

Report to Planning and Environment Committee

To: Chair and Members
Planning & Environment Committee

From: George Kotsifas, P.Eng.
Managing Director, Development and Compliance
Services and Chief Building Official

Subject: Bird-Friendly Development

Meeting on: January 21, 2019

Recommendation

That, on the recommendation of the Director, Development Services, the following actions be taken:

- (a) with respect to the provisions for bird-friendly development the staff report **BE RECEIVED** for information; and,
- (b) Civic Administration **BE DIRECTED** to circulate the attached draft by-law for review and comment for potential changes to the Site Plan Control By-law with respect to bird-friendly development; and,
- (c) Civic Administration **BE DIRECTED** to report back on the possibility of instituting a limited lit period of high-rise buildings during an identified migratory bird season including any possible mechanism(s) for enforcement.

Background and Analysis

1.0 Background

1.1 Council Resolution

On April 10, 2018 Municipal Council resolved that:

the fourth draft of the Green Standards for Light Pollution and Bird-Friendly Development BE REFERRED to the Manager, Development Services, to review and to prepare a version for the Municipal Council's consideration; it being noted that three Advisory Committees have made this recommendation; it being further noted that Section 4.1 of the Guidelines contemplates a light curfew for London; the specific times have been left blank; a suggested light curfew would be from 1:00 AM to 7:00 AM; and

the fourth draft of the Green Standards for Light Pollution and Bird-Friendly Development BE REFERRED to all City of London Advisory Committees for their consideration

This report is in response to The Green Standards for Light Pollution and Bird-Friendly Development prepared as a joint initiative of several City advisory committees. The purpose of this report is to identify a proposed approach to ensure that bird-friendly development and reduced light pollution can be achieved through the existing site plan development process. The intent is to circulate the proposed changes to the Site Plan Control By-law for public input, and consult with the three identified Advisory Committees that initiated the review and the Development Industry regarding the proposed changes.

1.2 Bird-Friendly Design

Bird strikes occur from birds' inability to comprehend glass. Birds strike windows and die from the impact or from the subsequent fall while attempting to fly towards perceived vegetation reflected in a glass window pane or to the perceived vegetated space on the other side of clear glass.

Bird deaths as a result of bird strikes in Canada are estimated at 25 million annually. The majority of these deaths occur in urban areas as the light from urban areas interferes with cues they rely on from the night sky. Lighting of the sky at night has the

effect of drawing birds into urban areas where they then seek spaces to rest. “Light pollution” can also produce spaces which are confusing to birds through reflection and glare related to electric light.

Bird-friendly design is intended to achieve an approach to lighting and glass façade design which reduces the light pollution that interrupts birds’ natural movement patterns and creates bird strike probable situations, respectively.

1.3 Bird-Friendly Practice in Other Jurisdictions

Within North America, a number of policy and regulatory approaches have been undertaken to address bird safety in the design of urban areas. In 2011, a United States Congressman from Illinois’ 5th District brought forward a Bill to ensure Bird-Safe Buildings. The proposed Bill recognized the work done in three cities: Chicago, Toronto and New York. Both Chicago and New York have building design guidelines which provide guidance on design elements which will reduce bird strikes, such as the application of patterns to glass to make it clear to birds that the glass presents a barrier thereby allowing birds to see the glass and avoid strikes to the glass .

The City of Toronto has established Bird-Friendly Development Guidelines as part of the Toronto Green Standard applied during the site plan process. This includes best practices on lighting and glass to prevent bird strikes and reduce light pollution. In practice, the City of Toronto requires applicants to demonstrate how they meet the Toronto Green Standard in submitted applications. Common site plan requirements include “IDA – Dark Sky Approved” fixtures, and application of a limited light period between 11PM to 6AM on site plan during the bird migratory season (defined as April - May and Mid-August – Mid-October in Toronto).

2.0 Existing Policy and Regulatory Framework

2.1 The London Plan Policy

Policies are already in place that provide direction to reduce light pollution and prevent bird strikes. Within *The London Plan*, the City Design chapter directs building design and materials be chosen to reduce the potential for bird strikes. Specifically, Policy 304 (under appeal) reads: “*Efforts should be made to design buildings and use materials that minimize bird strikes on high-rise buildings.*” This policy supports efforts to ensure bird-friendly development through the site plan process. The Green and Healthy City chapter of *The London Plan* promotes dark skies through Policy 745 (in force and effect) which reads: “*We will support initiatives to reduce glare, light trespass, and skyglow to promote energy conservation, reduce impacts on wildlife, and support healthy neighbourhoods.*” These two policy references provide the policy support for initiatives to reduce, or prevent light pollution and address bird strikes through the site design and development process.

