

Report to Planning and Environment Committee

To: Chair and Members
Planning & Environment Committee
From: George Kotsifas, P. Eng
Managing Director, Development & Compliance Services &
Chief Building Official
Subject: Bird-Friendly Development
Meeting on: November 18, 2019

Recommendation

That, on the recommendation of the Director, Development Services, the following actions be taken with respect to bird-friendly development and instituting a limited light period for the City of London:

- A. The proposed by-law attached hereto as Appendix “A” **BE INTRODUCED** at the Municipal Council meeting to be held on November 26, 2019 to amend By-law C.P.-1455-541, as amended, entitled the “Site Plan Control Area By-law” to add the following to Schedule 1:
- (a) Section 2
 - i) 2.1 Objectives – a new objective for bird-friendly design of a development site.
 - (b) Section 8
 - i) Section ‘8.1 Objectives - a new objective 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 ‘8.2 Yard Lighting’ – adding a new requirement for full cut-off and have zero up light lighting
- B. The Civic Administration **BE DIRECTED** to further public consultation and provide for consideration future proposed Site Plan Control By-law Amendments to address other possible bird-friendly design criteria, including the possible use of visual markers on glass treated high-rise buildings for Council consideration.
- C. The Civic Administration **BE DIRECTED** to undertake a public awareness campaign on creating visual markers, treating glass, and muting the reflection of glass on buildings to ensure buildings are less dangerous for birds, and the promotion of a limited lit period coinciding with bird migrations in spring (approx. March to June) and fall (approx. August to November) migratory seasons, respectively.

Executive Summary

Summary of Request

This report provides an amendment to the Site Plan Control By-law Design Guidelines to include bird-friendly design criteria for high rise buildings.

The Purpose and the Effect of Recommended Action

The purpose and effect is to incorporate lighting design that will reduce the impact of London’s built environment on the migratory and resident bird populations, have further dialogue with the environmental advisory groups and development industry representatives regarding the possibility of incorporating bird-friendly design on high-rise buildings with glass treatment, and continue to work with the City’s Corporate Communications regarding a public awareness campaign on bird-friendly design and a limited lit period during the spring and fall migratory seasons.

Rationale of Recommended Action

1. The requested amendment has regard to a policy of The London Plan that promotes efforts to incorporate bird-friendly design of buildings and materials that minimize bird strikes on high-rise buildings.
2. The public has been consulted on the requirement for lighting design that will reduce the impact of London's built environment on the migratory and resident bird populations. There were no issues raised by the public specific to incorporating lighting requirements in the Site Plan Control By-law.
3. Further public consultation is proposed to be undertaken regarding the possible use of incorporating visual markers on glass treated high rise buildings.

Background and Analysis

1.0 Background

1.1 Council Resolution

On January 30, 2019 Municipal Council resolved that:

- (a) *the staff report dated January 21, 2019 entitled "Bird-Friendly Development" BE RECEIVED for information;*
- (b) *the Civic Administration BE DIRECTED to circulate the draft by-law appended to the staff report dated January 21, 2019 for review and comment on potential changes to the Site Plan Control By-law with respect to bird-friendly development; and,*
- (c) *The 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. (2019-T01) (2.2/3/PEC)*

This report is in response to the council directive to circulate the draft by-law for review and comments on a potential Site Plan Control By-law amendment to address bird-friendly Development guidelines. The purpose of this report is to present the findings and discussions on the proposed changes to the Site Plan Control By-law and revised amendment.

1.2 Bird-Friendly Design

Bird-friendly design is an opportunity for the City of London to expand on its environmental and ecological commitments and ensure that the built environment is minimizing its impact on local fauna. 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 impacts bird strike probable situations, respectively.

1.3 External Circulation

Operational practices by Development Services staff included discussions with the development industry, as well as members of the public. Members of the public were concerned with the effect of skyglow and design causing bird collisions, calling for stricter measures in eliminating unnecessary lighting, addressing health concerns, and ensuring that buildings were designed to minimize impact (see Appendix B - Responses to External Circulation).

