



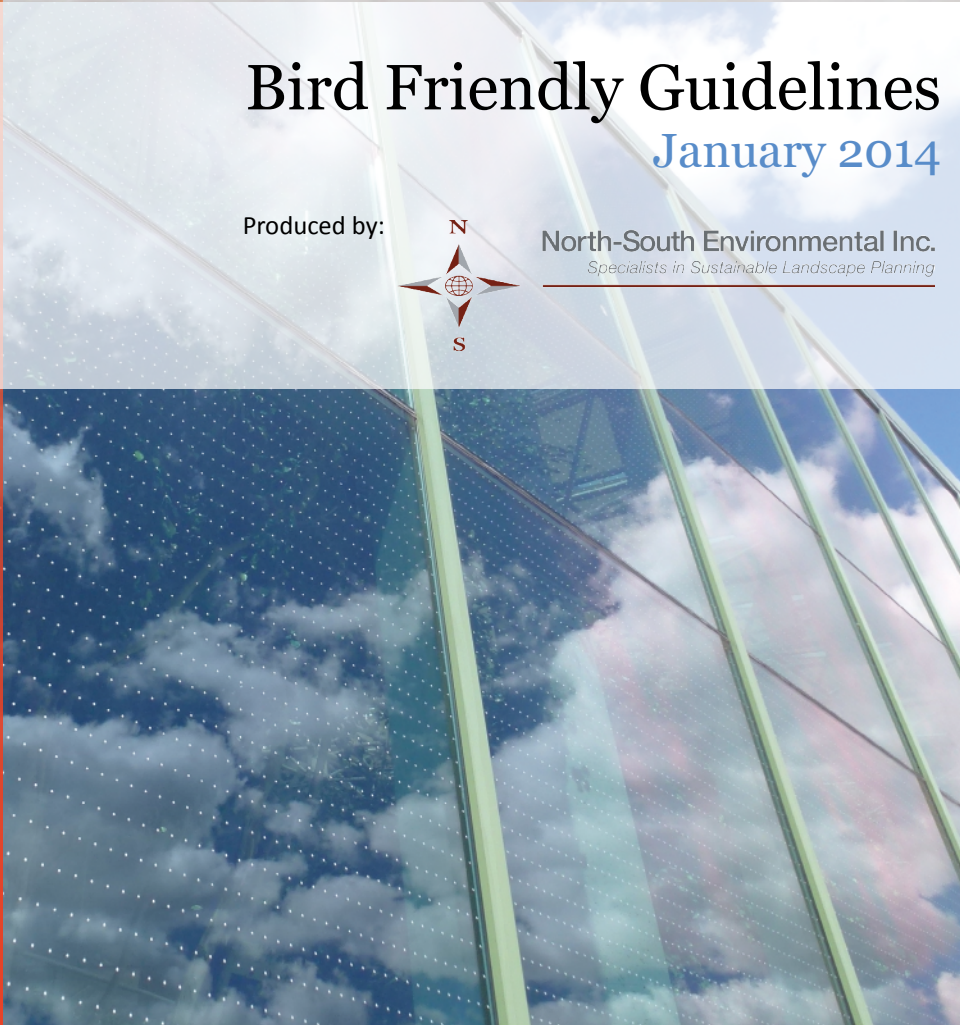
Bird Friendly Guidelines

January 2014

Produced by:



North-South Environmental Inc.
Specialists in Sustainable Landscape Planning



ACKNOWLEDGMENTS

The assistance, advice and photography from the following sources is gratefully acknowledged:

Michael Measure, FLAP Canada

Christine Sheppard, American Bird Conservancy

Dr. Daniel Klem Jr., Muhlenburg College, Pennsylvania

Toronto and Region Conservation Authority

City of Markham Staff

The City of Markham's emerging modern skyline, abundance of planned and protected green spaces and migratory bird paths contribute to increased bird injury and death. In response to the need to address Bird-Window Collisions, Markham Council has undertaken bird friendly retrofit projects to the Civic Centre Building, Fred Varley Art Gallery, Markham Museum and Thornhill Community Centre, as well as including bird friendly design in the Cornell Community Centre and South East Community Centre. Markham Council has provided further leadership in the preparation of Bird Friendly Guidelines as a City-wide tool to encourage site and building design in a manner that minimizes the risk of strikes/collisions to birds residing in and migrating through Markham. Councilor Valerie Burke, Ward One, has been instrumental in advocating for a Bird Friendly Markham and providing input into the study process.

