



St. Louis Audubon
Society BirdSafeSTL
2024 Report



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BirdSafeSTL seeks to establish long-term community relationships that support bird-safe practices and reduce bird fatalities in the St. Louis region.



I. Introduction

Collisions with buildings pose a significant risk to migratory birds. It is estimated that up to one billion birds die from building collisions in the United States every year¹. With our central location in the Mississippi Flyway, St. Louis represents a dangerous area for birds as they migrate through each spring and fall. Due to this, it is important for us to understand the risks posed to birds in the region and work to reduce those risks.

In September 2020, volunteers with St. Louis Audubon Society began monitoring for bird collisions in downtown St. Louis during migration. Since that initial season, collision monitoring has been conducted during peak migration every spring and fall (except for fall 2022). The following report details the results from our 2024 monitoring. The information is reported by season, with each season broken down by survey site.

II. Survey Process

Before the start of each survey season, the survey site is assessed and buildings are selected for monitoring. A map is created for the season, showing which buildings to survey and which sides of the buildings can be surveyed. A survey schedule is also created with the dates we would like to survey. Surveys are conducted during peak migration in the spring and fall.

On survey days, the scheduled surveyors meet shortly after dawn to begin searching for collisions. When a collision is found, one of the surveyors records the collision to the site's iNaturalist project. One observation is recorded per bird.

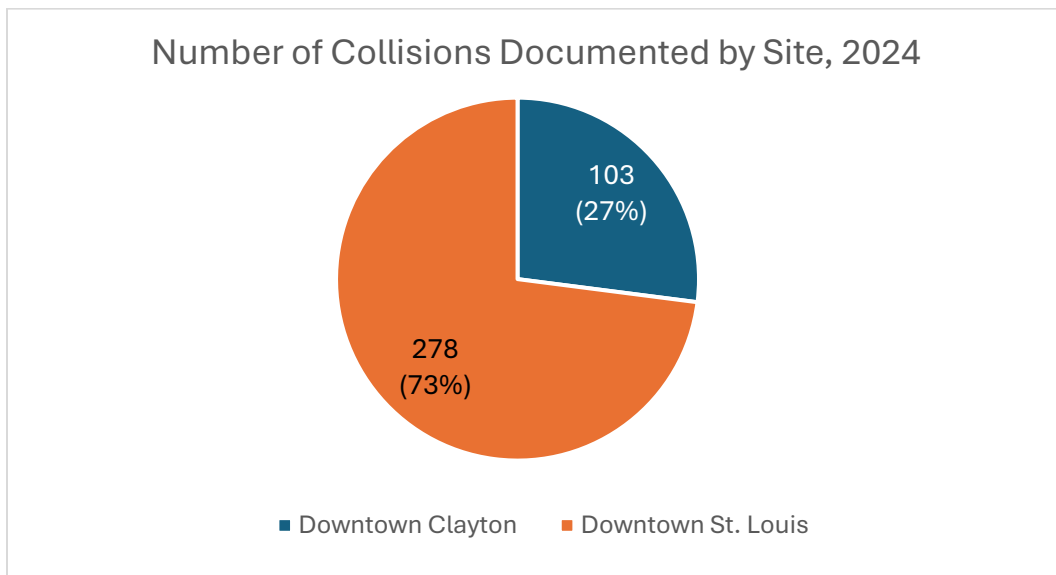
We collect data for each collision in iNaturalist. Some of the data fields include the name of the building the bird was located at, whether the find was 'incidental' (not located around one of the buildings we are specifically surveying), and whether the observation might be the result of predatory activity. In downtown St. Louis there are also some buildings with 'sections', so we can log where the collision was found with greater precision. iNaturalist also logs the observation time and GPS location.

In addition to the data fields, we also collect photos of the bird from multiple angles/sides (dorsal, ventral, side, and head) to assist with species identification. A context photo is also taken, so we can see how the bird was found. The survey concludes once all the selected buildings have been searched. If no collisions are found during the survey, the surveyors notify the project coordinator so it can be recorded.

The data in the iNaturalist projects is downloaded for review at the end of the season. Before the data is analyzed, all observations are reviewed and any that are found to be non-collision (predation, possible collision with vehicle, etc.) are removed.

III. 2024 Survey Results Overview

- A total of 102 surveys were conducted in 2024 with 381 collisions documented.
- 59 species were documented, including three species of conservation concern (Table 1).
- Approximately 73% of all documented collisions were in downtown St. Louis.



IV. Spring 2024

Survey period:

Downtown Clayton 4/14/24-5/29/24

Downtown St. Louis 5/8/24-5/29/24

33 surveys conducted; 90 collisions documented

At the start of our spring 2024 surveys, our intention was to only survey in downtown Clayton. We were interested to see what we might find, since downtown Clayton continues to grow and be developed.

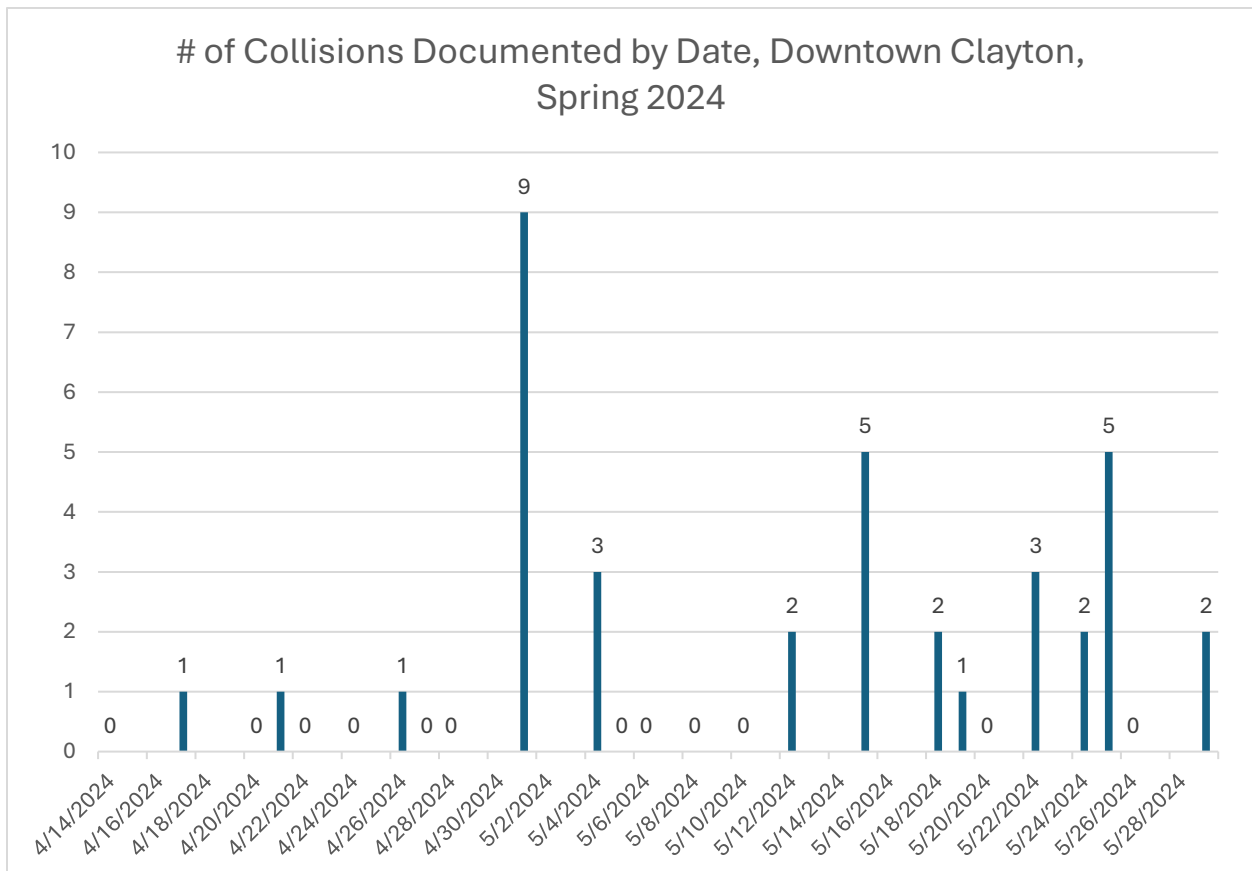
After we only found collisions on 3 of the first 9 surveys, the project coordinator decided to see if any volunteers would be willing to survey the old site in downtown St. Louis. Due to this, occasional surveys were conducted in downtown St. Louis during May 2024.