The development industry communicated that they are supportive of Council's direction to ensure that future buildings meet a reasonable bird-friendly standard for our community. They requested that a standardized set of design criteria be identified in the Site Plan Control By-law changes to ensure that if guidelines were met, the Site Plan

process would remain a time-sensitive process (see Appendix B – Responses to External Circulation).

Both the development industry and public concerns raised were in combination with the information provided by Advisory Committees. In response to the comments received, Staff is striking a working group to determine a best practices approach to bird-friendly requirements beyond improved lighting design. The working group will be considering the use of visual markers in the design of high-rise buildings with glass treatment, for example.

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, Key Direction No. 4 to Become One of the Greenest City's in Canada includes Policy 58_6 reads: "*Reduce our human impact on the environment*". Further, the City Design chapter directs building design and materials be chosen to reduce the potential for bird strikes. Specifically, Policy *304 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 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.*" The above 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 (U) 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 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” that allow 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 Site Plan Control Bylaw Proposed Amendments

The ability of the Site Plan approval process to implement bird-friendly design criteria makes it the favourable tool for meeting the City’s environmental commitments. The proposed amendments to the Site Plan Control By-law set out the objectives of bird-friendly design generally and bird-friendly lighting specifically. The specific regulations for lighting relate to the elimination of skyglow through the use of full cut-off/zero up light lighting.

3.2 Circulation in the Site Plan Process

The circulation of site plan applications provides the mechanism to ensure that developments meet all applicable regulatory and policy requirements. Development Services 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 identify 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 standards comprehensively across all applications. The final criteria for the circulation process in terms of who is circulated on which applications will be refined along with the standards under review/development by the working group. The circulation approach taken will reflect the expertise necessary on a given file to ensure bird-friendly standards are met. In the interim the lighting standards proposed can be reviewed through the existing photometric requirements by Site Plan staff.

3.3 Effectiveness of Visual Markers and Glass Alterations

Glass design is one of the main factors in increasing or reducing bird collisions in cities. The reflective or transparent nature of glass creates dangerous flying visuals for birds, who struggle from differentiating the windows from the natural space around them. By determining and enforcing proper glass design standards, the windows can be designed to prevent bird-building collisions. It is these standards in which site plan development has the opportunity to ensure that London's built environment continues to promote a healthy ecological system.

A number of visual markers have been identified as potential glass design elements that can reduce bird strikes. Potential glass design elements include:

- UV Glass
- Patterned or 'fritted' glass
- Film Products and Decals
- Decorative Grilles and Louvres
- Fenestration Patterns

Regulations in other jurisdictions have implemented standards around these various markers; however, through consultation with ecological experts on bird collisions, it has become clear that some of the visual markers may be less effective or even potentially ineffective.

In order to ensure that the regulations ultimately approved are able to achieve bird-friendly glass design, staff have struck a working group. The working group consists of members with ecological backgrounds specializing in bird strikes, the development industry, including local architects, and staff. The aim is to return with regulations that are enforceable by staff, implementable by the industry, and ecologically sound in accordance with the most recent research.

3.4 Migratory Bird Season

In response to Council's direction on the possibility of instituting a limited lit period of high-rise buildings during an identified migratory bird season, the City's Ecologist has advised that there is no distinct season for bird migration in the London area. A review of bird migration would require a detailed investigation on a species by species basis. However, it is proposed that the City of London apply the City of Toronto's model for the migratory spring and fall seasons (March to June and August to November), with minor adjustments to recognize the geographic separation distance between London to Toronto. Bird-Friendly lighting can be addressed as a year-round goal, however the information campaign for existing buildings will target the approximated migratory season.

