Bird Friendly Design in Austin

Austin Watershed Protection

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Resolution 20241121-073

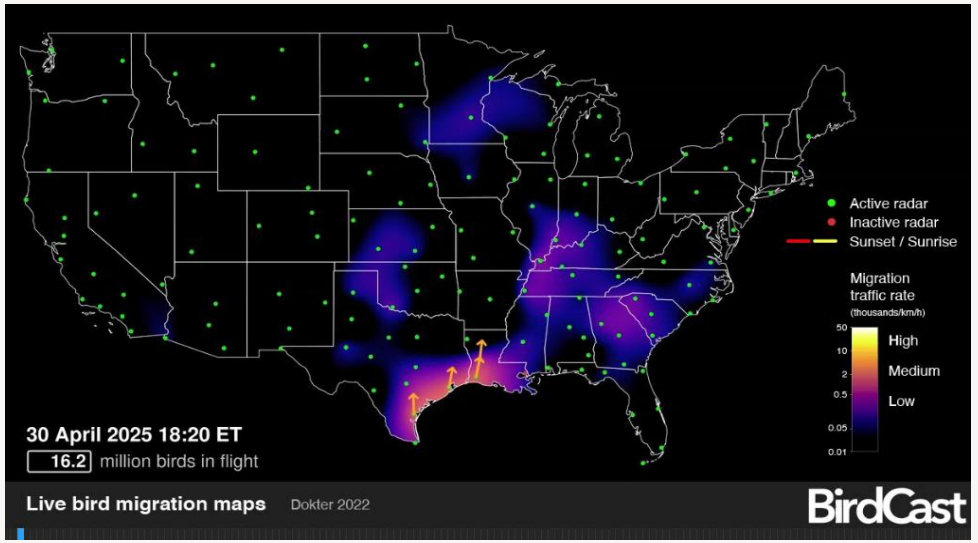
- Came out of a recommendation from a working group and Resolution 20210902-050 on Lights Out Austin
- Directs staff to:
  - Update on Light's Out Austin
  - Explore integration of bird-friendly building techniques for new low-rise, mid-rise and high-rise buildings
  - Conduct a feasibility analysis on the potential impacts of these standards
  - Seek input from stakeholders, including developers, environmental organizations, and the public.

Migration and Habitat

- Austin was designated a Bird City in 2023
- Austin within North America's Central Flyway
- Over **400** species of birds
- Edwards Plateau and the Blackland Prairies habitat
- Premier destination for birdwatchers throughout most of the year.
- Birding generates more than $5 billion in annual ecotourism revenue in Texas ($279 billion nationwide)

The Problem

- Birds do not perceive glass as a barrier.
- In daytime, birds encounter reflective or translucent glass.
- At night, birds encounter artificial sources of light.
- Birds fly to these confusing features without seeing the glass barriers.
- The collision is deadly. An estimated **1 billion** birds die every year.



Solutions

Glass Strategies

Bird-friendly design includes:

- Reducing the use of glass
- Reducing glass exposure (using solar shading, external insect/solar screens, louvers, etc.)
- Incorporating bird-friendly signals (markers) in or on the glass
- UV coating, glazing, and etched or fritted glass patterns that follow the "2x2 rule”

Design Strategies

- Incorporate physical barriers and architectural design that improve glass visibility
- Options include:
  - Exterior screens
  - Shutters
  - Awnings
  - Facades
  - Structural shading systems

