

THE INTERNATIONAL DARK-SKY ASSOCIATION

Saving Dark Skies



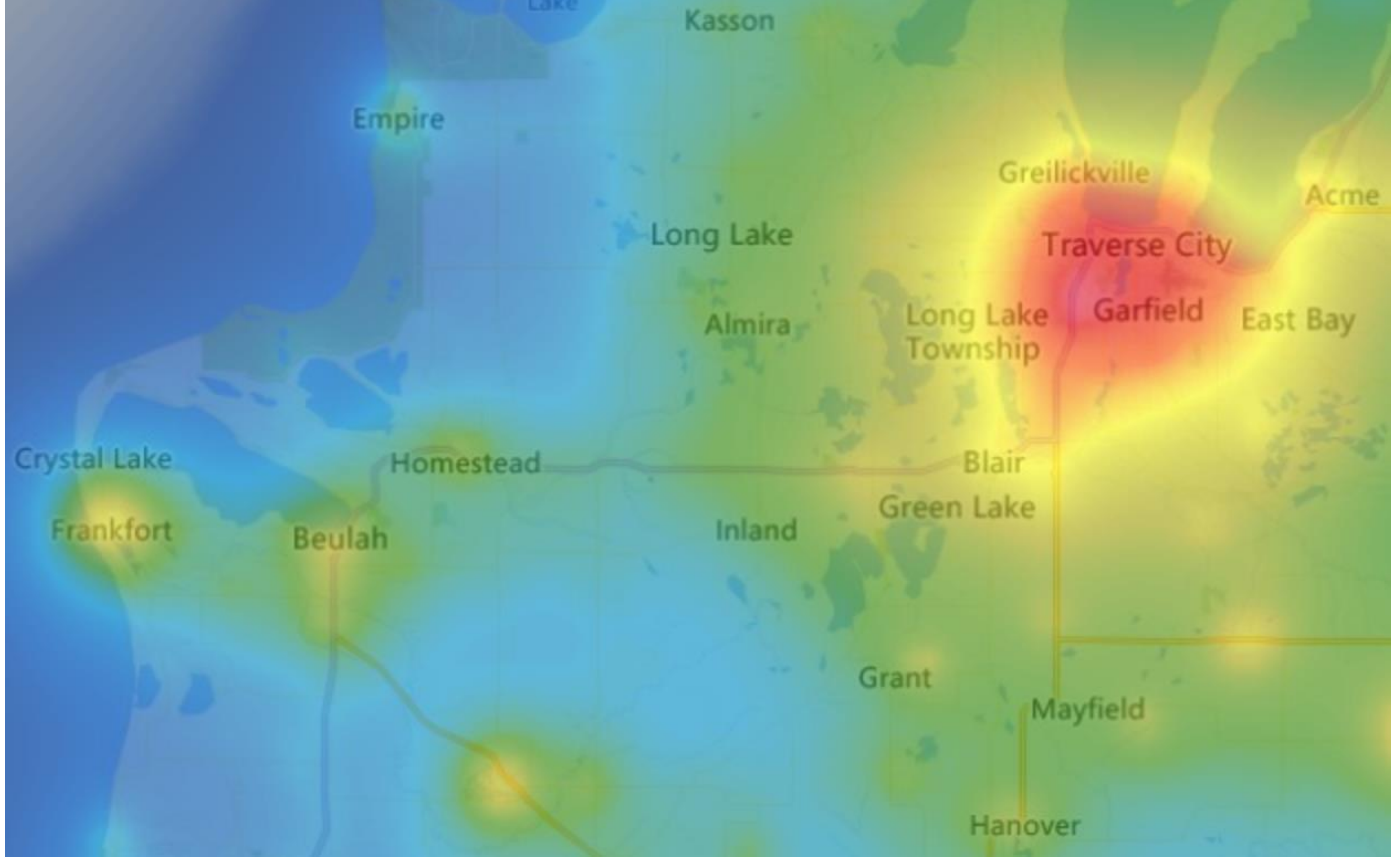
INTERNATIONAL DARK-SKY ASSOCIATION

IDA affiliation: Leelanau Dark Sky





Light pollution is increasing at 2 % per year





LIGHT POLLUTION

“LIGHT POLLUTION IS ONE OF THE ONLY TYPES OF POLLUTION THAT IS COMPLETELY AND IMMEDIATELY REVERSIBLE”

