

BIRD-FRIENDLY DESIGN REPORT

RESPONSE TO COUNCIL
RESOLUTION 20241121-073



Table of Contents

Executive Summary.....	4
Overview of Bird Friendly Design.....	5
Migration and Habitat in Austin.....	5
Glass and Building Design Elements	6
Lighting Standards to Minimize Light Pollution	9
Behavioral practices.....	10
Benchmarking Report on Bird Friendly Design in North America	11
New York City, NY	11
Madison, WI	12
Portland, ME	12
Berkeley, CA	13
Toronto, ON	13
Arlington County, VA.....	14
Bird Friendly Design in Austin.....	15
Austin Energy Green Building	15
Lights Out Austin!.....	16
Site Specific Regulations	16
Glass and Lighting Requirements in Code.....	17
Case Studies of Bird Friendly Projects in Austin.....	17
Considerations for New Construction	19
Co-Benefits of Bird Friendly Design	19
The 100/100/100 rule	21
Best Practices for Low-, Mid-, and High-Rise Buildings	21
Feasibility of Bird Friendly Building in Austin.....	23
Cost Estimates.....	23
Building Plan Review	25
Inspection and Compliance.....	26
Education	26
Stakeholder Engagement.....	26
Boards and Commission.....	28
Staff Recommendations	29
1. Land Development Code Amendment.....	29

2. Austin Energy Green Building Program and Policy Updates 29

3. Residential Educational Campaign 30

Contributors: 31

References: 32

Appendix A: Benchmarking Data and City Regulations 33

Appendix B: Austin Energy Green Building Program Requirements 34

Appendix C: Stakeholder Engagement Plan 36

Appendix D: Bird Friendly Design for Residential 37

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Executive Summary

In response to City Council [Resolution 20241121-073](#), staff conducted comprehensive research on bird-friendly building design implementation, including stakeholder engagement with developers, environmental organizations, and the public through virtual sessions, public tours of the Austin Airport IT building, and professional roundtable discussions in collaboration with the American Institute of Architects (AIA). The following analysis provides an overview of the impact that building collisions have on bird populations and how Austin can address the problem through assessing local case studies, cost feasibility, and regulatory frameworks from peer cities including New York, Madison, Portland, Toronto, Berkeley, and Arlington County, VA. The report explores how Austin's built environment and land development regulations present many opportunities for bird-friendly design implementation, including already existing regulatory mechanisms and programs like Planned Unit Development (PUD) Zoning and the Austin Energy Green Building program.

Based on this thorough evaluation, staff recommends a three-pronged approach: mandatory code amendments requiring commercial and multifamily buildings exceeding 10,000 square feet to meet bird-safe design standards and dark sky lighting requirements; coordinated updates to Austin Energy Green Building program policies to include feasibility studies and refined requirements based on implementation data; and a residential educational campaign led by Austin's Animal Protection Officer promoting cost-neutral solutions such as bug screens and exterior window shades. This comprehensive strategy leverages existing regulatory frameworks and staff expertise while balancing environmental protection with practical implementation considerations, addressing both the higher-impact potential of larger developments and the educational needs of Austin's predominantly residential building landscape in alignment with the city's broader sustainability and affordability objectives.

Overview of Bird Friendly Design

Austin demonstrated its commitment to protecting migratory and local bird populations when it was designated as a Bird City in 2023. More recently, Austin's City Council passed [Resolution 20241121-073](#) in the fall of 2024 to explore the integration of bird friendly design into the built environment, which serves as an important component in supporting the health of bird populations and can significantly reduce avian mortality caused by building collisions. This section explores the components of bird friendly design as described in the U.S. Fish and Wildlife Service's Bird-Friendly Building Toolkit and how they interact with Austin's urban landscape.

Texas is within North America's Central Flyway, which serves as a critical migration corridor for nearly 400 species of birds (Bristol, 2023) and generates more than \$5 billion in annual ecotourism revenue for the state (NABCI, 2025). In addition to their economic value, Texas'



Figure 1. Map of Central Flyway, Texas Parks and Wildlife Department

bird species play a vital ecological role by providing pollination and seed dispersal functions, controlling agricultural pests, and serving as indicator species of habitat quality and pollution. It is no wonder that researchers are increasingly concerned with data showing evidence that building collisions kill more than 1 billion birds annually in the United States, with glass being the primary threat. (Kornreich, Partridge, Youngblood, & Parkins., 2024). The implementation of bird-friendly building techniques represents both a key environmental consideration and an economic opportunity. Below, we document the types of bird safe solutions that can be considered in building design. When properly implemented, these strategies can reduce bird mortality by up to 90% (Sheppard & Phillips, 2015).

Migration and Habitat in Austin

Austin's location along the Central Flyway (see Fig. 1) makes it an exceptional birding destination with over 400 species recorded within a sixty-mile radius of the city (Shackelford, 2005). Austin sits in a unique biological transition zone where the ranges of western and eastern bird species converge. Two ecotypes



Figure 2. Gold cheeeked Warbler, photo from City of Austin

in particular, the Edwards Plateau and the Blackland Prairie, provide distinct habitat, each supporting unique bird populations. Austin is also home to the endangered Golden-cheeked Warbler (see Fig. 2), a charismatic songbird endemic only to Texas that brings tourists from all over the world to visit the juniper-oak woodlands where it nests. The black-capped vireo, a small songbird primarily found in Central and West Texas with a distinctive black head and striking white eye-rings, was once endangered, but its population rebounded due to restoration efforts, allowing it to be delisted in 2018. Other migratory birds you may see in Austin include:

- Ruby-throated hummingbirds arrive in Central Texas every year between March and May. They can fly over 1,200 miles without stopping. They are the only species of hummingbirds to breed in North America.
- Purple martins arrive in Austin in the spring, then fly south to winter in South America after breeding season. They roost in huge colonies in big cities, which makes their morning departures and evening arrivals an amazing sight to see!
- Painted buntings have been described as birds out of a children’s book. Males have bright blue, green, and red feathers, while the females are bright yellow-green. They migrate to Central Texas from Central America in the spring and fly back south between July-October.



Painted bunting (top), purple martin (bottom)

Bird migration through Austin occurs almost year-round, with activity from February through May and July through December. Spring migration offers the most spectacular diversity, with mid-April through early May providing opportunities to see up to 20 warbler species in a single day. Fall migration is more extended and gradual. The combination of Austin's position on major flyways and its diverse habitat types, from rocky hills and canyonlands to flat prairies with broad valleys, creates ideal conditions for both resident and migratory species, making the area a premier destination for birdwatchers all year long.

Glass and Building Design Elements

Glass Treatments

To a bird, glass surfaces will either appear as a reflection of the surrounding environment (i.e. the appearance of trees, sky, open space) or as a clear and navigable space. The most effective bird-safe design ensures that a building’s façade is visible to birds. This is achieved using either opaque materials or applying treatments to exterior glass surfaces that provide sufficient visual cues to deter collisions with the “invisible” surface.

Glass treatments include antireflective vinyl or polyester films, decals, UV coating, glazing, and etched or fritted glass patterns that follow the “2x2 rule” - horizontal elements spaced no more than 2 inches apart and vertical elements spaced no more than 2 inches apart. External applications such as ceramic frit patterns, acid-etched surfaces, and UV-reflective coatings on the outer glass surface (surface 1 in Fig. 4) provide the most reliable protection since they remain visible even under strong reflective conditions. However, it is important to note that not all bird species perceive UV light, making UV treatments less broad in its effectiveness. Additionally, window films, insect screens, exterior blinds and bird netting have demonstrated success and are appropriate for use on smaller scale residential buildings.



Figure 3. Example of glass frit, from Google building in downtown Austin. Photo by WPD staff.