2.2 Site Plan Design Manual

Lighting, a primary concern in bird-friendly design, is currently addressed through the site plan process. Although portions of the *Site Plan Design Manual* speak to various aspects of lighting for pedestrian safety, transit access and fire routes, Section 8 speaks specifically to the provision of facilities for lighting, including floodlighting. Section 8 “Facilities for Lighting, Including Floodlighting,” of the *Site Plan Design Manual* is available in its entirety in Appendix A.

Section 8 identifies the objectives for lighting facilities – specifically, objective (d) directs that illumination of a site be designed to “*reduce or eliminate the potential of any adverse effect of artificial light such as: glare, light trespass, light clutter, energy waste.*” Section 8 continues, directing that:

The type, location, height, intensity and direction of lighting shall ensure that glare or light is not cast onto adjacent residential properties or natural areas adversely affecting living environment, or onto adjacent public streets which would pose a vehicular safety hazard. Moreover, energy conservation measures must be considered to ensure that the site is not illuminated more than it need be. In some cases, the extent of lighting may be required to be reduced after normal business hours.

This regulation provides the framework for requiring lighting design that does not result in adverse impacts from lighting including spillage and wastage. There is an opportunity to further identify bird-friendly development as an objective in this portion of the *Site Plan Design Manual*.

Section 8 of the *Site Plan Design Manual* also provides specific requirements for lighting. Section 8.2 (b) Height, limits the maximum height of all yard lighting fixtures to 15m (50 ft.) for non-residential uses and 6m (20 ft.) for multi-family residential uses. Limiting the height of fixtures is a part of ensuring that lighting provided is directed solely to those locations where it is required, thereby preventing light pollution. As applicable, the *Site Plan Design Manual* 8.2 (d) allows staff to require a Light Study where “a qualified engineer will prepare and provide a report demonstrating how the lighting is contained on the site and that the selection/style of light will not create glare and/or broadcast light onto adjacent properties or roadways, by the adjustment of refractors and/or the placement of Shields.” To ensure bird-friendly development, this tool can be used for larger developments which have the potential for significant light pollution.

Section 8.3 of the *Site Plan Design Manual* provides a definition for “Fascia Lighting and Floodlighting of Building” allowing staff to provide direction on its applicability and prevent or control its use as necessary to reduce light pollution and prevent bird strikes. As an example, it would be anticipated that fascia lighting and floodlighting would not be supportable for glass buildings where the glare produces light pollution and creates conditions which amplify the probability of bird strikes.

The diagrams associated with Section 8, available in Appendix A, provide exemplars of proper lighting design, which re-iterate and clarify that lighting should not illuminate adjacent properties and that the lighting system should be designed to broadcast light downward so as to reduce glare and light pollution.

It is worthy of note that the provision of lighting, including orientation and intensity, is controlled in the final development agreement required to allow for development. The standard lighting facilities clause of the template development agreement reads:

16. Lighting Facilities: All lighting of the site shall be oriented and its intensity controlled so as to prevent glare on adjacent roadways and residential properties to the satisfaction of the Managing Director

Enforcement of this clause, including modifications where necessary to address identified light pollution impacts, will ensure that the policy goals related to dark skies and bird strikes are met in any finalized and approved development. The existing standard language already speaks to orientation and intensities that provide safety for pedestrians without resulting in glare or other light pollution through improper lighting facilities design.

3.0 Implementing a Bird-Friendly Approach

3.1 Application of Bird-Friendly Development Criteria

The application of bird-friendly development standards is best done at the site plan approval stage. Under *The Planning Act (1990)* developers are to “provide to the satisfaction of and at no expense to the municipality ...facilities for the lighting, including floodlighting, of the land or of any buildings or structures thereon.” Using site plan control is the approach taken by the City of Toronto and reflects the opportunity the municipality has to control lighting and design at the site plan approval stage. All submitted site plan applications should be reviewed to ensure bird-friendly design as part of the review to address lighting.

