Bird Strike Mitigation

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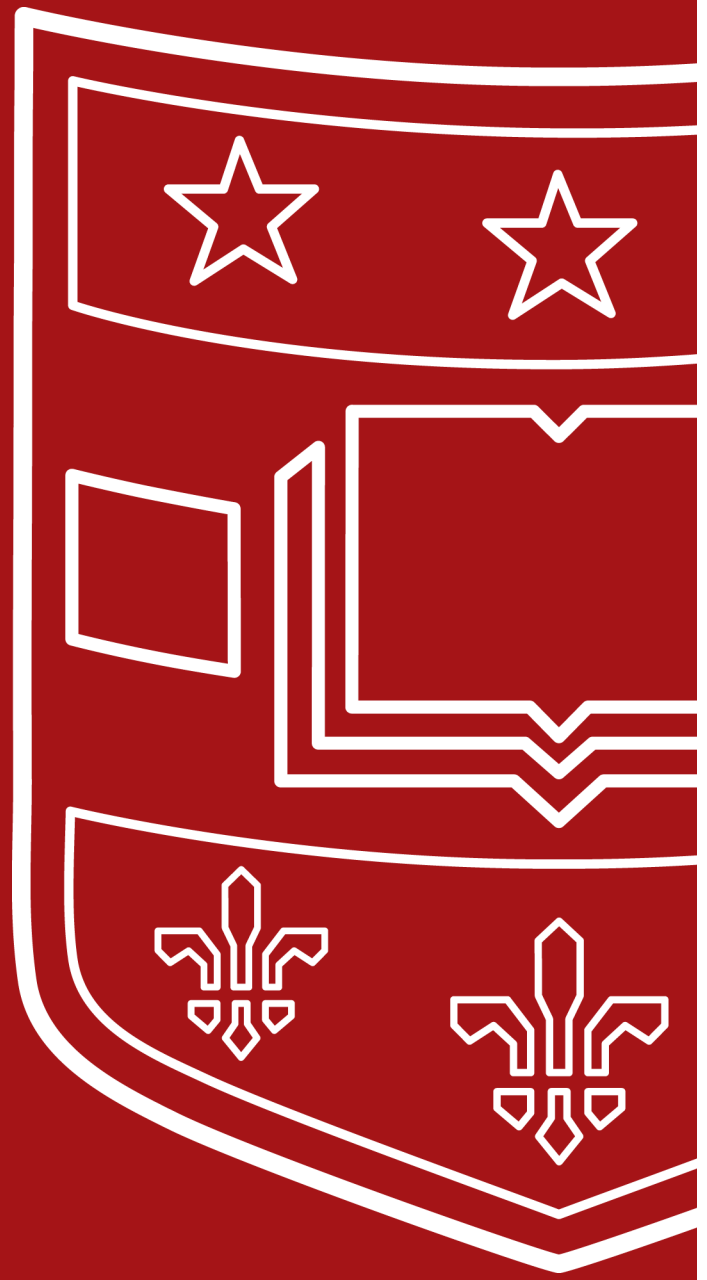


