

Community Friendly Lighting

Staunton City Council Work Session, May 26, 2022

Newtown Neighborhood Association

Lighting Committee

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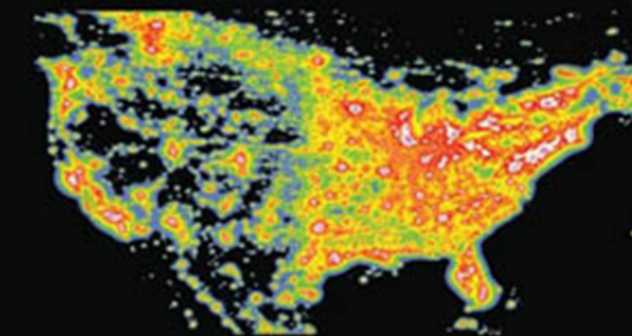
Late 1950s



Mid 1970s



1997



2025



The increase in artificial night sky brightness in North America, including an extrapolated prediction for light pollution levels in 2025. Maps created by P. Cinzano, F. Falchi, and C. D. Elvidge.



SKY GLOW

Brightening of parts or the whole night sky. The dome shaped glow can be seen from miles away.



LIGHT TRESPASS

Light that is cast where it's not wanted or needed.



GLARE

Visual impairment that occurs when the light source is brighter than the light your eyes are accustomed to.



LIGHT CLUTTER

The excessive grouping of lights, which causes distraction.

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Problems with Lighting

LEDs – Miracle & Menace



- + Efficient, can deliver more light
- Has led to over bright, overconsumption, waste
- Blue (>3000 CCT) worse for light pollution and glare
- Disproportionate impact on physiology of animals

Under-used: Real advantage -- adaptive controls

College Campus



School Campus (lit during off hours)



Photo: Lisowski

Impact of a poorly chosen fixture



Wall pack: Intense glare visible from blocks away

Photos: Hollberg



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www.delmarfans.com



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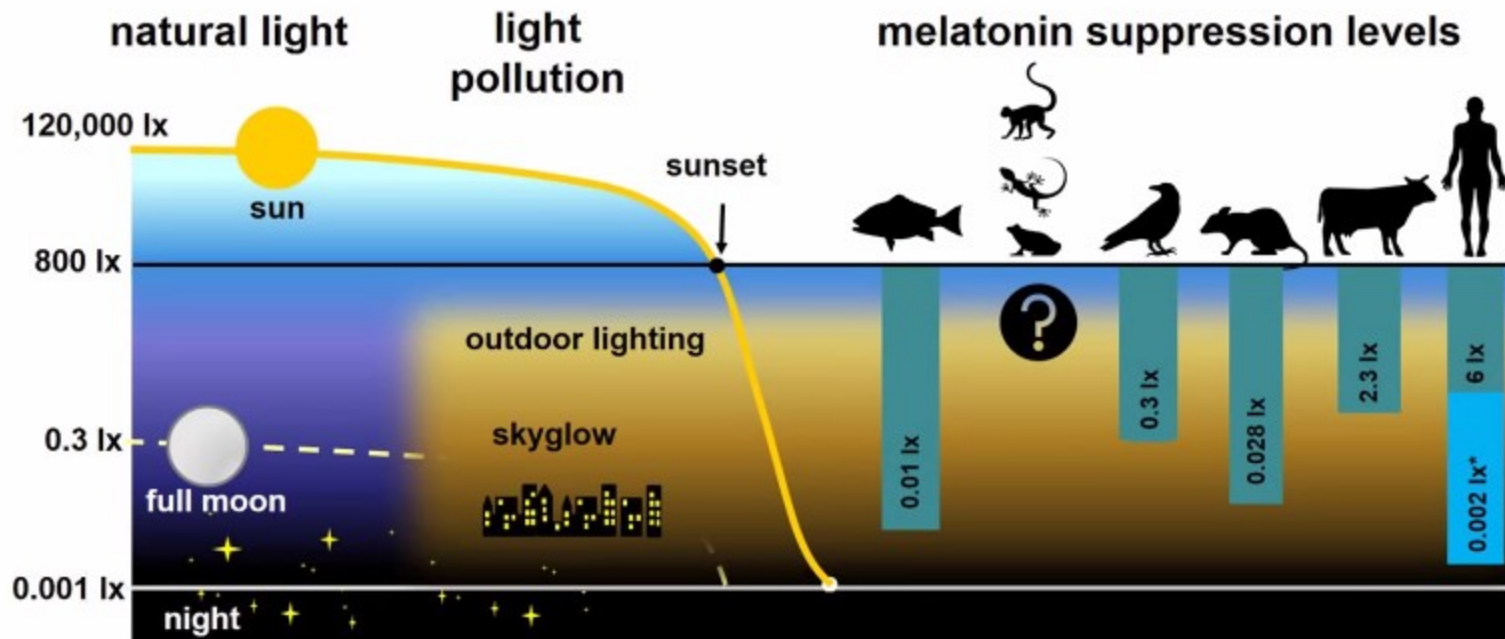
Health & Environmental

