



# Bird Friendly Design in Austin

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Austin Watershed Protection

# City Staff



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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.



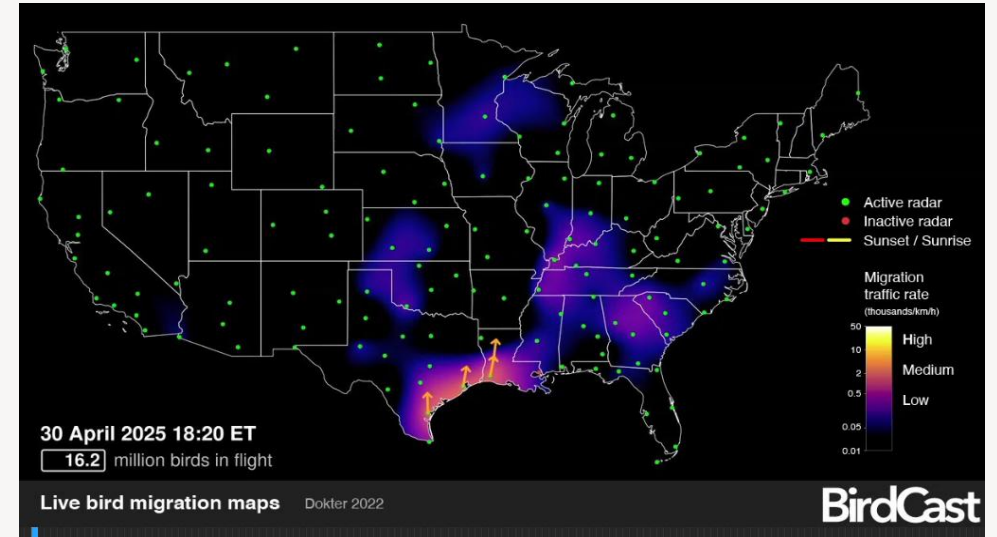
# Migration and Habitat

- 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

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# 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 ft<sup>2</sup> of every 100 ft<sup>2</sup> 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**

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# 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.



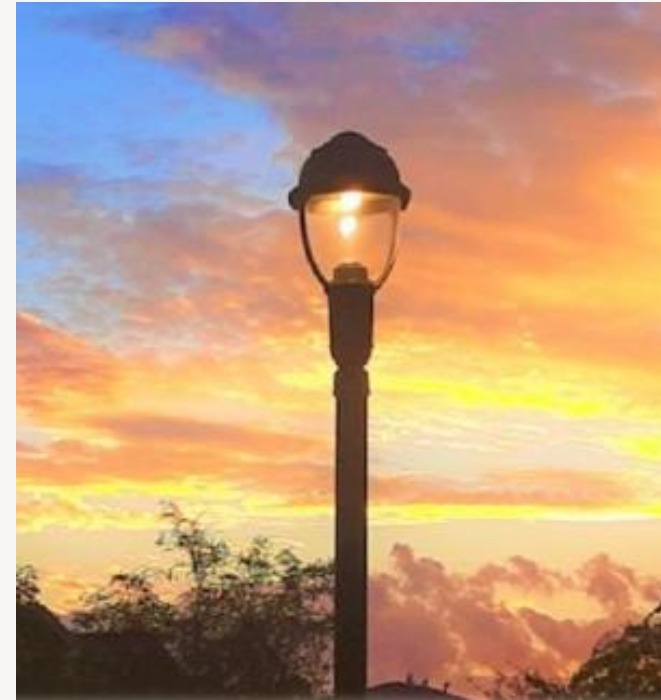
*DIY paracord hung in a 2" x 2" pattern*