Bettymaya Foott

SKYGLOW







GLARE

A photograph of a row of houses at night. The houses are illuminated by bright, warm-colored outdoor lights, likely streetlights or porch lights. The light is very intense, creating a large, bright glow that obscures some of the details of the houses and the surrounding environment. The sky is dark, and the overall scene is dominated by the artificial light. The title 'LIGHT TRESPASS' is overlaid on the right side of the image.

LIGHT TRESPASS



LIGHT POLLUTION CONSEQUENCES

ECOLOGICAL IMPACTS

TURTLES

cannot find their way
to the sea



KELLIE PEN

BIRDS

Get confused
in the light





TREES

bud earlier and lose their
leaves later under artificial
light



ENERGY WASTE



3-7 BILLION DOLLARS
spent every year on unneeded lighting

21 MILLION TONS OF CO₂
burned by unnecessary lighting



HUMAN HEALTH

MELATONIN

hormone that regulates sleep wake cycle (circadian rhythm).

Inappropriate night lighting decreases melatonin, and increases several health risks.

AMERICAN MEDICAL ASSOCIATION

Human and Environmental Effects of Light Emitting Diode

Community Lighting 2016 report



HERITAGE OF DARK SKIES



INSPIRATION

DARK NIGHT SKIES HAVE INSPIRED PEOPLE
THROUGHOUT HUMAN HISTORY

STORIES

AWE

SAFETY

FIND THE POTENTIAL STALKER





**MYTH: MORE
LIGHTING IS SAFER**



**REALITY: WELL DESIGNED
LIGHTING IS SAFER**

WE CAN MAKE A DIFFERENCE

WITH BETTER LIGHTING DESIGN



Five 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.

Even the simplest actions can make a big difference.

DID YOU KNOW? 20% – 50% of outdoor residential lighting is lost to the night sky, due to poor shielding alone (3).

MUNICIPAL

COMMERCIAL

RESIDENTIAL

Tucson, Arizona, U.S. Skyglow
Reduced Another 7% after
Street Light Conversion
on MAY 15, 2018



Recessed
lighting done
badly, and
Recessed
lighting done
well.



Unshielded Residential Lighting



Dark Sky Compliant LED Lighting Turned on only when returning home at night or expecting guests



