

INFORMATION PAPER



August 30, 2023
Planning, Building and Development
Director Eric Waggoner

SUBJ: DARK SKY LIGHTING POLICY INTRODUCTION

Summary:

At the March 2, 2022 PWPT Committee meeting, Committee members directed staff to research potential dark sky policies as part of the Planning, Building and Development work plan exercise. This direction was re-confirmed by the PBZE Committee meeting on February 1, 2023. CAO and PBD staff researched the topic and have prepared this presentation for the Committee's information. This accompanying information paper summarizes the research conducted by staff to date, reviews the benefits of maintaining a dark sky throughout unincorporated Lake County, and recommends potential solutions to reduce the use of upward lighting in new developments through the adoption of dark sky design best practices. For more detailed information, please refer to staff's dark sky white paper.

Background:

- Light pollution is defined as the inappropriate or excessive use of artificial light.
- Nationally, 8 out of 10 people live in an area with light pollution.
- Excess outdoor lighting costs upwards of \$3 billion in electrical costs due to lights being on where not needed, when not needed, or directly uplit. ([DarkSky](#))
- Excess outdoor lighting can have serious environmental consequences for humans, wildlife, and climate.
- By committing to preserve the dark spaces that Lake County already has and improve upon existing lighting standards, light pollution and visibility of the night sky can be improved.

Light Pollution Effects:

- Light pollution causes disruption to the ecosystem and wildlife. For example, light pollution can cause increased bird and insect collisions, disrupted predation patterns, and interrupted mating rituals. Lake County is home to more endangered and threatened species than any other county in Illinois.
- Unnecessary outdoor artificial light at night (ALAN) can contribute to disrupted sleep patterns.
- Nighttime glare from bright, unshielded outdoor light fixtures can be unsafe because it can shine into driver's eyes and constrict the pupils. This constriction reduces visibility of signage and potential pedestrians and the road, creating hazardous roadway conditions and increasing the risk of collisions.
- A 1997 National Institute of Justice study concluded there is very little evidence that improved lighting prevents crime. Conversely, the Chicago Alley Lighting Project completed in 2000 showed a correlation between brightly lit alleyways and increased crime, suggesting that increased lighting may increase rates of violent, property, and other types of crime.

Dark Sky:

- Directing light at the ground where it is needed can be achieved while also shielding light from the sky. A dark sky does not necessarily mean a dark ground.
- DarkSky, formerly known as the International Dark Sky Association, has a designation program for local communities that adopt high standards for outdoor lighting ordinances, implement

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dark sky education, and solicit citizen support. Communities with this designation are required to engage in regular reporting to the organization on low sky-glow using light meters for measurement.

- Given regional/practical considerations, staff recommends to the Committee that pursuit of this official designation should be deferred at this time. Nonetheless, staff would plan to use DarkSky as a resource for Lake County's regulatory process. DarkSky provides free public model ordinances, scientific research, and endorsed light fixture lists.
- Dark sky policies in communities can become a vital part of their identity, may influence lighting plans in neighboring communities and even become a draw for tourists.

Potential Solutions for Lake County:

- Some methods demonstrated to be effective in reducing light pollution and light trespass include:
 - *Maintaining unlit areas:* Preserving and maintaining the darkness that Lake County already has is the easiest way to make sure light pollution is not accelerated.
 - *Reducing the duration of lighting using technology such as dimmers, motion sensors, or timers:* Dimmers can control the intensity of light at different periods of time. Motion sensors or timers do not necessarily change the intensity or direction of lighting but limit it to certain hours of the day.
 - *Changing the intensity of lighting* by switching to warm-colored bulbs (yellow or amber) or using a correlated color temperature (CCT) of 3000K or less: Color temperature (CCT) is the measurement used to characterize white light emitted and is measured in kelvins.
 - *Installing shielding or bulb covers:* Shielding typically means a light fixture has a solid barrier or cap where the bulb is located. This typically controls light direction so that none is emitted above 90 degrees.

Next Steps:

Lake County's current outdoor lighting ordinance includes a requirement that "all luminaires shall be shielded to prevent light and glare spillover to adjacent residential property and abutting rights-of-way". This regulation is not specific enough to ensure that Dark Sky goals are being met. Staff believes that current regulations related to lighting are somewhat vague and are due for an update.

Following this informational presentation to introduce the topic, staff will return to the PBZE Committee at a later date this year to discuss specific policy options and obtain direction to draft corresponding regulations for the Committee's subsequent review and action.

Attachments: (1) *Human Health and Wildlife Impacts Research*