Notable observations:

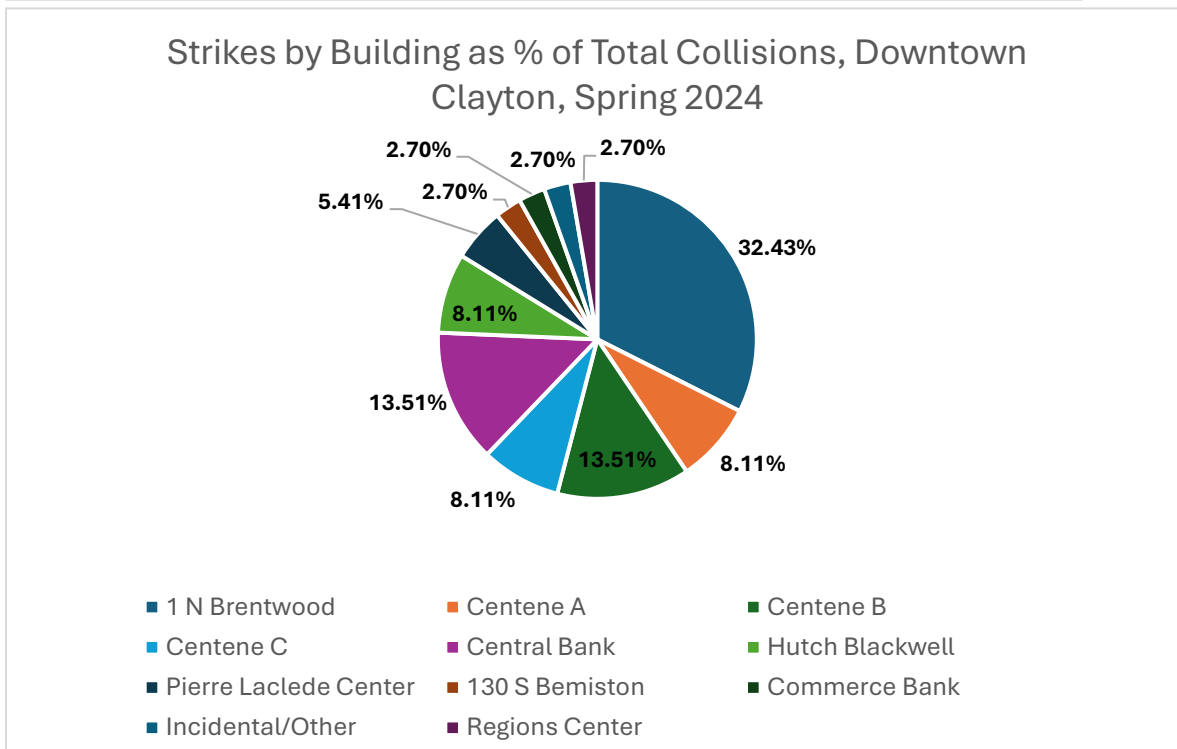
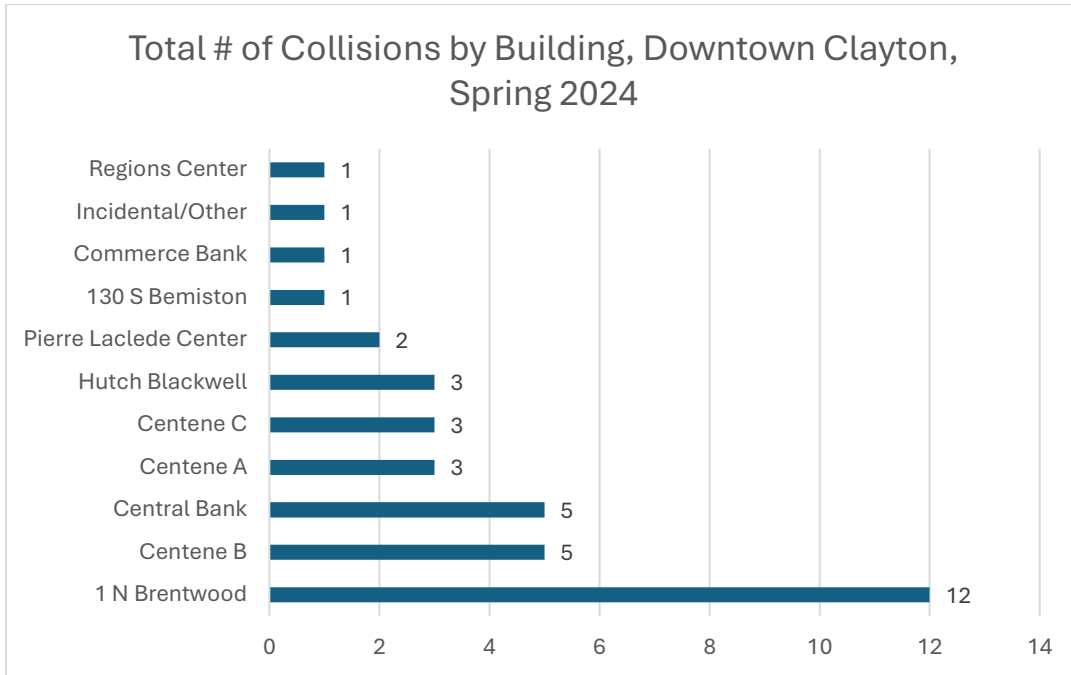
- There were more than 3 times as many surveys in downtown Clayton (25) vs. downtown St. Louis (8), but we documented roughly 43% more collisions in downtown St. Louis (53) than we did in downtown Clayton (37).

i. Downtown Clayton:

- 25 surveys conducted. Documented a total of 37 collisions, representing 17 species of bird.
 - 48% of surveys at site (12 of 25) documented no collisions.