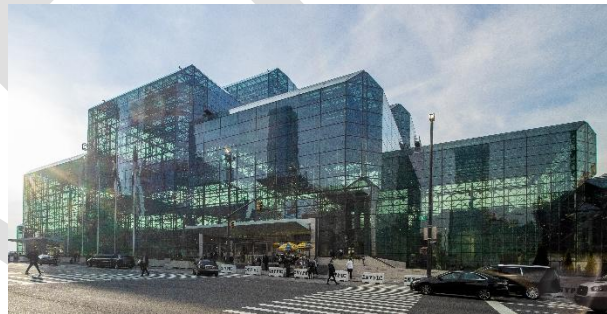


Figure 4 This diagram shows the layers of glass and corresponding surface numbers. Best practice is for bird deterrence measures to be on surface 1 of the glass. Image from Guardian Glass

Design and Landscape Strategies for Multiple Benefits

Beyond glass treatments, effective bird-friendly design incorporates physical barriers and architectural and landscape design decisions that improve glass visibility or provide physical barriers to the glass such as exterior screens, shutters, awnings, and structural shading systems. These features can serve dual purposes of bird protection and energy efficiency. Additionally, green building strategies that limit glass to 30-40% of a building’s facades can reduce collision risk while improving energy performance.

The most successful buildings often employ a combination of different strategies such as the New York Times headquarters building which has a ceramic solar screen system with thermal performance benefits. Additionally, NYC’s Javits Convention Center was renovated with a green roof and bird friendly glass that both reduced bird collision by 90% and reduced energy consumption by 26% (Tran, 2022).



Jacob K. Javits Convention Center, New York City

NASA’s Johnson Space Center in Houston, TX incorporated bird-safe design in their first LEED Platinum office space, which has egg-crate-like overhangs that act as a deterrent for birds. This building is 57% more energy efficient than the requirements laid out in the standards and guidelines defined by The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) (Seliem, 2020). And the Cedar Hill Library in Cedar Hill, Texas (Dallas/Fort Worth metro area) incorporated bird-safe glass into their LEED Silver building, completed in 2024.












NASA Johnson Space Center, Building 20

A building’s landscape contributes to the interaction of birds with building surfaces. Vegetation can serve as attractive habitat, drawing birds closer to a building. Trees and shrubs near buildings can increase the risk of bird collision if the building’s façade is not designed with bird safe materials. Additionally, landscapes that feature physical corridors can channel birds towards glass unintentionally. Landscape architects and designers can use thoughtful landscape configurations to reduce bird collision, which becomes difficult without the complementary feature of bird collision deterrent materials on adjacent buildings. By incorporating bird friendly design with the building, landscape elements attracting birds to an area become less of a concern.

The Material Threat Factor

The American Bird Conservancy and industry professionals developed the [Material Threat Factor \(MTF\)](#) performance metric to measure how effectively a material's visual surface deters bird collisions. Determined through controlled testing, the MTF serves as a design tool that helps architects and builders select materials based on their collision-deterrent properties. The MTF also serves as a benchmark for developing regulations and certifications related to bird safe design.

		
<p>Opaque Surface <i>Guaranty Building</i></p>	<p>00 Translucent Surface <i>Syracuse University, Football Practice Facility</i></p>	<p>02 Corrugated Surface <i>California Institute of Technology, The Resnick Sustainability Center</i></p>
		
<p>05 Vertical Slats Over Glass <i>York University, Second Student Centre</i></p>	<p>05 Perforated Screen <i>CJ Blossom Park</i></p>	<p>20 UV Coated Glass <i>Generic Product Image</i></p>
		
<p>25 Fritted Glass <i>Kaiser Permanente, Kramer, Radiation Oncology Center</i></p>	<p>25 Etched Glass <i>Hauptman-Woodward Institute, Medical Research Center</i></p>	<p>100 Clear Glass <i>Generic Glass Facade Image</i></p>

Material Threat Factor

Disclaimer: Material Threat factor may vary by product. Refer to the ABC website for details.

Lighting Standards to Minimize Light Pollution

Exterior Lighting Design

Effective bird-friendly lighting focuses on controlling the directionality, timing, and spectrum of artificial light to minimize disruption to nocturnal bird navigation. Key components to an effective lighting design include eliminating uplighting, using fully shielded fixtures that direct light downward, and avoiding event searchlights during migration periods (Fig. 6). Additionally, buildings should implement lighting management systems that can respond to migration forecasts, automatically reducing non-essential lighting during peak migration periods typically occurring March 1 through June 15 and August 15 through



Figure 6 Bird conscious light diagram by USFWS

November 30

Also, research indicates that light more than 3000K (white to blue in color) will particularly disorient birds, while colors less than 3000K cause less disruption. K (or Kelvin) is a measurement unit for light's "warmness" or "coolness," where a lower K (2000-3000 K) light produces orange to yellow-white light and a higher K light (above 4500 K) gives off a blue-white light that mimics daylight (Fig. 7).

Interior Lighting Management

Controlling light trespass from building interiors is also critical, as lit windows can attract and disorient migrating birds. Effective strategies include programming automatic controls with timers and occupancy sensors, using window treatments to reduce light spillage, and scheduling janitorial services during daylight hours.



Figure 7. Illustration of Kelvin (K) light scale, from [Lighting Design Studios](#)

Behavioral practices

Lights Out Programs

Operational practices can also play an important role in protecting birds through activities focused on bird-friendly building management. One easily implementable strategy used throughout the United States includes the "Lights Out" program which involves the coordinated reduction in light pollution during peak spring migration (April 22-May 12). Effective implementation of these types of programs can be enhanced through education, social media campaigns, and signage.

Integrated Management Approach

Successful bird-friendly practices require year-round awareness rather than seasonal campaigns alone. This includes training building maintenance staff to recognize and report collision incidents, coordinating landscaping decisions to avoid creating attractive habitat immediately adjacent to untreated glass surfaces, and establishing monitoring protocols to assess building performance. Weather-responsive practices, such as email notification systems that alert building operators to turn off lights during peak migration, can significantly enhance protection effectiveness while maintaining operational flexibility.

Benchmarking Report on Bird Friendly Design in North America

Bird-friendly building regulations have grown more common over the past two decades. [San Francisco](#) became the first U.S. city to implement regulations in 2011. Since then, over 20 U.S. cities and municipalities have adopted policies that encourage or mandate bird-safe design elements. These regulations typically focus on increasing the use of bird-friendly materials in commercial buildings, often referencing the American Bird Conservancy (ABC) Material Threat Factor (TF) rating to evaluate the safety of materials. Additionally, many of the 20 municipalities approached bird friendly design by first mandating their use in the construction of all City owned buildings in advance of pursuing city-wide requirements.

While early regulations like San Francisco's had many exemptions and are not recommended by ABC, newer policies have become more uniform and effective. Austin Watershed Protection staff engaged and interviewed six peer cities identified for their effective bird safe design regulations: New York City, Madison, Portland, Toronto, Arlington County, and Berkley. Arlington County, Virginia, stood out as the only incentive-based program recommended by ABC, requiring bird-friendly design for projects seeking bonus density through a voluntary but enforceable framework. The regulations described below are also summarized in a table provided as an Appendix to this report.

New York City, NY

New York City's Local Law 15 of 2020, effective January 10, 2021, is one of the nation's most comprehensive bird-friendly building laws. It mandates the following:

- 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 Material Threat Factor (TF) of 25 or less.

Although ABC recommended a TF of 30 and a height of 100 feet, the city chose 75 feet to align with its building code's definition of low-rise versus high-rise.

The law applies citywide without exemptions and includes green roofs, flood-prone zones (where materials may have a MTF of 36 or less), and areas requiring compliance with zoning-based transparency requirements (MTF 27 or less). While retrofits are only required for full window replacements, NYC's Energy Conservation Code may spur broader adoption. The Department of Buildings provides detailed compliance guidance, informed by industry experts including ABC and NYC Audubon. NYC also passed related "Lights Out" laws (Local Laws [30](#) and [31](#) of 2022), requiring outdoor lighting curfews on city-owned buildings during migration periods and occupancy sensor installations to reduce nighttime collisions.

