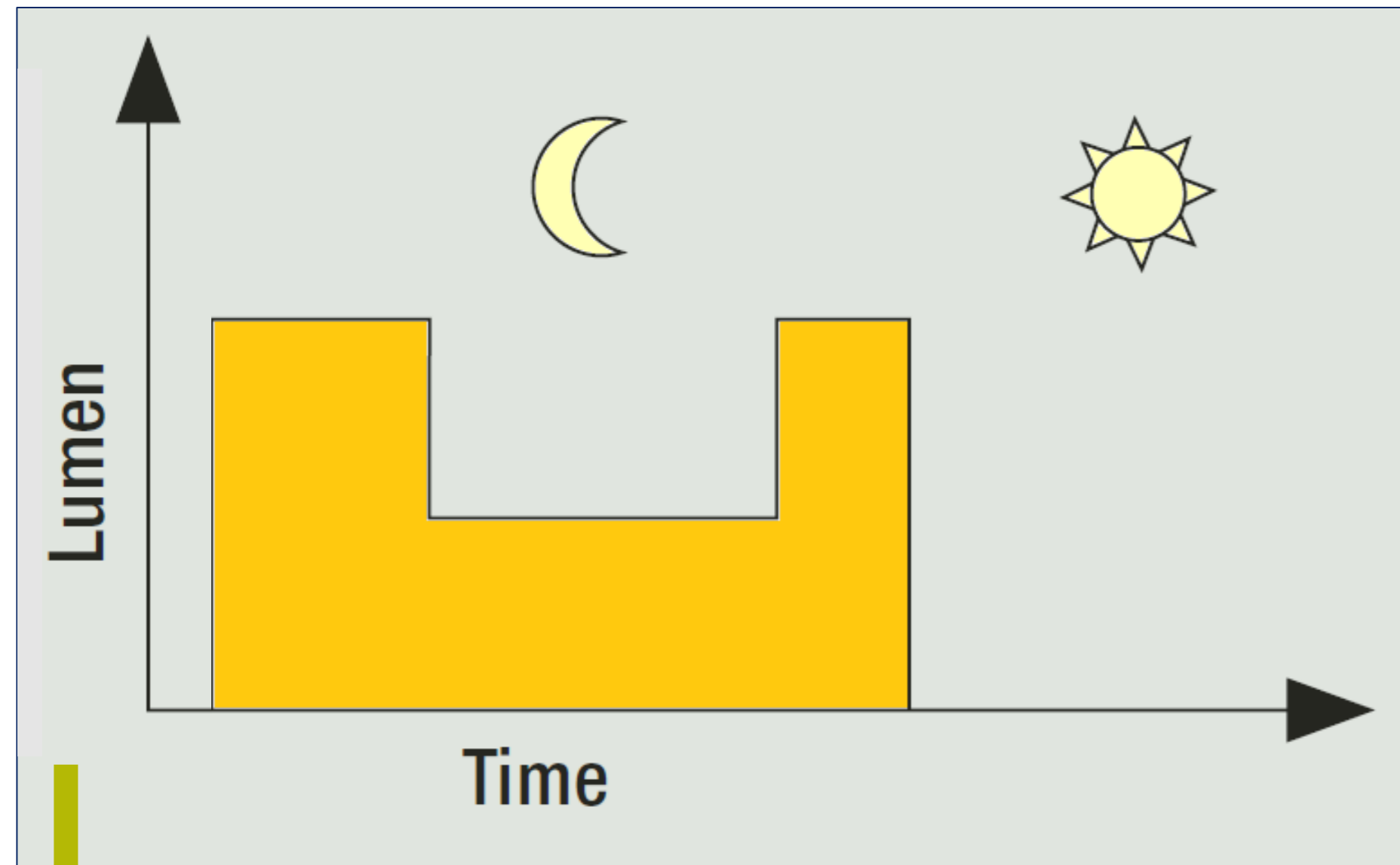


Multiple Options
Requires more coordination

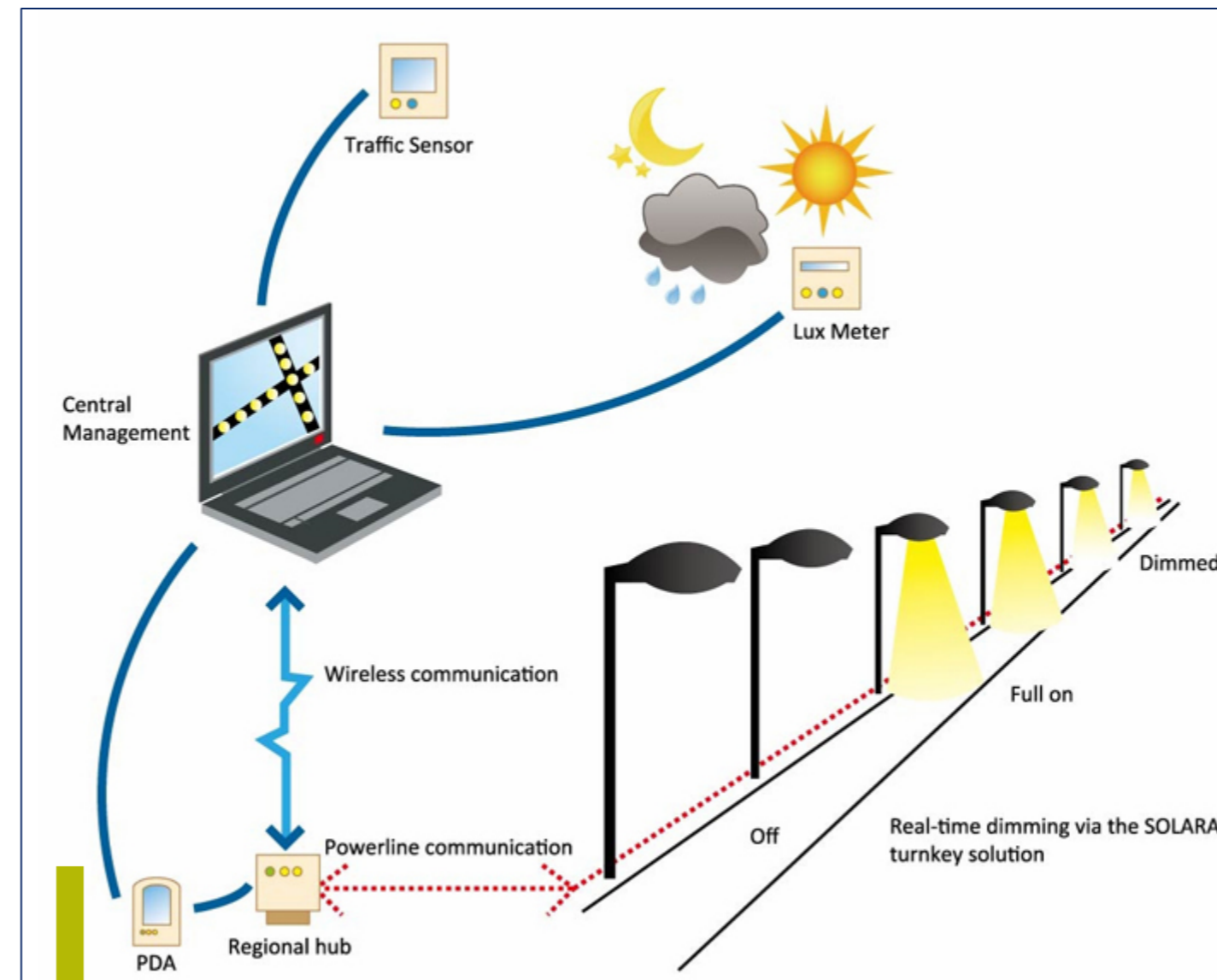


Utility Rates
Metered services points

• LED unique lighting benefits



Dimming



Adaptive/ Controls



Color Control



- **contact me**

Amanda Johnson, PE, PTOE
Traffic Services Manager

ajohnson@emcsinc.com
317.343.2923

emcs.inc
www.emcsinc.com