Washington University in St. Louis

Roadmap

Background

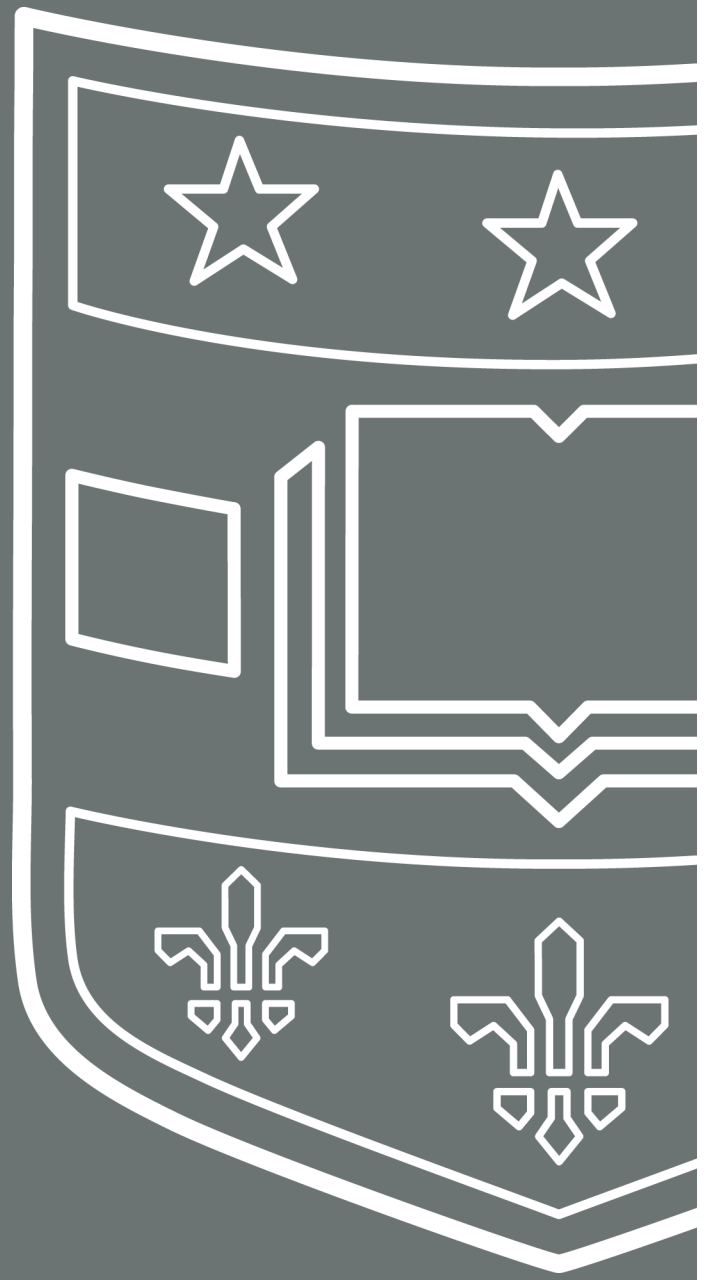
Why we care

State of campus

St. Louis Zoo

Summary of solutions

Next steps



Why Birds Strike

- Birds are unable to recognize windows
- Reflections further confuse birds
  - Windows that reflect plants can be especially dangerous
- Migratory season peaks in May and September

Why We Care

- Birds play an essential role in maintaining ecosystems
  - They spread seeds and pollen which maintains plant biodiversity
  - Control pest populations
- St. Louis is the 5th worst city for bird strikes (Cornell, 2019)
- Endangered birds use the Mississippi Flyway
  - Most of the bird strikes are from migration
  - 19 reported species are protected under Migratory Bird Treaty Act
- Preventing unnecessary deaths of birds on campus
  - Have recorded 79 strikes on campus with 31 species since Fall 2019

















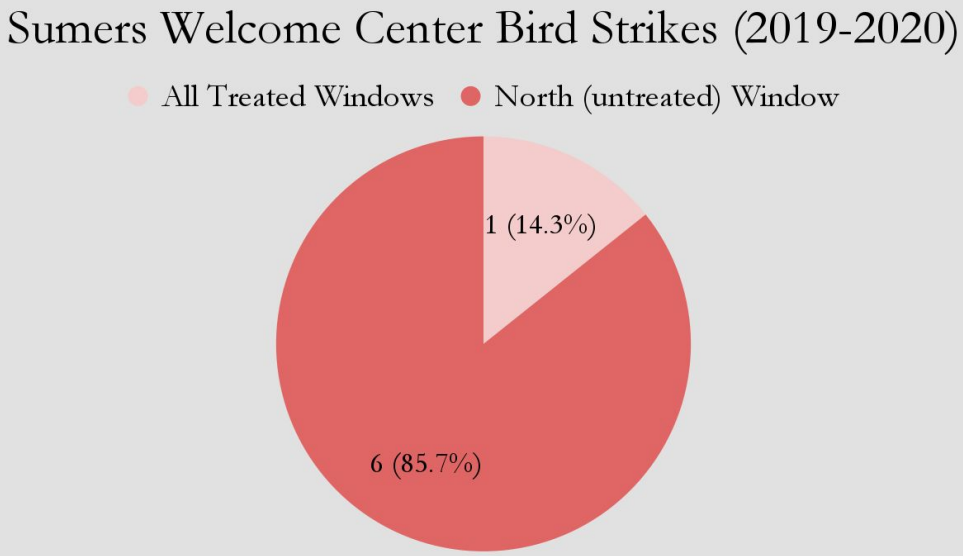
Where Birds Strike

- Newer, majority-glass developments
  - Hillman, Sumers, Kemper
- 79 strikes total (undercounted)
  - Will continue until something is done