Link to Ordinance: https://www.nyc.gov/assets/buildings/local_laws/ll15of2020.pdf

Madison, WI

Madison passed its bird-friendly design ordinance in 2020, effective October that year. It mandates the following:

- Bird friendly design applies to buildings over 10,000 square feet
- Regulates glass usage based on façade area and building height. If more than 50% of a building's façade in the first 60 feet above grade is glass, then 85% must be bird friendly. For façades with less than 50% glass, only glass areas over 50 square feet and all glass within 15 feet of corners must be treated.
- Sky bridges, glass railings, and at-grade glass require treatment regardless of building size.
- Bird safe glass defined in ordinance instead of using a Material Threat Factor

Zoning staff review glazing details twice during permitting, and the ordinance's rollout required initial education for designers and reviewers. The city successfully defended the ordinance against a 2020 lawsuit from developers, with courts affirming its validity under the authority of zoning regulations. Madison's ordinance includes a detail specifying ¼" dot sizes, but staff recommended using both imperial and metric units for clarity. ABC supports the ordinance but would prefer a lower square-footage threshold and elimination of the 50-square-foot window exemption. Madison also has a separate dark-sky ordinance (effective July 2022) to reduce outdoor light pollution.

Link to Ordinance:

https://library.municode.com/wi/madison/codes/code_of_ordinances?nodeId=COORMAWIVOIICH20--31_CH28ZOCOR SUBCHAPTER 28IGERE 28.129BIFEGLRE

Portland, ME

Portland adopted a bird-friendly ordinance in 2024 mandating the following:

- Bird friendly design for all new non-residential and mixed-use buildings over 10,000 square feet and for major renovations involving glass.
- The materials must have a Material Threat Factor (MTF) of 30 or less
- Applies to all façades up to 75 feet above grade and treat hazardous features such as glass railings and skywalks.
- A phased implementation applies to buildings with less than 30% glass per façade.

The ordinance includes exemptions for affordable housing, operable sash windows, and ground-floor retail glazing. While the Greater Portland Chamber of Commerce opposed the measure, citing cost concerns and data skepticism, it passed unanimously. Formal compliance procedures are still being developed, but material specifications are expected to be part of planning packets. Portland upgraded its streetlights in 2018 to dark-sky compliant fixtures, although no citywide dark sky ordinance is currently in place.

Link to Ordinance: <https://content.civicplus.com/api/assets/c5af4c63-b877-4ea8-9d29-8420cbad7717?cache=1800>

Berkeley, CA

Berkeley's ordinance, effective July 2023 mandates the following:

- Bird friendly design applies to glass replacement for non-residential buildings up to 75 feet high
- Applies to new mixed-use or residential projects over 10,000 square feet
- High-risk features like skywalks, glass railings, and rooftop glass are always regulated, and affordable housing and historic structures are exempt.
- Materials must have an ABC MTF ≤ 30 or use patterned glazing.

Exemptions for "lower hazard" buildings (with less than 30% glass per façade) apply until July 2025 for non-residential and January 2028 for residential buildings. Applicants must attest to compliance and allow third-party verification. The ordinance's passage followed concerns about supply chains and scenic views. Council members requested a formal evaluation by July 2026 to consider adjustments. While ABC supports the ordinance, it recommends expanding it to include smaller residential buildings. Though Berkeley lacks a citywide lighting ordinance, some lighting restrictions exist within specific zoning codes.

Link to Ordinance: <https://berkeley.municipal.codes/BMC/23.304.150>

Toronto, ON

Toronto's regulations, adopted in 2010 and updated in May of 2022 includes the following:

- Mandatory bird collision measures for commercial, residential, and institutional buildings
- 85% of glazing and 100% of high-risk features are evaluated, with some exceptions
- Includes facade from ground level to 16 meters (~50 feet)
- Includes light pollution reduction requirements (Dark Sky)
- Reviewed through Toronto Green Standard process

Toronto's bird-friendly regulations are part of the Toronto Green Standard (TGS), a sustainability framework effective since 2010. Version 4, launched in May 2022, includes bird collision deterrence as a mandatory Tier 1 measure. The rules apply to all buildings over four stories (commercial, residential, and institutional) and low-rise residential near natural areas. Requirements include treating 85% of all glazing and 100% of high-risk features (like balconies or glass walls) with bird-friendly materials or patterns.

The regulation covers façades up to 16 meters (about 50 feet), or to the height of the mature tree canopy, plus a 2.5-meter buffer around rooftop vegetation. Lighting must follow Dark Sky standards, with directional shielding and overnight shutoff rules. Bird-friendly reviews are folded into the TGS review and have not significantly delayed permitting. Because these standards are part of a larger sustainability package, they met minimal resistance. ABC recommends increasing coverage to 100 feet, eliminating façade exemptions, and applying standards to buildings under four stories.

Link to Toronto Green Standards: <https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-4/>

Arlington County, VA

Arlington County's incentive program, adopted in 1991 and updated in 2020 includes the following:

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

Arlington County's Green Building Incentive Program (GBIP), first launched in 1991 and updated in 2020, includes bird-friendly design standards for projects seeking bonus density. While Virginia law prevents cities from exceeding state building code requirements, Arlington links bird-safe design to voluntary incentives. To receive a density bonus (ranging from 0.25 to 0.7 FAR) projects must commit to sustainability measures, including bird-friendly architecture.

Compliance is enforced via bonds or letters of credit tied to project area rental rates. Projects that forgo LEED or Energy Star certification must pay into a Green Building Fund, with refunds available upon later certification. ABC recommends expanding the rule to include first-floor glazing, higher elevations, and mandatory compliance for all permits, not just bonus-density applications. Arlington also includes outdoor lighting requirements, mandating that 90% of non-streetlight exterior fixtures be sensor-controlled or time-regulated.

Link to Green Building Incentive Policy:

<https://www.arlingtonva.us/Government/Programs/Sustainability/AIRE/Buildings/Green-Building-Incentive-Policy>

Bird Friendly Design in Austin

Austin Energy Green Building

The Austin Energy Green Building (AEGB) program is an Austin-specific green building rating program administered by Austin Energy. The program is integrated as a minimum requirement in zoning ordinances and density bonus programs throughout Austin. City of Austin facilities are also required to meet the AEGB requirements as defined by Austin’s Green Building Policy [Resolution 20210902](#). The AEGB rating system includes ten core requirements with several voluntary measures that applicants can incorporate into their projects to achieve a desired rating including criteria for bird collision deterrence and light pollution reduction.

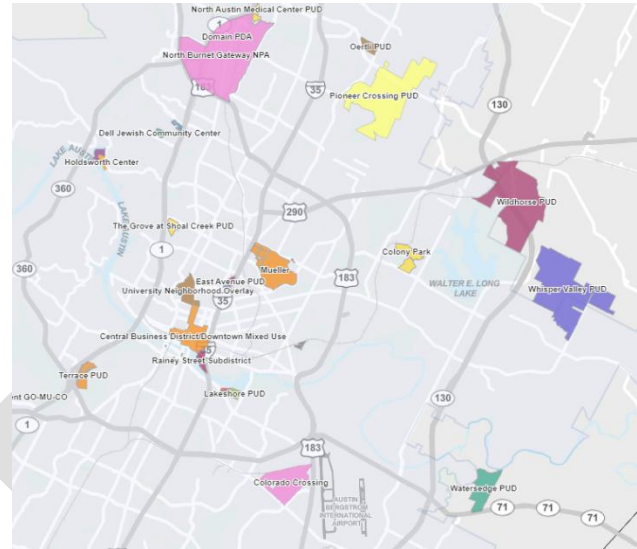


Figure 8: Representative map of areas requiring AEGB ratings, not including COA facilities.