*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

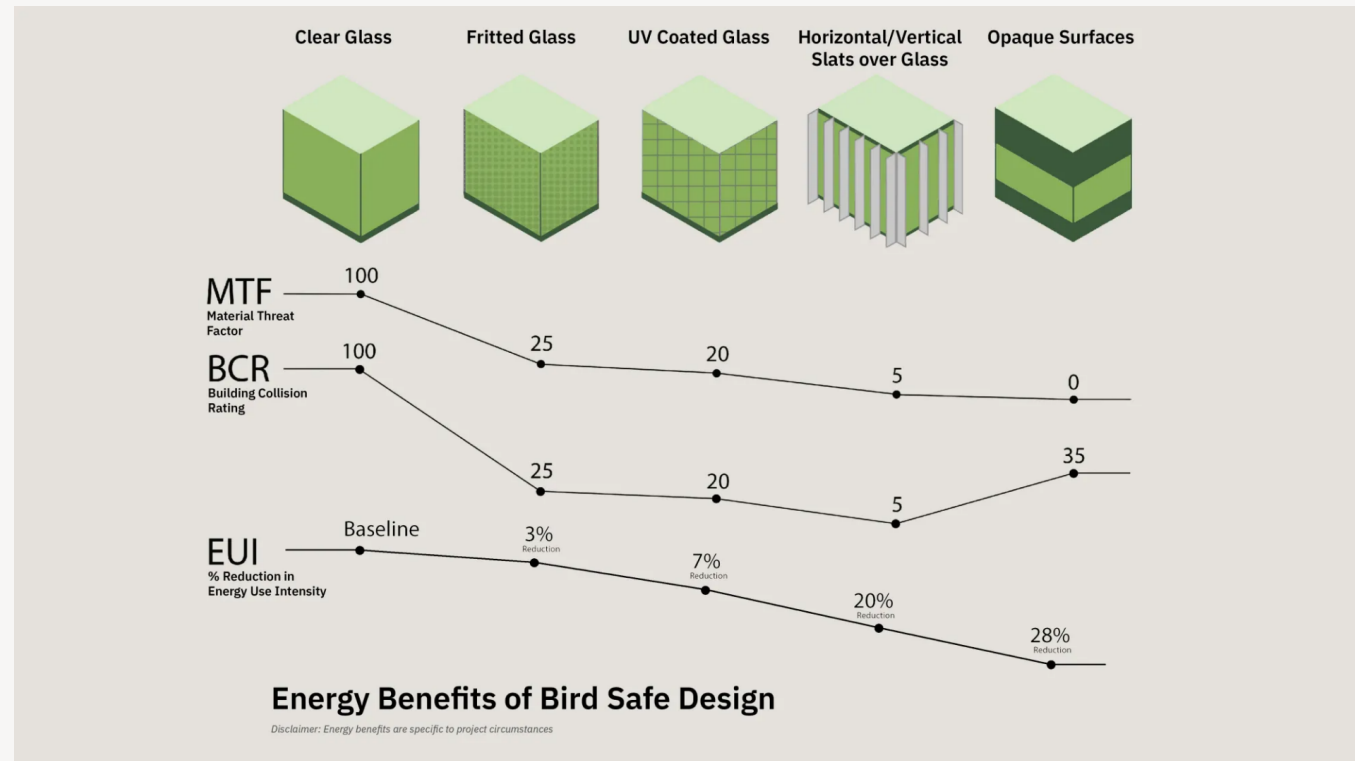


# Co-Benefits

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- **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 Considerations**

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# General BPMs for New Construction



Type of New Construction	Glass Treatments/Façade	Lighting Solutions	Behavioral Practices
<b>Low Rise</b> (1-3 floors)– mostly residential and smaller commercial structures (many under 10k sqft)	<u>Residential</u> <ul style="list-style-type: none"> <li>Installation of exterior window treatments:               <ul style="list-style-type: none"> <li>bug screens</li> <li>exterior window shades</li> <li>awnings</li> </ul> </li> </ul> <u>Commercial</u> <ul style="list-style-type: none"> <li>Required on 100 percent of buildings</li> <li>Reduce the use of glass in façade design</li> <li>Installation of glass with TF of 30 or less on all external surfaces.</li> </ul>	<ul style="list-style-type: none"> <li>Shielded light fixtures.</li> <li>Motion-activated exterior lights.</li> <li>Lamps of &lt;3000k temp.</li> </ul>	<ul style="list-style-type: none"> <li>Lights out practices during peak migration.</li> <li>Adding “do it yourself” window treatments to untreated windows.</li> <li>WUI landscaping</li> <li>Documenting bird strikes in online platform.</li> </ul>
<b>Mid Rise</b> (4-12 floors) – combination of residential multi family and commercial	<ul style="list-style-type: none"> <li>100/100/100 rule</li> <li>Reduce the use of glass in façade design</li> <li>Installation of glass with TF of 30 or less on all external surfaces.</li> <li>Bird safe materials on high risk elements including, sky bridges, green roof areas, terraces, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Shielded light fixtures</li> <li>Lighting directed down.</li> <li>Exterior and Interior lighting on timers for after midnight and during peak migration.</li> <li>Lamps of &lt;3000k temp.</li> </ul>	<ul style="list-style-type: none"> <li>Building management communications to tenants about “lights out program” or bird collision monitoring.</li> <li>Coordination of landscape decisions with proximity to untreated glass</li> </ul>
<b>High Rise</b> (more than 12 floors) – mixed use commercial	<ul style="list-style-type: none"> <li>100/100/100 rule</li> <li>Reduce the use of glass in façade design</li> <li>Installation of glass with TF of 30 or less on all external surfaces.</li> <li>Bird safe materials on high risk elements including, sky bridges, green roof areas, terraces, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Shielded light fixtures</li> <li>Lighting directed down.</li> <li>Exterior and Interior lighting on timers for after midnight and during peak migration.</li> <li>Lamps of &lt;3000k temp.</li> </ul>	<ul style="list-style-type: none"> <li>Building management communications to tenants about “lights out” program or bird collision monitoring.</li> <li>Coordination of landscape decisions with proximity to untreated glass.</li> </ul>

# Staff Considerations



## ▪ **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. 17 <sup>th</sup> , 2025	Positive support and considerations for city buildings
Animal Advisory Commission	Oct. 13 <sup>th</sup> , 2025	Positive support and considerations for city buildings
Joint Sustainability Committee	Oct. 22 <sup>nd</sup> , 2025	Positive support, increase timeline for AEGB updates
Design Commission	Oct. 27 <sup>th</sup> , 2025	Positive support, with comments on data, affordability, and the proposed TF
Planning Commission	Nov 13 <sup>th</sup> , 2025	TBD
Downtown Commission	Nov 19 <sup>th</sup> , 2025	TBD

# **Thank you!**

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