- Exceptions
  - McDonnell


McDonnell Hall Archway

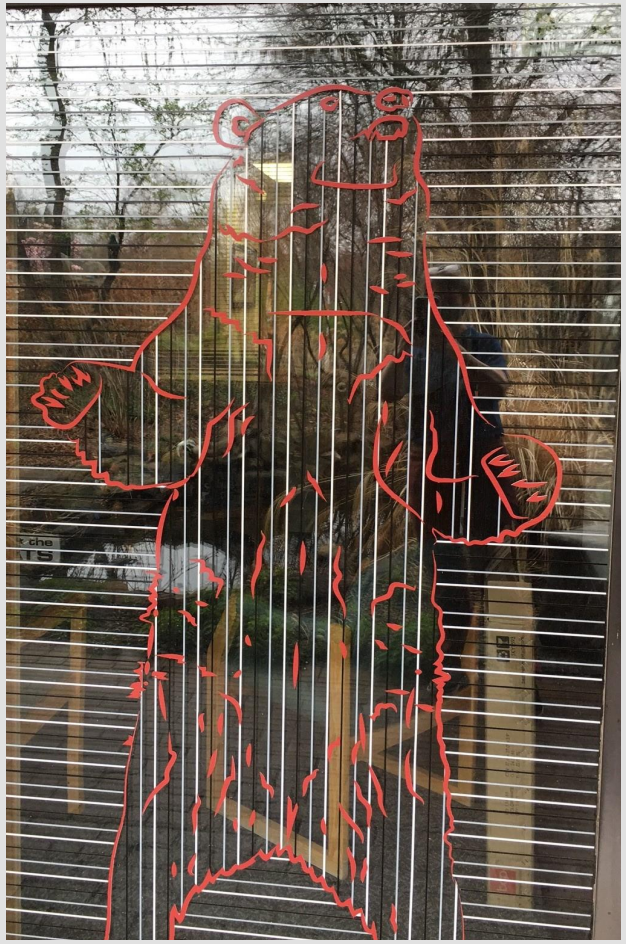
Effective Solutions on Campus

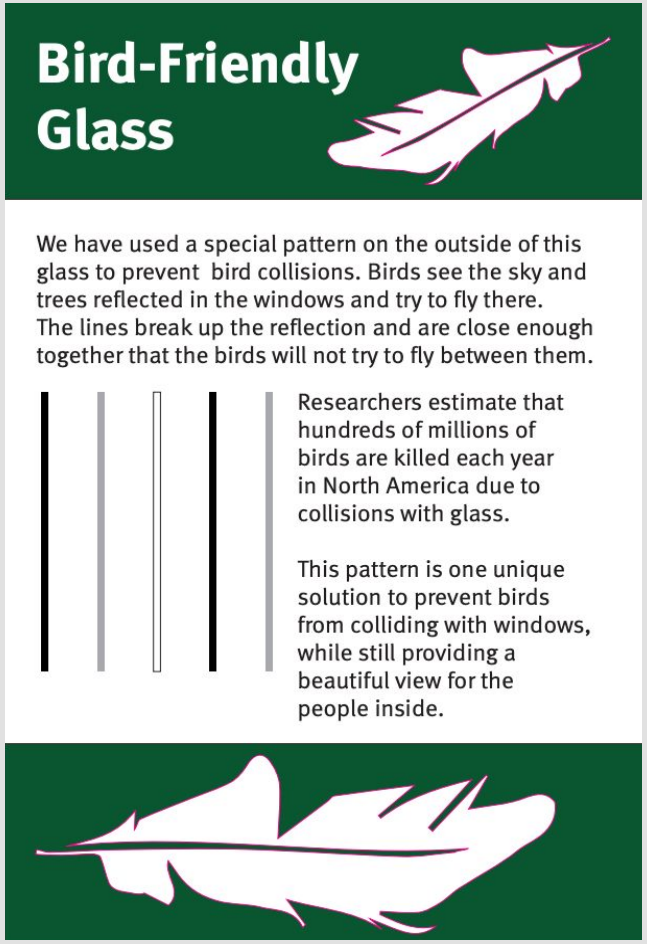


Fritted windows on Sumers Welcome Center and Schnuck Pavilion are highly effective

- Northern side of Sumers was left untreated for an unobstructed view of campus, resulting in 6 strikes from 2019-present

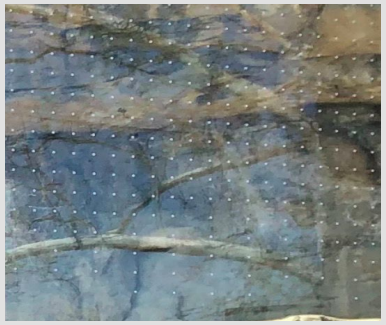
Effective Solutions at the St. Louis Zoo