The summary table below includes the types of development areas that carry agreements for participation in AEGB rating in Austin. Some areas require use of the Austin Energy Green Building rating, while some allow for use of the US Green Building Council LEED Certification System. LEED Certification also includes a voluntary credit for bird friendly building criteria that can contribute to a project’s score. A map of areas in Austin required to participate in the Austin Energy Green Building program is available in the City’s GIS Viewer: [AEGB Required Areas](#).

Area	Minimum Requirement
S.M.A.R.T. Housing	1-Star AEGB
Zoning Overlays (CBD-DMU, UNO, others)	1-Star AEGB
Planned Urban Developments (Mueller, Goodnight, others)	1 or 2 Star AEGB or LEED Silver, depending on specific agreement
Planned Development Areas (PDAs – Domain)	2-Star AEGB or LEED Silver
Downtown Density Bonus Program	2-Star AEGB, optional 3-Star AEGB
City of Austin facilities	3-Star AEGB or LEED Silver

Future potential requirements of the AEGB Bird Collision Deterrence measure include provisions for thermal temperature of lighting, a quality of lighting that can negatively impact migrating birds. These are already included in the full version of the AEGB Light Pollution Reduction optional measure, ST7, specifically targeting parking lots, pedestrian walkways, and other similar areas. More technical details about the AEGB process, AEGB bird collision deterrence requirements, and AEGB light pollution reduction criteria are provided as an appendix to the report.

Lights Out Austin!

Lights Out Austin is a City-wide initiative that aims to raise 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. It is part of a state-wide initiative called Lights Out Texas, coordinated by nonprofit Texan by Nature and supported in Austin by Travis Audubon. Work began in summer of 2021 with a coordinated effort from City departments and a pilot of downtown City facilities. Austin Climate Action and Resilience and Austin Facilities Management departments have since implemented operational and procedural processes to support the Lights Out Initiative at all BSD-managed facilities and coordinated with Austin Public Library, the Convention Center, and Parks and Recreation Departments to implement similar policies at other City managed facilities, expanding these efforts beyond downtown. City-managed facilities are participating by:

- Turning off all non-essential lights from 11:00pm to 6:00am, and
- Refraining from use of landscape lighting, where possible, to light up trees or gardens where birds may be resting.

Where lighting is essential, like security and safety lighting, the following dark skies-friendly lighting practices are being used where feasible throughout the entire migrating 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 11:00pm.
- Ask custodial staff to ensure that lights are off after they finish their work.

More information can be found about this program on the Travis County Audubon Society's website:
<https://travisaudubon.org/lights-out-texas>

Site Specific Regulations

Austin has several regulatory mechanisms for creating site specific environmental protections that exceed what is minimally required by the city's Land Development Code. The most well-established tool for requiring bird friendly design has been the Planned Unit Development (PUD), a zoning ordinance that is site-specific and has special requirements related to the superior development of a project in exchange for entitlements and modifications to existing code requirements. The superiority elements of a PUD must include environmental protections or enhancements that are both appropriate for the site and offset whatever impact the proposed development may have on the environment. In the past several years, bird friendly design requirements have been a common element of new and amended PUDs. For example, newly approved PUDs at [200 E Riverside](#), [311-315 S Congress](#), and [Brodie Oaks](#) all have requirements for bird safe building design. Additionally, recently amended PUD ordinances have been approved with the addition of bird friendly design requirements including the [Sunfield PUD](#) which is a proposed development

of approximately 482 acres in southeast Austin. The recently approved [Hays ISD Interlocal Agreement](#) was developed with the commitment of the school district to build its new High School meeting the bird friendly design criteria as defined by the Austin Energy Green Building program.

Glass and Lighting Requirements in Code

While there are no city-wide requirements for bird friendly design, there are sections of Austin's Land Development zoning code that directly or indirectly encourage elements of bird safe design. These include glazing and façade requirements as well as exterior lighting requirements. Some of these regulations apply to the entire zoning jurisdiction of the city and some are tied to zoning districts. The following are examples of these requirements.

- [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](#) provides requirements for buildings within the overlay that may not have 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"

Case Studies of Bird Friendly Projects in Austin

Austin Airport Information Technology Building

This project achieved LEED Pilot Credit 55, Bird Collision Deterrence as part of its LEED Silver Certification. The overall threat factor for this project is 13.3. This was achieved through the use of various bird collision reduction design strategies including:

- Opaque facade materials
- Etched glazing
- Dot stickers applied in a 2"x2" pattern
- Shade structure (vertical sunshades or fins) over second floor windows

The project provided several opportunities to learn about the installation and design of bird friendly elements including:

- The importance of applying bird friendly stickers, etching, frit, or other method on surface 1 or surface 2 of glazing for maximum effectiveness.
- The additional energy savings for shade structure that had the co-benefit of effectively reducing bird strikes.



*Austin-Bergstrom International Airport (AUS) IT Building.
Photo by PAGE*

Designing to reduce bird collisions and monitoring wildlife presence is part of a wholistic wildlife management approach the Austin Airport utilizes to ensure that unwanted wildlife is not attracted to areas near the airfield.

Greenwater Block 185 (601 W 2nd St, Austin, TX 78701)

The Downtown project sits at the confluence of Shoal Creek and Lady Bird Lake. As a part of the design, the development installed bird friendly glazing to the outer edge of the west facade. The primary method used was fritted glass on surface 1 of the insulated glazing unit (IGU). Vertical fritting from 3%-40% coverage was used. This was likely to address concerns about fly-through conditions at corners of the building. Reflectivity was a concern on this project due to its proximity to Shoal Creek, and additional zoning requirements for the facade. The project did not receive credit for bird friendly design from AEGB as only one side of the facade incorporated the use of fritted glass.

Lessons learned from this project include:

- Multiple factors impacting the design and use of frit in the glazing of the glass including the perceived effect on views and improvements in energy efficiency.
- Overlapping and conflicting requirements from the City complicated the design of the façade.
- This was the first interaction the AEGB program had with bird friendly design when the project began design in 2019 with construction starting in 2020.



Google Austin building in downtown Austin.

Considerations for New Construction

The built landscape in Austin is heavily dominated by low rise buildings (1-3 floors), numbering over 820,000 structures. Mid-rise buildings (4-12 floors) represent a fraction of that, numbering over 15,000 structures, and high-rise buildings account for less than 200 of the structures in Austin. The urban landscape will see changes over the next many decades, but it will continue to be a city dominated by low-rise buildings for the foreseeable future. Special consideration should be given for incentives or requirements that help low rise buildings adopt bird friendly design. Additionally, there are several “cost neutral” strategies that can be adopted by low rise buildings including the use of insect screens and window shading materials and structures that function as effective deterrence to bird collision. More detailed information about cost is documented in the next section on feasibility.

Co-Benefits of Bird Friendly Design

Many bird-friendly design elements have correlated benefits to other sustainability efforts. We have highlighted several of these solutions below.

Energy Efficiency

Bird-friendly buildings often have less glass, which also reduces heat-transfer and lowers energy consumption. Additionally, common glass treatments that work as bird-deterrence, such as fritting, etching, or UV-patterned glazing, also help to diffuse sunlight and reduce glass transmittance, which can decrease solar heat gain and lead to energy cost savings. In general, since Texas is classified as a hot-humid climate, a great majority of our energy consumption is related to the use of air-conditioning in the summer to keep spaces habitable. While it is difficult to quantify the energy benefits for using bird-safe glass, Cannon Design put on a comparative study using a simple shoe box energy model. The study found a 3% to 28% reduction in energy use intensity by applying bird-friendly design strategies (Pawar, 2024).



Figure 9. 5Reduction in energy use when compared across five bird friendly material performance conditions. (Pawar, 2024).