Tracy Aviary, Salt Lake City, Utah

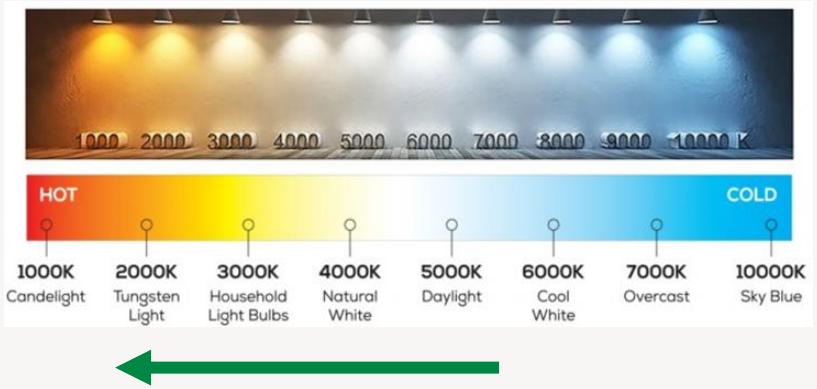
Lighting

Exterior

- Eliminate uplighting, use fully shielded fixtures that direct light downward, and avoid event searchlights
- Use lighting management systems that can automatically reduce non-essential lighting during peak migration
- Also beneficial to bats and lightning bugs year-round
- Use warmer lightbulbs (as white/blue light can disorient birds)

Interior

- Program automatic controls with timers and occupancy sensors
- Use window treatments to reduce light spillage
- Schedule janitorial services during daylight hours



Benchmarking

What have other cities done?

New York City (2021)

- 90% of the first 75 feet of a new building's envelope use bird-friendly materials, including alterations to existing glazing.
- Structures such as glass awnings and handrails must also comply.
- The materials must have a Threat Factor (TF) of 25 or less.

Arlington County, VA

- Bird friendly design tied to voluntary density bonus incentives
- Evaluates facade 8 and 36 feet, maximum weighted average TF of 15
- Exception for non-compliant materials, 10 ft2 of every 100 ft2 of facade may exceed TF 15
- Includes outdoor lighting requirements
- Non-compliant projects pay into a Green Building Fund

Current Bird Friendly Design in Austin

Austin Energy Green Building Program

- Austin-specific green building rating program administered by Austin Energy
- Integrated as a minimum requirement in zoning ordinances and density bonus programs as well as all COA buildings
- Ten core requirements plus several voluntary measures, which include criteria for bird collision deterrence and light pollution reduction

Lights Out Austin
(Resolution 20210902-050)

- City-wide initiative that raises awareness of the risk light pollution poses to birds by asking businesses, residents, and governments to turn off lights at night during bi-annual bird migrations
- City-managed facilities are participating by:
  - Turning off all non-essential lights from 11:00pm to 6:00am
  - Refraining from use of landscape lighting,
- Where lighting is essential, dark skies-friendly practices are being used throughout migration season:
  - Aim lights downward.
  - Use of lighting shields to direct light downwards and to avoid light trespass.
  - Use motion detectors and sensors so lights are only on when needed.
  - Close blinds at night to reduce the amount of light being emitted from windows.
  - Adjust custodial schedules to end by 11:00 pm.
  - Ask custodial staff to ensure that lights are off after they finish their work.

Glass and Lighting Requirements in COA Code

- Site Development Standards Exterior Lighting requires fixtures that are either fully shielded or full cut-off for development in the zoning jurisdiction.
- Building Design Standards Glazing and Façade Relief Requirements provide design standards for development of any non-residential land use in the zoning jurisdiction.
- Hill Country Roadway Overlay requirements. Buildings within the overlay may not be constructed with mirrored glass with a reflectance of more than 20 percent
- Waterfront Overlay Combing District limits exterior mirrored glass or glare producing glass surface building materials
- Traditional Neighborhood District development standards have requirements for hooded and shielded exterior lighting and some prohibitions on "highly reflective surfaces"

Cost Analysis: Other Cities

- **Madison:** Estimates of 2-3% of project
- **New York:**
  - **Impact on Revenues:** It is estimated that there would be no impact on revenues resulting from the enactment of this legislation.
  - **Impact on Expenditures:** It is anticipated that there would be no impact on expenditures resulting from the enactment of this legislation.
- **Berkley:** Given the variety of possible products and project types, staff are unable to precisely quantify how much additional cost bird safe materials would entail in every situation

Cost Analysis: Commercial Glass

- **Other Considerations:**
  - Glass is sold in bulk
  - Consider a non-directional pattern
  - Energy code requirements/lamination requirements
- **Retrofit Options:**
  - Apply treatments to the outside of windows
  - Range from $12.75-$14.00+ sq ft for both product and installation.
  - Warranty of up to 15 years
  - Options that have additional benefits for graffiti prevention

Window Type Cost (Price Range Per Square Foot)	
Standard	$12-$15
Fritted	$15-$25
Etched	$25-$35
Ultra-Violet (UV)	$32-$45

Cost Analysis: Residential Glass

- Custom homes choose to order commercial glass
- Cost-neutral strategies (like bug screens, exterior window shades, awnings, and hurricane shutters)
- DIY solutions: range $0.50-$7.00/sq ft, with varied warranties.

