Bird Friendly Guidelines

Development Services Committee

October 22, 2013

Background

- Markham's Draft Official Plan (2012) and the Greenprint, Markham's Sustainability Plan (2011) support the development of Bird Friendly Guidelines (BFG's)
- April and December 2008 Council received presentations on bird friendly measures
- For private building design, City staff have to date recommend following the City of Toronto Bird-Friendly Development Guidelines
- Markham has been implementing bird friendly measures on public buildings since 2009, and has received an award from FLAP Canada for the retrofit projects
- October 2012 the Planning Department initiated preparation of the Bird Friendly Guidelines

Bird Friendly Guidelines Study

- City retained North-South Environmental to undertake the study (March 2013)
- Study team:
  - terrestrial biologists
  - architects
  - landscape architects
  - advisors:
    - Dr. Daniel Klem (Professor of Ornithology)
    - Mr. Michael Mesure (FLAP Canada Executive Director)

Purpose of Study

- Undertake research on locations and circumstances where bird-window collisions (BWC) are most likely to occur and provide recommendations on an approach for Markham
- Develop guidelines that will provide solutions to reduce or eliminate BWCs
- Test the guidelines through consultation with local builders and developers
- Recommend other implementation tools as appropriate

Bird Friendly Guidelines

- To present a package of design treatments and options for buildings and sites to reduce BWCs
- To address site plan considerations, new building treatments and retrofits for buildings
- To recommend other measures that Markham can employ to manage BWCs (i.e. lighting by-laws)
- To be a resource document for the development industry, planners and design professionals

STUDY FINDINGS
(NORTH-SOUTH ENVIRONMENTAL INC.)

Types of Birds

- Migrant birds that stop to rest and feed (spring and fall)
- Breeding birds (late May to July)
- Resident birds (all year)

Photographs: White-throated Sparrow – Shenandoah NPS/Creative Commons and Ovenbird – Tim Lenz/Creative Commons

Problem Statement

- Glass-faced buildings likely kill more birds than any other man-made factor except habitat destruction
- BWCs add to the cumulative impacts of human development on birds
- Major municipalities (e.g. Toronto, New York, Portland, Chicago, San Francisco) have adopted guidelines for building design to mitigate BWCs

Study Findings

- 899 BWCs documented in Markham over 10 years: however there are very few monitored sites in Markham
- Top 10 birds (accounting for over half of the collisions) mainly consist of migrant, forest-dwelling songbirds that do not nest in Markham
- Birds spread out into almost every area of habitat in Markham during migration