Improved Public Safety

Building lighting plans that incorporate properly shielded and directed outdoor lighting not only help prevent migratory bird disorientation, but they can improve safety for humans. There is a general assumption that brighter lights provide better and safer conditions at night, but this is not the case. For example, overly bright features or lights without shielding can create blinding glare, which can make it difficult for people to see figures in the areas beyond the heavily lite area as shown in Figure 10.

The intensity of lighting glare can be affected by the color or temperature (Kelvin(K)) of the light. White or blue lights (>3000K) can create more glare in the human eye, which may get worse with age in some individuals. Amber colored lights (<3000K) can decrease the experience of glare from unshielded lights and have less of an impact on migrating birds. Reducing glare improves nighttime visibility for pedestrians and drivers, especially benefiting older adults, and creates safer outdoor environments overall.



Figure 10. 6The blinding glare from an unshielded light makes the figure in the background invisible to the viewer. Photo credit George Fleenor

Wildfire Resilience

Placing vegetation away from a building's façade limits the reflection on adjacent window glass (a primary cause of bird collision), while also aligning with Austin's Wildland-Urban Interface (WUI) Code. Properties within the WUI are required by code to maintain defensible space around structures by reducing vegetation that can serve as fuel in a wildfire. The Austin Airport IT building described above has landscaping set away from the building which both reduces the reflection of vegetation on the first story glass and reduces the risk of fire next to the building.

Design Aesthetics

External building design elements like decorative steel facades, fin structures, printed screens, and layered, colored glass enhance a building's visual appeal while having the unintended consequence of reducing bird collisions. Two excellent examples of unintentional and beautiful bird friendly design include Austin's Central Library building which incorporates metal screens, layered glass and photo voltaic panels in its external material, and Austin's City Hall which has large shade awnings and steel façade components that help reduce bird collision.

Conservation, Biodiversity, Community Engagement, and Ecotourism

Birds provide essential ecosystem services, such as pest control and pollination. In addition, birding generates more than \$5 billion in annual ecotourism revenue in Texas. Further, studies show that bird sounds and bird diversity can lead to better mental health and life satisfaction for residents. Lastly, by sharing information on and solutions to deter bird strikes, we can empower the public to report bird strikes, participate in community science, and incorporate solutions in their own homes voluntarily.

The 100/100/100 rule

The American Bird Conservancy has had a significant role in the passage of bird friendly regulations nationwide. Their general recommendation for bird friendly building requirements follows what they call the 100/100/100 rule where 100% of all glass and other building materials should be bird friendly in the first 100 feet of 100% of buildings. This also specifically includes making all hazardous features that cause collisions, no matter where they are found, bird friendly including glass adjacent to green roofs or walls and glass corners that create visual “fly through” conditions.

Best Practices for Low-, Mid-, and High-Rise Buildings

The American Bird Conservancy and the US Fish and Wildlife Service both offer strategies and toolkits implementing bird friendly design elements into different types of structures whether they are single family residential or high-rise multi-use. The table below summarizes the best practices for incorporating bird friendly design into the construction of low-, mid- and high-rise buildings using glass, lighting and behavioral practices.

Implementation of these recommendations provided in the following sections on feasibility and code amendments

Table 1: Bird Friendly Design Best Practices as Recommended by the American Bird Conservancy and USFWS

Type of New Construction	Glass Treatments/Façade	Lighting Solutions	Behavioral Practices
Low Rise (1-3 floors)– mostly residential and smaller commercial structures	<u>Residential</u> Installation of exterior window treatments: <ul style="list-style-type: none"> • bug screens • exterior window shades • awnings <u>Commercial</u> <ul style="list-style-type: none"> • Required on 100 percent of buildings • Reduce the use of glass in façade design • Installation of glass with MTF of 30 or less on all external surfaces. 	<ul style="list-style-type: none"> • Shielded light fixtures. • Motion activated exterior lights. • Lamps of <3000k temp. 	<ul style="list-style-type: none"> • Lights out practices during peak migration. • Adding “do it yourself” window treatments. • WUI landscaping • Documenting bird strikes on an online platform.
Mid Rise (4-12 floors) – combination of residential multi family and commercial	<ul style="list-style-type: none"> • 100/100/100 rule • Reduce the use of glass in façade design • Installation of glass with MTF of 30 or less on all external surfaces. 	<ul style="list-style-type: none"> • Shielded light fixtures • Lighting directed down. • Exterior and Interior lighting on timers for after midnight 	<ul style="list-style-type: none"> • Building management communications to tenants about “lights out program” or bird collision monitoring. • Coordination of landscape decisions

	<ul style="list-style-type: none"> • Bird safe materials on high risk elements including, sky bridges, green roof areas, terraces, etc. 	<p>and during peak migration.</p> <ul style="list-style-type: none"> • Lamps of <3000k temp. 	<p>with proximity to untreated glass</p>
<p>High Rise (more than 12 floors) – mixed use commercial</p>	<ul style="list-style-type: none"> • 100/100/100 rule • Reduce the use of glass in façade design • Installation of glass with MTF of 30 or less on all external surfaces • Bird safe materials on high risk elements including, sky bridges, green roof areas, terraces, etc. 	<ul style="list-style-type: none"> • Shielded light fixtures • Lighting directed down. • Exterior and Interior lighting on timers for after midnight and during peak migration. • Lamps of <3000k temp. 	<ul style="list-style-type: none"> • Building management communications to tenants about “lights out” program or bird collision monitoring. • Coordination of landscape decisions with proximity to untreated glass.

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Feasibility of Bird Friendly Building in Austin

Cost Estimates

Given the variety of possible products, project types, and other situational factors, it is difficult to precisely quantify what additional costs would be incurred for bird safe building materials. The market for bird safe glass includes a variety of treatments with a large cost differential, but some products are on par with standard materials. The consensus from staff research and feasibility reports provided by other cities is that bird safe windows may likely cost more than standard windows if the square foot cost is the only element considered. New York reported in their feasibility analysis that there would be no impact on expenditures resulting from the enactment of their bird friendly building design ordinance while Madison, WI reported an estimated 2-3% increase in initial project cost. When considering material availability, product distribution, and energy cost savings, there are many scenarios where bird friendly building can ultimately save a project money over time. Below is a more in-depth consideration of costs.

Commercial Glass

There is a huge range of glass options for commercial windows making it difficult to quantify the cost implications for using bird-friendly treatments. Several manufacturers interviewed for this report emphasized the number of factors affecting glass cost, making it impossible to provide an accurate range. It is important to note that all the bird friendly glass treatments that have been studied for their energy cost savings show improvements over standard glass, further complicating the overall cost differential. Additionally, the manufacturing of glass with frit or etching treatments strengthens the material, increasing its longevity. Additional examples of complicating factors are described below.

Bulk Glass

Glass material for commercial projects is primarily sold in bulk. Small projects may end up buying more glass than needed (e.g. if 2.1 truckloads are needed, a project will need to buy 3 truckloads) complicating the cost differential between “standard” glass and bird-friendly glass depending on the size of a project. Additionally, the availability and bulk sizing for standard vs. treated glass may affect the overall cost for the project making bird friendly treated glass less expensive overall.

Multiple Panes

Bird-friendly glass treatment only needs to be applied to one surface of glass, preferably the outer most surface (i.e. the #1 surface). Many commercial projects will have criteria for windows that include insulated glass (i.e. two pieces of glass with an air pocket in-between) to meet basic energy code requirements. Some projects may require laminated glass which requires 3 panes instead of 2, particularly in areas where windows are prone to breakage (e.g. adjacent to doorways). In these cases, the bulk of the window cost is in having multiple panes of glass. See Figure 4 for a diagram visualizing the various panes and surfaces of glass.