- The deadliest building during the survey was 1 N. Brentwood, accounting for approximately 32% of all collisions documented (12 of 37).
- The Centene Campus (Centene Buildings A [3], B [5], and C [3]) accounted for approximately 30% of all collisions documented (11 of 37).

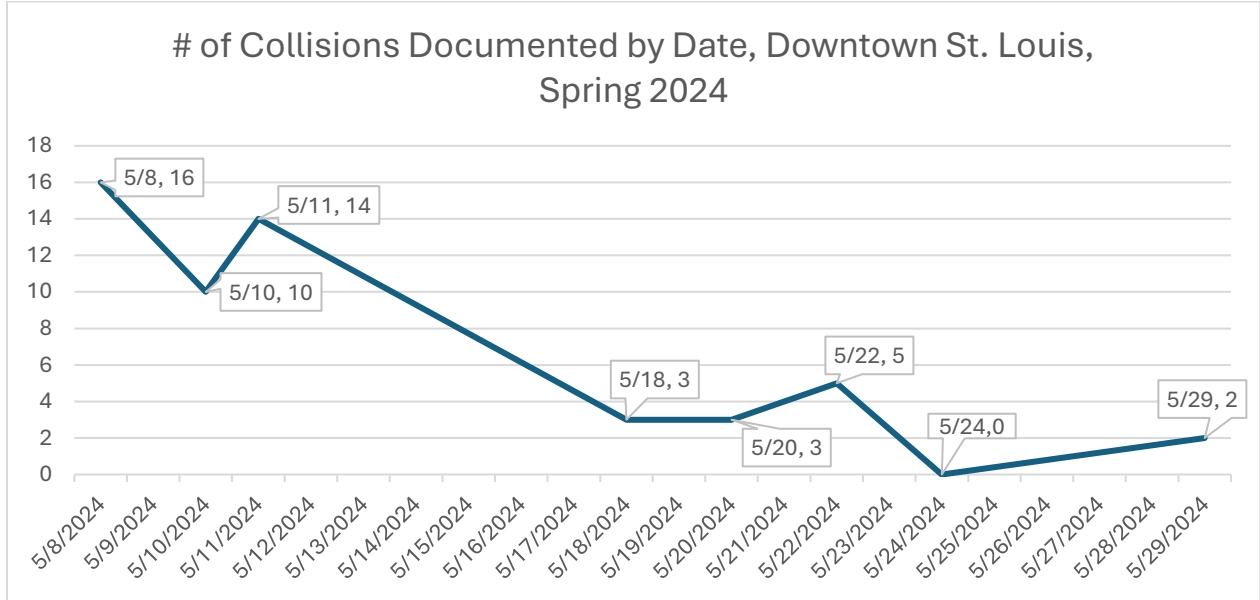


- The most documented species during the survey was the Indigo Bunting, *Passerina cyanea*, with 7 collisions.

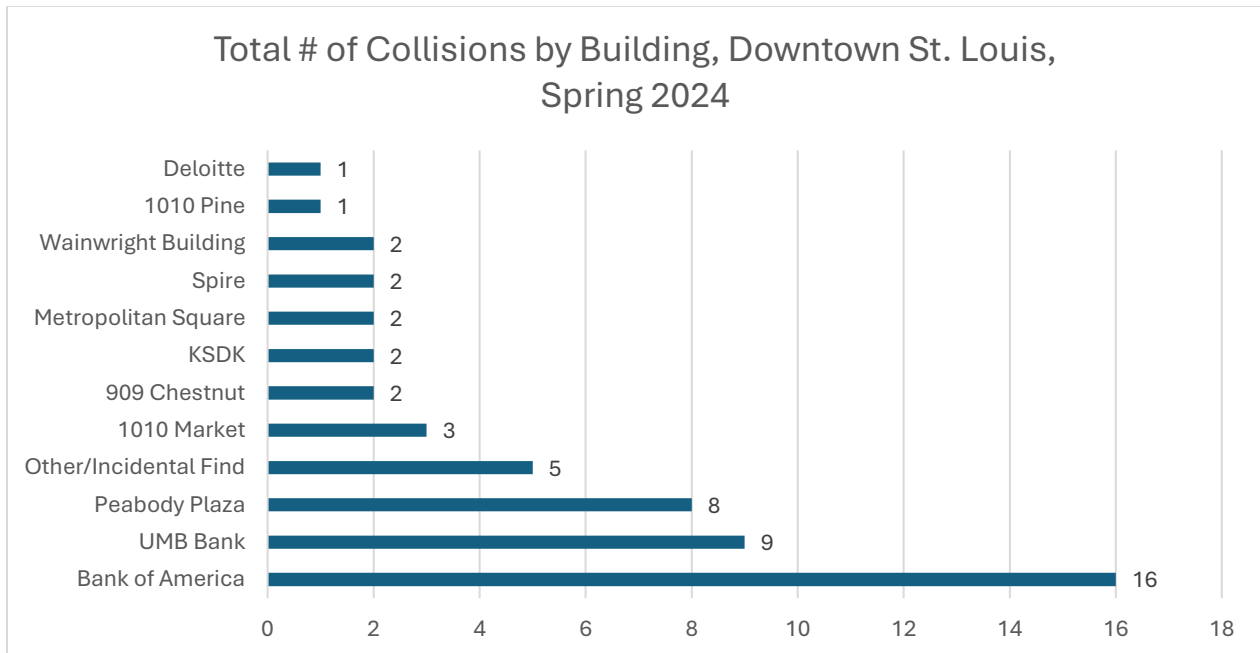
Scientific Name	Common Name	# of Collisions Documented, Downtown Clayton, Spring 2024
<i>Passerina cyanea</i>	Indigo Bunting	7
<i>Zenaida macroura</i>	Mourning Dove	3
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	3
<i>Sturnus vulgaris</i>	European Starling	2
<i>Haemorhous mexicanus</i>	House Finch	2
<i>Passer domesticus</i>	House Sparrow	2
<i>Leiothlypis peregrina</i>	Tennessee Warbler	2
<i>Icterus galbula</i>	Baltimore Oriole	1
<i>Catharus minimus</i>	Gray-cheeked Thrush	1
<i>Columba livia domestica</i>	Feral Pigeon	1
<i>Vermivora chrysoptera</i>	Golden-winged Warbler	1
<i>Dumetella carolinensis</i>	Gray Catbird	1
<i>Setophaga magnolia</i>	Magnolia Warbler	1
<i>Setophaga americana</i>	Northern Parula	1
<i>Vireo olivaceus</i>	Red-eyed Vireo	1
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	1
	Other**	7
Total:		37

ii. Downtown St. Louis:

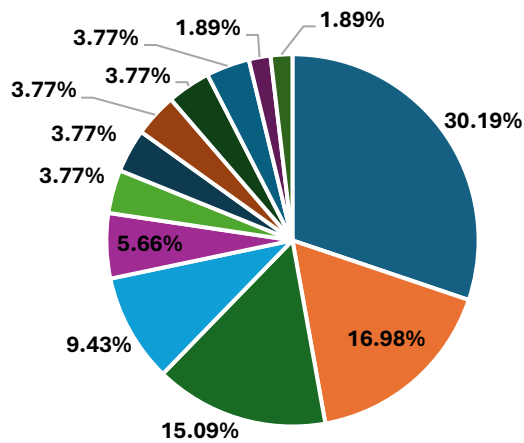
- 8 surveys conducted. Documented a total of 53 collisions, representing 22 species of bird.



-The deadliest building during the survey was Bank of America, accounting for approximately 30% of all collisions documented (16 out of 53).



Strikes by Building, as % of Total Collisions, Downtown St. Louis, Spring 2024



- Bank of America
- UMB Bank
- Peabody Plaza
- Other/Incidental Find
- 1010 Market
- 909 Chestnut
- KSDK
- Metropolitan Square
- Spire
- Wainwright Building
- 1010 Pine
- Deloitte

- The most documented species during the survey was the Tennessee Warbler, *Leiothlypis peregrina*, with 10 collisions.

Scientific Name	Common Name	# of Collisions Documented, Downtown St. Louis, Spring 2024
<i>Leiothlypis peregrina</i>	Tennessee Warbler	10
<i>Seiurus aurocapilla</i>	Ovenbird	8
<i>Geothlypis trichas</i>	Common Yellowthroat	4
<i>Mniotilta varia</i>	Black-and-white Warbler	2
<i>Haemorhous mexicanus</i>	House Finch	2
<i>Parkesia noveboracensis</i>	Northern Waterthrush	2
<i>Zonotrichia albicollis</i>	White-throated Sparrow	2
<i>Setophaga ruticilla</i>	American Redstart	1
<i>Scolopax minor</i>	American Woodcock	1
<i>Setophaga fusca</i>	Blackburnian Warbler	1
<i>Toxostoma rufum</i>	Brown Thrasher	1

Species List continued

<i>Cardellina canadensis</i>	Canada Warbler	1
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	1
<i>Sturnus vulgaris</i>	European Starling	1
<i>Dumetella carolinensis</i>	Gray Catbird	1
<i>Passer domesticus</i>	House Sparrow	1
<i>Passerina cyanea</i>	Indigo Bunting	1
<i>Geothlypis formosa</i>	Kentucky Warbler	1
<i>Setophaga magnolia</i>	Magnolia Warbler	1
<i>Catharus ustulatus</i>	Swainson's Thrush	1
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	1
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	1
	Other**	8

Total: 53

V. Fall 2024

Survey period: 9/1/24-10/29/24

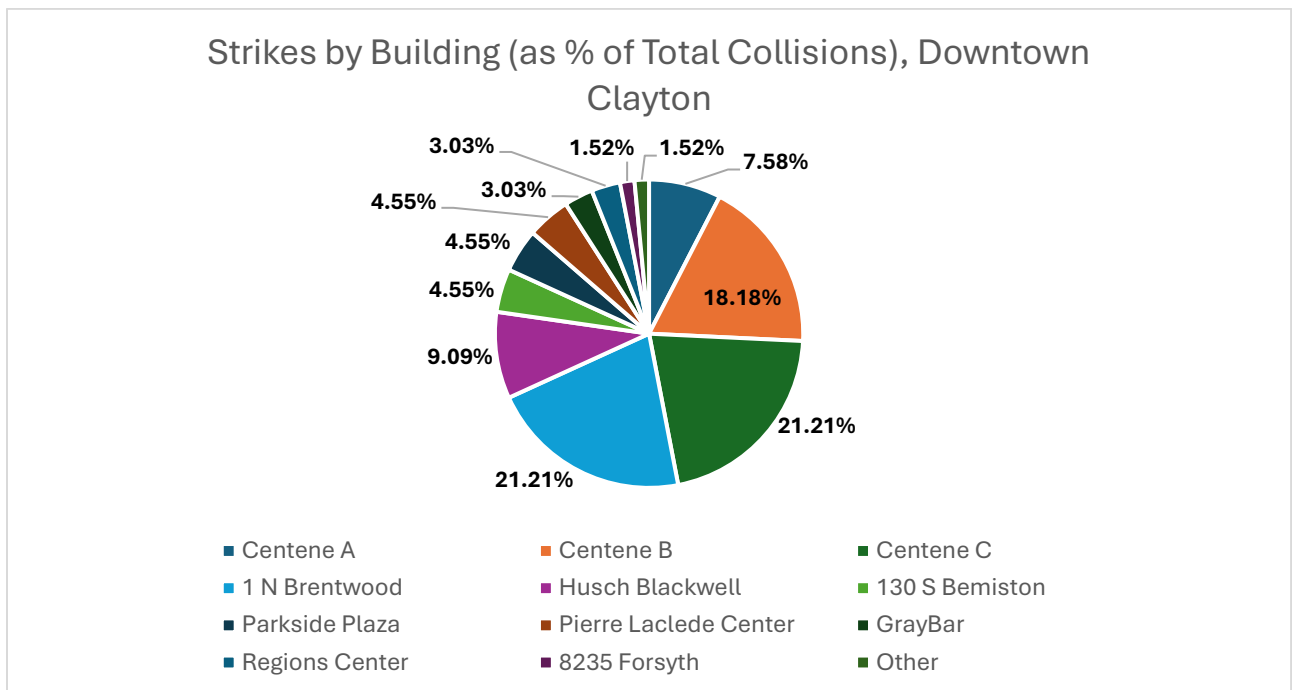
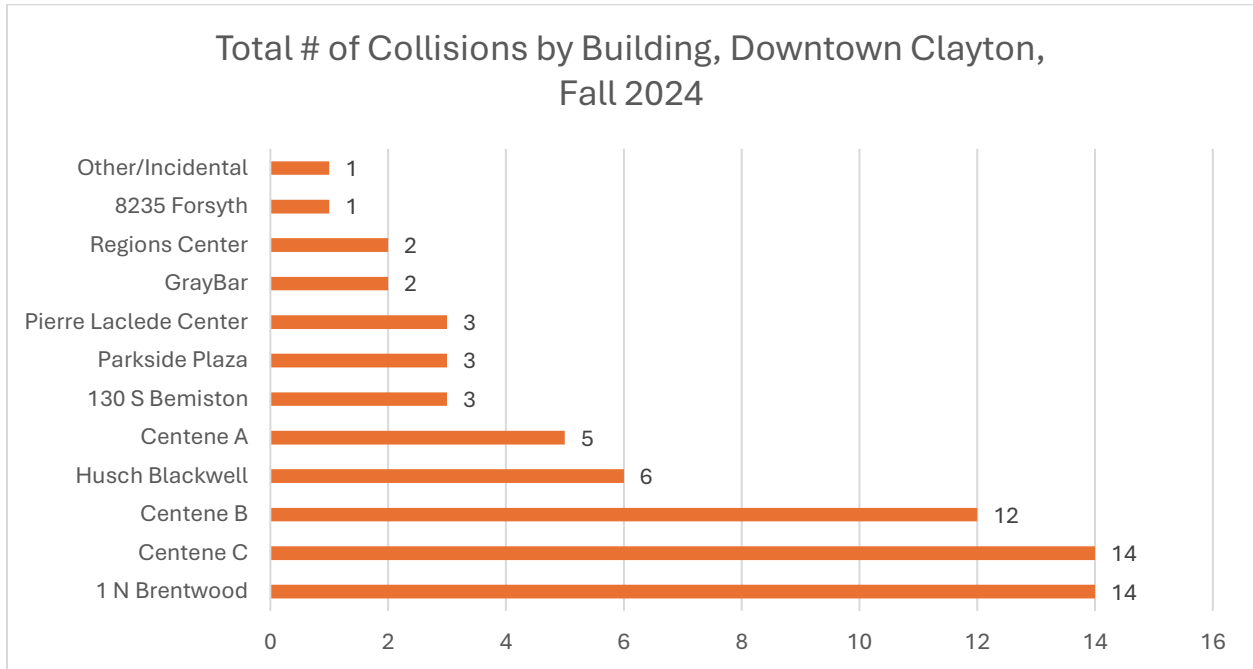
69 surveys conducted; 291 collisions documented