3.5 Awareness Campaign – Existing Buildings not Subject to Site Plan

Development Services has engaged with the City's Communications group to establish a Corporate-wide awareness campaign that includes the creation of an information brochure and website. This will allow for Bird-Friendly and dark-sky education to go beyond the scope of this bylaw and address existing buildings that are not subject to Site Plan Control, and incorporate other departments in public engagement initiatives within the City. The approximate migration timeframe of March to the beginning of June and mid-August to the beginning of November, is to be used as a period to launch and focus the awareness campaign.

A "soft launch" of the awareness campaign is targeted for the Lifestyle Home Show of London Homebuilders' Association from January 31 to February 2, 2020 and will continue up to Earth Day events scheduled on Wednesday, April 22, 2020. Bird-friendly initiatives as part of the City of London's Earth Day is important as it demonstrates environmental awareness and promotion of harmony between built form and birds.

4.0 Additional Considerations

On July 30, 2019 Council passed the implementation of program guidelines for a Downtown Façade Uplighting Grant Program. This incentive program is contained within the existing Façade Improvement Loan program provided by the City of London through the Downtown Community Improvement Plan. The purpose of this grant is to create excitement and vibrancy in the downtown through the use of innovative lighting techniques to illuminate building façade details, which will add vibrancy during the evening hours and winter months. Development Services will work with City Planning to ensure that lighting is limited to the architectural features of buildings and is designed to shield any light from projecting into the sky, through the use of angled lighting or shields.

5.0 Conclusion

Policy support exists within The London Plan to promote dark skies and reduce bird strikes through effective lighting design standards. The scenario-based site plan circulation process (identified in this report) can be used to ensure that professional staff and advisory committee comments on bird-friendly design are implemented through the site development process.

Bird-friendly development can be achieved through the recommended amendments to the Site Plan Control By-law. The recommended changes will ensure that standards are applied that promote bird-friendly development on all sites. This is in accordance with existing objectives which seeks the elimination of unnecessary and/or adverse lighting indicated in this report.

Further public consultation regarding other possible design considerations for high-rise buildings will be explored, and a public education awareness campaign will be undertaken in advance of the spring 2020 migratory season.

Special acknowledgements are due to Marcello Vecchio, Integrate Land Use Technologist for his vital contribution in preparing this report.

Prepared by:	Leif Maitland, Site Development Planner
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
Note: The opinions contained herein are offered by a person or persons qualified to provide expert opinion. Further detail with respect to qualifications can be obtained from Development Services.	

MV/LM

Cc: Environment and Ecological Planning Advisory Committee (EEPAC)
Advisory Committee on the Environment (ACE)
Animal Welfare Advisory Committee (AWAC)
Michael Wallace, London Development Institute
Lois Langdon, London Home Builders' Association
Walter Derhak, London Society of Architects
Dana Wachter, Communications Specialist, Corporate Communications
Gregg Barrett, Manager, Long Range Planning and Sustainability, City Planning

Appendix A – Amendment to the Site Plan Control By-law

Bill No.
2019

By-law No. C.P.-1455()-____

A by-law to amend By-law C.P.-1455-541, as amended, entitled “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 the 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 2 of Schedule 1 to By-law No. C.P.-1455-541 is amended by adding to 2.1 Objectives - a new objective to read:

d) To provide bird-friendly design of a site for:

(i) conservation of resident and migratory bird species

(ii) reduced mortality from bird-building collisions

(iii) reduced negative impacts on natural heritage

iii) 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.”

iv) Section 8 is amended by adding to ‘8.2 Yard Lighting’ as a new requirement to read:

(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.

PASSED in Open Council on November 26, 2019

Ed Holder
Mayor

Catharine Saunders
City Clerk

First Reading - November 26, 2019
Second Reading - November 26, 2019
Third Reading – November 26, 2019

Appendix B – Responses to External Circulation

On Apr 7, 2019, at 8:39 AM, Beth Osuch wrote:

7 April 2019

Dear London Community Leaders,

I would like to bring to your attention the recent article (url below) in the lay press that has immediate relevance to London and the surrounding areas.