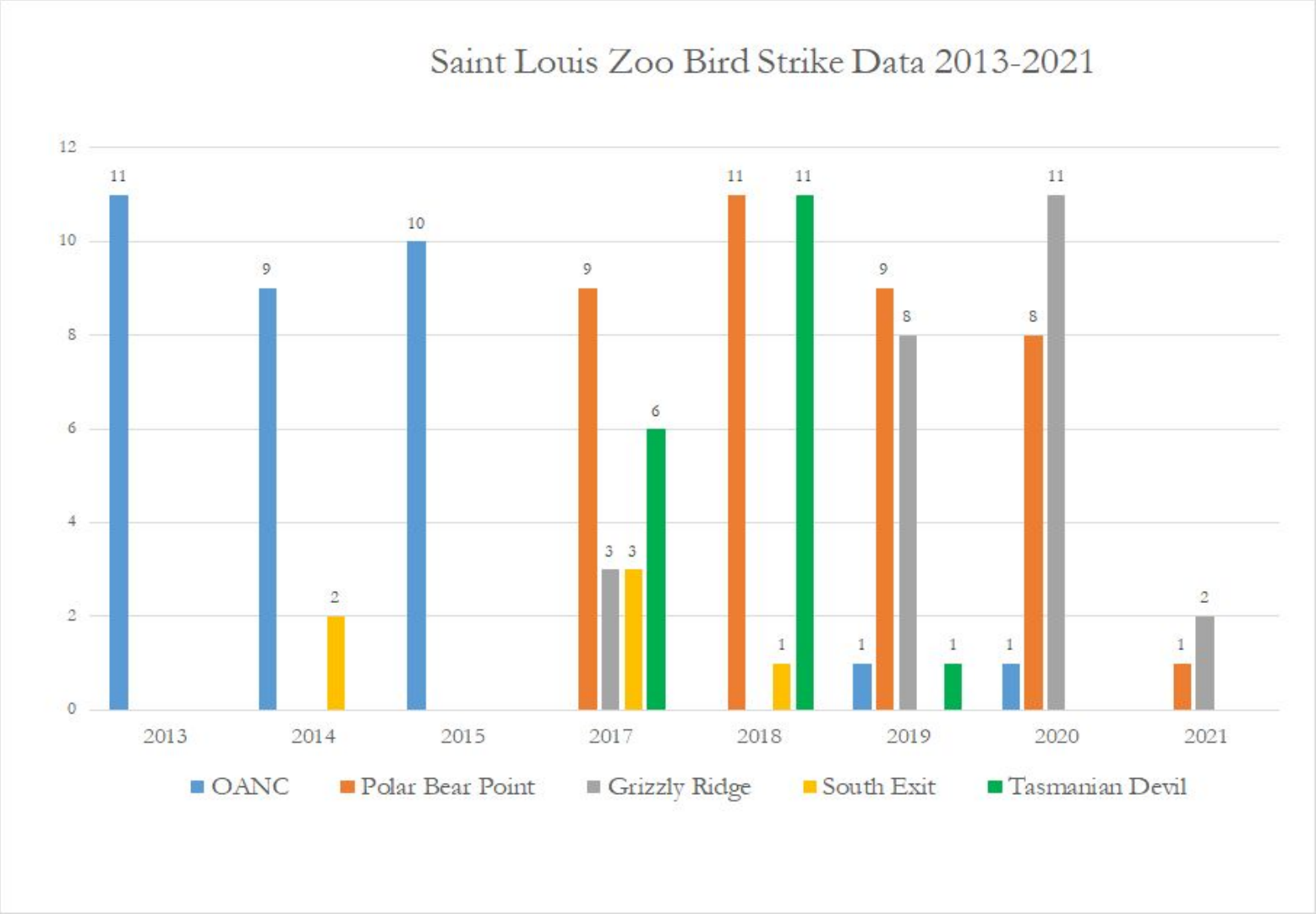


The St. Louis Zoo has been monitoring bird strikes since 2017. They have applied deterrents such as stripes, dots, and custom patterns.

These windows are accompanied by interpretive signs to explain the intention of the deterrent and to promote public awareness.