The decision was made to survey both downtown St. Louis and downtown Clayton in fall 2024. We wanted to complete at least one full year of surveys at the downtown Clayton site and resume full-time surveys at the downtown St. Louis site, after finding a relatively large number of collisions in the short survey period of spring 2024.

i. Downtown Clayton:

- 38 surveys conducted. Documented a total of 66 collisions (Chart 1), representing 27 species of bird.
 - Approximately 26% of surveys at site (10 of 38) documented no collisions.
- The deadliest building during the survey was a tie between 1 N. Brentwood and Centene Building C, with 14 collisions each. Each building accounts for approximately 21% of all collisions documented (14 of 66).

- The Centene Campus (Centene Buildings A [5], B [12], and C [14]) accounted for approximately 47% of all collisions documented (31 of 66).



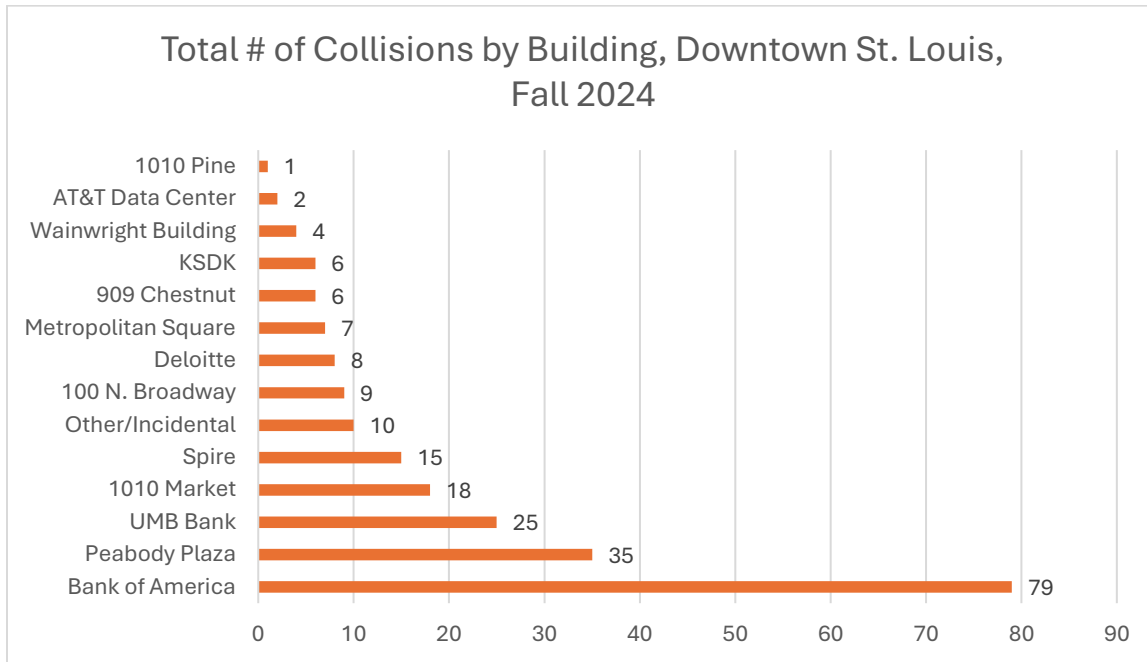
- The most documented species during the survey was the Ruby-throated Hummingbird, *Archilochus colubris*, with 13 collisions.

Scientific Name	Common Name	# of Collisions Documented, Downtown Clayton, Fall 2024
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	13
<i>Leiothlypis peregrina</i>	Tennessee Warbler	9
<i>Seiurus aurocapilla</i>	Ovenbird	6
<i>Mniotilta varia</i>	Black-and-white Warbler	3
<i>Geothlypis trichas</i>	Common Yellowthroat	2
<i>Passer domesticus</i>	House Sparrow	2
<i>Setophaga magnolia</i>	Magnolia Warbler	2
<i>Zenaida macroura</i>	Mourning Dove	2
<i>Zonotrichia albicollis</i>	White-throated Sparrow	2
<i>Fulica americana</i>	American Coot	1
<i>Setophaga castanea</i>	Bay-breasted Warbler	1
<i>Setophaga fusca</i>	Blackburnian Warbler	1
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	1
<i>Dryobates pubescens</i>	Downy Woodpecker	1
<i>Sturnus vulgaris</i>	European Starling	1
<i>Columba livia domestica</i>	Feral Pigeon	1
<i>Dumetella carolinensis</i>	Gray Catbird	1
<i>Catharus guttatus</i>	Hermit Thrush	1
<i>Haemorhous mexicanus</i>	House Finch	1
<i>Parkesia noveboracensis</i>	Northern Waterthrush	1
<i>Vireo philadelphicus</i>	Philadelphia Vireo	1
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	1
<i>Sitta canadensis</i>	Red-breasted Nuthatch	1
<i>Vireo olivaceus</i>	Red-eyed Vireo	1
<i>Melospiza georgiana</i>	Swamp Sparrow	1
<i>Baeolophus bicolor</i>	Tufted Titmouse	1
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	1
	Other**	7

Total: 66

ii. Downtown St. Louis:

- 31 surveys conducted. Documented a total of 225 collisions (Chart 2), representing 42 species of bird.
- At least one collision was documented on every survey.
- The deadliest building during the survey was Bank of America, accounting for approximately 35% of all collisions documented (Chart 3).



