



Bird-Friendly Design Discussion

PWPT Committee Meeting

**Planning, Building & Development
October 6, 2021**

Agenda

- **Background (bird strikes in the built environment)**
- **Mitigation Strategies (design & materials)**
- **Co-benefits of Bird-Friendly Design**
- **Policy Options**
- **Next Steps**

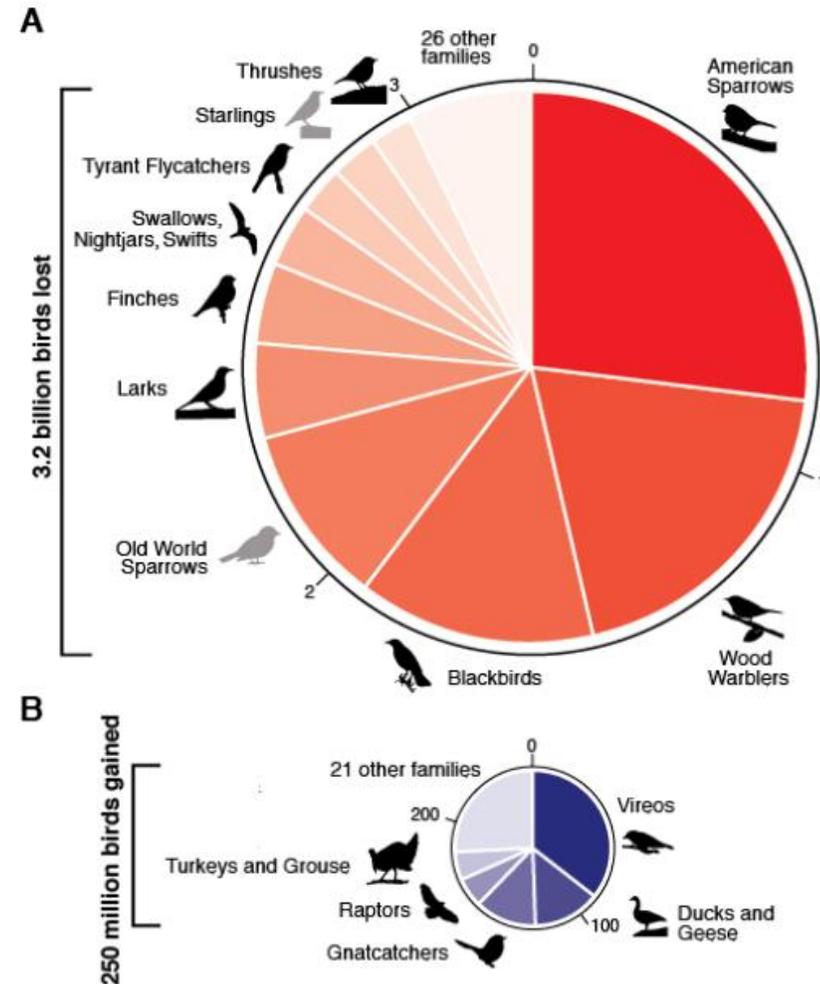
Background

- **Bird Population Decline**
- **Architectural Glass Strikes**

Bird Population Decline

- Est. 29% of birds (3 billion) lost since 1970 [1]
- Combined threats
 1. Habitat loss
 2. Cats
 3. Glass
- Species declining: Songbirds
- Species improving: Waterfowl, game birds

[1] Rosenberg, et al., 2019, *Decline of the North American Avifauna*, Science.