DIY paracord hung in a 2” x 2” pattern

DIY bird-friendly tape in a 2” x 2” pattern

Cost Analysis: Lighting

- Bird-friendly lighting in commercial buildings is a relatively low-cost strategy with high returns
- Products are often aligned with broader sustainability goals and typically result in energy savings that offset costs in under a year.
- Informed decision making
- Solutions include:
  - Automatic lighting controls
  - Shielded light fixtures
  - Bulb temperature

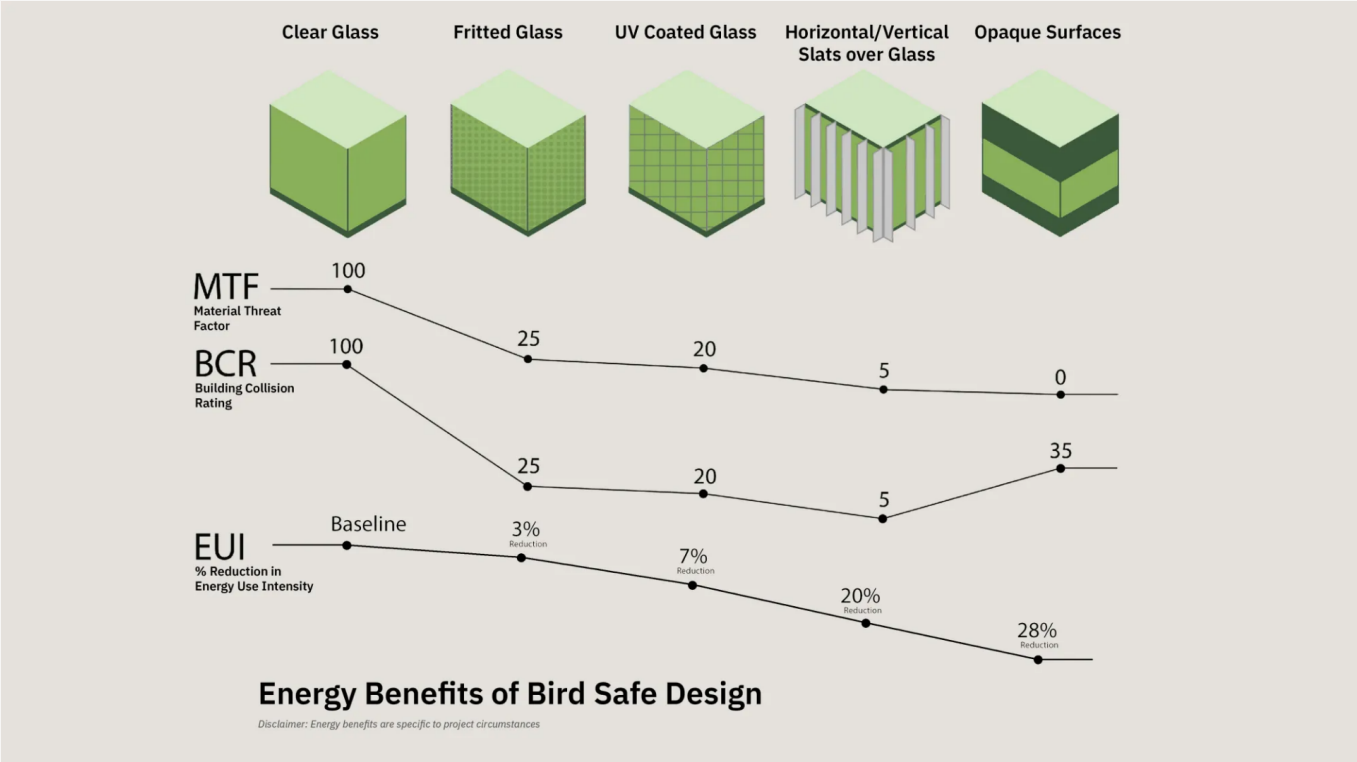
Feasibility: Review and Inspection

- DSD Building Plans Examiners
- Commercial Plan review already looks at facades for projects > 10,000 sqft
- AEGB staff familiar with review criteria
- Complaint based compliance