3.2 Circulation in the Site Plan Process

Circulation of proposed site plans provides the mechanism to ensure that developments meet all applicable regulatory and policy requirements. Site Development Planning staff presently lack the specific training to ensure buildings can be considered ‘Bird-Friendly’ but can rely on other professional staff and advisory groups to provide the ecological expertise to direct bird-friendly development. The site plan circulation process will ensure site-specific approaches required to reduce bird strikes and light pollution are provided to the site plan staff to implement bird-friendly development comprehensively across all applications.

Possible exceptions to circulation would be made for residential development less than six storeys in height, unless the development abuts a property designated Green Space within *The London Plan*. This standard is in keeping with the approach taken by the City of Toronto, recognizing that smaller residential developments away from environmental areas create less issues with regards to bird strikes and light pollution.

The City's Ecologist is currently circulated on site plan proposals that potential impact Natural Heritage areas. Comments on bird-friendly development required beyond the standards set out within the *Site Plan Design Manual* would be provided by the Ecologist Planner at time of circulation. The Ecologist may provide comment on any design elements to be added to glass facades to prevent bird strikes, if warranted.

It is proposed that developments greater than four storeys and those involving primarily glass facades would be circulated additionally to the applicable Advisory Committees to allow for comment on more high-risk developments from a bird-friendly perspective. The draft guidelines developed by EEPAC in conjunction with the Advisory Committee on the Environment and the Animal Welfare Advisory Committee can form the basis of their review and comment on site plans with respect to bird friendly development.

In implementing the approach, it is the intent that site plan staff would consider the consulting Architect's recommendations for bird-friendly glass and lighting design on mid and high-rise developments. Additional circulation for bird-friendly review would occur as follows:

- The City's Ecologist Planner would be circulated when:
 - A proposed residential development proposes buildings greater than 6 storeys or abuts the Green Space Place Type; or,
 - All proposed non-residential development utilizing reflective material.
- Environmental and Ecological Planning Advisory Committee, Advisory Committee on the Environment, and the Animal Welfare Advisory Committee would be circulated when:
 - A proposed development is greater than 6 storeys; and/or
 - A proposed non-residential development utilizing reflective material.

3.3 Standard for Lighting

The implementation of an official standard for lighting is proposed to ensure consistency and objectivity in implementation of dark sky and bird-friendly lighting design. This standard can be achieved through establishing a requirement for any installed lights to be full cut-off and have zero up light. Full cutoff fixtures have a cap to direct all light downward to the surface intended for illumination. The cap prevents glare and light trespass which result from undirected light. Undirected upward light is the greatest source of light pollution which alters the natural patterns of birdlife.

3.4 Accessibility

The established standards, identified above, do not compromise the accessibility of spaces for those with visual impairment. The standards, and the proposed City of London approach seek to reduce lighting which creates glare or which is not directed to produce necessary illumination. Neither glare nor light trespass provide assistance to those with visual impairment. The City of London's existing 2007 Facility Accessibility Design Standards also align with bird-friendly requirements by applying glazing to windows to ensure that broad expanse of glass are visible to those with visual impairment.

3.5 Recommended Changes to the Site Plan Design Manual

To ensure that bird-friendly design is fully implemented, there is the need to establish it as a requirement through a Council-approved by-law. As stated above, the appropriate location to make this addition is to amend the Site Plan Control By-law to direct that bird-friendly design is a specific objective in lighting design.

Proposed amendments would include amendments to Section 8 of the *Site Plan Design Manual* to:

- Provide additional language in in the Objectives (Section 8.2) of the Facilities for Lighting, Including Floodlighting, to establish bird-friendly design as a goal of

lighting design through Site Plan Control.

- Provide a new requirement that light fixture provided be full cut-off and have zero up light.

The combination of these changes will, in association with the revised circulation process, ensure that bird-friendly design requirements are reviewed for, and ultimately implemented, in the development process.

The proposed changes are available in Appendix B as a draft amendment to the Site Plan Control By-law.

3.6 Limited Light Period

The draft Green Standards for Light Pollution and Bird-Friendly Development presented the possibility of a period where lighting would be required to be limited or turned off. The benefits of reduced light pollution at night, particularly during migratory bird season are documented. The challenge for implementation is determining a mechanism to measure, determine and enforce compliance. Site Plan Control does not implement or control regulations with regards to hours of operation. Addressing a limited light period falls outside the site plan process.

