From: Better Light RASCTO <betterlight@rascto.ca>
Date: September 30, 2016 at 9:36:46 AM EDT
To: <csaunder@london.ca>
Subject: Communication to Council: Street Lighting

Dear Cathy Saunders,

Greetings from the Royal Astronomical Society of Canada. The RASC is Canada's leading astronomy organization, with over 5000 amateurs, educators and professionals. The volunteer members of our 28 Centres, many in Ontario, offer outreach and award-winning science education programs across Canada.

We are very concerned about light pollution in our communities. As observers of the night sky, we are among the first to notice the impact of light on our communities. However, the effects of light pollution extend to health issues for all citizens, environmental issues for wildlife, and the negative impact on climate through higher than necessary energy use through over-lighting.

Many communities are considering the switch to LED lighting with a view to reducing the use of electricity. Depending on the design of the lighting, this can result in reduced light pollution or significantly worse light pollution.

We have attached an information sheet on light pollution. We would respectfully request that this be treated as a 'communication to council' and included in the minutes of your council meetings.

You are welcome to contact us for more information:
http://rasc.ca/light-pollution-abatement
An international organization on light pollution is here:
http://darksky.org/

Best regards,

Peter Hiscocks

Chair of the Committee on Light Pollution
Royal Astronomical Society of Canada, Toronto Chapter

Artificial lighting has been a great boon to our cities, towns and villages. Lighting can improve safety and make us feel more secure.
The way we light our towns and villages is changing. Significant savings in energy costs can be achived by with LED (light emitting diode) technology, so many municipalities are converting from existing fixtures to LED.

However, even though LED lighting may save money, it is no guarantee of good lighting design. Some versions of LED lighting have been excellent, some have been terrible. Bad lighting design is a hazard to human health, damages wildlife populations and destroys our view of the night sky.

Fortunately, it is not difficult or expensive to do lighting that avoids these problems. Here are some of the points to consider when doing a conversion or retrofit.

'Glare' occurs when a light fixture shines directly into a person's eyes. LED lighting can be a serious source of glare, which is unpleasant and interferes with human ability to see properly. Look for a lighting BUG specification that has a glare zero rating (G0 in the specification). Ensure that the light emitting surface is not readily visible, but is directed to the ground or other surface.

The 'colour temperature' is a measure of the colour of the light, measured in degrees Kelvin. Older fixtures tend to have a warmer glow, with a colour temperature around 2000 Kelvin. LED fixtures are much colder, with a colour temperature around 4000 Kelvin. The light is a cold white, and contains a large blue component. Blue light at night has been implicated in health problems and should be avoided. White LEDs often contain a large component of harmful blue light.

In contrast to older lighting technologies, LED lighting is relatively simple to control. It can be directed to cause less light trespass on adjacent properties. And it can be made 'intelligent' which allows the lights to be adjusted which reduces light pollution and saves energy. For example, street light levels can be reduced during the late night hours. It is important that LED fixtures have the capability of electronic control when they are purchased: it can be prohibitively expensive to add later.

The beauties of the night sky - stars, planets and the milky way - are hidden from view in the large cities of Ontario. City kids are growing up without seeing these natural wonders. In rural areas and the streets of smaller municipalies wonderful views of the the night sky are still possible. The night sky can be protected for this and future generations by using moderate levels of lighting and 'fully shielded' fixtures with a bug rating 'uplight zero' (U0).

In summary:

- Avoid overlighting: use the minimim light level that allows good vision
- Prevent glare: shield and aim lights so that they illuminate nearby surfaces and do not shine into the eyes of a human observer.
- Preserve the night sky: aim lights downward, shield them to prevent stray light, use the minimum necessary light level.
- Minimize light trespass: ensure that public and private lighting do not trespass on adjacent properties.
- Choose a warmer colour temperature: avoid lighting with a pure white or strong blue component. The 'colour temperature' should be less than 3000K.
- For new lighting installations use lighting that can be automatically adjusted to best suit requirements, reducing light when it's not needed.

For more information:

http://rasc.ca/light-pollution-abatement

http://darksky.org/