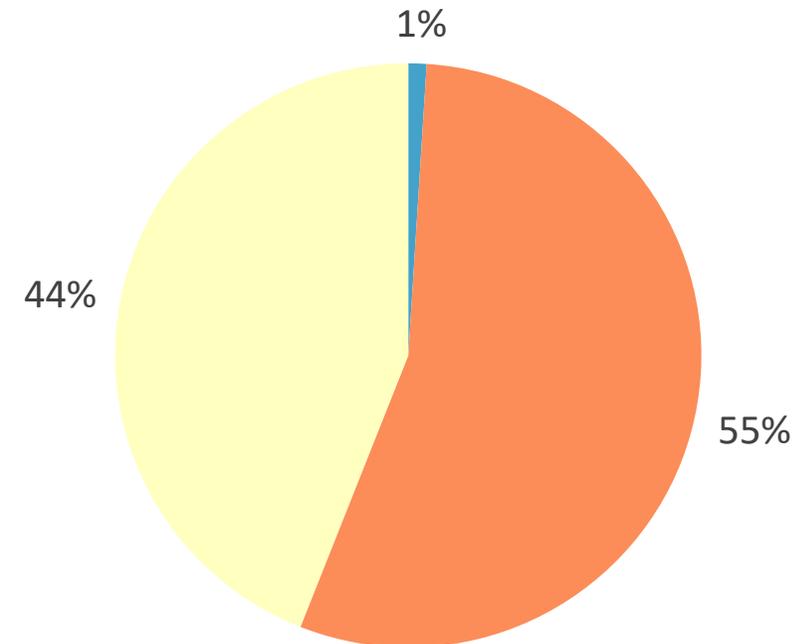


Architectural Glass Strikes

- Est. 599 m. (2-9%) bird deaths annually ^[1]
- Kills healthy and fit individuals
- Most affected:
 - Hummingbirds
 - Songbirds (warblers, finches, etc.)
 - Shorebirds
- Least affected:
 - Game birds
 - Waterfowl
 - Corvids (crows, ravens, etc.)

[1] Loss, et al., 2014, *Bird–building collisions in the United States*, The Condor.

Annual Bird Mortality by Building Type



■ High-rises ■ Low-rise/non-SFD ■ SFD

*Low-rise includes low-rise residential, commercial, & other non-single family dwelling uses.

Mitigation Strategies

- **Treatments**
- **Bird-friendly Glass and Features**
- **Materials**
 - **Film and Tape**
 - **Fritted Glass**
 - **UV-coated**

Treatments



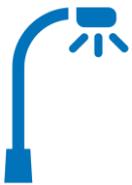
Architectural Glass – Reduce the amount, use bird-friendly glass



Location – Proximity to natural lands, farms, or green roofs



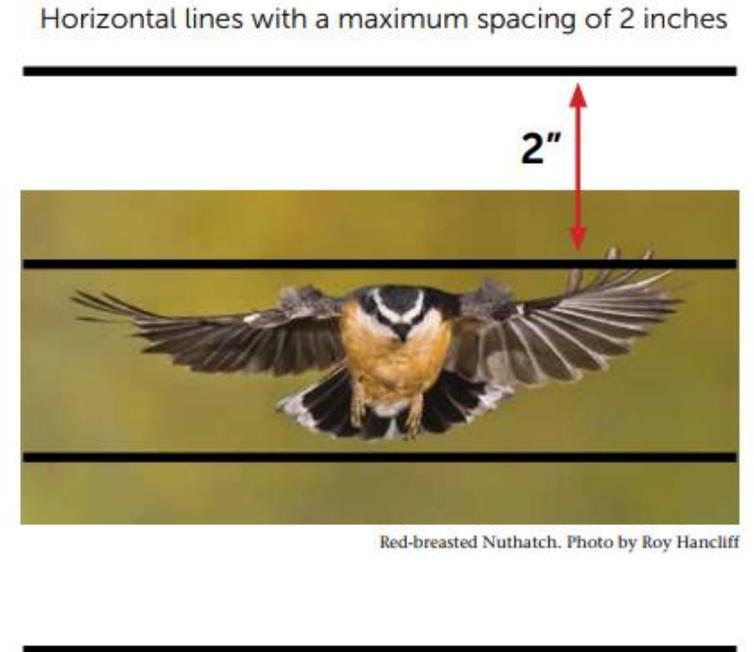
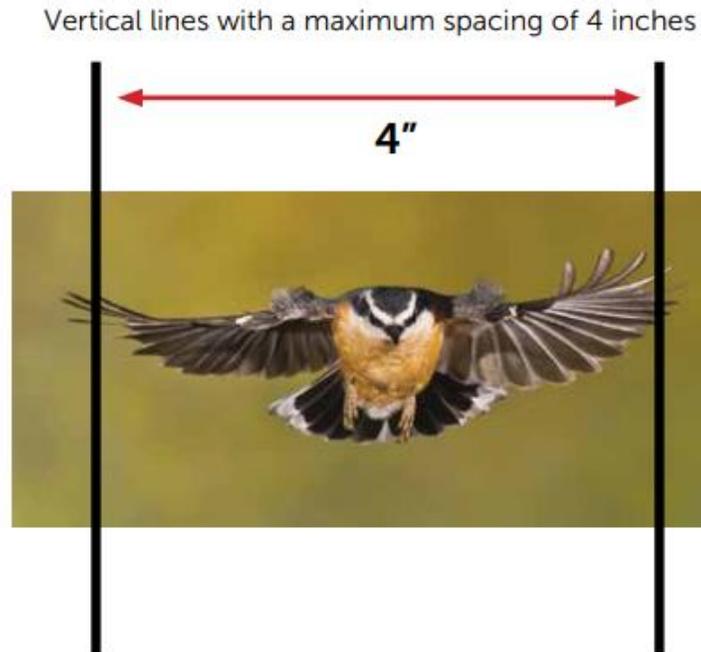
Height – Focus on first 40 feet or tree line