City of Markham Bird Friendly Guidelines
Figure 1: Migrant Birds
Legend
Multiple Observations: Primarily Water Birds
Individual Observations: Primarily Song Birds
1 Heron Colony
2 Artisan Trail Park
3 Miller Ave. Swamp
4 Country Glen
5 Swan Lake
6 Raymerville Dr.
7 Raymerville Dr.
8 Snider Marsh
9 Woolen Way
10 Cornell Pond
11 Milne Dam Conservation Park
12 Woodlands Park
Bird Strike Locations
Highest Bird Strike Location
Bird Strike Locations
Greenway System
Creeks
City of Markham
Thogood Pond
Beaver Pond
Milne Dam Conservation Park
N
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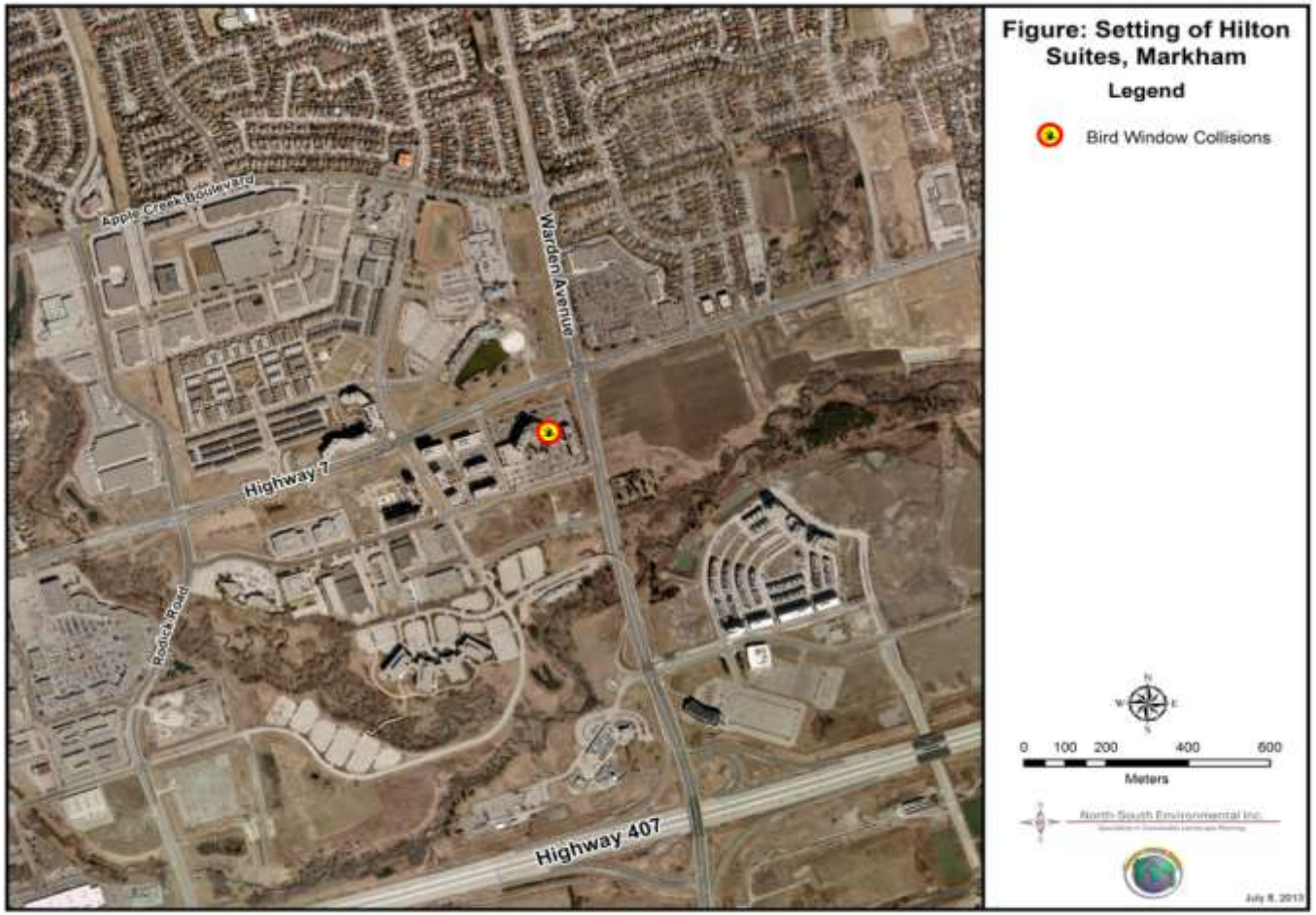
4,000
Meters
North South Environmental Inc.
September 6, 2013