<https://www.nationalgeographic.com/science/2019/04/nights-are-getting-brighter-earth-paying-the-price-light-pollution-dark-skies/>

As someone living in Middlesex Centre, between Hyde Park and Ilderton on Eight Mile Road I have noticed that, as London has expanded rapidly in the last 5-7 years, there has been an increasingly bright blue glow over the city at night. The causes are obvious as lights over empty parking lots stay on all night, long after the close of business hours. The traffic circle at Sunningdale and Wonderland Roads is visible in the night sky from kilometers away. These are just 2 small instances of excessive lighting from the expansion of the city. While I used to be able to go out of my house at night and enjoy the stars, there is now a constant glow of the city that obstructs the night sky and appears as if there is a continuous sunrise to the south. As mentioned in the article, there is growing evidence that this is disruptive both to humans and to the wildlife around us.

The awareness of this problem and the evident solutions place London in an exciting and important position to help lead the way in creating a more human- and wildlife-friendly community. I would like to see the lighting of old – and certainly any new developments in London – equipped with the softer, yellower lighting options that are referred to in this article. I would like to see unnecessary lighting, such in as empty parking lots of closed businesses, reduced or eliminated. This is an opportunity for London to demonstrate a genuine interest in the long-term health and wellbeing of all the inhabitants of our communities and surrounding regions, human and otherwise. It would create an example to our children of simple and cost-effective ways to improve the environment and minimize the negative consequences of our technological advances. With these simple steps London could be a shining example (pun intended) of environmental awareness and improvement. With growing recognition of the environmental challenges caused by human advances I would like to see London take a lead in reducing these harms and set a high standard for our communities.

Thank you for your kind attention to this matter.

Sincerely,
Elizabeth Osuch



LONDON DEVELOPMENT
INSTITUTE

April 16, 2019

Leif Maitland
Development Services
City of London

File: Bird-Friendly Development

Dear Leif

Thank you for accepting London Development Institute's (LDI) comments regarding the proposed amendments to the Site Plan Control By-law and the Site Plan Design Manual relating to future bird-friendly development within the City of London.

In general, LDI is supportive. We recognize Council's desire to have future building development meet a reasonable bird-friendly standard for our community.

We do have a few comments and suggestions that LDI believes can improve the recommended changes to the proposed changes to the By-law.

The circulation of Site Plan applications during the approval process, we believe, can be improved. These changes will support City staff and Council Advisory Committees in their performance of their important role and allow for a timely and effective approval process.

It is our suggestion that clear bird-friendly design requirements be included in the Site Plan Design Manual for standards and designs. It is only reasonable, that if the application meets these standards, that the application does not need to be circulated to any of the applicable Advisory Committees of Council.

If the application does NOT meet the standard in the Site Plan Design Manual the submission could be circulated to the appropriate committee. We do not believe it is fair and reasonable that a Site Plan submission, that meets the standards, be delayed up to 30 days due to Advisory Committee circulation requirements.

We want Council's Advisory committees to be engaged in substantive issues and reviewing a design that has already been approved does not add value to the volunteer time of the citizens on the Advisory Committee.

In addition, we believe that the same criteria for circulation should also apply to the City Ecologist. The Ecologist currently reviews all Site Plan applications that impact Natural Heritage areas and we understand this will continue with the addition of bird-friendly design included in the Site Plan Design Manual.

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LONDON DEVELOPMENT
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LDI does believe that if bird-friendly glass and lighting are standardized within the Site Plan Design Manual, it would be redundant to have the Ecologist circulated on the application for buildings over 6 storeys. If the standard is met in a non-Natural Heritage area there is no need to use up valuable staff time reviewing Site Plan applications that have already incorporated the Council approved standards.

Finally, the issue of reflective material for non-residential use is mentioned several times within the report as to trigger the circulation of a Site Plan submission for approval to both Advisory Committees and the City Ecologist. A definition and/or guidelines of reflective material needs to be added to the Site Plan Design Manual which would allow a Site Plan submission to proceed without the need for circulation if the reflective material being proposed meets the definition or criteria.

