

ARE YOU DOING YOUR PART TO PROMOTE SAFE AND HEALTHY 1 OUTDOOR LIGHTING IN YOUR COMMUNITY?

SAFE, LOW ECO-IMPACT LIGHTING DOES **NOT** PRODUCE:

Glare: light that shines horizontally and directly into a person's eyes.

Light trespass: light from floodlights, security lights, streetlights that spills onto property which otherwise would be dark.

Over-illumination: lights brighter than needed and on longer than required.

Harm to wildlife, Energy waste or **excessive carbon emissions.**

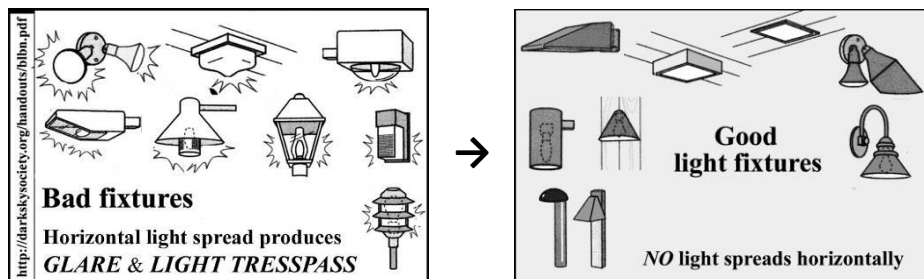
Sky glow: bright halo over urban and suburban areas at night.



HELP ENSURE SAFE AND ENVIRONMENTALLY-FRIENDLY LIGHTING IN YOUR NEIGHBOURHOOD:

If you really need outdoor lights – Select the best lamp type & fully shielded fixture for each location; direct light down to the ground. Turn on only when light is needed. Use motion sensors (make sure they are aimed down correctly!). **See back page.**

Don't want to replace bad fixtures? Install shield around bad fixture to prevent glare and light trespass. **No need to buy:** make your own shade from cardboard, plastic, or metal and paint with outdoor paint.



GOOD NEIGHBOUR OUTDOOR LIGHTING

IS ATTRACTIVE & ENHANCES NEIGHBOURHOOD APPEARANCE

MINIMIZES THE ADVERSE HEALTH EFFECTS OF LIGHT POLLUTION

PROTECTS EVERYONE'S SAFETY ON PRIVATE & PUBLIC PROPERTY

PREVENTS LIGHT TRESSPASS

RESPECTS THE RIGHTS OF NEIGHBOURS

SAVES ENERGY, MONEY, AND THE ENVIRONMENT

KEEPS THE NIGHT SKY UNPOLLUTED

[HTTP://WWW.DELMARFANS.COM/EDUCATE/BASICS/LIGHTING-POLLUTION/](http://www.delmarfans.com/educate/basics/lighting-pollution/)

NIGHT TIME LIGHTING LAMP & FIXTURE RECOMMENDATIONS 4

LAMP TYPE: Use LED Lamps:

Have very long lamp life; up to 70,000 hours

More efficient than Incandescent, High Pressure Sodium or Metal Halide

Can be dimmed and rapidly switched, unlike HPS and MH

Can be aimed more accurately to control light distribution

Use Lamps with a COLOUR TEMPERATURE 3000 K or Less

Less glare than higher colour temperature lamps

Less effect on biorhythms of humans and animals

FIXTURE CLASSIFICATION (BUG ratings) - Backlight, Uplight and Glare

Uplight = 0 (otherwise known as **fully shielded**) is a **MUST**:

This means zero Uplight

Greatly reduces sky glow

Backlight and Glare = 2 or less - Highly recommended

Keeps light directed downwards, not sideways

This reduces light trespass and glare

LIGHTING CONTROLS:

Do not use "dusk to dawn" controls (photocell only)

Lights stay on all night whether needed or not

Wastes energy and lessens lamp life

Affects wildlife

Use time of night control: Includes a timer in addition to a photocell;

Program to be on only at times needed

Saves energy and lamp life

Provides a "we're at home" appearance

BEST: Use Motion Sensor Control:

Includes a motion sensor in addition to a photocell

Reacts to infrared (heat) movement

Set sensitivity to avoid activation by animals and wind

Set limited on-time to save energy

Draws attention to activity (**good security**)