Example of a monitored site

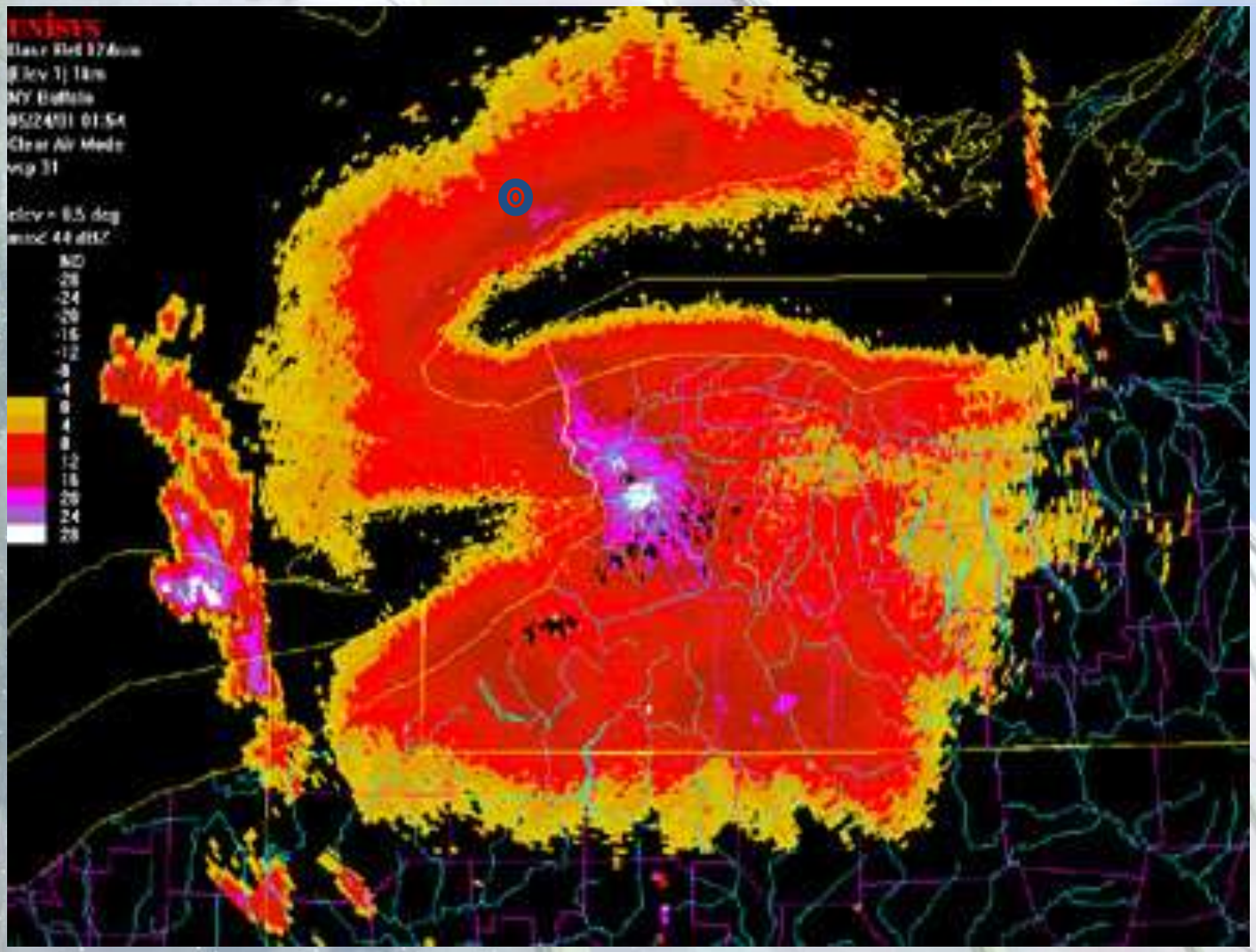


Study Findings

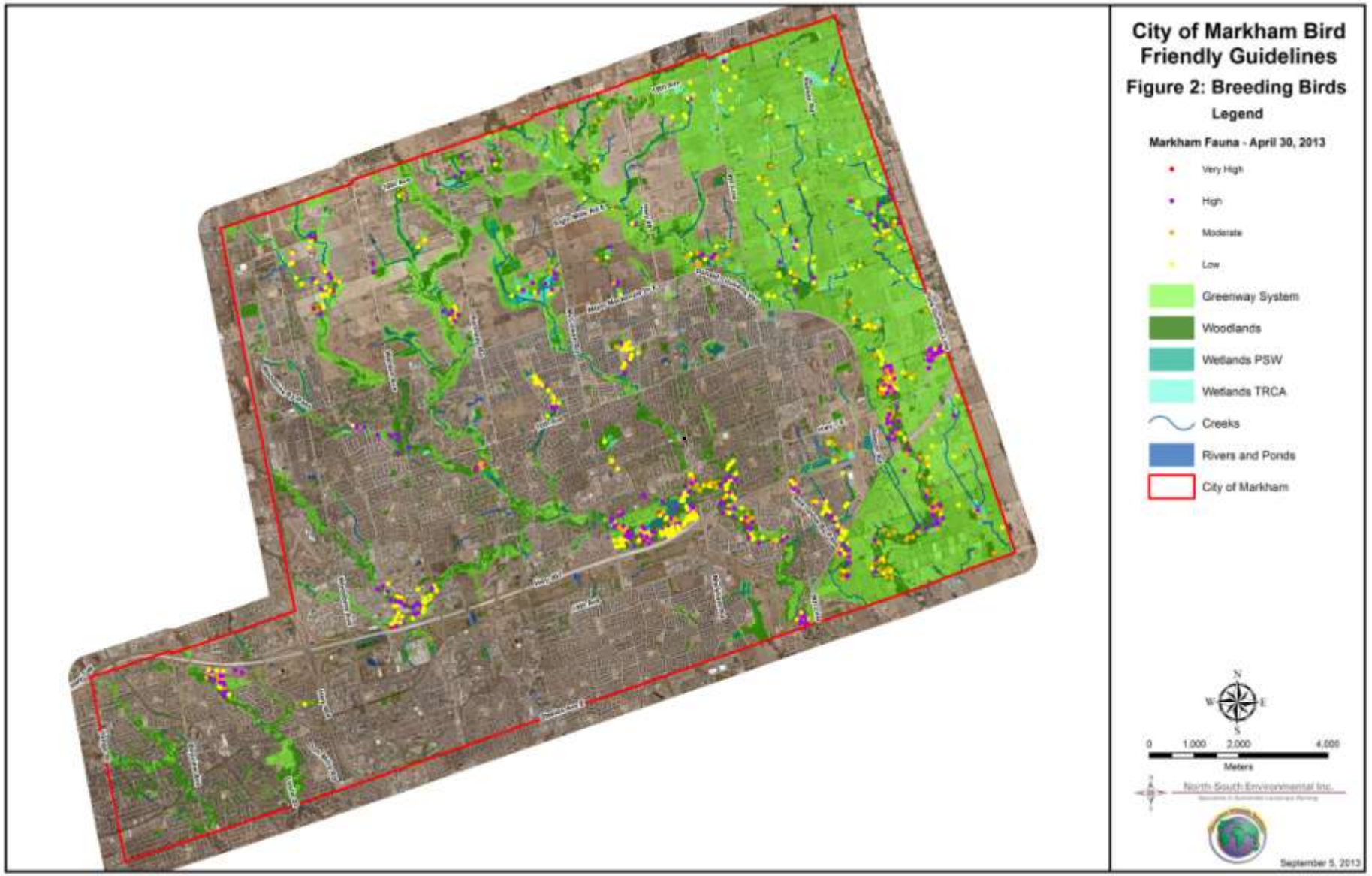
- Most BWCs occur in spring and fall (especially fall) – mainly involve migrants
- Most collisions occur near dawn and within 16 m (4 storeys) of the height of a building
- Songbirds are most common but some resident and breeding birds are also involved

Photographs: Ruby-crowned Kinglet – ptgbirdlover/Creative Commons and Common Yellowthroat – Linda Tanner/Creative Commons

Radar image of maximum concentration of birds migrating along Lake Ontario



Radar image from NEXRAD


City of Markham Bird Friendly Guidelines
Figure 2: Breeding Birds
Legend
Markham Fauna - April 30, 2013
Very High
High
Moderate
Low
Greenway System
Woodlands
Wetlands PSW
Wetlands TRCA
Creeks
Rivers and Ponds
City of Markham
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Meters
North-South Environmental Inc.
September 5, 2013

