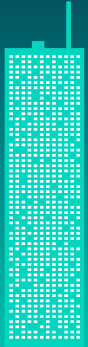


RESPONSIBLE NIGHTTIME LIGHTING FOR LOCAL COMMUNITIES

By Victor Waddell & Ethan Sterkeson



INTRODUCTION

01

Persona

Local community official

02

Audience

Other relevant officials
and community members

03

Project

Light pollution brochure:
easily distributed for
wider impact





01

LIGHT
POLLUTION
OVERVIEW

DEFINING LIGHT POLLUTION

- As generally agreed upon in existing literature, light pollution is the unintended disruption of the night sky's visibility due to unwanted artificial light.
- Light pollution is generally caused from:
 - Poorly designed artificial lighting
 - Overly bright lights
 - Unnecessary usage of lighting (e.g. decorative)
 - Inadequate color temperature
 - Misdirection of lighting



NEGATIVE EFFECTS

Light trespass and glare has many adverse side effects:

- Disruption of Ecosystems
- Impacts on human health
- Sleep disturbance
- Visual Discomfort
- Limited night sky visibility (stargazing, astronomy)
- Reduced safety at night
- Energy waste and inefficiency



Light Pollution & Why It Matters

The image above shows what a typical night sky looks like in a larger city. Hardly any stars are visible, and the sky is lit up near the horizon. This is light pollution, defined as the excessive or inappropriate use of outdoor artificial light.

Light pollution has a myriad of negative effects, including:

- sleep disturbances
- associations with obesity and some cancers
- interfering with animals' migration patterns
- energy waste
- and many more!

Color Warmth

- Inform people about which kinds of lights are most harmful
- Blue light is the most harmful for human sleep (due to melatonin suppression) and for skyglow (due to scattering effects)

(note: this page is in progress)

Color warmth

Blue light is especially harmful for people and the environment

sleep impact -

human health effects

scattering (skyglow)



Brightness & Visibility

- Visibility and safety are main motivator for increasing nighttime lighting
- Show safety risks resulting from glare and overly bright lights



Brightness & Visibility

While safety is often cited as a motivator for brighter light, research conducted in several cities has shown that brighter streetlights don't actually decrease traffic accidents or crime.

When our eyes adjust to bright artificial lights, it is more difficult to see into darker areas. This means that bright lights can actually *decrease* visibility. The effect of glare on visibility is illustrated above -- the exposed bright light prevents you from seeing into shadows.



02

WHERE TO
IMPROVE

STEPS FOR IMPROVEMENT

Local official

- Collaboration
- Developing materials
- Foster involvement

Community

- Community events
- Promote best practices
- Implement lighting ordinances

Individual

- Monitoring lighting practices
- Replacing lighting
- Advocate

EMPOWERING THE COMMUNITY

- Purpose of this page:
 - Get community members involved by encouraging them to contact their representatives
 - Make people feel like their feedback matters and they can make a difference
 - Increase awareness among fellow local officials
- Plan to provide a link to our research sources to improve credibility

(note: these images will be updated)



Contacting Your Representatives

Let your officials know what the community wants:
nighttime lightning that is safe for people and for nature. Urge them to adopt lighting practices aligned with the IDA's recommendations.

Visit <https://pittsburghpa.gov/council/council-contacts> to submit feedback via phone, mail, or online form.

See our sources:
bit.ly





03

PROJECT
TAKEAWAYS

Project Lessons & Insights

- Gained awareness of light pollution issues
 - Information about light pollution contributors, effects, and the obstacles to reducing it
 - Not all artificial lights are created equal
 - People tend to have insufficient awareness and misguided beliefs about safety
- Gained experience in conducting research
 - Google Scholar and CMU Libraries!
 - Following citation links from important articles can be very helpful
- Gained knowledge about means of science communication
 - More than just telling people the facts
 - Importance of framing in order to make issues important to people





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Responsible Nighttime Lighting



More safety with less light pollution; A guide by Ethan Sterkeson & Victor Waddell



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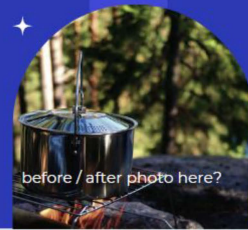
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Visual Comfort

Cities such as Montreal and Davis, CA that installed cool-colored LED streetlights have switched to warmer ones after complaints about discomfort and light trespass from residents.

Talk more about glare (esp. for older people) and light trespass



before / after photo here?



Questions or Feedback?



References

Falchi, F., & Bará, S. (2023). Light pollution is skyrocketing: A new citizen science based study shows a worrying increase of light pollution. *Science* 379, 234.

Falchi, F., Cinzano, P., Elvidge, C. D., Keith, D. M., & Haim, A. (2011). Limiting the impact of light pollution on human health, environment and stellar visibility. *Journal of Environmental Management*, 92(10), 2714-2722.

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