PLEASE SHARE THIS FLIER WITH FRIENDS, NEIGHBOURS & CO-WORKERS



TALK TO YOUR MUNICIPAL COUNCIL ABOUT FULLY
SHIELDED STREET LIGHTS IN YOUR NEIGHBOURHOOD

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA - VICTORIA CENTRE

[\(www.victoria.rasc.ca/\)](http://www.victoria.rasc.ca/)

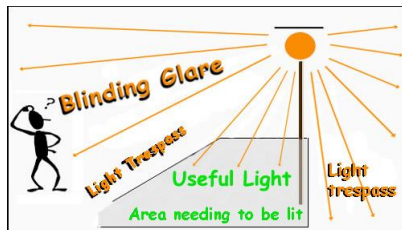
WHITE LIGHT AT NIGHT HARMS OUR HEALTH AND THE ENVIRONMENT 2

All organisms, including humans, have biorhythms that are orchestrated by our internal circadian (~24 hour) clocks. These biological clocks are synchronized with the natural light/dark cycle by the [blue](#) wavelengths in sunlight. White light includes blue, so at night disrupts circadian clocks, thereby deregulating:

- **Physiological rhythms**, e.g., of hormones, metabolism, immune function.
- **Growth & Reproduction of plants & animals**. This upsets food chains, causes population decline, and reduces biodiversity. Continuous light alters the balance between plant vegetative growth and flowering, and artificial light at night may prevent trees/plants and animals from adjusting to the seasons.
- **Behaviour patterns**, altering foraging areas, migration routes and timing of breeding cycles of many species, e.g., insects, birds, bats and other mammals.
- **Food chains & ecosystems**. Insects are essential pollinators for many plants and primary food source for many animals: songbirds, mammals, fish, etc. Decline in insect numbers and diversity negatively affects many other species, including crops/shrubs/trees, impoverishing habitats and weakening ecosystems.
- **Aquatic environments**. White light keeps zooplankton from rising to the surface at night to feed on algae (which grow more in light and can lower water quality). Light trespass over water also keeps fish from feeding near the surface at night, when predation is normally low, and slows their growth.
- **Atmosphere**. Sky glow sustains **air pollution** by preventing the natural nighttime changes in air chemistry that would otherwise be removing air pollutants during the night and make the air freshest at dawn.

BRIGHT OUTDOOR LIGHTING IS UNSAFE AND DECREASES SECURITY

Glare obscures vision, making it difficult to see the ground in front of you. Bright lights create **dark shadows** where intruders easily remain concealed.



Studies have shown reduction in crime, vandalism, and graffiti in previously over-lit areas after light-polluting fixtures were replaced by fully shielded fixtures that were turned on only when needed (motion-detectors are best). **See back page**

Ask yourself: Do I really need lights? If yes:

Are my fixtures directing light downward? Could glare cause accidents and dark shadows conceal intruders? Am I creating light trespass or glare for my neighbours, pedestrians, and motorists? Are my lights no brighter than needed and on only when needed? Would motion sensors suit my needs?

Would **reflective strips** on posts or along walkways be better than lights?

Light Trespass from Outdoor Lighting has Indoor Effects! 3

Our circadian clock regulates all our biorhythms, including brain wave patterns, hormone levels, metabolism, immune function, gene activity, and more.

Artificial light at night from outside or indoors (!) may de-regulate a person's biological clock, which disrupts sleep patterns, alters hormone production and immune function, and has other adverse health effects.



For example, the hormone **melatonin** is one of the body's most powerful *anti-cancer crusaders* and essential in maintaining health. Melatonin is released into the blood stream at night (in darkness), and levels drop immediately if a white (blue) light is turned on.

Disruption of the circadian clock has been linked to numerous medical disorders such as depression and other mood disorders, insomnia, impaired mental function, poor motor coordination, cardiovascular disease, cancer, obesity, early-onset diabetes.

The American Medical Association (AMA) has declared bad lighting a public health hazard because most species – including humans – need darkness to survive and thrive ([2012 AMA report on Light Pollution](#)).

Many of us live where it is never dark enough for our brains to recognize it is night!

Eight out of 10 children never see the Milky Way

From time immemorial, humans have marveled at the night sky, and found inspiration, knowledge, understanding, and pleasure in its beauty....

Without action to reduce light pollution, fewer and fewer people will ever experience a dark sky, with the curtain of stars seeming to brush the ground – surely one of the most extraordinary of natural wonders.



Sources & more information:

rasc.ca/outdoor-lighting

darksky.org; www.starrynightlights.com/lpIndex.html