Legal Requirements

- *Migratory Birds Convention Act (Federal)*
- *Environmental Protection Act (Provincial)*
- *Species at Risk Act (Federal)*
- *Endangered Species Act (Provincial)*
- *Society for the Prevention of Cruelty to Animals Act (Provincial)*
- Yonge Corporate Centre Case, Toronto (charges in Ontario Judicial Court)

How Bird Strikes Happen

- Birds do not perceive glass as a barrier
- Light draws birds into cities
- Birds are drawn to habitat near windows to rest and feed, and can't see the hazard

Imprints on windows from bird window collisions (Photographs by FLAP Canada)

Causes: Glass

Reflected Vegetation

Reflection of trees in glass

Clear Flight Paths

Clear glass with view to the other side is a hazard

Photographs by North-South Environmental Inc.

Causes: Glass

Proximity to Feeding Grounds and Habitat Area

Photographs by Markham Staff

Causes: Other

Building Features

Weather Conditions

- Fog and rain

Photograph by Markham Staff

Causes: Lighting

Lights May Attract Birds at Night

Birds can be Disoriented by Lights

Photograph by Markham Staff

Bird Friendly Treatments

Fred Varley Museum

Markham Civic Centre

8100 Warden Ave.

Photographs by Markham Staff

Bird Friendly Treatments

Hilton Suites

Photographs by Markham Staff

Recommendations

- Be consistent with a precautionary approach (invoking the precautionary principal)
- Apply guidelines City–wide
- Recommend specific design solutions
  - new building construction
  - site plan developments
  - retrofit buildings
- Retain BFG as a living document and update regularly based on the best available scientific practices

Recommendations

- Investigate and recommend appropriate treatments for new buildings that are defensible and can be easily applied and incorporated into site and building design
- Provide guidance on priority areas for retrofitting
- Recommend additional actions which can assist in reducing BWCs (web based information, lighting policies and by-laws)

FLAP Canada, New York Audubon, American Bird Conservancy, Cities of Toronto, New York, Calgary, Portland, San Francisco, Chicago