Lights – Reduce light pollution through shielding (*2022 topic*)

Bird-Friendly Glass & Features

- Reduce glass area on building
- Temporary Solutions
 - Tape
 - Films
- Permanent Solutions
 - Fritted
 - UV Coating
 - Screens or nets
 - Other architectural features



Source: American Bird Conservancy

Materials – Film and Tape



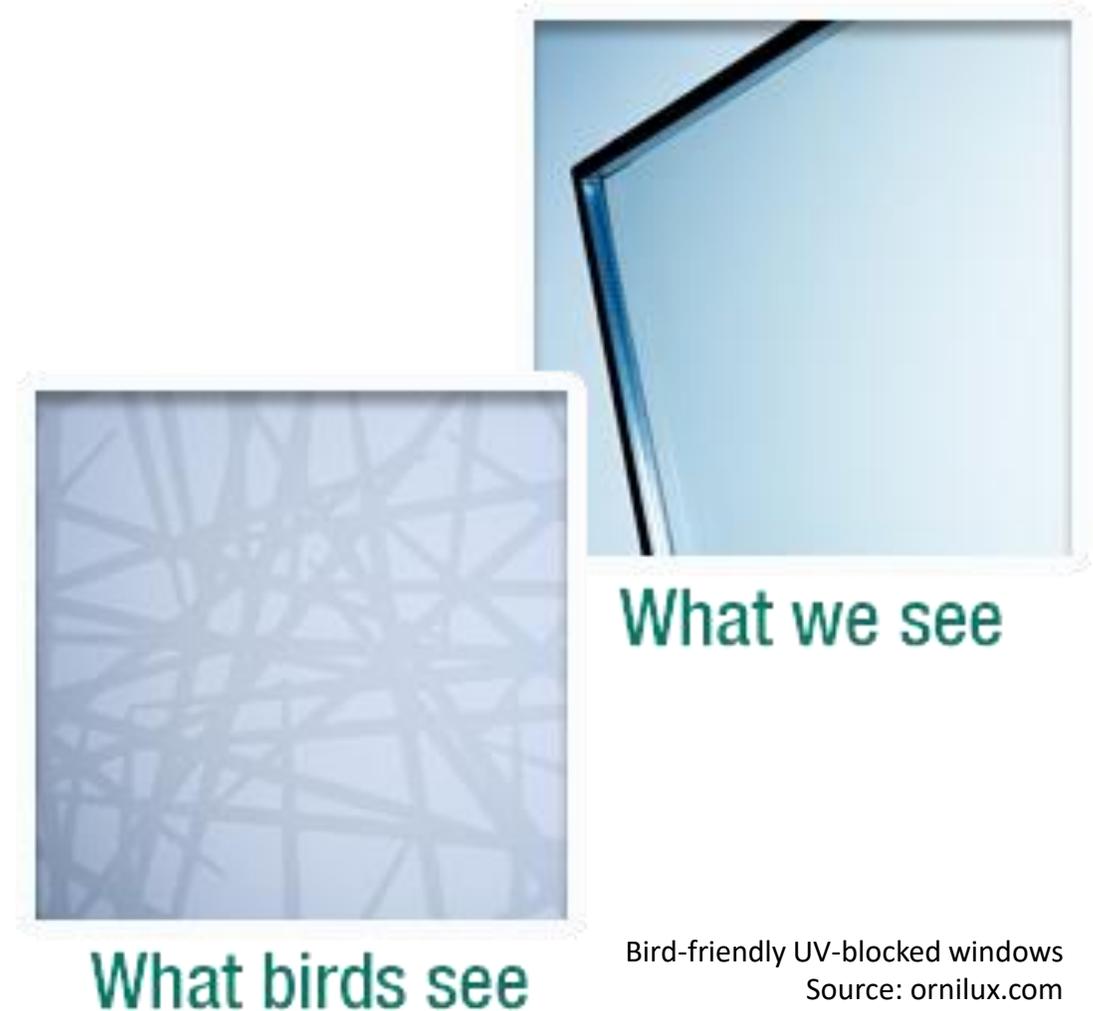
Materials – Fritted Glass



Materials – UV Coating



Materials – UV Coating (cont)