Effectiveness of Mitigation at the St. Louis Zoo



2016 OANC

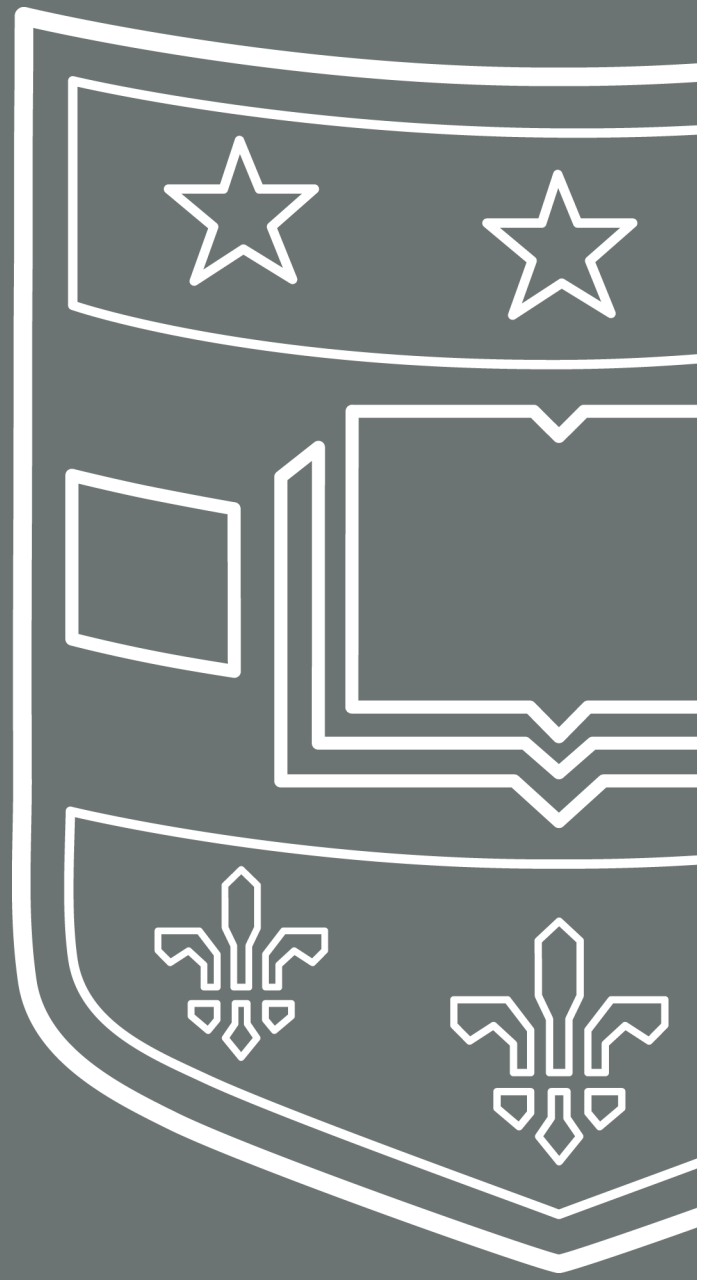
4/1/2021 Polar Bear Point, dots

4/1/2021 Grizzly Ridge, dots

9/1/2018 South Exit, dots

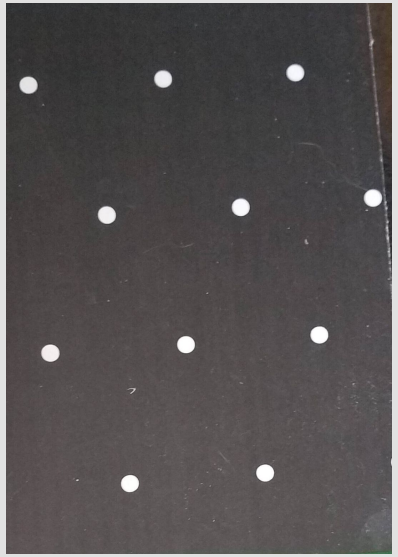
8/1/2018, Tasmanian Devil, dots

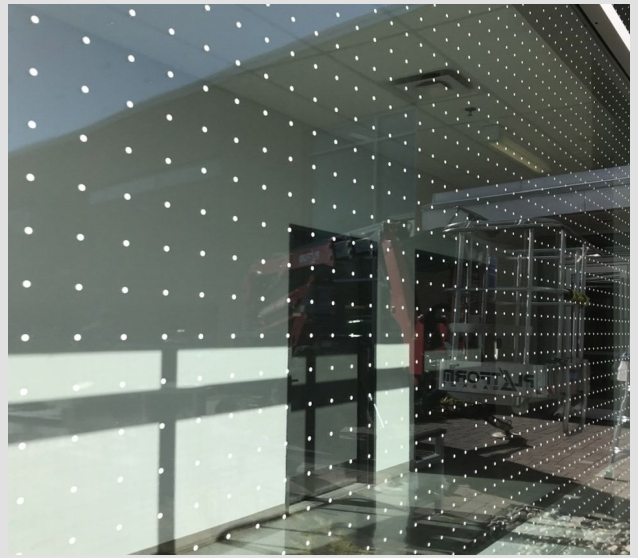
Summary of Solutions



Adhesive Dots

Effective, durable, LEED certified, and minimally hinder visibility





- LEED performance rated to be **98% effective** (earns LEED credit #55)
- Durable (proven @ STL Zoo)
- Minimal aesthetic effect (2x2 or 2x4)
- **est. $4.50 / square foot**