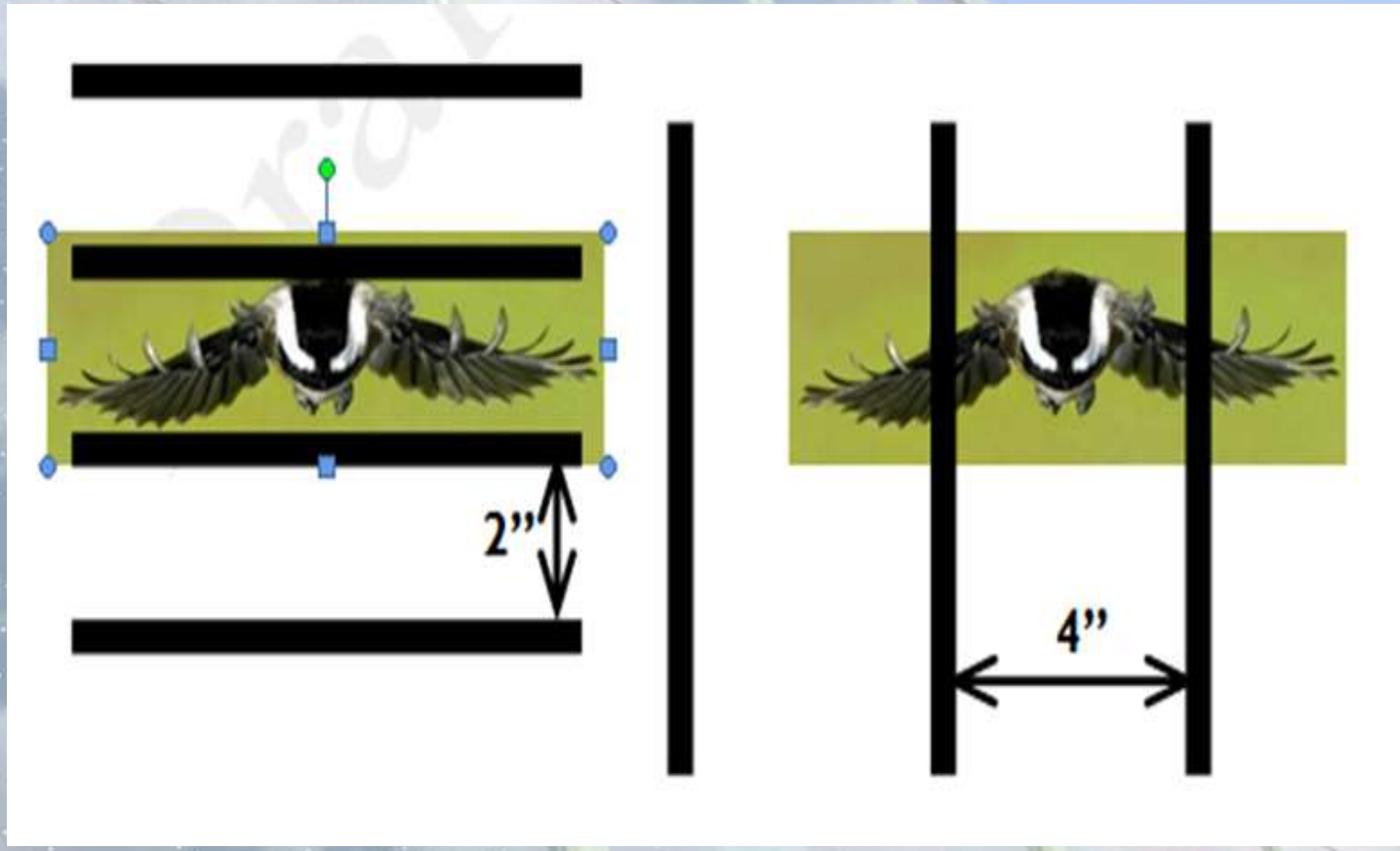
Some form of window treatment and light-mitigation strategies are recommended by all agencies and cities that have committed to reducing BWCs

Changes to Practices

- Toronto – Bird-friendly treatments must be implemented as part of planning approvals
- Calgary – guidelines are non-statutory
- San Francisco – compliance with Bird Safe Building Standards required for planning approvals if building is within open space or within 300 feet of urban bird refuge
- Portland and Chicago – Bird friendly guidelines non-statutory
- New York – "Bird-friendly Buildings Act" provides standards for public buildings

Current Best Practices

Make windows visible to birds



Spacing for horizontal and vertical appliqué strips. (Photograph by ABC)

Current Best Practices

Examples of appliqué which meets bird friendly guidelines and used to prevent bird strikes

Dots, stripes and external coverings have proven effective

Photographs by FLAP Canada

Examples of Primary Treatments

To cover at least 85% of all glass on new buildings with a pattern that increases visibility for birds