Bird-friendly UV-blocked windows
Source: ornilux.com

Co-Benefits

- **Co-Benefits Summary**
- **Case Study**

Co-Benefits Summary

- Less glass = more energy efficiency
- HVAC experts recommend no more than 40% glass
- UV block and shading reflects sun's energy and heat
- UV coating helps protect furniture, flooring, and paint

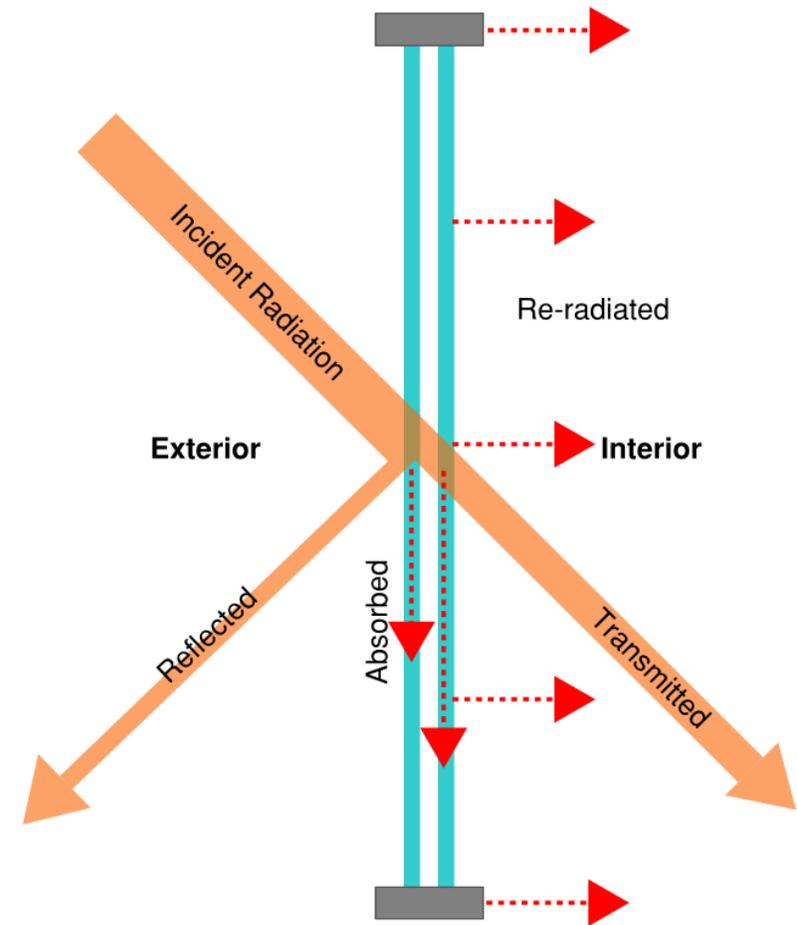


Illustration of solar gain. Source: [wikipedia.com](https://www.wikipedia.com)

Co-Benefits Case Study

Javits Center, New York

- Convention center along Hudson River
- Renovated in 2014
- 90% reduction in bird strike fatalities
- 25% reduction in energy use



Photo: Javits Center, New York
Source: Audubon Society

Policy Options

- **Policy Options**
- **Sample Policies**
- **Non-residential Installation**
- **Residential Installation**
- **Policy Considerations**
- **Policy Framing**

Policy Options

Potential Applications

- **New Development**
 - Residential – new subdivisions
 - Non-residential uses – commercial, industrial, multi-use
- **County Operations/Facilities (separate policy track)**

Potential Criteria

- **How much glass is appropriate?**
- **What glass is affected?**
- **What glass or treatments should be used?**
- **Which types of buildings?**

Sample Policies

	Application	Criteria	Target	Year
ABC Model Ordinance	New construction Renovations	Detailed	100% of glass First 100 feet	N/A
U.S. House Bill (2020, not signed)	Operations	Detailed	90% bird-safe façade First 40 feet	T.B.D.
Minnesota B3	Public Financing	Detailed	Avg. threat factor < 45 Critical threat factor < 15	2010
Chicago	Operations Special approval Public financing	Detailed standards	95% bird-safe façade First 36 feet	2019
Highland Park	Operations	General policy	“Include bird-safe design”	2020

Non-residential Installation

- Sold as a system
- Each window frame is assembled onsite according to custom/semi-custom specifications
- Adaptable, but involves more time and labor-cost



Residential Installation

- Sold as a finished assembly consisting of frame, glass, and decorative elements
- Inserted into the opening as a single unit
- High quality materials cost more, but cheaper installation
- Insurance may only pay for windows built to code at time of construction