One additional item, LDI is assuming that the current four street light standards that do not require photometric review will meet the new bird-friendly standard.

Thank you for your consideration

A handwritten signature in blue ink, appearing to read 'Mike Wallace', is written over a light blue circular stamp.

Mike Wallace
Executive Director
London Development Institute

CC Mayor Holder and Council

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From: Brendon Samuels
Sent: Thursday, April 18, 2019 9:01 AM
To: McNeely, Heather
Subject: Comments on bird-friendly development

Dear Ms McNeely,

I am a graduate student at Western University who studies bird-window collisions. I have also recently submitted an application to join the Environmental and Ecological Planning Advisory Committee for the city of London. It was suggested that I should contact you directly to provide feedback on the bird-friendly development report that was recently circulated and opened for comments.

First off, let me just start by saying I am so thrilled that London is stepping up to do something about this issue. I have received tremendous support from the community with respect to my own research on bird-window collisions, and so I am confident that this bird-friendly development will serve the public's best interests.

I recognize that most of the report is targeted towards reducing the impacts of artificial lighting at night. In fact many collisions do happen at night, and so mitigating the effects of artificial light is important, but it is thought that even more collisions happen during the daytime. For this reason most of my comments are in regards to the reports' mention of daytime collisions.

The following items are recommendations for improving the wording of the report:

- On page 1, recommendation c) mentions "*any possible mechanism(s) for enforcement*". While I do think thought should be paid to enforcing this bylaw, I also think that it is simple to institute incentives for building operators to voluntarily partake in the program. For example, the city could provide a "bird-friendly" endorsement in the form of a certificate or window sticker to buildings that maintain compliance, which could be displayed on the premises. This way the building operators can feel positive about advertising that they are doing their part to prevent harm to wildlife.
- Section 1.2 mentions "*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.*" Although this statement is partly true, it does not encompass all of the possible contexts in which window collisions may occur and is therefore misleading. For example, window collisions may also happen in winter months when there is little to no vegetation outside; collisions may happen in places which lack vegetation entirely, and daytime collisions may occur several stories up where sky, rather than vegetation, is reflected by glass. I suggest modifying the wording here to clarify that proximity of highly reflective glass to vegetation / greenspace may increase the risk of bird-window collisions rather than stating this in absolute terms.
- In section 3.2 it says "*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.*" If you or any of the committees or advisory groups would like more information on what bird-friendly criteria to use in reviewing future development proposals I can put you in touch with representatives from FLAP (Fatal Light Awareness Program) based in Toronto who offer a consulting service on identifying risk factors for window collisions. Many of these are outlined in the standards provided on their website.
- Section 3.2 further mentions "*proposed non-residential development utilizing reflective material.*" I would be curious to learn what the specific criteria are for defining a material as "reflective" in this case. Perhaps more technical information about the specific types of glass is needed.
- Section 3.7 states: "*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.*" I think this wording is vague in several respects. What is considered "primarily" glass facades? For instance, a building could have large, high-risk windows but be primarily constituted of brick. I think this should be defined in terms of total surface coverage of the building's exterior that is comprised of reflective glass. Secondly, what glass treatments would be recommended here? This should be more explicit, since there are a variety of commercially available glass treatments that have been shown to be largely ineffective. This does not make clear the specific requirements for treating glass properly to reduce collisions, such as applying the treatment to the exterior of the window, or covering the appropriate proportion of the surface, or how many stories/floors of the development will need to be treated.

- Lastly, although it may fall outside the scope of this document, I would hope that in the future London will consider recommending that existing glass facades that pose risks to wild birds (separate from new development) be retrofitted with glass treatments. There are already a lot of problematic glass buildings in London that can and should be addressed.

Please contact me if you have any questions about these comments.

Thank you,

Brendon Samuels

PhD Student, Biology

The Advanced Facility for Avian Research

The University of Western Ontario