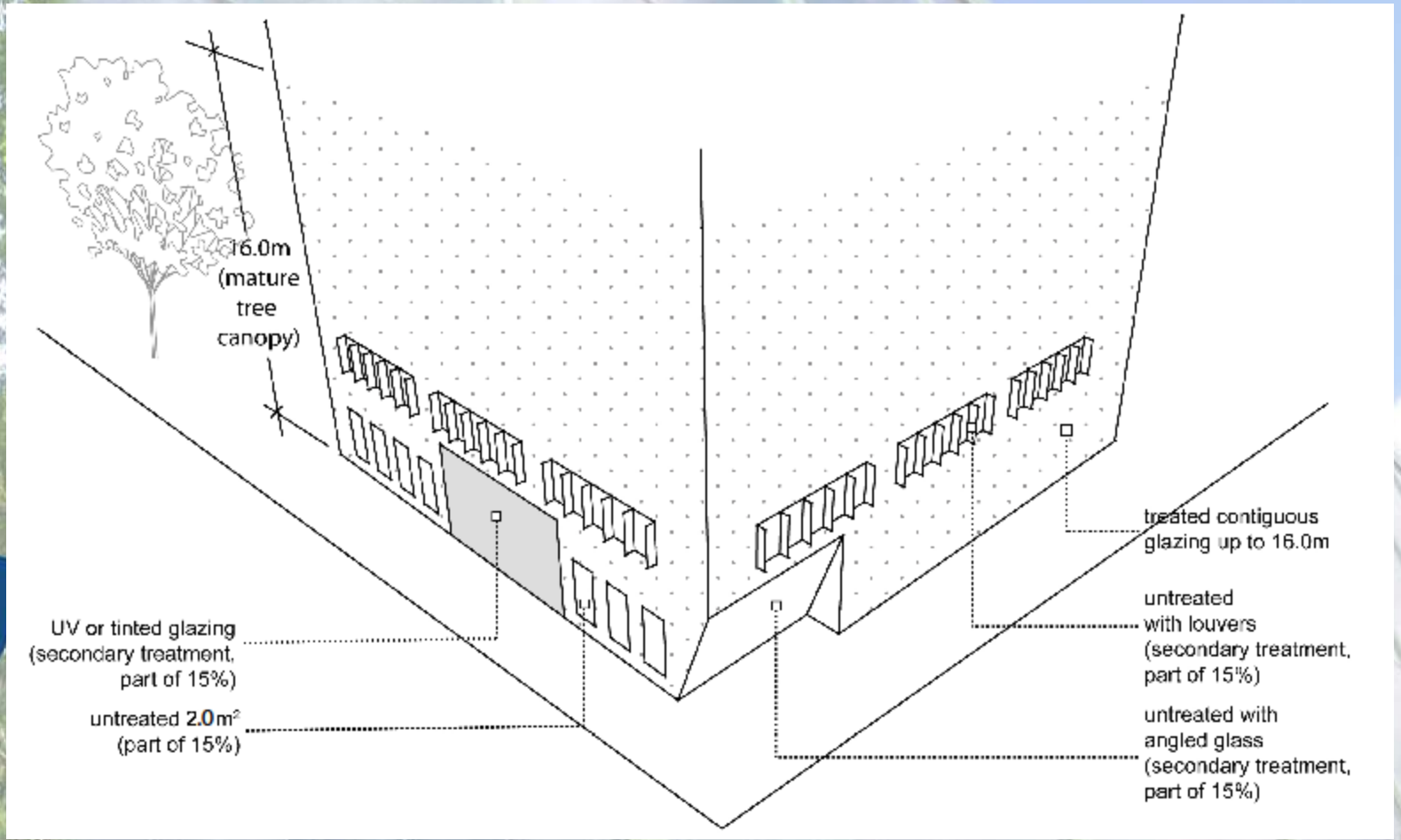
Decorative Film

Graphic Design

Treatments can be creative...