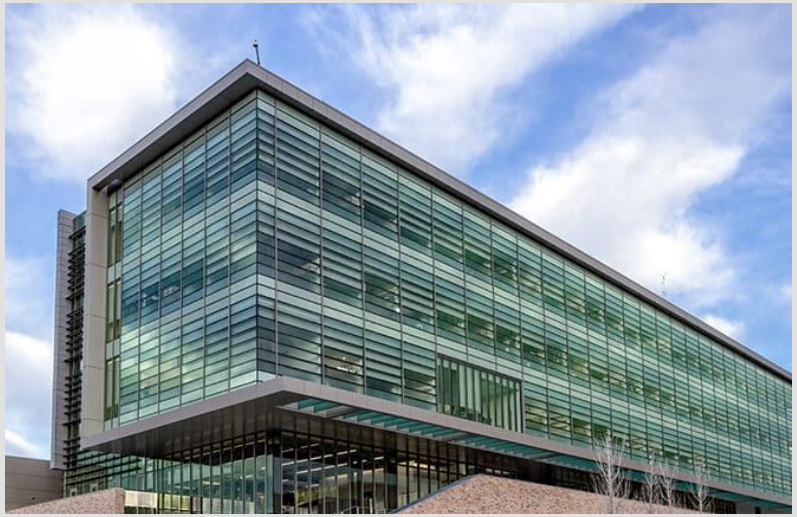
Adhesive Stripes

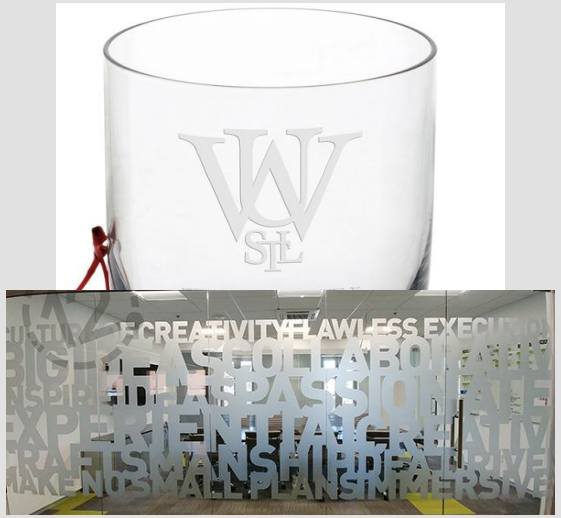
Also effective, just a different pattern

- STL Zoo - **90-100% effectiveness**
- Little to *no degradation* at low traffic areas after **10 years**
- **est. $6.36 / square foot**

Surface Abrasion/Etching

Effective, permanent, and matches existing fritting, but expensive





- Permanent treatment - *no durability concerns*
- Matches fritting (e.g., Sumers)
- Intricate and custom patterns, architectural
- **expensive; est. ~ $40-150 / sq. ft.**

Blinds

Installing/lowering blinds during high-risk hours could help,
but won't solve the problem

- High-Activity Hours: 10PM-6AM
- Data on lowering blinds on campus has been inconclusive - might help but not a solution

Compiled efficacies for known/tested solutions

Efficacy: High

Adhesive Dots or Stripes with **2" spacing**

Glass Fritting

Glass Etching

Efficacy: Low or Inconclusive

Lowering Blinds: Inconclusive

UV Glass: Low

Tested at STL Zoo, still observed consistent strikes following application

Estimated Cost of Mitigation by Building (excluding labor)

		Solutions – cost per sq foot	
	Est. sq ft	Dots (2x2) - $4.50	Stripes (1” or 2”) - $6.36
Hillman Hall	5650	$25,425.00	$35,934.00
Hillman (largest window)*	450	$2,025.00	$2,862.00
McDonnell Archway	220	$990.00	$1,399.20
Busch Hall	573	$2,578.50	$3,644.28
Sumers Welcome Center	2400	$10,800.00	$15,264.00
Knight Center	360	$1,620.00	$2,289.00

* Hillman has 10 windows at approximately 10x25 ft and 7 windows at approx. 45x10 ft.

Dots already installed at other universities

"A Bird-Friendlier Campus"