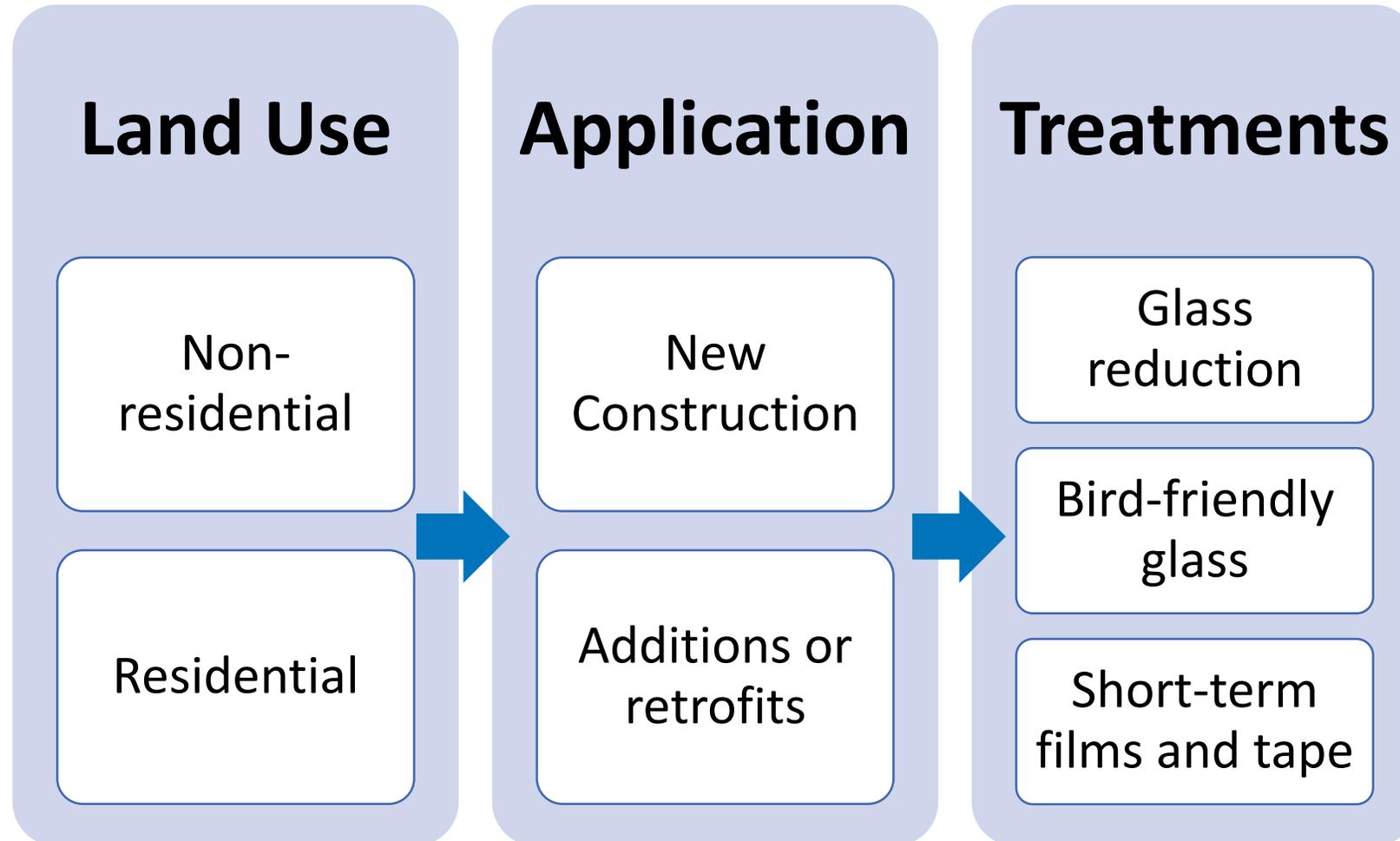


Policy Considerations

Issues/Limitations

- **Bird-friendly glass is a small, niche market (though growing)**
- **Bird-friendly glass is easier to use in non-residential frame systems**
- **No company with significant market share sells bird-friendly window assemblies for residential buildings**
- **Local residential installers have not worked with bird-friendly glass**
- **Short-term options require more maintenance & monitoring**

Policy Framework



Next Steps

Discussion

- *Est. Date: November/December 2021*
- Draft Ordinance Framework

Action

- *Est. Date: December 2021/January 2022*
- Review of Detailed Draft Ordinance

Recommendation

- *Est. Date: January/February 2022*
- Final review of BFD and all previous nature-based amendments



Questions