Square Foot Pricing

There are estimates provided by glass manufacturers, fabricators, and architects that provide broad ranges of commercial glass costs. One estimate stated that an insulated glass with a triple silver coating which is a requirement to meet energy code has a base price around **\$15.90** per square foot. Adding a standard etched bird-friendly pattern with opaque color to the #2 surface is **\$7.15** per square foot. Below is a list of estimated costs for various window types and treatments per square foot:

WINDOW TREATMENT	COST (PER SQFT)
Standard (non- custom)	\$12-\$15
Fritted	\$15-\$25
Etched	\$25-\$35
Ultraviolet (UV)	\$32-\$45

Retrofitting

Commercial windows can also be retrofitted for a bird-friendly rating by applying treatments to the outside of windows. These products can range from \$12.75-\$14.00+ sq ft for both product and installation. Treatments have a warranty of up to 15 years, and there are options that have additional benefits for graffiti prevention.

Residential Glass

There are no widely available bird-friendly products for residential new or replacement windows on the market. While there are products coming on the market, they are quite expensive and perform inconsistently in field tests. Some custom homes choose to order commercial glass (which is thicker and heavier than residential glass) though they are more expensive and require commercial framing systems to support the weight.

However, as stated earlier, there are several “cost-neutral” strategies for residential homes, meaning that cost was already worked into the budget for a purpose other than bird-friendly design, and has the added benefit of being bird-friendly. Some examples of these are bug screens, exterior window shades, awnings, and hurricane shutters. Solar screens also work as bird collision deterrents, and [Austin Energy offers a rebate](#) for installation as they have energy-saving benefits. Homeowners also have a range of DIY solutions that are relatively easy to install and can be shipped quickly. The price range for these products is \$0.50-\$7.00 a square foot, though they have varied warranties. There are also full DIY options, such as painting a 2x2 pattern directly on the outside of the window glass, which will weather away eventually, or lining windows with paracord. More information about Low-cost methods to reduce bird collision can be found here [Low Cost Methods to Reduce Bird Collision](#).

Commercial Lighting

Implementing bird-friendly lighting in commercial buildings is a relatively low-cost strategy with high returns. The products that are available for this purpose are often aligned with broader sustainability goals and typically result in energy savings that offset costs in under a year. For indoor lighting, the most important element is the use of automatic lighting controls, ranging from basic timers to smart building integration, ensure lights are turned off at night (which is most important during migration seasons) and when not in use. These systems can reduce lighting energy use by 10-90%, depending on where and how they are used. According to a report from ABC, these lighting controls generally pay for themselves in energy savings in less than a year.

For outdoor lighting, shielded fixtures prevent light from spilling upward and outward, reducing disorientation for migrating birds. These fixtures typically do not come at a higher cost compared to other lighting options. They also minimize glare, which improves visibility and safety. Shielded fixtures can potentially reduce the number of fixtures needed through more efficient directional lighting.

Residential Lighting

Residential lighting solutions are very similar to commercial solutions and involve using light when and where it is needed. Behavioral practices, such as closing blinds and curtains at night, can make a big difference in bird collision deterrence. Outdoor lighting should also utilize shielded fixtures (no discernible cost increase) with a lower K light bulb temperature for a warmer color light.

Building Plan Review

Glass Review

Currently, building glass review is conducted by the Building Plans Examiner team (Commercial, Residential and Expedited), located in the Development Services Department. Of these teams, only Commercial Plan review looks at exterior glazing as defined in Building Code 3.2.2 Glazing and Façade Relief Requirements, and then, only if the project area is more than 10,000 square feet. According to the [City of Austin Data portal](#), there were around 1,000 commercial buildings reviewed in FY2024.

If requirements for bird-friendly glass are added to City code, there already exists structure and processes under which these requirements would be reviewed. It is important to note that staff would need training to understand how to review for such requirements. Since bird-friendly design criteria is already a component of the AEGP program, Austin Energy has reviewers that would be able to help onboard reviewers from the Commercial Plan Review team. Additionally, Austin Energy can provide educational training and tools for both developers and staff.

Below is a summary of what staff currently review related to glass. Please see the full text [here](#) for more information.

3.2.2 Glazing and Façade Relief Requirements

- A. On façade facing the roadway or internal circulation route: 40% of wall area below 10 feet shall consist of glazing only; 25% of wall area 10 – 30 feet shall consist of glazing only.
- B. One façade shall be exempt from glazing and façade relief requirements. This façade cannot face the public street or internal circulation route.
- C. All other publicly visible facades: 25% of wall area 2-10 feet high shall consist of glazing or façade relief (vegetative screening may be allowed by the Director and must be shown on SP).
- D. Facades built up to an interior mid-block property line are not required to have glazing.
- E. A least one half of the total area of glazing on the principal street façade shall have a visible transmittance of 0.6 or higher.
- F. The requirements in this section may be reduced to the extent that they conflict with the standards of the IECC, IBC, LEED or Green Building program.

Lighting Review

Exterior lighting is reviewed during the site plan review process as defined by the Land Development Code Chapter 25-2, Subchapter E. Reviewers make sure submitted plans have an exhibit providing information about fixtures being fully shielded and fully cut off. There are some compatibility standards that have additional lighting requirements (such as the [Traditional Neighborhood District](#)).

Inspection and Compliance

After plan reviewers review and approve plans related to building design, building inspectors verify in the field that the plans and the building concur. Any issues with non-compliance after the construction and approval of a project would need to be compliant based. This is the standard practice for the other cities who regulate bird friendly design.

One additional note about monitoring and compliance, for projects that require LEED or AEGB rating and who utilize the bird friendly design credit for their rating, a monitoring program is required for the building owner to assess the performance of materials related to observed bird strikes.

Education

The City of Austin Wildlife Officer is within the Austin Animal Protection Department. The role primarily serves to provide educational outreach for the community on coexistence with native wildlife. Although the title is City of Austin, the wildlife officer also works with Travis County. The COA Wildlife Officer regularly communicates with homeowner associations, neighborhood associations, and different wildlife organizations such as, Texas Master Naturalist groups and the Urban Wildlife Information Network. The COA Wildlife Officer also attends community events such as Nature Night at Ladybird Johnson Wildflower Center, Home-school Day at the Austin Zoo, and Roots and Wings Festival with Easton Park in Travis County. The COA Wildlife Officer will be able to involve more residents in the bird friendly design movement when it comes to neighborhoods, since they do numerous presentations and have an existing program that helps educate residents of single-family dwellings.

Stakeholder Engagement

In response to City Council's directive to seek input from stakeholders, including developers, environmental organizations, and the public, staff implemented a multi-faceted community engagement strategy designed to gather diverse perspectives and technical expertise on bird-friendly building design implementation. Please see the Appendix C for a full list of stakeholder meetings.

Community Outreach and Education

Staff conducted several virtual informational sessions to provide stakeholders with foundational knowledge about bird-friendly design principles, regulatory options, and implementation considerations.

These sessions served as an educational platform while creating opportunities for initial feedback and question-and-answer dialogue with community members, developers, and advocacy organizations.

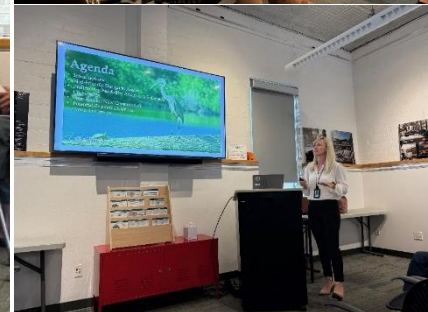
To complement the virtual format, staff organized two public tours of the Austin Airport IT building, which serves as a successful local case study of bird-friendly design implementation. These hands-on educational tours allowed participants to observe actual bird-safe design elements in practice, including etched glazing, dot sticker applications, and shade structures. The tours provided stakeholders with tangible examples of how bird-friendly features can be successfully integrated into commercial development while maintaining aesthetic and functional design objectives.