- The most documented species during the survey was the White-throated Sparrow, *Zonotrichia albicollis*, with 32 collisions.

Scientific Name	Common Name	# of Collisions Documented, Downtown St. Louis, Fall 2024
<i>Zonotrichia albicollis</i>	White-throated Sparrow	32
<i>Seiurus aurocapilla</i>	Ovenbird	22
<i>Geothlypis trichas</i>	Common Yellowthroat	19
<i>Leiothlypis peregrina</i>	Tennessee Warbler	19
<i>Parkesia noveboracensis</i>	Northern Waterthrush	14
<i>Mniotilta varia</i>	Black-and-white Warbler	12
<i>Melospiza georgiana</i>	Swamp Sparrow	11

<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	9
<i>Certhia americana</i>	Brown Creeper	7
<i>Setophaga ruticilla</i>	American Redstart	6
<i>Setophaga castanea</i>	Bay-breasted Warbler	5
<i>Setophaga magnolia</i>	Magnolia Warbler	5
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	5
<i>Troglodytes aedon</i>	Northern House Wren	4
<i>Melospiza melodia</i>	Song Sparrow	4
<i>Setophaga virens</i>	Black-throated Green Warbler	3
<i>Leiothlypis ruficapilla</i>	Nashville Warbler	3
<i>Geothlypis philadelphia</i>	Mourning Warbler	2
<i>Piranga olivacea</i>	Scarlet Tanager	2
<i>Icteria virens</i>	Yellow-breasted Chat	2
<i>Empidonax virescens</i>	Acadian Flycatcher	1
<i>Setophaga fusca</i>	Blackburnian Warbler	1
<i>Toxostoma rufum</i>	Brown Thrasher	1
<i>Junco hyemalis</i>	Dark-eyed Junco	1
<i>Dryobates pubescens</i>	Downy Woodpecker	1
<i>Columba livia domestica</i>	Feral Pigeon	1
<i>Dumetella carolinensis</i>	Gray Catbird	1
<i>Haemorhous mexicanus</i>	House Finch	1
<i>Geothlypis formosa</i>	Kentucky Warbler	1
<i>Empidonax minimus</i>	Least Flycatcher	1
<i>Melospiza lincolnii</i>	Lincoln's Sparrow	1
<i>Zenaida macroura</i>	Mourning Dove	1
<i>Colaptes auratus</i>	Northern Flicker	1
<i>Setophaga americana</i>	Northern Parula	1
<i>Setophaga palmarum</i>	Palm Warbler	1
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	1
<i>Rallus limicola</i>	Virginia Rail	1
<i>Sitta carolinensis</i>	White-breasted Nuthatch	1
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	1
<i>Cardellina pusilla</i>	Wilson's Warbler	1
<i>Troglodytes hiemalis</i>	Winter Wren	1
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	1
	Other**	17

Total:

225

VI. Summary

We are encountering a substantially larger number of collisions in downtown St. Louis vs. downtown Clayton. Further analysis is needed to determine the reason for this, but some possible causes could be downtown St. Louis's proximity to the Mississippi River or higher levels of light pollution.

While we documented many collisions in 2024, our results are likely an underrepresentation of the true number of collisions that occur. Reasons for this include:

- We are only surveying a limited area/number of buildings.
- Building design prevents us from counting all collisions. For example, the tower of the 'Hilton St. Louis at the Ballpark' in downtown St. Louis is surrounded by a two-story building at the ground level. Most collisions with the tower would likely fall on the roof of the surrounding building.
- Some buildings have cordoned off areas that we can't access, such as the east side of the Spire Building in downtown St. Louis.
- We receive anecdotal information from groundskeeping/building staff about collisions that have already been removed and collisions we cannot see from the street.

VII. Acknowledgments

2024 was a year of growth for the BirdSafeSTL program. For the first time, we expanded outside of historic survey area in downtown St. Louis and began surveys in downtown Clayton. This was also the first time that the program conducted more than 100 surveys in a year. With our increased monitoring efforts, the scale of the issue is coming into greater focus.

I would also like to take this opportunity to thank our amazing group of BirdSafeSTL volunteers. Their hard work and dedication allowed us to collect a large amount of data this year and I am very grateful. Thank you for everything you do to make St. Louis a safer place for birds!

Table 1: Complete Species List, 2024 Collision Surveys

Scientific Name	Common Name	# of Collisions Documented, 2024
<i>Leiothlypis peregrina</i>	Tennessee Warbler	40
<i>Seiurus aurocapilla</i>	Ovenbird	36
<i>Zonotrichia albicollis</i>	White-throated Sparrow	36
<i>Geothlypis trichas</i>	Common Yellowthroat	25
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	18
<i>Mniotilta varia</i>	Black-and-white Warbler	17
<i>Parkesia noveboracensis</i>	Northern Waterthrush	17
<i>Melospiza georgiana</i>	Swamp Sparrow	12
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	11
<i>Setophaga magnolia</i>	Magnolia Warbler	9
<i>Passerina cyanea</i>	Indigo Bunting	8
<i>Setophaga ruticilla</i>	American Redstart	7
<i>Certhia americana</i>	Brown Creeper	7
<i>Setophaga castanea</i>	Bay-breasted Warbler	6
<i>Haemorhous mexicanus</i>	House Finch	6
<i>Zenaidura macroura</i>	Mourning Dove	6
<i>Passer domesticus</i>	House Sparrow	5
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	5
<i>Sturnus vulgaris</i>	European Starling	4
<i>Dumetella carolinensis</i>	Gray Catbird	4
<i>Troglodytes aedon</i>	Northern House Wren	4
<i>Melospiza melodia</i>	Song Sparrow	4
<i>Setophaga fusca</i>	Blackburnian Warbler	3
<i>Setophaga virens</i>	Black-throated Green Warbler	3
<i>Columba livia domestica</i>	Feral Pigeon	3
<i>Leiothlypis ruficapilla</i>	Nashville Warbler	3
<i>Toxostoma rufum</i>	Brown Thrasher	2
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	2
<i>Dryobates pubescens</i>	Downy Woodpecker	2
<i>Geothlypis formosa</i> *	Kentucky Warbler*	2
<i>Geothlypis philadelphia</i>	Mourning Warbler	2
<i>Setophaga americana</i>	Northern Parula	2
<i>Vireo olivaceus</i>	Red-eyed Vireo	2
<i>Piranga olivacea</i>	Scarlet Tanager	2
<i>Icteria virens</i>	Yellow-breasted Chat	2
<i>Empidonax virescens</i>	Acadian Flycatcher	1
<i>Fulica americana</i>	American Coot	1
<i>Scolopax minor</i>	American Woodcock	1