Co-Benefits

Co-Benefits

- **Sustainability:** Improvement to Energy Efficiency
- LEED projects save energy by saving birds



Co-Benefits

- **Safety:** Wildfire Prevention and Lighting

Placing landscaping away from buildings limits vegetation reflections and aligns with WUI code

Brighter doesn't always mean safer

Co-Benefits

- **Conservation**
- **Biodiversity**
- **Community Engagement**
- **Ecotourism**
  - Birds provide essential ecosystem services, such as pest control and pollination
  - Birding generates more than $5 billion in annual ecotourism revenue in Texas
  - Studies show that bird diversity can lead to better mental and emotional health for residents
  - Help residents build a relationship with outside world
  - Empower the public to report bird strikes and participate in community science

Best Practices and Staff Recommendations

General BPMs for New Construction

Type of New Construction	Glass Treatments/Façade	Lighting Solutions	Behavioral Practices

Low Rise (1-3 floors)– mostly residential and smaller commercial structures (many under 10k sqft)	<u>Residential</u>
	• Installation of exterior window treatments:
	  • bug screens
	  • exterior window shades
	  • awnings
	<u>Commercial</u>
	• Required on 100 percent of buildings
	• Reduce the use of glass in façade design
	• Installation of glass with TF of 30 or less on all external surfaces.
		• Shielded light fixtures.
		• Motion-activated exterior lights.
		• Lamps of <3000k temp.
			• Lights out practices during peak migration.
			• Adding "do it yourself" window treatments to untreated windows.
			• WUI landscaping
			• Documenting bird strikes in online platform.

Mid Rise (4-12 floors) – combination of residential multi family and commercial	• 100/100/100 rule • Reduce the use of glass in façade design • Installation of glass with TF of 30 or less on all external surfaces. • Bird safe materials on high risk elements including, sky bridges, green roof areas, terraces, etc.	• Shielded light fixtures • Lighting directed down. • Exterior and Interior lighting on timers for after midnight and during peak migration. • Lamps of <3000k temp.	• Building management communications to tenants about "lights out program" or bird collision monitoring. • Coordination of landscape decisions with proximity to untreated glass
High Rise (more than 12 floors) – mixed use commercial	• 100/100/100 rule • Reduce the use of glass in façade design • Installation of glass with TF of 30 or less on all external surfaces. • Bird safe materials on high risk elements including, sky bridges, green roof areas, terraces, etc.	• Shielded light fixtures • Lighting directed down. • Exterior and Interior lighting on timers for after midnight and during peak migration. • Lamps of <3000k temp.	• Building management communications to tenants about "lights out" program or bird collision monitoring. • Coordination of landscape decisions with proximity to untreated glass.

Staff Recommendations

- **Land Development Code Amendment**
  - Commercial and multifamily buildings exceeding 10,000 square feet would be required to meet bird-safe design performance standards as measured by Material Threat Factor rating of 20 or less for all building surfaces up to 100 ft.
  - Implementation of dark sky lighting requirements
  - A potential waiver option for deeply affordable housing projects
- **Austin Energy Green Building Program**
  - Update planned for 2030 may propose Bird Friendly Design as core measure (currently elective)
  - Update Green Building Policy
- **Residential Opportunities**
  - Residential education campaign (handouts provided as appendices in report)

Proposed Timeline

Boards and Commissions	Date	Stakeholder Feedback
Environmental Commission	Sept. 17th, 2025	Support staff recommendation
Animal Advisory Commission	Oct. 13th, 2025	TBD
Downtown Commission	Oct. 15th, 2025	TBD
Joint Sustainability Committee	Oct. 22nd, 2025	TBD
Design Commission	Oct. 27th, 2025	TBD
Planning Commission	Nov 12th, 2025	TBD

Thank you!

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