Establishing a limited light period would require two additional steps outside of those implementable through the site plan process. First, the local migratory bird season would need to be established to determine when the limited light period would be applied. Second, a compliance mechanism needs to be evaluated and established to ensure lighting conforms to temporal operation requirements in addition to addressing any requirements set out through the development agreement, which follows the site plan process.

3.7 New Requirements for Development

The impact of the proposed changes will, for most new developments, be limited to ensuring that the lighting fixtures purchased and installed for their site are full cut-off and have zero up light. Any proposed designs which would previously have required changes to reduce the adverse effects of artificial light will continue to require those changes only to meet the additional objective of bird-friendly design. The potential establishment of a limited light period during an identified migratory bird season would require any lights be extinguishable during the night.

Developments with primarily glass facades will expect that comments received at the site plan approval stage will direct the applicant to provide glass treatments that prevent bird strikes.

4.0 Conclusion

Bird-friendly development can be achieved through the existing site plan process with only minor modifications. Policy support exists within *The London Plan* to promote dark skies and reduce bird strikes through effective lighting and site design. The existing site plan circulation process can be used to ensure that professional staff and advisory committee comments on bird-friendly design are implemented through the site development process. Minor changes to the Site Plan Control By-law, specifically to Section 8 of the *Site Plan Design Manual* will ensure that standards are applied to ensure bird-friendly development on all sites in accordance with existing objectives which seeks the elimination of unnecessary and/or adverse lighting.

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Recommended by :	Paul Yeoman, RPP, PLE Director, Development Services
Submitted by:	George Kotsifas, P.ENG Managing Director, Development and Compliance Services and Chief Building Official

January 7, 2018

Cc: Environmental and Ecological Planning Advisory Committee (EEPAC)
Advisory Committee on the Environment (ACE)
Animal Welfare Advisory Committee (AWAC)

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Appendix A – Site Plan Control By-law – Section 8

8. FACILITIES FOR LIGHTING, INCLUDING FLOODLIGHTING

8.1. Objectives

To provide sufficient illumination of the site for:

- (a) pedestrian security and safety;
- (b) functional vehicular movement;
- (c) enhancement of external building design and landscaped open space;
- (d) reduce or eliminate the potential of any adverse effect of artificial light such as: glare, light trespass, light clutter, energy waste.

The type, location, height, intensity and direction of lighting shall ensure that glare or light is not cast onto adjacent residential properties or natural areas adversely affecting living environment, or onto adjacent public streets which would pose a vehicular safety hazard. Moreover, energy conservation measures must be considered to ensure that the site is not illuminated more than it need be. In some cases, the extent of lighting may be required to be reduced after normal business hours.