<i>Icterus galbula</i>	Baltimore Oriole	1
<i>Cardellina canadensis</i> *	Canada Warbler*	1
<i>Junco hyemalis</i>	Dark-eyed Junco	1
<i>Vermivora chrysoptera</i> *	Golden-winged Warbler*	1
<i>Catharus minimus</i>	Gray-cheeked Thrush	1
<i>Catharus guttatus</i>	Hermit Thrush	1
<i>Empidonax minimus</i>	Least Flycatcher	1
<i>Melospiza lincolnii</i>	Lincoln's Sparrow	1
<i>Colaptes auratus</i>	Northern Flicker	1
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<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	1
<i>Catharus ustulatus</i>	Swainson's Thrush	1
<i>Baeolophus bicolor</i>	Tufted Titmouse	1
<i>Rallus limicola</i>	Virginia Rail	1
<i>Sitta carolinensis</i>	White-breasted Nuthatch	1
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	1
<i>Cardellina pusilla</i>	Wilson's Warbler	1
<i>Troglodytes hiemalis</i>	Winter Wren	1
	Other**	40

Total: 381

*Birds of Conservation Concern in the Continental USA, per USFWS report 'Birds of Conservation Concern 2021' (<https://www.fws.gov/sites/default/files/documents/birds-of-conservation-concern-2021.pdf>).

**Birds included in 'Other' were unidentifiable at the species level for some reason (flattened by car, decomposition, etc).