Photographs by FLAP Canada

Configuration of Treatments



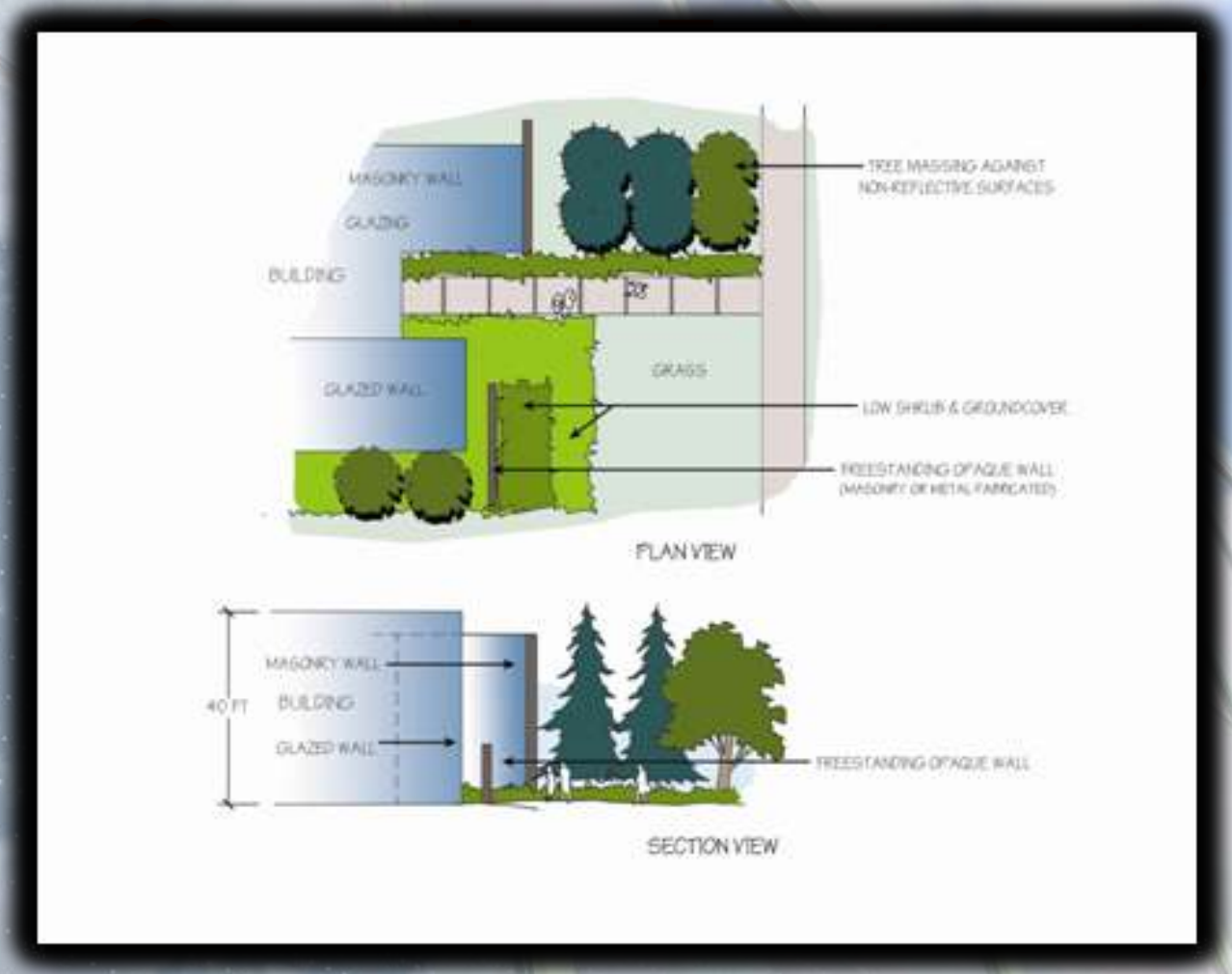
Examples of Secondary Treatments

Up to 15% left untreated, enhance untreated areas

Louvres

Internal blinds and shades

Enhance with vegetation positioned or screened so reflections are minimized



Site design can aid in reducing collisions, in addition to building treatments.

Implementation

- Integrate BFG into planning approval processes including preparation of a Bird Friendly Checklist
- Review Property Standards and Site Plan Control By-laws
- Discuss the development of a Monitoring and Reporting Program, "Lights Out" Program, and Outreach/Education materials
- City of Markham will continue to retrofit existing buildings with the new Guideline standards

Next Steps

- Release of Draft Guidelines for Review and Consultation
- Stakeholder Workshop
- Finalize Bird Friendly Guidelines

Fall 2013/Winter 2014

Thank you – Questions?

Songbirds frequently involved in BWCs

Ovenbird

Golden-crowned Kinglet

Red-breasted Nuthatch

Brown Creeper

Photographs by FLAP Canada