Produced by:



North-South Environmental Inc.
Specialists in Sustainable Landscape Planning

In collaboration with:



Landplan



WALLMAN ARCHITECTS

EXECUTIVE SUMMARY



Bird strikes on human structures are estimated to be the second largest cause of avian mortality in Canada, exceeded only by cats. Estimates of annual mortality rates range in the USA alone range from 100 million to 1 billion. Volunteers for the Fatal Light Awareness Program (FLAP) Canada have documented approximately 45,000 Bird-Window Collisions (BWCs) in the Greater Toronto Area (GTA) since record keeping began in 2000.

Three groups of birds reside in Markham:

- Birds that reside year round in the municipality;
- Birds that breed in the municipality during the summer but fly south for the winter; and
- Birds that are migratory seasonal visitors.

By far, the highest number of collisions is related to small, forest-dwelling migratory songbirds. Birds are at risk of collision during the day as they seek food and shelter. Migratory songbirds have an additional risk as they migrate at night, and nighttime lighting interferes with their flight patterns. Almost all songbirds migrate at night, only stopping to rest and feed near dawn. Markham hosts a high density of migrants. They are spread throughout Markham and can be found within the Greenway System and in small dispersed patches of vegetation outside of the system. Fall migrating birds are by far the group most often involved in BWCs.

The remainder of collisions occur in April and May, indicating that spring migrants are also affected.

Most collisions occur during the day, on buildings with large areas of glass. Windows with adjacent vegetation that is reflected in the glass are most commonly associated with collisions. It appears that birds are attracted to reflected vegetation because they mistake it for habitat in which they can rest and feed during migration stopovers.

City lighting has a complex relationship with BWCs. Though migrating birds usually (in good weather) fly at heights over the height of even the tallest buildings in the GTA, light may attract them to find places to rest within cities during stopovers. They may descend if there is bad weather, particularly if visibility is poor. In this case, they may become confused by city lights, flying blindly into all kinds of structures.

Markham is implementing the Province of Ontario's and the Regional Municipality of York's requirements to intensify for future growth. The New Official Plan (2013) introduces a proposed urban structure which focuses intensification in nodes and corridors. Intensification may result in the development of more tall glass buildings with a resulting increase in night lighting. This document provides guidance in mitigating the risk of BWCs and thereby protecting migrating birds.

The Bird Friendly Guidelines are composed of Primary and Secondary Treatments which have been developed as a result of the best management practices review of specific sources such as FLAP Canada, the American Bird Conservancy (ABC) and other guidelines produced by governmental and non-governmental agencies. The most effective documented solution to prevent BWCs is to make the glass visible to birds, by reducing reflection and transparency. It would be ideal to apply treatments to all glass areas, however, in order to accommodate user needs a clear view through the glass can be permitted in some circumstances. The acceptance of treatments to improve visibility of the glass has been shown to be enhanced through leaving “gaps” that provide views. The cities of Toronto and San Francisco have found that an effective compromise is to leave 10-15% of the glass untreated. It is proposed that in the City of Markham, 15% of the glass may be left untreated, as long as it is less than 2m² of contiguous glass area. In this regard the following recommendations have been proposed:

- Apply primary treatments on the building facade from finished grade to 16m to approximately 85% of the untreated window surfaces with the exception of glass windows smaller than 2m² in area.
- Primary treatments for new buildings and site plan design may include applying external semi-transparent stripes, dots or other patterns.
- Primary treatments for retrofit of buildings may include blinds, shades and netting.
- For the 15% that is left without primary treatment, a secondary treatment is recommended for all areas greater than 2m². The 15% is usually situated within the first floor of the building i.e. commercial and retail spaces.
- Secondary treatment may include closely-spaced window mullions, internal blinds and shades, ultraviolet patterns with greater than 20-40% reflectivity, tinting and angling of glass, and judicious placement of vegetation so that it does not reflect in the glass.
- Exterior lighting should be mitigated by shielding, so that light projects downward rather than skyward.
- Interior light should be mitigated by shutting lights out from 11:00 p.m. to 6:00 a.m.

The recommendations to implement the Bird Friendly Guidelines are as follows:

- That the Bird Friendly Guidelines be endorsed by Council and be made available to all residents, landowners, developers and planning and urban design professionals.
- That City staff incorporate bird friendly treatments in the City’s Site Plan Approval process through preparation of a Bird Friendly Specifications Checklist to guide the treatments.
- That the City recommend a voluntary monitoring program to applicants during the Site Plan Approval process, if needed.
- That the City continue to be proactive in retrofitting municipal buildings with bird friendly treatments in order to reduce BWCs where appropriate and budgets permit.
- That City staff develop Bird Friendly Guidelines education and outreach program information for residential homeowners and the development community and explore the development of a lights out program for Markham.