2. Perspectives

The *What*



ALAN Research



Grubisic et al. (2019)
Sustainability

Safety



Brighter is not safer



George Fleenor

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Solutions for Lighting

Trends

- Fast-changing technology
- Understanding visibility
- More pedestrian emphasis, less on roadways
- Addressing negative impacts
- Looking to adaptive controls

5 Principles for Responsible Outdoor Lighting

LIGHT TO PROTECT THE NIGHT

Five Principles for Responsible Outdoor Lighting



Illuminating
ENGINEERING SOCIETY



USEFUL



ALL LIGHT SHOULD HAVE A CLEAR PURPOSE

Before installing or replacing a light, determine if light is needed. Consider how the use of light will impact the area, including wildlife and the environment. Consider using reflective paints or self-luminous markers for signs, curbs, and steps to reduce the need for permanently installed outdoor lighting.

TARGETED



LIGHT SHOULD BE DIRECTED ONLY TO WHERE NEEDED

Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.

LOW LIGHT LEVELS



LIGHT SHOULD BE NO BRIGHTER THAN NECESSARY

Use the lowest light level required. Be mindful of surface conditions as some surfaces may reflect more light into the night sky than intended.

CONTROLLED



LIGHT SHOULD BE USED ONLY WHEN IT IS USEFUL

Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.

COLOR

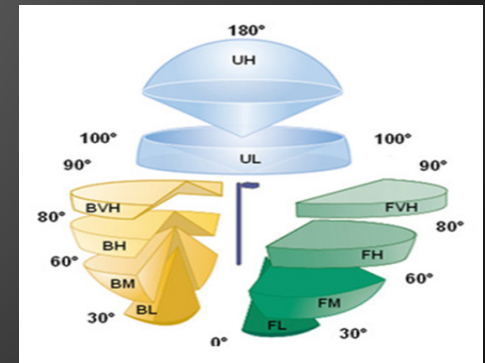


USE WARMER COLOR LIGHTS WHERE POSSIBLE

Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.

Concepts of Good Lighting

- Just the light we need, where and when we need it
- See the light not the source
- BUG (Backlight/Uplight/Glare)



Just the light you need



NON-CUTOFF

SEMI-CUTOFF

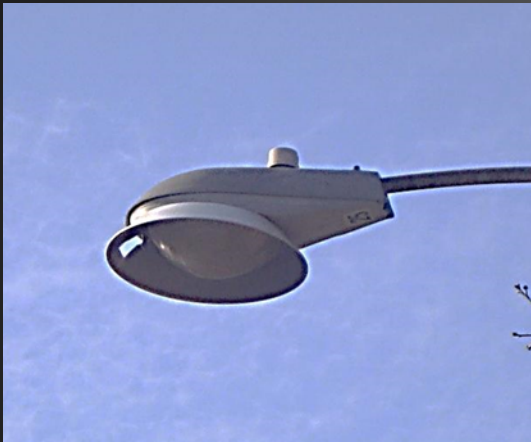
CUTOFF

FULL CUTOFF

See the Light, Not the Source



Good Street Lighting



Commercial Areas



Gas stations



Parking Lots



Bad glare



Source: IDA

Good visibility

Multiple Factors to Consider

Quality – fully shielded, avoid blue

Quantity – intensity, # of fixtures

Control – adjust amount, timing

only the light you need, when and where you need it

Good Retrofit: Trinity Churchyard



Before:
glare

L Kipp



After:
easy to see, inviting

L Kipp

Safe, Attractive, Comfortable at Night



Livability and economic development



Community Friendly Lighting

- Visibility
- Safety & Health
- Comfort
- Environment
- Cost Effectiveness
- Economic Development

= QUALITY OF LIFE

Closing Points

- **Timing: technological revolution**
 - **pitfalls: stay ahead of the curve**
(decision for a generation)
- **For safety, brighter not always better**
- **Value of community friendly lighting**