8.2. Yard Lighting

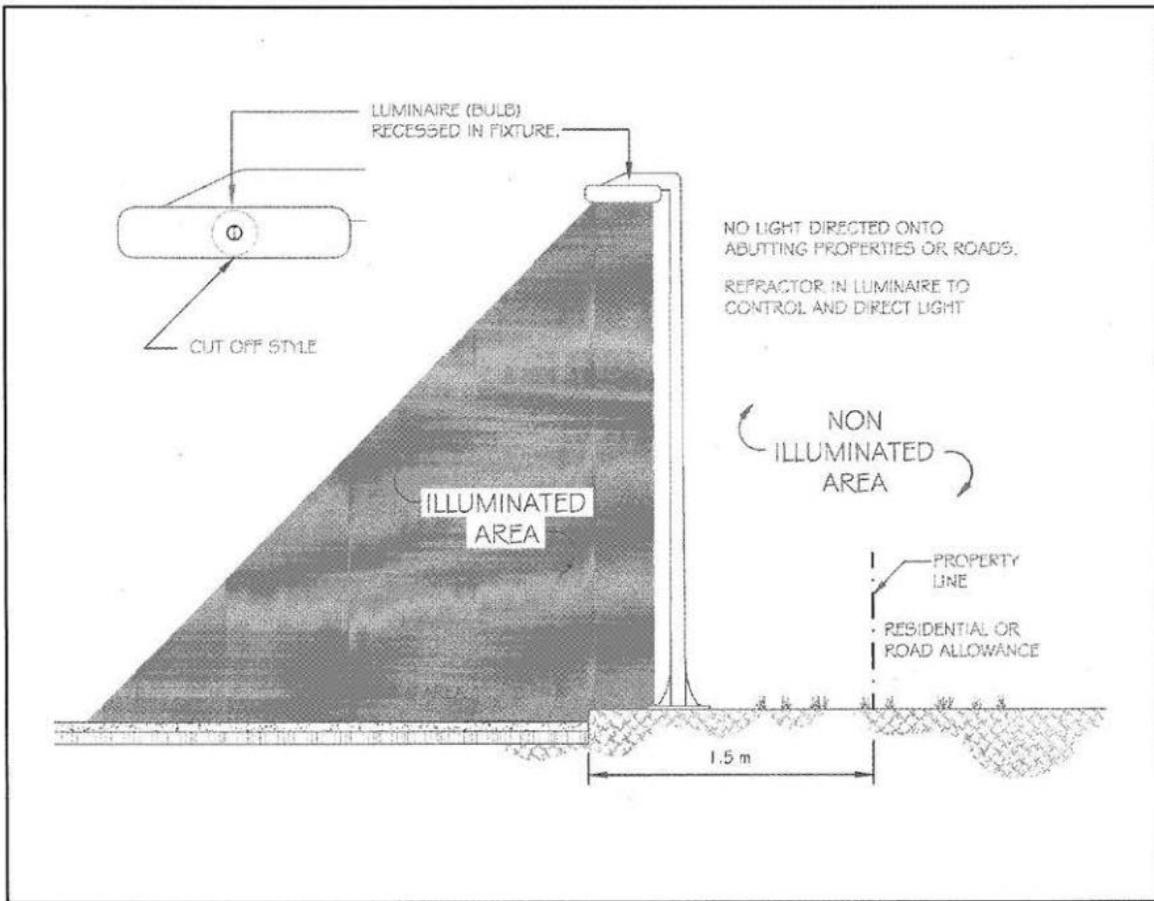
- (a) Definition - Yard lighting illuminates broad areas such as parking lots, driveways, landscaped and recreational areas. Yard lighting is generally provided from fixtures mounted on poles or building faces.
- (b) Height - For non-residential uses, the maximum height of all yard lighting fixtures shall be 15m (50 ft). For multi-family residential uses, the maximum height of all yard lighting fixtures shall be 6m (20 ft.).
- (c) Design - Ornamentally designed fixtures shall be encouraged, particularly for residential developments, and developments that include pedestrian walkways, at main entrances of buildings, internal roadways, parking areas and vehicular entrances and exits.
- (d) “Light Study – a qualified engineer will prepare and provide a report demonstrating how the lighting is contained on the site and that the selection/style of light will not create glare and/or broadcast light onto adjacent properties or roadways, by the adjustment of refractors and/or the placement of shields (see Figure 8.1).”