Unshielded Residential Lighting

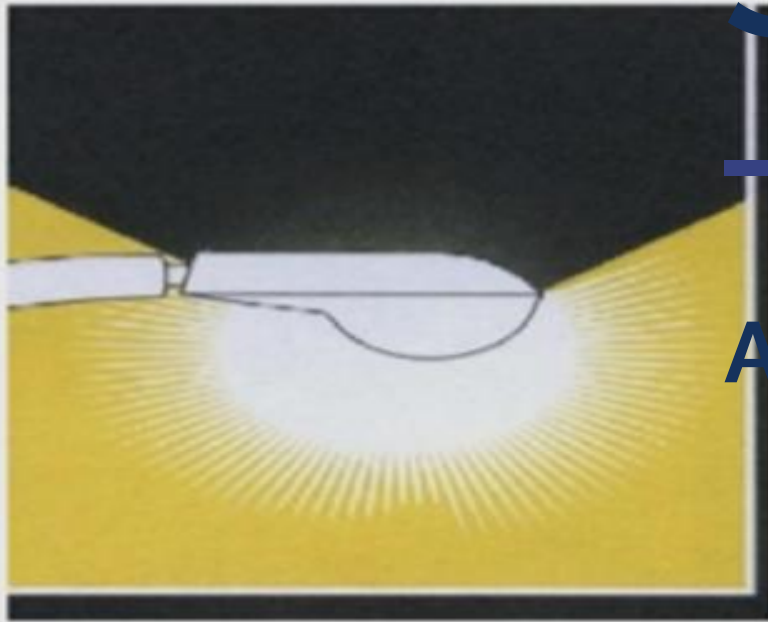


Dark Sky Compliant LED Lighting

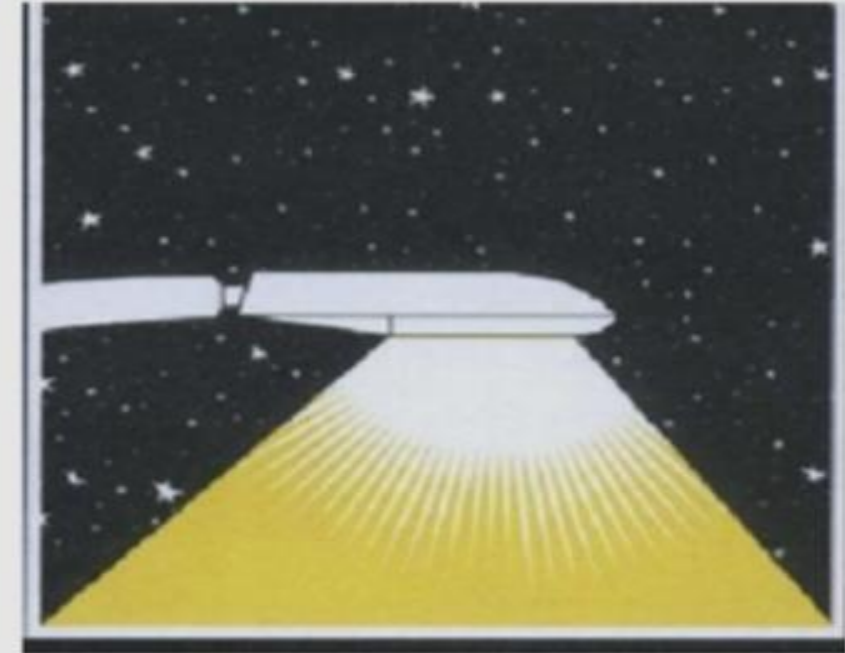


Shielded Luminaires

SHIELDING



—
AIM LIGHTS DOWN



Dark Sky Compliant Fixtures



EFFICIENCY	LEAST			MOST
BULB TYPE	 STANDARD	 HALOGEN	 CFL	 LED
450 LUMENS	40W	29W	9W	6W
800 LUMENS	60W	42W	14W	9W
1100 LUMENS	75W	53W	18W	11W
1600 LUMENS	100W	72W	23W	14W
RATED LIFE	1 YEAR	1-3 YEARS	6-10 YEARS	12-25 YEARS
SAVINGS	X	UP TO 30%	UP TO 75%	UP TO 90%

KELVIN

(CORRELATED COLOR TEMPERATURE)

2700K

Warm White

- 2700-3000K
- Most similar to incandescents
- Inviting, relaxing

3000K

Bright White

- 3500-4100K
- Energetic, lively
- Good for kitchens and workspaces

4500K

Daylight

- 5500-6500K
- Crisp and refreshing
- Good for reading

6500K

CORRELATED COLOR TEMPERATURE (CCT)

A night landscape photograph featuring a starry sky with the Milky Way visible. The sky is reflected in a calm body of water in the foreground. In the background, there are dark, silhouetted mountains and a line of evergreen trees. The overall mood is serene and contemplative.

**For my part, I know nothing with any certainty.
But the sight of the stars makes me dream.**

- Vincent Van Gogh -