Professional Industry Engagement

Staff partnered with the American Institute of Architects (AIA) to host a comprehensive roundtable discussion featuring structured breakout groups. This professional forum enabled in-depth technical discussions among architects, developers, building industry professionals, and environmental advocates. The roundtable format facilitated focused conversations on implementation challenges, cost considerations, design flexibility, and regulatory mechanisms while fostering collaborative problem-solving among industry experts.



Public tour of Austin Airport IT Building



American Institute of Architects (AIA) round table discussion and breakout groups.

Boards and Commissions

Staff will bring the report and recommendations to relevant boards and commissions for consideration. Recommendations from each board, commission or committee are documented below.

Boards and Commissions	Date	Recommendation
Environmental Commission	Sept. 17 th , 2025	Recommended
Design Commission	Sept. 22 nd , 2025	TBD
Animal Advisory Committee	Oct. 13 th , 2025	TBD
Downtown Commission	Oct. 15 th , 2025	TBD
Joint Sustainability Committee	Oct. 22 nd , 2025	TBD
Planning Commission	Oct. 28 th , 2025	TBD

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Staff Recommendations

In response to City Council's directive to provide recommendations on specific City Code amendments or guidelines for bird-friendly building design, staff conducted comprehensive research including stakeholder engagement, case study analysis, cost feasibility assessment, and review of existing regulatory mechanisms and review processes. This analysis encompassed the current Austin Energy Green Building program requirements, successful local projects such as the Austin Airport IT building, and best practices from other cities around the country. Based on this evaluation, staff recommends the following three-pronged approach to address bird-friendly design while balancing environmental protection with practical implementation considerations:

1. Land Development Code Amendment

Staff recommend amending Austin's code to establish mandatory bird-friendly design standards for new construction. The proposed amendment would include:

Primary Requirements:

- New commercial and multifamily buildings exceeding 10,000 square feet must meet bird-safe design performance standards for the first 100 ft of facade as measured by a Material Threat Factor (MTF) rating of 20 or less. Although American Bird Conservancy recommends a MTF of 30 or less, the staff recommendation targets a MTF of 20 due to the overwhelming impact that window collisions have on hummingbird populations, an important pollinator species that is at less of a risk for window collision with a 20 MTF rating.
- Implementation of dark sky lighting compliance standards including fully shielded fixtures, exterior and interior lighting on timers for after midnight and during peak migration. lighting temperatures below 3000K, and directional lighting requirements to reduce light pollution and minimize bird disorientation

Additional Provision:

- Incorporation of a waiver mechanism for deeply affordable housing projects to ensure housing affordability goals are not compromised (specific criteria and process developed in coordination with Austin Planning staff)

2. Austin Energy Green Building Program and Policy Updates

Staff recommend coordinating with Austin Energy to implement progressive enhancements to existing green building frameworks:

Future COA Green Building Policy Update:

Require bird-friendly design feasibility studies that include cost analysis and evaluation of potential high-risk areas, with risk area definitions to be established within the ordinance

Future Austin Energy Green Building Requirements:

Update program requirements for bird-friendly design, potentially including simplified requirements and/or decoupling lighting requirements from glass treatments based on project feedback and implementation data

3. Residential Educational Campaign

Staff recommends implementing a targeted educational outreach program leveraging existing City resources:

Campaign Leadership:

Austin's Animal Protection Officer will lead the initiative, utilizing established relationships with homeowner associations, neighborhood groups, and wildlife organizations

Educational Materials:

Distribute informational handouts promoting cost-neutral residential solutions such as bug screens, exterior window shades, and DIY treatments as part of a comprehensive education campaign (reference materials provided in Appendix D)

This comprehensive approach recognizes that Austin's built environment is dominated by low-rise structures (over 820,000 buildings) while addressing the higher-impact potential of larger commercial and multifamily developments. The recommendations leverage existing regulatory frameworks and staff expertise while incorporating lessons learned from successful local implementations and national best practices. This strategy aligns with [Resolution 20241121-073](#) objectives while maintaining compatibility with Austin's sustainability, development, and affordability goals.

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Municipal Ordinances Referenced:

- [New York City Local Law 15 of 2020](#)
- New York City Local Laws [30](#) and [31](#) of 2022
- [Madison, WI bird-friendly design ordinance \(2020\)](#)
- [Portland, ME bird-friendly ordinance \(2024\)](#)
- [Berkeley, CA ordinance \(effective July 2023\)](#)
- Toronto, [ON ordinance \(adopted 2010, updated May 2022\)](#)
- [Arlington County, VA Green Building Incentive Program](#) (1991, updated 2020)
- [San Francisco bird-friendly regulation \(2011\)](#)

Appendix A: Benchmarking Data and Regulations

Bird Friendly Design	New York City, NY	Madison, WI	Portland, ME	Berkeley, CA	Toronto, ON (Canada)	Arlington County, VA
Regulation Type	Mandate	Mandate	Mandate	Mandate	Mandate (as part of Green Standard)	Voluntary (Incentive-based)
Effective Date	Jan 10, 2021	Oct 1st, 2020	2024	July 2023	May 1, 2022 (Version 4)	March 31st, 2022
Applies To	All new buildings and major alterations (no exemptions)	New buildings >10,000 ft ²	New non-residential/mixed-use >10,000 ft ² and major glass renovations	New non-residential buildings <75 ft and mixed-use/residential >10,000 ft ²	Industrial, commercial, institutional, and residential ≥4 stories; low-rise near natural areas	Projects applying for bonus density under GBIP
Exemptions	None	None	Affordable housing, small buildings, operable windows, retail glazing	Affordable housing, historic resources; phased-in for "lower hazard" buildings	None for eligible types; does not apply to buildings <4 stories	Applies only if bonus density pursued
Height Coverage	Up to 75 ft above grade	Up to 60 ft above grade	Up to 75 ft above grade	Up to 75 ft above grade	Up to 16 m (~50 ft) or canopy height	Between 8–36 ft above grade
% of Façade or Glass Treated	90% of façade (first 75 ft); 100% for hazardous features	85% of glass depending on façade composition and location	100% of hazardous features; phased for low-glass buildings	100% of hazardous features; 85% for exterior glazing	85% of glazing; 100% of high-risk features	Non-compliant glass ≤10 ft ² per 100 ft ² façade
High-Risk Features Included	Yes: awnings, handrails, acoustic barriers, etc.	Yes: corners, sky bridges, glass railings	Yes: skywalks, glass railings, transparent walls	Yes: skywalks, railings, decorative glass, etc.	Yes: balconies, fly-throughs, rooftop zones	Only façades; ABC recommends including more features
ABC Threat Factor Threshold	TF ≤ 25; exceptions TF 27–36 for special zones	Dot size specified as ≥ ¼" or 5 mm; didn't see any actual TF	TF ≤ 30	TF ≤ 30, patterned glazing or external barrier	TF ≤ 30 (or patterns)	TF ≤ 15
Applies to Renovations	Yes – if glazing is significantly altered	Yes – for additions to qualifying buildings	Yes – major glass renovations	Yes – for glass replacements	Yes – as part of TGS review	Not required; ABC recommends inclusion
Compliance Oversight	Department of Buildings with expert consultation	Zoning office; staff trained	Planning review under development	Planning and Development Office; third party verification	TGS review team	Green Building Program staff; bond or fund ensures compliance
Lighting Ordinance	Yes: 'Lights Out' laws for migration periods	Yes: separate dark sky ordinance	No citywide law; some dark-sky streetlights in place	Limited lighting rules in zoning areas only	Yes: Dark Sky standards mandatory	Yes: 90% of fixtures regulated, motion/timer controls required
ABC Recommendation	Recommended, but could expand to 100 ft and include more retrofits	Recommended with improvements (lower threshold, remove 50 ft ² exemption)	Recommended with suggestions (include smaller buildings)	Recommended; suggest applying to smaller buildings	Recommended; suggests more height and coverage	Recommended as a model for incentive based regulation
Unique Elements	Most comprehensive; includes municipal buildings and homes	Successfully defended legal challenge from developers	Phased approach for lower-glass buildings	Phased compliance for different building types; ordinance impact review planned	Integrated in broader sustainable design policy (TGS)	Only incentive-based program endorsed by ABC; uses financial instruments for enforcement

Appendix B: Austin Energy Green Building Program Requirements

Austin Energy Green Building certifies projects on a 1-to-5-Star rating scale:

AEGB Rating	Star Level Requirement
1-Star	Basic Requirements
2-Star	Basic Requirements + 35 points from various measures
3-Star	Basic Requirements + 45 points from various measures
4-Star	Basic Requirements + 55 points from various measures
5-Star	Basic Requirements + 75 points from various measures

To receive any AEGB rating, projects must meet the ten basic requirements. Meeting these requirements leads to a 1-Star rating. To achieve higher AEGB ratings, measures in addition to the basic requirements must be achieved as shown in the table above. Measures are worth a specific number of points set by AEGB and are defined within each measure.