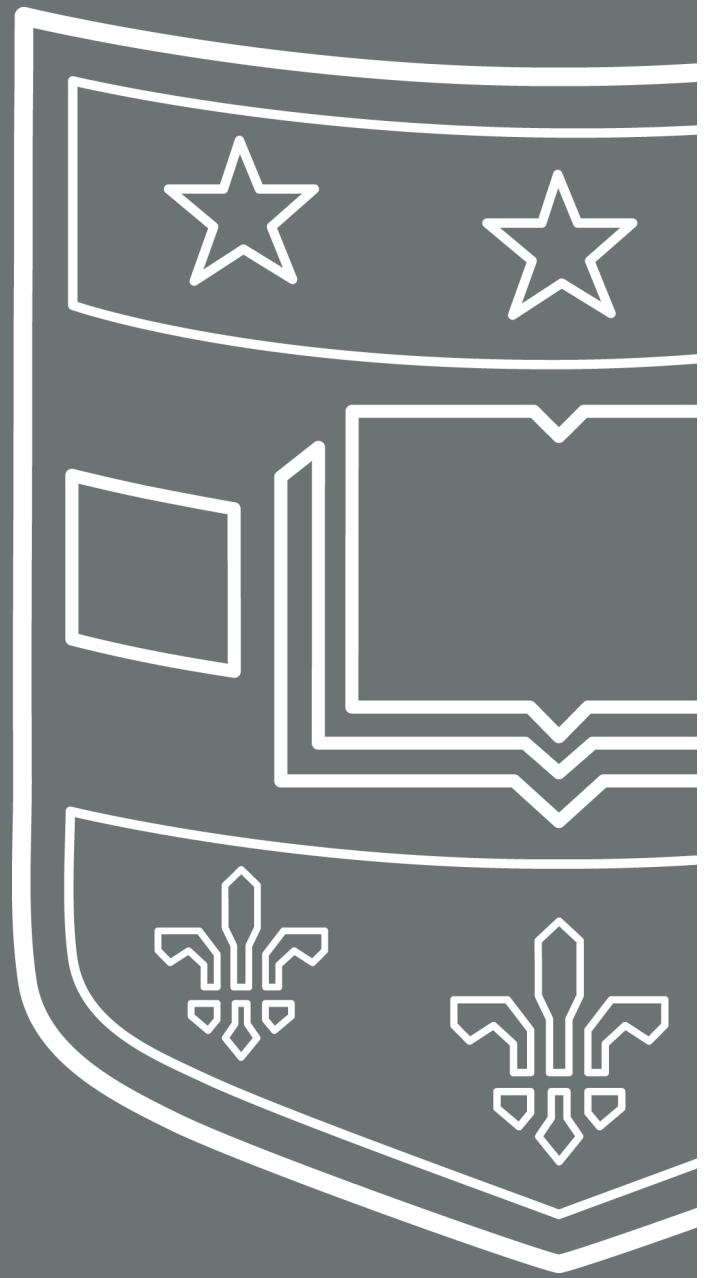
- Audubon of Pennsylvania

Penn

University of Pennsylvania

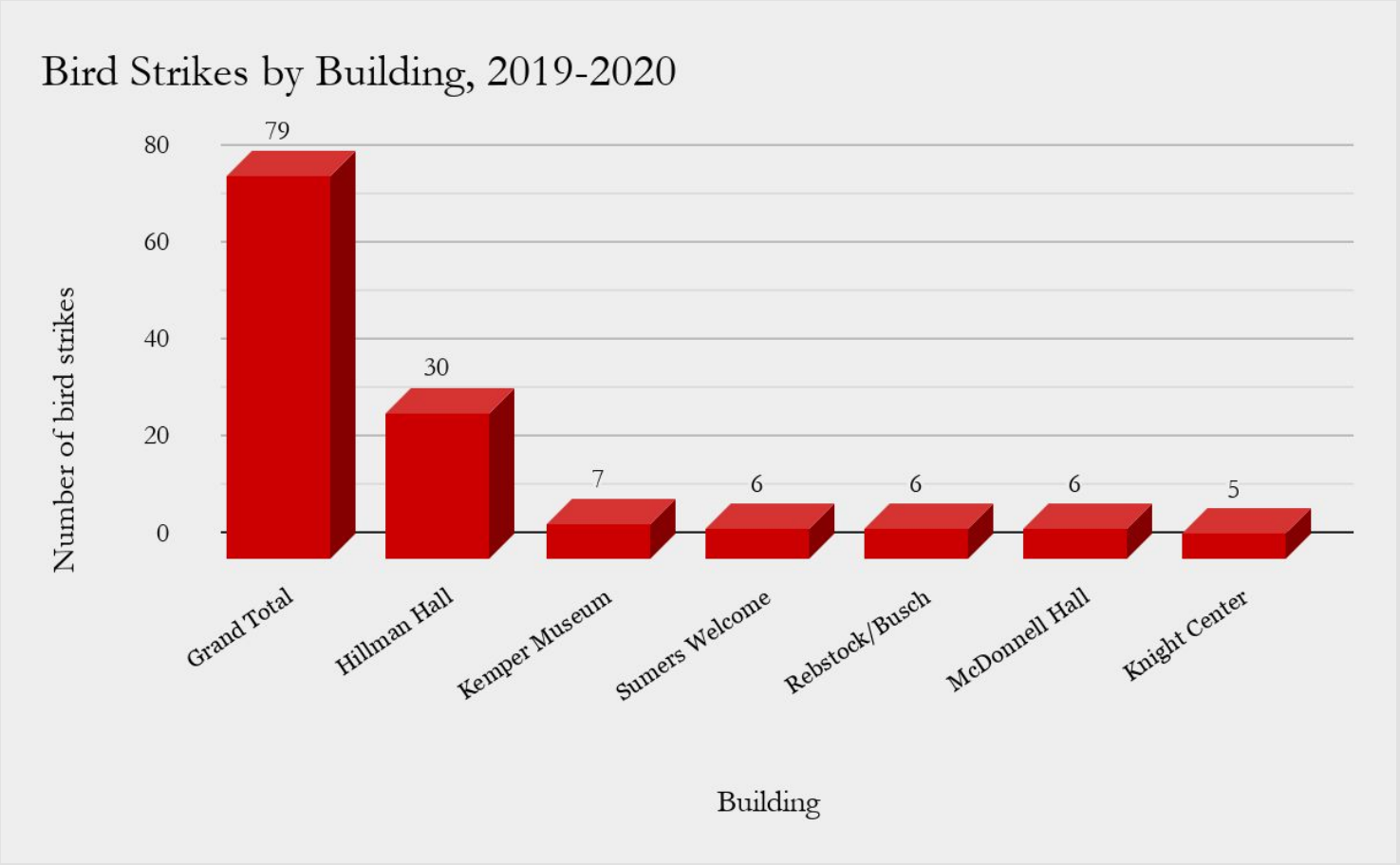
- Not intrusive on visibility
- Other universities starting to follow (e.g., Northwestern)