8.3. Fascia Lighting and Floodlighting of Building

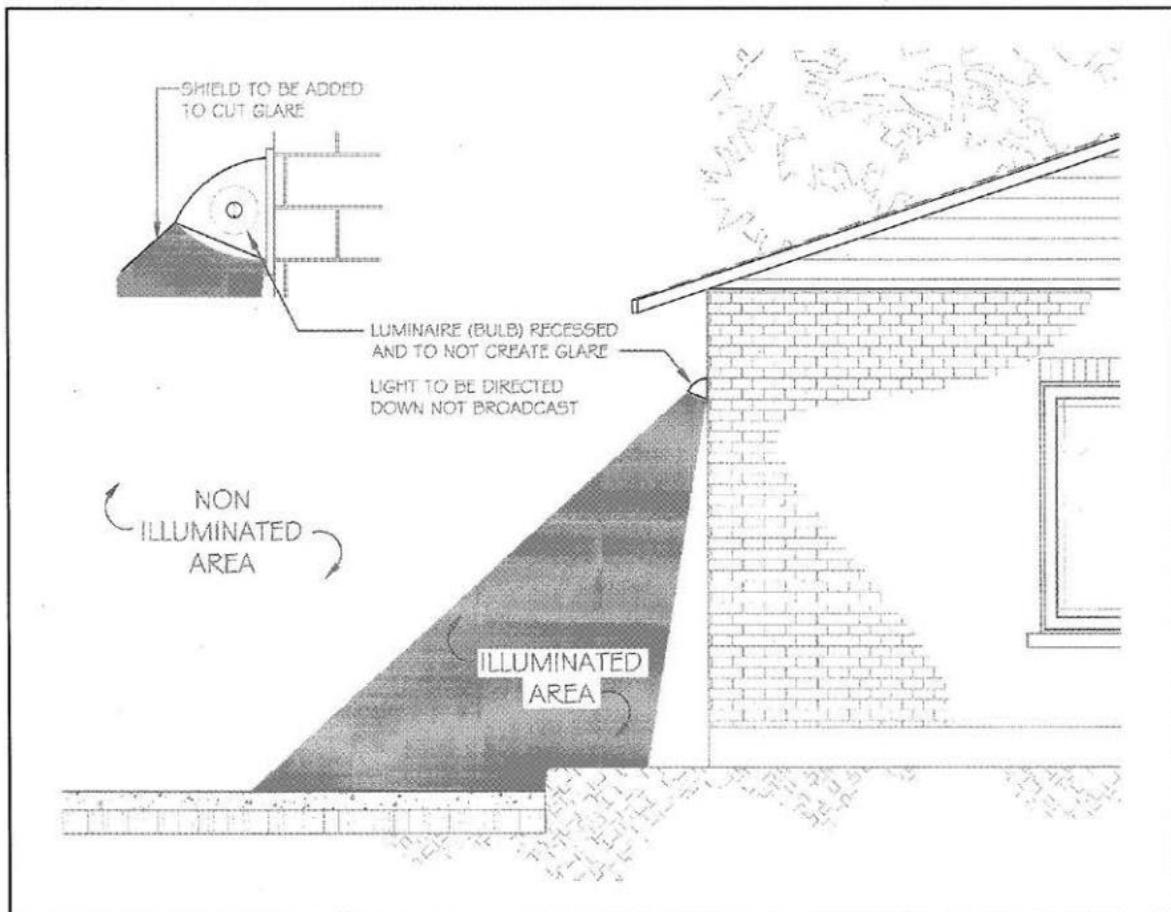
- (a) Definition - Fascia lighting and floodlighting of the building illuminates precise areas of the building face(s) generally to compliment the architecture and provide illumination of the grounds adjacent to the building. Fascia lighting is usually provided by fixtures mounted on the building face(s) and/or located at grade in the immediate vicinity of the building.

FIGURE 8.1

LIGHT STANDARD - SAMPLE



WALL MOUNTED LIGHTS - SAMPLE



Appendix B – Draft Amendment to the Site Plan Control By-law

Bill No. XXX

By-law No. C.P.-1455(X)-XX

A by-law to amend By-law C.P.-1455-541, as amended, entitled the “Site Plan Control Area Bylaw”.

WHEREAS Section 41(3) of the Planning Act, R.S.O. 1990, provides that, where in an Official Plan an area is shown or described as a proposed site plan control area, the council of the local municipality may designate a site plan control area;

AND WHEREAS Section 41(7) of the Planning Act, R.S.O. 1990 provides that a municipality may require the owner of land to provide to the satisfaction of and at no expense to the municipality facilities for the lighting, including floodlighting, of the land or of any buildings or structures thereon;

AND WHEREAS Municipal Council of The Corporation of the City of London passed Bylaw C.P.-1455-541 on June 26, 2006 being a by-law to designate a Site Plan Control Area and to delegate Council’s power under Section 41 of the Planning Act, R.S.O. 1990 c.P.13;

AND WHEREAS it is deemed expedient to amend the said By-law;

NOW THEREFORE Municipal Council of The Corporation of the City of London enacts as follows:

1. By-law C.P.-1455-541, as amended, is hereby further amended as follows:
 - i) Section 8 is amended by adding to ‘8.1 Objectives- a new sentence at the end of the concluding paragraph to read: “All lighting should be limited to, and directed towards, the area requiring illumination so as to reduce skyglow and light pollution and thereby promote bird-friendly development.”
 - ii) Section 8 is amended by adding to ‘8.2 Yard Lighting’ a new requirement
 - (e) Elimination of Skyglow – So as to reduce skyglow, light pollution and related bird fatalities, all light fixtures to be provided are to be full cut-off and have zero up light.
2. This by-law comes into force and effect on the date that it is passed.

PASSED in Open Council on –

Ed Holder
Mayor

Catharine Saunders
City Clerk

First Reading –
Second Reading –
Third Reading –