Chart 1: # of Collisions Documented by Date, Downtown Clayton, Fall 2024

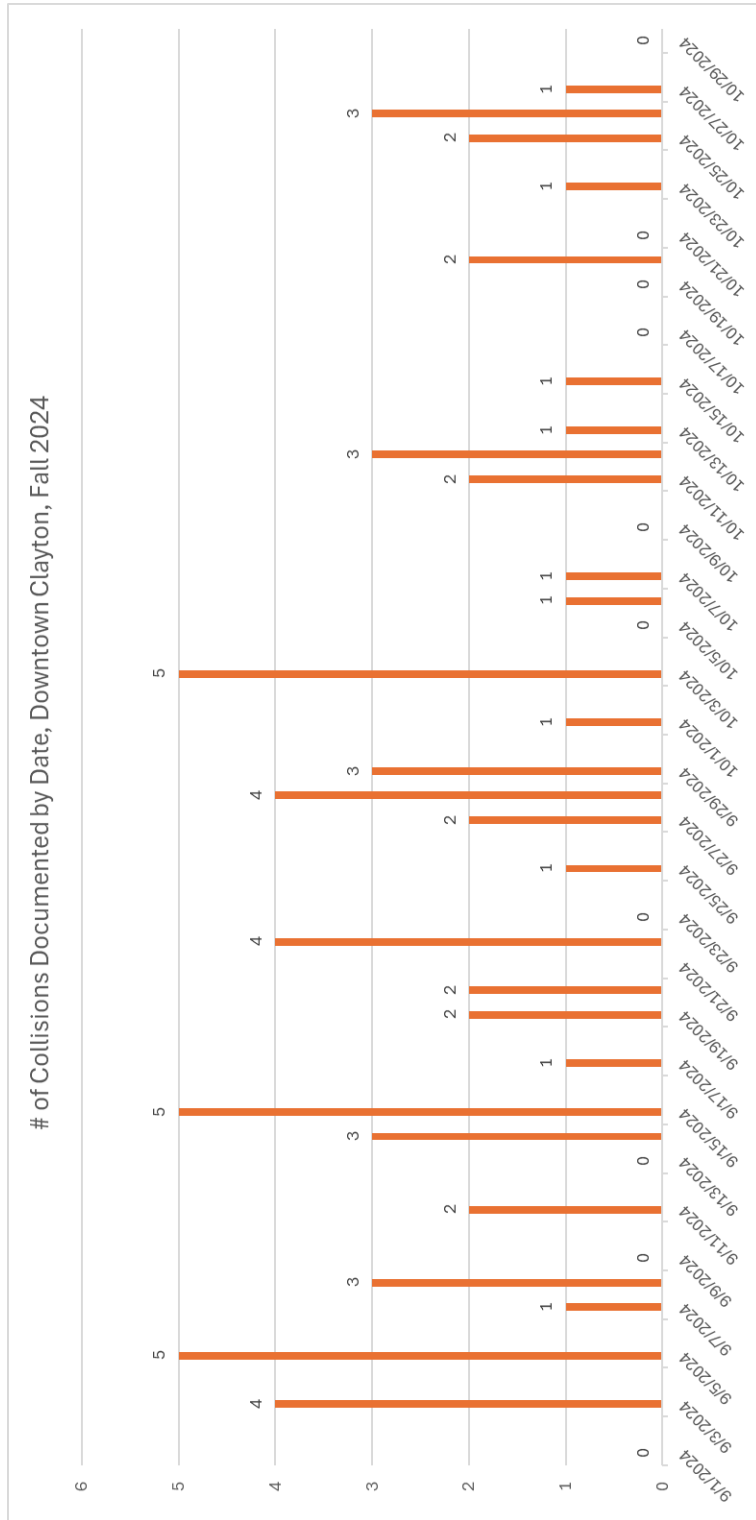


Chart 2: # of Collisions Documented by Date, Downtown St. Louis, Fall 2024

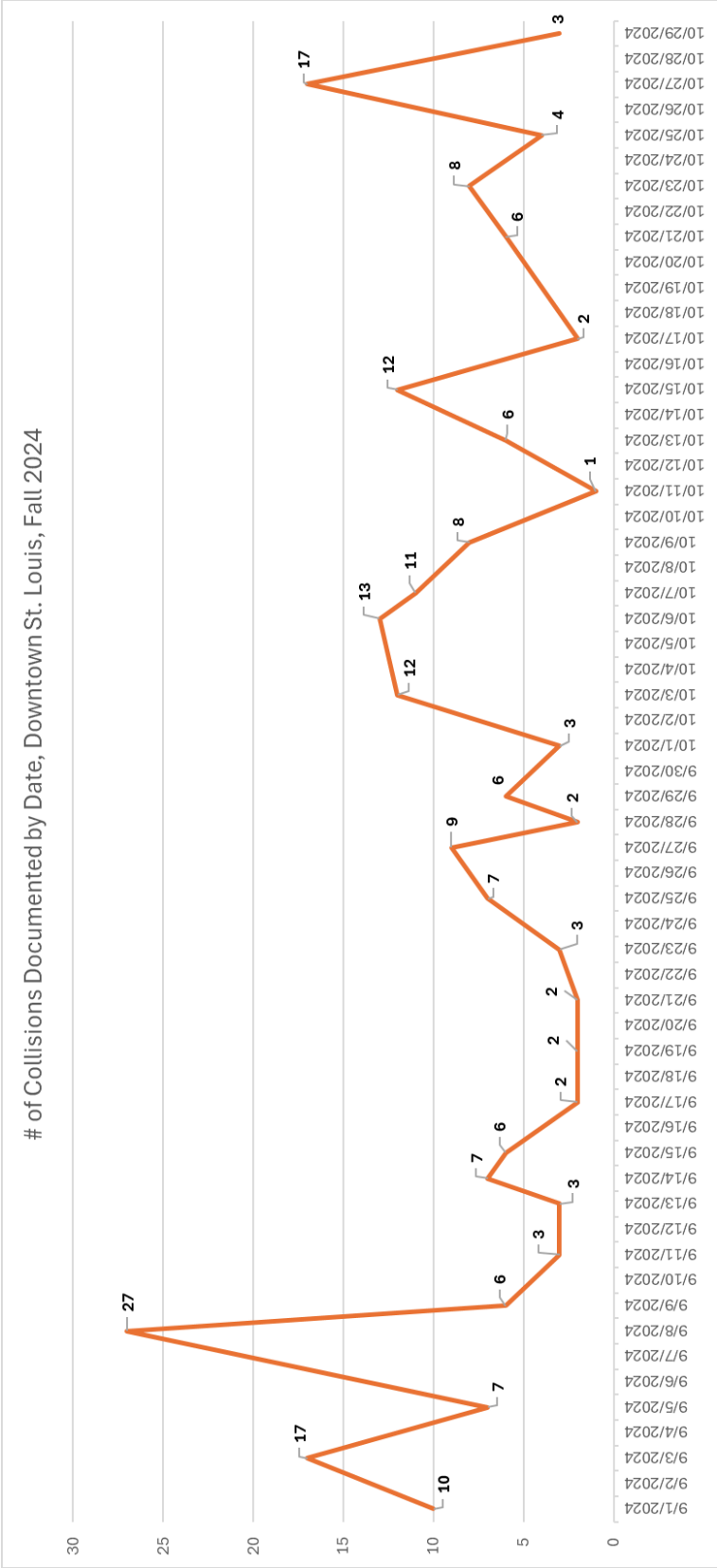
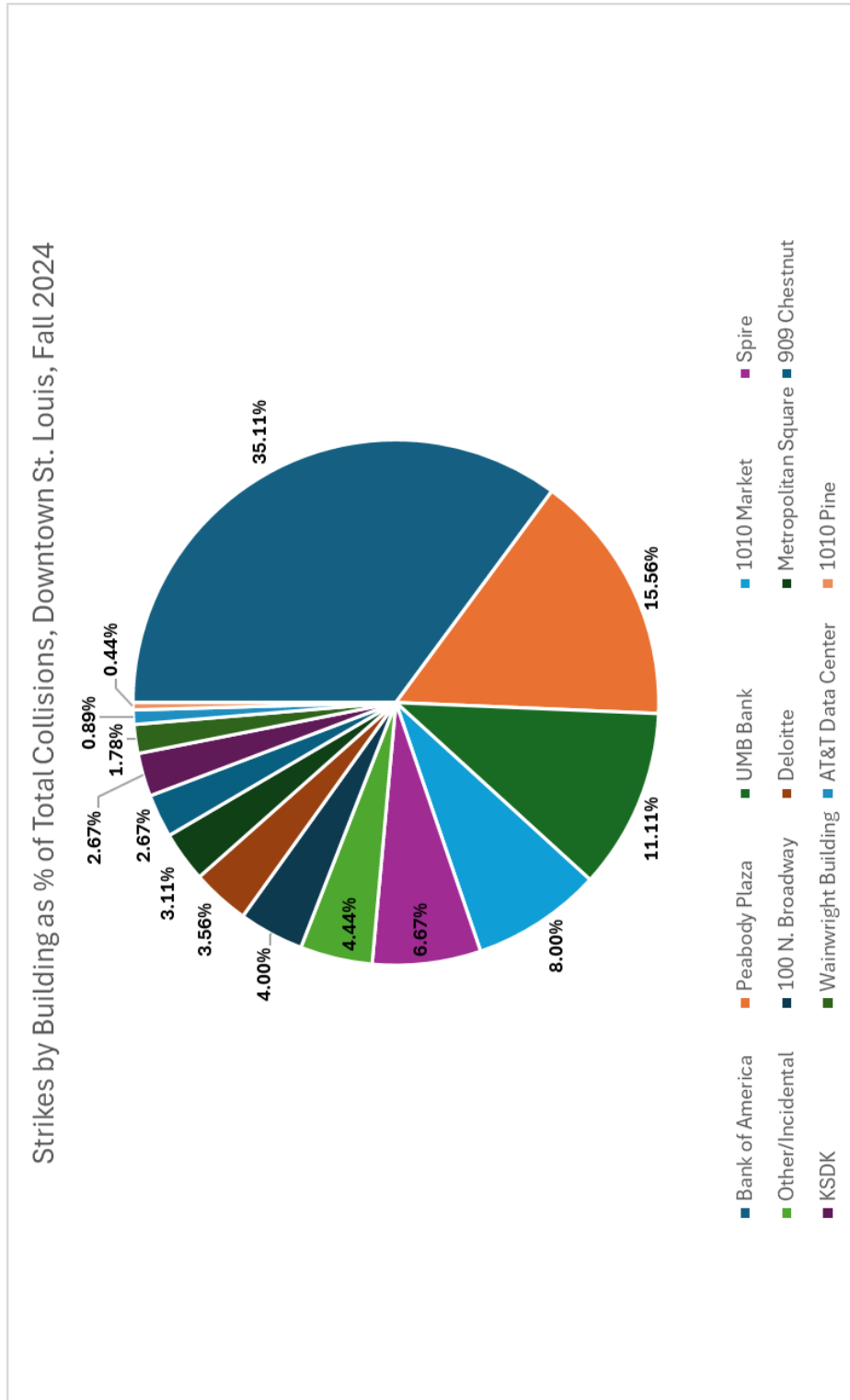


Chart 3: Strikes by Building as % of Total Collisions, Downtown St. Louis, Fall 2024



ⁱ Loss et al. 2014. [Bird-building collisions in the United States: Estimates of annual mortality and species vulnerability](#). *Condor*
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