Next Steps



Mitigate Existing Issues

- **Hillman, Sumers, McDonnell, Knight Center, Busch Lab**
  - Dots, stripes, etching
- Lower blinds where possible during migration seasons
  - 10pm-6am
  - September and May
- Add interpretive signs



Update Building Design Standards

- Actions like those at the East End should be the standard - they're great!
- Tall, reflective buildings are a large threat to birds
  - Especially below 7-9 stories
- Resources available for specifics of Bird-Friendly Building Design, e.g., by American Bird Conservancy and NYC Audubon

Consequences of Ignoring Bird Strikes

- Negative PR following strikes
- Reputational risk
- Failure to proactively mitigate striking may result in higher costs

Wildlife group: New Chicago Apple store killing birds

Published October 26, 2017 | News | FOX 32 Chicago

SAM LUBELL DESIGN 03.10.2017 07:00 AM

Vikings Stadium: Reflector of Light, Murderer of Birds

The glassy stadium could be the deadliest building in the Twin Cities area.

By –
Alison Thoet

Leave a comment

Flocks of birds perish by crashing into new Minnesota Vikings stadium

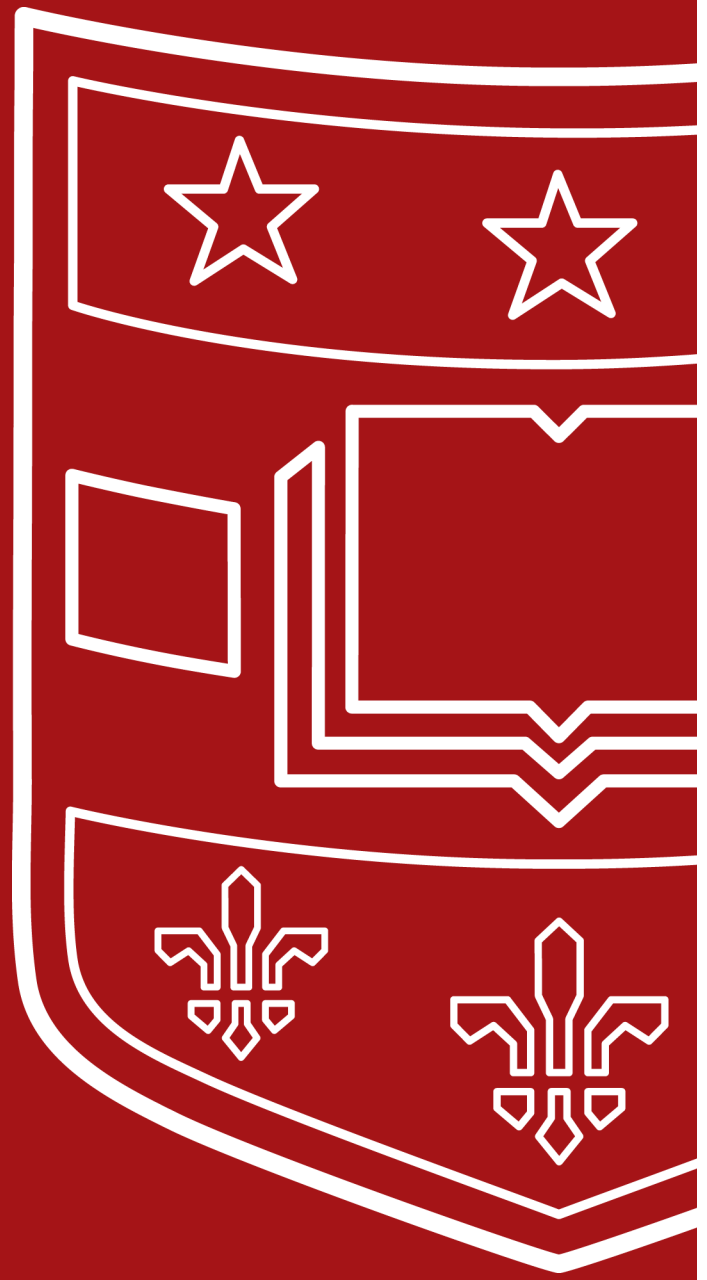
Opportunity

Washington University in St. Louis' goal is to foster human and environmental health through low impact, resilient landscapes that provide an array of ecosystem services.

— 2015 Strategic Plan for Sustainable Operations

- Position WashU as a leader in sustainability
- Act as a market mover
- Points toward LEED certification
- Make WashU a more biodiversity- and bird-friendly campus

Thank you for your time!



Washington University in St. Louis

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