AEGB has measures available that focus on light pollution reduction and bird collision deterrence separately, however, to achieve the current version of the AEGB bird collision deterrence measure aspects of the light pollution reduction measure must be met. For full information see the 2025 AEGB Commercial Rating Guidebook.

Below are extracts of requirements from the AEGB Bird Collision Deterrence measure:

AEGB Criteria for Bird Collision Deterrence and Light Pollution Reduction

Bird Collision Deterrence, AEGB voluntary measure, worth 1 point:

For an applicant to meet the requirements of the bird collision deterrence measure, they must comply with one of the following options:

- Option 1. low threat factor materials – facade materials only with a TF of 15 or less (prescriptive);
- Option 2. have an overall facade developed to achieve a Bird Collision Threat Rating (BCTR) of 30 or less based on the AEGB bird collision deterrence calculator. The BCTR is a calculated number that utilizes the area of materials with various TF. Threat factors are defined by the American Bird Conservancy testing methods.

For both Options, the façade is evaluated up to 100 feet above grade or 12 feet above a green roof

AEGB Criteria for Light Pollution Reduction and Exterior Lighting

As mentioned above, to meet the requirements of the AEGB Bird Collision Deterrence measure, exterior lighting must be designed to meet Uplight requirements of the AEGB Light Pollution Reduction Measure. Lighting should be targeted in location and useful. Keeping lighting targeted helps to reduce bird collisions by not attracting or disorienting birds to areas of human activity at dusk and night- time. A summary of Uplight requirements are below:

Uplight (U factor) for exterior luminaries must not exceed:

- U1 in Lighting Zone 1.

- Lighting Zone 1 areas are classified as “low ambient lighting” with limited nighttime activity. Areas such as parks, greenbelts, and far East Austin could be classified in this zone.
- U2 in Lighting Zone 2.
 - Lighting Zone 2 areas are classified as “moderate ambient lighting” with mixed-use or residential zones. Areas such as Mueller, the Domain, and West Campus could be classified in this zone.
- U3 in Lighting Zone 3.
 - Lighting Zone 3 areas classified as “moderately high ambient lighting” with suburban or commercial corridors and town centers. Areas such as downtown Austin, the Austin airport, IH-35 corridor, and Rainey Street could be classified in this zone.

Uplight ratings (U1, U2, U3) are defined in the Illuminating Engineering Society North America (IESNA) Technical Memo TM-15-20 Annex A.

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Appendix C: Stakeholder Engagement Plan

Month/ Phase	Date	Stakeholder Group	Location	Description
April - Phase 1: Introduction + Presentation of Deliverables/Timeline	3/31/2025	BFD Working Group	Hybrid	First meeting with BFD working group to discuss list of deliverable
	4/22/2025	Madison, WI city representatives	Virtual	Benchmarking meeting: discuss current Bird-friendly design regulations and any lessons learned
	4/24/2025	Toronto, Canada Green Standard city representative	Virtual	Benchmarking meeting: discuss current Bird-friendly design regulations and any lessons learned
	4/24/2025	ORNILUX	Virtual	Meeting with bird protection glass supplier
	4/23/2025	FX Architects	Virtual	Discussion of NYC ordinance and lessons learned
	4/1/1948	Golden Gate Audubon	Virtual	Discussion of Berkley, CA's ordinance and lessons learned
	4/29/2025	American Bird Conservancy	Virtual	
May - Phase 1: Introduction + Presentation of Deliverables/Timeline	5/8/2025	Enclosure Design and consulting	Virtual	Discussion on current bird-friendly materials available
	5/8/2025	Maine Audubon	Virtual	Discussion on Portland, ME ordinance and any lessons learned
	6/3/2025	Environmental + Birding Community	Virtual	Educational meeting on deliverable and next steps - getting the word out
	5/29/2025	Real Estate & Development / Building Design & Architecture	Virtual	Educational meeting on deliverable and next steps - development concerns
	5/30/2025	Postponement memo Released	MMAC	See memo here.
June/July - Phase 2: Presentation of bird-friendly building techniques	6/23/2025	Design Commission	PDC	Presentation on bird friendly design
	6/26/2025	All Stakeholders Invited	Airport IT building	Tour of the Airport IT building from Garrett Jaynes
	7/1/2025	Travis and Texas Audubon	Virtual	Discussion on gathering bird-strike data
	7/10/2025	City of Austin Stakeholders	Airport IT building	Tour for city staff to foster collaboration and understanding
	7/15/2025	Texas Parks and Wildlife staff	Virtual	Discussion on gathering bird-strike data
August - Phase 3: Present report and draft recommendations	8/4/2025	AIA General Meeting (open to the public)	AIA Austin	Leslie Lilly presented staff's work for feedback; 37 attendees
	September	General Public	Virtual - Zoom	Final Recommendations and Next Steps
September/October - Phase 4: Boards and Commissions	9/17/2025	Environmental Commission	PDC	Present staff report, draft recommendations, and request feedback from commissioners. Commissioners may issue recommendations.
	9/22/2025	Design Commission	PDC	
	10/13/2025	Animal Advisory Committee	City Hall	
	10/15/2025	Downtown Commission	City Hall	
	10/22/2025	Joint Sustainability Committee	City Hall	
	10/28/2025	Planning Commission	City Hall	
November/December: Phase 5: Council and Council Committees	December	Memo released		Release memo with final staff report and recommendations in EDIMS
	January	CWEP	City Hall	Present to the Climate, Water, Environment, and Parks Council Committee

MAKING YOUR HOME BIRD-SAFE

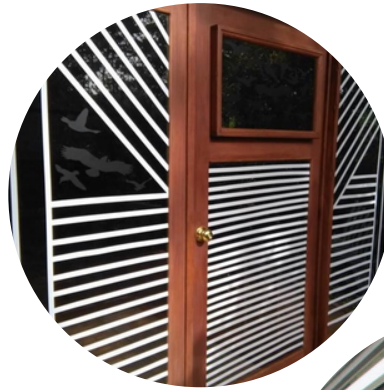
Appendix D: Bird Friendly Design for Residential

BIRD FRIENDLY GLASS

Birds cannot see **GLASS** and collide with buildings.

Make windows visible to birds with treatments, covers, or markings. Sticker decals (on the outside of the windows in a 2"x2" pattern), bug screens, or solar screens all prevent bird collisions!

Learn more at bit.ly/birdfriendlyglass



BIRD FRIENDLY LIGHTING

ARTIFICIAL LIGHT at night attracts birds and disorients their navigation.

Turn off or redirect unnecessary lighting at night, put exterior lights on motion detectors or timers and block interior light with window coverings. Exterior lights should be shielded and use warm-colored bulbs!

Learn more at bit.ly/birdfriendlylighting



Help us understand where bird collisions happen!

Notice a bird strike? Report it at dBird.org or scan the QR code.

